

# GEOGRAPHIC INFORMATION SYSTEMS

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## Using Geospatial Technology in Child Welfare Systems

*Department of Social Services works with DoIT to develop GIS tools to improve service delivery*

The Westchester County Department of Social Services (DSS) is working with the County's Department of Information Technology (DoIT) to develop GIS applications that improve service delivery for families and children. GIS tools and maps will assist DSS staff to assess community needs, identify disparities and determine where to better allocate resources based on DSS data relative to where schools, bus stops and trains are located, among many other things.

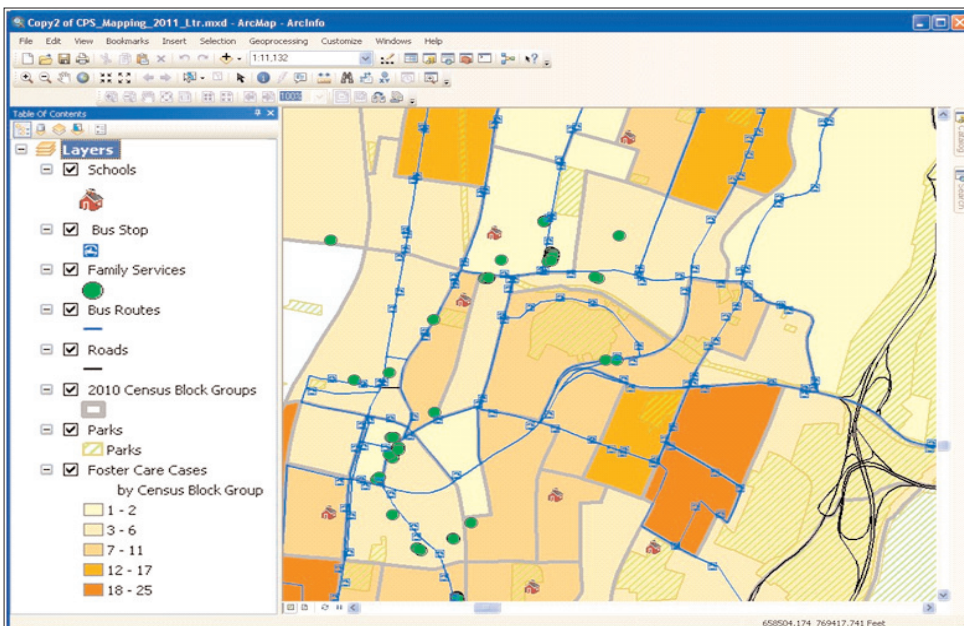
DSS will be able to "zoom" to specific neighborhoods and overlay the Child Welfare databases with the locations of such things as adoption services, child care support, foster care, mental health services, early childhood intervention programs, home or community based services or day care facilities. This will help DSS to identify in an easy visual way

where services are needed and where new services should be located. Basic map making functions, report generation, address matching (geocoding), spatial queries, and providing directions to service provider locations will also be included in the application. Environmental Systems Research Institute (ESRI) ArcGIS 10.0 software will be used to build the application including both server and desktop components.

The initiative has been presented to the Children's Coordinated Services Initiative (CCSI) Committee and the Child Welfare Leadership Forum, as well as to DSS Commissioner Kevin McGuire and Chief Information Officer Marguerite Beirne. Other community agencies and stakeholders have been invited to join a newly created sub-committee to further

develop the mapping of human service themes. This new subcommittee, the Child Welfare Data Mapping Work Group, will make recommendations on how the application might move forward to best meet the needs of all the involved agencies. Recently, the project team met with United Way's 211 Hudson Valley Region to discuss ways to collaborate on the sharing of service provider locations (211 is a resource for the county government, and is often the first place residents turn to for information).

The project team will continue to assemble geospatial datasets and will begin to review options and requirements for geospatial viewers that will support the application. For more information, contact Daphne S. Swinton at [dss7@westchestergov.com](mailto:dss7@westchestergov.com) or Sam Wear at [stw1@westchestergov.com](mailto:stw1@westchestergov.com).



*Geospatial applications in health and human services enable case workers to view program data in context of relevant service provider networks. Other community features such as public transportation and education systems can be considered when considering and making efforts to improve service delivery to program participants.*

### Westchester GIS User Group Meeting

May 17, 2012

Natural Science Building  
Purchase College  
8:30 A.M. - 4:00 P.M.

The next GIS User Group meeting will highlight a wide range of geospatial presentations covering the areas of infrastructure management, emergency services, local government programs, land trusts, and much more, including an in-depth presentation on ArcGIS.com from ESRI staff. Lunch & Learn Lightning talks and afternoon breakout sessions are also on the agenda.

For more information and to register, visit the County GIS website at <http://giswww.westchestergov.com>.

## 2012 Best Practices Award

The County's Homeseeker web site ([www.westchestergov.com/homeseeker](http://www.westchestergov.com/homeseeker)) has been selected for a Best Practices Award of Merit by the County Planning Division of the American Planning Association for providing access to extensive information on fair and affordable housing developments. In collaboration with the Department of Planning and support from Bowne Management Systems, the interactive application shows the locations of affordable housing units in context of local community resources and services including public transportation systems, schools, banks, supermarkets, pharmacies, youth centers, hospitals, libraries, parks, post offices, and houses of worships. The application is also integrated with Google and Bing Maps and offers both oblique and street level views of the properties. For more information contact Xiaobo Cui at (914) 995-3781.

## GeoEspañol

In an effort to provide the growing Spanish speaking population of Westchester County access to GIS tools and data, County GIS has developed a map service to be used with the ArcGIS Explorer Spanish client. The latest version of the application (ArcGIS Explorer 1750) allows users to perform queries by attributes, conduct spatial selections and image georeferencing. (<http://www.esri.com/software/arcgis/explorer/index.html>). Spanish users can create custom maps using the ArcGIS Explorer Spanish interface. Map service data layers include community facilities, census data, and environmental features. Detail instructions on how to access map services and download ArcExplorer in Spanish are available at <http://giswww.westchestergov.com/wcgis/GeoSpanish.htm>.

## Street Centerline Project

Westchester County GIS and the Department of the Emergency Services are currently working with Bowne Management Systems (Mineola, NY) on updating and improving the countywide street centerline file, which is used to support the County's emergency dispatch system built with Intergraph Public Safety (IPS) technology. Implemented in 2000, the underlying street centerline file system is in need of both spatial realignment and the adding/deleting of roads in selected areas. Also, to more closely align maintenance functions to the County's existing ESRI enterprise environment, the County recently migrated its street centerline maintenance software from MicroStation v.5 (Intergraph Cadtools) to GeoMedia v.6.1 (I/Map Editor). Data editing rules and definitions have been finalized and the pilot area is complete. For more information, please contact Ilir Tota at [iat2@westchestergov.com](mailto:iat2@westchestergov.com) or Connor Lynch at [cql3@westchestergov.com](mailto:cql3@westchestergov.com).

## ArcGIS Server Map Services

Services can easily be "mashed-up" in a variety of viewing clients

Westchester County GIS has now published ArcGIS 10 map services which can be consumed by a wide range of desktop and Web clients including ArcGIS.com, ArcGIS Explorer, Google Earth, and AutoCAD. Map service technology makes access and the sharing of geospatial data content easier and more flexible. It allows users - and developers - to access GIS data layers and maps without having to download individual datasets and without the need to establish layer symbology and scales.

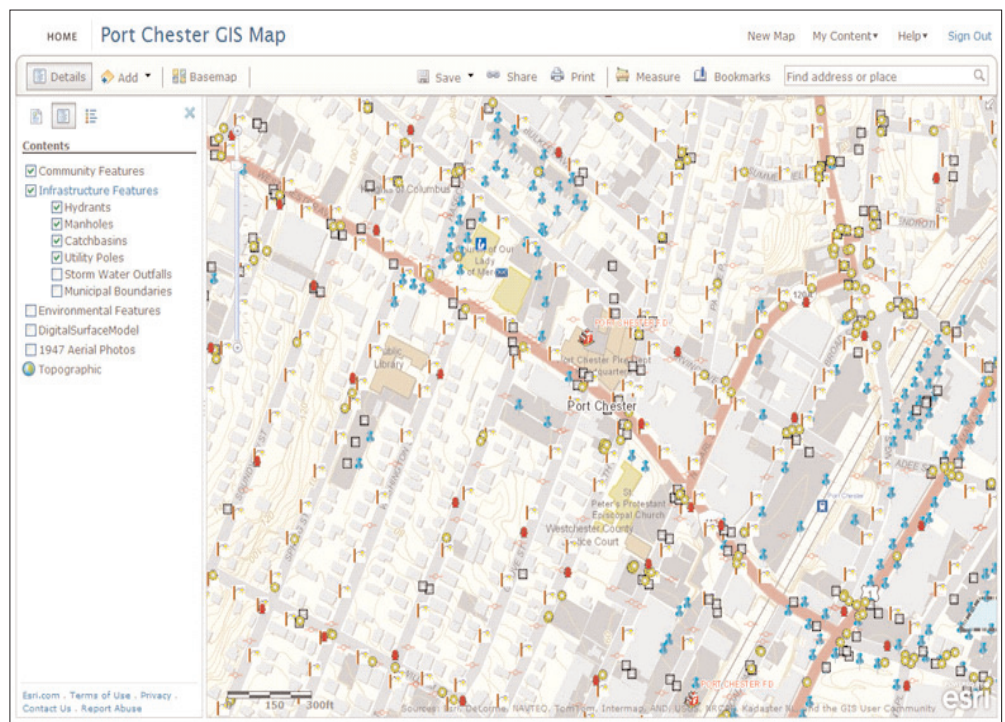
All County GIS map services are created using ESRI's ArcGIS 10 server technology. To enhance performance, most map services have been "cached" at 13 different map scales ranging from 1"=500' to 1"=400,000'. Cached map services include base map features, municipal tax parcels, and aerial photos for 1947, 1960, 1976, 2004, 2007 and 2009, as well as individual services for a Digital Elevation Model (DEM) and Digital Surface Model (DSM).

Other services are published as dynamic map services that offer more flexibility for the user. While these services may not render or draw as fast as cached services, dynamic services allow users to turn on/off and query specific layers included in the service. The most comprehensive dynamic map service being made available by the County is *Mapping Westchester County*

which contains more than 200 layers in the areas of environmental features, community facilities, transportation, service and district boundaries, and census data. The County has also developed "theme" based dynamic map services, including Environmental Features, Community Features and Infrastructure Features. Users and developers can easily add these content-rich map services into their web maps and applications.

AutoCAD users are also able to consume the ArcGIS map services by installing ArcGIS for AutoCAD from the ESRI website. ArcGIS for AutoCAD is a free, downloadable plug-in application for AutoCAD that provides improved interoperability between AutoCAD and ArcGIS. The County GIS website ([http://giswww.westchestergov.com/wcgis/Docs/ArcGIS\\_for\\_AutoCAD.pdf](http://giswww.westchestergov.com/wcgis/Docs/ArcGIS_for_AutoCAD.pdf)) provides instructions on how to install and configure ArcGIS for AutoCAD and how to use county GIS map services within the AutoCAD environment.

The supported interfaces for all county GIS map services are REST, SOAP and the industry standard Web Map Service (WMS). To learn how to access all Westchester County GIS map services, please visit the County GIS website at <http://giswww.westchestergov.com/wcgis/MapServices.htm>. For more information about the map services, please contact Xiaobo Cui at (914) 995-3781.



Map services can be consumed by many "viewers" including proprietary software clients and an increasing number of open source viewers. ArcGIS.com is the new ESRI "cloud" viewer which enables users to "mash-up" local datasets (e.g., shapefiles) with map services and other content.



# Tracking Septic Tank Location Data with GIS

Automated system provides data to several government programs

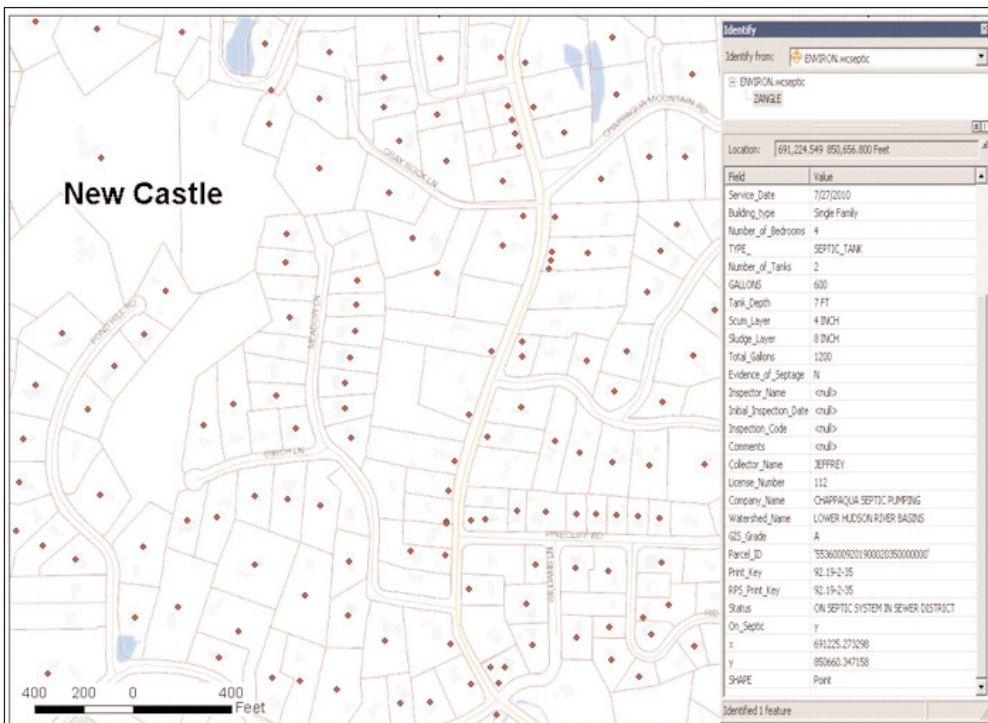
Over the past several months, Westchester County GIS has been building a septic system location database based on information extracted from the Septic Application maintained by the Department of Information Technology (DoIT) Health and Human Services (HHS) support team. Septic system data is generated as registered septic system haulers ([http://health.westchestergov.com/images/stories/realty/solidwaste/septage\\_collector\\_licensesoct2011.pdf](http://health.westchestergov.com/images/stories/realty/solidwaste/septage_collector_licensesoct2011.pdf)) collect data during the septic system cleaning process and submit information to the County to be entered into the database. The septic database includes records of septic pump outs since 2004 – much of which has been geocoded to specific addresses and tax parcels throughout the County.

Working with HHS programmers, GIS staff have been able to create a routine data processing protocol to extract information on individual septic system pump out records including address information and other attributes data such as septic type, number of tanks, size (gallons), inspector name, building type and number of bedrooms. These records are then “scrubbed” and geocoded with the in-house Enterprise Geocoding Service (EGS) which associates an X,Y coordinate (tax parcel centroid value) to each record. Other functions of the EGS application (e.g., specifically the Layer Analysis

utility) then appends other attribute data specific to the property (watershed name and Parcel ID) which is stored in the GIS database. The process results in a spreadsheet that contains X,Y coordinates and attributes from both the septic and GIS database. Ultimately, a GIS “point feature class” is created with ArcGIS tools and published to the County’s enterprise SDE database.

The septic tank location database provides benefits to several groups and organizations. For example, New York City Department of Environmental Protection (NYCDEP) accesses the data via a secured internet data download portal which allows NYCDEP staff to generate different septic management system reports at any time.

Ongoing efforts are being made to improve the overall quality of the septic system database both in completeness and spatial accuracy including the updating of local government digital tax maps (which is the source of the parcel centroid X,Y value) to the monitoring of data collected by the septic haulers (such as the recording of the correct zip code which improves the quality of the geocoding match rate). It is anticipated the septic tank database will be updated as a GIS data layer every six months. For more information, contact Dongming Tang at [dqt3@westchestergov.com](mailto:dqt3@westchestergov.com)



Depending on the quality of address information obtained from the septic haulers, EGS geocodes the data to either tax parcel centroids or street centerline files. Dots in the image above highlight properties which have been pumped as well as some of the other data collected by the hauler.

## Tax Parcel Viewer Updates

Westchester County GIS has successfully migrated the Municipal Tax Parcel Viewer to ArcGIS Server 10 and upgraded to the new JavaScript API. The newly released viewer has a number of enhanced features, which include integration of map services, auto-complete function for “search by owners”, and an enhanced query function for adjacent parcels. The new viewer also includes six additional data layers including flood plains, steep slopes, hurricane storm surge zones, tidal wetlands, NYS regulated wetlands and land use. Since the publication of the last GIS newsletter (Fall 2011), several more municipalities have been integrated to the Municipal Tax Parcel Viewer and new data has been updated for others. To access the viewer or for the full list of the available municipalities, please visit the County GIS website. For more information, please contact Connor Lynch at (914) 995-6532 or Zhenglu Zhang at (914) 995-5347.

## Upcoming GIS Events

In addition to the Westchester GIS User Group Meeting on May 17th at Purchase College, several other GIS conferences and workshops are planned in the next several weeks including: 2012 NYS GIS Conference, May 15-16, Syracuse, NY (<http://www.esf.edu/nysgisconf/>); Spring NEARC Meeting, May 22nd, Smith College, Northampton, MA (<http://www3.amherst.edu/~aanderson/nearc/schedule2012.html>); 2nd Annual NYCARC User Group Symposium, June 22nd, Federal Plaza, New York City (Steve Pollackov at [pollacks@fdny.nyc.gov](mailto:pollacks@fdny.nyc.gov)).

## Bedford Ridgelines

Westchester County GIS has provided mapping support to the Town of Bedford Conservation Board which is working to prepare a digital map of the ridgeline preservation areas in the Town. Recently the Town passed a Ridgeline Protection ordinance designed to preserve prominent hilltops, ridgelines and plateaus. GIS staff has produced a series of prototype maps which include steep slopes and two-foot contour lines to help identify areas of interest or “Ridgeline Preservation Areas”. These areas are defined as “lands 100-feet back from prominent hilltops, ridgelines or plateaus with a slope of at least 25%, and other such topographic features that are visible from a public property, roads open to the public or other areas open to or accessible to the public, the development of which may impact scenic views.”. For more information, contact Connor Lynch at [cql3@westchestergov.com](mailto:cql3@westchestergov.com) or David Beckett (Town of Bedford Conservation Board) at [david.beckett@urs.com](mailto:david.beckett@urs.com).

Articles and graphics in this newsletter prepared by: Xiaobo Cui, Ana Hiraldo-Gomez, Connor Lynch  
Cynthia Marx, Deborah Parker, Dongming Tang, Ilir Tota, Sam Wear, and Zhenglu Zhang.



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## Local Government Geospatial Projects are Many

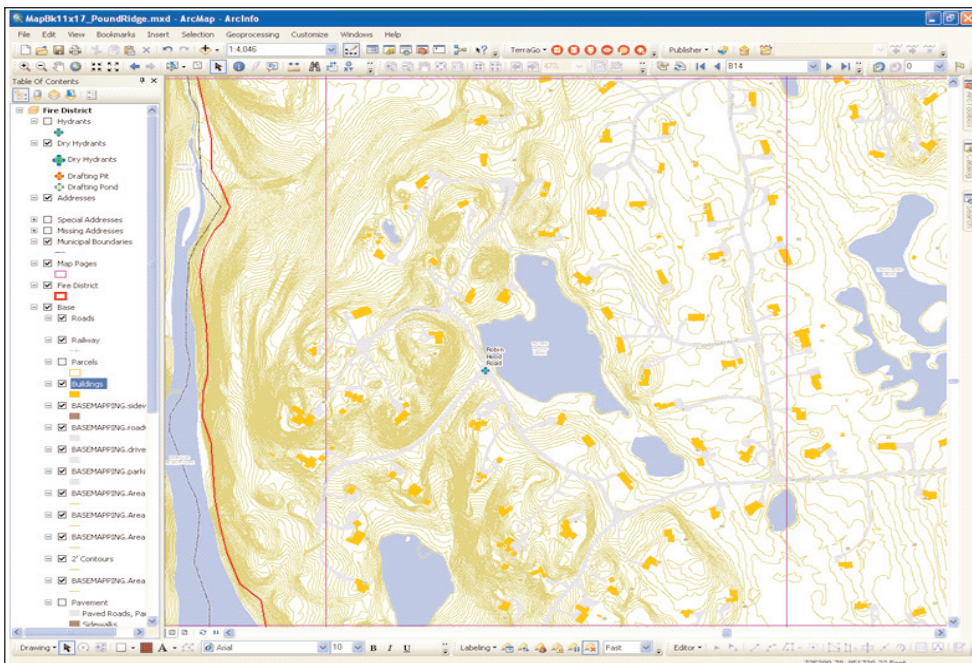
Westchester County staff continue to collaborate with local governments on initiating cost-effective geospatial projects. Over the past several months, discussions have been held

with Pound Ridge, Peekskill, Briarcliff Manor, Buchanan, Mount Kisco, Harrison, North Castle, Mamaroneck(T), Pleasantville, Pelham, New Castle, Eastchester and the

Somers Ambulance Corps. With regard to selected projects, GIS staff has been assisting the Pound Ridge police and fire departments and ambulance corps on data collection and mapping efforts as the rural landscape of Pound Ridge presents several challenges to these emergency service programs. Digital and hardcopy maps with the locations of dry hydrants, access points to rural water bodies, driveways with steep topography, and the locations of large (private/commercial) propane tanks are in development.

Assistance with the inventorying and mapping of storm water infrastructure features continues to be a priority for Mount Kisco, Pelham, Pleasantville and Buchanan as it relates to MS4 compliance. In cooperation with the County's Planning Department, GIS staff is assisting the Town of New Castle with the publication of a new zoning map.

County staff also provides assistance with desktop clients such as ArcGIS and Google Earth and are now publishing a map services in Spanish which is intended to be used with the ArcGIS Explorer Spanish client (<http://giswww/wcgis/GeoSpanish.htm>). For more information contact Sam Wear at (914) 995-3047 or Connor Lynch at (914) 995-6532.



A screenshot of the map being made for the Pound Ridge Ambulance Corp and Fire Department. Map includes dry hydrants that were recently collected by the Pound Ridge Fire Department using GPS and 2' contours included to help emergency responders identify steep driveways.