Where does the GIS Profession Fit in with Big Data?

By Keri Shearer, GISP

Look up #BigData on Twitter. See the activities around this widely talked about phrase? Check IT experts like Gartner or Forrester and you will see that right alongside hot topics like information security and mobile computing, “big data” is trending. Why is everyone interested in big data? Simple fact - big data is an opportunity to harness and right now it is hot.

As GIS Professionals we are exposed to gigantic, complex, and dynamic datasets. In 2010, I helped to produce statistics for the City of Charlotte’s Tree Canopy. Think of all the little bits of data within a raster land cover data set, overlay that with land use, zoning, tax parcels, and planning districts. That made millions of records to statistically analyze. Which I felt was “big data” because it took my, then XP computer, two days to crunch through that model. Today something like this takes only about 30 minutes and I can publish a map service to stream the information, providing a better user experience as an interactive map and list. Or I can set it up as a geoprocessing service. We are growing leaps and bounds in our ability to generate, store and access data. Think of all the data that is collected every second of the day – just about you! We are amassing data constantly. We are making big data! But what is it really, what do we use it for, and where does the GIS Profession fit into all this?

My theory is - where there is data, GIS opportunities abound.

What is Big Data?

My first task was to find a reasonable definition and find some statistics. Across the board there were 3 common factors used to describe big data – Volume, Variety and Velocity. Due to the glorious options in today’s world regarding devices; society’s acceptance and expectation of technology to be better, faster and highly accessible; we have lots of information flowing in of all kinds, all the time. How do you harness this and use it?

In researching big data, I came across an entertaining infogram by Intel stating that over 600K GB of data is transferred globally across various devices every minute, this included:

- 1,300 new mobile users
- 47,000 app downloads, $83,000 Amazon sales
- 204 million emails are sent
- 61,141 hours of music
- 20 million photos viewed
- 3,000 photo uploads
- 1,000,000 new tweets
- 320+ new Twitter accounts
- 277,000 Facebook logins
- 6 million Facebook views
- 2+ million search

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queries on Google (I wonder if this included directions?)

- 30 hours of video uploaded
- and... 1.3 million Video Views

Intel says that in 2012, the number of networked devices was equal to the global population (7.1 billion people per PRB, 2012). That number of devices is estimated to double in just 2 years from now. Intel states that in 2015, it would take a single person 5 years to view all the video crossing IP networks each second. (What Happens in an Internet Minute? by Intel, 2013). Now that is big data for sure.

Per IBM, “We create 2.5 quintillion bytes of data – so much that 90% of the data in the world today has been created in the last two years alone. This data comes from everywhere: sensors used to gather climate information, posts to social media sites, digital pictures and videos, purchase transaction records, and cell phone GPS signals to name a few. This data is big data” (IBM, 2013). Across the board, big data can be both structured and unstructured (SAS, IBM, Intel, Oracle). And data becomes big data when it has significant volume, velocity, variety (Gartner, IBM, SAS, Intel, Oracle, and Esri). IBM defines big data variety as being: “any type of data - structured and unstructured data such as text, sensor data, audio, video, click streams, log files and more. New insights are found when analyzing these data types together.” IBM also adds in another dimension, veracity, stating that “1 in 3 business leaders don’t trust the information they use to make decisions” (IBM, 2013). This would be true regardless of the size and type of data from my experience. This happens to every GIS Professional and analyst. Disbelief in what is being presented will continue to be a challenge for all types of data analysts. Is the data telling us the right story? SAS also adds in Variability and Complexity to the 3 pillars of big data to round out the definition. From these analytical leaders you can see the definition for big data is still being sharpened.

What is Big Data used for?
Big data is used to perform complex analysis across many genres with modeling. Not exactly news to the GIS Professional. Society is generating so much information that the models, storage, hardware, security, and analysts skills must be more robust and is in high demand. Sounds like good news for us.

According to experts in the industry, like SAS, the technologies today actively support activities related to big data, “they provide the ability to understand and take advantage of its full value, which helps organizations run more efficiently and profitably,” with analytics specifically modeled around the use of big data (SAS, 2013). Because of the volume, variety, and velocity of big data it is challenging to utilize. Basically, big data tells you, in detail, the who, what, when, why, how, how often, and where. It is used to tell the story about the world and topic we choose, in depth, as close to real time and as predictable as possible. Used to store, collect, and analyze video and image feeds. Pinpoint activities of concern. And of course with all of this is the factor of location. If your customer wants to know about something they want to see where, from where, and to where laying out the whole picture.

Big data helps to tell the story or the past, present and future possibilities. But it is only as good as your data and analytics, plus your method of visualization.

Challenges and Opportunities for GIS
Though some of these challenges are not specific to the GIS Profession, they do have an impact on our community through budget, resources, ability, capability, and expectation of us. The challenges at first glance are similar to what we as GIS Professionals face every day. Will we have the right resources, education, information, access, trust, and time to perform the expected analysis? Below are some thoughts around challenges and opportunities for us.

- GIS Professionals have a few more products to add to their knowledge toolkit to perform their jobs. I came across two open source platforms for big data 1) Hadoop and 2) MongoDB (Esri, 2013). How do we deal with unstructured data in a new way? Do we even try to organize it? What is the best practice for scrapping data that is not organized?
- It is challenging and could be expensive to offer huge amounts of valuable, trustworthy information in a flexible manner. Helping our customers move into a more proactive, rather than reactive, role should highlight affordability and cost savings, and return on investment for them with the ability to forecast and
plan with better models and fresher data.

• The time must be taken to think about business processes, stewardship and overall management of the data. In this day and age, somebody still owns at least a piece of the data. So what will the strategy be for storage, processing, and sharing, of information, governance and ownership?

• Of course security of the information is always a discussion topic, and having set protocol and data governance should address security concerns.

• With big data the ability to provide better visualization and interpretation is a key factor. Will we have to be flexible in this area when it comes to cartography?

• Do we batch out processes or stream – what would the impact be to our networks?

• Getting the right mix of resources to strategically utilize big data will be a challenge and an opportunity. Just like with GIS. There is an IT Impact with harnessing big data. Supplying trustworthy information is a very different task than deploying hardware, software, and switches.

Summary

Where does the GIS Profession fit in when it comes to big data? My Opinion – right at the center, because what we are really talking about here is advanced analytics and technology. So do not fret over big data, embrace it. Think about, “How did I create big data today and what new and interesting things can I do with all this information?” Applications, devices, and algorithms will come and go, but the data should be around forever. It’s all about the data!

We would love to hear what you are doing with big data as a GIS Professional. Contact Shearer.Keri@gmail.com to share your ideas.

Resources:
http://www-01.ibm.com/software/data/bigdata/
http://www.esri.com/technology-topics/big-data/resources
http://www.sas.com/big-data/
http://www.economist.com
http://blog.twitter.com
http://newsroom.fb.com/
http://www.forrester.com/pimages/nws/reprints/document/85601/oid/1-KWYFB
http://hadoop.apache.org/
http://www.forbes.com/sites/ciocentral/2013/03/29/i-scoop-hadoop-schnoops-or-how-google-and-the-cia-are-shaping-big-data/
http://www.wired.com/wiredenterprise/2013/02/pivotal-hd-greenplum-emc/

GISCI Approves Exam Development Plan to Complement the Portfolio-Based Certification Process

At a special meeting on March 14, the GIS Certification Institute (GISCI) Board of Directors approved the GISCI Exam Development Plan. The exam will complement GISCI’s portfolio-based certification process. Initial work on exam development has begun and the exam is scheduled to be launched in the first quarter of 2015.

President Michael Vanhook commented, “I am very appreciative of the GISCI Board and the Exam Working Group as they work together to move the exam forward.” He added, “As a component of the application process the exam will further enhance the GISP certification. It will provide GISCI and the community with opportunities that we didn’t have before now to advance the Institute and utilize the best professional standards to evaluate competencies, including the work of many GIS professionals and the US Department of Labor competency model. GISCI has strengthened its efforts to provide value to the GISP.”

GISCI expects to provide more updates as the exam is developed.
Instituting new ethical practices in the workplace doesn’t magically change the culture into one where we act with fairness, transparency and financial responsibility. Employees must actively discuss ethical issues in their everyday work, and put them into practice. We recognize that we have an obligation to deliver quality work and have a professional relationship with our co-workers and customers.

Background
We hit a rough patch of unethical actions at Santa Fe County, with articles in the paper almost daily for several months. This resulted in a decrease in employee morale and a poor reputation for the County, eroding the public trust in our actions.

Foundations for Change
Following these events, the County actively worked to change the culture at work. We received training from the State Auditor's Office, instituted a Code of Conduct, and required ethics training annually, as well as instituting tighter controls on the purchasing process. Employees are encouraged to attend the NMSU courses in the NM EDGE (Education Designed to Generate Excellence) program, many of which focus on ethics.

In the GIS office, 3 of 8 employees have GISP certification. One requirement to attain the GISP is to sign and adhere to a GIS Code of Ethics. We added an ethics requirement to our job descriptions, ask an ethics question in job interviews, and have general discussions in the office as ethical issues arise in the daily workflow.

We communicate with each other the need to be honest in our representations of geographic features, respect the privacy of the data we collect and store, and respect the individuals who interact with our office. If we have a conflict of interest, we disclose that immediately and refrain from participating in the issue. We also must continually express to our customers that, while we enjoy the fact that they are highly appreciative of our work, we can’t accept their gifts of thanks.

Ethics in Practice
The issues of ethics in GIS are a challenge because many people don’t really understand where GIS data comes from, and what GIS is capable of. We must keep this in mind, and must always act in the public’s best interest in order for the public to have confidence that we’re doing the right thing, and making the right decisions for their benefit.

Our biggest challenge is to explain the ethical use of GIS data to the laypeople who need our services. They see maps and apps everywhere these days, and think it’s easy and straightforward. But we continually must explain that, to make a good decision using GIS data, we must understand the source and accuracy of the data, and use it appropriately.

Typical conversations go like this:
“IT’s on a computer, so it’s right.” Well, not necessarily. How old is it? Where did it come from? We’re happy to make you a map showing your property and the surrounding area, recognizing that the property lines and other map elements come from different sources and differing accuracies.
“IT’s on the air photo, so it must be right.” Well, not necessarily. Aerial photography has distortion, such as features farther from the camera appearing smaller, and those distortions must be corrected in order for you to measure from the photo. How was that correction done? To what accuracy? When was the photo taken? Air photos are great tools, and are especially fun to look at when you can tell that the airplane flew over on a Wednesday because the trash cans are out in your driveway. We just need to communicate the limitations on their use.
“Can you GPS the corners of my property for me?” No. That would be illegal and unethical. Hire a surveyor. We do GPS roads, structures and driveways for emergency response, though, and we’d appreciate anything you can do to help us improve our accuracy.
“Here are some GPS coordinates from my Garmin/Google Maps/USGS topo quad/whatever. Can you tell me who owns that land?” Yes, if you know the datum your GPS units are expressed in, or Google is using, along with the error of the map and the readings (plus or minus how many feet or meters). Sometimes this can be a little complicated for the non-geographer, so we try to explain using common terminology, for the best results.
“Can you tell me where there are power lines / archaeological sites / wells / etc.?” No, we don’t create those data and so can’t give them out, and in many cases, that information is protected by law. You should talk to the authoritative source agency to get that kind of data.

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However, there are many data sets that we do create and house that are public record, and can make your life easier if you are a real-estate agent, a developer, a homeowner, a hiker, geography student, a surveyor, an emergency responder, or just someone who loves maps.

Ethics Solutions
Loopholes and pitfalls in ethics abound in the GIS world. It would be easy to hand over a map to a customer and say, “Here’s your answer,” but that would usually be inaccurate as well as unethical. Our solutions for creating an ethical culture have focused on training and communication. We continue to receive ethics training in our NM EDGE courses and the county-provided training. We have frequent casual discussion of ethical issues. This keeps the topic in our minds, therefore we are more likely to act ethically, and provide the best service the public expects and should receive.

The opinions expressed are solely the authors, and do not reflect those of their employer.

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What Is Our Profession?
One of the more paradoxical aspects of the GIS profession is that we generally lose some of the technical skills we had earlier in our career as we become more professional (that’s my new euphemism for getting older). As we contemplate the production of professional practice standards and guidelines through the GIS Management Institute (GMI), I am struck by the likelihood that such standards are likely to focus on technology and our use of it. Yet, technology should not define our profession, primarily because technology changes but the profession should not. By this I mean that the aspect of our practice that makes GIS a profession cannot be dependent on the way we complete the various tasks we undertake.

For example, we now limit our spatial data to feature geometries composed of points, lines, and polygons to which we attach attributes. I suspect that we will work with volumes as a fundamental geometry construct within the next 10 years and that LiDAR and similar technologies will be used to construct those 3-dimension geometries as simply as we currently use handheld GPS units to collect point data.

Those of us in the transportation field learned some time ago that we cannot simply draw a line, call it a street, and stick some attributes on it if we intend to serve a wide variety of users with all the different forms of street centerlines and attribute combinations they may need. In other words, the geometry cannot define the feature. In fact, there is not a one-to-one relationship between the feature and the geometry; the relationship is actually many-to-many in that one centerline feature can be used by multiple streets (e.g., US 27, SR 45, and Washington Blvd), and each street can traverse multiple centerline segments.

What about the implicit error of vector geometry, which fails to indicate how “fuzzy” our information might be? Who among us has not drawn a map of something like neighborhoods, wetlands, or wildlife habitats, yet given no indication to the user of the map regarding how uncertain the sharply defined boundary lines really are? Does that endangered squirrel really stop looking for food at the place where I placed the habitat boundary line? Our friends in the surveying field like to call themselves the authoritative source of spatial data. Are they the only ones? Can fuzzy data be authoritative?

It is when discussing issues like these that I clearly see the distinction between the GIS profession and other geospatial areas of practice. For example, if identification, classification, and attribution are intrinsically more important than an absolute accuracy of position, then a GIS professional can be a source of authoritative spatial data. What field monument would a surveyor recover to define the boundary of a neighborhood to within the required 1:10,000 closure? What photogrammetrist can tell me the name of the street appearing in an image?

Writing in the March issue of Professional Surveyor Magazine, Claudia Barrueta cautions against her fellow surveyors focusing exclusively on the tools of their profession, “If land surveyors allow themselves to be defined by the tools they use, which are meant to simplify a few aspects of their job, then surveying is in danger of becoming a trade” (p. 23). She believes that surveying can be called a profession because it involves aspects of the law, not because surveyors are great at measuring things. She also says expertise and ethics are the fundamental aspects of the surveying profession. I might point out that she is a young college student, so hers are not the observations and opinions of an elder statesman.

What makes the GIS profession a profession? Lots of professions include data collection and mapping within their scope, so those aspects of our field of practice cannot be used to define the profession. Like the field of surveying, we cannot rely on technology to define our profession. If we follow Barrueta’s advice, we will base our profession on ethics and expertise. The key to understanding this advice is to look closely at her meaning for the word ‘expertise’, which she sees as being very different from technical skills. This means the expertise of the GIS profession cannot be demonstrated by being able to use handheld GPS units to compile data or desktop GIS software to produce maps, although how we use these tools can be an expression of our profession.

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I submit that our expertise is in being to tell a story, clearly and without bias. We are communicators of meaning found in the data. The story is written by our understanding of the spatial data and is guided by our ethics. The typical scope of our stories is geographic, usually across great expanses of land and water, although the term 'geographic' might refer to a very small space given the right scale. This is in sharp contrast to the role of the surveyor as storyteller, who has a local focus and a narrow subject. Some people have said GIS involves spatial relationships within and between phenomena, and that it is the relationships, not just the features and data, which grant the GIS field its primary identifier of scope: geography. The other two letters in the name describe our tools, not our profession.

Technology helps us compile the facts and analyze them. It also helps us convey the facts and their meaning to others; i.e., tell the story. But how we do it involves our expertise and ethics; i.e., to tell the story clearly and without bias.

These fundamental elements of the GIS

based on that model. These documents go well beyond what exist for other geospatial professions, but they should not be used to define our profession. Even my master’s degree in GIS, less than 10 years old, suffered from a curriculum suitable for a technician, not a professional. I can only imagine that the potential future GISP exam, likely based on the GIS&T Body of Knowledge, will focus on the technical aspects of our profession.

What happens to us if people see these technical skill sets as the scope of our profession? None of us—not doctors, lawyers, surveyors, or any other professionals—can define ourselves through what we learned in school. Lawyers learn about the law in law school, not how to be a lawyer. Education offers a knowledge foundation for a profession, but does not provide the scope of what a professional must know.

GMI has the task, through our new Professional Practice Division, of defining the GIS profession in a formal manner. Doing so will require the input and participation of our members. What path will our standards take? Jeffery Lucas, who is licensed as a surveyor and an attorney, recently said that the standards governing the surveying profession “are not professional standards of practice, even though some of them claim that title. They are all technical standards written for technicians” (Point of Beginning, March 2013, p. 42). We must not follow that path.

Defining ourselves through our tools and their technological underpinnings is especially a concern for the GIS profession, as the members of many professions use the same tools and methods. The difference may be found in their use of the tools in a specific way for a specific type of data applied in a specific field, such as a planner working with zoning data to decide on the compatibility of a proposed conditional land use for a piece of property. A GIS professional has to be readily adept in many fields, using many tools to develop, analyze, and present data from many sources and of many types to a variety of audiences. Thus, one part of our definition as a profession has to address the breadth of required knowledge and skills.

I believe the key aspect of our self-definition, however, will be found in our need for judgment. We are all familiar with metadata and our obligation to provide it so users of our data and analytical products can judge for themselves whether a particular product is suitable for their application. But we must also exercise our judgment when we compile data, convert it to various forms, analyze it to understand its implicit meaning, and express that understanding to others through maps and other outputs of the
analytical process. That core element of our profession—judgment—comes over time and rarely through formal education. I said we are storytellers, and we are. But I also said we have to tell that story clearly and without bias. That means using ethical and insightful judgment in deciding how to tell the story. It also means deciding what to include in the story and what to omit; i.e., ethical judgment. How will we put that in a GISP exam?

More than anything else, our work in GMI to define the GIS profession needs to be able to quantify and explain the judgment we must have in order to be a member of that profession. I invite you to volunteer to help with that effort. Please contact the URISA staff to offer your help by joining the Professional Practice Division of GMI or other parts of our growing organization. After all, as professionals, we are obligated through our Code of Ethics to participate in the profession and honor our responsibilities to our society, our field of work, and our peers.

J. Allison Butler, AICP, GISP
URISA President

2013 URISA Board of Directors’ Election

Next month, you’ll start to learn more about the candidates for this year’s Board of Directors’ Election. The following individuals were approved for nomination by the URISA Board during their March meeting and they are busy preparing their statements for your consideration:

FOR PRESIDENT—
• Carl Anderson, GISP – Spatial Focus, Inc., Sarasota, Florida
• Geney Terry, GISP – Geospatial Information Solutions, LLC, Placerville, California

FOR BOARD OF DIRECTORS—(to fill 3 positions)
• Jochen Albrecht – Hunter College of The City University of New York
• Phil Davis – GeoTech Center at Del Mar College, Corpus Christi, Texas
• Amy Esnard, GISP – City of Portland, Oregon
• Ashley Hitt, GISP – Connected Nation, Louisville, Kentucky
• Kevin Sato, GISP – City of Cottonwood Heights, Utah
Book Review

Geodesign: Case Studies in Regional and Urban Planning
Publisher: Esri Press
160 pages $19.95

Reviewed by Jonathan Levy, MA GISP at Oceanit (http://www.oceanit.com/) in Honolulu, HI. His e-mail is jlevy@oceanit.com.

Mr. Shannon McElvaney’s book, Geodesign: Case Studies in Regional and Urban Planning, is very well put together and illustrates great case studies that show how Geodesign works. Geodesign is driven by the Geodesign Framework put forth by Dr. Carl Steinitz and his six questions of Geodesign that assess the following. Should a project go in a given geographic area? How is the project working with the environment that the project has affected? Should the project be altered to better interact with the surrounding environment? How will the alteration affect both the project and the surrounding environment? Mr. McElvaney illustrates how complex designs and issues, not just the physical and environmental but also the political, can be looked at by using various data sets. These designs and modeling seem to be tailor made for a geospatial environment because of their complexities and yet allow input from the local populace for planning a better community through guided workshops. This helps to achieve community support for planning projects.

Each case study in the book is touched upon below, with one or two interesting aspects, and how each case study relates to the Geodesign Framework. The first case study is about the City of Asheville and development patterns as driven by Geodesign. The key point is easy site selection, that can be done by the prospective user utilizing an on-line tool called Priority Places (http://gis.ashevillenc.gov/mapasheville/priorityplaces/). It is quite easy to use and generate a prospective location map based on an intuitive GUI. While the interface is easy to use and navigate around the Azavea DecisionTree engine backend seems to be quite sophisticated with complex data sets. This example fits into the Geodesign Framework of how a site such as a business for example, in the City of Asheville, could potentially be a success or failure based on the complex data sets that went into the decision engine. Also, how might business site affect the environment and how environment may affect their business? Environment is not only nature but person made, and if people are involved there are politics.

The second case study about Cape Cod shows what presently exists and how people will change the environment and infrastructure. There are two key ideas in this case study. The first Geodesign enables one to look at interactions between data sets. The second is to model different outcomes depending on what data set is given more weight. The other aspect that is discussed in this case study is how the public gets involved in giving input via guided workshops on how or what they want they want their community to become.

The third case study on ecology in Yellowstone raises the issues of adopting Geodesign. There are many data sets that are needed to model a complex ecological area like Yellowstone. One needs to find the sources of data and get them into a GIS consumable format. One interesting point brought up in this case study is standardizing work flow and data, such as a standard projection system across the United States, to allow faster adoption of Geodesign. The adoption of a United States standard projection system would be technically possible with the current technology. There will push back from groups of people and some industries over this adoption.

The fourth case study about Singapore centers on offering planned alternatives to best utilize limited land area. The Sustainable System Systems Integration Model was set up so that environmental and infrastructure factors could be examined in concert, and how the synergistic effects could best be optimized for the population of Singapore. The point of this case study illustrates how outcomes of the data modeling and data interactions are presented visually. This helped the decision makers, who may not be experts in all the various disciplines mentioned in this case study, chart the best course of development.

The Kuwait University Campus case study shows how Geodesign can be applied to manage all aspects of a project. This case study shows the integration between master planning and engineering.
The example has combined both indoor data, i.e., structural, and outdoor data, i.e., area planning. This Geodesign project has taken traditional building knowledge, such as the structure of a Bedouin tent, and incorporated it into the modern design process. The data used to design the campus can theoretically be reused for the lifetime of the campus to assist in growth and maintenance tasks. This example of Geodesign shows the concept does not stop once the project is constructed but is an evolving process of constant improvement.

The Visioning Florida 2050 example shows the Geodesign Framework in action by comparing four different scenarios. Through complex modeling, four scenarios were developed. The first one being a Trend scenario, which has development going, the way it is. The second scenario is a Green Area, which focus on the conservation of natural ecosystems. The third is Centers, growing urban centers keeping ecosystem corridors, and developing some rail. The last one is Corridors; this scenario keeps population growth along high density rail corridors. Once the four scenarios were developed, the community was asked what use was most important. This case study shows that community involvement is a key step in the design process.

The example of turning areas from Red Fields to Green Fields is an interesting use of Geodesign for park site selection in Los Angeles. Physical, economic and environmental data were collected for neighborhoods that lacked parks. These data were used in both impact and decision models. Once the data was gathered and the models were run, parks were put in the most appropriate areas. This allowed for a better living environment for the neighborhood.

The last case study used Geodesign to manage the balance between natural resources, growth, and public safety of development California alluvial fans (fan- or cone-shaped deposit of sediment crossed and built up by streams). The tool that was developed was the Alluvial Fan Land Planning Tool. This tool was developed to be easy for the end user to use by drawing. The back end of the tool takes into account regulations for industry, the natural environment, and the economic costs of development. This tool allows for all stakeholders in the development, regulation, and conservation communities to have a Geodesign tool that has constant and repeatable results. Hopefully this tool influences stakeholders to develop outside a high hazard area, which has lower recovery costs.

These common steps run thorough the case study examples in this book; gather data, evaluate data, present data to a group for input. The Geodesign Framework, in an ideal setting, is a process of constant improvement, data gathering, modeling and making a project better. Geodesign needs to be the way future projects are planned out. The overall environment, which includes both human and natural, is too complex to model without some form of Geodesign.

**Need to Earn GISP Certification or Renewal Points… or do you simply want to share some ideas?**

Write an article for THE GIS PROFESSIONAL! We publish six issues each year and are always happy to consider new contributors and content. Send an email to Wendy Nelson with a brief description of what you’d like to write. Articles typically range from 1,000 to 3,500 words and hi-res graphics and images are encouraged.
Some Observations by Peirce Eichelberger

The notion of GIS Professionals and GIS tool users is, in itself, a force pulling at enterprise GIS. Tool users might not see the benefits in following standards or procedures that they may see as not directly affecting their immediate work effort. They might not appreciate the need to maintain something for later use or for sharing with others.

I find that many GIS “Managers” have very little understanding of enterprise GIS. They may be very hard pressed to handle many of the skills mentioned above. They may not be well versed enough to even recognize enterprise GIS opportunities however they present themselves.

Some illustrative examples might help here. I am reminded of a project to locate all the 189 cell towers for a wireless/9-1-1 project, most with multiple antennas. The task was to address the towers so a dispatch could be made to a caller without the latest GPS enabled wireless telephone. The emergency vehicle could get fairly “close” to the caller in distress. This database, after some negotiations, could be shared with the assessment folks who saw substantial income in the towers, often in church steeples or upon municipal, tax-exempt water towers. The County could then value significant additional revenue streams for the municipalities, school districts and the County, just by sharing some data.

Another prime example is the use of solid address databases built to support the entire gamut of E-911 and emergency dispatch. What we discovered was that the rich set of situs (location) addresses became the most often used key to modernize land record interfaces with our Recorder of Deeds Office thus providing workflow enhancements to GIS and Assessment bringing in an additional $6M with untold workflow improvements.

Let’s jump to some of the forces that should be supporting enterprise GIS. I still see ongoing battles between IT and GIS. Maybe it is headcount, priorities or where programming resources report, to the GIS staff or buried in the IT organization. Maybe it is the gee whiz factor—the information content of a good GIS map tells a complete story, a pile of paper that is an IT report may tell a story, but not nearly as effectively. Enterprise GIS by its very nature is a framework for tying things together, exactly what IT should be doing but often cannot for many reasons. Do not get me wrong, some IT people get it and embrace it; they see the benefits of enterprise GIS.

In tough budget cycles, GIS is often hit hard. Maybe it is a buffer between staff cuts and traditional IT
headcount? Maybe it has not been around as long as other governmental functions? Maybe the decision makers think that cuts can be made and GIS will not suffer. They should know better, but don’t.

Whether this is a trend or not we need to talk about all these issues. URISA can lead the charge! Email me if you agree or if you think I am off the mark. What would you like to see URISA do? Thanks for reading…….. peirce.eichelberger1@mac.com

Are you attending your local chapter conference? Check out some of the upcoming events going on near you:

GIS in Action
April 30-May 1, 2013
Portland, Oregon

URISA OC: Be Spatial ‘13
May 6-7, 2013
With a preconference course discussing the GISP process!
Stoney Creek/Hamilton, Ontario Canada

2013 Washington GIS Conference
May 6-8, 2013
Lynwood, Washington
URISA’s 2013 GIS in Public Health Conference
June 17-20, 2013
Miami, Florida

URISA is pleased to announce its Fourth GIS in Public Health Conference. The conference will take place in Miami, Florida, June 17-20, 2013 and is chaired by long-time program committee member, Jason K. Blackburn, PhD, Emerging Pathogens Institute & Department of Geography at the University of Florida. This biennial conference has been previously presented in New Orleans (2007), Providence (2009) and Atlanta (2011) and was established to provide an open and participatory forum for advancing the effective use of spatial information and geographic information system technologies across the domains of public health, healthcare and community health preparedness. The educational program was developed through a peer review of submissions received through a Call for Presentations. The broad conference theme for the 2013 event is: Geospatial tools for Public Health Preparedness. The conference is honored to welcome Mei-Po Kwan (Department of Geography and Geographic Information Science, University of Illinois at Urbana-Champaign) as the opening keynote speaker. She will address GIS Methods for Analyzing GPS Data: Applications in Neighborhood and Health Research.

Dozens of speakers from across the globe will discuss such topics as:

- Preparing for the Future: Are Caribbean Countries Positioned to Manage the Increase in Non-communicable Illnesses?
- Patricia Boda, PhD, Associate Professor, Middle Tennessee State University, Murfreesboro, TN
- GIS for Community Air Quality: A Spatial Model of Diesel Exhaust
- Jill Schulte, Research Assistant, University of Washington, Seattle, WA
- Julie Fox, PhD, Senior Fellow, University of Washington, Seattle, WA
- HealthGIS for Reaching the Unreached Population
- Paban Kumar Ghimire, Deputy Director, HealthGIS for Reaching the Unreached Population
- Macro Mapping of Dengue Virus Vector
- Lynette Akong, Bsc, Msc, Ministry of Planning and Sustainable Development, Trinidad and Tobago
- Spatial Modeling of Malaria Parasitemia in Young Children in Tanzania
- Rebecca Stallings, MHS Biostatistics Graduate Student, Missouri State University, Springfield, MO
- Comparing Primary Care Service Areas to Estimated Drive Times
- Sean Finnegan, MS, Research and GIS Data Manager, American Academy of Family Physicians, Washington, DC
- Remote Sensing and GIS Techniques for Monitoring Industrial Wastes for Amman City
- Raine Qutieshat, PhD, Lecturer, Balqa Applied University, Jordan
- Using Geospatial Mapping to Address the Burden of Diabetes in Durham County, NC
- Benjamin Strauss, MS, GIS Analyst, Children’s Environmental Health Initiative, Ann Arbor, MI
- Nicole Sandberg, MURP, GIS Analyst, Children’s Environmental Health Initiative, Ann Arbor, MI
- Chronic Obstructive Pulmonary Disease (COPD) in India: GIS is The Tool for Epidemiological Studies
- Arun Sharma, MD, Professor, University College of Medical Sciences, India
- Marilyn O’Hara, Clinical Associate Professor, University of Illinois, Urbana, IL
- Small-Area Geographies of Mental Health in England
- Nick Bearman, Associate Research Fellow in GIS, European Centre for Environment and Human Health, University of Exeter Medical School, United Kingdom

The poster session is an important feature of the conference, with nearly 30 participants demonstrating their research on such important topics as:

- Does Place Make a Difference for Texas’ Adolescent and Young Adult Cancer Survival
- Deborah Vollmer Dahlke, MPAff, Director, Texas Life Science Foundation, Austin, TX
- Spatial Epidemiology of Highly Pathogenic of Avian Influenza A (H5N1) in Central Java & Yogyakarta Provinces, Indonesia
- Trivibowo Ambar Garjito, Health Epidemiologist and Molecular Biologist, Vector and Reservoir Diseases Research Center, Indonesia
- Bayesian Spatial Analysis of Teenage Pregnancy Rates in a Brazilian State
- Daiane Leite da Roza, Universidade de São Paulo, Brazil
- Kazakhstan Health Study: The Study of the Determinants of Metabolic Syndrome in Elderly Population
- Leila Utepova, MPH, Researcher, Center for Life Sciences, Nazarbayev University, Astana, Kazakhstan
- Alibek Kossumov, PhD, Senior Researcher, Center for Life Sciences, Nazarbayev University, Astana, Kazakhstan
- Dr. Andrew Curtis, Director of the GIS Health and Hazards Lab at Kent State University will provide the closing keynote address on Thursday, June 20.
Welcome New URISA Members

Kaustubh Agrawal—Bilaspur, India
Xhoana Ahmet—DePaul University—Woodstock, IL
Marshall Ballard, GISP—Santa Clara Valley Transportation Authority—Santa Cruz, CA
Doug Barker—Far northern Group—Fort Collins, CO
Steven Barnett, GISP—Linn County—Albany, OR
Matthew Batina—CSIR, Inc.—New Orleans, LA
Steve Beavers—College Park, MD
Arthur Benefiel—Central Oregon Community College—Bend, OR
Chad Benham, GISP—Georgia Power Company—Atlanta, GA
Gina Besenyi, MPH—University of South Carolina Arnold School of Public Health—Columbia, SC
Matthew Boyle—RN Group, Inc.—Wheaton, IL
Thomas Britt nacher, GISP—University of British Columbia—Vancouver, BC Canada
Daniel Brooks—Kaya Associates, Inc.—Harvest, AL
Kari Buckvold—Critigen—Chicago, IL
Beth Burkovich, GISP—Berks County Planning Commission—Reading, PA
Laura Caetano—Collier County Public Utilities—Naples, FL
Dan Cameron—DePaul University—Chicago, IL
Kevin Campbell, GISP—AECOM Technology Corporation—Roanoke, VA
Andrew Carroll, GISP—University of Tennessee at Chattanooga—Chattanooga, TN
Kari Chael—CDM Smith—Chicago, IL
Michaun Clay—Pittsburgh, PA
Alisa Coffin—Fort Collins, CO
Cameron Conrad, GISP—Stanley Consultants—Kalona, IA
Nick Courtney—County of Huron—Blyth, ON Canada
Kathleen Cullen—Garber, MA
Stephen De Jong—City of Redwood City—Redwood City, CA
Nicholas Distasio—Plainfield, IL
S Doucet—Kamloops, BC Canada
Matthew Downing—Intergyx—Chicago, IL
Daniel Elroi—North South GIS LLC—Los Angeles, CA
Carol Flickinger—Southern Arizona VA Health Care System—Tucson, AZ
Stacy Foster—Stanley Consultants—Stevens Point, WI
Sarah Geinosky—Northwestern Indiana Regional Planning Commission—Chesterton, IN
Tom Godish—Intergraph Corporation—Levittown, PA
David Goldberg—Texas A&M University—College Station, TX
Kevin Hofmann, GISP—Bonita Springs Utilities, Inc.—Port Charlotte, FL
Justin Hollister—University of Wisconsin-Madison—Madison, WI
Christopher House—Grovetown, GA
Ryan Huffman—Arapahoe county Government—Aurora, CO
Tak Dan Huynh—University of Southern California—Garden Grove, CA
Tigist Jima—Tennessee State University—Nashville, TN
Cindy Jones—Park County—Chestertown, MD
Jeff Judycki—En Engineering—Downers Grove, IL
Gregory Kajsz—Santa Ana, CA
Marcus Kitchens—Arkansas Tech University—Russelville, AR
Amber Lauzon, GISP—Ecology & Environment Inc.—Portland, OR
Nika Lately—North Potomac, MD
Irene Liew—TERA Environmental Consultants—Calgary, AB Canada
Jennifer Lishman Nunn, GISP—JMT—Sparks, MD
David Lok, GISP—Jacobs Engineering—San Jose, CA
Bill Lucatuorto—Morrison, CO
Darlene Magold Scott—T&M Associates—Columbus, OH
Amanda Manning—American River College—Antelope, CA
Eric Marks—City of Steamboat Springs—Steamboat Springs, CO
Mark Mattie—gDBMS, Inc.—West Chester, PA
Michele Maxson, GISP—US Army Corps of Engineers—Huntsville, AL
Lisa McCullough—City of San Jacinto—San Jacinto, CA
Mark McGuire, GISP—IEA, Inc.—Fort Worth, TX
Nicholas McNamara, GISP—South Norwalk Electric and Water—Westport, CT
Jonathan Meyers—Lawrenceville, NJ
Wallace Murray—Hunter College—New York, NY
Sarah Myers, GISP—Peninsula Light Co—Tacoma, WA
Julie Naylor—Hilliard, OR
Elisabetta Nivaggi DeGironimo, GISP—Mohawk Valley Water Authority—Utica, NY
Dene O’Connor—University of Redlands—Brick, NJ
Anders Olson—Digital Globe—Englewood, CO
Pamela Ordon—Lancaster, MA
Amy Ozeki—Page County—Luray, VA
Constantinos Papantoniou, GISP—ESRI—Redlands, CA
David Parr—Texas State University—San Marcos—San Marcos, TX
Loren Pfau—Evergreen, CO
Meghan Porzky—Stanley Consultants—Watertown, WI
Philip Potter, GISP—EA Engineering, Science, and Technology—Honolulu, HI
Ram Poudel—Oklahoma City, OK
Erika Poulsen, GISP—Port Authority of NY & NJ—Brooklyn, NY
Jeremy Quan—Critigen—Englewood, CO
Adriana Rodriguez—Winter Garden, FL
George Rusnak, GISP—SAIC—Melbourne, FL
Nicole Sandberg, MURP—Children’s Environmental Health Initiative—Ann Arbor, MI
Jamie Schork—Seattle, WA
Sumit Sharma, GISP—ESRI—Redlands, CA
Kyle Smith—Elkton, VA
Adriana Soares—Riverside County Transportation Department—Riverside, CA
Brian Stice—Landvest Inc.—Watertown, MA
Kerwin Talbot—Cosmopolis, WA
Timothy Thomas, GISP—Colorado Springs Utilities—Colorado Springs, CO
Lindy Thomson—Calgary, AB Canada
David Todd—Bedford, MA
Sarah Townsend, GISP—Wetland Studies and Solutions Inc—Gainesville, VA
Kristin Travis—Envisio—Winthrop, WA
Lauren Umek—North Western University/Chicago Botanic Garden—Glenwood, IL
Robert Ward—Ever Power Wind Holdings—Pittsburgh, PA
Daniel Whittington, GISP—Woolpert Inc.—Columbus, OH
Marcella Wintz—Port of Long Beach—Long Beach, CA
Mark Yerington—MAGIC (Muscatine Area Geographic Information Consortium—Muscatine, IA
Amanda Zaza, GISP—The Wendy’s Company—Dublin, OH
Jill Zerrusen—Effingham County—Effingham, IL
Aaron Zieg, GISP—Stantec—Olathe, KS
Lisa Zoellick—Talisman Energy—The Woodlands, TX
Morgan Zondervan—EBA, A Tetra Tech Company—Pitt Meadows, BC Canada
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For information about URISA Partnership, please visit:
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GIS & 9-1-1...
Location is more than an address.

The URISA/NENA Addressing Conference has been re-engineered for 2013 and we’re pleased to introduce the Locating The Future Conference taking place November 3-6 in St. Louis, Missouri. The conference is organized by a volunteer committee of URISA and NENA members (with staff support for all logistical matters).

Conference Participation
Presentations - The conference is developed through a peer review of abstracts received through the Call for Presentation Proposals. Start thinking about the ideas, research, case studies that you would like to share at the conference.

Submissions are invited in several formats to fit both your topic and presentation style:
- Individual Presentation
- Complete Interactive Session
- Panel Discussions
- IGNITE Presentation

To be considered:
- Prepare an abstract (title and a brief description of your proposed presentation).
- Select your preferred presentation format.
- Submit via the online abstract form by July 1, 2013

Members of the Locating the Future Program Committee will conduct a peer review of submissions received through the Call for Presentations and will develop the program based upon those submissions.

Proceedings and Speaker Registration
Presenters whose proposals are accepted are expected to submit written papers for publication in the Conference Proceedings. If PowerPoint or slide presentations are submitted for inclusion in the Proceedings, a narrative description must accompany them. The final version of your presentation is due on the day it is presented to attendees at the conference. It can be provided on CD Rom or by thumb drive transfer on site at the conference.

All accepted presenters must register and pay the standard conference registration fee.

Presentation Ideas to Consider
The Locating the Future Conference Committee welcomes your presentation ideas and has proposed the following list of suggested topics for your consideration. (Note that all abstracts received will be reviewed and considered for the conference program regardless of the list below...these are just suggestions.)

Addresses in the Future
- Addressing concepts – How do people read their addresses?
- Generational expectations of map/address data. How do new generations deal with addresses or read maps? Digital maps...
- Web based addressing applications. How to get addresses out to the users in an enterprise via the web or new alternative services?

Address Technology
- Baselines / Centerlines
- Database design? Tools to create address databases for everyone
- Site structure location (address point) & how to show it in a GIS
- Enterprise wide GIS and Addressing/ Enterprise wide address repositories
- How is the MSAG going to work in a point based system? What is it going to become?
- 911 mapping solutions – CAD/NG911 and mapping integrations. Look at CAD vendors
- Special Purpose Addressing
  - Occupancy and alternative addressing
  - Pseudo addresses – Mile posts (highways, parks, trails, beaches, campus situations)
  - Addressing schemes – forensic addressing
  - Military Bases

The Business of Addresses
- The economics of Addressing – how to save or make money with good addresses?
- Broadband-how does it relate to mapping? Addresses to support broadband
- Broadening your services (GIS/Addressing as a service)

Working with Address Standards
- URISA/FGDC Address Standard
- NENA Standards on GIS Data model and Site Structure models
- NENA Address Standard
- Pushing requirements from the local to the state level – data sharing in an enterprise environment.
- Changing paradigms in 911/GIS.


RFP Distribution

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