

FeedBack

Compass Pointers

In reference to “Training Recruiters: A New TwiST” by Tim Kent, LS, [Feb. 2009], here is a tip for compass pointing students. Take the pens out of your hand. A typical ball point pen will draw the needle considerably. Also, a cell phone within a few feet will also interfere. Thanks for a great magazine.

John Morrow
Seaway Valley Surveying
Gouverneur, NY

A Response to “GIS Follies”

My intent in writing is to respond to a tone within Joel Leininger’s article, “GIS Follies” [Feb 2009] that could further exacerbate a rift that has been caused by years of misunderstanding and misinformation between mapping professionals.

In the article, Leininger critiques a journal article within *Transactions in GIS* titled: *Transformations of Cadastral Descriptions with Incomplete Information into Maps* by Marina Mueller, PhD. It is qualified as a research article. You get a taste of the article by a reprint of the abstract in Joel’s piece, but this really does not account for what the research actually accomplished.

While I enjoyed his article and the references to “Officialdom” that we all know to be valid without reproach, I had to take issue with other aspects, prompting a hopefully polite retort.

A Different View

When I read the abstract, my first thoughts were of the reams of parcel assessment maps that were scanned and rubber-sheeted to form base GIS layers over the years. The author of the critiqued article proposed a methodology using only cadastral text descriptions to form a map— and I thought; “Well, good luck.” I could not guess how many legal descriptions I have read where NE was supposed to be NW or digits in numbers were transposed or missing.

The abstract does place an emphasis on getting from a compilation of textual descriptions to some sort of graphical depiction of them—obviously, since there are no survey maps or even parcel assessment maps to use. In my view, the abstract is pretty clear about this goal.

Other portions of the paper also support this summation (from the conclusion):

“Although uncertain and missing information usually prevents the generation of maps that completely match the shape of the original boundary of real estate holdings, useful sketch maps can be generated that visualize all given information of the texts, highlighting vagueness and contradictions...”

Here are some comments specific to portions of the conclusion above:

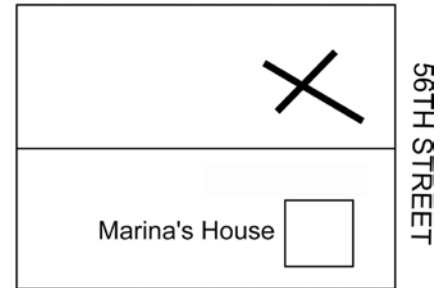
1. “uncertain and missing information usually prevents the generation of maps that completely match the shape of the original boundary of real estate holdings” In my experience, I think this might be a bit optimistic, maybe slightly misleading. I would have left out the words completely and original.
2. “useful sketch maps can be generated” Note that the article used the term “sketch maps”, not property maps, or maps of a certain scale or accuracy. I have been using the term “map graphics” which could probably be improved. Surveyors I know and respect have used the term “cartoons” but that doesn’t work well with others.
3. “visualize given information” At least we can look at graphics that are in some measure based on the textual descriptions.
4. “highlight vagueness and contradictions” This specifically alludes to the fact that you can see where things are really bad (pointing out where land surveys are really needed).

I concede to Leininger the limitations that this sort of product might have as a planning or decision making tool. It is here where I think many of us begin to feel uncomfortable, as he points out. However, proper use of layer information and maps by planners and decision makers is not the topic of his piece. If it was, the article could have been titled “Planning Follies” or “Government Follies”.

A Sketch Map

If there becomes a need to survey a parcel of land that is north of Marina’s house, on 56th Street, the owner or surveyor

might deduce that since the street runs north and south, and Marina’s house is on the corner (everyone knows Marina) a “sketch map” could be formed as such:



Is this sketch useful? Sure it is! It gives a visual representation of where the property is located (proximity). Does it define the property? Of course not, but it does tell us where we want a survey. A great big “X” is scribed denoting a property that needs to be delineated by a proper land survey.

This encapsulates exactly what can be gleaned from the research paper; it demonstrates a method to create a “sketch map”—better than nothing, but at least somewhat representative of the textual descriptions, useful for determining where the descriptions are completely wrong, or even where land surveys are required.

The Real Problem

As a matter of practicality, every parcel cannot be surveyed at the same time to create an accurate and precise parcel layer in most jurisdictions. However, there is a need for a parcel layer to interpret information (one of the reasons we have assessment maps). The parcel layer is an abstraction of compiled information, sort of analogous to a financial summary report in business. It does not show all the details, but can provide a useful reference. It should always be disclaimed and qualified by statements of use. The product itself is not responsible for misuse or bad judgment. Should we blame the tools or the people charged with compiling them?

Parcel assessment maps were used to form base layers of many geographic information systems. They may have been digitized, rubber-sheeted, warped, and who knows what else to form a layer

for use within a GIS. It seems like every year I notice a demonstration of GIS editing tools used to “mouse” parcel lines. (I cringe, apologize to surveyors, and make a point of talking to the software person to suggest they use another type of layer within their demonstrations.)

Professionals today from many and varied professions know that having a parcel layer that allows the query of related database records is extremely useful. In some of the more sophisticated governmental entities, one of the fields may contain a picture or link to a scan of the last recorded survey. Parcel layers are used by many surveyors in the planning and preparation of subsequent property surveys.

Fear from Assumptions

Yes, some people may blow past the disclaimers and assume graphic depictions are spatially accurate. It is easily surmised that some of these people may assume that surveys are derived from geometric measurements and mathematics, transcribed to form plats that seamlessly form maps that can be used at any scale (while the world is perfectly flat). They may not have a problem correlating maps with graphics, or survey measurements with outputs from resource grade GPS units. They might even be really bright people with good educations such as scientists, physicists, doctors, dentists, and lawyers.

And, things can get worse if these people are planners, engineers, administrators or others, even within our own fields, that may hold office in government or control budgets. More than once I have heard GIS colleagues equate coordinates obtained from resource grade GPS units to survey measurements (a real GIS folly) or surveyors referring to the parcel layer as a cartoon ignoring their purpose and underlying database attributes. A recent twist annoying some GIS professionals is a notion that GIS should be incorporated within IT. Can you imagine an IT manager controlling the budget for GIS, or specifications for creating a parcel layer, or an aerial mapping project?

The circumstances described above can result in fear for mapping professionals. The ultimate cause of the fear originates from inappropriate assumptions. Hopefully, we have not contributed to them. Professionals in our fields have an ethical responsibility to the public and to our peers in related professions to speak out, illuminate and educate (GISCI, 2002). This type of professional-

ism was clearly demonstrated by Tim Kent LS, from the Oregon Institute of Technology, in “Training Recruiters: a New TwiST” [Feb. 2009].

Concluding Statements

The term “GIS Follies” creates an overarching but incorrect assessment of the entire research article. If poking fun at the abstract was the intent, maybe something like “Sketching the Wobbly Cadastral Descriptions in Brazil” would have been a better choice.

Mapping professionals have a chore to do to make sure others are not misusing information or setting policy that does not consider the life-cycle maintenance of geographic information, particularly survey data.

What can we do? I know we can pontificate and educate. I also know that slamming one another doesn’t really help. If left to the “officers of Officialdom” we might all wind up under IT!

What is missing from Leininger’s interpretation of the abstract is that the result would be a sketch map (or layer) that would point out where there is an obvious need for land surveys. In this case, the resulting product could actually promote the need for and results from the profession of Land Surveying. It may identify vast areas where the descriptions simply do not match indicating a priority for surveys. This sort of application (providing illumination through visualization) may actually provide an increase in business to local land surveyors! Perhaps Leininger could have titled his article “GIS Methodology that Can Identify Need for Land Surveys in Brazil!”

In my view, the research paper explains a methodology that can be attempted to create the first cut at a parcel layer—albeit a sketch map. GIS professionals should qualify inadequacies within metadata of a resulting layer or map and make them “apparently obvious”. Other professionals, like land planners, need to ensure their work is done with respect to these qualifications so that decision makers are not misled. I believe it is most likely here where mapping professionals should speak out. I think it is here that professionals from survey and GIS have common ground.

I hope future Point to Point articles will include pieces on how we have, and can continue to work together as mapping professionals—maybe in a section called “Point to Poly”?

A Note from Dr. Mueller

The following is a portion of Dr. Mueller’s email reply to me after letting her know my intention to submit a response to “GIS Follies”:

First of all, some background information for you about my journal paper: my research was initiated by a cooperation between the University of Karlsruhe and the University of Santa Catarina (Brazil). The cooperation partner in Brazil was Prof. Juergen Phillips who is an expert in the field of the German and Brazilian cadastre. He works regularly as a court-appointed expert for Brazilian courts. In this context, he often has to deal with legal problems that arise due to vague, incomplete and incorrect descriptions. Therefore, he was interested if it might be possible to visualize the information that is actually given in the texts (including its vagueness). He was hoping that by such a transformation from text to “sketch maps”, he gets e.g. a quick overview of the differences between descriptions of neighboring real estates. Therefore, your counterpoint article emphasizes correctly that my journal paper does not imply that accurate cadastral maps can be automatically generated from the text but that the resulting “sketch maps” might be supporting the work of surveyors.

It seems to me that [Leininger] wants to express his fear about the possibility that such maps are considered by non-surveyors as the basis for important legal decisions. I am no expert concerning the American cadastre. Actually, I made my Ph.D. in the field of remote sensing, and currently I am working for a company that develops software in the field of air traffic control.

Note to readers: I have been a member of the Washington State Section of the American Congress on Surveying and Mapping for many years. My 2007 MS in GIS involved the creation of a GIS database for a survey control database template provided by the Washington State Council of County Surveyors. As GIS Manager for the Muckleshoot Tribe in Washington from 1995-2006, I instigated several reservation-wide surveys to provide a basis for the collection of higher quality GIS, engineering, aerial mapping, and land survey information. One summer long ago I used a plumb bob, chain and rod, entered a traverse algorithm in an HP, and drafted survey maps with ink pens and Leroy lettering templates on Mylar.

Tim Leach, GISP
via the Internet

Leiminger Replies (to Leach and Dr. Mueller)

Thanks for responding to my piece. After reading your letter, a couple of things hit me right off the bat. First, my opinion was formed after I read Marina's whole article, not just the abstract. Due to space limitations, I included the abstract and hoped it would serve to whet the appetites of our readers. Second, the article implies that "the notaries of the Brazilian cadastre", not surveyors or court-appointed experts, are the real beneficiaries of the study. She writes, "In order to ease the necessary surveying process or comparisons of descriptions of adjacent real estate, a transformation (ideally automated) to a map representation is desired by notaries of the Brazilian cadastre."

I can't imagine a surveyor thinking that pseudo-numeric "representations" of vague metes and bounds descriptions would "ease the necessary surveying process." As I pointed out in my piece, we surveyors have encountered many hundreds of similar descriptions in our careers, and dealt with them in context. I have little doubt that Brazilian surveyors have done the same. So the audience for these numeric "models" must necessarily be those who are least

able to see through the deficiencies of the product. I'm having a difficult time seeing how that moves anyone forward.

Were any surveyors heavily involved with the conception of this study? I mean, bonafide practicing surveyors, not people in academia pretending to be surveyors? You see, the cadastre here, and, I'm certain, in Brazil, is based on that parcel fabric, the caretakers of which are the local surveyors. *They* are the ones who know the deficiencies in the current system; *they* are the ones who could offer insight as to possible improvements.

But attempts like the one described here seem wide to the left, fixing nothing, and possibly injecting another vague, unhelpful layer into the cadastre. I don't blame Marina, who has a remote sensing background, for not recognizing this. Nothing in her background, as far as I know, would alert her to the subtleties inherent in land boundaries, any more than I should be held to know the technicalities of remote sensing. With that said, I *am* curious as to why a remote sensing person would be selected to conduct such a study. As I pointed out in my article, "assemble the wrong people in a room . . ."

Tim, I gather your primary concern is that my piece would serve to drive deeper the wedge between surveyors and GIS folks. That was not my intent, but consider the following: Marina's article appeared in "*Transactions in GIS*". Most of her references are to other GIS studies. One cannot read the piece without getting the impression that it is directed to other GIS people, who would not be expected to discern the on-the-surface-craziness of it. Surveyors who have any experience at all would be shocked at the level of effort expended to arrive at such a dubious result. (And I say that after having thought about it—not as a lame-brained attempt to get a rise out of you two. This study required a fair amount of effort, *the entirety* of which, I believe, most surveyors would say is misplaced.)—J.L.

Got some feedback? We always enjoy hearing from our readers. You can contact us via our website at www.AmeriSurv.com, or send a letter to: The American Surveyor, P.O. Box 4162, Frederick, MD 21705-4162. We reserve the right to edit letters for clarity and length. Due to the variety of titles used by licensed surveyors throughout the U.S., we use the title LS after the name of any registered land surveyor.

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