

# SURVEYOR

*California*

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Summer 2009 Issue #159



## Establishing the Yosemite Forest Dynamics Plot

Article by Ric Moore, PLS and James A. Lutz, PhD, page 14

## The Professional Practices Committee *Surveyor's Friend or Foe?*

Article by David E. Woolley, PLS, page 10



## NSPS Enters Its Second Decade of Involvement with the Boy Scouts Surveying Merit Badge

Article by Curt Sumner, PLS, page 12



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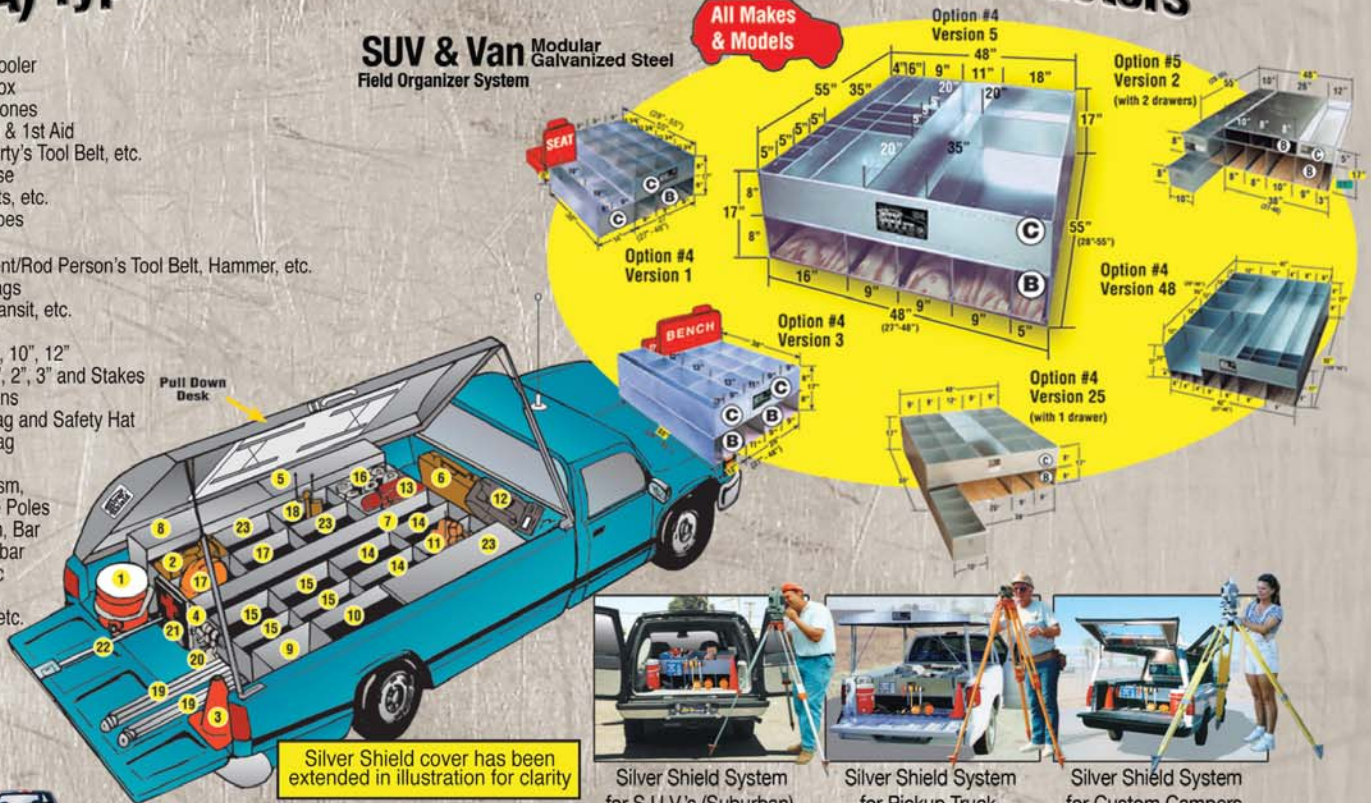


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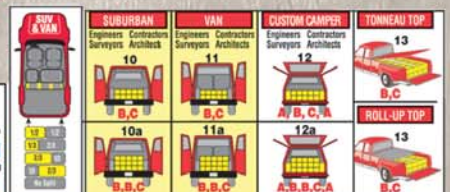
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# Surveyor California

The quarterly publication of the California Land Surveyors Association, Inc. and is published as a service to the land surveying profession of California. It is mailed to all Licensed Land Surveyors in the State of California as well as to all members of the California Land Surveyors Association, Inc. The California Surveyor is an open forum for all Surveyors, with an editorial policy predicated on the preamble to the Articles of Incorporation of the California Land Surveyors Association, Inc. and its stated aims and objectives, which read:

“Recognizing that the true merit of a profession is determined by the value of its services to society, the California Land Surveyors Association does hereby dedicate itself to the promotion and protection of the profession of land surveying as a social and economic influence vital to the welfare of society, community, and state.”

“The purpose of this organization is to promote the common good and welfare of its members in their activities in the profession of land surveying, to promote and maintain the highest possible standards of professional ethics and practices, to promote professional uniformity, to promote public faith and dependence in Land Surveyors and their work.”

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CLSA Homepage: [www.californiasurveyors.org](http://www.californiasurveyors.org)

##### EDITOR

John P. Wilusz, PLS, PE

##### DESIGN AND PRODUCTION

Tony Monaco

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##### EDITOR'S ADDRESS

John P. Wilusz, PLS, PE  
5512 Cedar Creek Way  
Citrus Heights, CA 95610  
E-mail: [johnwilusz@gmail.com](mailto:johnwilusz@gmail.com)

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## From the Editor

### A Day at the Fair

Have you ever been a judge at a science fair? I had not, until last March when I attended the Sacramento Regional Science and Engineering Fair, held at Rosemont High School in Sacramento. All 6th through 12th grade students from the greater Sacramento area were invited to participate. Prizes ranged from certificates and trophies to savings bonds and cash. Volunteer judges like me received a logo t-shirt and the intangible rewards that come from working with young people.

The event was held in the high school's gymnasium on a Saturday morning. Volunteers arrived early and received judging instructions, scoring cards, and projects to judge. Categories were diverse: math and computer science, behavioral and social science, biology, chemistry, all forms of engineering, and much more. Nothing directly related to surveying, I am sorry to say, but there is no reason that cannot change in the future. With a good turnout of judges we had plenty of time to roam about and meet the students.

While browsing the exhibits I noticed that the biggest hit with the middle school set was hovercrafts. In case you did not know, a functioning hovercraft is fairly easy to make. The technology is well established (Google it!), so they are not really "experimental" in the scientific sense. But they sure are fun to watch. The units I saw consisted mainly of a shop vacuum fastened to a sheet of plywood. With the machine in blower mode, and the hose mounted to a hole in the plywood base, it produces enough lift to levitate. Put a sixth grader on top and her friends can push her around like an air-hockey puck.

There were also more serious-minded scientists. A 5th grader demonstrated her telemetry project for me. She had designed and built a wireless system whereby she could operate two small robots, simultaneously, from her laptop. She asked if I would like to know how it worked. "Sure", I said, knowing full well I would not understand a word of it. I consoled myself with the thought that she must be in the accelerated program.

After that, a high school sophomore showed me the results of his quest for a better bulletproof vest. He experiments included firing 9 mm bullets into a variety of flexible materials, laminated together in various arrangements, and then comparing their resistance to penetration. I thought the project might just be an excuse

to shoot his father's pistol. But no, he told me his goal was to reduce combat casualties among our troops in Iraq and Afghanistan. He showed me a newspaper article about the need for better body armor that inspired his research.

Finally it was time to get on with the judging. One of several projects I was assigned to judge was a kind of gun that could fire an iron projectile, about the size of a Sharpie marker, using a burst of electromagnetic energy. The projectile had enough force to pass through light gauge sheet metal at a distance of about ten feet. The device itself looked like a wooden shoebox with a piece of small-diameter pipe mounted on top. A high school senior had built it. Since I know precious little about electricity, it was a good thing there were several of us assigned to judge this project. One of the other judges was a distinguished looking man with a professorial air about him. He asked the teen scientist to demonstrate the calculus that went into the design. Establishing that the candidates did the work themselves was an important part of our job as judges. Without hesitation the kid took a pencil and paper and scribbled out the calculations. The professor seemed satisfied, so I nodded in approval too, and asked the young man what he planned to study in college. Perhaps he could be persuaded into a career in surveying. We could use someone like him. "Physics or medicine", he said. He wasn't sure yet. Ah, yes, I was indecisive at that age too. All kidding aside, where do kids like that come from?

#### Recruitment

More importantly, where are kids like that going? Recruitment is vital to a profession like ours, with an aging and diminishing population of practitioners. Yet, it's difficult to recruit people into a career if they don't know what the career consists of. Science and engineering fairs are one way to let people know who we are and what we do as land surveyors. Sponsors of the Sacramento event included: National Society of Professional Engineers, National Oceanic and Atmospheric Administration, American Society of Civil Engineers, Professional Engineers in California Government, and American Council of Engineering Companies. Land surveyors (and geomatics engineers) can certainly do likewise through their professional associations.

*Continued on next page*

In this issue of the California Surveyor we have several articles by CLSA members who are making an effort to bring in the recruits. Read Jim Dickey's article "CLSA and the Surveying Merit Badge" and learn about a great way to share your profession with young people. Another form of recruitment is introducing other surveyors to CLSA. The benefits of membership are easy to convey to others once we get their attention, and a great way to do that is to feed them when they are hungry. Read Rob McMillan's article "Chapter Feeds Future Land Surveyors" and you will understand why the Sacramento Chapter is CLSA's 2008 Chapter of the Year.

My day at the science and engineering fair was even more rewarding than I expected. For one thing, I found myself feeling more optimistic about the future than I have in a long time. Those kids are smart! And as young as they are, they are already looking for ways to make tomorrow a better day. Maybe if they knew more about us, some of them would choose our profession as a way to do it.

---

**John Wilusz** is a Water Resources Engineer with the California Department of Water Resources.

## The More Things Change...

by Dave Woolley, PLS

Quotes from the near and distant past that prove the point: the more things change, the more they remain the same.

"Compulsory continuing education! These words strike fear in the hearts of some and hope in the hearts of others. Yet it is an overdue concept. In this day of rapidly changing technology, the information explosion, it has become virtually impossible for even the most conscientious to keep up.

It seems to me that one aspect of professionalism implies continuing education; keeping up with current methods, equipment, legislation and court interpretations. Without current knowledge there is no way a professional can properly serve his clients or employers best interest."

Chuck Wooldridge, Jr., LS, (1972)

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## President's Message

It's that time of year again when candidates for the California Land Surveyors examinations receive their results. I remember the anticipation each time I went to the mailbox, the feeling of trepidation to actually open the envelope and the exhilaration when you have been successful. If you are one of those successful candidates, then you know what I mean and have accomplished an important milestone in your career. I also remember the feeling of disappointment when I received the notice that I had not met the required score. It can be difficult not to get discouraged from continuing to pursue licensure. The good news is that you have resources to draw upon so don't give up. Not long ago many of these resources were either not available, or you might have had to travel long distances to receive training or attend review courses. CLSA Chapters across the state are now presenting review seminars, the CLSA Examination Guide is available online and more educational opportunities are available than ever before. It is apparent when reviewing the exam statistics over the past few years that the efforts of CLSA, the Board for Professional Engineers and Land Surveyors and others, that California examinees are having a higher success rate. I believe the candidates today are better prepared for the test. The release of the 2005 examination was pivotal in turning up the success rate. It gave the public the opportunity to see how the questions are composed in the modern examination. Up until then the only study materials available were from tests given fifteen years ago or longer. The modern exam is much more multi-dimensional and reflects the current state of our practice. This also provided educators the ability to better prepare candidates for the test. I have seen the roster of educators in many of the CLSA review seminars across the State. It is a very impressive list of practicing Surveyors that provide a quality educational experience.

If you were successful this year, I give you my hearty congratulations. If you were not as successful, I urge you to take advantage of the many resources available to you through CLSA. There are many professionals willing to help.

Like many of you, I sometimes find myself so wrapped up in my day-to-day business activities that time goes by at light speed. On Monday I put my head down and plow through the work at

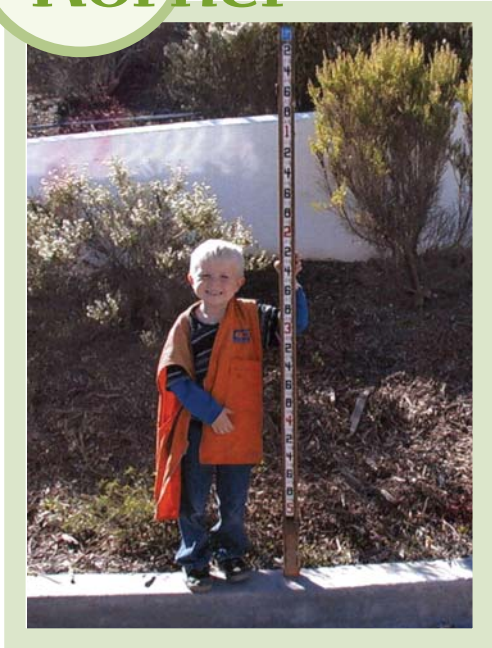
hand. Before I know it, the week is gone. Even with work load significantly decreased in this depressed economy, there is much to do. Focusing on the longer term is equally important to our day-to-day operations for the future of our businesses and our profession. Periodically, we need to stop to look at the bigger picture of our practice and our profession. Many Surveyors find this part of our business difficult. Our profession is increasingly made up of small survey firms. With today's technology it is commonplace to find survey firms where one person performs everything from business development, marketing, project management, field work, calculations, mapping, accounting, billing and collections. The difficulty comes in relying only on one's self for everything. Self-reliance is a trait common to most Surveyors whether you practice with a small firm, large firm or a government agency. This is one aspect where membership in CLSA truly pays. Other than the obvious benefits of retail discounts, publication resources, and education opportunities, a major benefit of membership is in the relationships and professional network opportunities that CLSA provides. If you're wondering where your next project might come from, what technologies are on the horizon, or how your colleagues are managing, try attending your local chapter meetings. Chapter meetings are an excellent opportunity to network with other professionals, explore teaming opportunities, talk with and enjoy presentations by community leaders. Hey, why not step it up a notch and get involved? Your chapters are looking for professionals to give a little time to better their profession. I have personally built lasting personal and business relationships through my involvement in CLSA.

Beyond CLSA, it is important for our industry professionals to get out a little more. Get in touch with other professional, community and business organizations and let them know what we Land Surveyors do. It is our responsibility to communicate the value our profession contributes to business and communities. We also have a rich history that begs to be told. The Public Awareness Committee is currently working on tools for each of you to use to promote our profession and your business. I call on you to use these tools to network with these organizations and paint the picture for the public of who the modern Land Surveyors is and the value we contribute. ❖



# Kids Korner

Do you have a picture of a "junior surveyor" in your family that you would like to share? Send it in and we will put it in the Kids Korner.



Jake Morgan, son of Party Chief Jeff Morgan at Walden & Associates, helping dad with some leveling.



David Acuña Karp, age 10 months, demonstrating the finer points of the Trimble 4800 for his father, David Karp, LSIT.

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*Dave Woolley is the CLSA Orange County Legislative Chairman, Chapter Representative, State PPC Member, and owner of D. Woolley & Associates, Tustin, California.*

# The Professional Practices Committee Surveyor's Friend or Foe?

There are varying perceptions among surveyors as to the role of a Professional Practices Committee (PPC). Generally, the first thoughts concerning a PPC are enforcement issues and visions of Pinkerton men. The members of the committee often see their role much differently than their professional counterparts. The committee members on the state level are there to support local chapters in establishing a PPC, and to work on issues that are of concern/benefit statewide. For instance, the state committee is working on updating the "Right of Entry" pamphlets and

*There is nothing to prevent  
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requests from the County Surveyor's office  
as to matters of practice.*

corresponding door hangers. This is to address the reoccurring calls to the sheriff's office for trespassing onto private property, often at the cost of the surveyor in lost time. The name of the local organization may vary from county to county. In Orange County the organization is called the Joint Professional Practices Committee (JPPC), as they are partnered with the Orange County chapter of American Council of Engineering Companies (ACEC). ACEC was formerly known as Consulting Engineers and Land Surveyors of California (CELSOC).

## Diversity in the Mix

Typically and ideally, the committee should be made up of a mix of individuals from varying practices, such as small firms, large firms, public agencies, union and non-union, etc. The better the mix of professionals, the more effective the representation. The Professional Practices Committees are formed under the local chapter of the California Land Surveyor's Association. Each local chapter, together with the committee members, determines the direction and limitations of the group. Most of the committees meetings are attended by the County Surveyor or a member of his/her staff.

## The County Surveyor's Role

The County Surveyor's partnership with the PPC is paramount to the effectiveness of the committee. The County Surveyor, in the review of submitted maps, has more contact with the public and encounters deviations from accepted practice as well as potential violations of the Business and Professions Code. The County Surveyor delivers problematic maps to the committee for review. This is the first opportunity for the committee to discuss and determine practice issues as a group. This initial discussion can end up in favor of the practitioner(s). This effectively creates a check and balance on edicts from the County Surveyor's office and serves as a benefit for all local surveyors. There is nothing to prevent (in fact, it should be encouraged) a private practitioner from calling on the PPC to review requests from the County Surveyor's office as to matters of practice. This should partially dispel any myths about the PPC being survey police. In our jurisdiction, as with most, these are open meetings and surveyors are encouraged to attend. The committees serve as a partner to all practicing surveyors.

## Protecting the Public

In the state of California, surveyors are licensed to ensure they meet the minimum requirements to practice. This serves the greater purpose of protecting the public. Our laws are crafted with that designated purpose in mind. Our license is issued by the Department of Consumer Affairs, Board for Professional Engineers and Land Surveyors (BPELS) in Sacramento. Within BPELS is the Enforcement Unit, which is legally authorized to investigate complaints. When a complaint makes it from the Enforcement Unit to the Board, it is important to know that the Board is comprised of one surveyor, several engineers and members of the public. Currently, there are more members of the public than professionals on the Board. This is the makeup of the Board that will ultimately decide the fate of a surveyor's license status. The Board's interest is compliance with the law; they will act on and prosecute all violations coming to their notice. Put simply, would you rather deal with local surveyors with no "legal" authority, or members of the public with the legal authority to revoke your license? It would seem more appealing, and in the best interest of all parties, to try and resolve any issues of compliance with the local surveyors. This, again, should dispel the myth that the PPC (s) are the survey police.

*Continued on next page*



## Many Functions of the PPC

Currently, there are several chapters with Professional Practices Committees throughout the state. Generally they have written guidelines that range from a one-page Charter Statement to a multi-paged Action Guideline. The commonality amongst the chapters typically includes:

- ✓ Education of the public and professionals.
- ✓ Maintenance of ethical standards.
- ✓ Peer to peer review.
- ✓ Conflict resolution between local agencies, private practitioners and the public.
- ✓ Encouragement for compliance with applicable laws.
- ✓ Assistance in defining the local standard of practice.

Together with the above, the PPC provides surveyors with a forum to bring allegations without fear of reprisals. Without doubt, the PPC is tasked with many functions that assist all practicing surveyors.

## Imagine the Benefits

Many surveyors have limited contact with other surveyors in their area and might be surprised by the variations in practice, acceptable and unacceptable. The potential for improvement and uniformity in professional practice through the PPC is vast. Just imagine the following:

- ✓ Finding an increasing percentage of referenced monuments in the field.
- ✓ Finding that all surveyed deed lines, and in fact all field-surveyed boundaries, are shown on a Record of Survey.
- ✓ Never having to hear this again: "I don't have to file anything, I didn't set monuments."
- ✓ Not having to explain to a potential client that there is no such thing as a "temporary" or "approximate" boundary corner.
- ✓ Having your PPC write a letter on your behalf to moderate disagreements with map checkers.
- ✓ Receiving a letter from your PPC, versus the BPELS Enforcement Unit, reminding you to file your Corner Record or Record of Survey, the next time you for get to do that.
- ✓ Having your PPC send letters to local city engineers asking for compliance with the Business and Professions Code, Section 8771, as to the perpetuation of monuments.
- ✓ Having your PPC send a letter to the unlicensed practitioners that can underbid you because fraudulent surveys are cheaper than real ones.

- ✓ Having your PPC send a letter to licensees that sign maps for their unlicensed friends.
- ✓ Having disputes between surveyors and clients being resolved by a local group of peers with no "legal" authority to prosecute for non-compliance with Business and Professions Code, Section 8759 (contracts).

## The PPC is the Surveyor's Friend

These issues have touched each of us in our practice. I, for one, am very thankful to those that are willing to act on our behalf to better our profession. If you were to knowingly or unknowingly run a foul of the law, wouldn't it be preferable to plead the case with local surveyors rather than with non-surveyors that have the legal authority to revoke a license?

In my humble opinion, it can be said that the PPC is the best friend of the surveyor and certainly not a foe. To those that serve on the Professional Practices Committees, thank you. ❖

References: Business and Professions Code: Sections 8780, and 8790-8791. This article includes contributions by all State PPC members.

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## NSPS Enters Its Second Decade of Involvement with the Boy Scouts Surveying Merit Badge



NSPS Past President Tommy Brooks (Alabama) and current NSPS Area 4 Director Wayne Hebert (Louisiana) are in the process of assembling their team for the NSPS-sponsored Surveying Booth on the Merit Badge Midway of the 2010 Boy Scouts Jamboree, to be held at Fort A. P. Hill, VA. Typically held every four (4) years, the 2010 Jamboree will be held a year later than normal so as to coincide with the 100th anniversary of the Boy Scouts of America (BSA). The surveying badge was introduced in 1911, and it is among the original 57 Boy Scouts Merit Badges. Today it remains as one of only 11 of the original group to have been continually offered since the beginning.

NSPS active involvement in the Surveying Merit Badge program came about somewhat inadvertently. In the summer of 1989, then NSPS Governor Curt Sumner (VA) was recruited by then NSPS Member Services Director Anne Glasgow to assist Army retiree Murray Manley of Fort Collins, CO in transporting surveying equipment from Dulles Airport to Fort A. P. Hill, VA. The equipment was to be used at the Surveying Merit Badge Booth during the Jamboree. While being interviewed at the Jamboree, Manley's comment that surveying was not being handled properly inspired Sumner to volunteer to lead an effort to revise the Surveying Merit Badge Handbook, and to make a commitment to encourage NSPS to take the lead for participation at future Jamborees. Along with Richard Alvarez (who provided much of the content) of Menlo Park, CA, Sumner began the process of gaining approval for revisions to the Handbook that had last been amended in 1984. In 1992, the revised Handbook was published. It was dedicated to the memory of Manley, who had passed away before it was completed.

Beginning with the 1993 Jamboree (International Jamborees are held every four years), NSPS has sponsored the Surveying Merit Badge Booth, and recruited surveyors from across the country to serve as instructors. For most of the time since then, Tommy Brooks has served as the leader of the volunteers at Jamborees,

and worked with the BSA to make arrangements for the booth. He has also led a group that continues to review the Handbook's contents. Their work resulted in the current edition, which became current January 1, 2005. Brooks has also created a Power Point presentation called "How to Teach the Surveying Merit Badge", which is posted on the NSPS website. Go to: [http://www.npsmo.org/news\\_events/merit\\_badge.shtml](http://www.npsmo.org/news_events/merit_badge.shtml)

Brooks and Hebert expect to need about 22 surveyors to volunteer for the 2010 Jamboree in order to accommodate the anticipated number of Scouts who will want to work toward achieving the Merit Badge. During previous Jamborees, as many as 200 Scouts have attempted to complete the requirements. Their respective schedules, combined with a limited number of NSPS volunteers, have resulted in some of the Scouts not being able to complete the requirements. NSPS views its participation with the Surveying Merit Badge, and being present at Jamborees, as fertile recruiting ground for future surveyors. Accordingly, it is very important that there are enough instructors present at the Jamboree to accommodate the Scouts who express interest. As one might imagine, significant funds are required to assure the desired success of the NSPS efforts at Jamborees, and working with Scouts on the Surveying Merit Badge in general.

Although NSPS sets aside some money for the Jamboree, Brooks says that corporate sponsors are also needed to help fund the effort, plus provide instruments (such as GPS units, standard surveying instruments, and computers) on loan. It is estimated that up to \$25,000 will be needed, plus the loaned equipment.

In a general sense, surveyors are needed to volunteer nationwide, as well as at the local level. Many surveyors (often dads of Scouts) are already involved with their local troop, but a much larger impact would result if a database of volunteers could be kept at NSPS headquarters. A unified effort between NSPS and its state

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affiliate associations to recruit volunteers would be most effective. Anyone interested in assisting NSPS in its efforts, either for participation at the 2010 Boy Scouts Jamboree, or on the local level, should contact either Tommy Brooks (Thomas.Brooks@mustangeng.com) or Wayne Hebert (WayneHebert@chevron.com). Either can explain what is required to qualify as an instructor. There is a plan to post a “needs” list on the NSPS website for volunteers, and donations (both money and equipment). You may also contact NSPS Executive Director Curt Sumner via email at [curtis.sumner@acsm.net](mailto:curtis.sumner@acsm.net), or via telephone at 240-632-9716, ext. 106. ❖



*Jim Dickey, PLS, demonstrates how to set up the total station.*

## Jim Dickey, Chairman of the CLSA Surveying Merit Badge Committee

My entire life I have been interested in, and held a special love for, the outdoors. It just made sense that I became a Boy Scout and ultimately earned my Eagle Scout. My love of the outdoors also led me to my chosen career as a land surveyor. Curiously enough, even though I had a long scouting career, I did not realize until years after I entered surveying that there was a Surveying Merit Badge. Now as the state chairman for the CLSA Surveying Merit Badge committee, I have the opportunity to help others learn about the merit badge and the profession of surveying.

The Surveying Merit Badge is for scouts between the ages of 14 – 18. The requirements to earn the badge are fairly straight-forward for those of us in the surveying profession, but for the scouts who participate there are many challenges and new things to learn. As some of us have learned from experience, there can be challenges in promoting the surveying merit badge as well. The emphasis of scouting is to learn outdoor skills and citizenship. Surveying fits into this scheme well. However, roadblocks sometimes arise because many troops are unaware of our profession. They are dedicated only to promoting traditional outdoor activities like camping, hiking, and canoeing. In situations like this it takes effort to break through the roadblocks and talk with the troops and their leaders, and inform them about our eagerness to teach new outdoor skills. Lack of information about the surveying profession can be a real impediment to interest in the Surveying Merit Badge. Fortunately, it is a fairly easy one to overcome. As professionals and members of CLSA we are in an excellent position to assist scout troops learn what surveying is all about. Despite that, in the last year and a half there have only been about a half dozen members that have expressed interest in having our members teach the surveying merit badge. As chairman the CLSA Surveying Merit Badge committee, I hope to see interest increase, and I would be more than happy to help you get started.

One of our objectives as members of CLSA is to promote our profession to young people. The Boy Scouts of America Surveying Merit Badge is an excellent way to do that. Local CLSA chapters can get involved by contacting scout troops throughout the state. Try it for yourself and find out how rewarding and fun it can be to share your profession with young people. If you are interested in helping to promote this program in your area, please feel free to contact me at: [jdickey@cinquinipassarino.com](mailto:jdickey@cinquinipassarino.com). ❖



# Establishing the Yosemite Forest Dynamics Plot

It was 1930 and the initial impact of the previous year's stock market crash was still being felt throughout the nation. After decades of political fighting and maneuver-

Yosemite National Park, thereby protecting some of the largest and healthiest sugar pines in the country from harvesting (Figure 1).

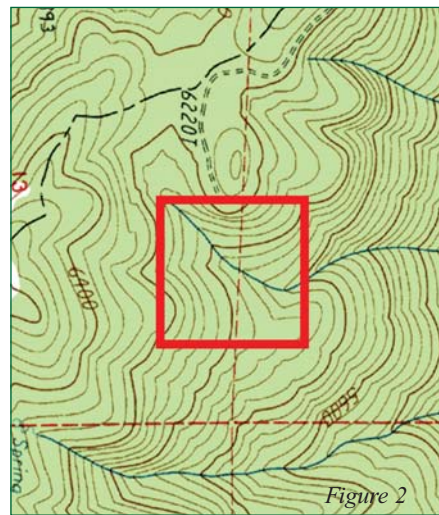
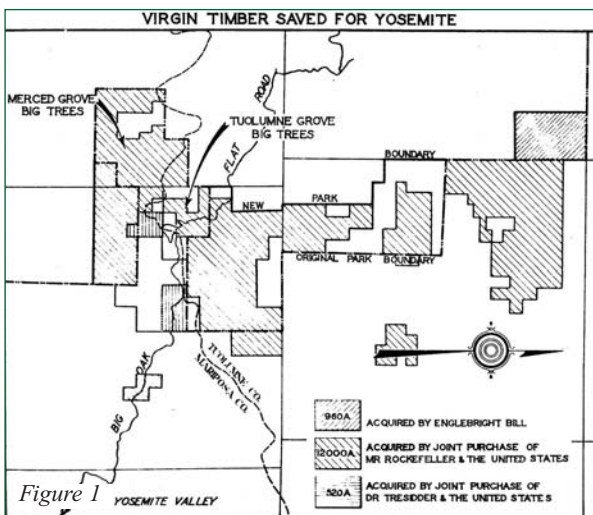


ing, timber companies were beginning to stir again, despite the lull in the economy. Signs of tentative plots for timber harvesting were starting to appear in relatively untouched, old growth forests through the western United States.

These events had not escaped notice from the new "environmentalists", which in some cases had the financial support from "old money". John D. Rockefeller, Jr. and the foundation that bears his name, through a cooperative agreement with the Federal Government, purchased approximately 3,000 acres near the western edge of

Early one morning in June 2009, a group of university researchers and land surveyors were standing at the end of a long dirt road – previously the roadbed of a railroad logging spur line – gazing upward at the expanse of forest that lay before them. Jim Lutz, PhD, a Research Associate at the College of Forest Resources at University of Washington (<http://faculty.washington.edu/jlutz/>), had been organizing the cooperative effort with California land surveyors months before. The task was to establish the Yosemite Forest Dynamics Plot (YFDP) in the middle of this

*Continued on next page*





old-growth stand of sugar pine and white fir ([http://faculty.washington.edu/jlutz/index\\_YFDP.htm](http://faculty.washington.edu/jlutz/index_YFDP.htm)).

One of only five large scale forest dynamics plots in North America, and one of only 35 in the world (<http://www.ctfs.si.edu/plots/>), our job was to survey a 25 hectare grid (500m x 500m) at 20 meter intervals to assist the researchers with identifying, mapping and tagging all woody stems greater than 1 cm in diameter at breast height. As land surveyors, we have generally been trained that a tree is not really a “tree” until it is a minimum of 3.5 inches in diameter at chest height. It was explained to us that while we were following the general forestry definition,

“tree” that was 1 cm or greater at chest height relative to the 20 meter grid. At about this time, we collectively noted that we had committed to the easier part of the project...or at least we thought so that first evening by the campfire.

The project area (Figure 2) was generally oriented in a cardinal direction, located in complex terrain, generally facing north, northeast and northwest somewhere in the middle of the Rockefeller Grove. It had an elevation change of approximately 100m to 150m across the project site, and included a number of steep natural drainage courses. The topography made the task moderately challenging, but the trees and the research requirements made it even more so.



Photo mosaic by: Karen Blake.

their research involved investigating more subtle forest dynamics. The researchers were interested in the recruitment and mortality of small trees, and also the competition between trees and shrubs. Furthermore, the researchers were investigating the rates of decay of standing dead trees, because these standing dead trees are important wildlife habitat.

After we completed the grid, the advance team of researchers would be joined by about 30 more volunteers to identify and measure each tree, as well as map each

The largest trees on the site exceeded six feet in diameter (Figure 3), and the logs on the ground were equally large. Furthermore, because small trees and shrubs were “data”, we could not “brush out” the lines. Instead, the intrepid undergraduates held shrubs out of the way so the line was clear (Figure 4).

Prior to arriving at the park, Jim Lutz, acting on the advice of Berk Blake, PLS, out of Buellton, CA, generated a coordinate file for all of us to upload to our data collectors so we were ready to begin the first morning. Jim Lutz



Figure 3



Figure 4

Figure 1  
Additions to Yosemite National Park including the Rockefeller purchase of 1930.  
Map: Courtesy of Yosemite National Park

Figure 2  
Location of the Yosemite Forest Dynamics Plot.  
Map: Scott DeLaMare

Figure 3  
John Knox, PLS surveying around an old-growth sugar pine.  
Photo by: Molly Barth.

Figure 4  
University of Washington undergraduate Jim Syvertsen holds back white fir foliage for a clear line.  
Photo by: Berk Blake

Continued on next page



## Establishing the Yosemite Forest Dynamics Plot



Figure 5

for the group of professionals and amateurs was well within the parameters the researchers need to examine spatial aspects of forest development. The two longest lines were about 700m each, with one being run by Berk Blake and the other by the UW researchers. All work closed within an accuracy of 18cm northing, 5cm easting, and 3cm vertical.

A stainless steel rod was driven into the ground at each grid intersection with a blue flag marking the location. At the park's request, permanent tags were applied to each rod and the blue flags removed at the end of the project.

The large number of trees surveyed will allow researchers to identify small changes in the rates and causes of mortality. For example, if drying conditions are increasing the mortality of larger trees, death rates should be higher in warmer, drier years. But since mortality rates are low to begin with (these trees live hundreds of years), it takes a lot of trees to separate out the real causes of forest change from the noise in the data. After four long days, the

had previously walked the site and chose an initial point and backsight for all of us to start our survey from.

We had nine days to collectively establish as much of the grid as possible before the “tree taggers” arrived to begin their tasks. Due to the daunting feeling that we would not be able to complete the entire grid before tree tagging began, and the fact that everyone’s onsite schedule varied, we decided to separate into four survey crews consisting of undergraduate and graduate research students and at least one land surveyor. For some of the volunteers, this would be their first time with hands-on experience using traditional survey equipment, especially in this environment. The more training that the land surveyors could instill during the first week, the better chance the university researchers had for continuing with the grid layout after we left the site.

One crew led by Berk Blake and Jon Bratt headed east through the middle of the grid. Rob McMillan teamed with Jim Lutz’s crew to proceed southerly along the west boundary to establish the southwest corner, and then east along the south boundary to intersect with Blake’s crew near the southeast corner. Two other crews, one lead by John Knox and the other by Marta Alvarez and Ric Moore, had the task of running several parallel grid lines from the west boundary easterly to intersect with Blake and Lutz.

The undergraduates learned their tasks well, with two individuals learning to run the gun and setup in under five minutes – not bad progress for a week of training (Figures 5 and 6). Overall accuracy

Continued on next page



Figure 6



Figure 7





Some of the many project participants:  
 (Standing) Charlie Wenger, Josh O'Neil, Karen Blake, Berk Blake, Jon Bratt (Kneeling) Student, Camila Tejo, Alana Lautensleger, Jim Lutz  
 Photo by: Rob McMillan

southerly portion of the grid was established and the researchers spent the remainder of their time extending the grid northerly with the assistance of a couple remaining land surveyors.

By the end of the three-week stint, we were just shy of 20 hectares of surveyed grid points, and the tree taggers (Figure 7) had tagged and mapped 10.24 hectares – more than 10,000 trees. Including surveyors, students, and scientists, over 50 people participated in the 2009 “research pulse. There’s still part of the plot to finish next year, and we are already looking forward to wrapping up the job. ❖

Land Surveyors involved in the Yosemite Forest Dynamics Plot project were: Marta Alvarez, Berk Blake, Karen Blake, Jon Bratt, John Knox, Rob McMillan, Ric Moore, and Greg Rice. Special thanks to Ric Moore for sharing this very cool story with the California Surveyor. – Editor

Figure 5  
 University of Washington undergraduate Alana Lautensleger shows her enthusiasm for surveying. Note tied tree branches in the background.  
 Photo by: Jim Lutz.

Figure 6  
 Alina Cansler operating the Nikon Total Station.  
 Photo by: Ric Moore

Figure 7  
 University of Washington graduate student Keala Hagmann tags a tree.  
 Photo by: Jim Lutz.



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By: Robert M. McMillan, PLS

**Rob McMillan** is Chief of Survey Standards, Division of Right of Way and Land Surveys, California Department of Transportation. He is also Chapter Representative for the CLSA Sacramento Chapter.

## Chapter Feeds Future Land Surveyors

The Sacramento Chapter voted at the April meeting to provide lunches to National (NCEES) Land Surveyor and LSIT exam candidates at the Cal Expo location this April. We discussed options at the meeting, and followed up with Executive Committee discussions and the decision to provide Subway sandwiches, drinks, and chips. Chapter Secretary Annette Lockhart and I purchased the drinks and chips from Costco, and then found the Subway location most convenient to Cal Expo at 37th & J Street. Treasurer Nick Labeledzki met us there on Thursday night to order and pay for the sandwiches.

I posted notices on the CLSA Forum, but in case the message didn't get out, I went to Cal Expo early Friday morning and met with BPELS staff and proctors to ask permission to address the Land Surveyor candidates. Staff and proctors were supportive of our gesture, so I stepped into the exam room and got everyone's attention. I announced that the Sacramento Chapter of CLSA would provide a free lunch to all LS candidates Friday, and LSITs Saturday. I explained that the candidates had enough to worry about without having to rush out to their cars, fight their way out of the parking lot, find a place to eat, stand in line behind 50 engineers, choke down a burger, fight their way back to a parking spot and rush back to the exam room. I concluded with encouragement to "kick some butt on the exam." They were most appreciative of the effort by the Chapter.

While the candidates were toiling away, I strung up the new Sacramento CLSA banner between the trees in the grassy median outside the main entrance to Cal Expo, and set out some camp chairs. Bill Jackson arrived shortly after with a folding table and coolers full of iced-down drinks. Annette arrived about 11:10 am with the sandwiches and chips. Chapter Representative Bill Telling joined the group and we welcomed candidates to the complementary lunch. State specific exam candidate and LSAW member Brian Gillooly from the Seattle area joined the group, met other candidates, and helped clean up at the end of the lunch.

Saturday Annette Lockhart and Bill Jackson participated again, and Don Ivy assisted also. Things didn't go quite as smoothly Saturday, because not all the LSIT candidates got the message we were providing lunch for them, but many attended, as well as many State specific LS candidates. The few leftovers each day were donated to local charity Loaves and Fishes.

All in all, I think it was a success. We put this together at the last minute, and had reasonable success. At least we proved we could do it, even with a small crew, and the participating candidates really appreciated it. It was certainly the only lunch provided by any professional association. What do you think? Should CLSA sponsor lunch for candidates at every LS/LSIT exam site? What other options should we consider?

### Sacramento City College Welcomes High School Students

Sacramento CLSA Chapter members Ed Zimmerman, John Adam, Jill Van Houten, and Rob McMillan welcomed high school students from around the area to the Sacramento City College (SCC) main campus Saturday, April 25th, as part of SCC's High School Open House. These Land Surveyors had total stations, data collectors, a GPS system, and a level for prospective students to experiment with. We discussed the educational opportunities available to young people interested in the profession, and the involvement of CLSA in scholarships and program support. ❖



Photograph by Brian Gillooly



## GPS



## Imaging



## Robotics



## Network

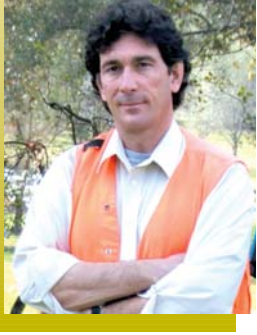


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# The State of Surveying Today

A conversation with five surveyors who are making a difference.

*The California Surveyor (CS) was there to get the scoop.*

**D**uring the CLSA Conference 2008 in San Diego, five active and prominent surveyors got together for a roundtable discussion about the state of surveying today. They were (in alphabetical order):

**Carl C.de Baca**, National Society of Professional Surveyors (NSPS) Area 9 Director (Area 9 consists of: California, Nevada, Hawaii, and Guam), former member CLSA Board of Directors, and past editor of the California Surveyor magazine.

**Ray Mathe**, chairman of the Western Federation of Professional Land Surveyors (WFPLS), and a CLSA past-president.

**John Matonich**, president of NSPS and chairman of the American Congress on Surveying and Mapping (ACSM) Joint Government Affairs Committee.

**Pat Tami**, president of the California Board of Professional Engineers and Land Surveyors, vice-president of the National Council of Engineering Examiners (NCEES), and a CLSA past-president.

**Matt Vernon**, CLSA president, California governor for NSPS, and chair of the NSPS Western States governors Council (WSGC).



Carl C.de Baca



Ray Mathe



John Matonich



Pat Tami



Matt Vernon

## Recruitment

**CS:** “Matt why don’t you start us off. As CLSA president, what do you think surveyors should be thinking about these days?”

**Vernon:** “One of the pressing issues for our state and profession is outreach, and public awareness in particular. One new approach CLSA is working on is that we are drafting informative presentations that our members can bring to public organizations, similar to what Realtors and architects are already doing. Surveyors could use these materials to present to professional groups, engineering associations and the like, to explain who we are and what we do. We’d like to see our members disseminating information into their communities, and generally being more visible to the public. I think that would be one of the best forms of promotion of our profession”

**CS:** “That sounds great. What else can we do?”

**Vernon:** “CLSA is also researching the idea of a marketing campaign by radio. At the same time we are in the process of developing a message; what is it that our members want the public to know about us? We’re also investigating the possibility of using public service dollars, among other things, to fund the effort and we’re opti-

mistic we can make this happen. Other professions have had good success starting with radio and then moving on to television.”

**CS:** “Are you thinking commercial radio, public radio, both?”

**Vernon:** “I think it’s a no brainer to go public radio, because again, we hope to take advantage of public service dollars, and we may qualify for free air time too. Public radio would be the biggest bang for our buck and a good place to start.

**C.de Baca:** “John, what’s that program the public television people approached ACSM about? The one that Curt Sumner (ACSM executive Director) told us about? The ‘Spotlight On...’ series? For about twenty thousand dollars we end up with a fifteen to twenty minute television slot, highlighting the profession. When we are done we own it, and PBS guarantees to air it something like five hundred times.”

**Matonich:** “That’s right. It’s done through a local PBS station near headquarters, but then it is picked up by a number of stations across the country. We’re also talking to NSPS about contributing towards it, since it would be a great way to introduce and promote our profession to the public.”

*Continued on next page*



**C.de Baca:** "And it seems to me that a collaborative effort makes the most sense."

**CS:** "When you say collaborative, are you talking about CLSA and NSPS?"

**C.de Baca:** "That's one option, but if NSPS can't deliver for whatever reason, then maybe a combined effort of some of the better-funded states, like New York, Texas, and California, not unlike the 'Choose Your Path, Make Your Mark' effort that CLSA took the lead on, and now virtually all the states and the NSPS have bought into."

### Role of Professional Societies

**Mathe:** "So Carl, that brings me to one of the reasons we are meeting here. Right now in California we have, with people that are in this room, a unique opportunity to educate California surveyors, and perhaps make some important advances. CLSA can really capitalize on relationships of these organizations: the NSPS and the Area Nine Director, the governors, West Fed, and NCEES. This is a good time to really see things from the inside out, and communicate to our organizations what the differences are, what the similarities are, and what the opportunities are for leveraging resources. It's our responsibility to see that our members understand the benefit these organizations bring to the 50,000 surveyors in the U.S."

### TrigStar

**Matonich:** "That's true. But we don't always do a good job of reporting back, of going back to our members and saying 'This is what we did and this is how it benefits the profession'. And even when we do, it's not always easy to measure success. If you could get a testimonial at some point down the line where some young student in a surveying curriculum says 'I am here because I watched that video', that is absolutely the greatest. Those aren't easy to come by, but we have had those types of testimonials with TrigStar, for example. We have a number of surveyors across the country who will tell you their involvement in the profession is directly related to TrigStar, and that is a good thing."

**Mathe:** Some people say that recruits don't come to surveying through TrigStar, but they do. It's not always the top winners, necessarily, but many other students get exposed to surveying through the process. And the teachers learn about our profession and in turn pass that along to the kids.

**C.de Baca:** "I find promoting and exploiting TrigStar is kind of an interesting challenge to somebody who doesn't realize what NSPS is all about. Because it is so successful in some places, California probably being the best example, people think of it as a state run program. Many do not realize that its origins were elsewhere, and that it is nationally administered."

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# The State of Surveying Today

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## Certified Survey Technician Program

**C.de Baca:** “I think the next thing down the pipe from NSPS that it’s hoping to achieve that level of success is the CST (Certified Survey Technician) program. It has a couple issues with not having study materials available yet, but more and more people are getting onto it. I was asked to proctor a test this spring. I had seven mining surveyors who decided to use the certification as a metric on their learning achievements. Now, Newmont Mining Corporation has embraced it as part of their company policy, and they are going to promote surveyors within their ranks through the CST program.”

## Bachelors Degree Requirement

**CS:** “Pat, there is talk coming from some circles about a 4-year degree requirement for surveyors. What does NCEES have to say about it?”

**Tami:** “The national model for NCEES is a 4-year degree for the surveyor, and even now the exam is geared toward the material covered in a survey program at a 4-year college or university. That includes: computers, chemistry, physics, and higher math; you will see more and more things like that on the exam as it continues to go that direction. California candidates may start failing at a higher rate if we continue on without a 4-year degree requirement.”

**Mathe:** “Actually, our California candidates score better on the national exam than they do the state specific exam, so pitching the 4-year degree from that angle may be hard.”

**Tami:** “Maybe, but California already resembles the NCEES model law definition of what land surveying is. In California, regulated activities include construction staking and topographic mapping. California also allow engineers, as we call them ‘post-’82 engineers’, to do engineering surveying.”

**Mathe:** “In the past, a practicing civil engineer had substantial knowledge and understanding of surveying. But that’s changing because graduate civil engineers today may have had zero surveying classes in college. Civils are choosing other electives. That’s going to draw distinct silos for surveying and for engineering.”

**Matonich:** “And that’s ok because the graduate surveyors aren’t civil engineers either. They’re graduate surveyors, so drawing that distinction between the two professions, I think in the long term, is going to help us. It will help us attract people because it will be a distinct profession. It won’t be some throw-off of some other profession.”

**Vernon:** “And it may actually raise the bar as opposed to, you know, the technician...”

**Matonich:** “Education is going to do that. I guarantee you, education will do that. Michigan has had the 4-year degree requirement for over 30 years. In 1981 I received one of the first bachelors degrees in surveying that Michigan Tech offered. It took time for things to change, but today in Michigan graduate surveyors earn as much as or more than graduate engineers..”

**C. de Baca:** “During my stint in Sacramento, my office recruited surveyors at every bit as high a salary as graduate civil engineers. But even with that, in the outreach that I do in several local schools,

I find that the best way to peak a student’s interest in the profession is by demonstrating the wide variety of things that surveyors can do, rather than focus on salary. We have such a broad spectrum of things that we do.”

## Changes in Examination Administration

**Tami:** “California is going to start using the national group for exam administration and that is going to be more spread out. We are not just going to have the six exam sites here in California. We are going to have many, many more, which will make it easier for people to find exam sites. Applicants are going to have to log-on through NCEES to get a unique ID. Everyone that has taken the exam (it is not limited to the United States) will be issued a candidate ID number. This will probably start in 2010. So if you haven’t taken your exam, I recommend you take it now before you have to go through this extra hoop. The exam is more than just a national exam, even though it’s administered by the NCEES. It’s in Egypt, it’s in a Korea, it’s in Japan, and we are looking at other places like China and the east, to hold the exam. “

## Continuing Education

**Tami:** “You know I really think that you guys ought to find a way to get continuing education in California. It is the norm for many other states, and it is also the norm for other professions in California. Looking at how others pushed through the continuing education requirements could help surveyors do the same, if that’s still CLSA’s goal.”

**Mathe:** “The problem is that the legislature perceives continuing education as a way for an organization to pad it’s pocket with money.”

**Vernon:** “Which makes it hard for CLSA to pound the table and say we want continuing education. That’s like my going to my congressman and saying I want stimulus dollars for my firm, you know, it’s self serving.”

**Tami:** “But if you go to the legislators, who care about votes, and show them the benefit to the public...”

**Mathe:** “Here’s a different thought too Pat, since you’re on the Board. When the next occupation analysis questionnaire goes out, it could inquire ‘how much time do you spend with profession development or continuing education?’ Because that is part of professional practice too.”

**Tami:** “I think in our enforcement unit we could start gathering that data too. That way we could go to the legislature and say: ‘Here’s how much continuing education the average professional participates in, and here’s what the violators have. I like that, thank you, Ray.”

**Matonich:** “And I think a way to handle the issue of padding CLSA’s pocket is try to find another profession in your state that has it and pattern it after, go with a similar type program.”

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# The State of Surveying Today

*Continued from previous page*

**Matonich:** “It’s harder for the state legislator to turn that away when they have already approved it for some other profession. So it makes it a lot more difficult for them to ignore that.”

**CS:** “What a great idea! Has anybody actually sat down and studied that?”

**Mathe:** “I think CLSA has done very little. I think mostly we’ve looked at the other states.”

**C.de Baca:** “In California surveyors and engineers are kind of joined at the hip. I mean, if we go out and strongly promote that we want continuing education for our group, isn’t CELSOC or ACEC California going to say ‘well wait, hold on a minute, we’re not sure we are ready to embrace that for engineers,’ and seeing as how there are more of them than us, do we stand a chance to overcome that?”

**Tami:** “Carl, I think that is a great point.”

**C.de Baca:** “I think we have to help them see the light, you know. They are already facing something similar with their potential master’s degree requirement. It’s an issue that’s not going away.”

## National Surveying Museum

**Tami:** “Also of interest to the survey community is the fact that NCEES is in the process of donating \$75,000 to the National Surveying Museum in Springfield, IL. I am leading a committee that is deciding how to use the money. The museum is right around the corner from the Abraham Lincoln museum. NOAA has a great model of the earth nearby too, where they do some video projections. Springfield spends a lot of money each year on tourism, and this location is just great because there are lots of attractions. The museum opened in February and you can Google National Museum of Surveying and check it out.”

**Vernon:** “A big thing for California regarding the National Museum, to be quite frank, was that when it was in Michigan it was always ‘we need money for this, we need money for that...’ so we kind of we took a back seat on this latest move to see how it would pan out. There needs to be some other accountability.”

**Matonich:** “Well I think your point has been made. Most of the things that were in the Michigan museum have already gone to the National Museum, or are on their way, and the foundation has already put together a plan to permanently loan the equipment. Also, Bob Church is now the leader, and Bob will do a good job. He is a very dedicated individual. We had a huge controversy in Michigan over whether the museum should move, but there was no way that it was ever going to be successful in Lansing, Michigan. It just wasn’t going to happen. It needed to be in Springfield, IL or Chicago, or Washington DC. It’s got to be someplace that gets visited to be a true national museum. You know I saw the numbers, and it’s phenomenal how many visitors go through the Lincoln law office, it’s millions of people that go through that every year. All you would need to do is 20% of that or 40% of that and you’ve got some pretty darn good groups of people going through your museum, which again is a really great tool to promote the profession.”

## Our Ranks Declining

**C.de Baca:** “I have a concern regarding the hard economic times. I think people are going to be making choices to belong to an organization based on their pocket book more now than they did in the past. And we’re going to need to recognize that, and obviously combat it as much as possible, but I think we are going to need to do some belt tightening and prepare for some rocky times over the next couple of years. In Texas, for example, there are more surveyors over the age of 60 than there are under the age of 30. And so when you combine that statistic with our economic times, I think it says that when times eventually get better there may be fewer of us left to enjoy it. Surveyors are retiring and we are not bringing youngsters up to replace them. Of course that goes back to what we talked about earlier with outreach but I think, we’re looking at an overall decreasing, diminishing group of individuals in the profession, and the subset of people that belong to organizations like ours will also be diminishing. That needs to be something we recognize and start taking actions to stop.”

**Tami:** “In terms of attracting people into the profession, I think we need to take a look at the definition of surveying. A lot of surveyors say our primary role is to survey boundaries. Today we can survey boundaries more efficiently than we could twenty years ago. You don’t need as many people to survey boundaries...or anything else. If surveyors want to broaden their horizons and utilize their professional skills, and increase their ranks, they need to take an interest in more than just boundaries. GIS, machine guidance, and many other non-traditional fields require our skills. In that context there will be a need for more surveyors.”

**C.de Baca:** “I agree, and part of that, which you touched on, is this machine guidance thing. You know, I see the machine guidance situation, issue, whatever term you want to use, as an opportunity for surveyors, every bit as much as it is a problem for surveyors. Rather than stomp our feet and cry that other people are doing work that should be ours, I think we just need to assert that we ought to be doing it from a knowledge and liability standpoint. And so, from what I’ve seen and surveyors I’ve talked to, unless there are a lot of contractors using machine guidance in your neck of the woods, you very well may not know what it’s all about. And, if you don’t know what it’s about then you don’t care what it’s about, and that’s what I’ve seen - a lot of surveyors don’t really know and don’t care.”

## Standards and Contracts

**Tami:** “I just had to bid on a project that was using AIA (American Institute of Architects) requirements for surveys and it required shots accurate to 0.01’ and I thought ‘That’s some serious topo! Am I going to have to get out my level for this?’ So I asked the architect if that’s really what he wanted and he said ‘No, I just need regular surveying.’ ‘That’s not what you’re requiring here,’ I told him, ‘and if I’m signing your contract, that’s what I’ve got to do.’ Is there a chance that NSPS or ACSM might get involved and help the architects prepare an ALTA type agreement?”

*Continued on next page*

**Vernon:** “As a matter of fact I have been looking into that very issue with AIA contracts, and I was planning on bringing it up at the next fall meeting of the NSPS Western States governors council. I am hopeful that this could move forward and we can make some improvements, and John you can weigh in on this, because I think they are the people that would be appropriate to negotiate that issue with the AIA, or whatever organization...”

**Matonich:** “We just went through a review in which Gary Kent was the panel chair for NSPS. I don’t think it was the AIA, though, I think it might have been NSPE, but it was a similar contract issue. Gary Kent spent a lot of time working with them to develop better language and deal with the issues. I think those kinds of relationships are very important. As we move forward, NSPS needs to take the lead in these things. Approaching AIA is not a difficult thing.”

**Vernon:** “Another aspect is that there are lots of people using the ALTA standards for inappropriate uses for lack of anything else to rely upon. So the architects have been trying to make that into a document to fit their needs, and are paying for services that weren’t necessary, or had no effect in what they truly were trying to accomplish.”

**Matonich:** “That’s a good point and you hear those stories in every state when you talk about ALTA, there’s always a story about someone calling in and ordering an ALTA survey, because they heard about it in a seminar. Then they hear the price, and decide they need something else.”

## GIS

**Mathe:** “Something that came up at the ACSM conference in Salt Lake City this year was a discussion about proposed ACSM standards for GIS information. Whether for jurisdictional boundaries, environmental boundaries, fixed works, fire hydrants, and so forth, there is interest in creating standards for their representation in GIS.”

**Matonich:** “GIS itself is an issue we as surveyors need to address nationally. GIS people generally have no understanding of what we do, none whatsoever. Unfortunately, surveyors across the board made a mistake in not taking a greater interest in GIS. Now you hear complaints that someone took GIS away from us, and that’s not true. We have a role to play in GIS. We just need to assert ourselves into that role, and it is not an adversarial thing, it’s an educational thing. For example, we can educate the GIS community that a given level of information requires a certain foundation.”

**Mathe:** “Educating surveyors is just as important. It doesn’t have to be a boundary survey every time you do inventory for GIS. GIS standards could help educate surveyors, which would in turn help surveyors better interact with those wanting the information. These standards would reflect the levels of accuracy and precision required for the application at hand.”

**Matonich:** “I’ve got clients in northern Michigan that scan their USGS maps, that’s the foundation for their GIS because they don’t use it for much other than keeping track of addresses. They’re not designing from it or doing inventory.”

**Tami:** “Exactly. And how accurately do you need an address located?”

**Vernon:** “Depends on what you’re using it for. If you’re responding to an emergency distress call, you want it pretty darn accurate.”

**Mathe:** “But that is part of communicating accuracy, so that the data the surveyor collects is commensurate with the data the client needs.”

## Smaller Crews Coming

**Matonich:** “I want to go back to something Carl said about the diminishing population of surveyors. I started my career with the same firm that I run today. Our projects back in ’81, were approximately 65% in the field and 35% in the office. Today it’s the opposite; today it’s 35% of the time in the field and 65% of the time in the office because the technology of the field work has greatly diminished the need to be in the field. Field work that would take us months to complete now takes weeks, and eventually it is going to be days. Mobile scanning is a perfect example. Mapping is a big part of my business and I’ve got about 12 crews busy with DOT work. Those 12 crews are going to be three crews in 10 years because digital scanners will be mounted on our trucks. We’re just going to go right down the road, scan it without getting out of the truck, and be done with it. That’s what I see happening to the profession as a whole; I see the need for field people greatly diminished.”

## PLS, LLS, RLS, S&M and PMS

**Matonich:** “Another thing is, and this really grinds me, we don’t know what to call ourselves. It irritates me to go from state to state and have somebody say, well, you’re a PS in this state, and a PLS in that state and an LS over here and an RLS over here, and, whatever, engineers don’t have that problem. For the most part they are PE’s, they are listed as PE’s period. Where it’s John Smith, PE, you might be electrical, mechanical, whatever, but their title is ‘PE’. And you may say well, what’s the big difference? I say if I were a member of the public, and I didn’t know anything about surveying, I would look at Carl and myself and I would say ‘What is wrong with, you guys? Why are you different? Carl’s got one title and I’ve got another one. Hell, I’ve got three of them; Michigan’s changed three times! I would love to have us come up, nationally, and say ‘Damn it, we’re just going to be this’. And whatever it is, it is. Let’s follow the engineering example.”

**C.de Baca:** “Remember when we went from “registered” to “licensed” land surveyors, maybe 15 or years ago? An old, Sacramento area surveyor used to say ‘now we are licensed like dogs, rather than registered like felons.’”

**Matonich:** “In Florida they are called the S&M’s, because they are surveyors and mappers. Some people in Michigan wanted to follow their example, so I suggested we should be professional mappers and surveyors, that way our title would be PMS.”

(laughter all around)

**CS:** “Thank you, gentlemen. That should do it.” ❖







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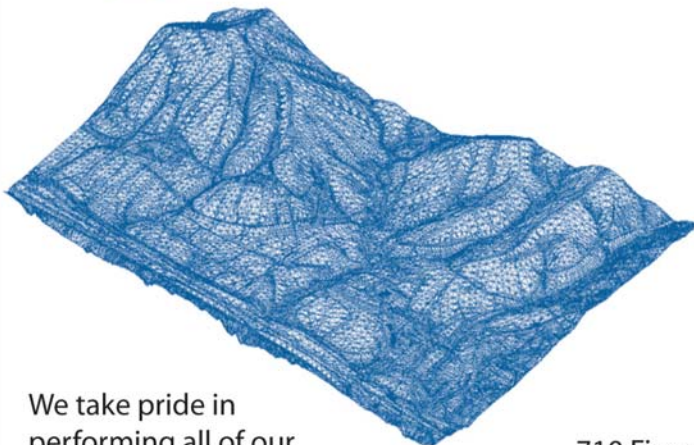
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# Web Wanderings!

By: Levi Cox, PLS

## More Data, More Transparency, More Connected?

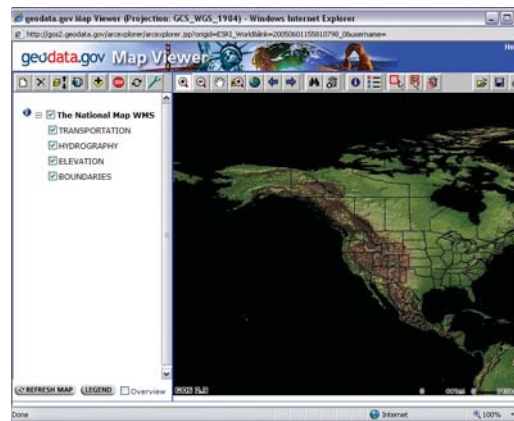
The beginning of the American Revolution was marked when British armies began their advance to Lexington on the morning of April 19, 1775. To the surprise of the British army, they were met by a well prepared Colonial Militia and promptly defeated. This victory was the result of a Colonial Militia that had been alerted to the British plans. The informant, Paul Revere, was able to communicate his message via the famous midnight ride along the countryside. What is interesting about that evening is that there were two riders that set out to alert the countryside. Between those two riders, it was only Paul Revere who performed his task successfully. As noted by the author, Malcolm Gladwell in his book entitled "The Tipping Point", Paul Revere was successful because he was informed and socially connected. In other words, Paul Revere had all of the data and he knew exactly the right people to communicate the data to.

The circumstances that initiated this chain of events began on the afternoon of April 18, 1775, when a stable-boy overheard British soldiers discussing their plans of attack. The information was then carried by the stable-boy to Paul Revere, who in turn notified the Militia. This is how communication and data were commonly conveyed during this era. In 1775, there were no telephones to communicate and data were only available to those who made special efforts to be informed. The method of conveyance, the reliability, and the ability to receive data depended on a personal initiative to protect and deliver data.

The ability to reliably send and receive data today is seamless. Data is much more available and accessible. With all of these advances, how much has really changed since 1775? The abundance of data available today poses the questions: is it easier to access specific data we need when we need it? When we find data, do we necessarily know how to implement it or who the right person is to deliver it to? The technological improvements in communication and the ability to access surplus amounts of data, have not alleviated the difficulty to precisely obtain and distribute our data. There is no replacement for the skills of Paul Revere. The challenge today

remains the same, knowing where to get the data and who to give the data to.

The amount of data that we have to contend with will only increase. In an article entitled "And Data for All", in the July 2009 issue of Wired Magazine, we are introduced to the "US government's first ever Chief Information Officer", Vivek Kundra. In Kundra's interview with Wired Magazine, he explains that his task is to make the data that is currently hidden amongst the 24,000 federal government websites more easily accessible to the public. His goal is to make government data, of all sorts, more transparent to the average Internet user.



The new government website is www.data.gov. At the heart of this website is a search engine that will query a majority of online government websites simultaneously. What this website is doing is not making more data available, it is just making it easier to get to. Simply query the word 'energy' and through a couple of links you can learn that the 111.1 million US households spent a total of 201.7 billion dollars for energy in 2005. Further detailed, those households spent 25.26 billion dollars for energy to run their air conditioners in 2005. Search 'law enforcement' and you can quickly find that in 2007 there were 'an estimated 2,179,140 burglaries in the US — a decrease of 0.2 percent when compared with 2006 data'. Select the 'Tool Catalog' tab and search 'imagery', and you will be taken to the USGS tool 'Geo-Spatial One-Stop' that accesses a worldwide database of satellite imagery.

The idea behind www.data.gov is that once obscure government data becomes more easily accessible, innovation will occur around that data. This is what modern Internet search engines have done for Internet data, and this is what Vivek Kundra is endeavoring to do with government data. What the data can and will be used for when it becomes easily accessible is the darker side of transparency.

Continued on page 30





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# Web Wanderings!

## More Data, More Transparency, More Connected?


Social Networking websites are a set of tools that are making our personal data more accessible. By fostering social connections, these websites help people know who to share their data with. Social Networking sites are being used to establish and maintain connections, which are based on very specific personal or professional interests. Social Networking has quickly evolved from a teenage chat room, to a robust center for procuring business relationships. Ultimately, the data maintained by Social Networking websites will be harnessed in conjunction with Internet search engines. Allowing an intelligent search engine to know pre-established personal user tendencies, such as likes and dislikes, makes the search results more unique to the user while also suggesting connections to users with similar preferences. This combination automates the identification of social connections.

From the trial runs that Social Networking website Facebook has attempted in recent months, the average Internet user is not yet comfortable with this kind of personal disclosure. To date, users have boycotted Social Networking sites that have tried to harvest their personal information for intelligent search or targeted advertising. However, these companies, such as Facebook, will continue to test boundaries and refine methods to reach this Holy Grail of Internet search.

Among the websites that exist, there are companies that cater specifically to professionals by broadening business connections. These websites are swiftly developing into forums to match companies and qualified professionals. The use of these websites can help a person find another person based on specific occupation or experience. Upon examining such websites, you may be surprised at the number of people that you know who are using these services. Some of the popular services to look at for professional use are LinkedIn and Plaxo. Each industry seems to have its preference to which service it prefers.

Social Networking websites and Internet data will most likely never take the place of relationships established by social interaction and the intricate knowledge accumulated over years of experience. If we are interested in becoming more like Paul Revere, technology has made it easier to meet people in a virtual community, maintain relationships and gather data. Personal initiative to make the most of these modern tools is still required. All of which is much more convenient than waking up at midnight and riding a horse along the countryside. ❖

*For questions or comments, send an email to [lcox@rbf.com](mailto:lcox@rbf.com).*




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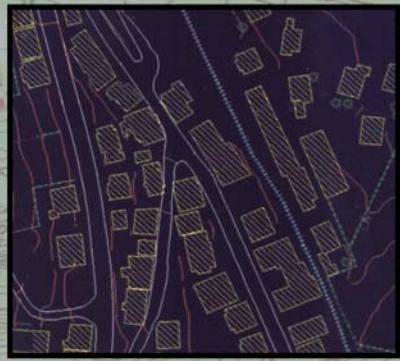
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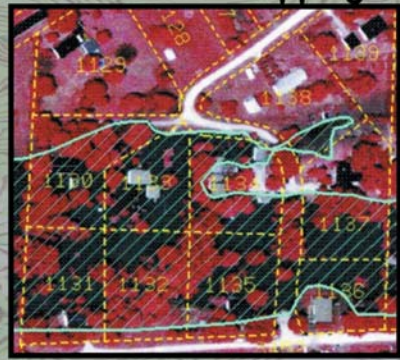
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All articles submitted will be reviewed by the editor. We may accept your article outright, accept it for a staff rewrite, or accept it contingent on your revision. Your writing style is your own, and we make every attempt to preserve it as we prepare your article for publication. But we will try to make the copy as substantive and clear as possible. If your article is substantially revised, we will email you the edited version, and you will have approximately one week to review it and make any additional changes.

## ARTICLE SUBMISSION

Generally, articles should be between 500 and 4,800 words. Articles must be submitted digitally. Pictures must be sent as individual files at least 300 dpi. Please include a head-and-shoulders photo and a brief bio of author. **Articles cannot promote a product, service, or company.**

Email articles to:  
[clsa@californiasurveyors.org](mailto:clsa@californiasurveyors.org)  
Questions?  
(707) 578-6016

Or, mail CD to:  
California Surveyor  
PO Box 9098  
Santa Rosa, CA 95405

## TOPIC IDEAS

### Project Narratives

Personal accounts of interesting land surveying/geomatics projects including the people, equipment and field procedures involved, together with tips for success that may benefit other surveyors.

### CLSA

Reports from committees and local chapters regarding Trigstar and the Boy Scout Merit Badge, joint activities with ACSM and NSPS, and service work (such as baselines and PLS examination review classes).

### Education

Reports from land surveying/geomatics curriculums in California including school location, program administrator, classes and degrees offered, status of enrollment, and job placement of graduates.

### Boundary Resolution and Mapping

Research opportunities available at public agencies, certifications and ALTA surveys, gaps and overlaps, easements, using survey narratives and notes on record maps, and applying PLSS methods.

### GPS and Geodetic Surveying

Using emerging technologies, fundamentals of datums for practical applications, defining geoids and ellipsoids, finding geodetic data on the web, interpreting published data sheets, and project planning.

### GIS

The surveyor's roles and responsibilities regarding GIS, the acquisition, use and dissemination of geographic information, and opportunities for networking with the GIS community.

### Photogrammetry and Remote Sensing

Principles, practical applications and limitations, descriptions of equipment and procedures, evaluating data quality, finding sources for existing coverage, and graphic examples of mapping products.

### Business Management

Strategies for diversifying a private practice, identifying nontraditional opportunities, suggestions for crafting contract language that satisfies clients, minimizes surprises, and limits liability.

## Article Submission Deadlines:

February 1st ♦ May 1st  
August 1st ♦ November 1st





By: Carl C. de Baca, PLS

*Carl C. de Baca is the National Society of Professional Surveyors (NSPS) Area 9 Governor, and a past editor of the California Surveyor.*

# Lobby Day 2008

On September 25, 2008 a cadre of enthusiastic surveyors embarked from the Arlington Hilton on a trip to Capitol Hill in an effort to inform our representatives and senators about issues of concern to our profession, and to ask for their help and support in related legislation. Yes, that's right, it was Lobby Day - one of the most important days of the year for the National Association of Professional Surveyors!

The group met in the lobby of the Hilton at 7:30 a.m., which when converted to western time, is uh, pretty early. We milled around for a brief time, walked out the door and down the escalator into the subway, and rode the 'Orange' Metro for 45 minutes, ultimately popping up at a station across the street from the representative side of the Capitol. There was one last brief strategy meeting in the basement cafeteria of the Longworth building, and then we took off in teams of two or three to our various appointments.

With a few exceptions, all the meetings were by appointment, made either by the individual surveyors, or by the NSPS. At a meeting the night before, individuals were assigned to the appointments, and the talking points of the issues that would be presented were discussed. This year there were four primary issues:

1. Legislation and (hopefully) finding money to assist in preserving railroad monumentation before it disappears.
2. Assistance in getting wording added to H.R.3634 – the STEP act, which will provide for loan assistance and forgiveness for students in engineering, mathematics, and related programs. We would like to see Surveying specifically mentioned.
3. Money for the National Oceanic and Atmospheric Administration's budget to be used in National Geodetic Survey Height Modernization efforts nationwide.
4. Money for the Department of Interior to be used for cadastral survey modernization nationwide.

Now it must be pointed out that the date of this operation was determined months in advance and the particular appointments were mostly made weeks before. We had no way of foretelling that our efforts would coincide with protracted and painful (but historic - in a grotesque way) debate in the halls of congress as they sought agreement on a 730 billion dollar bailout bill to stave off potential collapse of our entire economic system. Ho hum - just another day at the (Congressional) office. It was against this backdrop that we found ourselves making our relatively meager but nonetheless important presentations. I must say that at that point one would probably be wise to lower his or her expectations. With only one or two exceptions, our teams met with aides and staffers, since as previously mentioned, most members of Congress were otherwise engaged. In fact, most offices had their televisions tuned to the live acrimony and we caught the staffers stealing a peek every so often.

My personal journey began with a 9:30 a.m. meeting at the office of U.S. Representative Dean Heller, (R) of Nevada. Since this was my first time meeting with such power brokers, I was pretty nervous. The aide met us very punctually, was surprisingly interested in our discussion, and asked intuitive questions. My senior partner for this and most of my other appointments- Rita Lumos, immediate past president of NSPS, laid out the issues and encouraged me to contribute to the conversation and my jitters were over by the time this fifteen minute discussion was done. Heller's aide was very young - early twenties by his look and when we left, Rita noted that based on prior visits to the capitol, it seemed that this country was run by twenty year olds. As I look back on this day now, I definitely agree. Of the five offices I visited, only Harry Reid's office provided a thirty-something for discussion.

As noted above, I ended up having five such appointments, each one easier than the last. Through the course of the day, I met with aides to Senators John Ensign (R) Nevada, Ted Stevens (R) Alaska, John McCain (R) Arizona, and Harry Reid (D), Nevada, all of whom provided intelligent and attentive aides and assistants to meet with us. During a trip from one building to the next and from one office to the next, I ran, almost literally, into Senator Diane Feinstein in the basement of the Hart building. Imagine explaining that to the capitol police! Later, I looked down into the foyer of the Hart Building from a bridge on the 4th floor and spied (then) Senator Obama and his impressive contingent of bodyguards as he strode confidently from a meeting to a waiting car, flash bulbs going off everywhere. You should have seen the ecstatic response of the yellow-clad security personnel (all females) as he exited the building. And, getting to Senator McCain's office involved wading through dozens of media types and photographers waiting in the hall for some event of significance. We were not it.

At the end of the day we met at a Capitol establishment, Bullfeathers, and compared notes. President-elect and chair of the Joint Government Affairs Committee John Matonich announced that this was our best-attended Lobby Day ever and also that earlier in the day Congress had finally passed National Surveyor's Week! During the first official National Surveyors Week which will be the third week in March, 2009 the NSPS will be taking out an advertisement in the daily paper, Roll Call, to thank the 51 congressional sponsors who made this a reality. Lobby Day and the other things that the Joint Government Affairs Committee works on, are some of the most important functions of the NSPS, and the work this committee does benefits all surveyors, whether NSPS members or not. As always, I encourage all surveyors to join this organization and recruit your peers, associates and friends to join. I encourage you to explore the work that NSPS committees do and contribute your time and your opinions to the ones that interest you. And please come and join us in Lobby Day 2009. It is fun, informative, and offers a great insight into how our government works. ♦

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The CLSA Education Foundation was incorporated as a nonprofit public benefit corporation in August of 1994 with the expressed intent to:

- Provide scholarship aid for students
- Provide financial support to educational institutions or in the furtherance of educational purposes
- Undertake education studies and to publish the results thereof

By far the biggest success the Education Foundation has accomplished to date is the scholarship program. By partnering with CLSA and a majority of the 22 Chapters to raise funds for scholarships, the program has grown to the point that in 2008, 43 scholarships were awarded for a total of \$42,000. If it were not for the work of the many Chapters, CLSA and those who participate in CLSA Education Foundation fundraisers, this huge outreach and support of students of Land Surveying would not be possible.

**There are many ways to support the scholarship program. You can:**

- Work with a Chapter to produce a fundraiser such as a golf tournament or LS exam preparation course
- Attend a Chapter fundraiser
- Participate in an Education Foundation fundraiser such as the live and silent auctions at the annual CLSA conference
- Donate items to be auctioned off at the conference
- Donate directly to the CLSA Education Foundation

In order to provide recognition to people who donate directly to the Education Foundation, a membership program has been established and members are acknowledged on the CLSA website and depending on the amount donated and the donors wish, are published in the award winning California Surveyor magazine.

Of course, donations made directly to the Education Foundation can be tax deductible as the Foundation maintains an IRS 501(c)3 charitable organization status.

A check made out to the CLSA Education Foundation works, so does including us in your will. Donating can be as simple as clicking on the PAYPAL link on the Education Foundation page on CLSA website.

To find out more about how you can help to raise funds for scholarships to assist students of Land Surveying, contact me thru the CLSA central office at [clsa@californiasurveyors.org](mailto:clsa@californiasurveyors.org) or any of the CLSA Education Foundation directors. ❖

## An English Lesson in the Compound Plural

By: Jas Arnold, PLS, CP

I know what you're saying, "This is a magazine about surveying so what's with this English lesson?" True, this treatise has little to do with surveying yet does pertain to the way we surveyors should pluralize words that are part of our vocabulary. This is what the experts say...

The American Heritage® Book of English Usage.  
A Practical and Authoritative Guide to Contemporary English, © 2000.

### 8. Word Formation

#### a. Plurals, Possessives, Affixes, and Compounds

Compound words, written with or without a hyphen, that consist of a noun followed by an adjective or other qualifying expression form their plurals by making the same change in the noun that is made when the noun stands alone: *attorney-general, attorneys-general; daughter-in-law, daughters-in-law; man-of-war, men-of-war; heir apparent, heirs apparent; notary public, notaries public.*

So what does that have to do with surveying? There are two compound plural nouns used frequently by surveyors: "records of survey" and "rights of way". These plural forms appear properly within the Professional Land Surveyors Act (PLS Act, Business and Professions Code §§ 8700 – 8805). The first occurrence within the PLS Act can be found in Section 8762, "Records of Survey". Read Section 8771(b) and you will find "...other rights of way, or easements...". Gurdon Wattles in his book *Writing Legal Descriptions* pluralizes right of way throughout the book as "rights of way."

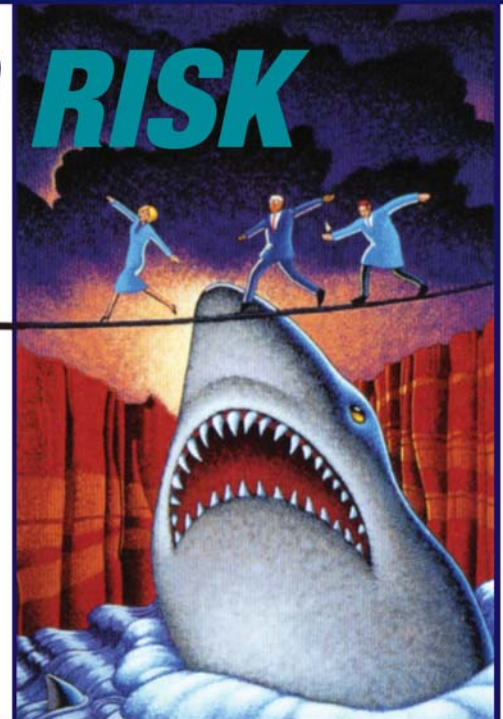
Regulations adopted by the Board of Registration commonly known as the Board Rules (California Code of Regulations; Title 16, Division 5, §§ 400-476) make reference to one of these compound plural nouns in Section 465, "Records of Survey – Public Officers".

Thanks for the English lesson, Jas. And your point is...? These two pluralizations are frequently misstated within our own ranks. The terms "rights of way" and "records of survey" are frequently used both verbally and in writing. I know that we are not English teachers, yet I feel it is important to use proper English particularly with topics that are within our bailiwick. ❖

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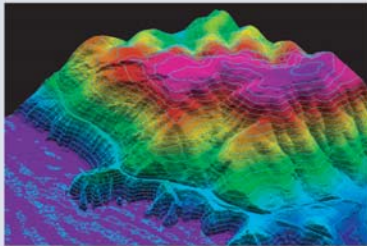
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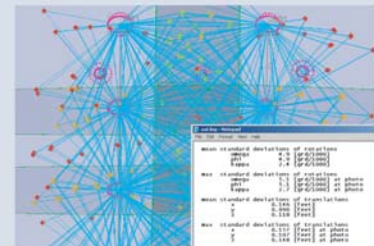
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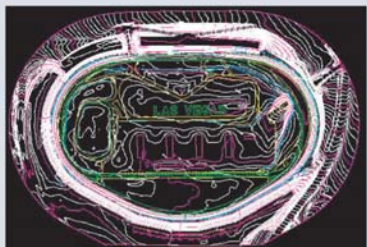
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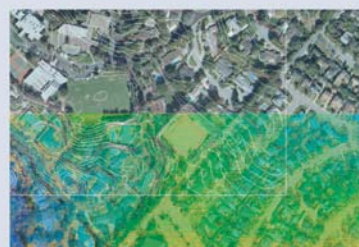
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# Q&A SMA Expert

## Question

What is the status of the recently proposed legislation in California that would extend the life of tentative and vesting tentative maps?

## Answer

Timely question! As described in greater detail below, that "urgency legislation" (Assembly Bill No. 333 (Fuentes)), recently was passed by the Legislature and was signed into law by the Governor on July 15, 2009 (As urgency legislation, it became law when signed). New Map Act section 66452.22 immediately extends the life of tentative and vesting tentative maps that would have otherwise expire before January 1, 2012 for two additional years.

AB 333 was introduced in January 2009 by the California Building Industry Association (CBIA) in response to the effect of the recession on the homebuilding industry recovery effort. Although the Governor had previously announced that he would not sign any legislation until a state budget deal was reached, he viewed AB 333 as an exception. Procuring the Governor's signature by July 15, 2009 was critical because the twelve-month extension provided by SB 1185 (Lowenthal) expired on that date, and AB 333 does not apply to maps that expire before the bill takes effect. According to the CBIA, approximately 1,800 maps representing approximately 250,000 housing units are affected by AB 333.

In order to calculate whether a map is eligible for the AB 333 24-month extension, one should ask the following:

**Step 1:** Was the map in question still "alive" on July 15, 2009? If no, then the map does not qualify for the extension. If yes, then proceed to Step 2.

**Step 2:** Would the map have otherwise (i.e., without the new legislation) lapsed before January 1, 2012?

- In determining whether the map would expire before January 1, 2012, one must count any discretionary extension granted by the city or county pursuant to Government Code sections 66452.6(e) (tentative map) or 66463.5(e) (tentative parcel map) on or before July 15, 2009.

- One also must count any additional time granted by Map Act section 66452.6(a) in connection with the filing of multiple (phased) final maps. However, one need not count the additional time obtained by the filing of a phased final map if that final map was filed but not recorded before July 15, 2009. This is important for subdividers to understand because it would mean the tentative map gets three years of additional life from the phased final map and two years from AB 333.
- Finally, in determining whether the map would expire before January 1, 2012, one should not count any time added to the life of the tentative map based on any development moratoria or litigation "tolling" periods.

The 24-month extension provided by AB 333 is in addition to all other extensions otherwise available (including without limitation, the three previous automatic legislative extensions granted in 1993, 1996, and 2008).

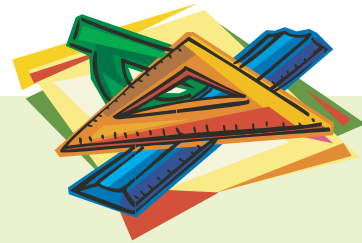
AB 333's primary difference from previous legislative extensions is that AB 333 includes provisions that change the "one bite of the apple" rules set forth in Government Code section 65961, although, when read carefully, these changes are not radical, and include the shortening from five to three years the period of time after the recordation of the final map during which new conditions cannot be imposed on a project.

If you own or manage property with a current tentative or vesting tentative map, or other entitlements with expiration dates, understanding AB 333 is critical to ensuring that your valuable entitlements do not expire unexpectedly. ❖

---

**Michael P. Durkee**, a partner in the Walnut Creek office of Allen Matkins, represents developers, public agencies and interest groups in all aspects of land use law. Mike is the principal author of *Map Act Navigator* (1997-2008), and co-author of *Ballot Box Navigator* (Solano Press 2003), and *Land-Use Initiatives and Referenda in California* (Solano Press 1990, 1991). 415.273.7455 [mdurkee@allenmatkins.com](mailto:mdurkee@allenmatkins.com)

"Mike wishes to thank Tom Tunny, Senior Counsel at Allen Matkins, for his assistance in writing this article."



## Unit Conversion Table

Ratio of an igloo's circumference to its diameter = Eskimo Pi	2000 pounds of Chinese soup = Won ton
1 millionth of a mouthwash = 1 microscope	4 nickels = 2 paradigms
Time between slipping on a peel and smacking the pavement = 1 bananosecond	2 monograms = 1 diagram
Weight an evangelist carries with God = 1 billigram	16.5 feet in the Twilight Zone = 1 Rod Serling
Time it takes to sail 220 yards at 1 nautical mile per hour = Knotfurlong	1,000,000 aches: 1 megahertz
Half of a large intestine = 1 semicolon	52 cards: 1 decacards
Basic unit of laryngitis: 1 hoarsepower	453.6 graham crackers = 1 pound cake
Shortest distances between two jokes = A straight line	1 million bicycles = 2 megacycles
1 trillion microphones = 1 megaphone	2000 mockingbirds = 2 kilonrockingbirds
365.25 days = 1 unicycle	1000 milliliters of wet socks: 1 literhosen
1 kilogram of falling figs = 1 FigNewton	10 rations = 1 decoration
1 millionth of a fish = 1 rnicrofiche	100 Senators = Not 1 decision
100 rations = 1 C-ration	<i>From Surveyors Historical Society</i>
2.4 miles of intravenous surgical tubing at Yale University = 1 IV League	

Unit conversion table from Wisconsin Professional Surveyor, June 2009



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Kenneth McGrath, Ramona  
Justin Pallamary, San Diego  
Mark Platt, Anaheim  
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David Tully, Hollister  
Daniel Wallace, Montague  
Steven Weiss, Santa Rosa

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Ruben Gonzalez, Scotts Valley  
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### STUDENT

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Jonathan Johns, Mission Viejo  
Jeremy Johnson, San Bernardino  
Mary Klinger, San Diego  
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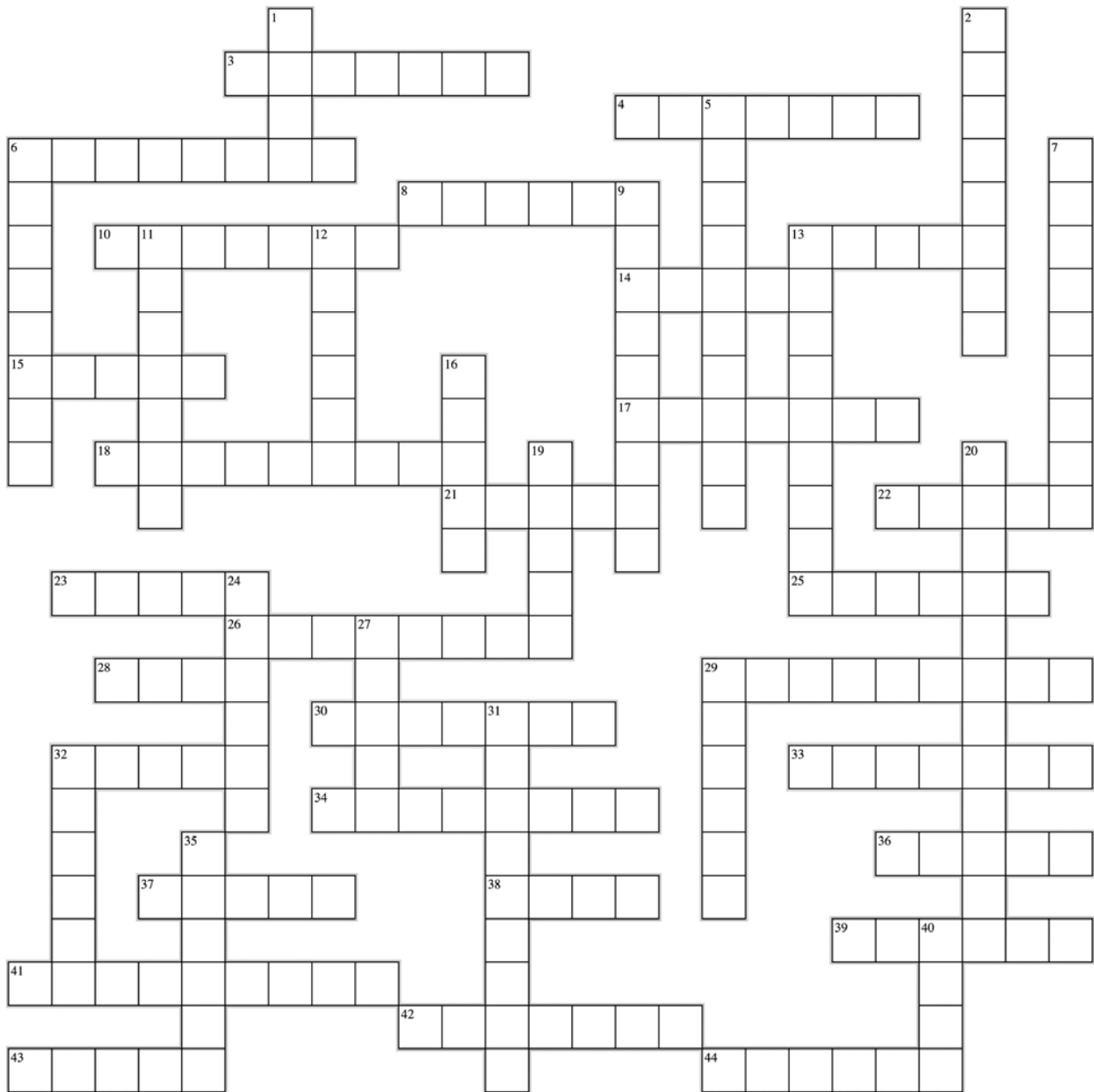




# Crossword Puzzle

By: Ian Wilson, PLS

## CLSA Crossword Puzzle #12



EclipseCrossword.com

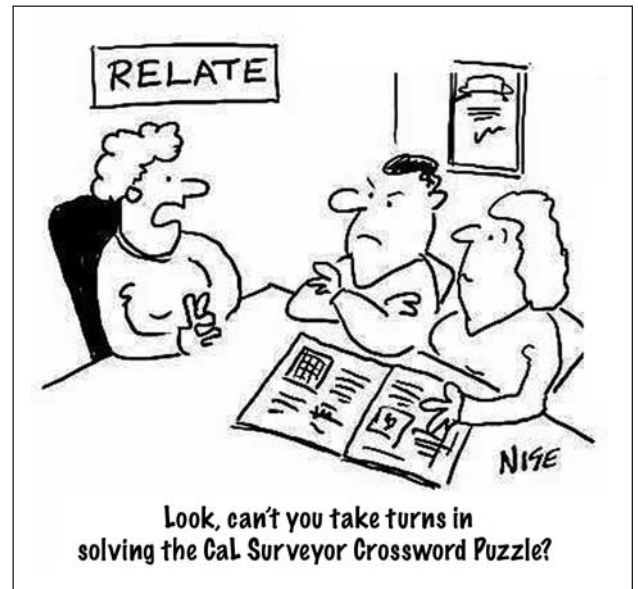
**Ian Wilson, PLS** is the Director of Survey for WRG Design, Inc. in Roseville, CA. As well as being a licensed land surveyor, he and his wife, Laura, are avid SCUBA divers. They are looking forward to "getting wet" on future trips along coastal California and around the world.

## Across

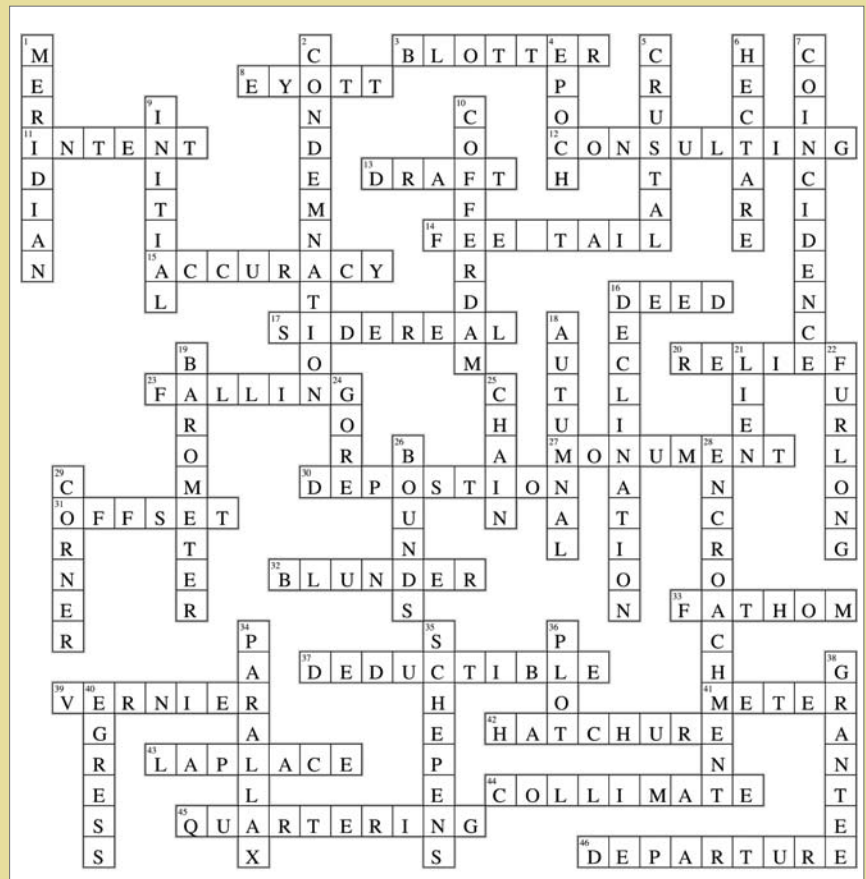
3. ENTER
4. ZONED OFFSET
6. CONTEST IN LAW
8. SIX FEET
10. REVOCABLE NON-POSSESSORY INTEREST
13. PIECE OF A DIGITAL PICTURE
14. LIGHT DETECTION AND RANGING
15. DOG'S MOBILE UNIT IN A FANCY BRITISH AUTO
17. SUCCESSIVE RELATIONSHIP
18. LEFTOVERS
21. PATCH OF LAND
22. OLD UNIT OF DISTANCE INVOLVING HORSES AND TOBACCO
23. NICKEL-IRON ALLOY IMPORTANT IN SURVEYING
25. PERPENDICULAR
26. VIOLENT LAND ACT
28. CHARGE AGAINST PROPERTY
29. SUDDEN WATER CHANGE
30. DIVIDE
32. 16.5 FEET
33. FANCY SWIVELS
34. KINEMATIC RESOLUTION (3 WORDS)
36. RELINQUISH
37. ALMOST
38. HIGHEST POINT
39. LINE ZERO, MAGNETICALLY
41. PERSON WHO BRINGS AN ACTION
42. SIR ROBERT; WORKED IN ADELLAIDE
43. SOUND NAVIGATION AND RANGING

## Down

1. 0.5148 METERS PER SECOND
2. APPARENT DISPLACEMENT
5. FANCY TRANSIT
6. ABOUT A SHORE
7. BARGAIN
9. ERRORS FROM MANY DIRECTIONS
11. SINGLE UNIT
12. SHORT RANGE NAVIGATION
13. DEGREE OF REFINEMENT
16. FREQUENCY - 1 CYCLE PER SECOND
19. ROCK MOUND
20. CONVERT TO AN ARBITRARY SYSTEM
24. BERNARDO OR A SPANISH HAMLET
27. LONG RANGE NAVIGATION
29. GRID APPROXIMATING A LINE
31. FANCY OPENING
32. PIECE OF LAND
35. SHORT PIECE OF A CIRCLE OR THE ACSM XO
40. ONLINE POSITIONING USER SERVICE



## Key to CLSA puzzle #11 (Surveyor Issue # 158)



If you have an idea for a puzzle theme or a clue you would like to include in an upcoming puzzle, email to [clsa@californiasurveyors.org](mailto:clsa@californiasurveyors.org)





# NSPS

## National Society of Professional Surveyors

### A Member Organization of the American Congress on Surveying and Mapping NSPS IS.....

The recognized national voice of the surveying professional.

Continually seeking to respond to the challenges presented by new technologies, government, and industry activities by providing a forum for its members to use their expertise and knowledge to confront those interests that are common to all surveyors.

The largest of four self-governing member organizations within the American Congress on Surveying and Mapping (ACSM).

The ACSM member organization that provides the surveying perspective to its fellow ACSM member organizations on matters of collective interest related to cartography, geodesy, and geographic information systems.

A participant in the planning of the program content for the annual ACSM convention.

A conduit for input from the National Association of County Surveyors, National Council of Examiners for Engineering and Surveying.

### WHY SHOULD I JOIN?

The answer is simple. NSPS offers members the opportunity to open doors to all the information needed to keep up-to-date on the latest and most crucial issues of the profession.

### WHAT WE DO.....

***We shape and influence government legislation for the surveying and mapping profession.***

NSPS monitors, promotes, and influences national legislation and Federal agency regulations through its government affairs and political action committees.

***We advance the profession and your own professional growth.***

NSPS leads the development of ALTA standards and promotes scientific progress within the profession by providing publishing opportunities in its peer-reviewed academic journal, Surveying and Land Information Sciences (SaLIS), and opportunities for formal presentations at the annual ACSM convention.

NSPS administers many certification programs, including: Certified Survey Technician—CST (tests and certifies survey technicians for skills and knowledge at four levels); Certified Hydrographer (tests and certifies those specifically experienced in hydrographic surveying); Certified FloodPlain Surveyor (currently a pilot program in conjunction with FEMA).

NSPS offers many opportunities for continuing education at the annual ACSM convention and its affiliation with the State Surveying Societies.

***We promote the profession to the next generation.***

NSPS sponsors and offers many programs to promote the profession among young people, including, scholarships and fellowships, the NSPS Student Project of the Year award, the Surveying Student Competition, the Trig-Star competition for high school students, the NSPS Student

Outreach Speaker's Kit for middle and high school students, and the Boy Scouts Surveying Merit Badge program. NSPS provides evaluation for curriculum accreditation through the Accreditation Board for Engineering and Technology, Inc. (ABET).

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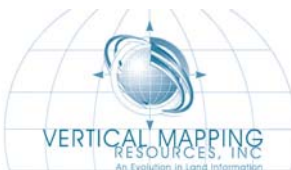
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Office 510-834-2001 x105  
Fax 510-380-6332  
Mobile 510-407-2283  
Email [dj@hjw.com](mailto:dj@hjw.com)  
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**Bret Okraski**  
Director, Consulting & Development [bret@verticalmapping.com](mailto:bret@verticalmapping.com)  
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