G E O G R A P H I C I N F O R M A T I O N S Y S T E M S

GIS and GPS Applications Built for Public Works
Programs focus on traffic engineering and road maintenance

Over the last several years the Westchester County Department of Public Works' Divisions of Traffic Engineering and Road Maintenance have been implementing a variety of projects using GIS and GPS while working cooperatively with county GIS staff. These projects include a Computerized Pavement Management System, a Traffic Sign Inventory Program, and an Asset Management Inventory.

In 1996, the Department of Public Works embarked on the establishment of a Computerized Pavement Management System incorporating GIS by using Federal Highway Administration (FHWA) Surface Transportation Program funding which was provided through a grant from the New York State Department of Transportation (NYS-DOT). These funds enabled the county's Department of Public Works, with assistance from the county's GIS staff, to develop a comprehensive, computerized GIS-based

Pavement Management System (PMS) for nearly 180 miles of county-maintained roadways. The system allows road maintenance personnel to establish and determine pavement condition ratings which can be displayed graphically using Arcview. The results have helped guide both preventative maintenance and capital reconstruction activities for the past six years.
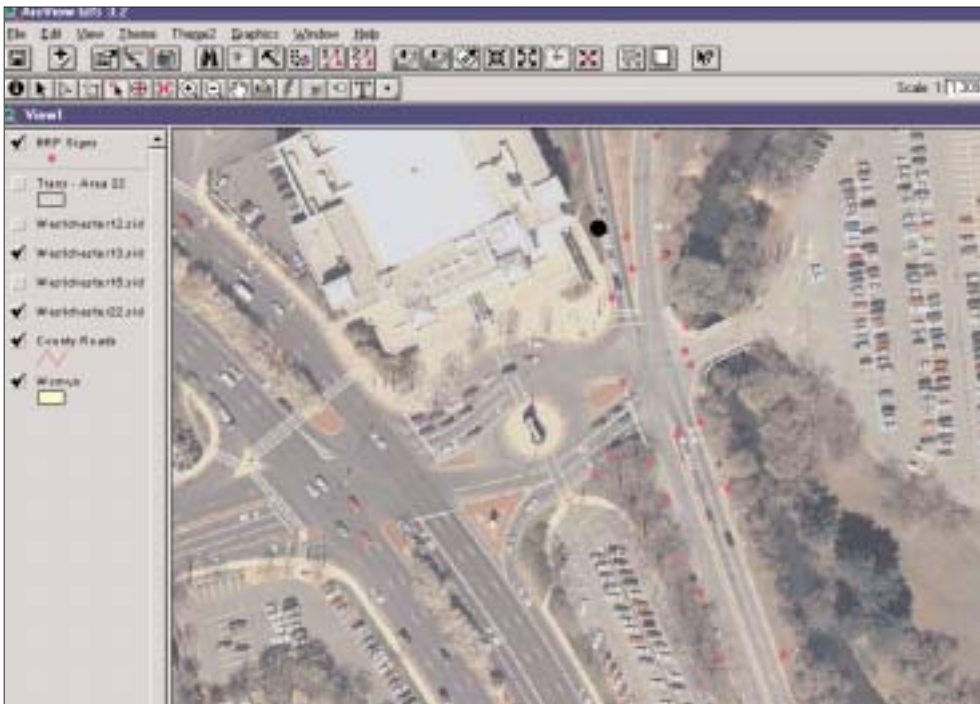
Given the success of the Pavement Management System, the Traffic Engineering Division in late 2000 began a pilot program along the 13.2-mile long Bronx River Parkway for a traffic sign inventory which would incorporate both GIS and field data collected with GPS. The county's project consultant, Greenman-Pederson, Inc. (GPI), selected Cartegraph Systems *SignView* as the primary software package to support the application. In addition to customizing the *SignView* user interface, GPI also developed the data collection strategy and provided

staff training in the use of both the *SignView* software and GPS equipment.

The Road Maintenance Division has also recently initiated a 3 to 5 year program to locate catch basins, curbs and guiderail using a Trimble GeoExplorer III hand held GPS unit. These assets are being inventoried and mapped in ArcView which enables the department to have a clear representation of critical roadway elements it is responsible for maintaining.

"With GIS we are able to keep track of our assets in a much more comprehensive manner enabling our Division to operate more efficiently," states Kevin Roseman, who is coordinating the GIS work in the Department of Public Works.

For more information on these projects, contact Kevin Roseman, Westchester County Department of Public Works at (914) 995-4084 or at *kmr5@westchester-gov.com*.

The BRP sign inventory application involves a "link" between ArcView and Cartegraph's SignView software. Geographic data on the locations of each sign are stored in ArcView, while tabular and image data components (sign type, inspection dates, photographs) are stored in the SignView software.

Westchester GIS User Group

The next Westchester GIS User Group meeting is scheduled for Friday, May 10, 2002 from 9a.m. to 4p.m. in the Natural Sciences Building at SUNY Purchase. Representatives from government, business and academia will be attending. A series of user presentations, vendor displays, and free ArcExplorer workshops are included in the program and an update on the countywide base mapping project will also be presented. Refreshments will be provided throughout the day, while lunch will be "on-your-own" at one of the campus cafeterias. Limited seating is available for the ArcExplorer workshops, so please RSVP. For registration, and for more information on this event, contact Ana Hiraldo at (914) 995-4416 or via e-mail at *aeh2@westchestergov.com*. Users are encouraged to bring maps and posters for display. Watch our website for an updated program agenda, directions, and related meeting information at *http://giswww.westchestergov.com*.

GIS Outreach

GIS staff continue to maintain an active schedule in outreach and coordination with government officials and industry representatives on a wide range of GIS development and implementation issues. In December, GIS staff met with engineers and public works officials from *seven Westchester County municipalities* to discuss alternatives in mapping street and infrastructure features. Sam Wear also attended the *NYS GIS Coordinating Body* meeting in Albany. During January, GIS staff members Xiaobo Cui, Tong Zhou and Ana Hiraldo attended a *Migrating to ArcGIS* seminar hosted by ESRI in New York City. Ana Hiraldo also represented county GIS at the *Westchester County Chapter of the New York State Assessors Association (WCCNYSAA)*. February brought a GIS staff meeting with the *Westchester Land Trust* on open space mapping initiatives and staff from *Rockefeller State Park* on GPS data collection efforts. Sam Wear and other county staff recently met with representatives from both *NYS Department of Transportation and State Police* to review GIS, data, and system integration issues at the Hudson Valley Transportation Management Center.

GIS Staff to Greenwich

After 12 years of service, Greg Sullivan recently left Westchester County GIS to assume the GIS Coordinator position with *Greenwich, Connecticut*. In his new position, Greg will assume the role of computer mapping coordinator for all the town's departments, managing projects related to Land Use and Open Space planning, Wetlands mapping, Global Positioning Systems (GPS) and digital orthophotography. "Westchester County GIS has a strong reputation throughout the Northeast" says Greg, "It was a pleasure to work in such a challenging environment, and I look forward to working with my fellow colleagues on regional GIS projects." Greg can be reached at *GSullivan@greenwichct.org*. Good luck in your new position, Greg!!

GPS Training

On January 22-24th, Mike Popoloski of MapCo (West Milford, New Jersey) provided a three-day GPS training course to county staff. The course focused on the use of Trimble's Pro-XR GPS unit and how to integrate GPS data into the county's GIS database.

In addition to GIS staff, naturalists from the county's parks department were also trained. The parks department will be using GPS technology to map future bike, hiking and walking trails. The naturalists will also be using the technology to map different types of endangered plant life and wildlife species. For more information contact Carrie Keneally at *cek1@westchestergov.com*.

Local Government

Westchester County GIS staff continues to provide valuable assistance to local governments on several GIS projects.
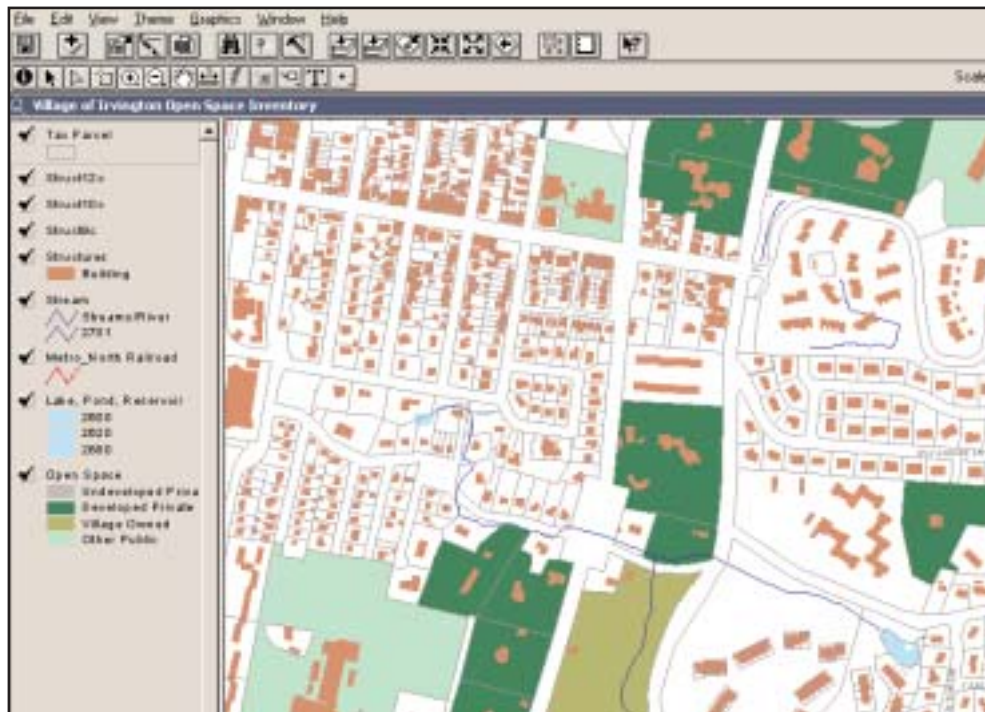
Recently, GIS staff completed a user needs assessment (UNA) study for the *City of Peekskill* and is now working on a similar study for the *Town/Village of Harrison*. County GIS is also currently developing several ArcExplorer projects for the towns of *Greenburgh,* and *Yorktown,* as well as the *City of Mt. Vernon*. Projects will be used for both desktop and web enabled applications. Mt. Vernon also applied for the 2002-2003 New York State Archives and Records Administration (SARA) funding for implementation of the city's user needs assessment. The villages *of Dobbs Ferry* and *Larchmont* have also applied for the 2002-2003 SARA grant to conduct user needs assessment studies.

GIS staff continues to work with the *Bedford Hills Fire Department* on the mapping of fire hydrants using GPS technology. Data will be integrated into a robust desktop system which will include orthophotography and planimetric data from the county base mapping project as well as digital tax maps and other local datasets. Fire hydrants will be coded with unique IDs which will be linked to fire hydrant maintenance logs containing information on water pressure and flow.

City of Yonkers Traffic Engineering staff recently met with the county to discuss the use of countywide base mapping data in support of a highway maintenance and traffic control inventory program along Central Avenue. Staff assisted the *Village of Irvington* in the development of their proposed trailway network using GPS technology. The proposed trailway network links to the village's proposed nature center and Westchester County's South County Trailway. GIS staff also met with the new *Town of Mt. Pleasant* assessor to discuss the development of a townwide GIS based on the findings and recommendations of the town's user needs assessment study prepared by the county.

The towns of *Ossining* and *North Castle* are currently working with a tax mapping contractor on the recompilation of their municipal tax maps. Westchester County GIS was instrumental in this effort by providing orthophotos and planimetric data to the contractor (Weiler Mapping). GIS staff has provided digital data to the *Village of Croton-on-Hudson* for a storm water drainage plan. The *Town/Village of Harrison* and the *City of Mt. Vernon* anticipate using digital orthophotography for the redevelopment of parks in their perspective municipalities.

For more information about GIS in local government, contact Ana Hiraldo at *aeh2@westchestergov.com*.
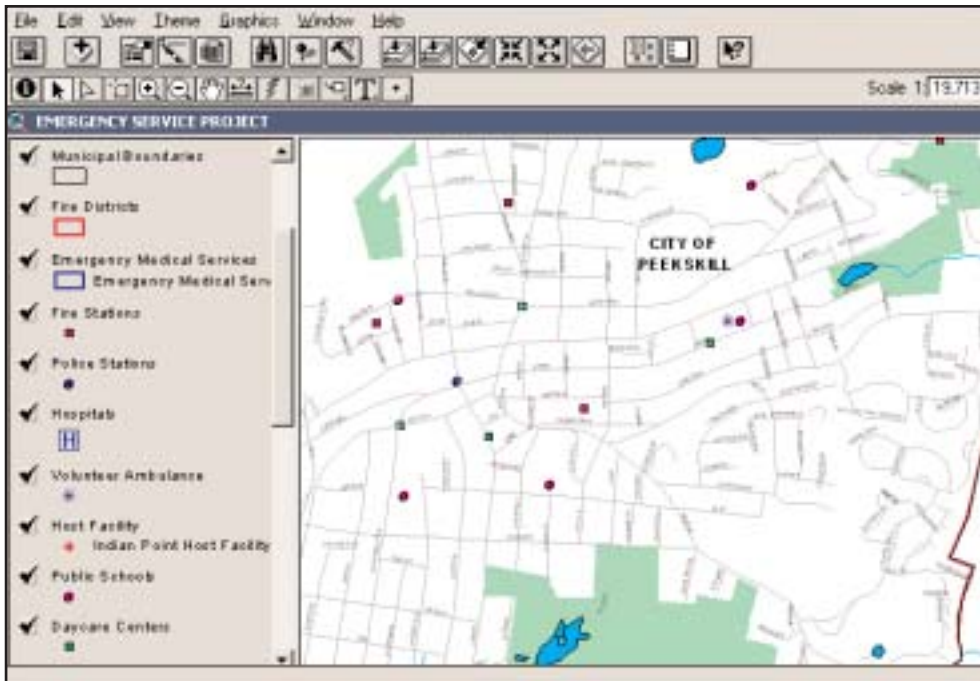

Village of Irvington Open Space Inventory: The county's GIS is working with local governments throughout the county in mapping and developing open space inventories. Central to these inventories is the combination of both digital tax parcel and assessment data which can be used to idenfity ownership and land use classifications. When combined with other GIS coverages, land use patterns and open space corridors become more visually apparent. The above map highlights existing open space parcels in the Village of Irvington. Data from both the village (Greenburgh digital tax parcels) and the county (base map planimetrics) were utilized in compiling the map. All data assembled for this GIS effort can be used for both desktop and web mapping applications.
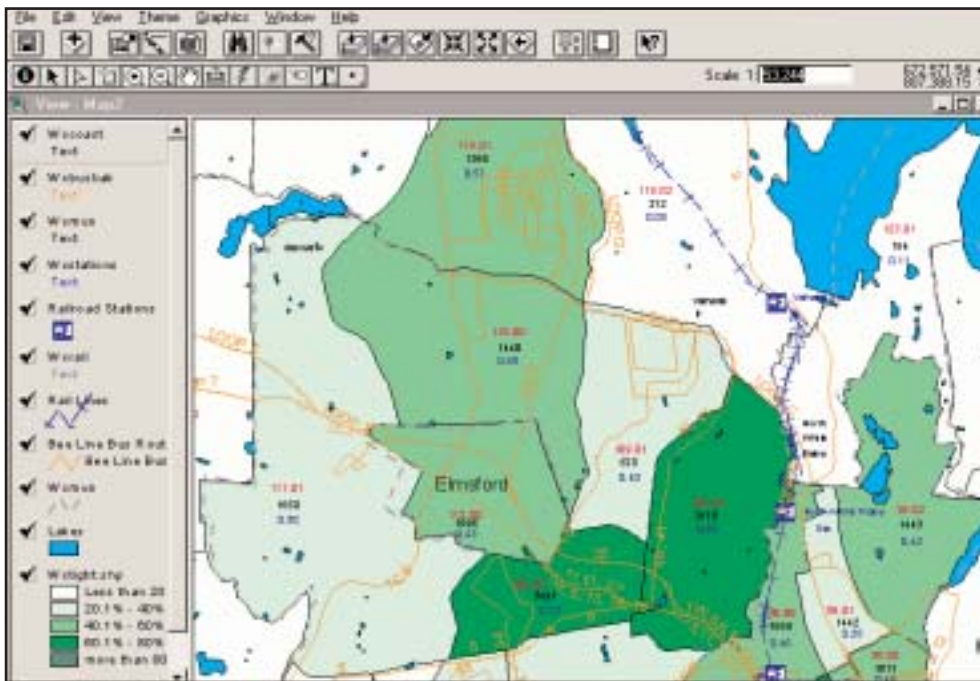
County Government

County GIS staff allocate significant resources in supporting GIS applications in county departments. On a daily basis, GIS is used in the areas of transportation, planning, emergency services, public works, parks and conservation, and public health. GIS map- ping has also been recently utilized by the District Attorney's office. GIS staff provide ArcView training to new users, as well as access to training coursework at the ESRI Virtual Campus. Samples of recent county department's GIS work are presented below.

Dept. of Emergency Services: GIS staff is recompiling the above ArcView project to an ArcExplorer project for Emergency Services staff. In addition to facility and geographic features being maintained and updated in the county's emergency dispatching system, the project is combined with files from the central GIS database. ArcExplorer projects can be used as desktop applications or as "stand alone" on laptops in the field in the event of disruptions to network connections.

Dept. of Transportation: Westchester County's DOT submits system reports of the Bee-Line System to the Federal Transit Administration (FTA) every 3 years. The report, along with accompanying maps, must demonstrate that the Bee-Line System does not discriminate in the provision of transit service throughout the county. Based on Census 2000 statistics, the above map highlights a section of the central part of the county showing census tract boundaries, total minority population, minority percentage of total census track population, and Bee-Line service routes. The concentration of minority populations are highlighted with the varying green colors. For more information contact Ms. Adeola Dokum, WCDOT, at (914)813-7743.

Teachers and Librarians
Learn how to use Geospatial Information Technology in your classroom or library. The Conference on Remote Sensing Education (CORSE2002) is now accepting applications from teachers and librarians who would like to attend this year's conference June 26-29, 2002, and will be held in Auburn, New York. CORSE2002 involves hands-on instruction in the use of Geographic Information Systems (GIS), Global Positioning Systems (GPS), and remote sensing data and software.

Registration is only $250 and includes travel costs to and from the conference, hotel room expenses, most meals, and a Garmin GPS unit. There is also the opportunity to take a 1-credit-hour graduate course from the SUNY College of Environmental Science and Forestry in Syracuse, NY (www.esf.edu) for only $50 (a $350 value). Visit the CORSE2002 web site at *http://www.racne.org/corse* for more information and an application to attend.

Online Tax Parcel Mapping Application Using ArcIMS

In collaboration with Applied Geographics, Inc (Boston, MA), Westchester County GIS has redesigned its existing on-line tax parcel mapping application which is utilized by local governments. The new application is being built with ArcIMS - the latest internet mapping technology from ESRI. The county's current web tax mapping application (*http://giswww.westchestergov.com/isa /Parcels/default.htm*), which provides tax parcel tax for the towns of Yorktown and New Castle, is built with MapObjectsIMS.

The purpose of the application is to provide local governments with a cost-effective option in publishing municipal tax parcel data over the Internet. Without having to invest local resources in Web mapping technology, the county can host all elements (data and software) of the application and provide links with local government Web sites.

The new and revised application allows users to search tax parcel information based on simple criteria such as section, block and lot (SBL) number, parcel address and owner name, or where available, with advanced criteria, such as property code, zoning type and school district. The search result will be shown in an interactive map which can be modified using self-explanatory mapping tools built in the application. A robust buffer function will give users the ability to generate mailing labels of names of adjacent property owners for public notices and announcements. Maps and lists can be saved as files or be printed out for the purpose of including in the notification.

The application is scheduled to be made available to local governments in the next 4-6 weeks. For more information on the application, contact Tong Zhou (*taz2@westchestergov.com*) at (914) 995-3012.

The county's new interactive ArcIMS tax parcel mapping application will enable users to search for properties based on name, section/lot/block (SBL), addresses, and other criteria. The application also includes basic tools such as pan/zoom, adding layers, and printing capabilities. Buffering or "adjacent owner" functions will also enable end users to generate mailing labels for public notices and similar announcements.