18th Annual New York State *Geographic Information Systems Conference*

"A Very Spatial Conference"

October 10-11, 2002
Holiday Inn, Liverpool, New York

Sponsors

Central NY Region of the American Society for Photogrammetry and Remote Sensing
State University of New York College of Environmental Science and Forestry
New York Statewide GIS Coordination Program

GIS tools help solve real world problems in all kinds of areas today, including facilities management, transportation, utilities, environmental protection, health care and epidemiology, land use planning, marketing, conservation, business strategic planning, engineering, education, social services, economic development, and more. Starting eighteen years ago with a small gathering of early GIS users, the New York State GIS Conference has become a major GIS professional development opportunity for hundreds of GIS users in the state. The conference is a great place to discover how New Yorkers are using GIS to accomplish important objectives in the public and private sectors. Technical presentations feature working professionals who share their GIS experiences and solutions in dealing with real world problems like yours.

Meet fellow New Yorkers active in the GIS field, exchange information and experiences, and seek solutions to your geographic data management needs. Professional networking opportunities help you develop a network of fellow GIS users which can continue through the years. In the exhibit area, GIS vendors and consultants display the latest in GIS hardware, software, analytical techniques, and services.

Keynote Speaker: This year's keynote speaker will be James R. Plasker, Executive Director, American Society for Photogrammetry and Remote Sensing. Jim will address the issues surrounding certification of GIS Professionals.

Banquet Speaker: This year's keynote speaker will be John Calkins, ESRI.
Presentation: *CBS's "The District" Teaches Geographic Thinking & Crime Analysis*

CBS's "The District" is the first prime time television series to feature GIS and crime analysis weekly. Each episode illustrates examples of how GIS can be used to assess and solve a variety of crimes and other public safety issues. While the television show is fictional, the data and much of the analysis are real. This presentation will take a behind the scenes look at the crime analysis examples of "The District 2000- 2001". (ESRI). Mr. Calkins was the GIS technical consultant for the CBS hit show, "The District" during its' first season.

General Information

Call for Papers: Papers and poster presentations are invited from all members of New York's GIS community. Presentations on any topic of interest to the GIS community are invited. Submit abstracts to Horace Shaw at ESF Continuing Education.

Exhibits: Exhibit booths are available to GIS software and hardware vendors, consulting firms, agencies, and nonprofit organizations. Please indicate your interest in exhibiting on the response form to receive full information. Or, for more information, contact Horace Shaw at (315) 470-6891 or hbshaw@esf.edu. Exhibitor information will also be updated on the website.

Job Exchange: Bring resumes and position descriptions to the conference to be posted.

GIS Partnerships Award: The New York State Coordination Program is happy to announce the Third Annual GIS Partnerships Award. Details will be added to the website.

Pre-Conference Workshops: *Pre-registration required!* Come a day early for a day-long workshop on Wednesday, October 9, on ERDAS Imagine software at SUNY-ESF (hands-on/limited enrollment). Several pre-conference workshops are scheduled Thursday morning, October 10, including Introduction to GIS/GPS (hands-on/limited enrollment), GIS Basic Training: Implementing GIS in Your Organization, 3D GIS: Visualization and GIS Query for Complex Urban Environments with TerraSim; and GIS on the Internet with Applied GIS. The State GIS program will hold three work group meetings: Local Government; Standards and Data Coordination; and the Clearinghouse.

Last Year's Conference

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Last Year's Conference

18th New York State Geographic Information Systems Conference
Preliminary Program

Wednesday, October 9, 2002

8:30 - 3:30 **ERDAS Imagine Workshop** *156 Baker Lab, SUNY-ESF*

Thursday, October 10, 2002

7:00 am **Exhibit Set-up** *Convention B,C,D*

8:00 **Registration Opens**

9:00-Noon **Pre-conference Workshops**

GIS Basic Training Workshop
3D GIS Tutorial: TerraSim
Introduction to GIS/GPS Workshop
GIS on the Internet Workshop: Applied GIS
Standards and Data Coordination Workshop

10:30 **Local Government Advisory Council**

11:00 **Exhibits Open**

Noon **Lunch** *(additional cost)*

1:00pm **Conference Opening and Welcome**
Keynote Speaker: Jim Plasker

GIS-NY: State Geographic Information Center

3:00 **Break**

3:30 **Concurrent Sessions**

Session 1A: GIS and Transportation

Spatial Warehouse and Intranet Bring New Technologies and Information to NYCDOT, *John Griffin*, NYC Department of Transportation, Management Information Systems and *Richard Annitto*, Vice President, Bowne Management Systems, Inc.

Managing the NYS Canal System with GIS and GPS Technology, *Eric Herman* and *Jay Holbrook,* New York State Thruway Authority

City of Buffalo, NY - Route Optimization, *Robyn Cierniak*, Stearns & Wheler LLC, Amherst, NY

Session 1B: GIS in Education

Beyond Gameboy: Grades 12, 6 & 1 Meet GST!!, *Ann Moore* , Coordinator, New Visions Environmental Science Program, Cayuga - Onondaga BOCES, and *Alison Sprouse-Mastroe*, Teacher on Special Assignment, Homer Central School District

TBA, *Karen Kwasnowski*

Using GPS to Promote the Interpretation of Topographic Maps, *Jim Kuhl*, 6th Grade Earth Science Teacher, Central Square Middle School

Session 1C: GIS and the Environment

Using GIS to Examine On-site Septic Systems as a Potential Pollution Source in the Cannonsville Reservoir Basin, NY, *Laurence Day,* Soil and Groundwater Specialist, Delaware County Soil and Water Conservation District

Using GIS for a Thruway-Wide Noise Study Initial Screening, *Betsy Monczka*, Bergmann Associates, Inc. P.C.

Environmental Investigation of Areas of Elevated Cancer Incidence Across New York State, *Scarlett Messier*, Research Scientist, NYS Dept. of Health

Improving the Quality of Soil Survey Information Using Digital Elevation Models, *Nick Colas*, Cayuga County Department of Planning and Development

Session 1D: GIS Certification, Licensure & Regulation

GPS Data Collection – Surveying without a License?, *Sara Frankenfeld*, GIS Administrator, Warren County Planning Department

The NYSAPLS Standpoint, *Daren L. Morgan, P.L.S.* , LaFave White & McGivern LS PC

TBA, *Jim Plasker*

TBA, *OFT Lawyers*

5:30 **Reception, Exhibits and Poster Session**

Development of a Desktop GIS for the Bedford Hills Volunteer Fire Department, *Josephine Amato*, GIS Consultant and *Laura McGinty*, GIS Specialist, Westchester County GIS

EA Engineering, Science and Technology, Inc., *Donald Chinery*, GIS Specialist, EA Engineering, Science and Technology, Inc.

Redesign of the Westchester County GIS Web Site: eMap with ArcIMS, *Xiaobo Cui,* Assistant GIS Manager, Geographic Information System, Department of Information Technology, Westchester County

Using GIS to identify potential locations for the establishment of Wind-Powered Generators, *Dale A. Dempsey*, Associate Professor (Director GIS Program), Sullivan CCC

Municipal On-Line Mapping Applications, *Ana Hiraldo*, Westchester County Geographic Information Systems (GIS), Department of Information Technology

GIS and Public Safety Applications in Westchester County, New York, *Ariane Porter*, Software Architect, Westchester County Geographic Information Systems (GIS), Department of Information Technology

Examples of Spatial Data Products from the Westchester County, New York Base Map, *Krysia Sapeta*, C.P., Senior Project Manager, Sanborn Mapping, Colorado and *Sam Wear***,** GIS Manager, Westchester County GIS

Geospatial Modeling in Probabilistic Risk Assessment, *William Thayer[1, 2], Philip Goodrum[1], Gary Diamond[1]* and *James M. Hassett[2]*, [1]Syracuse Research Corporation, [2]Faculty of Environmental Resources and Forest Engineering, SUNY-College of Environmental Science and Forestry

The Cornell University Geospatial Information Repository (CUGIR)*, Elaine Westbrooks*, Metadata Specialist, *Jon Corson-Rikert*, Senior Programmer/Analyst, and *Jaime Martindale*, CUGIR Project Manager, Albert R. Mann Library, Cornell University

Delivery of Digital Tax Parcel Data Over the Internet with ArcIMS*, Tong Zhou*, Software Architect, Westchester County Geographic Information Systems (GIS), Department of Information Technology

Development of the Westchester County Community Facility Locator with ArcIMS*, Tong Zhou*, Software Architect, Westchester County Geographic Information Systems (GIS), Department of Information Technology

7:00 **Banquet**

Friday, October 11, 2002

7:15 am **Continental Breakfast**

7:30 **NY ArcInfo Users Group**, *Sam Wear*

8:00 **Concurrent Sessions**

Session 2A: GIS and Emergency Preparedness

G.I.S. in Fire/Emergency Services, *Myron Messak* and *Lt. Garth Hillier*, Fulton County Sheriffs Dept

An Outage Predictive Model for Electric Power System during Hurricanes, *Haibin Liu, Rachel Davidson,* and *David Rosowsky*, Cornell University

GIS Oriented Emergency Vehicle Routing and Restoring, *Md. Shahid Uz Zaman, Yoshitaka Matsuda* and *Hayao Miyagi*, Graduate School of Engineering and Science, University of the Ryukyus, Okinawa, Japan

Session 2B: Uncloaking the Black Box: Spatial Interpolation

Art Lembo, Cornell University
Barry Blanchard, Intergraph
Mark Scott, ESPRI

Session 2C: User Applications

Dig Safely New York: A GIS-Based Application, *Jeff Volpe*, Bergmann Associates

The Nassau County Assessor- Ready for the 21st Century, *Richard R. Slutzah,* P.E., Senior Vice President, Bowne Management Systems, Inc.

"Are You Sure Staten Island is 99 Miles from The Bronx?": The Role of GIS in Investigating Medicaid Fraud, *Bob Franklin*, Electronic Investigative Support Group-Medicaid Fraud Control Unit, NYS, Office of the Attorney General

Session 2D: GIS in Public Outreach

LEAPE: Resource Information Technologies for Nonpoint Source Pollution Control Education, *Deborah G. Grantham*, Senior Extension Associate, Water Resources/Geophysics, USDA State Extension Water Quality Coordinator, Department of Crop and Soil Sciences, Cornell University, *Stephen D. Smith, Eugenia M. Barnaba*, and *Amy E. Galford*, Cornell Institute for Resource Information Systems, Cornell University

Examining the Need for a New York State Land Use and Land Cover Work Group, *Ed Freeborn*, New York State Technology Enterprise Corporation (NYSTEC)

9:20 **Concurrent Sessions**

Session 3A: GIS In Syracuse: A Paradigm Shift

SyraStat: The Future of Municipal Government, *Collin P. O'Mara,* SyraStat, City of Syracuse

NPS Pollution and GIS, *Elizabeth Coyle*, NYS DEC

Onondaga County Department of Water Environment Protection: Integration of GIS with a Computerized Maintenance Management System for Sewer and Manhole Maintenance Tracking, *Timothy Taber*, Stearns & Wheler LLC

Session 3B: Environmental Modeling

GIS as a Platform for Environmental Modeling, *James Zollweg,* Associate Professor, SUNY Earth Sciences, Brockport
Optimizing the Riparian Buffer in the Skaneateles Lake Watershed, New York, *Zevi Azzaino*, Cornell University *DeMay* and *Sinton*, Alfred University

Session 3C: Uncloaking the Black Box: Coordinate Transformation
Paul Hopkins, SUNY-ESF

Session 3D: GIS in Community Colleges
The NASA Sponsored Model Curriculum for Geoworkforce Development, *Art Lembo,* Cornell University and *Michelle Aten*, University of Mississippi
Teaching GIS in a Two Year College: The CCC Experience, *Abu Badruddin*, Assistant Professor of GIS, Cayuga Community College

TBA, *Mike Courneen*

10:30 **Break**

11:00 **Concurrent Sessions**

Session 4A: Enterprise GIS
Annual Report on the NYC GIS Utility, *Jim Hall*, Project Manager / Executive Consultant, PlanGraphics at NYC GIS Utility
Nassau County GIS Successfully Migrates Enterprise GIS to Support e-Government, *Joseph T. Jones, CDP*, NCGIS Coordinator
Pictures From A Rural County GIS Program, *Marybeth Vargha*, GIS Coordinator, Otsego County

Session 4B: Remote Sensing
Spatial Pattern Analysis of Ice Storm Damage within Eastern Adirondack Forests
Andrew A. Millward, Department of Geography, University of Waterloo, *Clifford E. Kraft,* Department of Natural Resources and *Arthur J. Lembo Jr.,* Department of Crop and Soil Science, Cornell University
Ordering Digital Imagery - ASPRS' Role in Developing Guidelines to Facilitate the Process, *Gerry Kin*, Emerge
Integrating Landsat Imagery and Geographic Data for Land Cover Change Detection in Westchester County, NY, *Francesca Pozzi,* Center for International Earth Science Information Network, Columbia University, and *Sam Wear*, Westchester County GIS

Session 4C: Uncloaking the Black Box: Cartographic Modeling
Abu Badruddin

Roundtable Discussion
Should There be a New York GIS Advisory Council?, *Sam Wear*, GIS Manager, Westchester County GIS

12:15 pm **Lunch**

1:30 **Concurrent Sessions**

Session 5A: GIS on the Internet
Evolution of PMI (Photo and Mapping Index) as a Web-Based Information System for NYSDOT Photogrammetry Projects, *Jeff Barth*, Mapping Technologist 3 and *John Thomack*, Mapping Technologist 3, New York State Department of Transporation
New York State Department of Transportation Web-Based Geodetic Control Information System, *Peter Fisk*, Senior Engineering Technician and *John Thomack*, Mapping Technologist 3, New York State Department of Transportation
Map DEC - Information for the Public, *Eric Shyer*, DIS GIS Unit, NYS Dept. of Environmental Conservation

Session 5B: Vendor Session
ArcGIS 8.3 - What's New, *Chris Nickola*, ESRI-Boston
The Use of Large Scale Orthophoto and Raster Imagery in GIS and CAD Applications and Internet Map Server Applications, *George Davis*, President, Davis Associates Inc
TBA, *Barry Blanchard*, Integraph

18th New York State Geographic Information Systems Conference
Submitted Abstracts

Poster abstracts:

Development of a Desktop GIS for the Bedford Hills Volunteer Fire Department

Josephine Amato, GIS Consultant and *Laura McGinty*, GIS Specialist, Westchester County GIS, 148 Martine Ave. Rm305, White Plains, New York 10601 [Email: jja9@westchestergov.com; lam7@westchestergov.com; Email: http://giswww.westchestergov.com]

With the increased availability and accessibility of geospatial data, combined with user-friendly mapping software, local fire departments in Westchester County are becoming involved in the use of Geographic Information Systems (GIS). Working closely with members from the Bedford Hills Volunteer Fire Department, Westchester County GIS staff have a comprehensive ArcView 3.2 application which includes detailed planimetric and orthophotography from the county's recent base mapping project, as well as local tax parcel boundaries, and other county GIS coverages One of the most important elements of the was the county's assistance in mapping fire hydrant locations with GPS. The mapped hydrant locations have been linked to other databases being maintained by the fire department. The system will also have preformatted mapping templates and the ability to geocode addresses. Overall, the easy-to-use desktop system developed by Westchester County GIS will provide members of the Bedford Hills fire department access to accurate and valuable information used in fire and emergency response operations.

EA Engineering, Science and Technology, Inc.

Donald Chinery, GIS Specialist, EA Engineering, Science and Technology, Inc., 3 Washington Center, Newburgh, NY 12550 [Phone: (845) 565-8100; E-mail: dchinery@eaest.com]

EA Engineering, Science and Technology has collected an extensive amount of environmental data pertaining to various sites across the United States. One location in particular is the Naval Air Station in Brunswick, Maine. EA has worked with the US Navy since 1995 collecting soil and ground-water samples pertaining to various pollutants, including volatile organic compounds (VOC). This presentation will display a site location map as well as several contour and 3-D visualizations of the collected data. The interpretation of groundwater and soil data requires both a spatial and temporal analysis for capturing and removing contaminants. Tracking these changes over time and space enabled users to compare results to water and soil standards. Data has been stored in a Microsoft Access database and graphical presentations were completed by linking the data to GIS software. The software used was ArcView 3.2 (Spatial Analyst and 3-D Analyst extensions) and ArcInfo 8.0. A clearer understanding of complex chemical data sets using GIS software will facilitate important environmental decisions now and in the future.

Redesign of the Westchester County GIS Web Site: eMap with ArcIMS

Xiaobo Cui, Assistant GIS Manager, Geographic Information System, Department of Information Technology, Westchester County, New York, 148 Martine Ave, Room 305, White Plains, NY 10601 [Phone: (914)-995-3781; Fax: (914)-995-3269; Email: xxc1@westchestergov.com]

Westchester County GIS, in collaboration with ESRI, is nearing completion of a complete redesign of county's interactive web mapping application labeled "eMap", the application which allows users to chose either Internet Explorer (IE) or Netscape to interactively explore, view, query, and map dozens of core Westchester County GIS data layers.

Successfully modeled after the U.S. Housing and Urban Development (HUD) web site and user interface, the application thematically groups data into five major areas: Land Use and Environmental, Districts, Facilities, Transportation and 2000 Census. Users can select to view specific areas of the county based on geographic name, school or fire districts, zip code boundaries, and other common units of geography. Address matching is also embedded into the application. A simple graphical user interface permits non-technical users to close and open the GIS categories, turn on/off GIS data layers, and to access metadata and print out maps.. The application was developed using ESRI's ArcIMS 4.0 on Windows 2000 with Internet Information Services 5. The GIS database supporting the new eMap application is the ESRI Geodatabase using Oracle 9i and ArcSDE 8.2.

Using GIS to identify potential locations for the establishment of Wind-Powered Generators

Dale A. Dempsey, Associate Professor (Director GIS Program), Sullivan CCC, 112 College Road, Loch Sheldrake, NY 12759 [Website: http://www.sullivan.suny.edu]

The arcview GIS was used in combination with a wind flow model and the Statistical Package for the Social Sciences (SPSS) to undertake a constraint analysis which had as its result the optimum locations for the construction of wind-powered generating stations in the city of Sudbury,

Ontario, Canada. Data used in the investigation included, hourly wind data spanning fifty years, a 25m DEM of the Sudbury area, the electrical power grid including substations, road network and hydrology. Computed data included wind velocities at 10m elevation intervals, sound wave propagation buffers and visual pollution buffers. The project findings resulted in the funding of a 75 million dollar construction contract to build 50 wind-powered generators in the area.

Municipal On-Line Mapping Applications

Ana Hiraldo, Westchester County Geographic Information Systems (GIS), Department of Information Technology, 148 Martine Avenue, Room 305, White Plains, NY 10601 [Phone: (914) 285-4416; Fax: (914) 285-3269; E-mail: aeh2@westchestergov.com]

For over a decade Westchester County GIS staff has been providing technical support, consulting services, training, and other GIS related services to local municipalities. Recently the County has extended these services and is now providing local governments on-line municipal mapping applications. Many of these on-line applications give local municipalities the opportunity to provide to their residents quick and easy access to general information about their community**.**

The poster illustrates several of the Examples of the on-line mapping applications including the towns of ***Greenburgh***, ***Yorktown***, and ***City of Mt. Vernon***.

GIS and Public Safety Applications in Westchester County, New York

Ariane Porter, Software Architect, Westchester County Geographic Information Systems (GIS), Department of Information Technology, 148 Martine Avenue, Room 305, White Plains, NY 10601 [Phone: (914) 995-3371; Fax: (914) 995-3269; Email: agp1@westchestergov.com]

Westchester County GIS is currently supporting database and application development efforts in several areas relating to public safety and emergency response. Utilizing various software environments, including ArcView 3.2, ArcExplorer 4.0 Java Edition, and ArcIMS 4.0, applications are being deployed for both web and desktop use. This poster will illustrate applications in the Department of Emergency Management with specific reference to the emergency dispatching (60 Control) and emergency response planning for the Indian Point Nuclear Power Plant.

Examples of Spatial Data Products from the Westchester County, New York Base Map

Krysia Sapeta, C.P., Senior Project Manager, Sanborn Mapping, 1935 Jamboree Drive, Colorado Springs, CO 80920 [Email: ksapeta@sanborn.com] and *Sam Wear***,** GIS Manager, Westchester County GIS, 148 Martine Ave, Room 305, White Plains, NY 10601 [Email: stw1@westchestergov.com]

In 1998, Westchester County began planning for the development of the first-ever, digital, high-accuracy (1’ = 100’) base map of the entire county. Covering the entire 486-square miles of the county, the project was designed to produce digital products which could be used and integrated into a growing number of government GIS applications including land use and environmental planning, emergency dispatching, transportation, infrastructure management, tax mapping, and health and human services, etc. With the project recently completed, this poster will highlight examples of the various digital products developed by Westchester County GIS and Sanborn Mapping, Inc.

Geospatial Modeling in Probabilistic Risk Assessment

William Thayer[1, 2]*, Philip Goodrum*[1]*, Gary Diamond*[1] and *James M. Hassett*[2], [1]Syracuse Research Corporation, 6225 Running Ridge Road, North Syracuse, NY 13212, [2]Faculty of Environmental Resources and Forest Engineering, 312 Bray Hall, SUNY-College of Environmental Science and Forestry, Syracuse, NY 13210

The use of probabilistic risk assessments to predict the effects of pollutants on human and ecological receptors is increasing. One of the significant sources of variability and uncertainty in probabilistic risk assessments is the exposure point concentration. The exposure point concentration is the mean chemical concentration to which a human or ecological receptor may be exposed to within a geographic area (the *exposure area*). The exposure of humans and ecological receptors to pollutants at a contaminated site is an inherently spatial process. Exposure is a function of the spatial distribution of the contaminant and the manner in which the receptors use the site (i.e., their spatial patterns of site usage). Therefore, a spatially-explicit method for developing probability distribution functions for the exposure point concentration is appropriate. We demonstrate the process of building a spatially-explicit probability distribution function for the exposure point concentration using data from a Superfund site in South Dakota using the GeoSpatial Exposure Model (GeoSEM), a GIS-based model that we have developed at SRC. We then propagate the probability distribution function through a simple risk equation to demonstrate the value this approach adds to risk assessment, in terms of the increased information that is available to the project manager for decision-making.

The Cornell University Geospatial Information Repository (CUGIR)

Elaine Westbrooks, Metadata Specialist, *Jon Corson-Rikert*, Senior Programmer/Analyst, and *Jaime Martindale*, CUGIR Project Manager, Albert R. Mann Library, Cornell University, Ithaca, NY [Phone: (607) 255-7251; Emails: elw25@cornell.edu, jc55@cornell.edu, jjm67@cornell.edu]

The Cornell University Geospatial Information Repository (CUGIR) [http://cugir.mannlib.cornell.edu/] is an active on-line repository providing geospatial data and metadata for New York State, with special emphasis on those natural features relevant to agriculture, ecology, natural resources, and human-environment interactions. Subjects such as landforms and topography, soils, hydrology, environmental hazards, agricultural activities, wildlife and natural resource management are appropriate for inclusion in CUGIR. All data files are cataloged in accordance with FGDC standards and made available in widely used geospatial data formats. This poster displays examples of data found within CUGIR and methodologies for
searching the site. The poster also showcases CUGIR's new web-mapping service that allows users to search for data spatially and offers integrated data viewing capabilities.

Delivery of Digital Tax Parcel Data Over the Internet with ArcIMS

Tong Zhou, Software Architect, Westchester County Geographic Information Systems (GIS), Department of Information Technology, 148 Martine Avenue, Room 305, White Plains, NY 10601 [Phone: (914) 995-3012; Fax: (914) 995-3269; Email: taz2@westchestergov.com]

Environmental Systems Research Institute (ESRI)'s ArcIMS is an advanced Internet Mapping solution. It provides the foundation for distributing high-end geographic information systems (GIS) and mapping services via the Internet. ArcIMS software enables users to integrate local data sources with Internet data sources for display, query, and analysis in an easy-to-use Web browser.

Westchester County GIS contracted with with Applied Geographics, Inc. (AGI) to developed an online tax parcel mapping application utilizing ArcIMS. The application was designed to provide a cost-effective way for the municipalities to serve local tax parcel datasets through the county's existing ArcIMS web mapping infrastructures. Users can search tax parcel information based on simple criteria, such as SBL number, parcel address and owner name, or according to advanced criteria, such as property code, zoning type and school district. Search results are shown in a map, which printed in hardcopy. A robust buffer or "abutters" function is included in the application, which gives the user an option to choose between adjacent parcel buffering and dynamic distance-based buffering. Search results can be saved a file and printed out for mailing labels.

Development of the Westchester County Community Facility Locator with ArcIMS

Tong Zhou, Software Architect, Westchester County Geographic Information Systems (GIS), Department of Information Technology, 148 Martine Avenue, Room 305, White Plains, NY 10601 [Phone: (914) 995-3012; Fax: (914) 995-3269; Email: taz2@westchestergov.com]

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Westchester County GIS ***Community Facility Locator*** was developed using ArcIMS providing a simple and user-friendly interface for users to locate basic governmental and community facilities, such as schools, bus stops, railroad stations, or hospitals within a selected radius of an established address. The application provides "search" results in both tabular and map format, as well as other normal Internet mapping tools such as "pan & zoom". This custom application was written in JavaScript and ArcXML and is anticipated to be expanded to accommodate new data layers/community facilities and expanded functionality such as routing and directional information.

Presentation abstracts:

Optimizing the Riparian Buffer in the Skaneateles Lake Watershed, New York

Zevi Azzaino, Cornell University, 704 Hasbrouck Apts, Ithaca, NY 14850 [Phone: (607) 253-6547; E-mail: za14@cornell.edu]

The use of riparian land buffers to protect water quality for human consumption and wildlife habitat has become an important conservation tool of both government and non-government agencies. The funds available to acquire private lands for riparian buffers are limited, however, and not all land contributes to water quality goals in the same way. Conservation agencies must therefore identify cost-effective ways to allocate their scarce budgets in heterogeneous landscapes. We demonstrate how the acquisition of land for a riparian buffer can be viewed as a binary optimization model and we apply the model to 1834 parcels in the Skaneateles Lake Sub-watershed in New York. The results show that approaches that include both spatial and non-spatial data in the model will generate greater environmental benefits.

Teaching GIS in a Two Year College: The CCC Experience

Abu Badruddin, Assistant Professor of GIS, Cayuga Community College, 197 Franklin St, Auburn, NY 13021 [Phone: (315) 255-1743 x 2310; Fax: (315) 255-2117]

GIS education is getting popular at two-year colleges and Cayuga Community College (CCC) is the 1st community college in New York State to jump-start its GIS degree program in 2000. The Associate of Science degree in GIS at CCC is designed to train students with skills required to pursue career opportunities in the fields of GIS, GPS, and remote sensing or to transfer directly to a four-year program at participating universities. Cayuga's GIS program is supported by the NASA and closely associated with the Institute for the Application of GeoSpatial Technology established at the college. Currently GIS students are working as student interns on various GIS projects at the Institute. This presentation will discuss some of the issues and challenges in curriculum development, articulation with 4-year schools, and implementing technical courses. Expectations and challenges of running GIS program at two-year college and the impact of ever-changing technology in shaping GIS curriculum will be discussed.

Evolution of PMI (Photo and Mapping Index) as a Web-Based Information System for NYSDOT Photogrammetry Projects

Jeff Barth, Mapping Technologist 3 and *John Thomack*, Mapping Technologist 3, New York State Department of Transportation, 1220 Washington Ave, Albany, New York 12232 [Phone: (518) 485-5454/(518) 485-8220; Fax: (518) 485-1438/(518) 485-0044; Email: jbarth@gw.dot.state.ny.us / jthomack@gw.dot.state.ny.us]

The New York State Department of Transportation (NYSDOT) provides photogrammetric mapping, aerial photography, and orthoimagery to design engineers and consultants through their Photogrammetry Section, which is located within the Design Division. The Section developed a web-based spatial indexing system to keep track of the nearly 900 photogrammetric mapping projects and the nearly 2000 aerial photography projects they have done to date. This system, called the Photo and Mapping Index (PMI), was developed to provide a spatial referencing system for the NYSDOT regional offices and the many different divisions within the central office in Albany, New York. PMI provides critical data about the Section's three main products (aerial photos, photogrammetric mapping, and photogrammetric orthoimages) such as: measurement units, datums, flight dates, project completion dates, and more.

The presentation will discuss the evolution of PMI from a paper based system to a web based GIS system. It will touch on the early days when project extents were hand drawn on a NY State atlas. The migration to a spreadsheet and then to a database application was next. PMI then evolved to an ArcView-based desktop GIS solution that tied the spatial components to the tabular data stored in a separate database. The ArcView version of PMI was a great tool, but it was still only usable to a handful of people, mostly within the Photogrammetry Section. The latest evolution transformed the PMI to a web based GIS solution by using ESRI's ArcIMS software. This latest version now puts the system into the hands of all the DOT employees statewide via an internal intranet called the IntraDOT. Features of the browser-based PMI will be discussed as well as the decisions that went into it's design.

Key Words: Web, ArcIMS, Photogrammetry, Spatial Index, Mapping **Our presentation is 30 – 45 minutes**

City of Buffalo, NY - Route Optimization

Robyn Cierniak, Stearns & Wheler LLC, Amherst, NY

Stearns & Wheler and the City of Buffalo have been working together since 2001 to achieve the goals and objectives of the Route Optimization and Vehicle Tracking System project. The intent of this project is to develop the most effective and efficient refuse collection and snow removal routes for the City's Department of Streets and Sanitation. The routing is performed using a routing software package capable of developing reports on run-time, fleet maintenance and completion. The project had been divided into three work phases. Phase I involved initial project meetings, personnel interviews, data collection, summary of existing operations, evaluation of route optimization software, evaluation of vehicle tracking system and recommendations for software and hardware. The second phase entailed extensive field data collection. The third phase included the creation of the optimal routes using RouteSmart Technologies routing program, development of a computerized operating plan, implementation of a pilot test program for the optimized routes, and final implementation throughout the City. As of August 2002, the project is in the final stages of completion.

Improving the Quality of Soil Survey Information Using Digital Elevation Models

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GIS staff in Cayuga County have been experimenting with a method to improve the quality of soil information using digital elevation models (DEMs). In this method, the boundaries of previously mapped soil phases distinguished by slope gradient are revised to conform to DEM-derived slope maps. Where DEM-derived slope gradients of mapping units classified in a series are inconsistent with slope ranges specified in the official

series description, the series designation is re-evaluated.

The resulting soils maps contain greater spatial detail than previous versions and depict soil-environment relationships more clearly. GIS investigations incorporating the modified data have assisted in land use planning, environmental management, and development review.

NPS Polluyion and GIS

Elizabeth Coyle, NYS DEC [Email: eecoyle@gw.dec.state.ny.us]

Non-point source (NPS) pollution originates from diffuse sources in a watershed and contributes high portions of contaminates to the surface waters. Due to the fact that watershed characteristics strongly influence the type and amount of NPS pollutants and because watershed attributes are geographic in nautre, a Geographic Information System has been used to develop a NPS pollution model of the Onondaga Lake watershed.

The Use of Large Scale Orthophoto and Raster Imagery in GIS and CAD Applications and Internet Map Server Applications

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Davis Associates is currently working with NYSDEC on serving NYS Orthophotos and Raster Maps using Earth Resource Mapping Image Web Server. We have Plug-ins available for all the popular GIS and CAD applications and can serve the data over the internet with out the need to download the imagery via ftp. Davis Associates also integrates Image Web Server Technology with Internet Map Servers (ArcIms, Map Extreme, MapGuide) and can provide Map and Imagery datasets over the Internet/Intranet and served via plug-in into desktop GIS and CAD Applications. See Examples: http:\\huron.damap.com\emailiws.htm

Using GIS to Examine On-site Septic Systems as a Potential Pollution Source in the Cannonsville Reservoir Basin, NY

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As part of a comprehensive plan to reduce phosphorus inputs to surface waters, this study used GIS techniques coupled with digital soil survey data to help evaluate on-site wastewater treatment systems (OWTSs) as a potential pollution source within the watershed of the Cannonsville Reservoir. Part of New York City's drinking water system, the Cannonsville Reservoir basin is located largely within the Catskill Mountain region, where glacial till soils in the uplands typically have characteristics that interfere with treatment functions of conventional OWTSs.

A database was created from over 1,100 OWTS installation records, which was then compared with best-case scenarios of soil suitability as derived from digital soil survey data. GIS analyses strongly indicate that the majority of OWTSs currently utilize effluent distribution devices or designs that are inappropriate for the soils in which they were installed – a trend that has begun to improve over the last decade. GIS techniques also enabled an estimate of average separation distance between OWTSs and surface waters. The problems caused by the inappropriate fit between soil characteristics and OWTS leachfield design, especially due to perched water tables, increase the likelihood of inadequate treatment of septic system effluent. This may have public health implications beyond environmental phosphorus discharges, such as pathogen transport. Basic GIS analyses were found to be quite useful for evaluating onsite septic systems as potential sources of pollution within a watershed, once a database has been developed.

New York State Department of Transportation Web-Based Geodetic Control Information System

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The New York State Department of Transportation (NYSDOT) is responsible for geodetic survey support to maintain and improve the geodetic control networks in New York State. This is accomplished through the Land Surveying Section. This section also serves as a clearinghouse for information to survey crews in 11 Regional offices.

Geodetic control data are submitted to the National Geodetic Survey (NGS) who defines and manages the National Spatial Reference System (NSRS). The NSRS is the framework for all geodetic data, which determines latitude, longitude, height, scale, gravity, orientation and shoreline throughout the United States. NGS publishes this geodetic data in the form of data sheets for each control point in the NSRS. This data provides a consistent framework for surveying and mapping applications in NYS.

With GIS and GPS technology advances there is a need for a consistent framework for geographic data. To support this new geographic data need,

the National Geodetic Survey has spent the last several years improving both the accuracy and the density of this framework. NGS has also put significant effort into making the framework data more accessible to those in the Land Surveying community who need the data on a daily basis.

The NYSDOT Web Based Geodetic Control Information System is an ArcIMS Intranet application, which provides accurate and reliable access to this same NGS framework data through a spatial referenced system for New York State.

Key words: WEB, ArcIMS, Internet, land surveying, mapping **Our presentation is 30 – 45 minutes**

GPS Data Collection – Surveying without a License?

Sara Frankenfeld, GIS Administrator, Warren County Planning Department

During the first half of 2002, Warren County's GIS Administrator was investigated by the New York State Office of Professional Discipline on the charge of surveying without a license. The Planning Department had used a Trimble Pathfinder Pro XR GPS receiver to collect locations of fire hydrants, valves and other water infrastructure for the purpose of creating a general locational map of a previously unmapped water system.

This presentation will outline the chain of events that led to the investigation, some of the issues raised during the course of the investigation, and the final decision by the Office of Professional Discipline. The presentation will also share some highlights from the hundreds of emails Warren County received from GIS professionals and surveyors around the country as a result of the investigation.

"Are You Sure Staten Island is 99 Miles from The Bronx?": The Role of GIS in Investigating Medicaid Fraud

Bob Franklin, Electronic Investigative Support Group-Medicaid Fraud Control Unit, NYS, Office of the Attorney General [Phone: (518) 402-1984]

Medicaid is a jointly-funded, Federal-State health insurance program for certain low-income and needy people. In New York State, Medicaid costs exceed $28 Billion annually. There are approximately 3 Million recipients, and more than 168 Million claims are submitted each year by the 40,000 providers of medical goods and services.

The magnitude and complexity of this program makes it inevitable that a small number of unscrupulous providers will attempt to defraud the system. The Office of the Attorney General established the Medicaid Fraud Control Unit (MFCU) in 1975 to combat such activities. GIS has only recently become part of the resources available to the MFCU.

This presentation will give a brief overview of how GIS is used in the detection, investigation and prosecution of Medicaid fraud, focusing on several cases involving medical transportation providers. The ability to geocode locations, measure distances and graphically show spatial relationships among recipients and providers has proven valuable to MFCU auditors, investigators and attorneys.

Examining the Need for a New York State Land Use and Land Cover Work Group

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Land Use and Land Cover (LULC) data has been identified as one of the priority needs for NY's framework GIS layers. An increasing number of projects in New York are producing LULC data for various regions of the state. Examples include the NYC, Great Lakes, and Lake George watersheds, and Monroe and Cayuga counties. Currently there are limited mechanisms for coordinating state, local, and Federal participation in these activities to achieve economies of scale, or to share technical experience. An opportunity exists for the NYS GIS Coordinating Body to follow the successful model they established through the Digital Ortho Work Group, and create a LULC Work Group to leverage cooperative programs and to coordinate LULC development activities in New York potentially resulting in a periodic, statewide LULC.

The Standards and Data Coordination Work Group (S/DCWG), one of the standing workgroups of the NYS GIS Coordination Program, is investigating the need for a LULC Work Group. Over a 6 month period, a subgroup of the S/DCWG, called the LULC Study Group (LSG), will gather information and report back to the GIS Coordinating Body with their recommendations. Specific LSG information-gathering and reporting activities will include:

- Preparing a brief white paper documenting the state of recent, current, and planned LULC activities in NYS;
- Preparing a summary report of the subgroup's research activities and recommendations;
- Identifying areas for development that will allow the benefits of current LULC activities to be maximized for all interested parties; and
- Contacting existing LULC project teams and gauge their interest and perceived need for a LULC Work Group in NYS.

This presentation will update the GIS community on the progress of the LSG subgroup. The LSG is also very interested in learning from the audience about additional ongoing or potential LULC activities in NYS. The session will also offers an opportunity for interested parties to become involved with the LSG, or to provide their inputs into the process.

LEAPE: Resource Information Technologies for Nonpoint Source Pollution Control Education

Deborah G. Grantham, Senior Extension Associate, Water Resources/Geophysics, USDA State Extension Water Quality Coordinator, Department of Crop and Soil Sciences, 305 Rice Hall, Cornell University, Ithaca, NY 14853-5601 [Phone: (607) 255-4931; Fax: (607) 255-4662], *Stephen D. Smith*, *Eugenia M. Barnaba*, and *Amy E. Galford*, Cornell Institute for Resource Information Systems, Cornell University

The New York State Nonpoint Source Coordinating Committee, with representatives from state, federal, local, agency, and university partners, recognizes local governments as critical stakeholders for addressing water resource protection. Consequently, development of an educational program on nonpoint source (NPS) pollution control for local government became a high priority for faculty and educators at Cornell University.

LEAPE (Locally-led Education and Action for Protecting the Environment) was developed by Cornell Cooperative Extension (CCE), in collaboration with New York Sea Grant, Lake Champlain Sea Grant and the Vermont Local Roads Program. The program uses resource information technologies, including geographic information systems software, and the latest thinking on nonpoint source management to provide education and policy options for local government officials. The LEAPE software offers an interactive, easy-to-understand format that highlights the pros and cons of different management options and thereby assists local officials in developing effective policies for protecting water resources while meeting their other management goals. The GIS software is used to construct projects relevant to participating communities and a browser is used during workshops with local government groups. The NPS issues addressed (on-site wastewater treatment systems, streamsides, turf, local roads, and marinas) were identified by the New York State Nonpoint Source Coordinating Committee as critical to effective NPS control in the New York Nonpoint Source Management Plan. The program has been piloted in three New York towns and is being distributed by capitalizing on Cornell Cooperative Extension's community-based delivery capacity. This presentation will give an overview of the program and methodologies and some of our experiences with local groups using LEAPE.

Primary support is provided by the US Environmental Protection Agency/NYS Department of Environmental Conservation Section 319 Program funds.

Spatial Warehouse and Intranet Bring new Technologies and Information to NYCDOT

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Richard Annitto, Vice President, Bowne Management Systems, Inc., 235 East Jericho Turnpike, Mineola, NY 11501 [Phone: (516) 746-2350 x1508; Email: rannitto@bownemgmt.com]

The NYC Department of Transportation recently released the first version of its Spatial Data Warehouse for use by DOT personnel. NYCDOT is responsible for the maintenance and operation of New York City's network of streets, traffic lights, signs, etc. Each of the Department's divisions maintains and operates standalone applications and databases to perform their required functions. The Department is also dependent on extensive datasets from the NYS Department of Motor Vehicles and various NYC departments including Police, Planning and the City's GIS Utility from the Department of Information Technology and Telecommunications. The driving factors behind the development of the Spatial Data Warehouse included difficulties in accessing data in a consistent format, spatial referencing of data, difficulties in viewing and using data from disparate sources in a common format for cause and effect analysis, planning, statistics, etc.

The Data Warehouse consists of a three tier structure consisting of a complete basemap of the City (centerlines, road edges, building, orthophotographs), DOT Facility data (street signs, signals, lights, bridges, roads), and Operational data (accidents, capital projects, work orders, defects). The database uses a series of ETL programs to integrate regular extracts of data from a variety of legacy databases into the warehouse. The system incorporates web based, relational, and OLAP technologies to assemble this data for viewing and analysis in ways that were not previously possible. An example allows personnel to view all related information at an intersection- traffic accidents, signs, traffic signals, and reported signal defects. Information can be viewed graphically and in tabular form. The OLAP cubes permit analyses such as changes over time, and roll up of statistics to any required reporting areas such as police precinct, City Council District, Borough, etc. With the successful implementation of the initial implementation, DOT is already preparing to expand the system in terms of available datasets, better geocoding, and enhanced queries and data analyses. Design and implementation is being performed by Bowne Management Systems, Inc., of Mineola NY.

Annual Report on the NYC GIS Utility

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New York City's GIS Utility is now three years old. About a year ago the events of September 2001 caused a refocusing of energy to supporting the City's emergency management and response community for several months,
but early in 2002 most of the resources associated with the program were refocused back to "peacetime goals". The Utility continues to be a

catalyst for change in many ways and has achieved several noteworthy goals over the past year. The Utility's continues to focus on making more and better data available to more users and providing technical resources and guidance to our community of users which includes over 100 City, state and federal
agencies and contractor customers. This presentation will be focused on the following:
- Review of the Utility's history, mission & goals
- Overview of the GIS Utility's products and services
- Review of the activity and milestones achieved over the past year
- Review of the goals and milestones set for the next year

Managing the NYS Canal System with GIS and GPS Technology

Eric Herman and *Jay Holbrook*, New York State Thruway Authority [Phone: (518) 471-5890; Fax: (518) 436-3068
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The New York State Canal Corporation, a subsidiary of the New York State Thruway Authority, manages 524 miles of historic waterways in the state. The Canal Corporation is mandated with keeping these waterways both navigable and safe. GIS and GPS technologies are being incorporated into the everyday functions of the Canal Corporation to improve daily tasks and make these jobs faster and easier to manage. This interactive presentation explores a variety of related canal projects that use these technologies. It covers incorporating historic mapping, modern methods of delineating the canal channels, and evaluating channel depths. Using field collected GPS data and Desktop ArcGIS software, new models help "Canals" to more effectively visualize and analyze information, and to improve overall effectiveness and efficiency.

Nassau County GIS Successfully Migrates Enterprise GIS to Support e-Government

Joseph T. Jones, CDP, NCGIS Coordinator, 1550 Franklin Avenue, Mineola, NY 11501 [Phone: (516) 571-4096; Email: jjones@nysnet.net]

Nassau County's GIS began in 1990 and continues its role as a model of Enterprise GIS. The County has successfully migrated its structure, first released in 1995, into a modern geodatabase in order to support web based access and enhanced user functionality. With the redesign of the County's data model, a defined web architecture, and the addition of new data features including a complete cadastral system (lot and parcel lines, assessment data, etc.), digital orthophotography obtained from a NYS pilot program, and numerous datasets obtained from the County's many departments, multi-participant governments, and consultants (numbering 418), the County's Enterprise GIS is ready to meet the additional challenges of e-government and web access to date. To date, five primary applications have been implemented based upon the GIS wed and data architecture:

- A new Intranet based Map Production Application that replaces an earlier ArcVIEW 3.0 system. This application guides users in the preparation of a variety of standard and special purpose maps through the use of wizards and standard templates;
- An Intranet Query System that replaces an earlier ArcVIEW 3.0 system used by the majority of County personnel for query and viewing purposes;
- A geocoding tool that locates addresses to their building footprint and/or street segment;
- An Internet based help desk that provides County and external users with access to a complete library of information about the GIS project and its data;
- A Land Records Viewer developed by the County Assessor that integrates tax maps, assessment and tax data, digital photography and document imaging with components of the GIS including orthophotography, planimetric and cadastral layers. This system gives users a single point of access to all land records information.

The enhanced GIS system has provided the necessary foundation for these applications to serve as a model for continuous expansion and growth of e-Government in Nassau County.

Ordering Digital Imagery - ASPRS' Role in Developing Guidelines to Facilitate the Process

Gerry Kin, Emerge

The goal of the ASPRS Digital Imagery Guidelines Committee is to improve communication between digital imagery users and suppliers. To advance this goal, Digital Imagery Guidelines are being developed in conjunction with NASA, U.S. Geological Survey (USGS), the National Imagery and Mapping Agency (NIMA), academia, and industry. These guidelines will promote standards that improve the image-buying market's education level and facilitate user purchasing. These guidelines should also facilitate quality assurance and quality control processes for producers, which will ultimately benefit consumers of imagery.

Products being developed by the committee will be discussed, including:

Digital Imagery Request Form - A web-based short form to facilitate specifying imagery. It is accompanied by an image gallery containing features

at different ground sample distances (color and pan). After filling out the form, a summary requirements specification is generated for the user to assist in the ordering process. This form is currently available at: http://www.esad.ssc.nasa.gov/image_gallery/

Digital Imagery Reference/Tutorial - A companion document to the Form, discussing many of the definitions and concepts mentioned in the short-form document. This document is currently under development.

Using GPS to Promote the Interpretation of Topographic Maps

Jim Kuhl, 6th Grade Earth Science Teacher, Central Square Middle School

Find out how the use of GPS encouraged 6th grade students to become proficient at interpreting features on topographic maps.

Using GIS for Continued Advancement of ITS at MTA Bridges and Tunnels

Gregory Kurilla, GIS Specialist, MTA Bridges and Tunnels, 2 Broadway 24th Floor, New York City [Phone: (646) 252-7006]

At MTA Bridges and Tunnels we have an aggressive Intelligent Transportation System (ITS) capital program over the next five years. The spatial aspects of ITS make GIS an invaluable resource. Knowing the locations of your customers and their driving conditions is essential for providing better service.

With the goal of creating one of the most comprehensive and progressive ITS systems several projects are under way such as: Weather Recording Systems on each bridge, tracking real time traffic volumes using EZ-Pass tags (Transmit), 100% CCTV coverage of roadways, Variable Message Signs, Variable Speed Limit Signs, and a command center to compile and use all of this information. GIS plays a part in each of these systems individually and with them as a whole as a coordination tool.

An Outage Predictive Model for Electric Power System during Hurricanes

Haibin Liu, Rachel Davidson, and *David Rosowsky*, Cornell University [Email:hl254@cornell.edu]

Keywords: hurricane, electric power, Geographic information systems (GIS), Generalized Linear Model (GLM), wind

This paper develops an outage predictive model for electric power system during hurricanes. The model is based on large databases of outages in North and South Carolina in recent hurricanes. Generalized Linear Model (GLM) is used to describe the probability nature of occurrences of outages and prediction is established for outages from a variety of predictors that are pertinent to magnitude of hurricane, system structure or geographic characteristics. Geographic Information System is used to identify spatial relationships and conduct spatial analyses. A simulation-based method is also developed to obtain confidence intervals on the outage estimates.

This new quantitative model of hurricane-related electric power outages should be helpful to electric power companies as they decide how to deploy their repair personnel and materials and make other emergency response decisions in preparation for future hurricane landfalls.

G.I.S. in Fire/Emergency Services

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Lt. Garth Hillier, Fulton County Sheriffs Dept

I. Predetermined Helicopter landing Zones.
II. Dam failure Disaster Plan.
III. Water Sources.
IV. Hot Link Floor Plans of Major Buildings for firefighting tactics.

E-911 G.I.S. using CAD, Computer Aided Dispatch, to do a simulation of a 911 call using all of the above.

My name is Myron Messak and am a volunteer fire chief in Mayfield, New York. My fire district is approx. 55 sq. miles in size and has a population of 6,000 people. My department runs the most calls of any other volunteer fire department in Fulton County, averaging over 300 calls per year. By profession I am a designer using AutoCAD Desktop 3 for a local Architectural firm and have been involved in G.I.S. for about a year.

I would be interested in presenting along with Lt. Garth Hillier from the Fulton County Sheriffs Dept., who is in charge of E-911 dispatch, on what we have done in my fire district and in Fulton County at this falls G.I.S. conference. The following is a history of want I have done.

My district being approx. one hour away from the closest trauma center creates great difficulty in getting seriously injured patients to the proper care they need. What I did was to contact my local Med-Flight Helicopter service and attended training on landing zones for medical helicopters. Then in my fire district I went out with my personnel G.P.S. and found 11 landing zones that meet the criteria for helicopter landings. Using Arc view 3.2 and digital-ortho imagery from the N.Y.S. clearing house I plotted these coordinates on the maps I created in Arcviw. This information was given to all my assistant chiefs and placed in all my emergency vehicles in my department. By having this information in an event of a serious injury accident I can dispatch a medical helicopter to a predetermined landing zone using latitude and longitude coordinates. In January of this year I had a serious snowmobile accident and using this program I was able to land a helicopter where it was needed with minimal difficulty.

Another area in my district I have implemented G.I.S. was a water reservoir dam that could have failed this past April. The dam holds back 460 million gallons of water and is the drinking water for a near by city. In April of this year my county civil defense coordinator contacted me that this dam could possibly fail. The city did have a disaster plan in place giving me a Xerox copied topographic map with the possible flood plan highlighted with a marker. What I did was to take this information and in Arc view was create a map of the flood plain using DEM data and digitizing on the fly copying the flood plains contour lines. Then using real property data I geocoded the names, addresses, and phone numbers of the people in the effected area. This gave the department the information needed to contact these people in the event of an actual dam failure.

Again using G.P.S. coordinates taken by myself and using Arc view I mapped out all my water sources. Being a rural fire department I don't have the luxury of pressurized fire hydrants, I have to rely on ponds, streams and mutual aid from bordering fire districts. This information made training of water source locations in the district much easier for my firemen, also this information was given to the county civil defense coordinator in the event of a larger disaster.

Another area I have just started in is working with the Fulton County E-911 system implementing G.I.S. in emergency dispatch. All these programs have worked so well I am presently working with the 16 other fire districts in Fulton County on implementing similar programs.

Environmental Investigation of Areas of Elevated Cancer Incidence Across New York State

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The New York State Department of Health has begun it's first investigation of elevated breast cancer rates based on it's Unusual Disease Pattern Follow-up Investigation Process. This investigation follows the public release of breast, colorectal, lung and prostate cancer incidence thematic maps. Statistical analyses of the data for each cancer type identified areas where increased incidence rates are unlikely to be due to chance. The investigation will initially focus on the Coram / Mt Sinai / Port Jefferson Station area, and will examine the possible roles of demographic, lifestyle and environmental factors in the increased incidence rates. The Bureau of Environmental Exposure Investigation produces an inventory of sources of potential exposures within the investigation area. To accomplish this, the Bureau performs quality control on existing environmental data and creates GIS coverage on a statewide level. Examples of point, raster and vector geospatial data used are: inactive hazardous waste sites, orthophotography, and drinking water quality, respectively.

Currently the Department is looking at potential sources and evaluating them for actual exposures. When these data have been compiled, the Bureau will share the information with NYSDOH's epidemiologists and toxicologists for evaluation of the potential environmental role in excess cancer rates within the investigation area. This, in addition to other information, will then be used to evaluate whether a specific epidemiological / environmental investigation is possible and appropriate. The Bureau's use and development of GIS data in these investigations is the topic of this presentation.

Spatial Pattern Analysis of Ice Storm Damage within Eastern Adirondack Forests

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Eastern Adirondack forests were severely impacted by an ice storm in January 1998. Ice damage to forests includes widespread breakage of the limbs and trunks in susceptible tree species. While plot and stand-scale ecological impacts of ice storms have been studied, there remains a limited understanding of larger landscape-scale damage patterns. This research employs Landsat TM satellite imagery to describe and quantify patterns of ice storm damage to Adirondack forests. Forest damage patterns were mapped using a digital change analysis of baseline conditions and conditions encountered in a Landsat scene acquired in the summer immediately following the storm event. Forest damage was separated from natural variations in canopy reflectance by employing a generalized linear model that incorporated *in situ* measurements of forest damage. A geographic information system (GIS), in conjunction with spatial statistics, was employed to measure spatial autocorrelation among damaged forest patches, and to describe their spatial extent. Damage to Adirondack forests was found to exhibit significant positive spatial autocorrelation at the landscape scale. Local topographic characteristics (i.e., elevation, aspect) significantly influenced the presence and spatial orientation of forest damage. Techniques and results emergent from this study are relevant to land management in the Adirondacks, as well future planning for similarly-prone ice storm areas of Canada and the Northeastern United States.

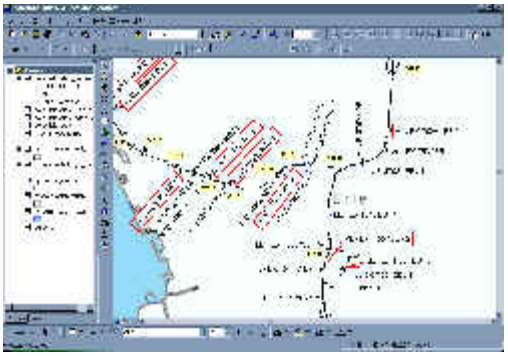
Using GIS for a Thruway-Wide Noise Study Initial Screening

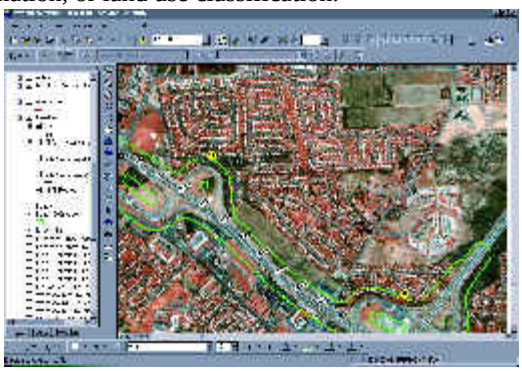
Betsy Monczka, Bergmann Associates, Inc. P.C., 28 East Main Street, 200 First Federal Plaza, Rochester, NY 14614 [Phone: (585) 232-5135; Fax: (585) 325-8446; Email: monczka@bergmannpc.com; Web: www.bergmannpc.com]

Based on the fact that the New York State Thruway Authority (NYSTA) operates, owns, and maintains 641 miles of roadway, a simplified approach to initially screening the Thruway for more detailed noise studies was evident. The amount of existing state-wide data available throughout New York made using GIS stand out as the best way to process the areas surrounding this super-highway, and to minimize the extent of on-site reconnaissance needed to perform the initial screening.

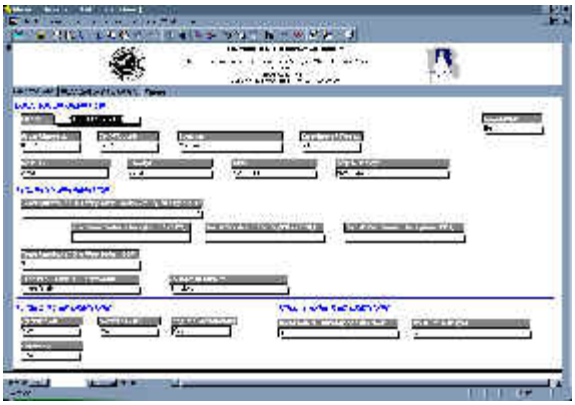
The NYSTA noise policy requires that, to qualify for a detailed noise study, residential clusters must have a density of greater than 25 residential structures located within a 200-foot buffer zone of the Thruway mainline or ramps.

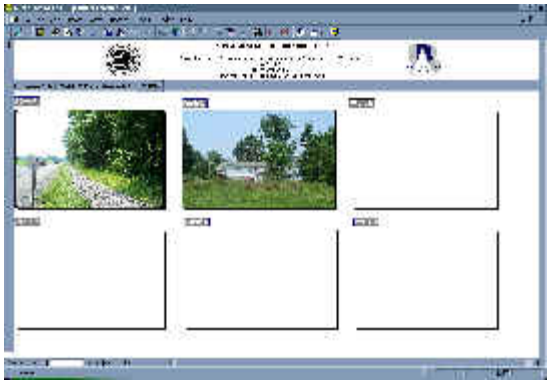
The NYSTA, NYS ORP, and the NYS GIS Clearinghouse provided the data that was incorporated into this GIS application. Because the NYSTA had already developed a LRS, dynamic segmentation could then be used to aid in the location identification of the potential noise barrier sites. 415 DOQQ's, obtained from the NYS Digital Orthoimagery Program via the NYS GIS Clearinghouse, were used in creating the base of the project. The 2001 ORPS data was obtained and used solely for it's property class information, or land use classification.

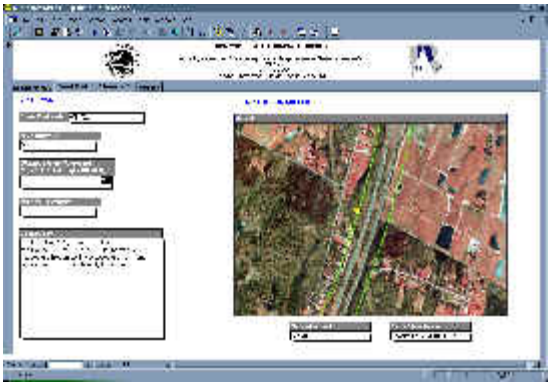




In order to maintain and eventually expand the data collected, and to make it available to the four divisional offices, a Microsoft Access Database was created. As the initial screening progressed, field visits were made to over 190 sites, data was collected and entered, and through a series of queries, 33 sites were identified for detailed noise studies. This database is linked to the site locations (in GIS) and is currently in the process of being updated.







Audiovisual Needs - LCD Screen and Projector

Beyond Gameboy: Grades 12, 6 & 1 Meet GST!!

Ann Moore , Coordinator, New Visions Environmental Science Program, Cayuga -Onondaga BOCES, and Alison Sprouse-Mastroe, Teacher on Special Assignment, Homer Central School District

Join us for spirited anecdotal testimony in support of the notion that "geospatial technology (GST) is a great equalizer in the K-12 educational arena". Capitalizing on our student's interest in all things "tech" we developed a grades 12, 6 & 1 interdisciplinary and inter-graded GST learning adventure. We'll unravel the wonders (and stumbling points) of fostering a peer/mentor pedagogical approach to teaching GPS and ArcView.

The NYSAPLS Standpoint

Daren L. Morgan, P.L.S. , LaFave White & McGivern LS PC, PO Box 679, Theresa, NY 13691 [Phone: (800) 427-9036; Email: dmorgan@lafavewhitemcgivern.com]

A quick overview of the issue from NYSAPLS standpoint, and, the process that we are going through at this time.

1. Review of current definition of Land Surveying in New York.

2. NYSAPLS position on GIS/LIS Issue.

3. Current status of NYSAPLS work on enhancing the definition of Land Surveying in New York State.

ArcGIS 8.3 - What's New

Chris Nickola, ESRI-Boston, 100 Conifer Hill Drive, Suite 305, Danvers, MA 01923 [Phone: (978) 777-4543 x8420; Fax: (978) 777-8476]

ArcGIS 8.3 is ESRI's latest release of the ArcGIS technology. The 8.3 release continues its focus as a scalable system of software for geographic data creation, management, integration, and analysis but introduces full support for topology, dynamic segmentation, and disconnected editing.

As GIS expands into new applications and user communities, ArcGIS meets the challenge of providing the data and services to a geographically literate world. Strong editing, analysis, and modeling, along with cutting-edge data models and management, continue to distinguish the ArcGIS software family as the leading GIS software. Users can deploy multiple ArcGIS clients (ArcView, ArcEditor, ArcInfo) seats and ArcGIS servers (ArcSDE and ArcIMS) to meet their needs for scalable GIS solutions.

1st Annual GPS Challenge Event at the NYS GIS Conference!

Anton Ninno, K12 Tech Integration Trainer, Onondaga-Cortland-Madison BOCES, 6820 Thompson Road, Syracuse, NY 13221 [Phone: (315) 431-8407; Email: aninno@cnyric.org; Web: http://www.ocmboces.org/]

To compete in the event, participants must submit the following three items for EACH of the locations on the GPS Challenge list:

- latitude & longitude given in decimal minutes format using WGS-84 datum
- one digital photo clearly showing the location (specifications below)
- one digital photo of themselves holding a GPS receiver at the location

GPS Challenge List:

1. Your Office Building - one photo must show the company sign
2. National Historical Landmark - one photo must show the official sign
3. Favorite local diner (no chains!) - one photo must show the diner name
4. Famous (commonly known) Person's Grave - one photo must show the name
5. NGS Benchmark - one photo must show the marker

These locations may be found in the participant's home area, or anywhere they choose to visit before the conference. All photos must be originals taken by the participant. Each photo must be in JPEG format and under 100kb in size. If you don't have a digital camera, use film, have the photos put on a CD, and then submit the photos with the required size and format. Be sure to reduce the final file size for each photo to be less than 100kb!

Deadline for submission of completed entry forms is: ? (Monday, Oct 7th?)
Suggestion: Save copies of all your GPS waypoints and photos!

We could make a PowerPoint show with the photos that are submitted for the event. If there are a lot of photos, we'll just use the most interesting, unique, and humorous shots. Sound like fun? I think so! You might want to use the show during the Thursday banquet or Friday luncheon, just for

the entertainment. We can make it as clever and funny as you like! Afterwards, you could put it on the conference website, for all to see.

So, what do you say? It's okay with me if you're not interested. I think it would be a lot of fun...and a way get people excited about the conference.

SyraStat: The Future of Municipal Government

Collin P. O'Mara, SyraStat, City of Syracuse, City Hall, Room 215, Syracuse, New York 13202 [Phone: (315) 448-8483]

Upon taking the oath of office this January, Syracuse Mayor Matthew J. Driscoll vowed that he would run his administration like a business and use private sector technologies to maximize the effectiveness of every expended tax dollar. To oversee this effort, he introduced SyraStat, an innovative computerized management system loosely modeled after the CompStat program of the New York City Police Department and the more recently developed CitiStat program in Baltimore. SyraStat is revolutionizing the way that City government operates by relentlessly measuring the quality and efficiency of all City functions, increasing accountability, and streamlining operations.

For every City department, the SyraStat team tracks personnel information, expenditures, and a series of both internal and external performance indicators. The SyraStat Team, under the leadership of the Office of Management and Budget, centralizes all data collection and develops a wide range of unique methods to analyze and present the data ranging from statistical models and graphical representations, to digital photographs and videos. The multi-media SyraStat presentations allow the Mayor and his key advisors to acquire a full understanding of all City operations, including what works well and what does not, and to 'see' the day-to-day work of all City employees.

One of the most innovative aspects of the SyraStat Team's analysis is the tracking of services rendered using GIS mapping technology. For years, the City of Syracuse had been on the cutting edge of using GIS technology as an engineering and land use tool. However, the technology had never been used to improve managerial impact or increase accountability. Over the past few months, layers have been created detailing delivery routes of several
services, such as waste and recycling collection, park maintenance, and street cleaning. These maps were further delineated to highlight specific crews, crew leaders, and supervisors and overlaid with complaints and other forms of community feedback. Other maps were created detailing neighborhood initiatives or social programs. Still other maps were created combining data from numerous departments to develop more comprehensive proactive solutions, such as a map of schools, recreation centers, parks, juvenile crime (differentiated by time of day), vacant structures, and socio-economic census track data allowed the Mayor to thoroughly analyze the effectiveness of City programs targeted at youths. All maps allow for the Mayor to scrutinized to increase accountability, highlight existing problems, and develop proactive solutions.

During this presentation, examples of the many creative ways that the SyraStat Team has used GIS technology to assist the Mayor in managing the City of Syracuse will be discussed.

Integrating Landsat Imagery and Geographic Data for Land Cover Change Detection in Westchester County, NY

Francesca Pozzi, Center for International Earth Science Information Network, Columbia University, 61 Route 9W, Palisades, NY 10964 [Phone: (845) 365-8977; Fax: (845) 365-8922; Email: fpozzi@ciesin.columbia.edu] and
Sam Wear, Westchester County GIS, 148 Martine Avenue, Room 305, White Plains, NY 10601 [Phone: (914) 995-3047; Fax: (914) 995-3269; Email: stw1@westchestergov.com]

This paper presents the results of a collaborative project aimed at the development of a Land Cover Database for Westchester County, New York. In absence of detailed property level land cover data, this study proved to be a cost-effective means of developing a generalized land cover database, that will be utilized in several county-wide GIS applications in the areas land use planning, watershed analysis, and studies reviewing urban/suburban growth.

We performed a two-steps classification procedure on Landsat imagery. Land Cover maps for the year 1989 and 1999 were initially produced applying the Maximum Likelihood algorithm to the original Landsat TM and ETM+ data. A reclassification methodology was then implemented by combining the initial classifications with: 1) Generalized Land Use maps developed by Westchester County for the year 1988 and 1996, based on aerial photography and land survey, and 2) Housing Density maps, derived from U.S. Census data for the year 1990 ad 2000. The integration with ancillary data allowed the discrimination between specific land cover types, such as low- and medium-density residential areas, open fields and undeveloped areas, otherwise difficult to detect due to the spectral and spatial characteristics of Landsat data. The overall classification accuracy, based on aerial photography and field validation, is about 90% for both years.

Finally, we performed a land cover change detection, by comparison of the two classified images. Results show an increase in the amount of built-up areas of about 3.7%, mainly as low -and medium-density developments. An increase in the extent of golf courses and small recreational parks was also observed. Both residential and recreational areas have been developed in place of undeveloped land, like open fields and occasionally farmland, in the northern, more rural portions of the county, and in place of vegetated areas in central Westchester.

Map DEC - Information for the Public

Eric Shyer, DIS GIS Unit, NYS Dept. of Environmental Conservation, 625 Broadway, 3rd Floor, Albany NY 12233-2750 [Phone: (518) 402-9863; Fax: (518) 402-9031; Email: ebshyer@gw.dec.state.ny.us; Website**:** http://www.dec.state.ny.us/webpage/map**]**

The Department of Environmental Conservation has a wealth of information about New York's natural resources, regulatory programs, the quality of our environment and great places to enjoy the outdoors. This information is currently, or will be, presented to the public through interactive maps on the internet.

Mineral Resources - shows the locations of wells and mines regulated by DEC: Gas Wells, Oil Wells, Service Wells, Underground Gas Storage Wells, Solution Salt (Brine) Wells and Regulated Mines.

Urban Stormwater - the Urban Areas (UA) Interactive Map is designed to help identify the areas of New York State that are subject to the EPA Phase II Stormwater Regulations.

Environmental Facilities - gives information on superfund sites, significant SPDES discharge facilities, air emission sources, active solid waste management facilities, facilities discharging certain types of wastes, and major electric generation facilities, both existing and proposed.

Benthic Mapper - is a project that has a goal of generating estuary bottom habitat maps from Troy, NY down to the mouth of the Hudson River and includes acoustic profiles, sub-bottom and sediment profiles, sediment samples and other interpretative maps.

Region 7 State Forests - information on hiking, mountain bike, horse, snowmobile and cross-country trails in New York State Forest lands in Region 7.

The Nassau County Assessor- Ready for the 21st Century

Richard R. Slutzah, P.E., Senior Vice President, Bowne Management Systems, Inc., 235 East Jerico Turnpike, Mineola, NY 11501 [Phone: (516) 746-2350 x1502; Email: rslutzah@bownemgmt.com]

When the Nassau County GIS began in 1990, the County's assessor was one of the first participating departments. Other than assessment information and a parcel centroid file, the Assessor actually had little to contribute to the GIS. The Assessor maintained over 18,000 individual tax maps - all hand drawn on mylar and although a cadastral alyer was considered to be an essential part of the GIS, there was insufficient funding to convert the tax maps. In 1996 a separate Capital Project was approved to convert the tax maps into a digital format. Charles O'Shea, the County's Assessor, has successfully directed the completion of a number of major tasks including:

- Conversion of all maps from hardcopy to digital format;
- Development and implementation of a digital map maintenance system;
- Development of a complete cadastral layer within County GIS;
- Development of a Land Records Viewer that integrates tax maps, assessment and tax data, digital photography, document imaging, and components of the County GIS including orthophotography, planimetric and cadastral layers.

This comprehensive system has successfully migrated a significant component of the Assessor's map maintenance activities from a 30-year-old manual process to a modern, digital system. In doing so, not only has the Assessor achieved a major improvement in efficiency and productivity for his department, but he has also developed a system that gives users in other County departments and the public a modern, efficient, easy to use, single point of access to all land records information.

Onondaga County Department of Water Environment Protection: Integration of GIS with a Computerized Maintenance Management System for Sewer and Manhole Maintenance Tracking

Timothy Taber, Stearns & Wheler LLC, Cazenovia, NY

Stearns & Wheler has implemented a Computerized Maintenance Management System (CMMS) for the Onondaga County Department of Water Environment Protection. The system utilizes the Maximo CMMS package from MRO Software, Inc. It provides the capability to manage maintenance work orders and track maintenance history for all equipment at the County's wastewater treatment plants and pumping stations, and all sewers and manholes maintained by the County. By integrating the new CMMS system with the County's existing GIS system, maintenance data for collection system elements can be located quickly through a map interface. A variety of spatially oriented searches and reports can be performed allowing maintenance cost roll-ups by municipality or sewer district. A call-center interface allows rapid location of a sewer or manhole through entry of an approximate street address. The software interface between Maximo and the County's ESRI-based GIS is provided by the ActiveG MapEngine from ActiveG, LLC. The integration of CMMS and GIS packages offers potential maintenance efficiency improvements for many types of public works infrastructure. This presentation will include a live demonstration of the CMMS/GIS interface.

Pictures From A Rural County GIS Program

Marybeth Vargha, GIS Coordinator, Otsego County, 197 Main St, Cooperstown, NY 13326 [Phone: (607) 547-4292; Email: vargham@co.otsego.ny.us]

Otsego County has developed solid foundations for a very relevant implementation of GIS technologies. This presentation will describe the time and money resources used to keep a growing program on track for a rural county of 62,000 people. Starting out as a support for the E911 re-addressing program, we now have many county government departments taking advantage of the technology – including emergency service models, real property tax mapping, traffic safety, planning, highway maintenance, economic development, board of elections, codes, and tourism. Slow but steady, the program has been an in-house project on limited resources, which has its many advantages and disadvantages. Major hurdles were overcome but the most difficult one is the training of staff in the various departments to make GIS tools part of their everyday activities. Along with snapshots of the 'cool' projects, we want to present the realistic view of how GIS helps or could hinder good local government service to the public.

Dig Safely New York: A GIS-Based Application

Jeff Volpe, Bergmann Associates

This presentation will focus on a GIS application developed for Monroe County, New York to help automate New York State's Call Before You Dig (formerly Underground Facilities Protection Organization and now Dig Safely New York) underground utility stake out requests. Monroe County receives an average of 100 – 120 underground utility stake out requests per day that are transferred as .TXT files through an open modem connection at the County Office Building. Anytime a contractor, public employee, or resident wants to dig into the ground, notification to the Dig Safely New York office in Syracuse must be completed in order to assess the potential for underground utility impact or damage for each request. These requests are then sent to the County, Municipality, Agency, Contractor, Utility Company, etc. for information and response.

The task of researching each stake out request, clearing the request for digging or providing quick responses to stake outs was a very time consuming process for Monroe County staff. The County dedicated a full-time staff member to perform the necessary research and answers for each stake out request that came in. Due to the overwhelming number of requests that were coming in daily, Monroe County staff had difficulties at times in keeping up with the number of requests and therefore turnaround times for answers for each request suffered. Since response time to each stake out request is critical, especially for emergency and high priority tickets, a better solution was needed for the County staff to be more efficient and to provide a quicker turn around time with the stake out requests.

Since Monroe County already had a sophisticated GIS system in place, complete with parcels, utilities, districts, and enhanced road centerlines, the County proposed a GIS-based solution utilizing the spatial analysis capabilities within GIS to help County staff automate the underground utility stake out process.

The Monroe County GIS Services Division contracted with Bergmann Associates to develop a GIS-based solution to automate the underground utility stake out process. A Visual Basic/MapObjects-based solution was proposed and developed as the County was currently migrating from workstation ArcInfo and ArcView 3.x technology to the ArcGIS environment/model.

The GIS application developed for the County automates the database development of stake out requests by parsing out each stake out request

received by the open modem connection into a Microsoft Access database. The application then locates the stake out request (either by address, intersection or street segment), and notifies the appropriate agency whether each stake out request is "All Clear" or needs to be staked out. Maps are automatically generated and printed out at the appropriate County department for taking out into the field.

This presentation will demonstrate the application developed for Monroe County as well as discuss improvements to the system, including migrating to the ArcObject/ArcGIS environment, developing routing functionality for each stake out request, and reporting documents.

Should there be a New York GIS Advisory Council?

Sam Wear, GIS Manager, Westchester County GIS, 148 Martine Ave, Room 305, White Plains, NY 10601 [Email: stw1@westchestergov.com]

As highlighted in a new National States Geographic Information Council (NSGIC) report, several states have a wide range of informal and *"ad hoc"* GIS committees which provide input to GIS departments or agencies which are funded (and/or created by executive order) at the state level (http://www.nsgic.org/). Such groups often provide crucial support in identifying, developing, and supporting statewide GIS priorities

However, after nearly 20 years of GIS growth throughout the New York State, no specific forum or association currently exists which can be considered a non-partisan and independent advocacy group that represents all geospatial technologies and interests throughout the state. To some degree, the former NYS Chapter of URISA was positioned to serve as an independent or "neutral" advocacy organization for the NYS GIS community, but this group folded in 1998 due to lack of member support. Currently, the closest analogy to *"advisory"* or *"ad hoc*" groups which professional/technical contributions can be made is via a series of Advisory and Working Groups (Local Government, Education, Private Sector) which are associated with the NYS GIS Coordinating Body which is administered through the Office for Technology (OFT). http://www.nysgis.state.ny.us/pt_list.htm.

This proposed discussion will revisit the need to create a committee and/or the like in NYS which professionals from all levels of government, including business/industry, academia, not-for-profits, citizen groups, can meet, discuss, and separately identify/submit GIS priorities to policy and decision makers. It is envisioned such a group would work closely, yet independently, with the OFT GIS program in establishing GIS priorities and agendas throughout the state.

GIS Oriented Emergency Vehicle Routing and Restoring

Md. Shahid Uz Zaman, *Yoshitaka Matsuda* and *Hayao Miyagi*, Graduate School of Engineering and Science, University of the Ryukyus, 1 Senbaru, Okinawa 903-0213, Japan [Phone: +81-098-895-8717; Fax: +81-098-895-8717; Email: zaman@sys.ie.u-ryukyu.ac.jp; szaman11@hotmail.com]

The vehicle Routing Problem (VRP) in a natural disaster situation is highly complex. The natural disaster may cause a lot of damage of material as well as the life of human. The chances of a causality surviving increase the faster an Emergency Service Vehicle (ESV) like an ambulance arrives the affected place. Most of the Emergency Service Department (ESD) has the pre-calculated optimum route map to reach each of its coverage spatial location in lowest possible time. The natural disaster may responsible for damaging one or more road links causing the change of the existing optimum route map. So it is required to recalculate the optimum route again. This process is obviously time-consuming makes ESV delay to reach the required location. In our project, we proposed a Geographical Information System (GIS) based system to design the optimum route for ESV at emergency situation. The proposed system can handle the damaged as well as the recurred road link efficiently and effectively.

GIS as a Platform for Environmental Modeling

James Zollweg, Associate Professor, SUNY Earth Sciences, Brockport, NY 14420 [Phone: (585) 395-2352; E-mail: jzollweg@brockport.edu]

Environmental models are mathematical representations of the dynamic physical, biological, and chemical processes occurring in a study area. These models are used for planning, policy analyses, spatial decision support, and scientific investigations. A GIS offers an ideal platform for development of environmental models. Some of the advantages include ability to integrate point processes to the watershed scale, capability for internal validation, and visualization of model results over time and space.

A general raster-based soil moisture routing model (SMR) has been developed using Visual Basic for Application (VBA) and ArcObjects. The model makes use of generally available input layers (such as soils, DEM, and land use), has a user-friendly interface (developed using VBA), and is composed of code that is easily modified (again a benefit of VBA). Extensions were added to the core SMR model to develop applications for flood forecasting and phosphorus export.

This presentation will address two main objectives. First, it will introduce the principles, techniques, and advantages of environmental modeling in ArcGIS using VBA and ArcObjects. Second, it will illustrate the use of ArcGIS to model the Cattaraugus Creek flood of 1998 and the problems of phosphorus export from agricultural land.

19th New York State Geographic Information Systems Conference

GIS Partnerships Award

The New York State GIS Coordination Program is happy to announce the Fourth Annual GIS Partnership Award.

Partnerships are an important way to share in the development of GIS and geospatial data sets, and to enhance the usefulness of those that are already developed. One of the ways that the NY State GIS Coordinating Body is encouraging the formation of GIS partnerships in New York State is by publishing a short description of real GIS partnerships on a web page at the NY State GIS Clearinghouse web site. The Clearinghouse web page is at http://www.nysgis.state.ny.us , and the GIS Partnership Summary page is at http://www.nysgis.state.ny.us/datcoord/partners.htm

The GIS Partnership Summary page has been set up so those who are interested in learning more about a particular partnership or partnerships in general can read current summaries about others' experience. Contact information is included in the summary in case the reader is interested in participating in the partnership, or in learning more about it.

The goal of this contest is to improve the effectiveness of this page by generating more summaries and by increasing the awareness of its existence. An award for the best partnership will be presented at the Annual NYS GIS Conference. To become eligible, submit a summary in the correct format about your GIS Partnership that includes participants from New York before September 22, 2003. Partnership summaries may be submitted through our simple on-line form at: http://www.nysgis.state.ny.us/forms/partform.htm, or by e-mail to nysgis@cscic.state.ny.us. If your summary is accepted for inclusion on the summary page, it will automatically become eligible to win. Ongoing partnership that have not previously received an award are eligible to apply, as long as they submit an update to their partnership summary. Examples and links to the format are provided on the GIS Partnership Summary page given above. Entries will be judged by a select subcommittee of the NY State GIS Coordinating Body on their originality and innovation, and the scope of the partnership, such as the number or diversity of participants or the dollar savings of the partnership. Partners whose summaries are accepted for inclusion on the GIS Partnership Summary page will also be asked to keep their summary current on a periodic basis.

Contact Jeff Herter at jherter@dos.state.ny.us or (518) 474-6000 or Bruce Oswald at bruce.oswald@cscic.state.ny.us or 518-474-5212 for answers to any questions.

18th New York State Geographic Information Systems Conference

Pre-Conference Workshops

Please register for your choice(s) on the registration form.

ERDAS Imagine

This workshop will be held at ESF in 156 Baker Lab from 8:30 a.m. to 3:30 p.m. on October 9, 2002.

This hands-on workshop is an introduction to remote sensing and photogrammetric techniques and the ERDAS IMAGINE® product suite. Information extraction processes to be presented include simple land cover analysis, change detection, and other common workflows. We will create ortho-accurate photogrammetric tools from raw, scanned aerial photos. The workshop will conclude with a demonstration of stereo feature collection and visualization of the results in a 3D environment.

Software covered: ERDAS IMAGINE®, IMAGINE OrthoBASE®, IMAGINE VirtualGIS™ and ERDAS Stereo Analyst®.

The workshop focus areas include:

- Data Sources and Availability
- Data Display
- Imagery Analysis
- Orthorectification
- Vector Editing
- Automatic and Stereo Feature Collection
- 3D Image Visualization

Introduction to GIS

Steve Smith, Cornell University Extension

A workshop designed for the uninitiated. Participants will gain an understanding of geographic information systems - their complexity, utility, and limitations. This introduction will include hands-on experience through classroom exercises. **Workshop registration is limited to 16 participants** who will share 8 laptop computers.

GIS Basic Training: Implementating GIS in Your Organization

TBA, TBA

3D GIS: Visualization and GIS Query for Complex Urban Environments

William Starmer, Geographic Technologies Specialists

3D GIS is becoming an accepted concept and term of reference for the use of computer graphics to display GIS data as a three dimensional rendering. However, technology for 3D GIS shows wide variability in terms of GIS data content, geospatial appearance and complexity, and speed of visualization. Beyond visualization, there is increasing interest in the ability to interact with the 3D environment to support queries into the GIS source data used to construct the visualization.

In this workshop we will provide an overview as to the design alternatives for the construction 3D urban visualizations and discuss a range of actual urban visualizations to demonstrate how content variability of source data limits or enables 3D GIS content and appearance. Finally, we will

demonstrate the creation of query linkages between traditional 2D GIS data and their 3D visualization.

Mr. Starmer, received a B.A. in Geography in 1994 from the University of Maryland, Baltimore County and is completing his M.A. degree in Geography at the University of California Santa Barbara (UCSB). While attending UCSB he was a graduate researcher in the Remote Sensing Research Unit working on several remote sensing research projects, including the IGBP Global Land Cover Mapping project and an EPA cooperative research grant.

He has over eight years of experience in GIS and Remote Sensing and has spent the last three years constructing geospatial visualizations from GIS and Remote Sensing data using TerraSim's TerraTools product. Mr. Starmer has worked on a variety of urban visualization projects, including Schenley Park, Pittsburgh; Downtown Philadelphia; Dupont Circle, Washington, D.C.; and State College, PA.

GIS on the Internet, *Larry Spraker* and *Mark Haberle*, Applied GIS, Inc.

The proliferation of web-based GIS mapping software has given many organizations another option for serving GIS and data to larger numbers of end users without the usual administrative hassles of installation, maintenance, and upgrades. This workshop will provide attendees with valuable insight into the use of this exciting and rapidly growing area of GIS technology. Topics to be covered include:

· The current state of the web-based GIS technology
· Deployment options
· Typical barriers to implementation
· Pros and cons versus traditional system implementation
· System components
· Costs (one time and ongoing)
· System administration requirements
· Demonstrations and application examples

18th New York State Geographic Information Systems Conference

Conference Exhibitors

Listed in alphabetical order

Applied Geographics, Inc., Boston, Massachusetts

Applied Geographics, Inc. (AGI) is a leader in developing and implementing Geographic Information System (GIS) solutions for local, county, and state government. Because of its exclusive focus on GIS consulting, AGI delivers state-of-the-art technical support and services including:

- Needs Assessment
- System Design
- Training
- Photogrammetry Data Quality Control
- Parcel Data Automation
- Utilities and Environmental Data Conversion
- RFP Development and Vendor Selection
- Specialized Application Design and Development
- Desktop and Web-Based Data Integration and Mapping
- Custom Cartography

AGI works with the leading GIS packages and programming tools, and has a depth of experience in ESRI, Intergraph, and Autodesk software, as well as relational databases and various Internet mapping environments. AGI's established portfolio includes local, county, and state government clients across the eastern seaboard, including Westchester, Oswego, Clinton, and Chenango counties in New York, various towns in New York, and corporations such as Kodak, New York Power Authority, and Long Island Railroad. Based on its experience, AGI is familiar with and complies with all the requirements of the SARA Grant Program. In addition, AGI is a certified vendor on the NY OGS Back-Drop Contract for Computer Counseling, Systems Integration and Training Services, a program which provides for streamlined purchasing of IT services for government entities in the state of New York.

Applied GIS, Inc., Schenectady, New York

Founded in 1992, Applied GIS, Inc. is one of the Northeast's leading GIS consulting companies, providing our clients with a full range of services including: application development; data conversion; database design and development; digitizing; geocoding; custom mapping; needs assessment; system design; technical support; training, and software sales. A particular focus of the company is internet/intranet deployment of GIS technology including, GIS enabled web site development and site hosting.

Applied GIS is also the developer of the Migration Assistant(tm) for ArcView®. This product, allows users to leverage their existing ArcView 3 knowledge and skills to learn ArcView 8 (ArcGIS) quickly and become productive immediately. With the Migration Assistant, a user can select any known ArcView 3.x operation (menu, button, tool, etc.) and view a custom, "migration oriented" help topic that describes how to perform the corresponding operation in ArcView 8. In addition to providing step-by-step instructions, the user can click a "Show Me" button to launch a digital video (.AVI file) illustrating an example of the corresponding operation being performed in ArcView 8. Each help topic clearly describes the key differences between the ArcView 3 and ArcView 8 workflow, functionality and terminology, and highlights new related functionality for each operation. The Migration Assistant can be used directly from within ArcView 3, or from a custom toolbar within ArcView 8 that simulates the 3.x interface.

For more information, including a downloadable evaluation version of the Migration Assistant, please visit the Applied GIS website at http://www.appliedgis.com, or contact them by phone at 518-346-0942.

Avenza Systems, Inc., Mississauga, Ontario, Canada

Avenza Systems is a worldwide supplier of powerful mapmaking software and affordable geodata products.

Cartography Software
Use MAPublisher to bring your GIS data directly into Adobe Illustrator or Macromedia FreeHand (Mac or PC) with all attributes intact. Then use the powerful editing capabilities of these graphics applications together with MAPublisher to creat beautiful maps for printing, presentations and publishing to the Web. This powerful productivity tool is a must for anyone who wants to create high impact maps.

Shapefile Data for the Entire USA
Avenza also markets MAPdataUSA, a complete CD library of enhanced US Census 2000 data in Shapefile format. MAPdataUSA is an impressive and cost effective data source for the entire USA- only US$499 for the entire 19 CD set.

For more details and free product demos visit: www.avenza.com

Bergmann Associates, Rochester, New York

Bergmann Associates is a multi-disciplinary engineering, surveying, planning, design and GIS firm that provides comprehensive Geographic Information Systems services. Our Geographic Information Systems/Visualization Group specializes in the design, development and maintenance of geographic databases, mapping and applications for a variety of clients and disciplines. We are involved in the development of a GIS project from initial project objectives (needs assessments, specification documents) through automation of the geographic data (digitizing and conversion) and development of the mapping database to the operational use of the GIS with custom application development.

Bergmann Associates can assist you on any GIS project you may have. We are comfortable at all levels from project planning, needs assessment, application development and quality control down to database and feature creation and editing. Our staff are experienced with many GIS software packages, including ArcGIS, ArcInfo, ArcView, MapInfo, Atlas GIS, and ERDAS. Our programmers are experienced in several programming languages including, Visual Basic, Avenue, Java, XML, and HTML.

Bergmann Associates can bring the resources of the entire firm to your assistance on any project. Bergmann staff includes experienced engineers (civil, traffic, industrial), planners (transportation, environmental, land use, site development), landscape architects, water resource specialists, environmental specialists (health & safety, permitting, environmental impacts), CAD specialists (designers, technicians), surveyors, information technologists (networks systems experts, PC technicians), computer graphics specialists (simulation and visualization developers, graphic artists), and experienced project managers who can bring together all of these resources.

From our offices in Rochester, Buffalo, Elmira, Pittsburgh, Philadelphia, Hoboken, Ft. Lauderdale, Jacksonville, Detroit, Lansing and Toledo, we provide comprehensive multi-disciplinary and GIS services to numerous clients throughout the eastern United States and in Canada. These clients include agencies at all levels of government, educational, commercial, retail, institutional and industrial leaders.

Bowne AE & Group, Mineola, New York

Bowne AE & Group is a leading integrator of Information Technology (IT) and Geographic Information Systems (GIS). Since 1982, the firm has been assisting public and private sector clients implement a broad range of IT solutions varying from enterprise-wide spatial data warehouses utilizing Internet and Intranet technology to solution-specific custom applications.

With a staff consisting of GIS specialists, system analysts, programmers, licensed professional engineers and surveyors, cartographers, certified trainers, computer hardware experts, and operations technicians; the firm possesses the expertise and experience to provide comprehensive GIS services. This strong background and experience in GIS, combined with specialized information management expertise, provides customers with the comprehensive skills required for a successful project.

Services range from needs assessment, requirements definition and system design on through acquisition assistance, implementation and on-going support. This includes full lifecycle consulting and management for GIS implementation, workflow management, application development, legacy integration, data conversion and integration, quality control, and systems integration.

Bowne AE & Group can address all aspects of the integration of GIS into existing and new information systems including local and wide area networks, contemporary operating systems, commercial database management systems, and application software utilizing the full range of multi-vendor computer hardware found at most customer locations.

Applications developed by Bowne AE & Group include spatial data warehousing, land records management, infrastructure management, business geographies, transportation, global positioning (GPS), cartographic transformations, field data collection, and data conversion quality control. BMS also provides planning, integration, design and development services for computerized modeling, facilities and asset management, imaging and

document management.

C & S Engineers, Syracuse, New York

C&S Engineers Inc., established in 1968 - now with offices in Buffalo, Binghamton, and Orange County, New York, Cleveland Ohio, Charlottesville Virginia, and San Diego California - is staffed by almost 300 employees, including numerous professionally licensed engineers and other certified specialists. The companies use state-of-the-art equipment and computer software, including GIS (geographic information systems), Intergraph, and AutoCAD design and drafting for planning, designing and constructing buildings, roads, bridges, airport runways, water and sewer systems, treatment plants, cellular stations, fiber-optic networks, and more. Environmental services range from industrial compliance plans and air quality programs to municipal waste management, water and wastewater treatment, and hazardous materials remediation. C&S Engineers is proud to have a growing staff of GIS Professionals, whose combined experience covers almost every discipline imaginable. The type of GIS projects C&S has completed, or are currently working on include:

- Airport Sound Insulation, both for Hub and General Aviation Airports
- Airport Planning
- Environmental Assessments
- Facilities Management
- Municipal Services for local Governments
- Transportation Planning

C&S also has several projects involving the use of Internet Mapping to better display the information to the client. We have the means to create custom Internet Mapping websites, giving the client the ability to choose the look and functionality that suits their needs. The GIS services that C&S can provide are backed with the expertise and experience of a multi-discipline engineering firm. This is another benefit of choosing C&S Engineers to fulfill your GIS needs. If you would like additional information on the capabilities and background of C&S Engineers Inc., visit www.cscos.com .

C.T. Male Associates, Latham, New York

C.T. Male was founded by Charles T. Male, a man whose personal intersts and talents included music, mathematics, engineering, politics, teaching, and community service. He was born in Schenectady, NY in 1889 and received bachelor's and master's degrees in engineering from Union College in 1913 and 1914 respectively. In 1910, while still and undergraduate, Charles Male founded the consulting engineering firm that still bears his name and continues his legacy of ingenuity, professional integrity and outstanding community involvement.

Today C.T. Male has approximately 150+ employees and offers services in the fields of Engineering, Building Systems, Environmental and Land Information Services (including GIS). Headquartered in Latham, New York, C.T. Male has additional offices in Gloversville and Syracuse, New york.

The firm's staff is organized by work groups, consisting of Engineers, Architects, Landscape Architects, Surveyors, Scientists, Technicians, and support personnel. Each group is directed by a group manager selected on the basis of technical expertise, experience and administrative ability. Our professional staff combines a wide range of academic wisdom, technical knowledge and project experience to offer comprehensive interdisciplinary services. And this is how we see GIS- as an integral part of Engineering Services.

We see GIS as a Problem Solver, greatly enhanced by our access to interdisciplinary expertise. GIS is basically a tool to map, analyze and manage spatial data. As the data itself has meaning beyond its geography, our day to day access to those who develop and work with the information encourages us to think laterally. We can use GIS as it was intended- to solve practical problems efficiently. This is full value GIS.

The CEDRA Corporation, Rochester, New York

The CEDRA Corporation's ArcView GIS extensions Bridging Engineering and GIS via:

- CEDRA AVcad: CAD editing tools

- CEDRA AVcogo: over 132 geometric commands
- CEDRA AVparcel: Parcel mapping, Deed transcriptions, customizable PIN's, no limits to number of parcels
- CEDRA AVwater: Water distribution modeling and maintenance software utilizing EPANET/KYPIPR modeler
- CEDRA AVsand: Sanitary Storm or Combined sewer modeling and maintenance software utilizing CEDRA SAND/SWMM's modelers.

Chas H. Sells, Inc., Charlton, Massachusetts

Chas. H. Sells, Inc. has provided aerial photography, GPS land survey, digital orthophotography and/or digital mapping for GIS and tax mapping programs to over 35 Northeast municipalities, counties and state agencies. One of the largest mapping firm in the region, we specialize in large scale (1"=40'; and 1"=200';) planimetric and topographic mapping. Looking at GIS and the desire to have accurate mapping information? Please call us to discuss your project. We will also assist you with developing mapping budgets based on your needs and future GIS applications. In addition, SELLS also provides quality mapping to support the planning and design of roads, bridges, water/sewer/CSO, brownfields development, bike/pedestrian paths, parks, etc. Mapping data is delivered in various formats including ArcInfo, AutoCAD and MicroStation - to name a few.

Emerge, Andover, Massachussets

Emerge leads the market in both navigation based photogrammetry services and in the development of commercial digital aerial imaging systems. Emerge's imagery, with resolutions from 1-meter to 0.15-meters, is delivered in natural color or color infrared and used in a variety of land use applications. Emerge had four years experience in operating direct digital sensors and has completed thousands of mapping missions.

Emerge produces high quality digital orthorectified mosaic imagery products for its clients involved in land use applications for state, county, municipal and federal governmental agencies, forestry, agriculture, transportation, energy providers and public utilities. Using its patented collection process integrating GPS ans IMU technology, the imagery I geometrically and radiometrically corrected and ready to be loaded into a GIS or remote sensing workflow. Emerge operates a fleet of aircraft across the US to meet the small and large-scale project needs of its customers.

The state of the art Emerge Digital Sensor System is an integrated direct digital aerial imaging solution designed to collect accurate and radiometrically consistent digital imagery. The system is built from leading off-the-shelf technologies including the Applanix POS AV position and orientation systems, making it affordable and scalable package.

ER Mapper, San Diego, California

Earth Resource Mapping, makers of ER Mapper, ECW and Image Web Server software, has been an industry leader in image processing for over 13 years. ER Mapper features unlimited ECW compression along with many other features used to facilitate the use of imagery in any software package. Image Web Server allows companies to make the most of their investment in aerial photography and satellite imagery by allowing the distribution of images of any size into any application over the Internet. Come by the booth to see a 1.2 TB image of the entire state of New York served over the Internet in real-time.

See New York State examples online at Earth Resource Mappings NYS Reseller Davis Associates Inc.
http:\\www.damap.com

ESRI, Redlands, California

With annual sales of more than $340 million, ESRI has been the world leader in the geographic information system (GIS) software industry for more than 30 years. As the leader in GIS technology, ESRI offers innovative solutions that will help you create, visualize, analyze, and present information better and more clearly. Working with location information, ESRI's GIS software and solutions give you the power to solve problems you encounter every day. Organizations around the world, as well as local, state, and federal government agencies, are using ESRI GIS software to make smart and timely decisions. ESRI provides powerful GIS solutions to more than 300,000 clients in more than 189 countries. In fact, ESRI is leading the industry in providing mapping technology that meets today's global needs. ESRI offers GIS solutions to help you unlock the spatial component of your valuable data and see your organization's information from a new perspective. www.esri.com

Geographic Data Technology, Lebanon, New Hampshire

Geographic Data Technology, Inc. is the largest developer of premier map databases that provide the foundation for applications such as site selection, routing packages, environmental mapping and direct marketing. GDT's state-of-the-art technology, leading edge products and strong customer commitment make it one of the leading companies in the business geographics industry. Founded in 1980, GDT was a pioneer in the development of cartographic data for business use and provides complete, current and comprehensive geographic data. With its street, postal, census and other geographic databases, GDT is a leading supplier of cartographic data to all major GIS and desktop mapping vendors.

HP, Burlington, Massachussets

The hp designjet cc800pa provides large format, full color scanning, copying and printing capabilities in an integrated, easy to use system. Scan or copy up to 40" wide, print up to 42" wide at a very affordable price. The HP Designjet 5500 is hp's new photo quality, production printer offering exceptional quality and fast throughput at up to 60" wide. Hp designjet printers are designed to work seemlessly with all GIS applications and platforms.

The Institute for the Application of Geospatial Technology at Cayuga Community College, Auburn, New York

The Institute for the Application of Geospatial Technology at Cayuga Community College (IASGT) is a non-profit organization that specializes in the application of Geographic Information Technologies (GIT). The practice of GIT combines Global Positioning Systems (GPS), Remote Sensing (RM), and Geographic Information Systems (GIS). GIT users employ this cluster of techniques to acquire and analyze geographic data. The information available from the analyses is distributed in a variety of graphic representations (e.g. maps, three and four dimensional visualizations, graphics, enhanced imagery.)

We work with three major groups to help them use this amazing technology:

Government agencies (.gov) - sponsoring conferences, researching land cover and fire management projects, providing grants, environmental quality review, and more.

Educational Institutions (.edu) - showing teachers how to use GIT in their classrooms, supporting college GIS programs, sponsoring internships and more.

The Business Community (.com) - partnering with businesses to expand the use of GIT in the community - for examples in areas such as agriculture, marketing, tourism, planning, and economic expansion.

As geospatial technologies continue to grow, evolve, and become even more mainstream, IAGT is perfectly positioned to provide the guidance and support that will be required by people and organizations of out three main constituencies.

Intergraph Mapping and GIS Solutions, Houston, Texas

With more than 30 years of experience, Intergraph Mapping and GIS Solutions understands the business challenges customers face everyday. Intergraph continues to merge GIS with information technology (IT) and business process improvement tools to help customers meet their enterprise and operational goals and to enable data sharing across the entire enterprise. From managing a spatial land inventory management system in Canada to providing maps, satellite imagery, and aerial photography on an Internet portal for e-commerce services in Germany. From real-time crime reporting in Delaware to tracking fire ants across Texas.

The GeoMedia product suite integrates geospatial information throughout the enterprise, while providing the tools needed to develop business-to-business and custom client applications. GeoMedia continues to revolutionize the GIS marketplace with its breakthrough technology. IntelliWhere has been developed to address the emerging technologies of wireless Internet and location-based services (LBS). Leveraging Intergraph's industry-proven GIS technology - GeoMedia - our LBS solutions are highly differentiated from other vendor offerings. They are device-independent and data-format-independent.

For more information, visit http://www.intergraph.com/gis.

ISTAR, Herndun, Virginia

By standardizing and automating the production of geographic data, ISTAR has succeeded in creating unique mapping solutions for a wide range of applications, in industries such as telecommunications, defense, oil exploration, local authorities and urban planning.

The keys to ISTAR's success:

- Over twelve years' experience in collecting and processing data from sources such as digitized maps, satellite images, and aerial photographs,
- Dedication to research in remote sensing technologies.

Combined with other layers of data, ISTAR products supply a powerful core for many applications such as intelligent transport, real estate, entertainment, emergency services monitoring, and environment modelling.

Unsurpassed range of high quality images

ISTAR has processed over 4500 satellite images, covering approximately 25,000,000 sq. km of the earth's surface, in over 100 countries. Within its HotSpots™ program, ISTAR keeps adding new products to its database of off-the-shelf geographic products, already the largest of its kind on the Internet.
Having pioneered a technology to capture aerial images using a revolutionary digital airborne sensor, ISTAR is now acquiring high resolution images of major European and US cities and processing this data to produce top quality 3D models and highly accurate orthoimages.

A Talented Set of People

These achievements have been made possible by a skilled and dedicated staff consisting mostly of experts in geography, cartography, photogrammetry, telecoms, GIS and IT, and now numbering over 100. Thanks to them, ISTAR has expanded from its head office in Sophia Antipolis, France, with the support of its production plant in Toulouse, France, to become one of the world's largest and most successful private companies in the area of digital geographic datasets. ISTAR's international expansion has prompted the opening of a US subsidiary in 1999, followed by operations in Singapore, Buenos Aires and Sao Paulo in 2000.

Land & Mapping Services, Clearfield, Pennsylvania

Land & Mapping Services is a mapping firm with offices in Clearfield, Ebensburg, Emporium, Titusville, Kersey and Erie, PA. Land & Mapping Services is involved in digital photogrammetric mapping, softcopy and digital orthophoto production, CAD edit, GPS control, location and mapping, LASER scanning and modeling, land surveying, and forest management. Five Registered Professional Land Surveyors have registrations covering eleven states. Also on staff are a Certified Photogrammetrist and seven Certified GPS Technicians.

Leica Geosystems, Englewood, Colorado

Leica Geosystems, Inc. is the new name for a collection of famous names in the survey instrumentation business, including Wild, Wild Heerbrugg and Kern. Starting in 1987, Leica established a close business relationship with Magnavox commercial GPS and later acquired that company in 1994. Magnavox was one of the pioneers in satellite positioning starting in 1968 with the Transit satellite navigator system. In 1989 Leica developed the FARA technique for solving interger ambiguities and thereby set an industry standard for rapid static GPS surveying. In 1995 Leica System300 was the first to successfully complete FGCS testing of real time kinematic (RTK) GPS surveying. During the last ten years Leica has led the industry in innovative product design of GPS receivers and sophisticated processing software.

Announcing Leica's GIS System50 GPS for GIS Applications

Leica Geosystems has introduced a new sub-meter GPS receiver designed especially for the GIS professional GS50. Some of the important features of the new GS50 include:

- A comprehensive thematic data format readily compatible with the world's most popular GIS format **ESRI Shapefiles**
- Two-way attribute dataflow- *a first in the industry*- is possible via the internal native **ESRI Shapefile** data format (no need to translate!)
- Leica's powerful *ClearTrak* GPS technology provides the most precise code-based GPS measurements in the industry,
- Common platform easily upgradable to Leica's **System500 GPS** survey-grade receivers, including the SR530 dual-frequency RTK receiver.
  This provides an opportunity to do **cm-level** data-collection for GIS!
- **GIS DataPro** Windows-based office processing software is based on Leica's SKI-Pro GPS survey software
- **GIS DataPro** is included with each GS50. It lets you plan your field work and define dictionary or codelist, export to ESRI ArcInfo/ArcView, AutoCad DWG, MapInfo and MicroStation DGN; import RINEX2 from NGS CORS sites, etc.
- GS50 is a 12 channel L-1 receiver, carrier-phase smoothed C/A code
- Equipped with a combined RTCM/GPS antenna for Coast Guard Beacon, or separate GPS and DGPS antennae; OmniStar satellite also available
- Power supply is two (2) **camcorder** NiMH rechargeable batteries
- Ergonomic handheld data collector terminal has full **QWERTY** keyboard; 12-lines/32 character illuminated display, Windows-style operation with user-definable function (f) keys
- Compatible with all GPS industry standard formats: RTCM 2.0…2.2, RINEX, NMEA, etc.
- Removable **PCMCIA** memory cards with up to 85MmB storage capacity
- Unlimited number of codes within a Codelist. New codes may be defined while collecting GIS data in the field.

Malcolm Pirnie, Inc., Buffalo, New York

Malcolm Pirnie, Inc., an environmental engineering firm with over 1,300 engineers, scientists, consultants, architects and technical support staff in 45 offices nationwide, assists federal agencies, state, county and local governments to rethink, retool and improve how they deliver services.

We have over 100 GIS users within the firm and a team of over 20 experts in GIS design, modeling, programming,

integrated web mapping, and database development. The GIS Resource Group recently joined the Buffalo office, adding 25 collective years of GIS experience to the Malcolm Pirnie team.

We help municipalities, water, wastewater, and electric utilities identify and benefit from organizational, financial, technical, and operational improvements. Moreover, we assist their staff in preparing for unexpected events such as water security threats and other emergencies. Our staff brings firsthand, real-life experience in disaster preparedness, risk mitigation and public safety responses to situations ranging from snowstorms, flooding, earthquakes and toxic chemical releases. Our GIS staff helped Erie County rapidly recover from the January 2002 snowstorm and quickly obtain FEMA funding. Malcolm Pirnie's GIS team was recently selected by the Alabama Office of Water Resources and FEMA to develop an integrated GIS based flood map modernization program.

Malcolm Pirnie is committed to solving problems – always looking for the most effective and efficient solutions for improving performance in government. To learn more about Malcolm Pirnie, visit www.pirnie.com

MapInfo Corporation, Troy, New York

A global company and technology leader, MapInfo provides location intelligent solutions that are deployed across government organizations to help them use and share geographic information to better understand and meet the needs of constituents. MapInfo designs, develops, licenses, markets and supports software and data products, together with a range of consulting, training and technical support services. These products and services enable government organizations to correlate, visualize, and analyze location-based information in their databases and to deploy applications throughout their organizations. MapInfo helps improve the way citizens view government services by providing easy-to-access, self-service interfaces to government information- making government more accessible. Enterprise applications using MapInfo's integrated suite of software and data products allow governmental organizations to use location intelligence to manage resources, generate funding for and deliver valuable programs. State agencies are exceeding citizen expectations with location-enabled, web-based applications that offer easy access to important information. And local governments are managing day-to-day operations easier than before. MapInfo is a member of the Open GIS Consortium, Inc. and implements OGC specifications in our products. MapInfo's solutions fit seamlessly within government IT infrastructure - from PC to enterprise-wide to Internet and wireless applications - MapInfo offers a complete line of integrated products.

With more than 700 employees worldwide, MapInfo's global footprint includes subsidiaries in Canada, the United Kingdom, Germany, Australia and Japan; distribution relationships throughout Europe and Asia; and a worldwide network network of channel partners.

Mapping Analytics, Rochester, New York

Since 1989, Mapping Analytics has provided valuable, location-based solutions that enable organizations to make accurate decisions faster. Our clients, ranging from a large state agency to local government and the Fortune 500 to companies in the New Economy, have utilized Mapping Analytics expertise to create a competitive advantage through their ability to better identify opportunities, deploy resources and manage their assets.

Mapping Analytics provides

- software and data
- analytical and mapping services
- custom application development.

Come and talk to us regarding our capabilities or see our latest application, "**RoadCondition**", developed for NYDOT. **RoadCondition** is used to collect pavement condition information on a real time basis. Using a tablet PC with a touch screen and communicating with both GPS and a DMI (Distance Measuring Instrument), **RoadCondition** is a cost effective tool for the effective collection of pavement condition information on a real time basis.

Come and see how you can enhance you ArcGIS project with National Geographic's award winning TOPO! Maps, hillshade and Digital Elevation Models. Or let us show you how to improve your operations and cut costs while improving customer service with ArcLogistics Route.

PAR Government Systems, Rome, New York

PAR Government Systems Corp (PAR), a New York State company, specializes in front-end data development, water resources engineering, and geospatial information technology services for government and commercial organizations. With over 30 years experience, PAR's multi-disciplinary staff provides the following technical and engineering services:

- GIS-based Flood Modeling and Mapping
- Water Quality Modeling and Assessment
- Hydrologic and Hydraulic Engineering
- Aerial Surveys and LiDAR-based Digital Terrain Modeling
- Geospatial Database Development and Management
- Remote Sensing and Image Processing
- Multispectral/Hyperspectral Image Analysis of Satellite/Aerial Imagery
- Imagery Archiving and Retrieval Systems
- Systems Design and Software Engineering

PAR is a certified ESRI Business Partner, and provides value-added solutions to ESRI's GIS software products. PAR has a successful track record in developing systems that integrate comercial-of-the-shelf (COTS) software products, such as ArcGIS and Oracle, with custom decision support software. PAR's Flood*Ware™ product, a GIS-based set of LiDAR-based terraine modeling and hyraulic modeling and mapping software tools, supports the New York State Floodplain Mapping Program and FEMA's Map Modernization Program. PAR specifies the collection of aerial color and color IR digital imagery, LiDAR, and multispectral data to incorporate in geospatial analysis and products. We support the acquisition and processing of color and color IR digital imagery for USGS Digital Orthophoto Quarter Quadrangle (DOQQ) production with its business partners Emerge and Landcare Aviation. PAR provides value-added QA/QC of LiDAR data and DEM development, and land cover/land use classification of satellite/aerial imagery.

Please visit our booth and discuss your geospatial needs and PAR Government solutions. For additional corporate information visit our web site at www.pargovernment.com.

Penn State University, State College, Pennsylvania

No matter what your field or industry, Geographic Information Systems (GIS) technology is playing an expanded role. Penn State's Online Certificate Program in GIS offers you the opportunity to learn the background, develop the expertise, and uncover the latest information about this leading-edge field. The recognition of Penn State faculty and the convenience of online courses combine to make Penn States Online Certificate Program in GIS a reputable and accessible solution to your ongoing personal and professional development. Visit www.worldcampus.psu.edu.

SI Systems, Inc., New York, New York

For over 10 years SI Systems consultants have blended creative energy and a scientific approach to intelligent data design, development and support for real time, enterprise-wide systems. We maximize the returns on your investment, protect your investment and mitigate risks associated with your corporate data. SI has developed a successful track record in the following areas:

- Design, Develop and Implement Business Intelligence systems

- Performance Engineering and Support of Database systems
- Integrate Enterprise Databases into GIS applications

Spatial Information Technology Center/ Fulton-Montgomery Community College, Johnstown, New York

The Spatial Information Technology Center, or SITC, is a joint effort between NASA's Stennis Space Center in Mississippi and Fulton-Montgomery Community College. The Center began offering credit courses to the public in September 2000.

With a large demand for skilled workers, the field of Spatial Information Technology offers a bright forecast for those who wish to pursue a career in technology.

FMCC offers a Spatial Information Technology Certificate and an Associates of Science degree program. While the certificate provides a 30 credit hour professional and technical education foundation, the 67 credit hour degree is designed to help students jump-start active careers in spatial information management or serve as a foundation for bachelor or graduate degrees. Each program involves the disciplines of Geographic Information Systems (GIS), Global Positioning Systems (GPS), Remote Sensing and Cartography.

The Center introduces students to the basic philosophy that Spatial Information Systems deal with geographical information, or data, such as where something is located, where it comes from, or how it fits together with other geographic data. Geographic Information Systems allow us to conduct spatial analysis in ways that are expanding daily.

SITC emphasizes that spatial analysis is an essential process used in decision making for business, industry and government. The diversity of applications is highlighted throughout the program.

Issues unique to upstate New York, or those having a global impact, are examined and analyzed. Career paths and opportunities are presented with an eye to a rapidly expanding field.

TerraSim Inc., Pittsburgh, Pennsylvania

TerraSim provides software solutions and services for advanced simulation database construction using a wide variety of commercial and military cartographic data sources. Our product, TerraTools®, can fully automate the construction of geospatial databases ranging from dense urban environments to regional military exercises. TerraSim also provides database construction services and advanced technology concept development in areas ranging from real-time visualization for city planning to specialized defense applications.

Waypoint Technology Group, Albany, New York

Founded in Albany, New York in 1997, Waypoint Technology Group provides a wide range of Global Positioning System ("GPS") mapping and surveying solutions for businesses, government, and educational institutions in New York State. In addition to GPS equipment rental, system integration, and training, Waypoint offers customized field mapping and data collection services for clients who require an efficient means for mapping and managing field assets, resources, and other physical features or conditions. At Waypoint Technology Group, our principal focus is in providing a full range of GPS services designed to help our clients acquire georeferenced data, and, in turn, translate that data into information that can be used in making sound business decisions. Waypoint's clients include ecological consultants, municipal planners, land surveyors, engineers, golf course developers, and mining and telecommunications companies. Waypoint is an authorized dealer of survey and mapping-grade GPS systems for Trimble Navigation, Ltd., the worldwide leader in GPS. As a Trimble dealer, Waypoint provides product distribution and technical support for the full line of Trimble GPS survey and mapping products. Waypoint Technology Group is on the Worldwide Web at www.waypointtech.com .

Weiler Mapping, Inc., Horseheads, New York

The Weiler organization has been providing high quality geographic data services since 1954. Based in Horseheads, New York, our success has been built by highly skilled staff using the best technology to meet the specific needs of each client. Our clientele represents all levels of government and a wide range of private sector professional.

Weiler provides services for Geographic Information Systems (GIS) that include data conversion of assessment and utility mapping, database development and data integration. We provide development and support for environmental, resource management and many other applications. Weiler is also one of the few firms in the northeast with the staff and skill to build new and accurate cadastral maps from land records on photogrammetry.

After the project is completed, the Weiler maintenance division stands ready to continue with critical data maintenance services that are both efficient and cost effective for the client. These clients also benefit from our continuing efforts to improve the quality and efficiency of all GIS deliverables. Weiler provides unlimited telephone technical to all of our clients, past and present.

Weiler Mapping is an ESRI® business partner, offering both software sales and training. This relationship allows us to work with new ESRI® GIS software applications, helping us provide GIS solutions for our clients that are both innovative and efficient. Our goal continues to be the delivery of the best geographic data and application tools so that our clients can effectively address the myriad issues of our complex society.