



ILLINOIS GIS NOTES

THE NEWSLETTER OF THE ILLINOIS GIS ASSOCIATION

It's Coming!
R U READY?
 GIS Can Prepare 4 the Unknown Disaster
Get Prepared

April 19-20, 2011
GIS in Action...in Disasters...in Preparation!
 I Hotel & Conference Center, Champaign Illinois

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Don't miss it!



COGITATIONS

from your President

By Mark Toolson

Well, another year gone, 2011 has arrived, and it's time for the ILGISA president to cogitate. It still amazes me at times to think that 2011 is upon us. It doesn't seem long ago that sci-fi movies were showing us what 2011 would be like. Thankfully a devastating plague has not ravaged the population and we do not find ourselves at war with machines, (at least not on most days). Yet 2011 arrives with significant challenges. The economy remains near the bottom of the most significant down cycle since the Great Depression and has to date shown only minimal signs of recovery. As a result belts continue to tighten and the ripple effect is felt at every level. Budgets continue to contract while expenses continue to climb. This formula puts governments and businesses alike in the difficult situation of searching for more and more cuts while trying to avoid layoffs and still provide quality and dependable services to citizens and customers. And if that weren't enough, the Cubs are about to embark on their 103rd consecutive season without a World Series Championship! Trying times indeed!

However....it's not all doom and gloom. Times like these often foster great efficiency gains and productivity increases, essentially making do with less. We, in the GIS field, have an opportunity on our hands to demonstrate to non-believers what a powerful and valuable tool it is we work with. As we in the field know, GIS technology brings the ability to organize, analyze, and present massive amounts of spatial data in a way no other technology can. Now is the time for us to demonstrate efficiency and effectiveness gains our GIS technology can foster.

Things are looking bright for our association as well. Our association is getting stronger with stable membership and strong conferences at a time that many similar organizations have seen declines. We have an ambitious 10 member board made up

of quality individuals I am honored to serve with. Our association members continue to demonstrate ability and desire to actively participate in planning events as well as overall guidance of our association. I am very encouraged to see so many folks interested in participating, yet there is room for more as our Board continues to develop ambitious goals for the association.

Our conferences continue to offer excellent learning opportunities to professionals in our field and anyone interested in GIS. The recent shift of our spring and fall conferences to academic settings has proven to be a good move. These settings offer excellent facilities while allowing us to hold our costs and keep our conference fees comparatively low. We are particularly excited about this coming spring conference. We are excitedly anticipating significant involvement and contribution to our spring conference from emergency management professionals. It is exciting to see expanding interest in GIS as the technology continues to demonstrate value as a strategic tool for an expanding array of professions. I hope to see many (if not all) of you at the conference this April in Champaign as we explore the conference theme, "GIS in Action, In Disaster, In Preparation!", and determine if we are ready!

Looking to the future, our board is grappling with the idea of state wide coordination. Many of us remember the Illinois Geographic Information Council which met for a few years in the late '90s and early years of the past decade as well as the efforts more recently put forth with the GIS Strategic Initiative a few years ago. Both of these represented legitimate efforts to initiate and sustain statewide GIS coordination to Illinois. While it would be unfair to say that either of these efforts failed, it would be reasonable to say they fizzled. I hope that many who were involved in the initiative effort a few years ago will consider contributing again and I hope to see involvement from all areas of the state, not just the population centers. Statewide coordination should be just that, statewide. The ILGISA leadership would like

to see involvement from, and contribution to, all areas of the state. To do this we need involvement and leadership from GIS professionals throughout the state.

Many of us felt coordination may ultimately come from Springfield. Having been plagued with political problems at the highest level, and more recently extreme fiscal difficulty, I believe it is unreasonable to think any new initiatives or programs will be forthcoming from Springfield any time soon. The ILGISA Board believes it is time for our association, as the only statewide entity representing practitioners in our field, to take up the coordination banner and try to rejuvenate the effort. To that end the board has created several new committees that are suited to foster a coordination effort.

The ILGISA Education Committee, created a few years back, is now a standing committee. This committee has already taken great strides including the creation of ILGISA student chapters. The committee is attempting to increase the involvement of the academic community in our association as well as foster general GIS education and awareness at all levels. At the recent meeting of the ILGISA Board, three new ad-hoc committees were formed including a GIS Standards Committee, a Legislative Committee, and a Webinar Committee. The Standards Committee is hoping to foster the identification and utilization of standards within our profession and our state. The Legislative Committee will be working to establish a constant awareness of pending legislation from Springfield that may affect our field and profession, as well as provide a means of spreading the word to GIS practitioners in our state about the potential effects of such legislation and any proactive measure our members may take in response. The Webinar Committee will work with both our education and website groups to facilitate educational opportunities for our members via the web. Our Board, recently expanded from 8 members to 10, is soon going to consider an expansion to 12 members simply to keep our numbers sufficient to pursue new goals

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put forth. Should the board expand we'll need an even greater level of involvement from our association members. The founders of our association wisely chose to include term limits in our by-laws. This prevents a situation where a small number of individuals can lead an organization for years without end in sight, ultimately disillusioning others and preventing qualified professionals with much to contribute from becoming involved at all. On the flip side, our association will not survive without a constant flow of members willing to step up and get involved. With this thought, and ambitious new goals, I would highly encourage any members thinking of getting involved to do so. Opportunities for involvement have never been greater, and neither has the need. We need your help!

I'm looking forward to a great year for ILGISA, seeing new faces at our conferences, and working with new folks in pursuit of the ambitious goals of our association! Best wishes to you all for a great 2011!

GIS Notes from the Editor



By the time this issue of GIS Notes reaches your inbox, hopefully the snow and cold of winter will be on their way out and an early spring will be showing signs throughout the state. Yet, if Old Man Winter persists for a bit longer, I hope you will enjoy adding this issue of GIS Notes to your winter reading.

In many ways, this issue represents a nice "cross-section" of the diverse ILGISA membership, with articles contributed by authors from government (federal, state, and local), academia, not-for-profit organizations, and the private sector. President Mark Toalson's inaugural column highlights a number of important initiatives under consideration by the ILGISA Board. We give recognition to this year's ILGISA award winners, Bill Faedtke, Dee Lund, and Rich Schultz, with articles about their achievements and contributions to GIS in the state. Be sure to check out the article by our Executive Director about her recent experiences as a student in a GIS course! And, we invite you to enter the map/photo contest, with winning entries published in the August issue of GIS Notes.

As always, we appreciate your comments and suggestions.

Best Regards, John Kostelnick, Editor, GIS Notes
jkostelnick@ilstu.edu

2011 ILGISA SPRING CONFERENCE

*Shelley Silch and John Kostelnick,
 Conference Co-Organizers*

R U Ready...for the 2011 ILGISA Spring Conference!? Please join us this April 19-20 in Champaign at the I Hotel for our Spring Conference. We have a few new ideas we will be trying out at this conference. We'll have workshops and paper sessions on both days, an emergency response vehicle exhibit planned for the first day (outside in the parking lot) and a Manager's Breakfast planned on the second day (invitation only).

We are excited to have Susan Hough as our keynote speaker. Dr. Hough is a seismologist with the USGS and works out of Pasadena, CA. She has written several books on earthquakes and was involved with the deployment of portable seismometers after the 2010 earthquake in Haiti.

Please get your abstracts ready and submit them before February 18th! We would like to have all workshops and paper sessions available for your viewing in the preliminary program. Encourage your coworkers to submit an abstract. Or send us the contact information about someone you've heard speak and we'll contact them for you!

Map/Photo Contest

Have a great map you've worked on? Or a really neat photo that you've snapped of some place in Illinois? If so, then share your talents with the rest of the ILGISA membership by submitting them for publication in the next issue of GIS Notes! The best maps/photos that are submitted will be highlighted in the August issue. Send all entries to John Kostelnick (jkostelnick@ilstu.edu).

Dahlberg Distinguished Achievement Award Winner: William Faedtke

Mary Clement

The Dahlberg Distinguished Achievement Award is presented by ILGISA to an individual who has made a significant contribution to the development and advancement of geographic information systems. William Faedtke, DuPage County GIS Manager, is the 2010 recipient of the Dahlberg Distinguished Achievement Award. Bill is the 11th such recipient to be so honored by his peers in ILGISA's 16 years of recognizing distinguished achievement in GIS. Hearty congratulations to Bill, from all your Illinois and nationwide GIS peers!

Bill, currently an ILGISA Board member, has been pro-active in GIS prior to its birth and development in the early 1980's, and throughout its formative years of the 1990's and 2000's. With over 35 year of service to DuPage County, Bill's professional experience includes management of the County's GIS framework databases, the countywide PLSS legal monument system, and a GPS CORS-based geodetic survey control network. We are very fortunate to have had Bill's leadership in the Chicago area over this entire period, and are grateful for all that he's done, unbeknownst to us, to bring GIS to its current level of indispensability in Illinois county government.

So, given this unprecedented opportunity to understand the origins of GIS in northeast Illinois, let us ask our Dahlberg Distinguished Achievement Award Winner, Bill Faedtke, to share a few of his experiences and insights with the ILGISA community...

Bill, what are your reflections on the birth of GIS back in the late 70's /early 80's, and how you fit into it? Can you share a few of your 'stories' of your GIS experiences back then?

The original intent of our program was not a GIS but a comprehensive digital mapping system. By the late 1970's, DuPage County was growing exponentially, and many units of government (County assessment /highway/planning/elections,



municipalities) were expending large amounts of money independently mapping the same features. Very few geodetic control or Public Lands Survey System (PLSS) monuments were in existence in the County, and as a result the level of accuracy of our mapping was very poor. None of the independently produced maps matched each other. Agency operations were hampered by the lack of good cartographic products, and often multiple agencies would make presentations at public hearings with conflicting map exhibits.

Your approach to GIS, with an accurate cadastral foundation, was unique and ground-breaking, so to speak. Can you please expound on this aspect, and speak to its return on investment for the County, today and in the future?

When our plan for a new unified mapping program was presented to County agencies in 1979, we encountered a great deal of opposition from departments that did not want to relinquish control over their mapping operations, or from individuals that did not believe that this level of integration was technically possible. We also encountered strong political opposition from a number of private vendors that would lose significant work if the County were able to meet all of its mapping needs with an in-house system.

How did you convince the County Board to buy into GIS so early, when the commercial software wasn't even developed yet?

Fortunately we were able to secure backing for our proposal from Jack T. Knuepfer, the

County Board Chairman. Mr. Knuepfer was a very visionary official. During his administration, many significant projects were completed including the construction of I-355, the first E911 system, a countywide Stormwater Management Plan, and the creation of the I-88 High Tech Corridor.

Despite receiving the necessary political backing we were faced with a number of technical hurdles to solve before we could start our program. The County operated a large data processing department, and it was mandated that we would have to design our mapping system to run on the existing mainframe computer. In 1979, I attended a weeklong digital mapping seminar at Harvard University which gave me the confidence to believe that creating a system was possible within the constraints of our existing computer resources. The County secured the services of the A.O. Smith Corporation's Data Systems Division, which had extensive experience in designing mainframe graphics systems for functions such as finite element analysis systems.

We were able to justify the expenditures required to develop this system by citing the tremendous amounts of funds that were being expended by many levels of government to produce inaccurate, incompatible mapping products.

I believe that the most important choice we made from the onset of our program was to base our mapping operations on a strong foundation of geodetic and legal survey control. In 1979 the County contracted with three private land surveying firms to remonument the PLSS section corners and establish state plane coordinates on the monuments. This work was done in the pre-GPS era, and required hundreds of miles of on the ground traverses to tie the PLSS corners to the National Geodetic Survey (NGS) network monumented control stations. During the period of 1979-1985 most of the PLSS section corners were legally positioned with more permanent cast iron monuments.

DuPage County's GIS leadership in the Chicago area and the Midwest are

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legendary. Can you highlight a few of your awards for innovation in the early years for us?

In 1982, the National Society of Professional Surveyors awarded the County their National Survey Project of the Year award in recognition of our preservation of the PLSS and our use of geodetic control to create an accurate digital base map.

The National Research Council (NRC) in 1983 conducted a major study to determine what would be required for agencies throughout the United States to develop systems that would meet the country's spatial information needs. In their report "Procedures and Standards for a Multipurpose Cadastre" the NRC cited the DuPage County operation as a model program for the development of such a system.

What were the milestones along the way—the accomplishments that convinced you that GIS was worth enduring its long incubation period?

By 1987, the County completed the conversion of the digital mapping of 300,000 tax parcels and was self-sufficient in the means to produce digital tax assessment atlas books, election maps, and other required base maps. With the emergence of commercially available GIS software such as ESRI's ArcInfo, during the 1990's the County was able to migrate our mapping work off of the mainframe and develop a true GIS.

The County is developing a second generation GIS and geodetic control network to meet our spatial data needs well into the future. Today DuPage is a county of nearly one million residences and we are updating our system to reflect this level of urbanization. Nearly one-sixth of our parcels today are in multi-story buildings that require us to convert our GIS cadastral feature class to a true 3-D database.

To support the growing number of surveying and civil engineering operations in the County, in cooperation with many of our municipal partners, we have installed a network of seven permanent GPS CORS sites. These stations have been accepted into the National Geodetic Survey (NGS)

CORS Network. The use of these GPS CORS sites lowers nearly in half the cost of high precision GPS field work, and provides a greater level of accuracy.

You've continued to expand the County's GIS over the years, as the software and computing environments matured. Where did you see opportunities for this, and what methods seemed to work to keep budgetary allocations coming?

One of the most important aspects of the work we have done is the collaboration with our colleagues in the many other county, township, municipal, state, and federal agencies in the region. Our cost sharing and technical management work with the other counties in the Chicago metropolitan area has resulted in our ability to procure annual digital aerials at a significantly lower cost.

During the next couple of years, we will also see a major improvement to the level of accuracy of the cadastral boundary line feature class data. The availability of survey grade GPS field units and the CORS sites have made it possible for all new subdivisions to be referenced to the National Spatial Reference System (NSRS). Our contract land surveyors are obtaining updated GPS coordinates on the PLSS corners and in older subdivision areas of the County. We are making major changes to our cadastral boundary input work procedures to reflect contemporary surveying laws and practices. These new operating procedures and GPS field data will result in a more accurate parcel layer that requires considerably less analyzation work by the GIS staff when performing updates.

If I had to note one frustration in all of my years as a county GIS manager, it would be over the lack of national GIS standards, either from the federal government or private industry. Most GIS professionals today have access to very powerful computing resources and centimeter grade measuring devices, yet we lack the ability to efficiently exchange data with our neighbors. Countless funds and resources have been wasted over the creation of an endless number of local, regional, and state GIS standards that never seem to be able to mesh together.

The federal government has proven that they can develop great GIS standards. This month the Federal Geographic Data Committee will officially approve a new Address Data Standard. Developed over the past five years, this standard is comprehensive and reflects current GIS needs and capabilities. Federal officials have declared that adequate nationwide GIS standards for transportation, parcels, and orthoimagery are most likely years away. In this era of rapidly declining budgets and the absolute need for increased GIS agency collaboration, it is appalling that these officials are not meeting their responsibilities and completing these standards sooner than later.

What advice might you have to offer to the next generations of GIS educators and practitioners?

I would especially like to express gratitude to my colleagues here at the County and at the other levels of government that have worked so hard to take a technology from its infancy and develop it into the invaluable resource that it has become today. It has become so pervasive for the press and others to bemoan the work of government employees, and yet I have experienced firsthand so many ways that GIS professionals in our state have improved the quality of life for everyone.

I believe that there are a limitless amount of opportunities for anyone in Illinois desiring to make a career out of GIS. The ones who succeed the most will be those that continually seek out partners in their endeavors, gear their thinking towards the future and not just today, and develop a boundless level of enthusiasm for what they can accomplish.

Hilton Distinguished Collaboration Award Winner: Dr. Rich Schultz

Rick Marshall

The Hilton Distinguished Collaboration Award was established in 2010 in memory of ILGISA Founding Member, Richard Hilton. Richard was a pioneer in the use of GIS in Illinois and won several awards himself, including ESRI's Special Achievement in GIS award and the United States Geological Survey (USGS) Intergovernmental Cooperation Award. Mr. Hilton served as Vice-President and then President of ILGISA for many years. His leadership is sorely missed by the ILGISA community and in his honor the Hilton Distinguished Collaboration Award is presented to an individual for extraordinary service to the GIS community in the advancement of coordination between GIS professionals. The Honors Committee may select a recipient for the Hilton Distinguished Collaboration Award when they deem it appropriate. This award is presented to an



individual who has made a significant contribution to the promotion of cooperation within our community and with the people we serve. Only one such award may be made each year.

The Honors Committee has selected Dr. Rich Schultz as the recipient of the 2010 Hilton Distinguished Collaboration Award. Dr. Schultz holds a Ph.D. in Environmental Geochemistry from the University of Cincinnati, an M.S. in Geology from Wichita State University, and a B.S. in Geology from Illinois State University. He is a full-time faculty member at Elmhurst College. He serves on the ILGISA Board of Directors, chairs the ILGISA Education Committee, and authors the GIS Educator's

Corner in the *GIS Notes*. He was the recipient of an ILGISA Service Award in 2009.

As a professor at Elmhurst College, Dr. Schultz initiated the GIS minor and the Certificate for GIS within the Geography Department. He is a great innovator for GIS education where his work on developing GIS courses to meet general education requirements serves as a model for how to build sustainable and growing geospatial programs across the state. His work and leadership at both Elmhurst College and on the ILGISA Education Committee set the benchmark for how GIS higher education programs are increasingly useful to help create a skilled geospatial workforce to match industry's growing demand for geospatial information.

2010 ILGISA Service Award Winner: Dee Lund

Brian Valleskey

Dee Lund of the Illinois State Geological Survey (ISGS) has worked as an Image Processing Analyst for the last 10 years. Besides her primary duties of photo archiving for the Illinois Historical Aerial Photograph (ILHAP) project, Dee has been involved in many other special projects at the ISGS from historical aerial orthorectification to graphic design work. Prior to working for the ISGS she spent several years working for the Wisconsin State Historical Society as an Archeologist and Illustrator. This is where she learned the GIS trade. Dee graduated from the University of Minnesota-Duluth in 1993.

Dee has been a member of ILGISA since 2001 and enjoys networking with fellow members at conferences and meetings. She feels that it is a great way to get a pulse on the GIS community and see how other organizations around the state operate.



The exchange of information can be invaluable asset in learning new ideas and applying them to her individual work.

Dee shares a passion for genealogy and history outside of work. There is a great connection between history and GIS mapping, particularly in photography. As she noted, "researchers seeking answers to drainage issues, forestry questions, survey boundaries, genealogy information, land use, environmental hazards, etc... have all found these photos to be of great importance." Dee volunteers at the Piatt County Historical and Genealogical

Society, helping them migrate to a more digital format and assists with computer-related issues. Part of the volunteering includes helping others with their individual research while pursuing research interests of her own.

When asked to peer into her crystal GIS ball and evaluate where the science of GIS is going, Dee feels that there is still an infinite amount of information and mapping still to take place and be integrated. This process can spark new mapping techniques that we haven't even begun to realize. One example is how LIDAR has revolutionized topographic data and will continue to do so. Every day methods evolve from existing ones, demonstrating that we are still scratching the surface on LIDAR and other upcoming mapping techniques and technology.

GIS Activities at Elmhurst College

Rich Schultz

Alpha student chapter of ILGISA worked hard to convey the message about the importance of GIS in many disciplines this past November during annual GIS Day activities. A booth was set up in both the Student Union and the Computer Science building (where the Department of Geography and Geosciences is housed) on the Elmhurst College campus displaying the theme of “fresh water” in connection with National Geography Awareness Week. Quizzes, maps, the end products of using GIS to produce spatial representations of people and places were also available. Without question, the biggest interest items were cupcakes displayed in the form of a world map, created by one of the student members (photo below). A good time was had in learning about geospatial concepts, problem solving using GIS, and spatial awareness. The Alpha Chapter of ILGISA was formed in 2009 and continues to expand its membership and schedule of activities with guest speakers, social gatherings, and workshops and seminars related to transitioning into the geospatial workforce.



Photo by R. Schultz



Part of the National Geography Awareness and GIS Day activities display at Elmhurst College. Photo by R. Schultz



Elmhurst College students (L to R: Alfredo Munoz, Pita Romo (standing), and Anna Paul) of the ILGISA Alpha Chapter who organized GIS Day activities. Photo by R. Schultz

GIS Day Activities at ISU and McLean County

Khalid Hasan
John Kostelnick

For the third consecutive year, Illinois State University and McLean County local government offices teamed up to celebrate Geography Awareness Week and GIS Day this past November. The theme for this year's events was "Educating our Community - Exploring our World through GIS." This year's events were held at the McLean County Government Center and the ISU Campus on November 17th and 18th, respectively.

Events at the McLean County Government Center featured GIS technology demonstrations, presentations, a cake cutting ceremony, a satellite imagery quiz, and door prize drawings. A GIS Day proclamation was read and signed by local leaders, including McLean County Board Chairman Matt Sorensen, City of Bloomington Mayor Steve Stockton, Town of Normal Mayor Christopher Koos, Illinois Wesleyan University President Richard Wilson, and Illinois State University President Alvin Bowman.

The keynote address entitled, "GIS: an Electron Microscope," was delivered by Dr. James Carter, ISU Professor Emeritus of Geography and and former ILGISA President, on the second day of activities held on the ISU campus. Eight ISU graduate and undergraduate students participated in a student GIS research competition with students Jodi Lau (Hydrogeology), Brianne Jacoby (Hydrogeology), and Trent Ford (Geography) earning top prizes. An introductory GIS workshop for undergraduate students rounded out activities for the day.

Several elected public officials, engineers, assessors, planners, students, ISU faculty/administrators, government employees, information technology professionals and members of the general public attended events on both days.



Participants in the McLean County-ISU GIS Day event pause for picture. Pictured left to right are: Josh Thompson (McLean County), Justin Nettleton (McLean County), Khalid Hasan (McLean County Regional Planning Commission), Sarah Franks (ETSB/911), Dagmar Budiková (ISU), Nick Bonarek (ISU), David Johnston (McLean County), Cassidy Killian (Town of Normal), Larry Haigh (ISU) and Bill Jackson (McLean County Regional Planning Commission).



Representatives of McLean County, Illinois State University, and Illinois Wesleyan University pictured with the GIS Day cake. From left to right: Matt Sorensen (McLean County Board Chairman); Dagmar Budikova (Interim Associate Dean, Illinois State University); Chuck Scott (Town of Normal Council; Illinois State University); Steve Stockton (Mayor, City of Bloomington); Carl Teichman (Director of Government and Community Relations, Illinois Wesleyan University).

USGS Corner

Shelley Silch

USGS Geospatial Liaison for Illinois



The National Enhanced Elevation Assessment

The use of elevation data has expanded as new technologies are able to produce very high-resolution landscape models. The term "enhanced elevation" is used to describe precise 3-D measurements of land or submerged topography, built features, vegetation structure, and other landscape detail. LiDAR (Light Detection and Ranging) has become the technology of choice for many of these measurements but radar and other technologies also play an important role. LiDAR datasets can be transformed into a dozen or more information types such as bare earth elevation, slope, top of surface (trees, buildings, etc.) and vegetation structure.

A National Enhanced Elevation Assessment has been undertaken to more fully understand federal, state, local, tribal and other national business requirements, benefits and costs associated with various program implementation scenarios. The scenarios will provide a planning basis for a potential national program optimized to balance cost and benefits in meeting priority federal, state and other national information needs. The Assessment will also address fundamental questions prior to detailed program planning, such as: Is it more cost effective for the government to manage elevation activities within the context of a national program? Are there additional national or agency benefits derived from such a strategy? What does the optimized program look like?

The Assessment is inclusive with respect to public and private input since no one entity can speak to all of the business requirements supported by elevation data. The Assessment will help discover economies of scale, potential multiple data uses, and universal business requirements that can be met through a more comprehensive national strategy for improving elevation data in the United States and its territories, including coastlines.

The Assessment is being sponsored by member agencies of the National Digital Elevation Program (NDEP). Although NDEP has leveraged limited federal and state agency resources to make progress toward an improved national elevation data resource, a national strategy has not existed with sufficient resources to implement it. The majority of U.S. elevation data are more than 30 years old, coarser than 10-meters in resolution, and do not support current and emerging requirements. This Assessment is being conducted under contract with Dewberry, headquartered in Fairfax, Virginia.

Information Gathering:

The first phase of the Assessment is to comprehensively document and validate federal, state, tribal and other national needs for enhanced elevation data. These needs, as well as cost and benefit information, will be documented for each participating organization. A two-step process includes an online questionnaire followed by workshops and interviews to refine the consolidated responses. The collection of federal agency information was initiated in October of 2010, to be followed by the state, local, tribal and selected industry information gathering in the spring of 2011.

Follow on Assessment Tasks:

- Analyze the business-use and benefits information to develop proposed standardized national dataset options that will address key business uses.
- Evaluate emerging technology trends and technical limitations to provide a high-level technical approach and costs for implementing a national program over a 4-7 year timeframe, identify where radar may be an alternative to LiDAR, and identify current bathymetric LiDAR technology.
- Assess the feasibility, cost, and performance of data infrastructure alternatives for services such as ingesting and managing a range of minimally processed LiDAR data from federal and state agencies, generating customized derivative products, and delivering high volumes of data.
- Evaluate and compare alternative program scenarios based on their expected ability to produce the standardized national dataset options (above) in terms of costs, risks, operational efficiency and other feasibility issues.

The Assessment will be completed in 2011. The final report will include an analysis of multiple program implementation scenarios. The report will be available to stakeholders in late 2011.

If you are interested in participating in this assessment, please contact Shelley Silch at 217-328-9732 or ssilch@usgs.gov

National Enhanced Elevation Assessment Partners



FEMA



Conference Paper

Customizing Web Mapping Applications Using Google Maps

Keisuke Nozaki
GIS Specialist

Western Illinois University GIS Center

Editors Note: The following paper was presented at the Fall 2010 ILGISA Conference in Naperville, IL.

Introduction

Developing web mapping applications is becoming one of the major roles in the GIS community. However, it requires a large amount of time and cost to build and maintain maps on the Internet. Larger communities would be able to accomplish this task more efficiently, but small communities which employ few or no GIS technicians may encounter several issues. The first issue is that server GIS software tends to be very expensive. The author agrees ArcGIS Server is a very powerful program but questions whether many local governments could afford it. Secondly, GIS technicians would need additional training to create and update web mapping applications. Finally, it is a challenge for GIS technicians to set up their own server and establish the necessary security configurations.

A GIS technician from Beardstown, IL, (approximate population of 5,700) contacted the author in the end of June, 2010. After a severe thunderstorm, he hoped to geographically catalog the damage and present this information to the residents, as well as state agencies such as the Illinois Emergency Management Agency. The city was limited to ArcView 9.3.1 single use license and had no funding for a server. What the public expected to see were maps showing locations where severe damage had taken place and detailed photos of the wreckage if possible. With limited time, the author found a free application called Google Maps which is relatively easy to customize and publish maps on the Internet.

How to customize Google Maps

Google Maps may be customized by clicking "My Maps." It is free, and the only requirement is creating a Google account. No special skills are necessary, and users

may learn all functions within the online help. Basemaps such as roads and aerial photos are provided, and clients can view maps on their web browser such as Internet Explorer and Firefox, without any plug-ins. The first step for users is to create a new map. Start by entering a title and description of the map. At this point, users have two options: public and unlisted. By selecting "Public," the map becomes searchable by Google. The unlisted option allows limited clients to access the map through an encrypted URL. However, please note that the map is no longer 100% private once it has been uploaded and take extra precautions when handling sensitive data, which includes but is not limited to resident and utility information. By defining the scale and extent of the map, users may add points, lines, and polygons. It is relatively easy to change symbol, color, name, and attributes for each layer.

In addition, users may use Rich Text or HTML in the attributes and create a hyperlink to images and videos. Please remember that images and videos are not embedded on the map and users will need to store the files on the Internet (YouTube, Picasa Web Albums, websites, etc). The same concept applies when adding your own icon for points (.jpg, .gif, .bmp, or .png). Google Maps also allows users to collaborate with others; those who receive an invitation by the users may edit the map. There is an option to import KML (a file format mainly used for Google Earth) and GeoRSS to the map. Even though it is not a part of Google Maps, the author would like to briefly mention a couple of additional useful tools. One is "Export to KML 2.5.4" from ESRI

ArcScripts. Google Maps unfortunately has no capability to open shapefiles, but this tool converts multiple shapefiles to KML which is a supported format for Google Maps. Please note that ArcGIS Desktop is required to run this script. The other tool is batchgeo from <http://www.batchgeo.com/>. This website allows users to geocode a spreadsheet containing addresses and export it to KML format.

Limitations and Conclusions

Google Maps designed for simple web mapping applications have several limitations. First, basemaps are provided and maintained by Google. It is possible for users to add vector data, but not raster data. If errors are found on the basemaps, users have an option to report a problem or submit more accurate data. According to Google, there is no guarantee how soon the data would be updated due to the large volume of requests. Second, clients cannot query by attribute or location. Although clients may identify each feature, Google Maps allows users to contain only one field in the attribute. Third, images and videos must be saved on the Internet. Map contents may not be accessible when the Google server is down.

In conclusions, Google Maps is a quick and easy application for smaller communities who have limited resources. It is not the author's intention to have this application compete with a much more powerful software package such as ArcGIS Server, but Google Maps can provide communities the opportunities to deliver useful and informative maps to the public whenever necessary (Fig. 1).

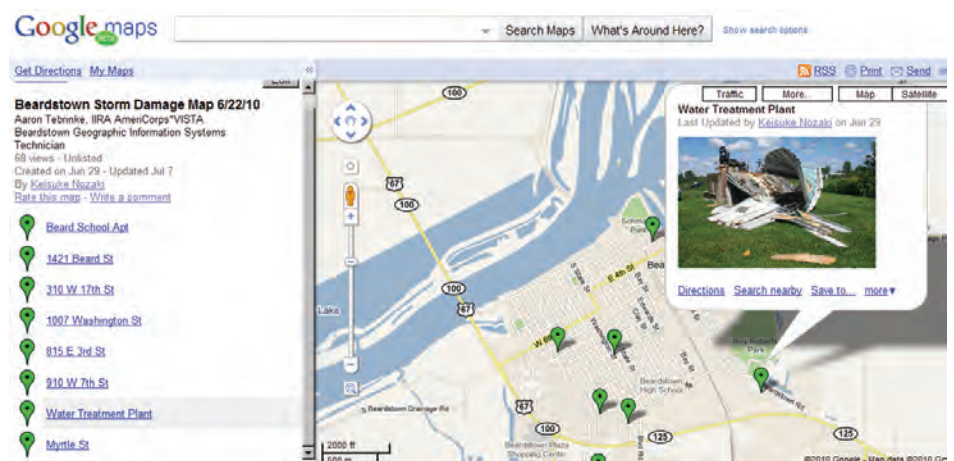


Figure 1. Beardstown Storm Damage Map (June 22, 2010).

Acknowledgment: Aaron Tebrinke, GIS Technician, City of Beardstown

Recapturing Costs Via GIS

Hubert Loftus

Introduction

Innovative GIS solutions to traditional problems often just require one to ask if there is a better approach to “tried and true” industry standards and practices. A complicated recapture cost agreement for a recent land development project in Northeastern Illinois certainly proved this to be the case, but the use of GIS technology proved to be the trump card needed to develop and manage a better system.

Recapture 101

Recapture cost agreements for extending or upgrading public infrastructure are a common practice among municipalities and developers in the world of land development. The basic concept is that a developer will “front” the total cost of the upgrade with an agreement that other benefitted parties will pay for their fair share when they use it in the future. The recapture concept has most often been applied to roadway and utility improvements and has been a useful tool used by municipalities to extend and upgrade capital improvements without a large up-front expenditure. On the private development side, developers see recapture as a necessary part of developing on the outskirts of an existing community. They would rather not have to pay these large upfront costs, but they enter into them with the hope that development will continue at a reasonable pace and they will recapture their investment over a reasonable period of time. If they must enter into a recapture agreement, it is recommended that they have a method and the means to track and collect their initial investment over an extended period of time.

In its simplest form, there may be one upgrade that benefits one parcel of land. When that parcel is developed, the new developer will pay the initial developer their pro-rata share of the upgrade and the recapture agreement has served its purpose. In more complex scenarios, several parcels of land may be part of the recapture zone and recapture of the initial cost will occur sporadically over a long period of time. After a recapture zone boundary is defined by the municipality, recapture agreements

are created in the form of a municipal ordinance and as such, are coordinated by the developer and municipal legal counsel. Traditionally, an exhibit of the recapture area is created and someone may spend a significant amount of time identifying and summarizing each benefitted parcel in a tabular summary. The ordinance, exhibit and summary are typically kept with the municipality for use when developers come to build on vacant parcels. These exhibits and recapture agreements may be maintained by municipal administrative staff. They are not always updated to reflect benefitted parcels that have paid into the system and changes in staff over time may make it more difficult to manage information (for example, when Shirley from the Public Works Department retires, the effective management of the recapture agreement may go with her.)

Bowes Creek Recapture-GIS Solution

Bowes Creek Country Club is a mixed-use residential / golf course community in Elgin, Illinois. It was the first development approved under the City’s progressive and expansive Far West Area Plan. Being the first on the block, several infrastructure improvements were required by the developer, including over \$7M in sanitary sewer system upgrades and extensions. These improvements were divided into 10 separate elements that serve up to 10 different service areas covering a future development region of over 7,000 acres. Within this large recapture region were areas that would not ever benefit from the sanitary system improvements, including undevelopable wetlands and floodplains, public forest preserves, and existing subdivisions served by individual well and septic systems. It was evident that a new approach to developing and tracking recapture was needed.

Cowhey Gudmundson Leder, Ltd (CGL) recommended a GIS alternative to the traditional recapture approach. Under the GIS approach, the 10 different recapture zones were super-imposed on the existing county-wide GIS base map. Each zone was parsed within the GIS to exclude public lands and existing subdivisions (wetlands and floodplains were included in the recapture area as required by

the City). A net recapture area was then determined for each zone to apply a recapture cost for each applicable parcel. In addition to recapture costs, data for each parcel was mined from the county-wide mapping, including property identification number (PIN), tax name, mailing address, and parcel acreage. A Microsoft Excel spreadsheet was exported from the GIS database for each of the 10 zones, providing a tabular summary of the parcels within each recapture area. An exhibit and summary table were then added to the respective recapture agreement ordinance for municipal approval and adoption.

In addition to providing an efficient, effective method for generating recapture costs and exhibits for recapture ordinances, the GIS model can serve as a useful tool for the ongoing management of recapture agreements. As future developers meet with a municipality regarding a parcel of land, a query can be performed and report generated to determine the recapture zones and applicable costs associated with the development parcel. The GIS database can be maintained, identifying benefitted parcels that have been developed and have paid into the recapture. Periodic reports and exhibits can be generated summarizing remaining recapture parcels and costs to ensure future development pays its fair share. Unlike Shirley from Public Works, the GIS database can stay with the municipality in perpetuity, providing an innovative new approach to managing and monitoring recapture agreements.

About the Author

Hubert Loftus is the Chief Operating Officer (COO) of Cowhey Gudmundson Leder, Ltd. (CGL), an engineering, surveying, and natural resources consulting firm based in Itasca, IL.

Changing Directions.... Your Executive Director Gets "Schooled" in the Fundamentals of Mapping

Tracy Rogers

You may or may not remember that in August of last year I had noted in one of the numerous communications to membership that I was embarking upon my first mapping course. For the past few years I have learned much about GIS and mapping while administering to this association; however, I did not understand the intricacy or skills involved in creating, assembling and producing maps. So at the bequest and encouragement of your Board of Directors, I enrolled in a graduate level, introductory course.

Fundamentals of Mapping was described as an "introductory course to maps as models of our earth, tools of visualization, and forms of graphic communication." We were to cover the "essentials" of map construction and reading while learning about scale, datums, projections, map compilation and revision, satellite remote sensing, GIS and GPS. WOW! As the class started I began to freak out a bit as I prayed that we would not get too technical. Math and science have never been strong subjects of mine.

I knew already that maps are a powerful way of communicating different information. I went from knowing them as placemats that you colored in on long road trips... marking off each state we visited, to visual depictions of key political, climate, social and even fiscal information that individuals use on a daily basis.

Okay...now keep in mind that this was an on-line course and that while I can run QuickBooks financial packages, oversee the ILGISA website and create a mean PowerPoint, I am not a technical person. I believe a number of the Board members, past and present, can attest to that! I like to write. I can even draw, but I learned in short time that I could not grasp the means and understanding of map layering and the creation of the "logic" entailed in pulling the data into the appropriate "layers" to present the information that was requested in homework assignments. Now whether or



not this had to do with the utilization of a much older software system, ArcExplorer 2, or the mere fact that I am a hands-on visual learner and that reading what I had to do, and then doing it, did not process correctly through my brain.

Did I mention vocabulary? OMG! Believe me when I say that we had over 350 vocabulary words to learn and understand throughout this course. Many of which I could not either spell or pronounce correctly. Things like: Gores, Analema, Graticule, Ellipsoid, Goode's Homosline, Theodolite, Sexagesimal, Aliquot Parts, Cylindrical Equal-Area Sinusoidal Projection. To top it all off there were the abbreviations: NAD, WGS, GIS, GPS, UTM, GEOREF, PLSS, CORS, DGPS, WAAS, RTK, EDM, HAE, MSA, NIMBY and TIGER. How do you all do it?

Suffice to say that by the end of this course I had gained an increased and greater amount of respect for the highly technical, detail-oriented skills required in mapping and GIS. Would I want to continue with another course....Ummm....let's just say that this was an encompassing introduction that scared the pants off of me! I will leave the mapping and analysis to you, while I continue to work on what I think I do best...looking after you, the members of ILGISA. I do have to acknowledge that I would not have kept my sanity throughout this course without the keen support of the ILGISA Board of Directors who wanted to see me learn and helped coach me through

a number of exercises. While they did tell me that I had the right grasp on what was needed, and just required practice, I think they were trying to make me feel better.

So Thank You...particularly to Rich, Shelley and Curt. I don't think you need ever worry that I will look to replace any of you in your areas of expertise.

By the way, I did get an "A" in course, but sweated through it and felt that I earned it! Who knows, I may even try putting a poster into the upcoming student poster display at our upcoming Spring Conference, April 19-20th at the I-Hotel. After all the theme is disasters! I can't think of a better time to submit, so watch out!

Donation Received for the ILGISA Educational Scholarship Fund

ILGISA is pleased to announce that Mrs. Gladys J. Schultz of Arlington Heights recently provided a generous donation at the Bronze level to the ILGISA Educational Scholarship Fund in memory of her late husband, Richard H. Schultz. Thanks to the Schultz family for their continued support of the educational initiatives of ILGISA.

More information about the ILGISA Educational Scholarship Fund may be found on the ILGISA Education webpage:

<http://www.ilgisa.org/Resources/Education/EducationalEndowment.aspx>

The 5000th GISP.....Who Are You?

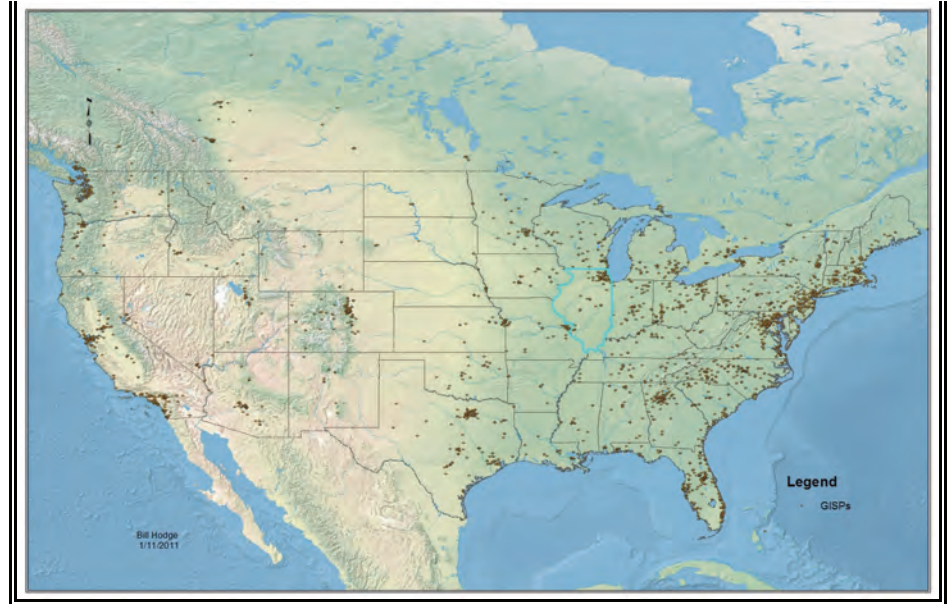
Bill Hodge, GISP, and Sheila Wilson, PhD, GISP

As part of the legendary rock group, The Who, Peter Townshend wrote and performed one of the classic rock songs of all time, "Who Are You?" That song and its question were picked up by the wildly successful TV show CSI and it has become a staple for another generation.

The song serves as a perfect lead into an important conversation, this time concerning that of the GIS Professional (GISP), with the focus upon one GISP in particular, a specific someone yet to be identified. After a well-debated beginning surrounded by several years of discussion within the industry and culminating with the first certified cohort of 25 in 2003, the GIS Professional Certification (GISP) is off to a great start. With 4,773 Certified GIS Professionals as of November 25, 2010, the 5,000th Certified Professional is waiting somewhere within the wide world of the geospatial, and that person will step out of the shadows sometime in 2011 to occupy a milestone position in the Certification Timeline. Who is that person and what can we tell about them? One way to speculate using firm ground is to investigate those individuals that have already achieved certification. What is there about this group that can give us a preview of Number 5000? Let us investigate together...

The 'typical' GISP is about as typical as a genius in Mensa but here are some general statistics about who GISPs are:

- We have about 10-15 years experience.
- We can be found in all 50 of the United States, Canada, and more than 30 other countries, but are predominately from North America, at this writing.
- We work hard and have a strong moral character, diligently following a strict Code of Ethics and Rules of Conduct.
- We strive to mentor other GISPs and less experienced GIS practitioners.



As of November 25, 2010, there were 4,773 GIS Professionals certified from around the world. Of these, 4,557 reside in the US, and 117 live in Illinois.

- We are active in the GIS community, participating in GIS organizations, presenting at conferences and meetings, organizing GIS events, writing articles, and contributing whenever possible.
- We are leaders in the GIS community: many of us are on the Boards of other organizations, assist with federal GIS standards development and implementation, and much more.
- We love GIS!

GIS is changing our world for the better, and GISPs are at the forefront of the change, leading the charge. We are continually improving and innovating GIS and the GIS profession. We make jobs easier, more efficient, and more cost-effective by finding better ways to share and communicate information.

The Department of Labor has recognized the immense value of GIS and has declared the geospatial industry as one of the nation's top growing industries, as a green industry, and predicts significant growth in the next several years. Many government agencies recognize the value of GISPs and are now requesting GISPs on staff with contractors. Many employers recognize the value of

GISPs and are now requiring those in the GIS department to either have their GISP or be working towards it.

Becoming a GISP is not an easy task. One must meet benchmarks in education, professional experience, and professional activities plus continuing education and activities once one is certified. Do you have what it takes? Do you qualify to become a GISP? We invite you to visit the GISCI web site at www.gisci.org in order to take a closer look at what certification entails.

Will you be the 5,000th GISP? Well, whether you are the 5,000 or any other number of certified GIS Professional, we would love to welcome you to our ranks!!

About the Authors

Bill Hodge, GISP, is the GIS Division Manager for the City of Midland, TX. He directs the city's enterprise GIS operations.

Sheila Wilson, PhD, GISP, is the Executive Director of the GIS Certification Institute. She leads the efforts in promoting the GISP across the United States and Canada.

Educator's Corner

ILGISA Membership



My best wishes for a Happy New Year in 2011! There are a number of exciting initiatives on tap for ILGISA in 2011, especially along the lines of educational issues.

Like many of you, much of my time recently has been spent researching the differences between the GISP and newly announced ESRI certifications. Which certification is most appropriate for my position? Which most accurately showcases my geospatial skill sets? And, which most accurately depicts where I am currently in my particular career? These are crucial issues to be sure and are indeed associated with education. However, I'll leave the details to Sheila Wilson, who has addressed this in another article in this issue of *GIS Notes*. I'll also draw your attention to an upcoming article in *ArcNews*, ESRI's newsletter, in which David DiBiase, current GISCI President and Penn State GIS director discusses the two certifications. David's article should provide some interesting fodder for discussion.

As I noted in the July 2010 issue of *GIS Notes*, ILGISA has already embarked on a mission to provide professional connections between the GIS community and the next generation of the geospatial workforce, namely those students completing their degrees at institutions of higher education. ILGISA has offered increasing opportunities for the GIS community to interact with students and consider possible relationships via job shadowing opportunities, internships, and potential future employment with your organization. We, as an organization, would like for this to continually develop for the sustainability of the geospatial community. Recent meetings in the suburban metropolitan Chicago area have continued to bring a number of the GIS professionals together for the purpose of networking and learning about the geospatial curriculum in the higher education arena. I would love to hear of other regions in Illinois which are holding similar meetings. Things are happening in the educational arena and

organizations need to know about where the next generation of workers is coming from and what their geospatial skill sets will include. Continued meetings such as those mentioned will continue to provide a clear pathway for communication between educators and the GIS community towards a sustainable future. I would heartily endorse the continued dialogue between educators, students, and the GIS community in the future and in all locations throughout Illinois. Education is a foundational issue as part of the ongoing Illinois GIS Initiative and one which deserves attention. The National Geospatial Technology Center of Excellence agrees in this YouTube video clip:

<http://www.youtube.com/watch?v=DDsFB4DpEAg>

On another front, the National GeoTech Center, in connection with the U.S. Department of Labor (DoL) has recently published the Geospatial Technology Competency Model (GTCM), which can be accessed here: <http://www.careeronestop.org/competencymodel/pyramid.aspx?GEO=Y> (Figure 1). A convenient .pdf document is also available on that page. Dr. Mike Rudibaugh and I presented a workshop on the GTCM at the Fall 2010 ILGISA Conference. The PowerPoint notes are available on the ILGISA website for members. The GTCM represents a decade-long quest to define the U.S. geospatial industry and its workforce. Its focus is a milestone recently achieved such that the U.S. Department of Labor issued descriptions of five new geospatial occupations, estimates of current and projected geospatial employment, and a new Geospatial Technology Competency Model (GTCM). The GTCM identifies the foundational, industry-wide, and industry sector-specific expertise that distinguishes successful geospatial professionals. It identifies 43 "core geospatial knowledge and abilities," as well as specialized competencies related to positioning and data acquisition, analysis and modeling, and software and application development. It marks the first time in which specific job tasks and skill sets have been defined specifically for the geospatial industry. We, as members of the community, can now join the ranks of the other occupations such as Aerospace, Bioscience, Construction, Energy, Financial Services, Information Technology, Mechatronics, Retail, and

the Water Sector as being accepted and defined by the U. S. Department of Labor. I urge all ILGISA members to closely examine the GTCM for the purpose of understanding the definitions for various levels (GIS technicians, analysts, managers, researchers, etc.) and what skill sets are crucial to each of the positions. Whether you are in a position of bolstering your portfolio and making a case for the level you are currently working, or if you are a manager and looking to hire a GIS professional, you'll need to be familiar with the GTCM. I would be very interested to know how you, as members of the geospatial community, feel about the GTCM and how you have implemented it.

One recent development in higher education is the increasing number of spatially-oriented courses that are cropping up in General Education curricula. Dr. Ming-Hsiang (Ming) Tsou of San Diego State University and Ken Yanow of Southwestern Community College have researched the number of institutions in higher education who have implemented GIS coursework as well as "Spatial Thinking" courses into their General Education programs. Within Illinois, in Fall of 2011, Elmhurst College will join the list as four-year institutions who have a "Spatial Thinking" course in the campus General Education program. Other colleges and universities are sure to follow suit in an effort to teach geospatial awareness to students across campus. Volume 22, no. 22 of the *URISA Journal* is a special issue devoted to GIS Education and contains articles addressing issues of the GTCM, geospatial technologies as part of the General Education curriculum, as well as DACUMs, and planning considerations for online degrees and certificates in GIS.

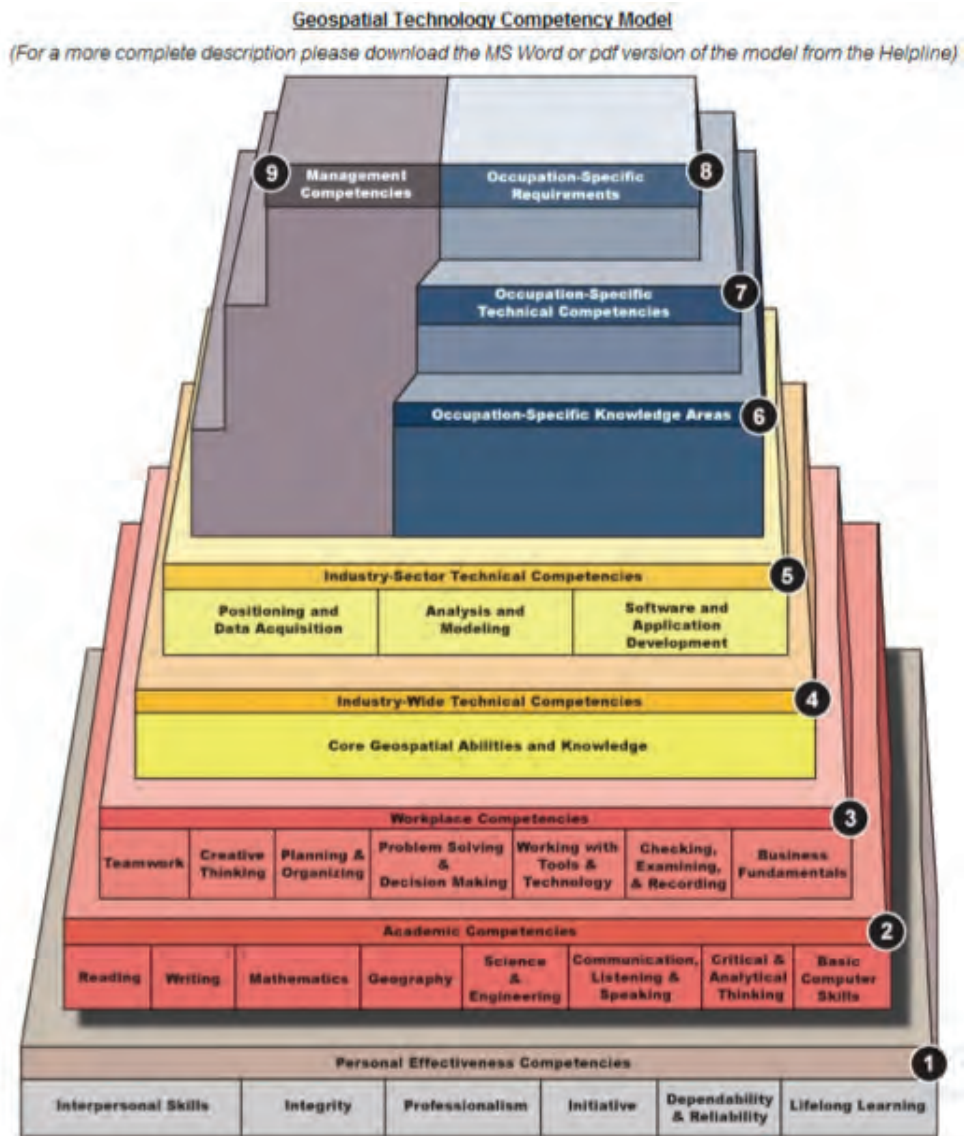
Lastly, the technical issues are being addressed to make webinars a part of ILGISA. Both links from the ILGISA website to external webinars, such as those at the National GeoTech Center, are available here:

<http://www.geotechcenter.org/Education-Training/Professional-Development/GeoTech-Center-Offerings/Webinar-Archives>

Dr. Rich Schultz
Chair, Education Committee

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Educators - Continued from page 14



Recent conversations with Dan Wilcox, Illinois GIS Coordinator, have revealed that indeed communication between the geospatial community and higher education play a prominent role in the future of plans for the continuing development and organization of the GIS community within Illinois as well as the continuance of the Illinois GIS Initiative. The formalization of the GTCM and the work of the GeoTech Center to establish core competencies have helped the GIS community to gain a more firm foothold on the business world. We have some tools in place as a community, now let's continue to communicate and implement the tools.

As you can see, there are exciting developments on the horizon for ILGISA and the Education Committee. Please let me or any ILGISA Board member know how we can assist you or your organization further. See you at the Spring ILGISA Conference on April 19 and 20 in Champaign, Illinois!

(source: <http://www.careeronestop.org/competencymodel/pyramid.aspx?GEO=Y>)

Publications Committee Report

Publications Committee

John Kostelnick, Chairman

Mary Clement

Rick Marshall

Brian Valleskey

In the coming months, the Publications Committee will be working to identify short and long-term initiatives to guide the Committee's work into the future. We continue to look for additional ways to improve *GIS Notes*, and welcome your suggestions. We invite you to submit articles, news items, or other content for the August issue. Keep an eye out for the "Call for Content" that will be circulated in the early summer with more details.

Honors Committee Update

Amanda Ault

The ILGISA Honors Committee is responsible for recognizing outstanding work in GIS. Award recipients are chosen from among those persons working with GIS in any field in Illinois who have made significant contributions to the adoption of GIS among Illinois government entities, promoted knowledge of and information about GIS to interested users, or have provided outstanding service to ILGISA or the GIS community in general. The Honors Committee is chaired by a director and at least two active members.

Honors Committee members are needed! If you would like to volunteer to help recognize your inspiring GIS colleagues, please contact Amanda Ault at aault@cityofevanston.org.

Do you know a student who's doing promising work with GIS? Award nominations are now being accepted for the 2011 ILGISA Outstanding GIS Student Award that will be presented at the Spring ILGISA Conference in Champaign. Please submit your nominations online at: <http://www.surveymonkey.com/s/GJCVJPN>

Membership Committee Update

Bill Faedtke and Greg Johnson

Membership Committee Co-Chairs

The year 2010 was arguably the most economically challenging time that the GIS profession has experienced in the short three decades or so of our existence. Most of us have experienced layoffs, staff reorganizations, budget reductions, outsourcing, and in some cases complete elimination of some operations.

ILGISA is doing everything it can to assist our membership in making the best use of what resources we have available today. During 2011, the Membership Committee will be working on an initiative to develop a continually maintained spatially referenced inventory of the people conducting GIS activities within the State of Illinois. In a climate of ever-changing economic conditions, all of us need a reliable source of information to lead us to where we can find to others to share, collaborate, and participate together on our projects.

ILGISA will also be able to use this inventory to determine what areas of the State may benefit from more active participation in our organization and help us plan our activities accordingly.

During the past couple of decades, a number of initiatives were conducted within the State to develop this type of inventory. In the mid-1990's, the State of Illinois created the Illinois Geographic Information Council, which in its early stages had amassed a good deal of information about who was conducting GIS in our State. By 2003 most activity of the Council had ceased, and with it any formal effort by statewide government to coordinate GIS work in Illinois.

In 2006, Sheryl Oliver of the Illinois Department of Natural Resources led an effort to secure grant funding to restart GIS coordination within the State. Known as the Illinois GIS Initiative, this project conducted a series of hearings throughout the State to determine what the long-term role of GIS should be and who might participate. A Strategic Plan was developed under this grant, along with ideas for developing a mechanism for inventorying statewide GIS personnel and data availability. Unfortunately the lack of sponsorship by any state agency to implement the findings of the Strategic Plan caused this effort to also become dormant.

By 2007, a grant-funded survey was managed by Dr. Donald Luman of the Illinois State Geological Survey, Shelley Silch of USGS, Richard Hilton of Lake County GIS, and Rob Krumm of the Illinois State Geological Survey to determine the status of GIS in all levels of government and non-profits agencies in Illinois. Nearly 1400 people responded to this survey and as a result the first comprehensive professional study of GIS usage in Illinois was produced.

What all these inventory efforts had in common is that they were not designed to be sustained beyond their initial creation. The ILGISA Membership Committee is exploring what resources would be required for a network of ILGISA member volunteers to not only develop a new inventory of GIS activities in Illinois, but maintain this information on some realistic frequency. We believe that this effort may have a high chance for success in that many members have already volunteered to help develop such an inventory. Our project could also be assisted by the many new online tools such the NSGIC Ramona GIS metadata inventory system (<http://gisinventory.net/>) and Internet map mashups.

If you wish to help in the maintenance of this new Illinois GIS Inventory, or have some ideas on how to best create and sustain it, please contact one of the Co-Chairs of the ILGISA Membership Committee.

Task Guides Improve Performance

We are all in the "Performance Business!"

Jeff Palmer



Communicate with others, Provide Training, Develop User Guides, Provide Technical Support and Supervise Interns are several abilities listed in The National Geospatial Technology Center's

Core Competencies Research for GIS Technicians. Being able to develop and use task guides supports these competencies and many others.

On a much larger scale, the geospatial community creates effective task guides for our clients in the form of maps. On a much smaller scale, this article will explore task guides that reduce training efforts, improve performance and reduce that seldom felt frustration in rediscovering a complex sequence. Effective performance guides can be developed in any of the four geospatial training "chunks:" technology, time, money and people.

A map reduces complex data into accessible information and in simple terms a task guide reduces complex instructions into actionable steps. However, in a geospatial job, creating a task guide is far more complex because it has to take into consideration multiple physical dimensions in the real world and multiple virtual dimensions found in today's software and computer systems.

In instructional terms, a task guide is a mental model. For example, a screen-shot becomes a task guide after you give the guide a title, starting and stopping points and a complete list of steps, including all sequences and relationships between the steps and any decisions required. This level of sophistication is one reason why screen-shots, by themselves, fail.

Creating an effective mental model requires that you understand the complexity of the task and are able to reduce it to a list, a sequence or an image or some combination. Next you have to be able

to use the mental model to help a peer or user perform the task better, faster and with less stress. And finally, you have to be able to convey "why" the mental model was developed and "how" to use it. The acid test comes when you give the model to a qualified third party and that person can use it without any further explanation.

Task guides can be written, oral, mechanical or digital. I prefer written task guides simply because they survive. My favorite form is an 8 1/2 x 11 sheet of paper or card stock: task guide on the front, warning or refresher information on the back. Laminated to protect the guide but also to give the user a surface where a wet-dry marker can be used to amplify critical points or just record the progress through the task.

Table 1 compares the development process of a map to a task guide while listing other guide forms and formats.

Some Benefits of task guides include the following:

- Putting complex sets of data on a map is our job and putting complex sets of instructions on a task guide frees you to tackle new complex sets of data.
- Developing comprehensive task guides eliminates the need in most cases to identify terminal learning objectives or their enabling objectives. A strong set of sequenced task guides can replace typical instructional design efforts. Guides are 3-5 times faster to develop than training and cost less.
- In many cases a set of task guides can replace a training session at best or reduce training time at worst.
- Revisions and updates are easy; just fix the task guide instead of publishing a new manual.
- Returning from a training session with task guides, puts the "newly learned" skills right to work.
- Task guides help "novices" perform at expert levels.
- Guides facilitate practice, feedback, testing and certification.

- Correctly applied task guides can record departmental standards, styles and practices.
- Qualified third parties can replicate results from good task guides.

Examples 1-4 (on the next page) demonstrate different forms for task guides.

A good task guide just works! It make's the user's job easier. It is written in the user's words. It is clear, simple, succinct and easy to follow. Visually it appears easy to use, having clear, understandable, simple and uncomplicated illustrations. It contains only the essential information, avoiding confusing terms. It has the right level of detail. It visually clarifies difficult points with technical examples if needed. And it is technically correct. All of these qualities are found in a good map too.

Consider task guides: When you have detailed and complex decisions to make. When working with equipment that is difficult to operate. When it is difficult to "recall" complex procedures. When you do a lot of cross-referencing; when tasks are not performed often; when procedures change often; when there is personnel turnover especially at the entry level; and when there is complexity that doesn't allow for mistakes.

About the Author

Jeff Palmer is a training & development specialist, working for Learning & Technical Strategies in Schaumburg, IL. He is a chemical engineer, a certified instructional technologist and holds a GIS certificate from Elmhurst College.

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Task Guides - Continued from page 17

Table 1 compares the development process for maps to task guides. This comparison “hooks” the task guide development process to one that we already know, maps.

Task Guide	Map
Describe the user	Describe the person or group that will use the map
Describe the task	Describe the data elements and the objectives of the map
Describe “what is going on” and “what should be going on” to rough out the performance improvement target (note other tools or interventions might be needed here too)	Describe “how” the map will be used and what decisions it will support
Choose the form of the guide: information or reference guide, decision table, flowchart, worksheet, checklist, procedure guide (text converted to step-by-step), mechanical guide, safety guide, a combination, etc	Choose the properties & elements of the final map: projection, datum, data source, layers, scale, resolution, color scheme, inserts, title, subtitle, legend, text notes, source citation, warnings, etc
Select materials that will be used to create the task guide (I prefer laminated 8 1/2 x 11 paper or card stock, three hole punched with one task per page.)	Describe “how” the map will be viewed: paper, book, computer, hand-held device, projector, etc
Create the task guide	Develop the map and its metadata co currently
Test or try out	Peer review
Revise as needed	Revise as needed
Evaluate effectiveness	Evaluate effectiveness
Document the development methods and ideas behind the task guide	Finalize metadata
Train others to use the task guide	Move to the next project

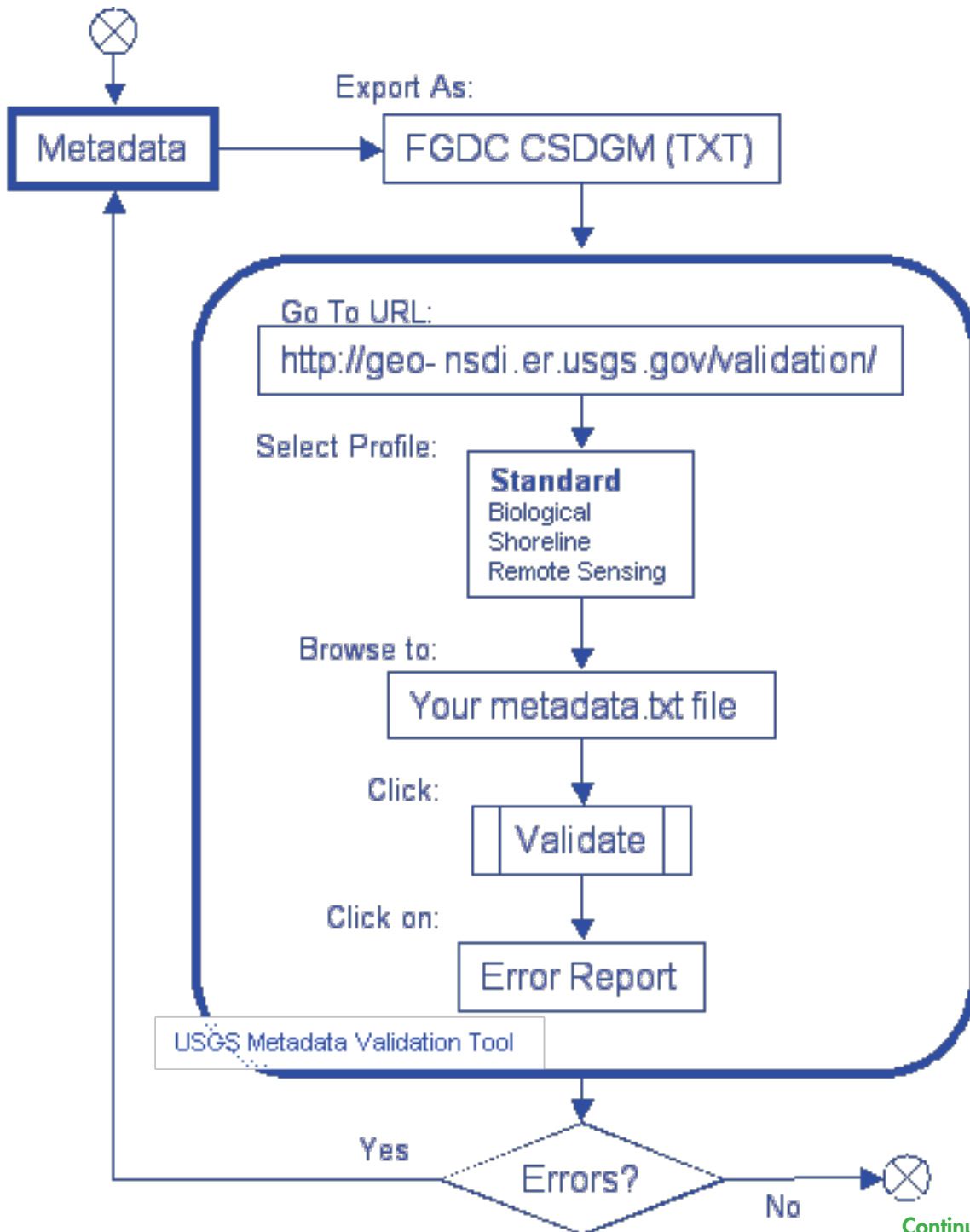
Example 1 illustrates how powerful a Visual Clue can be – lower case letters are more recognizable than all caps (please no more all cap titles).

Public Civility PUBLIC CIVILITY

Continued on page 19

Task Guides - Continued from page 18

Example 2 illustrates a Flow Diagram Guide pointing you to one of the metadata validation sites. Primary tools of the geospatial professional include: math, points, lines, shapes, white space and colors. Primary tools of the metadata professional are “words,” an entirely different brain function. The best way to bridge the gap between our brain hemispheres is to provide an example that links the “words” with the geospatial task correctly and consistently.



Continued on page 20

Task Guides - Continued from page 19

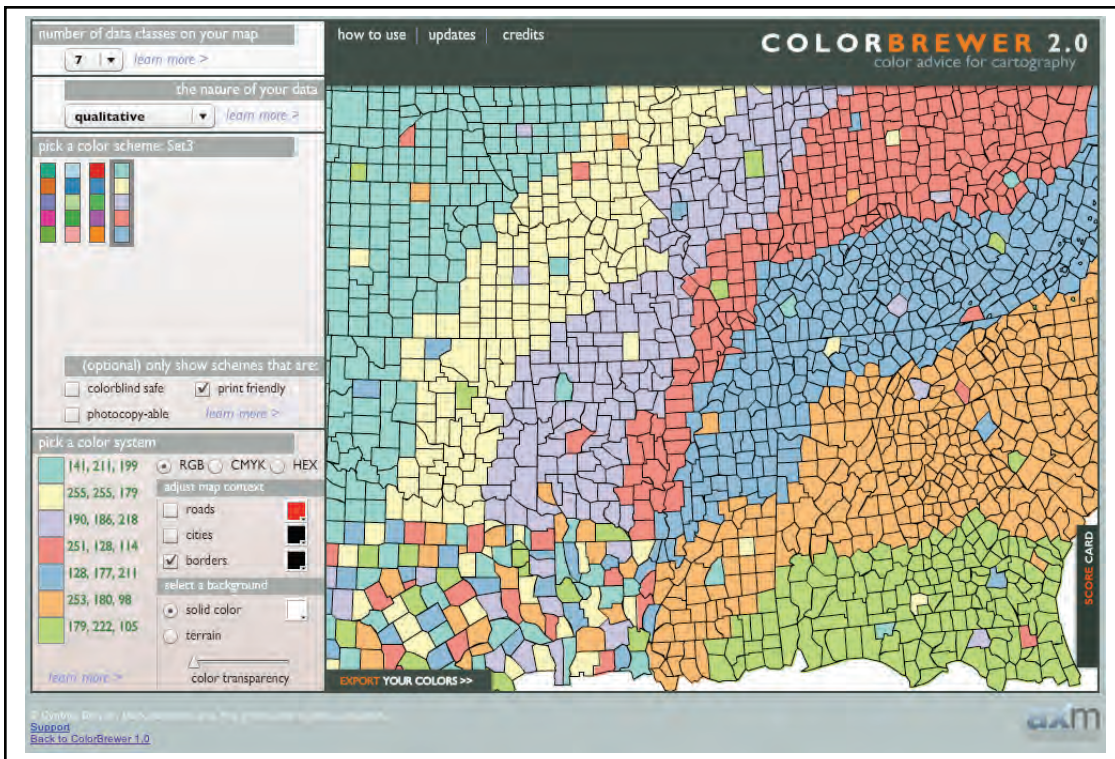
Example 3 is a Reference Guide to help select the correct or most appropriate projection for your project: Let's pretend that you are preparing a population density, medium scale map for a presentation. Which of the 18 projections would you use? Try to select the projection before you analyze the dots.

Projection, USGS Paper 1395, 1987, 383pp	Property: Equal Area	Suitability: Medium Scale	General Use: Presentation
Globe	●		●
Mercator			
Transverse Mercator		●	
Oblique Mercator		●	
Space Oblique Mercator			
Miller Cylindrical			
Robinson (added after 1987)			●
Sinusoidal Equal Area	●		
Orthographic			
Stereographic		●	
Gnomonic			●
Azimuthal Equidistant			
Lambert-Azimuthal Equal Area	●		●
Albers Equal Area Conic	●	●	●
Lambert Conformal Conic		●	●
Equidistant Conic			
Polyconic			
Bipolar Oblique Conic Conformal			

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Example 4 is the colorbrewer2.org Interactive Guide interface; note how 7 classes of qualitative data are separated and how the output is print friendly. Selecting a set of colors that displays “all” of the data is an art form in itself. One where you have to master hue, lightness and saturation in two very different systems, RGB’s additive system and CMYK’s subtractive system. Fortunately, author Cynthia A Brewer has made the selection easier. The interactive “task guide,” can be accessed from within ArcGis, exported to ase files or spreadsheets or just copied.



References:

First Page: White Paper Identifying Core Competencies for GIS Technicians, GeoTechCenter.org, John Johnson, January 13, 2010, prepared by the National Geospatial Technology Center of Excellence (NSF DUE #0801893) and based on and referenced to the Geospatial Technology Competency Model, US Department of Labor Employment and Training Administration.

Example 2: Geospatial Metadata Validation Service, This service checks your FGDC-compatible geospatial metadata record using mp (metadata parser). Provide a metadata record that is formatted as indented text, XML, or SGML. Results will show discrepancies between the structure of your metadata record and the expectation of the FGDC metadata standard (FGDC-

STD-001-1998) and will show several potentially useful re-expressions of the metadata record itself.

Example 3: USGS Map Projection Publications, Professional Paper 1395, Map Projections—A Working Manual, by J.P. Snyder. 1987, reprint 1989 and 1994 with corrections, reprint 1997. 383 pp.

Example 4: The current version of the ColorBrewer was based on and referenced to the original ColorBrewer (v1.0), funded by the NSF Digital Government program during 2001-02, and designed at the GeoVISTA Center at Penn State (National Science Foundation Grant No. 9983451, 9983459, 9983461). The design and rebuilding of this new version (v2.0) was donated by Axis Maps LLC, winter 2009.

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News

The Illinois Municipal Arc Users Group would like to announce the appointment of our 2011 President, Eric Venden. Eric, Village of Gurnee, will spearhead our group which exists to foster relationships amongst regional government employees who work with GIS on a regular basis. We meet quarterly in the Greater Chicagoland area for cooperation, education, and interaction. Daily interaction is the heart of our group. We have a discussion forum for policy issues, equipment choices, programming questions, and many other topics. For more information about iMAUG, visit our website: www.imaug.com. Thanks again to our outgoing 2010 President, Karen Robbins.

The GIS Certification Institute (GISCi) invites comments on proposed updates to the requirements for GIS Professional (GISP) certification. More information may be found at:

<http://www.gisci.org/>

The Institute for Geospatial Analysis and Mapping (GEOMAP) at Illinois State University announces the hiring of Larry Haigh as a GIS technician.

Calendar of Events

April 12-15

Iowa Geographic Information Council (IGIC) 10th Biennial Conference. Dubuque, IA.

April 12-16

Association of American Geographers Annual Meeting. Seattle, WA.

April 19-20

ILGISA Spring Conference. I-Hotel, University of Illinois. Champaign, IL.

April 28-30

Illinois Geographical Society Annual Meeting, Western Illinois University, Macomb, IL.

October 18-19

ILGISA Fall Conference, NIU Naperville Campus, Naperville, IL.



"i'm wanna be a catographer when i grow up"

Cartoon courtesy of David Arfa, Cook County GIS Department.