"Collect Everything!" Facilities GIS in the Village of Lisle

By Dennis Gilbertson

The need for a centrally maintained spatial database was growing as the Village of Lisle grew. Public Works employees inventoried facility data with many spreadsheets and databases, all of which were independent of each other. Copies of utility atlases were scattered throughout the department and independently updated. In addition, much of the work history and attribute information for the utilities was stored within the minds of the employees themselves.

Maintenance for facilities data was in need of reorganization: as the atlases became outdated, spreadsheet updates were neglected; and as employees left or retired, so did attribute data stored in their heads. The need for a facilities GIS database development project was identified and a Request for Proposal (RFP) was developed.

RFP Preparation

Production of an RFP can be a lengthy task, and this project was no exception. A committee of village employees met on a regular basis to discuss project methodology, data needs, and database development. The committee decided to hire a consultant to assist with RFP preparation—an outside party would provide the expertise needed to enable the village to procure the data required to meet its facilities management needs.

Data creation methods were the first topics of discussion: Would the village provide existing atlases and tabular data for data conversion, or would the project start from "ground zero" and utilize data collection methods?

VOL. 2, NO. 2   SUMMER 2001

Master Address File/TIGER Modernization 2001-2010

By Scott Deuel

The U.S. Census Bureau is initiating a process of modernizing its Master Address File (MAF) and Topologically Integrated Geographic Encoding and Referencing system database (TIGER) that is much different from the maintenance and update process that occurred in the last decade.

During the 1990s while the Census Bureau was building the MAF, only selective updates were made to the TIGER database. These updates were primarily limited to street feature and address range additions that enabled the Census Bureau to geocode down to the block level new addresses that

The Editor's Corner

By Larry Gunderson

Vendor neutrality is difficult to achieve when discussing GIS in almost any context. As with past editions of *Illinois GIS Notes*, this issue features articles written by ILGISA members that refer to specific GIS software vendors. Though we try as best as we can to be vendor-neutral, the ILGISA Board and the editors of this newsletter face a constant challenge to present newsletter articles and conference topics that fairly treat the vendors of GIS software and services while still addressing the needs of the ILGISA membership. However, it bears repeating that it is specifically stated in the association bylaws that ILGISA shall never engage in "promoting or favoring any single for-profit vendor or product," and the Board takes this directive seriously.

This point came to mind when attempting to develop a regular newsletter column devoted to software training or "tips for success." This concept was identified when the ILGISA membership was surveyed prior to the publication of the first *Illinois GIS Notes* newsletter. The general idea was to have a regular column where an ILGISA member could provide technical information of particular relevance to the ILGISA membership.

While this remains a good idea, just how it could be implemented requires a little thought. Should we stay in a somewhat neutral area, such as tips on working with *de facto* operating systems like Windows NT/2000 or development environments like Visual Basic? Or do we steer clear of software altogether and feature how-to articles on developing requests for proposal or hiring GIS professionals?

I am interested in hearing from the membership on this issue. If you have ideas on how to present technical how-to articles in a non-vendor-specific manner, I'd like to hear them. Just drop me an e-mail at gundersonl@naperville.il.us. There is a lot that can be learned from the many talented individuals in ILGISA, and the training articles would be a great way to tap into that resource.

Larry Gunderson is Editor of Illinois GIS Notes and GIS Manager with the City of Naperville.

2000 ILGISA Dahlberg Distinguished Achievement Award Recipient

Richard Hilton

Richard Hilton is GIS Manager of the Lake County Management Services Department. He had the vision in 1983 to set computerized mapping and GIS technology into place when the Mapping Department was brought under Management Services.

Richard was instrumental in building and steering the GIS program for Lake County, fostering multiple cooperative agreements with federal, state, and local governments along the way. As a champion of cooperative partnerships, he continues to cultivate collaboration, cooperation, and partnership agreements with agencies outside of the county and state in the interest of supporting a richer and more functional GIS. Richard also educates recipients of Lake County GIS data so that they fully understand the data they receive.

Richard's dedication to the GIS profession includes a commitment to educating and assisting individuals as well as agencies. He provides a strong learning environment for the many interns who cross his path, mentoring them in GIS technology and principles and helping them establish a clear vision of their educational and career goals.

Richard was a founding member of ILGISA and continues to provide timely information, expertise, and wise counsel in promoting the use of GIS technology throughout the state. It is because of these contributions to the Illinois GIS community that Richard has been recognized with this distinguished achievement award.

From where I sit...

Notes from the desk of
Gail A. Krmenec
ILGISA President 2000-2001

Now is such a great time to be a geographer. With the maturing of GIS, many outside the geographic community are finally finding value in our skills and appreciating the perspective that a spatial approach brings to social and environmental issues. Plus, we've got all those cool toys!

In Illinois, ours is an ever-growing community of GIS practitioners and benefactors. We have certainly witnessed this in the last several years in the ILGISA organization.

We continue to attract many new attendees at our spring conference in Urbana as well as the fall conference in the Chicago metropolitan area. So much so, that we have outgrown the available conference facilities in Urbana. Next year's spring conference will be moving to the Radisson Hotel & Conference Center in Bloomington, Illinois.

While the fall conference this year will still be at the Radisson in Lisle, Illinois, there is the strong possibility that we will need to move to a larger facility in the future to better accommodate our members.

Planning for the 2001 fall conference is well underway. Last year we tried something new on the first day of the conference, traditionally the day for workshops. Two half-day workshops were offered in addition to the normal three full-day workshops. One full-day workshop was conducted as a hands-on session at the Northern Illinois University Naperville campus computer lab. The response to the changes was very positive.

We would like to continue to offer more workshops as a service to our members. If you are capable and willing to share your talents and expertise, consider volunteering as a workshop organizer or presenter.

There are many GIS novices looking for information, direction, and someone to share the do's and don'ts of the profession. If you can't volunteer for the fall conference, consider volunteering for the spring conference. Organize a session. Make a presentation or submit a poster. Offer to help the program chairs.

If you can't be actively involved, be a professional mentor: bring your colleagues or new members. Spread the word, now is a great time to be a geographer!

ILGISA Spring 2001 Conference Review

The April conference in Urbana saw attendance numbers up from last year's spring meeting, with 185 conference attendees and 139 workshop participants.

Workshops provided useful information for both novice and experienced GIS professionals. Survey respondents were particulary impressed with "Turning Imagery into Information." They found the workshop interesting, informative, and well presented, with one attendee enthusing that it "opens up all sorts of possibilities."

The workshops on ArcIMS, leveraging GIS for E-Government, and managing GIS within an organization generated positive comments as well.

Session topics were wide ranging, addressing a variety of topics including GIS program startup; county and community planning; GIS standards; GIS on the Internet; applications such as emergency planning, forest monitoring, and habitat studies; and Census 2000.

Illinois State Representative Tom Berns delivered a keynote address on land surveying, the Illinois legislature, and GIS in Illinois. Rep. Berns is the first surveyor to serve in the Illinois Legislature since Abraham Lincoln.

The ILGISA Board and Spring 2001 Conference Planning Committee thank all of you who attended the Spring Conference.

(continued from page 1)

Data conversion would seem to be the least costly option: the data would be delivered quickly, and we would have everything from the village atlases digitized—a "snapshot" image of the atlases on PCs. But data collection would provide higher accuracy and precision of facilities and their locations, and attributes that were once a mystery would be collected.

We estimated that the cost of a data collection project could be near $350,000, but the importance of up-to-date facilities data outweighed the cost "savings" of digitizing non-geographically referenced atlases.

Assessing data needs involved consulting with the Public Works users. The common answer to the question, "What data needs collecting?" was an obvious, "Well, everything!"

Before the assembly of a database dictionary, we would need to define what the Public Works employee means by "everything." Each foreman for the water, sanitary, and stormwater facilities was asked to list facility pipe and structure types as well as the attributes they would like to have collected. Our consultant took the lists of "needs" and assembled a database dictionary.

It was important that the spatial database be flexible and have the ability to expand on existing tables and incorporate new tables. Any investment in GIS should not jeopardize the abilitiy of future administrators and users to expand the database as needed. The Village of Lisle uses ESRI software, so the spatial database was drafted for use as ArcInfo coverages and ArcView shapefiles.

The committee anticipated the possibility that our budget estimates for the project would be too low; so to prepare for this, we divided our project into phases.

The first phase called for the minimum data delivery that would include basic vector data for the three utilities, with structure and pipe identification numbers as attributes. The RFP also stated in the scope of work that all spatial attributes that can be field collected, shall be field collected.

We were able to draft a database that met our user needs and had the ability to expand with the needs of the Public Works department. The primary feature table would have fields for identification number and feature subtype. The remainder of the database would include relate tables with the attribute information for the subtypes from the primary feature tables.

Contractor Selection

Municipalities continually search for the vendor or contractor that will provide the best product and services at the right price. Our search would be for professional services; therefore, we decided to use qualifications-based selection (QBS).

We solicited nearly 30 companies with requests for qualifications and statements of interest. Of those companies, 13 responded. The committee then evaluated each company's qualifications. The evaluation questions were of varying weighted scores, and from this process we were able to narrow the search to seven companies. (QBS requires at least three companies to choose from in case the chosen company and municipality cannot negotiate a price.) The final seven submitted technical proposals that we evaluated on an evenly weighted scale.

The QBS process requires that project costs are to be submitted

Village of Lisle Facilities Data
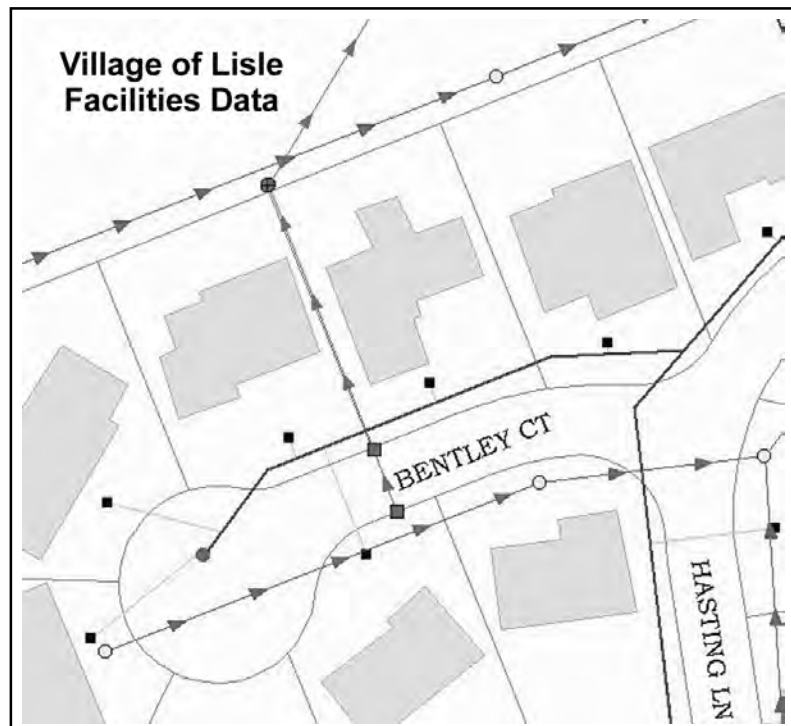
Our contractor surveyed a network of GPS baselines utilizing monuments from Will County, the City of Naperville, and the Illinois State Toll Highway Authority. Geodetic-grade GPS receivers capable of millimeter horizontal accuracy and centimeter vertical accuracy were used to set eight Berntsen 3-D monuments throughout the village. Azimuth points were measured and marked with rebar and plastic caps at their locations.

Secondary survey control was established by setting nails at street block corners and section corners. The final survey control spatial database includes the following attributes: survey point identification number, Illinois State Plane Coordinates, elevations, survey type code, and a relate table with latitude and longitude coordinate values. A total of 1,023 survey positions were recorded for this project.

The contractor hired for the facilities data collection process collected all of the structure locations and attribute data we had requested. Ninety percent of the data were collected using total station survey receivers. The other ten percent were collected using GPS where tree canopy did not restrict satellite reception. The data were collected at an accuracy of ±1.0 feet horizontal and ± 0.1 feet vertical or better.

Structures were located visually and with metal detectors by the contractor's surveyors and

assigned incremental numbers indicating the running total of points collected. The incremental numbers also served as structure identification numbers for workers that would be revisiting the structures.

The surveyors then went back and collected structure locations. Total stations were set up at secondary control points, normally at street corners. They collected x, y, and z measurements and structure type data for all facilities along the street within view of the survey total station.

The data collected were uploaded to AutoCAD software at the contractor's office. CAD technicians assembled the point data and created the lines representing pipes. Network lines were not required to be field collected—they were assembled as straight lines between points. After assembly in AutoCAD, data were converted to ArcInfo coverages with arc/node topology.

A village employee revisited the structures to log attributes to a database using a handheld computer with the Microsoft Windows CE operating system. Attributes collected include pipe type, diameter, and material; structure diameter and material; frame height and type; lid type; rim elevation; number of rings and ring material; invert elevation and depth; hydrants; mainvalves; service valves; and fittings.

Because revisiting structures increases the chances of data error, both the contractor and the village conducted thorough quality control procedures throughout the data collection process.

separately from the technical proposal, thus preventing decisions from being influenced by price. The committee had reached agreement on which submittal should be ranked first on the basis of technical merit. When we reviewed the costs, we found that the company that we had ranked number one had the smallest price tag.

Data Collection

Survey control is the "backbone" of GIS data collection. All data collected and maintained relates back to the permanent monuments that established the initial horizontal and vertical control. All monuments and data for the Village of Lisle GIS are referenced to the Illinois State Plane Coordinate system, North American Datum of 1983 for the horizontal datum and the North American Vertical Datum of 1988 for the vertical datum.

(continued from page 1)

were identified during the MAF building process. Little effort was made to enhance positional accuracy of features in TIGER or to update existing attributes unless it was necessary for geocoding addresses in the new MAF.

For the current decade, the Census Bureau is planning to continue to update and add new street features and address ranges in order to geocode address additions to the MAF. In addition, plans are underway to upgrade the positional accuracy of the features in TIGER; update existing address ranges and features— including non-street features; and move toward the use of GPS technology and file sharing for TIGER and MAF maintenance.

...plans are underway to upgrade the positional accuracy of the features in TIGER...and move toward the use of GPS technology...

Some of these changes are necessary in order move TIGER maintenance away from being a clerically intensive and time-consuming operation to one that is more automated and produces more accurate updates in a more timely manner.

Enhancing the positional accuracy of features in TIGER will enable the Census Bureau to adopt GPS technology in the field. The use of GPS will enable Census Bureau field staff to more quickly and accurately capture feature and housing unit locations for inclusion in TIGER and the MAF. Moreover, enhancing the positional accuracy of features in TIGER will make file sharing easier as there will be a closer match up with features from other files.

MAF/TIGER Maintenance

The goal of MAF/TIGER maintenance has been to link every address in the MAF to an address range and block in TIGER. In the past, this linkage was limited to addresses used for the mail delivery of questionnaires during the decennial census. However, mail delivery excluded a significant number of addresses in blocks where alternate delivery methods were used. As a consequence, address range coverage in TIGER was limited—particularly in rural areas and small towns. This MAF/TIGER link and associated address ranges will now be expanded, thereby increasing the geocoding capabilities of TIGER.

The nature of the MAF maintenance is also changing. In the past, additions to the MAF came from two sources: 1) periodic updates from the U.S. Postal Services Delivery Sequence File, and 2) a single update of addresses from local governments through the Local Update of Census Addresses (LUCA) program at the end of the decade. Plans are underway expand the sources of addresses used to update the MAF.

Updates from the postal delivery file will continue to be incorporated into the MAF. In addition, there are plans to go to an ongoing LUCA program to get more input from local governments in the MAF building process. This program will enable the inclusion of addresses captured through listing processes associated with

the Census Bureau's ongoing surveys.

Upgrading the Positional Accuracy of TIGER

One of the primary goals of TIGER maintenance this decade is to upgrade the positional accuracy of street features in TIGER. Since TIGER was first created in the 1980s, there has been a gradual decline in the positional accuracy of features in TIGER relative to ground truth. This decline in positional accuracy has accelerated in recent years as new features have been added to existing features in TIGER that are already out of alignment.

The lack of positional accuracy has negatively impacted the Census Bureau's ability to accurately geocode addresses to the correct jurisdiction. It also has negatively impacted the ability of local governments to participate in Census Bureau programs, such as the Boundary and Annexation Survey update programs, in which positional accuracy of features is critical to correct placement of boundary updates by local governments for inclusion in TIGER.

The current plan is to acquire local files with a high degree of feature positional accuracy, which will be used to replace the less accurate coordinates in TIGER as well as add new features to TIGER.

The targets of this process would primarily be street features. However, if there are other features in the files that are also positionally accurate—such as hydrography, railroads and transmission lines—these features would also be included in the coordinate replacement process.

So far, the Census Bureau has identified and acquired digital files for an initial group of counties to go through this process. Once these are complete, the process of coordinate replacement will continue throughout the decade. The Census Bureau's goal is to enhance the positional accuracy of features in all counties in the nation in time for the 2010 Decennial Census.

> *The Census Bureau's goal is to enhance the positional accuracy of features in all counties in the nation in time for the 2010 Decennial Census.*

Upgrading TIGER Attributes

Paralleling the move to enhance positional accuracy is a plan to upgrade and expand through file sharing the attributes associated with these features. These attributes include address ranges, ZIP codes, feature classification codes, and boundaries.

Similar to the move to enhance positional accuracy, the goal for attribute upgrading is to get away from the existing clerically intensive operations that are slow and prone to error and move to a process of ongoing file sharing with local governments. Updates through file sharing have already been done on a limited basis with address ranges. Updates could be expanded as the Census Bureau expands the address coverage in the MAF.

A similar move is also underway with the Boundary and Annexation Survey, with plans to accept some responses on the Internet and go to a fully digital survey by mid-decade.

Issues Concerning TIGER Enhancement

A number of issues need to be resolved before the new MAF and TIGER enhancement process can be put into effect. One issue is the quality of the files that will be accepted. In the past, there was no formal quality assurance process for evaluating information included in TIGER. In all likelihood, such a process will now be adopted—especially with the current emphasis on upgrading the positional accuracy of TIGER.

Another issue is the priority for accepting files. Currently, the Census Bureau has a number of county-wide files with good positional accuracy. These will be the first to be used to enhance TIGER. Beyond this, the priority will be other files with good centerline coordinates, followed by areas with recent imagery. Areas with no files and no recent imagery will be done last. Traditional update methods will probably be used for these.

There is also an issue concerning what to enhance in TIGER. At a minimum, the Census Bureau wants to enhance the positional accuracy of street features, followed by hydrography, railroads, and other physical features.

Non-visible boundaries would be rubber-sheeted into position once the physical features had moved to the new coordinates. This will necessitate conducting a Boundary and Annexation Survey for the government units in the enhanced area because there is a good chance that the current locations of many of these non-visible boundaries will be slightly out of position.

Finally, the Census Bureau has a number of ongoing operations that rely on TIGER. These operations cannot be postponed until TIGER enhancement is complete, nor can we assume that the newly enhanced TIGER can adequately support these operations.

There will probably be a period when the Census Bureau maintains a dual TIGER database—one with the enhanced feature coordinates and one with the existing coordinates. As more of the enhanced TIGER database becomes available, it will be used to support the ongoing operations and the old TIGER database will be phased out.

> *... the Census Bureau hopes to ... move to an ongoing program of file sharing with local governments and agencies.*

The current plan to enhance TIGER and the MAF is only now being put into effect, and it will be a decade-long process. During that time, the Census Bureau hopes to gradually upgrade the accuracy and coverage of the two databases and move to an ongoing program of file sharing with local governments and agencies. The goal is to have a TIGER database that better meets the needs of both the Census Bureau and its customers by 2010 .

Scott Deuel is Geographic Coordinator with the Chicago Regional Office of the U.S. Census Bureau.

GIS Website Enhances Watershed Planning Process

By Richard Farnsworth

The Illinois Watershed Management Clearinghouse website hosts the "Map Illinois for Watersheds" web-based mapping system. The purpose of the interactive site is to provide assistance to watershed planning groups with issue identification and analysis, watershed characterization and exploration, reporting, and map generation.

Ask your colleagues to name pivotal moments in their careers, and they will recount those events in excruciating detail, second by second. For me, incorporating GIS into watershed management represents one of those career-enhancing moments.

The year was 1997. A month earlier, a watershed group had asked me to generate several maps of their watershed and present them to the committee at their next meeting. A talented graduate student made the maps for me. I made overheads, gave the presentation, handed out printed copies, answered a few questions, thanked the committee for inviting me, and found a chair in the back of the room fully expecting great things to unfold before my eyes. Two or three minutes later, the maps were added to a large, disheveled stack of reports, other maps, publications, books and other printed materials in the center of the conference table. Needless to say, disappointment set in quickly.

During the drive home that evening, I kept seeing that stack of materials with my maps slowly disappearing into the heap. "Mired in data," the committee made very little progress.

I kept thinking there had to be a better way. Then it hit me. Rather than a tool to be used occasionally during watershed planning, GIS provides the means for managing and analyzing that mountain of materials and should be fully integrated throughout planning, implementation, and evaluation. Furthermore, the public should have access and be able to use GIS in their decision-making process without having to be GIS experts.

A decision was made to develop a GIS website to enhance the watershed planning process. Funding was a problem and delayed implementation for several years. The Council on Food and Agricultural Research recognized the importance of GIS and provided seed money to develop a website and collect data. The site was developed and is maintained by the College of Agricultural, Consumer and Environmental Sciences at the University of Ilinois at Urbana-Champaign. In October 2000, the Illinois Watershed Management Clearinghouse (http://web.aces.uiuc.edu/watershed) became available to the general public.

When you access the website, click on "Maps" and you will be redirected to "Map Illinois for Watersheds." All a user has to do is use the mouse to find their watershed on the Illinois map and then click. The next view they see will be their watershed.

With a few clicks, any watershed group can select a base map layer (Land Use, Topographic, Shaded Relief, etc.), overlay the base map with data layers (Roads, Streams, Floodzones, etc.), and print the map.
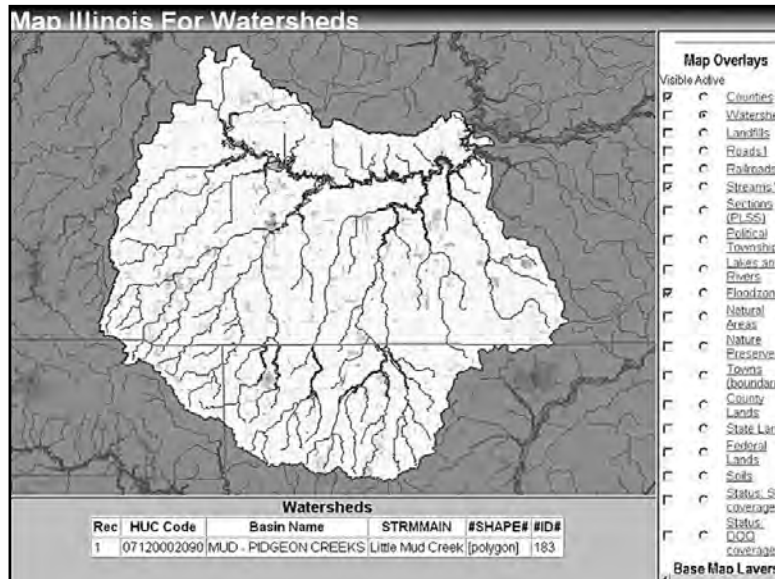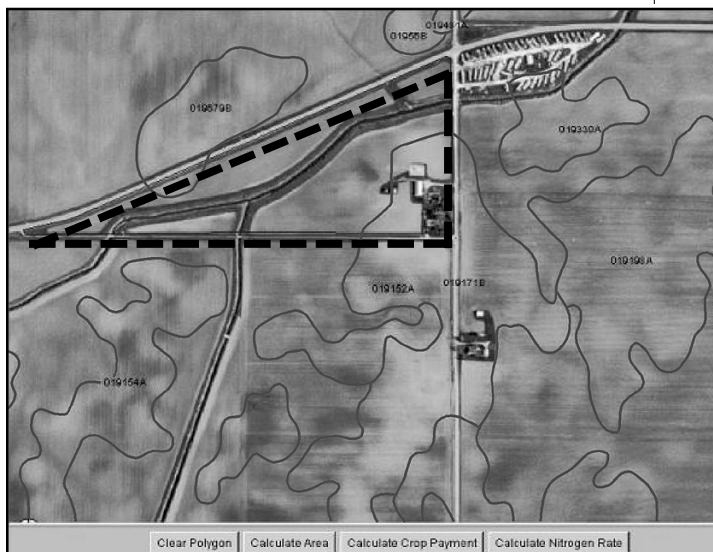

Streams and Flood Zones have been added to Land Use, the base map layer. These layers may be removed and new data layers added by checking the data layers to the right of the map.

The map engine also comes with several tools that watershed groups can use to query the data layers and conduct simple analyses. The Identify, Find, and Selection tools, for example, allow the user to identify and zoom to specific features and gain access to the data behind the map layers. Two more powerful tools, buffer and query, enable more complex decision-making.
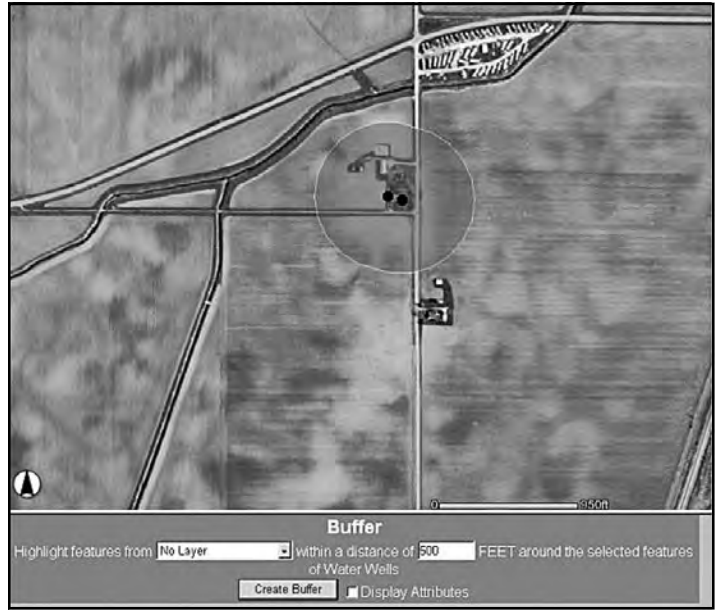
The buffer tool, for example, has been very useful in helping users identify problems in well setback zones. In agricultural watersheds where urbanization has become a real problem, a couple of groups have used the query tool and the county's soils data to identify highly productive farmland and possibly avoid the loss of this irreplaceable resource.

In May 2001, the website development group initiated phase two of the project. During phase two we will continue to add new data layers as agencies and organizations make them available. More importantly, we are developing new tools to help watershed groups make better decisions and implement their plans.

One new tool, for example is our Acreage Calculation tool. When it becomes available in September 2001,

The buffer tool was used to draw 500-foot buffers (shown as black circles on this image) around two wells located on a farmstead. If these wells are primarily recharged by the immediate surface area, the sources of contamination would include activities that occur on the farmstead and surrounding cropland.

users will be able to outline an area of particular interest (e.g. possible location of a new park, an environmentally sensitive area, or a planned new development site) and a few seconds later receive an acreage report. Soil types and their percentages will also be returned where a digitized soil survey exists.

In addition to offering GIS functionality for watershed management, the "Map Illinois for Watersheds" site provides links to related sites such as data providers and other governmental mapping programs and agencies.

Do we have all the answers? No. Do we need help? Yes. Please visit the site and send us your suggestions. If you discover that your goals are the same as ours, please call us so we can work together.

The Acreage Calculation tool can be used to measure the area of a user-defined polygon. The triangular area in this image measures 33.03 acres.

Rick Farnsworth is an Associate Professor of Natural Resource Economics at the University of Illinois. As Project Coordinator for the Illinois Watershed Management Clearinghouse website, he works with David Stickberg, Sally Thompson, Jim Westervelt, and Carolyn White.

Summary

The Village of Lisle was able to conduct a project for facilities GIS development that met its needs and budget. The work done in this project will be used for many years to come and has the ability to expand with the village's needs.

Based on our experiences, we recommend the following for municipalities just starting out:

- Write an RFP for facilities GIS development with flexibility for data that is continually growing and should not be restricted.

- Approach the RFP with the objective of collecting as much data as possible so that all data will have been planned for in the GIS.

- Plan data collection in phases if budget restraints create barriers.

- Incorporate user needs during the project's length.

- Keep users informed of the process and share review data to assure users that an end is in sight. Let them see what the finished product will look like.

- Let the user have, "Well, everything."

Dennis Gilbertson is a GIS Analyst with the Village of Lisle.

ILGISA Committees:
Working with You Behind the Scenes

The Illinois GIS Association accomplishes its activities each year through the efforts of ILGISA Board Members and members like you serving on various functional committees.

Currently there are seven committees, each chaired by an ILGISA Board Member. If you would like to volunteer your ideas and/or time, please contact the chair of that committee.

Nominating Committee

This committee proposes candidates for nominations as directors and as President-Elect to the Board of Directors.

Jim Carter, Chair
Phone: 309-438-8873
Email: jrcarter@ilstu.edu

Bylaws Committee

This committee reviews requests from any member for changes in the bylaws and reports their recommendations to the Board of Directors.

Ruth Anne Tobias, Chair
Phone: 815-753-0922
Email: rtobias@niu.edu

Publications Committee

This committee prepares and publishes the ILGISA newsletter, *Illinois GIS Notes.*

Larry Gunderson, Chair
Phone: 630-305-5956
Email: gundersonl@naperville.il.us

Ruth Anne Tobias

Fall Conference Committee

This committee organizes all the educational workshops and sessions for the Fall Conference.

Randy Nydegger, 2001 Co-Chair
Phone: 309-454-9575
Email: rnydegger@normal.org

Ken Lovett, 2001 Co-Chair

Spring Conference Committee

This committee organizes all the educational workshops and sessions for the Spring Conference.

Rob Krumm, 2001 Chair
Phone: 217-333-4085
Email: krumm@isgs.uiuc.edu

Honors Committee

This committee proposes candidates for ILGISA service awards and the Dahlberg Distinguished Achievement award to the Board of Directors.

Ken Lovett, Chair
Phone: 217-782-0394
Email: klovett@revenue.state.il.us

Web Site Committee

This committee prepares and maintains the ILGISA web site.

Jim Bash, Chair
Phone: 312-996-6367
Email: jbash@uic.edu

Jim Carter, Randy Nydegger

Board Member Profile

Larry Gunderson was elected as the 2001-2002 President of ILGISA at the Fall 2000 Conference. He currently serves as President-Elect and will succeed Gail Krmenec as ILGISA President in November.

Larry is the GIS Manager for the City of Naperville. Like many GIS practitioners, Larry began his career in a field other than GIS. After graduating from Western Illinois University in 1982 with a Bachelor of Arts degree in Industrial Education and Technology, he began working as a mechanical designer.

Larry became interested in computer technology and its applications in the field of geography after seeing how computer-aided design technology was applied in the mechanical design process. After a visit to Dr. Richard Dahlberg's Laboratory for Cartography and Spatial Analysis at NIU in 1988, Larry was convinced that GIS was the career of the future and shortly after embarked on a career change.

Larry held several positions for Chicago-area mapping firms before taking a position in 1991 with Computer Sciences Corporation as a contract GIS Analyst for the U.S. Environmental Protection Agency (EPA) in Chicago. At EPA, where GIS at that time was still a new software tool, Larry led several projects that demonstrated to upper management how spatial analysis could be successfully used in forming environmental protection policy.

In 1993 Larry came to the City of Naperville with the task of developing an enterprise GIS for a city that was experiencing unprecedented growth. Though still a work in progress, Naperville's GIS is one of the most extensive implementations of local government GIS in Illinois.

During his tenure with the city he earned a Master of Science degree in Management Information Systems from North Central College. He focused his research in the area of integration of GIS with mainstream information systems technology.

Larry has been involved with ILGISA since its inception, and has been an ILGISA conference presenter, session chair, and organizer. In 1998 he was elected to the ILGISA Board of Directors, in addition to being honored with an ILGISA Special Service Award for his work in promoting the development of local government GIS.

He currently serves on the ILGISA Board as Chair of the Publications Committee and editor of *Illinois GIS Notes*. As President-Elect, Larry will take over the office of President at the Fall ILGISA Conference in November.

Larry resides in Batavia with his wife, Kate, and their three sons, Jack (9), Paul (6), and Wade (4).

A Web Site Worth Visiting

*For timely information on GIS and GIS-related news, check out **www.tenlinks.com/mapgis.***

This site provides a plethora of links to information on software and industry communities; consultants and services; data sites, products, and companies; education and training; events; jobs; products and companies; articles, features, and reviews; and more. A few of the links are "broken," but there is so much information on so many topics of interest that it's definitely worth a visit.

Calendar of Events

August 12-14, 2001
Street Smart & Address Savvy Conference
(sponsored by URISA for E911 professionals)
Milwaukee, Wisconsin
www.urisa.org

November 5-6, 2001
ILGISA Fall Conference
Lisle, Illinois
www.cagis.uic.edu/ilgisa

October 20-24, 2001
URISA 2001 Annual Conference
Long Beach, California
www.urisa.org

April 9-10, 2002
ILGISA Spring Conference
Bloomington, Illinois
www.cagis.uic.edu/ilgisa

IMAGES OF **ILGISA**

GIS in Illinois
Spring 2001 Conference

Illinois GIS Association
Center for Governmental Studies
Northern Illinois University
DeKalb, Illinois 60115

ADDRESS CORRECTION REQUESTED