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The Challenges and Rewards of Discussing GIS Standards

By Tammi M. Shepherd

In the fall of 2002, members of the GIS community in Southeast Michigan came together to share their knowledge in a unique workshop organized by SEMCOG's GIS

Standards Coordinating Committee. The Parcel Data Management Lifecycle workshop was a free, daylong workshop consisting of a panel discussion, tool demonstrations by software vendors, and end user demonstrations.

It was a success for the Standards Coordinating Committee as well as the workshop participants and attendees.

The Standards Committee was created via SEMCOG charter in 1999 and was tasked with the lofty goal of collecting GIS standards for review and coordination with other county GIS programs. Some challenges that accompanied this goal included defining what standards really are and how to bring the very busy project managers to the table for in-depth discussions about standards. When most people think of standards, words such as "metadata" and "FGDC compliant" come to mind; these are intimidating words with the connotation of extra work. The idea the

Standards Committee is pursuing is, while standards may be documented in metadata, a standard is really the level of quality GIS professionals practice when doing their jobs every day. These standards are dictated by two main factors, resources and the needs of the end user.

Every community has different resources and needs, which makes the flexibility of many of those standards minimal. While the committee recognized this issue, we still felt there was room to coordinate on many levels. To make standards coordination possible, the GIS Standards Coordinating Committee is facilitating information sharing between communities. Discussions between the creators of standards can bring out the similarities in the processes and issues GIS professionals face, and potentially bring about better and coordinated solutions. As information is made available to standards creators, it is up to them to decide if other communities' standards will enhance what they are producing.

Past attempts at bringing the standards creators to the table have produced mediocre results due to the busy schedule of project managers. One of the major successes of the Parcel Workshop was bringing the key people in parcel creation and maintenance from around the region together discussing issues. The presence of these key people created an in-depth peer

Who's Doing What in GIS and Spatial Technology?

By Gary Graham, P.E.



ALPENA POWER COMPANY

Several Michigan electric utilities are in the process of implementing geodatabase-based GIS solutions, including Consumers' Power, Traverse City Light and Power, and Alpena Power Company. Alpena Power Company (APC) is a privately held power company serving approximately 16,000 customers across a 350 square mile (906 km²) service area around the City of Alpena.

To date, APC has modeled its transmission and distribution system on a series of varying scale mylar and sepia drawings. Aside from electric system features such as electric lines, poles, streetlights, and transformers, these maps also display lot and parcel lines, as well as address, block, and lot number text. This data, and property data maintained by the City of Alpena in Intergraph format, is being used to create a single system-wide electric geodatabase, and a more GIS standard, annotated, "background" property fabric.

To assist in this process, APC hired InfoGeographics, Inc. (IGI) to provide geodatabase design and implementation services, and InfoGeographics project partner Smart Data Strategies, Inc. (SDS) for conversion services.

Like many other electric utilities, APC is basing its new facilities database on the *ArcGIS Electric Distribution Object Model* originally designed by Miner and Miner, ESRI, and a consortium of other industry representatives. This model is designed as a generic template for developing a feature-based GIS database for small and large utilities. It models a full range of electrical devices along the distribution system from the substation to the end user, e.g. electric lines, poles, and transformers. For more information on this and ESRI other models, go to <http://support.esri.com>, click on "ArcGIS Desktop" and then "data models."

The base object model is intended as a template on which specific utilities can base their designs, though certain modifications are required to remove the limitations associated with its one-size-fits-all design. These modifications involve removing unnecessary data elements and the addition of others. For example, as the base model is designed to support electrical distribution systems of various sizes, it contains features and attributes beyond the use of smaller utilities such as Alpena Power, such as higher voltage ratings. These elements were removed. Conversely, other APC-specific information was added, e.g. a pole number field on the pole features class or circuit and substation fields (along with corresponding coded value domains) to the electric line subclasses.

The process of "Alpena-izing" the base model involved a series of discussions between Alpena engineers and the consulting firms. This process began with several meetings to discuss the generic model and its modification and continued via email and numerous back-and-forth phone calls. Once the model was more fully representative of APC's system, it was used to create a personal geodatabase for use in the data conversion process. Using a geodatabase in the data conversion process offers a number of advantages over a more traditional CAD-to-file-base-GIS approach such as relationship classes, connectivity rules, and attribute domains. The use of attribute domains is

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review of the parcel projects in the region. In addition to bringing everybody together for the parcel discussion, the Committee developed a survey to document the current status of parcel projects in the region. This survey was completed by each panelist, and has been compiled and posted on the SEMCOG website. The survey focused the panel discussion and is a great resource for communities looking for information about what is included in a parcel project.

The key issues touched upon in the survey and workshop were how each community approaches the business of parcel automation, maintenance, and conversion. In Southeast Michigan, there are counties and communities in each of these stages. The process of automation refers to bringing paper representations of parcels into the digital realm. The majority of the counties in the region hired outside vendors for the automation portion of the project, and much of the discussion focused on quality control of the end product. Some of the solutions included developing quality control procedures before receiving data from vendors, assigning proper resources for this task, and developing a detailed scope in the beginning.

Once the parcel fabric is in a digital format, the challenge becomes retooling and training staff for maintenance. Depending on their process for automation, there were some communities left with a significant amount of work to incorporate changes that had occurred since automation started. Overall, the amount of work required to maintain a parcel fabric varied greatly by community, as did the tools used. Many of the challenges discussed were related to organizational issues. Decisions relating to ownership of data, tools, and training all affect how a community maintains the fabric in an efficient manner. Technology can be implemented in many ways, but developing a solution that works for all the people involved and fits in with resources is the real challenge.

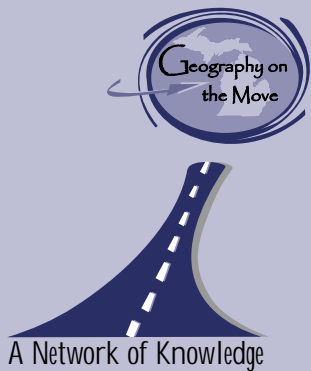
The permeating theme through each topic addressed, was that no matter what the standards and processes are, communication with the end user is the most important part of any stage of the parcel project. For most counties, a parcel automation project requires a multi-year budget, and as that process ends the maintenance project begins. Generating and maintaining political support, skill sets, and a knowledge base in the time between starting and finishing a project can be the deciding factor in whether it succeeds.

After the panel discussion, the workshop continued with demonstrations of upcoming releases of both ESRI and NovalIS tools for parcel editing. The rest of the afternoon was filled with end user demonstrations by Southeast Michigan counties and

local governments. They displayed how communities are using parcel data to improve the way decisions are made, and how business is done around the region.

This workshop was a great success because of the dedication of the 30+ volunteers who helped pull it all together. The GIS Standards Coordinating Committee is looking forward to organizing many more workshops on topics such as utilities, street centerlines, and addressing. We hope to continue providing the opportunity for communities to come together to share their experiences and learn from each other. For more information on the GIS Standards Coordinating Committee, other SEMCOG committees, and information about this workshop in particular, please visit the SEMCOG website at www.semco.org/Products/MapsGIS/parcelswrkshp.htm.

Tammi M. Shepherd, Chairperson, GIS Standards Coordinating Committee, 313.224.8453, tshepherd@waynecountygis.com




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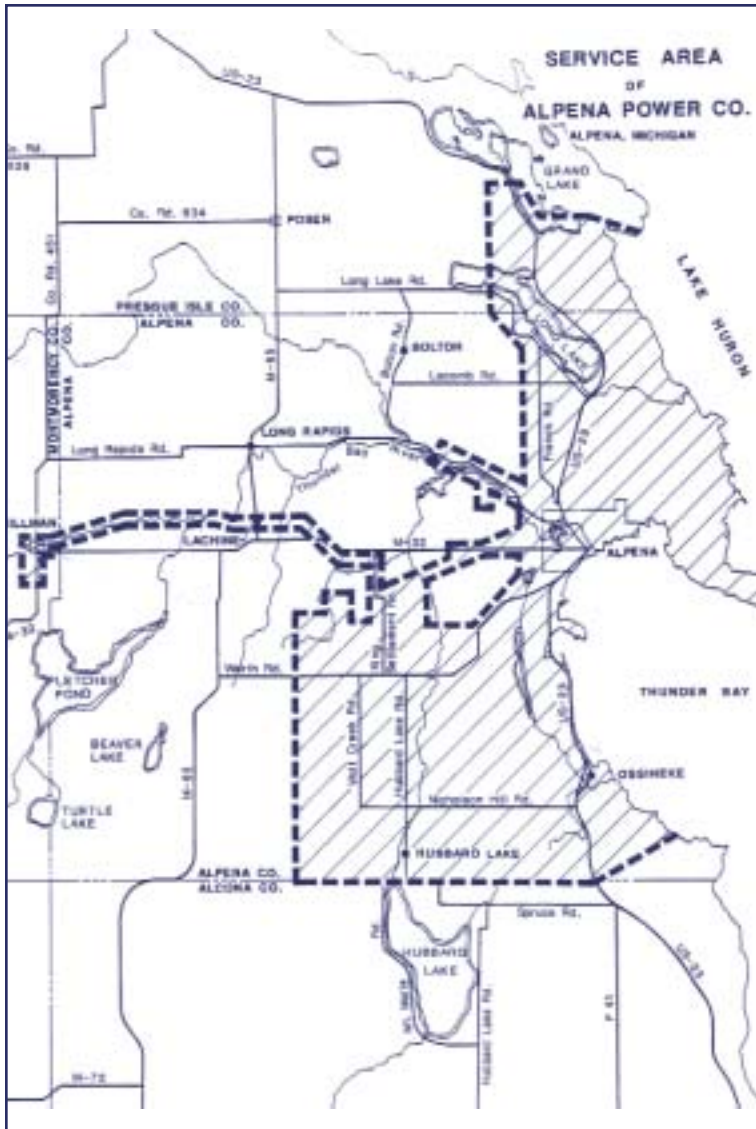
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particularly advantageous as these domains, in summary, prevent the assignment of grossly erroneous attributes.

The conversion of the analog mapping is being accomplished through a number of methods and sources. In the City of Alpena area, APC has instituted a data sharing agreement with the City and will make use of 1:1200 (1"=100') orthophotography and the property mapping performed to date using Microstation. Additional background features and primarily address annotation will be added from APC's existing maps.



Outside of the City of Alpena, the existing analog maps will be digitized into a land base consisting mainly of Michigan Geographic Framework (v2a) data and using the Digital Ortho Quarter Quad images for reference. In addition to full conversion of the electric system, elements of the existing mapping to be transferred into digital format include property/plat lines, right-of-way lines, road names, and address annotation.

Once the data is brought into the geodatabase, it will be delivered to APC for review. Following testing and acceptance, APC staff will be trained in the ongoing maintenance of this database. Other applications and links to operational databases at APC are also being investigated and will extend the use of the geodatabase in the future.

Overall, APC is excited to move off paper and into the digital world of GIS. The coincidental timing of this project and the release of *ArcGIS Electric Distribution Object Model* provides a unique opportunity to move from a traditional map form to a highly useful cutting-edge product.

For more information, please contact Brooks E. Kelley, Senior Consultant with InfoGeographics, Inc at bkelly@infogeographics.com or (231) 995-8266 or Gary Graham, P.E. Alpena Power Company at gdg@alpenapower.com or (989) 358-4951.

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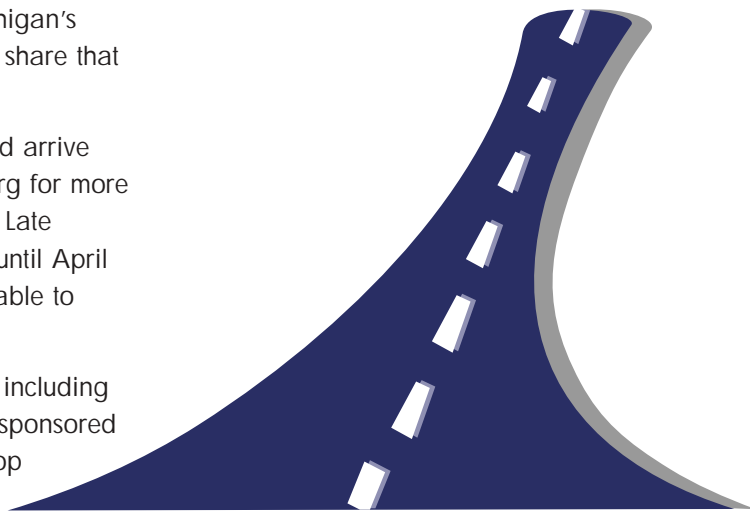


Planning for the 2003 IMAGIN Conference is in full swing. The Events Committee has completed their review of abstracts (thanks to all who submitted) and the conference schedule is coming together. We have such a wealth of knowledge amongst our membership and colleagues that Michigan's Premier GIS Conference offers the perfect stage to share that knowledge. Our own 'Network of Knowledge'.

Watch for your registration packages, which should arrive early in the New Year. Please visit www.imagin.org for more details. Early registration ends March 14, 2003. Late registrations will be accepted via mail and online until April 25th. If you miss both deadlines, you will still be able to register in person at the conference.

Pre-conference workshops will be available on-site including An Introduction to Remote Sensing which is being sponsored by MSU Center for Remote Sensing and a workshop on procurement and RFP/RFQ writing presented by Doug Marvel from Spatial Marvels. The numerous panel discussions are sure to be lively and will cover a range of topics including GIS on the Internet, how to use consultants properly, and learning how to partner with the State.

The improved Student Paper Competition, the Annual Awards Ceremony, and the Map Gallery will be part of the conference and are being organized by the Education and Quality Committee. For more details, please visit the IMAGIN website. Our Guest Speaker during Tuesday's lunch will discuss GIS Certification - a topic of interest to any GIS professional. On Tuesday evening, join us for a change of pace! We will be joined by Mr. David Thomas, a former Royal Air Force officer who is currently a faculty member at Western Michigan University's College of Aviation. The College of Aviation offers a comprehensive aviation program, and is one of the top 3 largest aviation programs in the nation.



A Network of Knowledge

All conference attendees are sure to have a great time. Plan to join us in celebrating Cinco de Mayo at our buffet reception on Monday night! What a fun way to kick off the premier GIS Conference in Michigan!

IMAGIN's Annual Board Meeting will be part of the conference line-up this year. This meeting is open to all IMAGIN members, so when you arrive, check your conference schedule for time and location. Elections for Board Members will also take place during our conference...so much to do in three days! See you in Kalamazoo!

Ole!

T. Holmes and B. Saunders
Events Committee Co-Chairs

Projects

Grand Traverse County has entered into a cost sharing agreement for planning assistance with the U.S Army Corp of Engineers (U.S.A.C.O.E.) to start the development of a Cadastral Framework of Grand Traverse County (utilizing real time GPS with +/- 5 cm accuracy) to enhance and be integrated into the County's present GIS program.

The project study will utilize the County's existing section corners, 1/4 corners, and center posts. The framework will produce a digital breakdown of all sections, down to 1/8 lines. All the aforementioned corners, which have been remonumented, will be utilized in the framework. All found corners will have coordinates established utilizing real-time GPS (approximately 5.0 cm) accuracy.

Livingston County - GIS support from County Administration and the Board of Commissioners has allowed for many GIS projects to continue. The parcel conversion is underway with over half of the 80,000 parcels COGO'd. Approval of an Intergovernmental Agreement for Data Sharing with Cities, Villages and Townships has provided 18 of the 20 municipalities all County GIS data at *no charge*. The 2003/2004 budget opens the door for future projects: **ArcIMS** and **ArcSDE** development, purchase of a **Leica GPS** unit, color orthophotography updates, and a recent contract with **PlanGraphics** to conduct an Internal Service Charge and Recovery Analysis.

Calling all Application Developers! Livingston County will be adding an Application Developer to the staff in 2003. Stay tuned to the IMAGIN website for the job posting!

Member News

IMAGIN member **Alissa Bails**, manager of the GIS division at R.A. Smith & Associates, Inc. - civil engineering, surveying and technical services consultants - Brookfield, Wisconsin, was recently selected as one of 15 finalists in Wisconsin's *Daily Reporter's 2002 Innovator of the Year* competition. Bails was nominated as a finalist based on her contribution to the GIS profession including the development of the **SuccessGIS** program. Bails is responsible for the formation of two GIS user groups in southeastern and central Wisconsin as well as a GIS training program with courses held at the organization's in-house learning center in Brookfield - all part of the education component of SuccessGIS. Bails also guided the development of an accompanying Web site - www.successgis.com - to promote the SuccessGIS program.

The sixth semiannual meeting of the ESRI Northern Michigan Users Group (ENMUG) is scheduled for January 28, 2003.

This meeting will be hosted by the Michigan DNR's Spatial Information Resource Center (SIRC) at their facilities in Roscommon.

All are welcome to attend.

For more information see the group web page: <http://www.infogeographics.com/enmug>




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Sharon Vanderbout, IMAGIN President

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