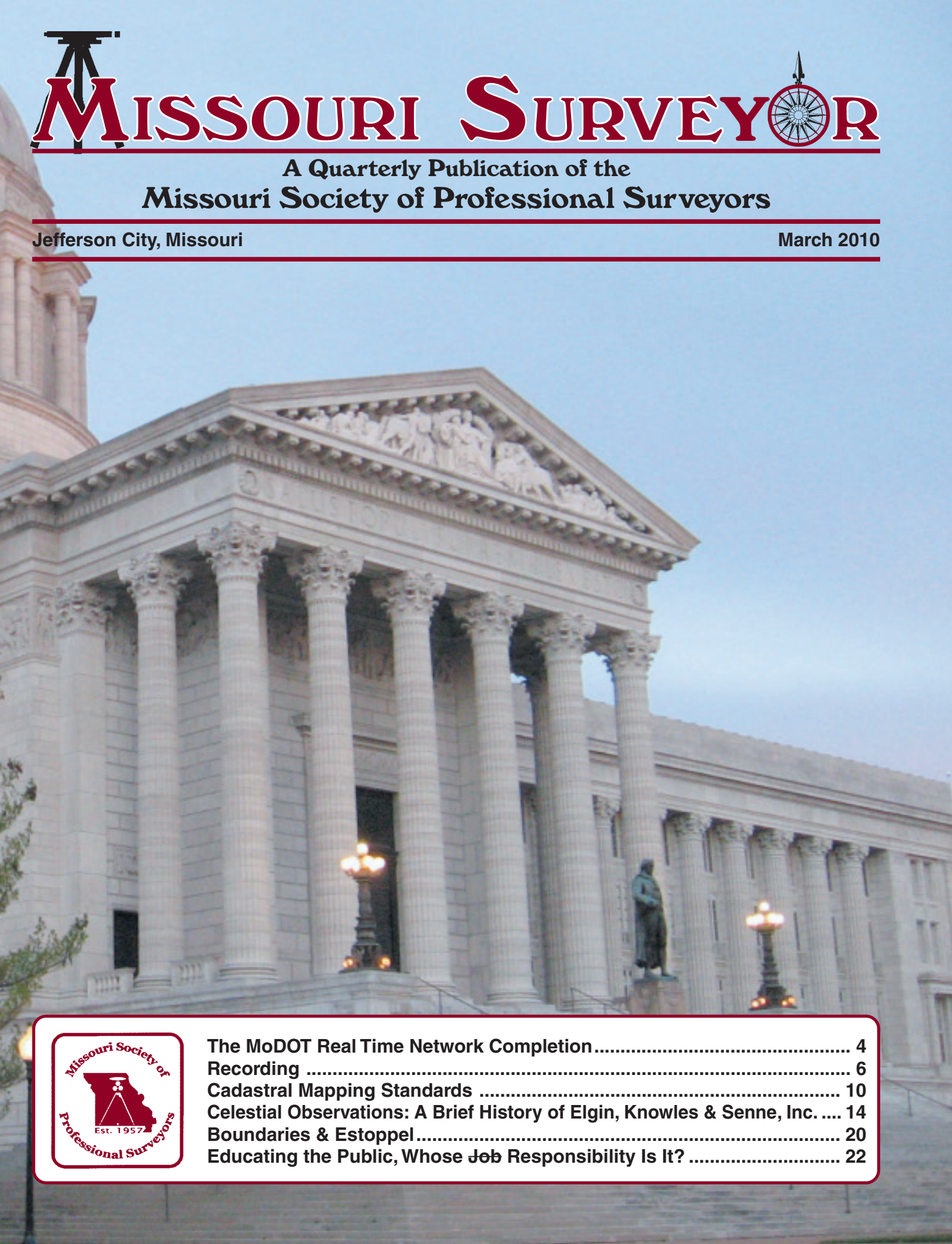


MISSOURI SURVEYOR

A Quarterly Publication of the
Missouri Society of Professional Surveyors

Jefferson City, Missouri

March 2010



The MoDOT Real Time Network Completion.....	4
Recording	6
Cadastral Mapping Standards	10
Celestial Observations: A Brief History of Elgin, Knowles & Senne, Inc.	14
Boundaries & Estoppel.....	20
Educating the Public, Whose Job Responsibility Is It?	22

MISSOURI SURVEYOR

CALENDAR OF EVENTS

2010-2011

May 7-8, 2010

Spring Workshop
Lodge of Four Seasons
Lake Ozark, MO

July 9-10, 2010

Board Meeting and MS Workshop
Lodge of Four Seasons
Lake Ozark, MO

October 7-9, 2010

53rd Annual Meeting and
Convention
Tan-Tar-A Resort
Osage Beach, MO

December 4, 2010

Board Meeting
MSPS Office
Jefferson City, MO

May 6-7, 2011

Spring Workshop
Lodge of Four Seasons
Lake Ozark, MO

October 13-15, 2011

54th Annual Meeting and
Convention
University Plaza Hotel
Springfield, MO

John Alan Holleck, Editor



Notes from the Editor's Desk


by John Alan Holleck



Hello everyone, I hope this winter has not been too rough on you. I am sure you are as ready for Spring as I am, since it seems like I have spent too much time in the house. Fortunately, it is the end of February and we should have a decent (weather wise) next three weeks. Although, we do have the "in like a Lion" and "out like a lamb" dichotomy and its reverse for the Month of March. That is more than enough about the weather (we cannot do anything about anyway) but a fun topic sometimes.

After my message and President Ralph Riggs' message, this issue of the *Missouri Surveyor* opens with an update of Seiler's CORS survey. George Kopp, an engineer with MoDOT, reports that the 78 station network is up and ready for

use. Congratulations go to Tom Seiler and company for their efforts. Chris "State Fair" Wickern follows with "Recording," a perspective on Ch. 60.650. He cites several statutes in his survey of the recording law. If you think back, recording was a HOT topic two years ago at the annual conference. "Cadastral Mapping Standards: GIS Committee Hosts Missouri's Cadastral Coalition" an article written by Don Martin, a multiple contributor to the last two issues, discusses the need for cadastral mapping standards. Next is "Celestial Observations: A Brief History of Elgin, Knowles & Senne, Inc. and their Ephemerides" by Marc Cheves, owner/editor of *The American Surveyor*. He also includes a nice biography of the three principals. A new feature from the December issue is "Meet Our Members!" The first two members are Kevin DeSain and Jason Flamm. They are followed, later, by Jerrod Hogan and Andy Koenigsfeld. Knud Hermansen follows with everything you will ever want to know about "Boundaries & Estoppel." Knud has a writing partner named Robert Liimakka, a former student. Following Knud is a report concerning the health of the Land Survey Authority entitled "State Land Survey Program In Danger." The program has some serious funding problems. Chris Wickern returns with "Educating the Public: Whose Job Responsibility Is It?" Ever wonder what the real importance of boundaries is, read his Bible citations. Chris would like to know what happened to that sentiment in the interim.

The back half of our journal opens with "Meeting With Your Legislator" by Don Martin. Don gives the reader some insights on a topic that many of us wonder about every Capitol Day. This article will prepare for that next Capitol Day visitation or visit with your legislator over legislative concerns. Next, Don introduces the membership to our two new Registration Board members, Dan Govero and Mike Flowers. I would like to take this opportunity to congratulate Dan and Mike on their new responsibilities. Good luck fellows. B. Austin DeSain follows with his efforts locating information about an old Berger transit he found packed away in the Clayton Engineering offices. The final disposition of the instrument is the Smithsonian Museum. On a humorous note, Robert Pelaski's "I Won't Let The Position Of County Surveyor Go To My Head," should bring a laugh or two just for his proscribed modesty. In "A Quixotial Quest For A Unified Standard," Stan Emerick reports the results of a survey posted on the MSPS website about the concerns developed by the Standards Committee. Don Martin's final offering is an update of our MSPS Committees. Last but not least is Knud Hermansen's second article "Indemnification or 'Hold Harmless.'" If your *Missouri Surveyor* is a little late, you can blame me since I am the weak link this quarter. 

Cover: It is springtime in Missouri's capitol city. Photo by Ron Kliethermes, MSPS Newsletter Photographer.

THE MISSOURI SURVEYOR

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President's Message



by Ralph Riggs

Christmas is over, it's a new year and everyone's ready for spring. Between snow, mud, W-2's and corporate tax deadlines it seems like the period between Christmas and the first Dogwood bloom lasts forever. But Groundhog's Day was cloudy over most of Missouri so spring should be just around the corner.

This is the time of year that things get hectic in Jefferson City. Thanks to our Legislative Committee, our Legislative Chairs Rich Barr and Troy Hayes, and our legislative consultant Mo McCullough, there has been some progress in the legislative arena. SB621, the digital cadastral parcel mapping bill is moving and barring any last minute issues has a good chance of survival. This will provide the vehicle for establishing cadastral mapping standards. HB2029 which deals with recording of surveys is still in its infancy and will probably generate a lot of discussion. Being primarily a retracement surveyor I often wonder what the effect would be if I couldn't go to the field with that 1905 section subdivision survey, the 1968 re-survey of a lot or the retracement of a metes and bound tract. In this issue there is also an article by Chris Wickern about 'recording' that I would urge each of you to read. SB867 which increases the amount of land for a lien from one acre to three acres is a much needed revision and hopefully will make the cut this time. The \$1.00 recording fee increase for the Land Survey Program has traveled a rocky road but our efforts will continue until the end of the session. The Land Survey Program is an important and integral part of Missouri surveying and the increase in funds will benefit the Profession and ultimately the public. Remember to personally contact your senators and representatives to ask for their support.

Mark your calendars to attend the Spring Workshop May 7th and 8th at the Lodge of the Four Seasons. Again, Dan Govero and the education committee have put together a great line-up. A minimum standards workshop will also be held at the same location on July 10th.

In closing I would like to applaud one of our own surveyors from Missouri. Kent Mace, owner of Elgin Engineering & Surveying, has spent the last several weeks in the earthquake ravaged country of Haiti. An engineer as well as a surveyor, Kent has been providing his expertise to establish safe water systems for the people of Haiti. There have been other Missouri surveyors that have volunteered their surveying expertise abroad and they should also be commended for their worthy efforts. 🇵🇸


The MoDOT Real Time Network Completion

by George Kopp, P.E. and Tom Seiler

The Missouri Department of Transportation's George Kopp, P.E., CADD Services Engineer recently announced the completion of the 78 Station Network of Global Navigation Satellite System (GNSS) Continuously Operating Reference Stations (CORS). This Real Time Network (RTN) operates 24 hours a day 365 days a year to provide real time or post processed corrections to professionals requiring accurate GNSS positional data. The Missouri RTN CORS covers the entire state of Missouri including the metropolitan areas of Saint Louis and Kansas City by reaching into Illinois and Kansas. Partnering with MoDOT in Kansas are Shafer Kline & Warren in Olathe and Kansas University in Lawrence. Other partners include, Saint Clair County in Belleville, Illinois and in Seiler Instrument Company with bases in Saint Louis County and Belton, Missouri.

The data is available at no charge to registered users with a user name and password. To obtain access to the system, visit the MoDOT GNSS Web server at <http://gpsweb.modot.mo.gov/>. For more information email Kevin Decker, P.L.S. at kevin.decker@modot.mo.gov

The Network is built on Trimble Navigation CORS & VRS Infrastructure Technology. All 78 CORS stations are NetR5 Receivers with Zephyr Geodetic II Antennas with full GPS & Glonass tracking. The CORS stations were built by the contractor; Seiler Instrument & Mfg. Company Inc. who built the network in several phases starting in April 2008. The Software running the Network is the new Trimble VRS3Net Software and is capable of supporting hundreds of users. 72 of the 78 CORS stations are constructed with concrete pedestals going 10 feet into the ground and were constructed by Seiler Instrument. The CORS stations are positioned using existing National Geodetic Survey (NGS) CORS stations and several MoDOT stations are already part of the NGS National CORS. Additional Stations are being submitted to NGS each month with the goal of having all stations accepted in 2010.

The Missouri RTN CORS will support the Infrastructure needs of professionals including Engineers, Surveyors, Mapping GIS, Utilities, Construction & Heavy Highway, Environmental and Agriculture businesses. 



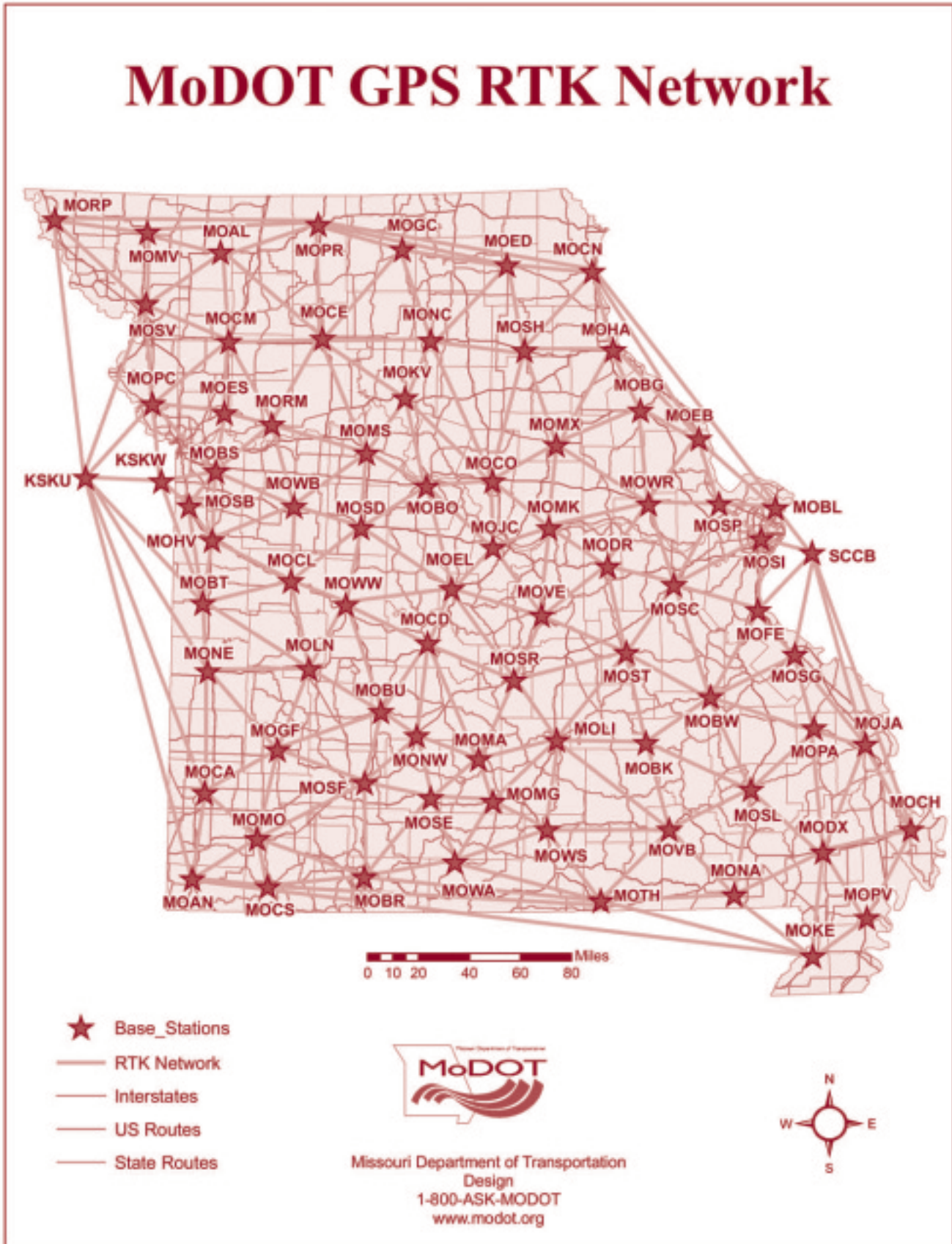
MOBW Belleview MO



MOLI Licking MO

The Missouri RTN CORS covers the entire state of Missouri including the metropolitan areas of Saint Louis and Kansas City by reaching into Illinois and Kansas.

The MoDOT Real Time Network Completion (continued)



Recording

by Chris Wickern, PLS

Recording has been cussed and discussed longer than most of us 'Old Timers' have been practicing. Our last Recording Debate was at the fall 2008 Convention. Mike Flowers and Dr. Elgin were prepared to ride herd on the debate. Mike was in his referee shirt, complete with a whistle in hand, and Dr. Elgin wore a helmet and flack vest. As a result of this and previous discussions over many, many years, recording was placed on the Legislative Committee's priority list last year. No action was taken, primarily due to the ongoing effort to keep our State Land Survey program properly funded. Surveying in Missouri is greatly affected by this program and it is a very important issue, and that priority was not misplaced. Recording of certain Land Surveys is also an important issue, one that has frustrated all of us in one way or another throughout our careers.

Chapter 60, 60.650 states, "For the purpose of preserving evidence of land surveys, every surveyor who establishes, restores, or reestablishes one or more corners that create a new parcel of land shall file the results of such survey with the recorder of deeds in the county or counties in which the survey is situated within sixty days after the survey has been certified." The interpretation widely held is in conflict with other existing Missouri Statutes, and a reasonable reading could arrive at a different meaning. This different meaning is one that would bring 60.650 into harmony with the other statutes and laws that also *require* recording. Most states with a recording requirement have the stated purpose of; "The purpose of recording is to provide a method for preserving evidence of land surveys..." That sounds a lot like the first stated purpose of 60.650. This evidence stuff must be important. It's everywhere in our survey laws and our restoration procedures. 60.650, has been narrowly interpreted to mean, 'if the survey creates a new parcel AND a new monument is set for the new parcel it must be recorded'. No meaning whatsoever has been given to 'preserving evidence of land surveys' except when creating a new parcel, and then only when the new parcel is monumented and created by survey.

Clarity must be found to find the meaning and intent of the statutes, and a review of other statutes is appropriate. Chapter 60, 60.657, states, "A survey plat is not required to be filed when: ... It has been recorded under any other provision of law." This would seem to remove any ambiguity. It appears simple, straight forward and clear. If the survey for a parcel is

not of record; then it must be recorded, and lends credence to a reasonable interpretation of 60.650 that is different from our common practice. Chapter 446- *Establishment and Evidence of Boundaries and Titles to Land Plat and certificate of survey*, states; "446.120, such surveyor shall make out a plat and certificate of such survey, noting therein the corners at which he shall have planted stones or posts..." This too seems clear. Corners will be set and a plat will be prepared by the surveyor. 446 continues with; "*Plat and certificate recorded*. 446.130. He shall record such plat and certificate in a book to be by him kept and provided for that purpose, and shall deliver the original, with any depositions delivered to him, duly certified, to the recorder of the county.", and continues with the Recorder housing and preserving this evidence; RSMo 137.185 states, "In all cases where any person, company or corporation may hereafter divide any tract of land into parcels less than one-sixteenth part of a

section or otherwise, in such manner that such parcels cannot be described in the usual manner of describing lands in accordance with the surveys made by the general government, it shall be the duty ... to cause such lands to be surveyed and a plat thereof made by a surveyor in the county where such lands are situated, ..."

The intent of all these statutes seems to be contrary to accepted practice. It is often stated that these statutes are

not enforced, and makes them essentially moot given the everyday standards of practice. It seems that non compliance with statutes is excused because that has been the accepted standard. Surveyors are not attorneys, and this summary certainly offers no legal opinion about the statutes. However, reading the statutes, it is reasonable to state that Missouri does have recording law(s) and requirements that exist, but simply are not followed because of differing interpretations and lack of enforcement. Further, our code of professional conduct at 20 CSR 2030-2.010 (5), explicitly states, "Licensees shall comply with state laws and regulations governing their practice.", and (6), "Licensees at all times shall recognize that their primary obligation is to protect the safety, health, property or welfare of the public." Chapter 60, 60.659 states, "Any surveyor who fails to comply with any provisions of this chapter shall be guilty of misconduct in the practice of land surveying."

We aren't being asked if we would like to comply. We aren't being asked if an accepted standard of practice, not in


We aren't being asked if we would like to comply. We aren't being asked if an accepted standard of practice, not in compliance with the law, is sufficient. The statutes say we "shall" comply.

Recording (continued)

compliance with the law, is sufficient. The statutes say we “shall” comply. The Recording of certain surveys has always been in our laws. Ultimately, Recording places evidence of boundaries into the record. It does not obligate a subsequent surveyor to arrive at the same conclusion. It does allow them to view and discover evidence. Evidence that would lead to restoring an obliterated corner instead of declaring it lost with no traces of original evidence left for us to view. However, it is the public who truly benefits from recording, by greatly enhancing a stable land system. Is it surprising, or is it understandable when two surveyors evaluating different evidence at different times arrive at different conclusions? Yet, that is the reason the public shakes their head in disbelief, and asks, ‘why is it two surveyors can never agree’. A more complete record showing evidence through time would have us retracing the original *and* how it was perpetuated since the corner was established. Corners that would have been declared lost are now viewed as obliterated and can be restored to where they were. Isn’t that our charge as the only Profession legally authorized to identify a property’s boundary?

On January 19th, the Legislative Committee met in Jefferson City. The Committee concluded that recording of certain surveys is and has been historically supported by our

members and could be achieved by dropping a few words from 60.650. This would create no new law. 60.650 as it exists states, “For the purpose of preserving evidence of land surveys, every surveyor who establishes, restores, or reestablishes one or more corners that create a new parcel of land shall file the results of such survey with the recorder of deeds in the county or counties in which the survey is situated within sixty days after the survey has been certified.” The change will read, “For the purpose of preserving evidence of land surveys, every surveyor who establishes, restores, or reestablishes one or more corners ~~that create a new parcel of land~~ shall file the results of such survey with the recorder of deeds in the county or counties in which the survey is situated within sixty days after the survey has been certified.” Eliminating 7 words clarifies the statute, and brings it into harmony with our other statutes.

Recording is coming. The change is simple and straightforward. MSPS and Missouri Surveyors are controlling the process, with the change in 60.650. Issues that may come up can be addressed through the Standards Committee, MACS, our MSPS Board, the State Land Survey Program, and the Board of Registration, keeping professional survey matters with professional surveyors. 

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You have 3 months to find time to squeeze out two class periods for a great program. Tests and resource materials are available now. The winners should be submitted by April 1, 2010. Please let us know ASAP if you are interested, but the testing does not need to be completed until April 1. Any questions? Please contact Tim Morgan at 417-679-4798 or e-mail tmorgan@pontiaccove.com.

MO Colleges/Universities Where Land Surveying Coursework is Available

The following list will be updated quarterly as new information becomes available.

Longview Community College - Lee's Summit, Missouri

Contact: David Gann, PLS, Program Coordinator/Instructor -
Land Surveying MCC - Longview, MEP Division
Longview Community College
Science and Technology Bldg.
500 SW Longview Road
Lee's Summit, Missouri 64081-2105
816-672-2336; Fax 816-672-2034; Cell 816-803-9179

Florissant Community College - St. Louis, Missouri

Contact: Ashok Agrawal
Florissant Community College
3400 Pershall Road
St. Louis, Missouri 63135
314-595-4535

Missouri State University - Springfield, Missouri

Contact: Thomas G. Plymate
Southwest Missouri State University
901 So. National
Springfield, Missouri 65804-0089
417-836-5800

Mineral Area College - Flat River, Missouri

Contact: Jim Hrouda
Mineral Area College
P.O. Box 1000
Park Hills, Missouri 63601
573-431-4593, ext. 309

Missouri Western State University - St. Joseph, Missouri

Contact: Department of Engineering Technology
Missouri Western State University
Wilson Hall 193
4525 Downs Drive
St. Joseph, MO 64507
816-271-5820
www.missouriwestern.edu/EngTech/

St. Louis Community College at Florissant Valley

Contact: Norman R. Brown
St. Louis Community College at Florissant Valley
3400 Pershall Road
St. Louis, Missouri 63135-1499
314-595-4306

Three Rivers Community College - Poplar Bluff, Missouri

Contact: Larry Kimbrow, Associate Dean
Ron Rains, Faculty
Three Rivers Community College
2080 Three Rivers Blvd.
Poplar Bluff, Missouri 63901
573-840-9689 or -9683
877-TRY-TRCC (toll free)

Missouri University of Science and Technology - Rolla, Missouri

Contact: Dr. Richard L. Elgin, PLS, PE
Adjunct Professor
Department of Civil Engineering
1401 North Pine Street
211 Butler-Carlton Hall
Rolla, Missouri 65409-0030
573-364-6362
elgin@mst.edu

University of Missouri-Columbia, Missouri

Contact: Lois Tolson
University of Missouri-Columbia
W1025 Engineering Bldg. East
Columbia, Missouri 65211
573-882-4377

Missouri Southern State College - Joplin, Missouri

Contact: Dr. Tia Strait
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Cadastral Mapping Standards: GIS Committee Hosts Missouri's Cadastral Coalition

by Don Martin

On Friday the 13th of November, members of the GIS Committee put aside any superstitious doubts to hold a meeting. Jefferson City was the site of what was more than a meeting of the committee. It was a coming together of leaders from Missouri's principal stakeholder groups concerning cadastral mapping. The gathering of this *cadastral coalition* was the initiation of a new push for cadastral mapping standards in Missouri. If open communication and a candid dialog are any indication, this effort is on a great course.



**MSPS President Ralph Riggs and Rich Germinder
of Senator Brad Lager's Office**

The Quest for Cadastral Standards

The notion of cadastral mapping standards has been a long-desired goal by many in Missouri. The dynamic developments of geographic information systems in recent decades have made this goal more important and more feasible. The creation of geographic data layers including the lines and corners of the United States Public Land Survey System (USPLSS) are frequent activities for those compiling spatial information for assessment, public works, real estate recordation and many other purposes. In these endeavors an accurate portrayal of the USPLSS is needed. Yet there is no set of governing and guiding standards for the performance and delivery of such tasks and information.

Based on the principal of Minimum Standards, MSPS initiated an effort in 2008 to sponsor the first steps towards the implementation of comparable standards for cadastral mapping. Joined by Senator Brad Lager of Maryville, MSPS provided research and information that led to the drafting and filing of SB 384 on the 2009 session of the Missouri Legislature. This draft legislation proposed designating the State Land Survey Program of the Department of Natural Resources as the rule making authority for cadastral mapping standards. The standards would be part of the Missouri Code of State Regulations. On the last day of the legislative session,

bills containing the language of SB 384 were defeated, but Missouri's need for cadastral mapping standards continued.

Communication and Partnerships

While the effort put forth in the Missouri congressional session of 2009 helped reveal the need for cadastral mapping standards it also made clear the fact that surveyors are not the only concerned constituents regarding mapping of the USPLSS. A larger cadastral community exists beyond that of professional surveyors. While surveyors are the legally and customarily recognized stewards of the USPLSS they are joined by numerous geospatial practitioners as developers and utilizers of cadastral information. Found in dedicated public officials in county offices of assessment and record, among the corps of talented geographic information professionals serving clients throughout the state, and within the ranks of GIS leaders, cadastral mapping stakeholders are many and they need to be included in any effort towards establishing standards.



**Don Cleveland and Katie Shepherd of MMA,
Joe Clayton of MSPS**

For the meeting of the GIS Committee, the topic of cadastral standards required the inclusion of strong, well-informed voices from across Missouri's geospatial community. Committee members were joined by MSPS President Ralph Riggs, Missouri's Geographic Information Officer Tim Haithcoat, Don Cleveland and Katie Shepherd of the Missouri Mappers Association (MMA), Elizabeth Cook of the Missouri GIS Advisory Committee (MGISAC), Daniel Franks and Darrell King of the Missouri State Assessors Association (MSAA), State Land Surveyor Darrell Pratte and Rich Germinder of the Senator Lager's Office. These participants from a wide array of geospatial view-points conducted the meeting as a model of open communication and partnership between disciplines.

Cadastral Mapping Standards (continued)

Beginning with the Past

President Ralph Riggs brought the meeting to order and expressed a goal for the meeting as the consideration of reintroducing legislation that would lead to the development of cadastral mapping standards. Rich Germinder then began discussions with a review of SB 384 and described the rule making process for the Code of State Regulations. The spirit of reflection was then carried on by MSPS Legislative Committee Chair Mike Flowers as he spoke of the creation of the USPLSS and its significance to surveying and mapping.

With the meeting beginning with reflections of the past, the contemporary matter at hand was brought forward by Howell County Assessor Daniel Franks. He noted the need for modern standards for mapping and shared the hope that such standards could lay the foundation of a “seamless mosaic” of assessment maps. He also asserted that Missouri’s assessors were a vital party to any discussion of standards and must be included in any working group drafting cadastral proposals. Concern regarding inclusion in such a working group was echoed by others in the room.

Inclusion in the Development of Standards

Recognizing a collective importance placed on inclusion, the notion of an advisory board for cadastral mapping was considered. Modeled after existing boards such as those for geology and land surveying such an advisory council could serve as the venue for stakeholder participation in any future cadastral rule making. While this idea was a good one in terms of providing opportunities for oversight and participation, GIS Committee Co-Chair Joe Clayton reiterated the goal of reviewing the current draft of proposed legislation and moving forward.

Rich Germinder noted that while consideration of such a board would serve the interest of stakeholder involvement, the best opportunity for movement now is to re-introduce the legislation in its last form from the 2009 session. That form reflected feedback and draft language from MMA and the MGISAC. And while it did not have the open support of the MSAA, it was not opposed. Taking the already drafted bill

ahead would facilitate a December pre-filing and an early initiation of the legislative process.

Don Cleveland confirmed that SB 384 in its final form had been reviewed and supported by MMA. If that language were acceptable to stakeholders, he asked about the “probability” of a duplicate bill passing in the upcoming session. Rich Germinder described the likelihood of passage as “strong”. Based on events in the last session and barring any possible negative impact by a fiscal note from legislative reviewers, he expressed a favorable opportunity for passing legislation.



**Missouri Geographic Information Officer
Tim Haithcoat**

Important Considerations

While discussion was focused on political action that may result in assigning the rule making authority for cadastral standards, considerations were shared regarding the standards themselves. Missouri Geographic Information Officer Tim Haithcoat affirmed that the concerns expressed by many in the GIS community were likely to be heard again. Many of the concerns expressed during the 2009 session came from segments of the GIS world outside of Missouri. He felt that those concerns, while valid based on experiences in other states, did not apply to circumstances in Missouri. He pointed out the importance of geospatial leaders, including those present at the meeting, educating fellow practitioners about the value and benefits of cadastral mapping standards.

A related point of importance was made by longtime GIS leader Elizabeth Cook of the MGISAC. Noting some of the issues brought forth by GIS professionals in 2009 she reiterated that this effort should be limited to cadastral mapping standards. The scope of this effort and resulting standards should not expand into other areas of the GIS realm.

Moving Forward

The vigorous exchange of ideas during the meeting was guided toward conclusion as Joe Clayton led the group in a final review of the existing language. All present realized that a bill filing number from a previous legislative session was no longer suitable as a moniker for the proposed legislation. Suggested by Tim Haithcoat, all agreed that the legislation should be referred to as – Cadastral Mapping Standards. Those present planned to distribute information to their respective groups and report to one another on the feedback they received. With that the meeting concluded.



**Elizabeth Cook of MGISAC, Moniteau County Assessor
Darrell King and Howell County Assessor Daniel Franks**

(continued on page 12)

Cadastral Mapping Standards (continued)

As all parties of this new *cadastral coalition* await the reviews of the stakeholders each represented, a course has been revealed. Through legislative efforts the rule making authority for Cadastral Mapping Standards can be established. Then those concerned, including critical geospatial partners can join together in the development of standards that offer assurances of quality and accountability for Missouri's cadastral customers. From across the boundaries of varying disciplines – assessors, mappers, GIS professionals and surveyors - a new *cadastral coalition* is bringing leadership to the geospatial needs of Missouri. 🇲🇴

**MSPS GIS Committee Chair Joe Clayton and
MSPS Legislative Committee Chair Mike Flowers**



ca·das·tral (kə das'trəl). adj. 1. Survey. (of a map or survey) showing or including boundaries, property lines, etc. 2. of or pertaining to a cadastre. [< F; see CADASTRE, -AL¹]



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Celestial Observations: A Brief History of Elgin, Knowles & Senne, Inc. and their Ephemerides

by Marc Cheves, LS

Until the early 1980s practically all surveyors used the Altitude Method to determine the astronomic direction of a line, based on a celestial observation of the sun. That method required the surveyor to measure the vertical angle to the sun, but did not require the accurate determination and use of time in the observation. For decades the Altitude Method had been described in ephemerides published by such companies as Berger, Gurley, and Keuffel & Esser (K&E). The method has severe limitations insofar as accuracy and observation time of day. On the other hand, the Hour Angle Method can be used on any star whose position is known as well as the sun, plus it has essentially no accuracy or time of observation limitations. It does require a very accurate determination/measurement of time, but does not require the vertical angle to the body (which is inherently erroneous due to parallax and refraction). With the availability of cheap, highly accurate timing devices in the late 70s ("time cubes," precise digital stopwatches, etc.) the long standing problem of a surveyor acquiring highly accurate time in remote locations was solved. The Hour Angle's time had arrived and Joe Senne knew it.

In the spring of 1984, Joe approached Dick and David about one of his lifelong dreams, to author an ephemeris. Joe joined the firm at that time and its name became Elgin, Knowles & Senne, Inc. They approached the Lietz Company about publishing the "Lietz Ephemeris" which would use the Hour Angle Method exclusively and also would include program code for HP 41 calculators which would reduce the calculation burden to practically nothing. A deal was struck, Elgin, Knowles & Senne, Inc. receiving a royalty from sales of the ephemerides. It would compete with the "K&E Ephemeris" which had been published for decades.

During the summer of 1984, Dick, David and Joe wrote the first edition of what would become the "1985 Lietz Celestial Observation Handbook and Ephemeris." Twelve thousand ephemerides were printed in Kansas City, and the first edition (1985) was introduced to the world at the 1984 ACSM convention in San Antonio, Texas. The three authors were there to autograph copies. The ephemeris was a tremendous hit. That first year of publication a second printing of 6000 ephemerides was ordered and sold. The Hour Angle Method and HP 41 celestial observation programs had arrived. Unknown to Lietz and Elgin, Knowles & Senne, Inc. was K&E's decision not to publish a 1985 version of their ephemeris. 1984 was the last edition of the K&E ephemeris.

The "Lietz Ephemeris," as it became known, was the only game in town.

The three partners started offering celestial observation seminars. Over the next few years they averaged about 10 seminars a year on celestial observations, mostly to state surveyor association conventions. The seminars offered instruction on determining the astronomic direction of a line (and its conversion to grid direction) based on observations of either the sun or Polaris. The seminars followed the ephemeris and discussed field methods, pointing techniques, errors, and calculations. It also explained the use of the HP 41 programs and covered the conversion of an astronomic direction to a State Plane grid direction.

Dick, David and Joe wrote a series of 16 articles on celestial observations for *POB* magazine. In 1989 the series was expanded and compiled into the publication, *Practical Surveying Guide to Celestial Observations*.

The ephemeris provides tables of data necessary to determine the astronomic direction of a line by observing certain stars or the sun. The

The ephemeris provides tables of data necessary to determine the astronomic direction of a line by observing certain stars or the sun.

Elgin, Knowles & Senne, Inc. ephemeris uses a program written by Dr. Joe Senne to produce the ephemeris data. It is a very complex, large program which generates highly accurate ephemeris tables. Their idea was to reduce some of the algorithms in that program and place the program into a ROM module which could be inserted into the HP 41. After quite some development and with the aid of Hewlett Packard, in 1986, Elgin, Knowles & Senne, Inc. produced and began selling ASTRO*ROM, a module for the HP 41 calculator. It was the first internal ephemeris program ever produced for a handheld calculator. It sold for \$130.00. It was followed in 1989 by ASTRO*ROM2 which had a few refinements. ASTRO*ROM was followed by ASTRO*DISK, precise internal software for the PC.

In 1987, Dick, David and Joe wrote, directed and produced a 4.5-hour instructional videotape, "Sun Observations for Astronomic Azimuth." It came with a complete study guide and could be purchased or rented. Always the educators, the trio offered continuing education to surveying practitioners.

In about 1990, Hewlett Packard introduced the HP 48 and its G and GX models. They were to replace the venerable HP 41. (Old school HP 41 fans never thought the "48's" were ever as good and easy to program as the HP 41.) For the HP 48, Elgin, Knowles & Senne, Inc. produced ASTRO*CARD,

Celestial Observations (continued)

still offering internal ephemeris celestial observation software. They were sold for \$175.00.

In the late 1980's through the 1990's, ASTRO*ROM, ASTRO*DISK and ASTRO*CARD were extremely popular. Many, many units of each were sold by Elgin, Knowles & Senne, Inc. Each came with a User Manual and the company's phone number for free support. With the expansion, maturity and application of GPS, the necessity of the firm's "ASTRO" products faded. By the late 1990's sales of the firm's various "ASTRO" products slowed substantially (the ASTRO*ROMs sold out in the late 1980's). ASTRO*CARD and ASTRO*DISK, along with SPC83*CARD continued to be sold into 2008.

As Lietz became Sokkia, the name on the ephemeris cover changed. Since 1985 there were edits and upgrades. For a few years, HP 71 programs were included. A simple HP 42 program listing was added in 1990. In 1991, HP 48 program listings were added. Over the years the number of ephemerides sold faded. In the last few years most were sold to university bookstores. Academia seemed to still be teaching celestial observations after the surveying profession had embraced GPS. 2008 was the last year for the "2008 Sokkia Celestial Observation Handbook and Ephemeris."

Dick Elgin, David Knowles and Joe Senne brought together knowledge, interest, research abilities, software development capabilities and academic backgrounds in celestial observations as well as their practical application to surveying practice. These talents coupled with business insight and acumen all brought to surveyors worldwide their practical application of celestial observations. They came along at the right time. The K&E ephemeris ended in 1984. Their ephemeris started in 1985, followed by the development of internal ephemeris celestial observation software, instructional materials and seminars which continued until 2008.

They influenced half a generation of surveyors and raised the level of surveying practice from 1985 until 2008, the last year for their "Sokkia Ephemeris." David Knowles is retired from the University of Arkansas and now devotes most of his time to his lifelong passion, fly fishing and tying flies. Dick Elgin sold his business (Elgin Surveying & Engineering, Inc.) in 2008 and now spends his time touring on his bicycle. Joe Senne has long been retired from the UMR, but is still involved with worldwide grazing occultation predictions and his other astronomical interests.

The Players

Elgin, Knowles & Senne, Inc. began as Elgin & Knowles Surveying Consultants, Inc., formed by Dr. Dick Elgin, PE, PLS and Dr. David Knowles, PE, PLS in 1983. David was Dick's PhD advisor at the University of Arkansas (1979 to 1982). During those years David directed the Associate Degree in Surveying program within the Department of Civil Engineering. As a Graduate Associate, Dick taught in David's program while he pursued his PhD degree. Dick's dissertation "Legal Principles of Boundary Location for Arkansas," was a synthesis of over 1,400 decisions of the Arkansas courts relative to locating the boundaries of rights in real property.

He received his degree in May of 1982, and later that year became Assistant Professor of Civil Engineering at the University of Missouri Rolla (UMR) (now the Missouri University of Science & Technology) where Dr. Joe Senne, PE, was Department Chairman. Dick and David expanded Dick's dissertation and published a book by the same name (*Legal Principles of Boundary Location for Arkansas*, Landmark Enterprises, Rancho Cordova, California, 1984, now out of print). In only a few years, Landmark sold the 2,000

copies printed, most of the proceeds going to the Arkansas Geological Commission, which had funded Dick's dissertation research.

In 1983, David and Dick and the late Robert L. Elgin, PE, PLS (Dick's father) founded Elgin & Knowles Surveying Consultants, Inc. Initially, the corporation focused on consulting surveying services related to legal aspects of boundary location, litigation, solving unusual surveying problems, advising surveying instrument manufacturers, and providing surveying education through seminars taught by David and Dick. They established ties with the Lietz Company of Overland Park, Kansas and conducted seminars on a variety of surveying subjects for Lietz around the country.

Joe Senne had a life long fascination with astronomy that had grown from a hobby to an avocation and profession. In the 70s, a group known as the International Occultation Association (IOTA) was formed and for many years Joe served as Vice President for lunar grazing occultation prediction. A worldwide network of observers, using these predictions, helped to refine star positions and the profile of the moon's edge. Joe also worked with the U.S. Naval Observatory in this obscure area of astronomy. ■

Dick Elgin, David Knowles and Joe Senne brought together knowledge, interest, research abilities, software development capabilities and academic backgrounds in celestial observations as well as their practical application to surveying practice.

MEET ME AT THE FAIR PART DEUX

Winter's winding down, spring is around the corner, and the Dog Days of August are still a ways off. August is full of fun days for a Surveyor. Wading through stagnant water; 'topo'ing' a hay field that hasn't been cut yet and the heat is radiating up from all the dark green that's belt-chest high.

August is also the time for the State Fair. Last year Surveyors from every corner of the State supported our Society in an effort to educate the public. MSPS and the 2009 State Fair brought together Surveyors from the Kansas City Metro Chapter, the Southeast Chapter, the Southwest Chapter, the Missouri Association of County Surveyors, the St. Louis Chapter, many members where no active chapters exist, Surveyors from the Missouri Department of Conservation, the State Land Survey Program all contributed to this worthy effort. Seiler Equipment and Griner and Schmitz contributed making equipment and personnel available. The goal was to make the professional available to and interact with the public. There were nearly 338,000 visitors to the 2009 State Fair. We partnered with the Missouri Department of Natural Resources last year, and they counted 21,500 visitors over the course of the days we worked.

Attendance at last years Fair was up 8% from the year before. The increase has been attributed to the economy and people staying closer to home for vacations and recreation. This years Fair is expected to grow by at least the same amount. Once again, opportunity for Professional Surveyors to interact and educate the public presents itself to us. Another step along this road is before us, and this years' effort should build on the ideas and results of last years.

Last years success was a direct result of the quality, expertise, and availability of you the Land Surveyor. It's time to build on the 2009 success. It's a time for planning, and preparing activities and events for the 2010 Fair.

~The Gauntlet is being laid~

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Meet Our Members!

LS Member

Kevin D. DeSain
O'Fallon, Missouri



Position:
Director of Surveying,
Clayton Engineering

Focus of survey practice:

At Clayton Engineering we serve a diverse client base from the commercial, industrial and institutional sectors. We perform a variety of surveying services with most being boundary, topographic, construction and high-order control surveying.

Most memorable project:

Too many for there to be but one! Those that come to mind include: control surveys for lignite mining, large-scale boundary surveys for parcels exceeding 1000 acres, topographic surveys for the St. Louis Metro Link, working at Lambert Field performing contamination surveys, surveying the ill-fated Superfund site of Times Beach, hydrographic surveys along our State's waterways, Forensic surveys of aircraft crash scenes. Among my long list of memorable projects is working with DNR to establish the GRS grid in St. Charles County – I enjoyed contributing to the surveying infrastructure of Missouri.

Likes about surveying:

Combining divergent fields such as history, math and law into one professional practice; surveying. I like being the detective that gathers the evidence and makes the pieces fit together. I also enjoy educating the public about our profession and how it impacts lives. I enjoy driving and thinking "I have helped build this community by surveying there, and there and even some over there."

Why a member of MSPS:

I want to be a part of the organization that gives our profession a public voice. I enjoy learning from the other members through their experiences. Professional Land Surveyors need to support this organization because it is supporting our very livelihoods with its' committees, political awareness and actions. I have been honored to serve at different levels. 🇺🇸

LS Member

Jason B. Flamm
St. Louis, Missouri



Position:
Land Surveyor
Hanson Professional Services
President, St. Louis Chapter MSPS

Focus of survey practice:

As part of the surveying department of Hanson Professional Services, I work on projects for our government sector clients. I manage boundary surveys, topographic surveys for engineering design, hydrographic surveys and control surveys for construction projects.

Most memorable project:

Hanson has a contract with the USACE for annual trilateralization surveys on dams in the St. Louis District. This association has allowed me to expand my knowledge and work on new facets of surveying like measuring for horizontal and vertical movement in structures with little allowance for error. Every dam is unique so I have to come up with different ways to survey each one. It requires a lot of planning and strategy which is both exciting and challenging.

Likes about surveying:

I really enjoy the unexpected challenges that come with the surveying field. It could be something like doing an as-built on a large pipe and transferring that to the side of a concrete wall to setting up a boring machine which leaves little room for error. Every type of survey requires careful consideration and thought because every move matters when you are working with precise measurements. Mostly I like learning about new technologies available to surveyors, particularly those that increase efficiency and effectiveness as a surveyor.

Why a member of MSPS:

I joined MSPS and the St. Louis Chapter to network with my peers, to help further the goals of my profession and to help me grow as a surveying professional. I wish to raise awareness for this profession among high school students and show them surveying is more than just a man standing behind a "camera". My career in surveying is a gift that brings me personal and professional satisfaction; I want to share this gift with others! 🇺🇸



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Boundaries & Estoppel

by Knud E. Hermansen¹ & Robert Liimakka²

Surveyors should be familiar with the doctrine of estoppel. The doctrine of estoppel may locate the ownership boundary in a location that differs from the record boundary.

Estoppel is a doctrine that puts into practice the ancient equity: "One who seeks equity must come with clean hands." Put in other words, a person cannot expect favorable relief in the courtroom when they have caused their own problem.

Estoppel arises when one individual misleads another individual; causing reasonable and foreseeable reliance by the misled individual; so the misled individual makes expenditures or takes action contrary to what a reasonable person would do, would the truth be known; and the misled individual will be injured or damaged to their detriment if the court acted in favor of the person who misled the other. The misleading actions may occur by declarations, acts, omissions, words, actions, conduct, or admissions.

Estoppel has a wide reach in all civil litigation including the litigation of boundaries. A scenario where estoppel could fix the location of a boundary in a location that differs from the record boundary would be the following:

Sally plans to build a beautiful wood fence on her common boundary with Fred. (Fred is a friendly neighbor but too inquisitive.) When the fence material is delivered, Fred, the neighbor, ever curious about neighborhood activities, comes over to find out from Sally what she is going to build. Sally explains she is going to build a fence on their common boundary but has to wait to begin construction until she can hire a surveyor to locate the boundary. After hearing the reason for the delay, Fred announces there is no need for a surveyor, he can show Sally exactly where their common boundary is located. Fred assures Sally that he asked the realtor about the boundaries before buying his property and the realtor showed Fred the boundary location when he purchased his property.

In the front of the property at the road, Fred shows Sally a utility pole and says this pole marks their front corner. In the rear of their lots, Fred shows Sally a post with old wire fence hanging on it. Fred assures Sally that these objects mark the corners to their common boundary. Furthermore, he even got a copy of the tax map one day and checked the distances between these objects and other corners. He compared the distances on the tax map and his pedometer and they matched.

The surveyor would be wise to focus on locating the record boundary and recognize that occupation boundaries may often become the ownership boundary under certain doctrines.



Sally is very grateful to Fred and builds the fence on a straight line between the objects Fred has shown Sally. Three years later, Fred becomes embroiled in a boundary dispute with his other neighbor, Craig. Fred obtains a survey. The surveyor informs Fred that Craig is correct in his assertion. The surveyor also informs Fred that Sally's fence resides four feet on his property. Fred demands that Sally move the fence to the correct boundary location.

As seen from the previous scenario, Fred misled Sally by his assertions to Sally regarding the common corner locations. Sally reacted to Fred's assertions in a manner that was both expected and reasonable given Sally's discussion

with Fred and Fred's positive assertions. Sally spent considerable money putting the fence where Fred had indicated the common boundary was located. She would not have done so had she known the true location. Now Sally faces the prospect of considerable expense if Fred could force her to move the fence to the correct boundary location. Sally has a good claim that the fence should now be recognized as the common ownership boundary based on

the doctrine of estoppel. (In this scenario, the court could also demand that Fred pay for the relocation of the fence if he does not want to lose the use of his property cut off by the fence.)

Boundaries & Estoppel (continued)

A surveyor who is not familiar with the doctrine of estoppel may have advised the client that since the fence had only existed for three years, the removal of the fence could be required by the court. (The surveyor assumed a more lengthy time period is necessary to meet the requirements of adverse possession in order to fix a boundary in a different location than the location fixed by the records.)

Familiarity with the doctrine of estoppel should cause a surveyor to be timid when making pronouncements regarding the effect of an encroachment on the boundary location even if the improvement has only a short history. As the scenario reveals, elements of estoppel are often proven with information that is not ordinarily gathered by surveyors or even available to surveyors during the course of providing surveying services.

The surveyor would be wise to focus on locating the record boundary and recognize that occupation boundaries may often become the ownership boundary under certain doctrines.

Surveyors that opt to extend their services to not only locate the record boundary but decide where the ownership boundary (extent of title) is located must also extend their services to gather information and make decisions that surveyors are not ordinarily trained to handle. 🇺🇸

Comments regarding this article can be sent to knud.hermansen@umit.maine.edu

- ¹ Knud is a surveyor, engineer, and attorney. He teaches surveying at the University of Maine and operates a consulting firm providing services in title, land development, boundaries, and easements.
- ² Rob is a professor in the Surveying Engineering Program at Michigan Technological University. He is a professional surveyor and holds a MS in Spatial Information Science and Engineering from the University of Maine, Orono and is currently working on a doctorate in civil engineering.

State Land Survey Program in Danger

Missouri surveyors know well the benefits of working in our fine state. There are the great people with their “Show Me” spirit; an abundance of natural wonders; a deep pool of talented surveyors. And for those surveyors and all citizens dealing with land matters in Missouri there is the State Land Survey Program. This program is quite unique among government institutions – it actually helps people and commerce in our state! The viability of that very program is today threatened and no one will lose more from the demise of the Land Survey Program (LSP) than those in Missouri’s surveying community.

What is Happening

The LSP serves Missouri with a number of beneficial services. The surveyors of that program are our stewards of the United States Public Land Survey System. Our state and its counties rely on this program for determination of borders. Surveyors, mappers and those involved in land services count on the readily available archive of records held in trust within the vaults and files of the LSP. All of these benefits today are challenged by funding allocations that may leave the program without the resources it needs to continue its legacy of service.

Established in 1969 the LSP is a “self funded” program that derives its financial resources from the sales and distribution of its records and through a provision of state law that dedicates \$1 of all recorder’s fees (per recording) go to the missions fulfilled by the LSP. Funds provided by this \$1 are specified in Revised Missouri Statutes (RSMo) for the preservation of the USPLSS, the maintenance of a storage facility for housing USPLSS records, the collection of surveys filed in county recorders offices, and to furnish copies of the records maintained by the LSP. Guided by the language of RSMo 60.500, a 1974 revision of the law placed the powers and duties of these responsibilities under the Department of Natural Resources (DNR).

While Missouri law clearly specifies the use of this \$1 fee, bureaucratic operations within DNR “allocate” funds. In so doing they are taking a portion of the LSP fund and rerouting it into other programs in state government. In some case these other programs may be working in coordinated efforts with the LSP. But this “allocation” is not accounted for in the founding law that created and sustains the LSP. In other words, the rules established through a democratic process are not being honored by an agency of the state government. Instead bureaucrats in Jefferson City are taking dollars that should go to Rolla (the home of the LSP) and sending them elsewhere in state government. The result is a Land Survey Program that is now “under-funded” after receiving its cut of moneys that were prescribed by law to support its operations.



Less In/Less Out

The impact of fund allocation on the LSP is startling. As amounts greater than 20% of the LSP intended funds are distributed to other operations in state government, important services that Missouri surveyors depend on are threatened. A simple case of fewer funds coming in means reduced services going out. Less in/less out; here is the impact:

- Delay in the resolution of the State border in Ripley County.
- Four County/State border projects put aside – unresolved.
- Reduction and near elimination of Geographic Reference System (GRS) projects.
- Height modernization for Missouri stream gauges deferred.
- Web-available archive records cancelled.
- Computer-based collection of records from counties eliminated.

(continued on page 23)

Educating the Public Whose Job Responsibility Is It?

by Chris Wickern, PLS

The importance of Boundaries and Boundary Surveyors has been fading from common and public knowledge for decades. No where is the historic importance of Surveying and Boundaries demonstrated more strongly than the Bible; Proverbs 22: 28; *Do not remove the ancient landmark which your fathers have set.* Hosea 5: 10 *the princes of Judah are like those who remove a landmark; I will pour out My wrath on them like water.* Ezekiel Chapters 40: 3 *He took me there, and behold, there was a man whose appearance was like the appearance of bronze. He had a line of flax and a measuring rod in his hand, and he stood in the gateway.*

What has happened from the ancient times; when it was taught that those who would disturb a landmark would face the wrath of the Almighty, and He sent His Surveyor to stand in the gateway? In the last several decades, the Abstractor became Title Companies, and now seem to be little more than insurance agents more interested in a cost/ benefit analysis than protecting their client or the public; Title Attorneys are generally really good at chasing documents, dotting the “I’s” and crossing the “T’s”, but not always understanding what is actually described or how it all works together, and Realtors seem to understand that Surveying is expensive. It’s not really needed. After all, the fence has been there for years, and the owner said the other corner is down by the utility pole. The general public has been relying on these ‘experts’ in related professions for assurances of where the boundaries are. Very often the sum total of a buyer’s boundary knowledge is gained by asking questions of the other Professionals involved in the transfer of Real Property, and they most often have little understanding of land boundaries, how they are established, and how they are perpetuated. Pointing fingers and blaming these related professions for this isn’t entirely fair or true. We allowed this to happen. As we were being excluded we consoled ourselves with the knowledge that no one else can perform surveys, and eventually they would *have to* come to us for boundary services. All we accomplished was to allow other professions, with little or no knowledge, to educate the public on our behalf. Surveyors across the nation decided we would educate the public “one client at a time” knowing they would have to come to us, and this has been going on for many years now. The results are in for that effort. We now have a handful of knowledgeable clients, and our Profession is in trouble.

We didn’t get to this point overnight and there are no ‘Easy’ buttons for us to press and magically resolve the issues. They are many, the solutions won’t be easy and it will take a concerted effort at the local, state, and at the national level.

It will take time. There are few guarantees’ in this world, but if there is one I am confident in, it would be; there will never be a positive solution with you the Land Surveyor sitting on the sidelines. It has been clearly demonstrated over the years that those in related professions who should understand the importance of boundary surveying have created their own “Easy” buttons, ‘just initial here at the Survey Exception’ is just one example. Educating the public is a daunting and seemingly insurmountable effort.

The good news is; there are solutions to the many problems confronting us!

The solutions lie with us and our willingness to work toward this common goal. More than anything else, it will take the commitment from you, the individual Land Surveyor. Most of us would rather be caned than be proactive. I know because I have been the one sitting next to you at the back of the room at conferences. We have listened together and carried on the discussion while on break, and we also agreed that; “the Society or someone should do something”; “I don’t have time”; “Too much for me to tackle”, sound familiar? Our inactions are just as much to blame as the related professions finding ways to work around us. Surveyors need to become ambassadors for the profession, salesmen of our knowledge

and our expertise to other professions in the business of land transfers, and to the public we are sworn to protect. Yes, it really does all boil down to you. What will you do, or what you will not do to further the profession?

Our history clearly shows that we have sown and done little in the past, and we are reaping those rewards now. We as Surveyors must do what we have failed to do in the past

and become proactive. Like it or not, marketing and sales are important parts of business. They are also an important part of the Profession, and there is no one more qualified to explain the importance of Boundary Surveying than the Surveyor.

Educating those in these related professions is an important part of the very broad task of Educating the Public. All of these professions are charged by the State with an obligation to protect the public. These professionals should be our advocates. Title folks, Attorneys, and even Realtors are required to have continuing education in many States, and are always looking for fresh presentations. This is an opportunity for an individual or the State Society to contact these groups, generate interest in a course, get approved for their continuing education, and start to make a difference in how others view land surveying.

Many events and venues attract large crowds of the general public. There are annual events such as a local home and

We must also be proactive, speaking with and educating the public and our related professions in our communities, regionally, and nationally.

Educating the Public (continued)

garden shows where the public is invited to view exhibits by builders, remodelers, etc. It also is an ideal place for a Surveyor to ask if they know where their boundary line exists, and wouldn't it be a good idea to know where it is before they build? The State Fair always attracts great numbers and they are attended by a broad cross section of the public. The Missouri Society of Professional Surveyors took part in our 2009 Fair. We had nearly 22,000 people (potential clients) over 7 days stop by to discuss and ask questions about Surveying. Good numbers and a most enjoyable effort. These examples are nothing more than small steps on a very long journey. They must be repeated, reiterated, and expanded to other groups.

Make the commitment and seek opportunities to speak with and educate groups in your communities. Kiwanis, Rotary, Lions, and other community groups are important organizations with members involved in your local community. These are our friends and neighbors who have little or no

idea about boundary surveying or their importance. Ask to speak with them and give a short presentation at one of their luncheons. Get involved and help your State Society develop programs and ideas to present Land Surveying to others. We must also be proactive, speaking with and educating the public and our related professions in our communities, regionally, and nationally.

Let's get the discussion and the concerted effort started. I can be reached at chris.wickern@gmail.com.

Instead of the failed "one client at a time" effort to educate the public, we must be proactive. All it takes is you, a belief in the value of our Profession, and a desire to raise the perception of the Profession. At the end of this journey, the legacy we leave for those who follow our footsteps may be; *the boundary lines have fallen for me in pleasant places; surely I have a delightful inheritance*, Psalms 16:6. 🇺🇸

The good news is; there are solutions to the many problems confronting us!

State Land Survey Program in Danger (continued)

Less in/less out impacts Missouri's surveyors and citizens in multiple tiers. There is the impact of fewer projects such as the State and County border projects being contracted with those in the business of surveying. In these cases, predominantly small businesses in Missouri are being kept from serving the land boundary needs of the State and its communities. As this commercial activity ceases so does an awareness of border and boundary locations.

Impact results from the discontinuation of collaborative GRS projects. While technological advancements have softened the affect of fewer GRS projects, the activities of surveyors and mappers still depend on positional accuracy that can be verified. The permanent markers of the Missouri GRS provide the physical confirmation of accuracy for measuring and modeling positions on the earth. These positions are critical for maintenance and growth of communities, power grids, transportation infrastructure and real estate subdivision.

Impact from disruptions to height modernization is severe. "Height mod" is a nationwide effort done in conjunction with the United States Geological Survey. This effort is part of very important efforts to provide early warnings of flooding threats to communities. It is not unreasonable to characterize fund allotment affecting this program as impeding efforts to save lives and protect property!

The impacts resulting from failures to provide 21st century caliber digital applications are troubling. While the rest of the world transacts business in virtual environments LSP customers are left with comparatively archaic processes. And the lack of digital collection of county records means LSP

team members must literally travel to county offices of record for manual exchanges of information. This is a case where less in/less out may actually result in more in/more out – more time, effort and travel yielding more expense than would be incurred through computer-based processes for retrieving records.

The failings involving computer and digital applications are made worse by the fact that the Information Technology Services Division (ITSD) of the Missouri Office of Administration is the single largest beneficiary of the allotment of LSP funds! The ITSD sweeps more than 15% of the land survey dedicated funds. As the state government's "...central point for coordinating [the] information technology...", ITSD is the biggest taker of LSP funds. The ITSD is also the authority that shut-down the notion of digital data retrieval of surveying records. That is a lot of money to be told "no"! Thanks to the swiping of almost a quarter million dollars annually there is a *less in* effect to the LSP. And since those taking this money have cancelled the computer-based developments needed to serve Missouri's surveyors there will be a resulting *less out*. The more they (ITSD) take the less they do!

Staffing

The current credit crisis and economic downturn is a prevailing reality for all. Private sector businesses find themselves increasingly having to *lay off* team members. The LSP is doing so as well. With three positions currently unfilled a fourth will soon be added to the roster of positions no longer

(continued on page 25)

Meeting With Your Legislator

by Don Martin

Meeting with your legislators is an important means of communicating with them. A personal visit with your elected officials may be the most effective and memorable way of informing them of your political interests and concerns. Meeting and communicating with legislators is critical for relationship building between the Missouri Society of Professional Surveyors and office holders. When personal relationships are established representatives and senators place faces with names and names with issues. Include legislator meetings in your professional activities. Be a partner with those elected to represent you, your business and your interest. Go meet them!

Before You Meet Your Legislator

Bring together others sharing your interests; officers, board members, rank-and-file to discuss your issues and establish your position. While the focus of such meetings will be things you support and seek, be aware of opposing viewpoints and stakeholder groups. Understand these other views and be prepared to respond to and counter these concerns if raised by your legislators.

Call or write your legislator for an appointment. If you plan to see him in the Capitol office, call shortly before you leave to confirm the appointment. The State House is a busy place and congressional sessions are busy times. Often hearings or other meetings occur that demand their presence elsewhere at the time of your meeting. Schedule ahead and call ahead!

Deliver Your Message

Everyone knows what it is like to forget the name of someone they've just met at a gathering. On some of those occasions we fortunately have a business card which leaves us a name, number and address. Well, the offices of legislators are like crowded gatherings where guests are constituents and elected officials are hosts trying to remember everybody's name and interests. It helps if their "guests" leave something like a calling card. To insure that your legislator



has a record of meeting you and hearing your concerns present him with a subject "packet" during your visit. Provide documented information from you and your organization that clearly expresses your interests, concerns and position. The information helps your legislator remember you and helps him focus on those things you find important. It will also reinforce the topics discussed after you have left.

Include in the packet a letter of greeting on business letterhead that succinctly states the primary concerns and positions you wish to share. Besides a discussion of your positions, include specific information to support your points. Provide names of contact people in your packet so the legislator or his staff can contact you for further information. Include brochures, media kits, personal profiles – things which proclaim your areas of interests and who you are! A meeting with a legislator isn't only for talking and listening; it is your opportunity to be remembered. Leave an informative, interesting, dynamic packet of materials and information that will move you and your interests to an easily recalled place in your legislator's lists of constituent concerns.

Having such documentation available when meeting with your legislators will keep your discussion focused on your

To insure that your legislator has a record of meeting you and hearing your concerns present him with a subject "packet" during your visit. Provide documented information from you and your organization that clearly expresses your interests, concerns and position. The information helps your legislator remember you and helps him focus on those things you find important. It will also reinforce the topics discussed after you have left.

Meeting With Your Legislator (continued)

issues. The legislator will also see you as a valuable contact person upon whom they may call for information and help in the future.

While Meeting

Don't be humble about your concerns and expertise in your field. As a professional surveyor you are recognized by law and custom as an authority of property boundaries and affiliated matters. Your legislator will see you as such and value your expert opinions. Be forthright with your concerns and assertive with your support. And have confidence in yourself! Do not let the fear of visiting a state legislator intimidate you. Remember, they work for you and need your support. Share your expert knowledge with your representative. A conscientious legislator welcomes advice and counsel.

After a friendly introduction express your purpose and objective for the meeting. State your intentions clearly and be as concise as possible. Your legislator is on a limited time schedule and time is always of-the-essence. Don't tell your legislator what to do; that is demanding. Instead, be amiable

and share your concerns. Describe why your particular issue is important to you and speak to how it may impact not only your wellbeing but those of fellow constituents

A legislator has various considerations, such as other constituencies, various sides to the issue, and their own concerns to weigh before making a commitment. Don't insist on or expect a commitment before your legislator has considered all the facts. Show your appreciation for their time and interest in meeting you. Wrap things up with an offer to help them and provide further information if needed. And don't be carried away by a friendly reception – a pleasant reception is not support for your position. That comes only after he has stated his support.

Follow Up

After the meeting send a written thank you to the legislator. Thank him for listening and reiterate your concerns as a reminder of the issues and positions you support. Treat the visit as the beginning of an ongoing relationship and continue to communicate with your legislator. And remember, the best way to do so is by meeting with your legislator. 🇺🇸

State Land Survey Program in Danger (continued)

on “the roster”. As the LSP begins adjusting to delivery of services with fewer to provide labor they are merging work groups and having staff members perform duties across areas of expertise. But these reductions are well ahead of what declining revenues require. So why is the LSP so underfunded that it cannot sufficiently staff positions needed to serve clients? Allotment.

Allotment of land survey dedicated funds has depletes LSP revenues by as much as \$400k annually. That does mean there is a decline in revenue to the LSP; it means that funds dedicated by law for the LSP are redistributed leaving the program with less revenue realized. That allotment dollar amount is great enough to not only fund technology developments that could benefit the program, it is great enough to retain vital positions that help Missouri surveyors and serve citizens.

As the LSP funds are increasingly allotted elsewhere in government, services will decrease. The current services of distribution of records from the archive may continue, but they will do so with staff surveyor leaving their PLSS duties and filling-in as helpers in the retrieval and delivery of records. As further position cuts are made the actual service of distribution may come to a close. There will still be a repository but it will merely be a vault that archives important surveying records that have a role in current surveying endeavors. Thanks to allotment these records may be locked away and no longer help surveyors.

LSP of the Future

It has been claimed that without a funding increase the LSP will be greatly diminished and services will be reduced

or altogether cut. The active program of record distribution will become the static program of record housing. Active programs of border determination will become active issues of border disputes. Active preservation of the PLSS will become active negligence of Missouri's real estate infrastructure. All of these good things may cease as all of the bad things will flourish.

In the current economic and political environment funding increases for government programs are not likely. But in the case of the State Land Survey Program there are funds that could be available without increasing any fee or tax. The recording fees continue to be paid for the mission of land surveying in Missouri. But as long as those land surveying dollars are allotted to non-surveying government programs determined by bureaucrats in Jefferson City, the LSP will suffer. Allotment must be stopped! The availability of land survey dollars that were collected for the expressed purpose of land surveying services could solve much the fiscal challenges to the program. All this with no fee increase. Simply let fees go to where the law says they go; where Missouri elected officials and their constituents say they go; where they will do good for the PLSS and all lands within our state. Land surveying funds should be treated like land surveying monuments: “Do Not Disturb” – and end the allotment!



New Members on the Land Survey Board

by Don Martin

The Land Surveying Division of the Missouri Board for Architects, Professional Engineers, Professional Land Surveyors and Landscape Architects has two new members that are very familiar to Missouri surveyors. They are MSPS past-presidents Mike Flowers of Rolla and Dan Govero of Festus. Effective November 16, 2009 Dan and Mike joined Mike Freeman on “the Board” replacing Mike Gray and John Teale.



The 1990 MSPS President, Dan Govero is the President of Govero Land Services, Inc. of Imperial, Missouri. Established in 1988 Govero Land Services specializes in all forms of surveying including boundary, ALTA, topography, construction layout and land development. MSPS members know Dan as the longtime chair of the Education Committee who always plays an active role in the Society. Along with serving as a

leader in his profession Mr. Govero is very active in his community. He serves on the Jefferson County Economic Development Corporation, the Chamber of Commerce and the Jefferson County Port Authority. He is a member of the Board of Directors of Eagle Bank & Trust.

Viewing his appointment to the Board as an honor Dan takes the trust placed upon him as an important service to the citizens that need and regulate the practice of land surveying. He intends to honor that trust with a focus of protecting the public. Derived from the spirit of the *Surveyors Creed* “...[place] the public welfare above all other considerations,” Dan feels clients rely on Missouri surveyors to perform accurate work compliant with the laws and regulations that govern surveying. He is dedicated to the belief that professional surveyors must perform their duties while meeting the requirement of the Missouri Minimum Standards for Property Boundary Surveys.

Dan looks forward to working with MSPS during his tenure on the Board. He encourages the Society to work towards revising surveying standards, to continue in providing first-class seminars and educational programs, and to encourage member compliance with standards in the practice of surveying. To his fellow surveyors Dan stresses the

importance of client care and promoting the profession. He asks that all Missouri surveyors seek opportunities to familiarize schools and young people with the career possibilities that abound in surveying.

Dan Govero is already at work within the Board. He is working to enhance the web presence of the Board as a means of providing clients with easily accessible information that will help protect the public and preserve the integrity of the surveying profession.

Former State Land Surveyor Mike Flowers of Rolla comes to the Board after a long career in surveying that began in 1970 when he worked for his friend and mentor, Norman Brown. His tenure with the Department of Natural Resource is renowned for his mastery and expertise in the field of surveying the USPLSS. The 1980 President of MSPS was serving as the Legislative Committee Chair when his appointment became effective in November 2009. Mr. Flower’s surveying legacy extends beyond the friendly borders of Missouri. He is an acclaimed leader at the national level through affiliations with the American Association of State Surveyors, the American Congress on Surveying and Mapping, and the National Society of Professional Surveyors.



Above all else Mike views his appointment to the Board as an opportunity to continue being a part of the land surveying profession. He regards his appointment as a “great honor” that will facilitate the challenge of serving the interests of licensed professionals while protecting the public which they serve. He has a long-held respect for the role the Board plays and wishes in turn to represent the Land Survey Division of the Board in a respectful manner.

Mike Flowers understands well the challenges facing the land survey profession. Foremost among them is having a careful and thorough process of qualification that is followed for becoming a licensed surveyor. He feels it is critical that the Board do all it can to insure that only those candidates that will raise the level of expertise and professionalism in the field of surveying ascend to the profession. Striving for quality and qualification in license applicants, the Board may

They can each be counted on to fulfill another charge of the *Surveyor’s Creed*, to place the “...honor and standing of the profession before personal advantage.”

New Members on the Land Survey Board (continued)

take on a review of the current educational requirements for prospective land surveyors.

Mike's tenure as State Land Surveyor was noted for his welcoming approach towards feedback and involvement from Missouri's surveying community. Indeed this active MSPS member feels there is an ongoing importance to licensee participation in our state's surveying Society. In his role on the Board Mr. Flowers looks forward to hearing from MSPS and its Standards Committee regarding enhancing Missouri's surveying standards. He personally invites Society members to look towards our existing statutory definition of land

surveying and explore the possibilities of revision.

These two highly regarded leaders within MSPS and the surveying profession now undertake the responsibility of serving Missouri as members of a regulatory board. They both share an abiding dedication to protect the public while allowing a continuation of the vibrant and important practice of surveying as a profession and as a business. They can each be counted on to fulfill another charge of the *Surveyor's Creed*, to place the "...honor and standing of the profession before personal advantage." Congratulations Dan and Mike; good luck and Godspeed. 🇺🇸

John Stevens

Professional Land Surveyor, USFS from 1968-2010

John A. Stevens, Missouri P.L.S. 1791

After graduating from Linn Technical College in 1968, John began employment with the former Clark National Forest in Rolla, Missouri. His early assignments were drafting and design, road surveys and construction before joining the Cadastral Survey Section in 1973. That was also the same year the Clark & Mark Twain Forest were redesignated as the "National Forest in Missouri", finally being named the Mark Twain National Forest. In 1977 John attained licensure as a Missouri Registered Land Surveyor.

Soon afterwards the Forest reorganized; John, with his wife Jan and their two young children James and Julie, moved to Poplar Bluff for a new assignment as Shared Service Land Surveyor. This posting continued until January 2006 when he returned to Rolla, serving with distinction until retirement on January 2, 2010. In addition to surveying the Forest's many miles of boundaries as a crewman, party chief and P.L.S., he

administered numerous Cadastral Survey Contracts, affording him the opportunity to work closely with many survey firms throughout Southern Missouri.

John joined the Missouri Association of Registered Land Surveyor ("MARLS" — now MSPS) as an associate member in 1973. John was elected MARLS President in 1996 and still serves on several committees. He was also a member of the Land Survey Advisory Committee of the Missouri Department of Natural Resources for seven years, being chairman part of that time. He was also involved in organizing the Southeast Missouri Chapter of MARLS — serving as Chapter President in 1982 — and remains a charter member.

Beyond surveying, John enjoys staying busy with church and school activities, working with Boy & Girl Scouts, fishing, hunting, and most of all playing with his grandchildren.

Farewell John, you will be missed!!! 🇺🇸



**Retirement Banquest was held
January 23, 2010
Matt's Steakhouse, Rolla, Missouri**

Meet Our Members!

LS Member

Jerrod L. Hogan
Joplin, Missouri



Position:

Vice President,
Anderson Engineering

Focus of survey practice:

Working at Anderson Engineering allows me to be involved in many aspects of surveying for both private sector and government clients. We work on a variety of projects including ALTA's, boundary surveys, land planning, route surveys, right-of-way, easement preparation & acquisition, topographic, construction staking, environmental surveys – everything!

Most memorable project:

Runner-up is the project where a woman in her 90's pointed a pistol at my head! Most memorable would be my first calculated corner where I found stump holes and then recovered an original stone. I started my career in Indianapolis where most section corners were monuments in nice, protected boxes with flip-up lids. I was managing a project in Newton County when I first led a boundary from start-to-finish. It was a blast to put all the evidence together and come up with a calculated position that guided us to the stone and two stump holes.

Likes about surveying:

I like the variety! At Anderson Engineering I am involved with client relations, marketing and our local community. An average week for me includes working on survey projects, meetings at our *Chamber of Commerce*, attending community events and helping out on a not-for-profit committee. I am fortunate to live in a great community and work for a company who allows me to give back and be involved.

Why a member of MSPS:

I am a member of MSPS because we work to protect and improve our profession. I think "active" membership in a local chapter or the State level of MSPS is a responsibility of all Missouri surveyors. Whether it's keeping an eye on legislation or an educational workshop, MSPS works for Missouri surveyors. Membership in MSPS is an important step in preserving the proud profession of land surveying. 🇺🇸

Associate Member

Andy Koenigsfeld
Jefferson City, Missouri



Position:

Survey Technician
The City of Jefferson

Focus of survey practice:

Topographic surveys for engineering design of public works, boundary surveys and records research for municipal land holdings and construction layout of capital improvements for city services.

Most memorable project:

One that stands out was the survey of an accident site where the crash of a semi-truck damaged the substructure of an overpass. It occurred at a vital intersection in our city and involved multiple concerns; structural integrity, surveying in high-volume traffic; toiling alongside police officers and first responders; working in the presence of news media and cameras. This job required great work, done fast with many challenges. I loved it!

Likes about surveying:

Surveying is the best job in the world! I like being outside and involvement in physically demanding activities, yet I also like working on complex problems requiring a great deal of thought and research. I have found all of these in surveying. The variety of skills and talents I am required to use keeps things interesting. Surveying as I do, helping in efforts that develop our community, gives me a rewarding sense of "making a difference." I like that!

Why a member of MSPS:

I am a survey technician with the goal of being a Professional Land Surveyor. To achieve this I need help – help from those who have done this before me. My fellow MSPS members provide the learning help I need. Along with the great teachers I have had among my supervisors and party chiefs, MSPS members share their knowledge and lore. Add that to the educational sessions at our meetings and my own academic studies in college and I will someday proudly become a licensed surveyor in Missouri. 🇺🇸

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A National Donation, on Behalf of Land Surveying

by B. Austin DeSain

It is rare today that a Land Surveying and Civil Engineering company can relate to being in the profession for the length of time that this one can. Since I've been here, I've come to learn one important value that I know I'll hold onto forever. I've learned that only in time can one begin to appreciate the past, and the wisdom gained from the previous generations employed in your same career. It was through their vision that our current careers have been formed.

I was going through some old boxes on the shelf here and found a wooden case labeled C.L. Berger & Sons, Boston Massachusetts. The transit theodolite found its way onto my company's shelves nearly a century ago, from a surveyor who'd been hired on the condition that he used his own equipment. Luckily for him, he owned the No. 11c Complete Transit-Theodolite, the model

with four leveling screws that was listed on page 213 of the 1918 "Standard Instruments of Precision" catalog for a deal at only \$300.

The Clayton Engineering Company was officially formed in 1926, the records, field books and a few original equipment items purchased from previous companies, dating back to the early 1800's are still here. This transit was last serviced on November 14th, 1931 by the Sprengnether Instrument Company here in St. Louis. Shortly after that, it was replaced with the K&E style, and eventually the Wild Heerbrugg T1, T2, 23, etc.

I began to ask around to Land Surveying historians and

museums trying to find out anything at all about this piece. Several private collectors and museums were helpful in trying to identify the specific model, although none could be quite sure. I was quick to realize that most of the people I'd contacted wanted to actually have the instrument for their own collections. The idea was presented to our company board and it seemed reasonable, after all it would be on display here in our lobby if it stayed. The most interesting response that I received was from the Curator, Physical Sciences Collection at the Smithsonian National Museum of American History.

The Smithsonian has a copy of the shop records for C.L. Berger & Sons and didn't hesitate to mail a copy of the original sales receipt for our exact model before the end of the day, matching serial number and all. Among the scribbling on the original receipt, it's clearly stated "Inst. No. 14244, Transit No. 11 – Theodolite, to be shipped to Sprengnether Inst. Co., St. Louis, Mo." – Jan. 30, 1923. This instrument was a perfect match for their collection.

After a few months of back and forth phone calls, emails and pictures, I sent the transit to Washington D.C. for the Nation's Museum to take care of and display as they see fit. Besides, it's an honor for both myself and The Clayton Engineering Company and to have had the opportunity to make this small donation. 🇺🇸

B. Austin DeSain
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The Clayton Engineering Company
St. Louis, MO.
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63146

*I've learned that only in time
can one begin to appreciate the
past, and the wisdom gained
from the previous generations
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I Won't Ever Let The Position Of County Surveyor Go To My Head

by Robert Pelaski, Wayne County Surveyor, Wayne County, MD, April 30, 2008 | Issue 44•18

I am but a public servant.

My fellow citizens of Wayne County, thank you. You have entrusted me with a sacred duty—the most-honored position of surveyor for the entire county of Wayne, which includes the cities of Portage, Clara, Allerton, and Dixon, as well as many, many townships. As reelection approaches, let me once again assure you that I will never allow this awesome responsibility to affect my humility or in any way impair my service to you.

Not even if I go down in the history books as one of the greatest, longest-serving, and most beloved county surveyors in Maryland history.

I am but a public servant. I arrive each morning bright and early with the day's surveying work foremost on my mind. Please know that my door is always open to citizens who may wish to stop by and talk about county issues or to shake my hand and tell me what a "good job" I am doing or even to mention how much better I am than the last county surveyor, Brad Engels, who was utterly annihilated in the last election and left this office in shame and humiliation. I promise I will never be too busy or important to spend some time with the locals, no matter how seemingly insignificant they might seem on the county level.

While it does not affect me in the slightest, I can understand how some might find being sole protector of more than 900 miles of county-regulated drains impressive. Sexy, even. But I did not get into the county surveyor business to sign autographs or to have my name in the Wayne Ledger three times this year. Nor did I take up this hallowed mantle to

see crowds line the streets as I drive by, whereupon fathers turn to their young sons and say in hushed tones, "There goes a man whose ability to record and maintain elevation benchmarks once a year rivals that of Atlas himself. That, son, is a man far better than I."

Worry not, O ye common masses of Wayne County and its outlying areas. I vow never to be one of these men who walks around like he owns one of 12 seats in the county planning commission's bimonthly meetings.

God knows I have seen this job's power swell up inside lesser men, filling them with the godlike righteousness that

only comes from being charged with the task of recording and maintaining the square-mile corners of land that were established by Congress to define the borders of Wayne County. Soon they are lording their position as a nonvoting member of the county drainage board over lesser officials. Like, for instance, the deputy county surveyor.

Power like that can make a man his own worst county surveyor.

I am the sort of strong-willed individual who will not fold when verifying all incoming maps for legal and technical adequacy, thus making land-survey information available to the public. I will not deny that, now and then, there is a certain rush that comes with such work—the adrenaline that flows from knowing that with a simple flick of the wrist I could move the boundaries of every one of the polling districts in this whole county three entire inches.

But I would never do that, because you have placed your trust in me, and because those boundaries have to be certified by the State Election Board anyway.

Some credit is due to you, then, Wayne County citizens, for not putting in office some power-hungry opportunist lacking the mettle to handle the job. I would never dare to speak for all of you, but I think it is fair to say that more than a few must be thinking to themselves, "Well, thank God we elected a county surveyor who is free from ego, modest to a

fault, and is just generally the Joe DiMaggio of land-parcel mapping and plat checking."

There is absolutely no need to thank me. I am just doing my job. The job that the hundreds of you who came out in droves four years ago to vote a straight Democratic ticket that included, three-fourths of the way down, my name elected me to do. I will never forget that day, when the adult citizens of

Wayne County made their haggard, tired, and lowly voices known and begged me to be their new county surveyor, the only man capable of saving them and supervising the annual maintenance of their precious drainage system.

As I said, I am not in this for the praise, but you're welcome anyway. 🇺🇸

This article was published by The Onion, a parody newspaper and satirical media organization in their May 3, 2008 edition. http://www.theonion.com/content/opinion/i_wont_ever_let_the_position_of

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A Quixotial Quest for a Unified Standard

by Stan Emerick for the Standards Committee

Last year, the Standards Committee was called upon to review the Missouri Minimum Standards and offer recommendations for updating the standards, in hopes of making them more applicable to changing technology. During the course of the first meeting, numerous issues were discussed and from those discussions, several modifications were suggested. While there was cordial agreement on most of the changes, the one area that seemed to cause a greater divergence of opinion was the accuracy standards.

When the discussion came around to those standards, it became clear that there was much disagreement on what the term Relative Position(al) Tolerance meant and how it was to be interpreted. There was some debate as to whether the term represented a specific value or a variable. There was also some dialogue on the value of performing a least squares adjustments on certain types of data and exactly what a correctly weighted adjustment entailed.

Out of these discussions came a hypothetical query regarding the percentage of surveyors that clearly understood these terms and how to apply them. This questionnaire is the result of that discussion. The purpose of the questionnaire was not to indict an individual's knowledge or ability, but rather to gauge his understanding of certain terminology that appears in the Minimum Standards. While these results may not represent a true statistical sampling, I do think it is fair to say that they epitomize a representative model of licensed surveyors, and the perception they have on the subject matter.

RESULTS OF THE SURVEY

The survey was conducted on the Society's website and ran for a couple of weeks in January. It produced many interesting results. The most significant ones are as follows:

QUESTION	YES	NO	%YES	%NO
Have you ever taken coursework in statistical analysis?	64	44	59%	41%
Can you determine the standard deviation for your work and defend it with your data?	55	53	51%	49%
Do you know the Levels of Certainty and how they relate to the standard deviation?	51	57	47%	53%

Although sixty percent of the respondents have had some statistical coursework, only about half of them felt capable of determining a standard deviation or the level of certainty for their work. I believe it would be safe to infer from these results,

that a similar quantity would have difficulty distinguishing between a one-sigma and two-sigma confidence level.

QUESTION	YES	NO	%YES	%NO
Do you routinely collect enough data on each control point / monument to determine a positional error?	66	42	61%	39%

Roughly forty percent of the respondents said they do not collect enough data to determine a positional error. This may be the most eye-opening result of all, because it immediately begs the question: "Why Not?" Is it because they think they have some other way of confirming their measurements? Or did they underbid the job to a point where they don't have the time to incorporate the necessary redundancy to meet the standards? Or do they lack the understanding of the violation they've made and the potential liability they may have taken on with it? And just out of curiosity, are they wasting any time trying to apply an adjustment to their data?

The point to be taken here is that unless you employ some way of verifying your work, you do a disservice to your client and the profession.

QUESTION	YES	NO	YES	NO
Do you feel capable of performing a component analysis on that data (without the need to review reference material)?	16	92	15%	85%
When you certify that your survey has met an accuracy standard, can you defend it with empirical proof?	43	65	40%	60%

Although sixty percent of the respondents do collect enough data to determine a positional error, only about a seventh of them felt capable of analyzing the information. While they are (probably) offering certificates that claim to have met the Standards, that sixty percent response admitted that they could not successfully defend it. One has to ask: Do these surveyors not understand the importance of a certification (and its potential liability) or do they not understand the standards and how to use them? I think we would all like to believe that the latter is the more likely answer.

A Quixotial Quest for a Unified Standard (continued)

THE BENEFITS OF DOING THE ANALYSIS?

To say that a surveyor has no need to apply statistical analysis to his work, is to delude one's self into believing that the service he offers is a professional one. If we want to consider ourselves as experts in measurement, then we also need to consider ourselves as experts in recognizing the errors in those measurements, and how best to address them. Because if humans were involved, then errors were made, and ignoring their consequences could prove costly.

By utilizing the techniques employed in an analysis, we can become more conscious of where the errors are most likely to occur. This is particularly true with the continuously evolving use of GPS technology. Most surveyors will realize that a short observation on a critical point may not produce acceptable results, but I believe far less recognize the negative impact that nearby obstacles can have on those same results. While some of the newer equipment may handle multi-pathing better than older units, more attention should be paid to the surrounding environment. If we periodically take the time to analyze our data, we will be better able to recognize the limitations of our equipment in different environments. And through this process, perhaps teach ourselves how to come up with modifications in our techniques that will allow us to collect reliable data in a myriad of hostile environments. I know it is often quoted that "Time Is money". But in this particular case, time can also be accuracy.

NEED FOR A CLEAR STANDARD

The purpose of this endeavor is not to make it harder for surveyors to do their job, but rather to make the terms of the rules they live by clearer. And in a similar manner impart to them the ability to employ them effectively in the course of their duties.

The current set of standards was last revised during the infancy of GPS technology, when the typical method of surveying was still by means of a ground based traverse. The problem we face in this revision is how to write a unified standard that addresses the evolution of surveying. How do we write one set of rules that can work for determining the position of points by measuring angles and distances on the ground and at the same time, can be used for evaluating

coordinates calculated by resection from satellites twenty-two thousand miles away? And can this one set also serve to lay the groundwork for future advances? This is our quest.

My own personal hope for these revisions is that we try, in as much as is reasonably practical, to adhere to the KISS Principle (Keep It Simple, Surveyor). By that I mean to keep the complexity of our work to a manageable level, that we can fully comprehend and explain in detail to our clients, to the general public, or to those parasitical attorneys who will, more likely than not, use whatever language we put in writing as ammunition against us, should they ever find the need.

FINAL COMMENTS

We received written comments from about a fifth of the respondents. While there was some diversity in their commentary, the following three generally summed up the sentiment of the participants:

"This is an area of the standards that I have always found to be confusing and have never had it clearly explained to me."

"What can be done, and what there is time to do, are two different things."

"I can think of no bigger waste of time than to require this of surveyors."

One observer did manage to cite one of my favorite lines regarding this topic:

"The subject of statistics always makes me think of the quote by Mark Twain: 'There are three kinds of lies: lies, damned lies and statistics.'"

And finally, I think this last comment best sums up our reasons for pursuing this Quixotial Quest:

"The more education [we have], the better we can function with confidence when dealing with clients, attorneys and unlicensed technicians." 🇺🇸

(continued on page 36)

If we want to consider ourselves as experts in measurement, then we also need to consider ourselves as experts in recognizing the errors in those measurements, and how best to address them. Because if humans were involved, then errors were made, and ignoring their consequences could prove costly.

A Quixotial Quest for a Unified Standard (continued)

Accuracy Standards Questionnaire	Number of Responses		Respondent Percentage	
	YES	NO	YES	NO
Are you licensed in your profession?	107	1	99%	1%
Have you ever taken coursework in statistical analysis?	64	44	59%	41%
Do you routinely collect enough data on each control point / monument to determine a positional error?	66	42	61%	39%
Can you determine the standard deviation for your work and defend it with your data?	55	53	51%	49%
Do you know the Levels of Certainty and how they relate to the standard deviation?	51	57	47%	53%
Do you feel capable of performing a component analysis on that data (without the need to review reference material)?	16	92	15%	85%
Do you routinely perform component analyses on your surveys (more than one in five)?	21	87	19%	81%
When you certify that your survey has met an accuracy standard, can you defend it with empirical proof?	43	65	40%	60%
If you were asked by a client to explain the following in laymen's terms, do you feel capable of clearly expressing the concepts without any ambiguity:				
Precision vs. Accuracy	103	5	95%	5%
Relative Positional Tolerance	87	21	81%	19%
Standard Deviation / Confidence Level / Levels of Certainty	50	58	46%	54%
Component Analysis	23	85	21%	79%
Minimally constrained, correctly weighted Least Squares Adjustment	33	75	31%	69%
Would you be willing to attend a seminar or course that demonstrates the procedures used in a component analysis?	96	12	89%	11%

Funny – \$5.37

Thought you might enjoy this. It could be you!
\$5.37. That's what the kid behind the counter at Taco Bell said to me.

I dug into my pocket and pulled out some lint and two dimes and something that used to be a Jolly Rancher. Having already handed the kid a five-spot, I started to head back out to the truck to grab some change when the kid with the Elmo hairdo said the harshest thing anyone has ever said to me. He said, "It's OK. I'll just give you the senior citizen discount."

I turned to see who he was talking to and then heard the sound of change hitting the counter in front of me. "Only \$4.68" he said cheerfully. I stood there stupefied. I am 48, not even 50 yet? A mere child! Senior citizen?

I took my burrito and walked out to the truck wondering what was wrong with Elmo. Was he blind? As I sat in the truck, my blood began to boil. Old? Me?

I'll show him, I thought. I opened the door and headed back inside. I strode to the counter, and there he was waiting with a smile.

Before I could say a word, he held up something and jingled it in front of me, like I could be that easily distracted!

What am I now?

A toddler?

"Dude! Can't get too far without your car keys, eh?"

I stared with utter disdain at the keys.

I began to rationalize in my mind.

"Leaving keys behind hardly makes a man elderly! It could happen to anyone!"

I turned and headed back to the truck.

I slipped the key into the ignition, but it wouldn't turn.

What now?

I checked my keys and tried another.

Still nothing.

That's when I noticed the purple beads hanging from my rearview mirror. I had no purple beads hanging from my rearview mirror.

Then, a few other objects came into focus. The car seat in the back seat. Happy Meal toys spread all over the floorboard. A partially eaten doughnut on the dashboard.

Faster than you can say ginkgo biloba, I flew out of the alien vehicle. Moments later I was speeding out of the parking lot, relieved to finally be leaving this nightmarish stop in my life. That is when I felt it, deep in the bowels of my stomach; hunger! My stomach growled and churned, and I reached to grab my burrito, only it was nowhere to be found.

I swung the truck around, gathered my courage, and strode back into the restaurant one final time.

There Elmo stood, draped in youth and black nail polish. All I could think was, "What is the world coming to?" All I could say was, "Did I leave my food and drink in here?" At this point I was ready to ask a Boy Scout to help me back to my vehicle, and then go straight home and apply for Social Security benefits.

Elmo had no clue. I walked back out to the truck, and suddenly a young lad came up and tugged on my jeans to get my attention. He was holding up a drink and a bag. His mother explained, "I think you left this in my truck by mistake."

I took the food and drink from the little boy and sheepishly apologized.

She offered these kind words: "It's OK. My grandfather does stuff like this all the time."

All of this to explain how I got a ticket doing 85 in a 40. Yes, I was racing some punk kid in a Toyota Prius. And no, I told the officer, I'm not too old to be driving this fast.

As I walked in the front door, my wife met me halfway down the hall. I handed her a bag of cold food and a \$300 speeding ticket. I promptly sat in my rocking chair and covered my legs with a blanket.

The good news was I had successfully found my way home. 🐱

READ BELOW!

Just in case you weren't feeling too old today.

The people who are starting college this fall were born in 1991.

- They are too young to remember the space shuttle blowing up.
- Their lifetime has always included AIDS.
- The CD was introduced two years before they were born.
- They have always had an answering machine.
- They have always had cable.
- Popcorn has always been microwaved.
- They never took a swim and thought about Jaws.
- They don't know who Mork was or where he was from.
- They never heard: 'Where's the Beef?', 'I'd walk a mile for a Camel', or 'de plane Boss, de plane'.
- McDonald's never came in Styrofoam containers.
- They don't have a clue how to use a typewriter.

Pass this on to the other old fogies on your list. Notice the larger type? That's for those of us who have trouble reading.

P.S. Save the earth . . . It's the only planet with chocolate.

In Committee

What's Happening in MSPS Committees

by Don Martin

CST Committee

Committee co-chairs Fermin Glasper and Bob Myers have been joined by Kevin DeSain and Darrell Pratte in working towards a new opportunity that will expand the CST Program in Missouri! They have partnered with the Workforce Development staff at St. Charles Community College to have CST training classes become part of that school's curriculum...

GIS/Vision 21 Committee

In November, this committee hosted a meeting of a "Cadastral Coalition" to iron-out concerns dealing with creation of Missouri cadastral mapping standards. Led by co-chairs Joe Clayton and John Teale, Missouri leaders in tax mapping, assessment and GIS were joined by President Ralph Riggs. Once again Missouri *surveyors lead the way* in matters of our land system infrastructure...

Handbook Committee

Chair Norm Ellerbrock has defined needs for converting this "record" to a digital format and distribute by electronic media such as CD/DVD. He has also proposed a plan to award newly licensed Missouri surveyors with a complimentary copy of the Handbook. Just more good reasons to be an MSPS member.

History Committee

Big news! This committee always does an outstanding job of providing historic maps for auction at MSPS events. In the background, committee chair Stan Emerick has worked to obtain historic records related to surveying and sought their preservation on behalf of MSPS. For a long time he has expressed a desire to have the capacity to scan these records for digital archiving. At the December Board of Directors meeting of MSPS, Stan got his wish – authorization for a new scanner. That is Missouri *surveyor leading the way* in preserving our legacy...

Legislative Committee

New co-chairs Rich Barr and Troy Hayes have been guiding their committee members in efforts to develop and prioritize a legislative agenda for MSPS. While there has been a lot of email traffic between team members, they did come together

on January 19th to pull things together. Meeting in Jefferson City the group listened to advice from MSPS lobbyist Mo McCollough and then set their goals. Focus areas for this legislative session include; seeking ways to securing funding for the State Land Survey Program through either increased recording fees or controls on fund allotment within DNR, lien law revisions, changes to statute of limitations laws governing project liability, and modification of RSMo 60.650 regarding recordation. This group also identified a long-term goal of drafting revision to the *Definition of Surveying* in RSMo 327. They established a sub-committee to *lead the way* a review and rewrite for further consideration...

MoDOT Liaison Committee

This busy committee is at "it" again..."it" being *surveyors leading the way* in enhanced R/W practices for Missouri roads. Chair Gary Bockman has been welcoming many new members from the ranks of MoDOT's corps of PLS's. Motivated in part by the *Missouri Surveyor* reports of progress on highway matters, these experts are helping MSPS protect our state's land system infrastructure while enabling an expansive transportation network. On January 14th the committee teleconferenced with focus on R/W descriptions, correctly locating R/W with the PLSS, preservation of the PLSS along R/W corridors and compliance with minimum standards...

CST Training Classes at St. Charles Community College . . . handbook to digital format . . . historic records to digital archiving . . . prioritizing legislative agenda . . . product catalog online

Nominating Committee

Chair Darrel Pratte is preparing members for upcoming activity. He reports that along with the nominating process for MSPS offices, this committee will *lead the way* for MSPS to advise DNR on the selection of new designees for the Land Survey Advisory Board...


Public Relations/Sales Committee

Product catalog online? Executive Director Sandy Boeckman is working with chair Rich Howard to develop a graphic web presence displaying the MSPS "signature" attire. And creative Chris Wickern is a *surveyor leading the way* in promoting the profession and its good works to others. While coordinating MSPS participation in the upcoming Missouri Land Title Association Conference, he has been on the performance circuit in his own community with a presentation

In Committee (continued)

entitled *Before You Buy, Sell, Divide or Build: Consult a Professional Land Surveyor*. Chris and other committee members will share the outline of this presentation with any MSPS members delivering similar outreach programs in their own communities...

Standards Committee

Draft revisions of minimum standards have begun! So what do you do on a bitter cold January Saturday? Members of the Standards Committee answered that by meeting on the 9th in Rolla. Results from their work were presented to the Board of Registration on January 24th... 

... surveyors leading the way ...

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Indemnification or “Hold Harmless”

by Knud Hermansen

Preventing or reducing liability is an important aspect for the survey practitioner to consider in preparing contracts. One clause employed to prevent or reduce responsibility for liability damages is an indemnification or “hold harmless” clause.

An indemnification clause or “hold harmless” clause imposes a contractual responsibility for reimbursing the surveyor for liability damages claimed against the surveyor by third parties. Most people have relied upon indemnification in the form of automobile insurance. Automobile insurance shifts the responsibility for liability damages to the insurance company per the insurance contract. An indemnification clause is often and properly used by the surveyor to shift the responsibility to the client for paying damages for a negligent act that should not in fairness be the responsibility of the surveyor.

The employment of an indemnification clause by a surveyor is ideally suited in one of three situations. The first situation is where the client has demanded some reduction of services to save money, time, or both that increase the risk that the surveyor will be liable to a third party as a result of the reduced services demanded by the client. The second situation is where the surveyor must rely on information provided by the client or their agent, contractor, etc. to properly perform surveying services and that information could be faulty. The third situation is where the surveyor’s services are intertwined with services provided by others to such an extent that liability by any one will reflect poorly on the surveyor’s services and may be difficult for a layperson to understand and identify the true source of the fault.

For example, assume a surveyor’s client intends to erect a structure and employs the surveyor to stake out the location of the structure. The client gives the surveyor a faulty engineering plan that the surveyor must rely upon to stake out the structure. The contractor completes half the structure before the mistake in the plan is discovered. The contractor sues the surveyor and engineer for misrepresentation. The surveyor along with the engineer is found liable to the contractor. An indemnification clause in the client’s contract would allow the surveyor to seek reimbursement from the client for the liability damages caused by the engineer’s negligence.

An indemnification clause should be employed in a contract between the surveyor and the client where three factors are present: 1) There is risk of increased liability to the surveyor

from third-parties, the client, or client’s agents, contractors, etc. 2) The client stands to benefit from the risk undertaken by the surveyor or the client has caused or increased the likelihood of liability to the surveyor. 3) The client has the assets to cover reasonable and foreseeable damages arising from the risk. (The most meticulous and well-written indemnification clause will not get “blood from a rock” or money from an indigent.)

Indemnity: Client and Surveyor each agree to indemnify and hold the other harmless, and their respective officers, employees, agents, and representatives, from and against liability for all claims, losses, damages, and expenses, including reasonable attorney fees, to the extent such claims, losses, damages, or expenses are caused by the party’s negligent acts, errors, or omissions or those of their agents, contractors, sub-contractors, or assignees. In the event claims, losses, damages or expenses are caused by the joint or concurrent negligence of Client and Surveyor, they shall be borne by each party in proportion to their respective negligence.

There are several different forms of indemnification clauses. One form shown by the previous example treats each party the same and shifts the responsibility for liability damages to

the party at fault. Another form shifts the responsibility for liability damages to one party regardless of the source of the faulty behavior. The former is generally given unhampered recognition by the courts while the later is critically scrutinized by the courts and often rejected under equitable grounds where there is unequal bargaining power.

The surveyor must avoid signing a contract prepared by the client that shifts all the responsibility for damages,

regardless of the source of negligence, to the surveyor. Quite often client-prepared contracts contain one-sided indemnification clauses.

An indemnification clause or “hold harmless” clause imposes a contractual responsibility for reimbursing the surveyor for liability damages claimed against the surveyor by third parties.

(continued on page 42)

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Indemnification or “Hold Harmless”


Indemnity: The surveyor shall indemnify the owner for any and all claims arising out of the work or services performed.

Some states do not allow professionals to employ indemnification clauses that shift the responsibility for damages resulting from professional negligence.

Some professional liability insurance contracts will not cover damages that are shifted to the surveyor under an indemnification clause. Accordingly, the surveyor is cautioned to carefully read an indemnification clause and reject those shifting responsibility for liability that was beyond the surveyor's control. When employing an indemnification clause in a contract, the surveyor should review the clause with their liability insurance agent.

Indemnification does not remove or diminish liability. It does not prevent the surveyor from being sued or held liable. It is

not a defense to a lawsuit nor can it be used to prevent a lawsuit. It merely allows the surveyor to seek reimbursement from the client for certain sources of liability damages the court will hold the surveyor liable. Furthermore, an indemnification clause is ineffective where the client does not have the assets or money to cover the responsibility for damages that are shifted as a result of the indemnification clause.

The surveyor would be wise to consult with their attorney to determine if an indemnification clause will be effective in their state and what language is most appropriate according to their state law. 

Knud is a professional land surveyor, professional engineer, and attorney at law licensed in several states. He teaches in the surveying program at the University of Maine and operates a consulting firm specializing in professional liability, boundary disputes, land development, and title issues.

Indemnification does not remove or diminish liability. It does not prevent the surveyor from being sued or held liable. It is not a defense to a lawsuit nor can it be used to prevent a lawsuit.

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