

February 2015

# SIDE SHOTS

Professional Land Surveyors of Colorado

Volume 46, Issue 1



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Martin Cobb



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Pam Fromhertz



Ken Goff



Earl Henderson



Chuck Hutchins



Chuck Jones



Alyssa Martin



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# SIDE SHOTS

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*Side Shots is the official publication of the Professional Land Surveyors of Colorado, Inc.  
and is published quarterly for the betterment of the surveying profession.*

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**Deadlines for editorials, articles, pictures and advertising are January 1, April 1,  
July 1 and October 1. All material received after the current deadline will appear  
in the next issue of Side Shots.**

*We would like to invite anyone who is interested to advertise in Side Shots.*

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It is with a mix of sadness and excitement that I pen my final PLSC president's letter and would like to recount some of the major accomplishments during the last four years and provide the well-deserved recognition of those that executed the bulk of the work.

First, the PLSC revamped our website which was welcomed by many. This was a task that required participation of many and required teamwork to reach agreement on layout, design, and content that remains a work in progress to be built upon by our future leadership and Board of Directors. Thank you Brian Dennis and Becky Roland for providing guidance and leadership through this migration.

Secondly, the PLSC executive director position was moved to Phoenix AMC and our long standing tradition of having one of our members perform these duties was discontinued. I thank Tom Adams, Mike Bouchard, Diana Askew, and J.B. Guyton for all of the guidance and assistance provided as I grasped to understand all of the responsibilities, requirements, and protocols that accompany being President of the PLSC.

Thirdly, a budgeting and reconciliation process was implemented that has been used by the PLSC Board to steer our organization through the recent past financial hardship. Many difficult decisions were made to protect the financial health of the PLSC and I must thank Terry Maw for maintaining the budget tracking spreadsheet, Becky Roland for providing timely financial data, Todd Beers for executing great seminars that provided needed capital, and all the Directors that made the tough decisions required for PLSC to emerge in good financial health.

Fourth, PLSC inherited from Bob Stollard a house that posed a unique challenge to our Board. A decision had to be made to either keep the property, manage it as a landlord, use it as office space, or dispose of the property. The Board elected to dispose of the property and I thank Becky Roland for providing timely guidance through the section 8 housing requirements for this process.

Finally, the PLSC membership has recently elected to become full members of NSPS and we are in the process of working on the memorandum of understanding (MOU) for this partnership. Look for the PLSC voting membership renewal notice that will include your NSPS membership fee of \$40.00.



*continued on next page*

DEDICATED TO THE IMPROVEMENT OF LAND SURVEYING EDUCATION AND PRACTICE.

# FROM THE EDITOR



It is almost time for the biggest event of the year for the PLSC, the 5th Annual Rocky Mountain Surveyors Summit, to be held once again at the Arvada Center from February 26th to the 28th. Listings of the courses, instructors, events and schedule are listed in this issue. The profiles of each

instructor and course abstracts were too lengthy to print, but can be found on line at [www.plsc.net](http://www.plsc.net) under the Education/Events tab, to aid in your selection of courses to take. If you are looking to network, gain additional knowledge of the latest in technology and methods, or gain some needed continuing education credits, this is the time and the place! The annual meeting and change in PLSC officers will coincide with this event. The annual Chapter Summit meeting, emceed again by yours truly, will take place on Thursday evening, and has proven to be an excellent forum for chapter representatives to air their views, make suggestions, and move the PLSC forward.

By the time you read this issue, the annual Refresher Course offerings for those seeking to sit for the licensure exam, will be underway. But it's not too late to register for the remaining courses, which run through March 25th. Classes are held in the evenings at the Jefferson County Courts Building (aka the "Taj Mahal") in Golden. See the information in this issue on pages 10 and 11. Many of

those who need this instruction are not regular readers of *Side Shots*, so please help spread the word to your colleagues who may be interested.

While this issue is focused on the Surveyor's Summit, you will also find some interesting articles for your perusal. The latest installment of Control Points from Warren Andrews is about the use of vertical wires for mine shaft surveying. Earl Henderson contributed his latest Rule of the Month on Center of Section. There is a notice of the passing of Warren Alloway, PLS, one of the founding members of the PLSC. This issue also includes the latest BLM Cadastral Survey letter from Randy Bloom at the BLM, a report on the September meeting of the Western Federation of Professional Surveyors, the PLSC Board of Directors minutes from December 10th, a detailed budget spreadsheet from Treasurer Terry Maw showing budget vs. actual through the end of November, and the always interesting Chapter News.

2015 will be a year of some interesting changes for the PLSC, and I hope to be able to continue reporting them and to provide you with interesting and educational reading material in *Side Shots*. The amount of support I have received for this magazine is considerable, and very much appreciated. Your contributions of material for the next issue would be welcome, as always.

JB Guyton, PLS  
Editor, *Side Shots*

## From the President *continued*

These are a few of the major challenges and accomplishments that stand out as I recall the last four years and know that the PLSC will face future challenges that present opportunity for our organization to grow and emerge stronger and more relevant in the future.

I will pass the gavel to our next President at the 2015 Surveyor's Summit and look forward to seeing you all

there. Thanks to our membership for the trust to guide the PLSC over the past four years!

Let's continue elevating the Survey Profession together!

Roger D. Nelson, PLS, CFedS  
PLSC President (2011-2014)



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- James Beckwith
- Dave Pehr
- Martin Cobb
- Bob Schout
- Earl Henderson
- Joyce Young
- Bob Wendover
- Chuck Jones
- Ken Goff
- Jason Emery
- Earl Burkholder
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The Professional Land Surveyors of Colorado (PLSC) invite you to be a part of the 5th Annual Rocky Mountain Surveyors Summit being held February 26—28, 2015 at the Arvada Center in Arvada, Colorado. We have combined all of the front range conferences into one event with state-of-the-art presentations and displays from the top suppliers in the industry. Four of our chapters, the Central Colorado Professional Surveyors (CCPS), Colorado Spatial Reference Network (CSRN), Northern Chapter—PLSC (NC/PLSC), and Southern Chapter Professional Land Surveyors (SCPLS) have all joined together to bring our profession the best education and networking event in the State.

- Discounts are available for PLSC Members, Early Registration and Students.
- A full program of speakers that earn you continuing education units.
- Outstanding networking opportunities with colleagues from across the region.
- Displays by industry suppliers and professional service providers.

**Go to [www.plsc.net](http://www.plsc.net) for complete information and plan on joining your colleagues February 26—February 28, 2015!**

***Preliminary Program on Page 8***



COLORADO SPATIAL REFERENCE NETWORK  
A Chapter of the Professional Land Surveyors of Colorado



## PRELIMINARY PROGRAM:

### THURSDAY, FEBRUARY 26TH

#### PROFESSIONAL TRACK 1

7:30 AM – 5:30 PM

*Case Studies In Research And Presentation Of Road Claims and Rules of the Road—Creating Highways in Colorado*

James Beckwith, Esq. and David Pehr, Esq.

#### PROFESSIONAL TRACK 2

7:30 AM – 11:30 AM

*Survey Plats from the Colorado Board of Registration Perspective*

Earl Henderson, PLS and Joyce Young

1:00 PM – 3:00 PM

*Survey Symposium: A Way to Reduce the Pincushion Effect Regarding Property Corners*

Panel Discussion

3:30 PM – 5:30 PM

*Survey Symposium: Whatever! Managing the Generational Divide in Today's Surveying Workplace and Recruiting and Retaining Tomorrow's Surveying Professionals*

Bob Wendover

#### TECHNICAL/GIS RELATED TRACK

7:30 AM – 9:30 AM

*Datums, Projections and Coordinate Systems*

Earl Burkholder, PLS

10:00 AM – 11:30 AM

*Low Distortion Projections*

Earl Burkholder, PLS

1:00 PM – 3:00 PM

*Grid To Ground Conversions*

Chuck Hutchin

3:30 PM – 5:30 PM

*Surveyors and GIS Geeks—What We Need to Know About Each Other*

Alyssa Martin and Nathan Wysocki

**LUNCH:** PLSC Annual Meeting, Introduction of PLSC Board of Directors, Exhibitor Introduction, Raffle

5:30 PM – 7:00 PM

**EXHIBITOR SOCIAL**

7:00 PM – 9:00 PM

**PLSC CHAPTER SUMMIT MEETING**

### FRIDAY, FEBRUARY 27TH

#### PROFESSIONAL TRACK 1

7:30 AM – 5:30 PM

*Easements and the Land Surveyor*

Don Wilson, PLS

#### PROFESSIONAL TRACK 2

7:30 AM – 11:30 AM

*Title-There Can Be Only One*

Chuck Jones, PLS

1:00 PM – 3:00 PM

*Introduction to Utilities*

Ken Goff

3:30 PM – 5:30 PM

*Riparian Boundaries: Accretion and Avulsion*

Jason Emery, PLS

#### TECHNICAL TRACK

7:30 AM – 9:30 AM

*Recent Developments in UAS*

Bryan Baker

10:00 AM – 11:30 PM

*Revolution of Close Range Photogrammetry*

Hiam Zelikovsky

1:00 PM – 3:00 PM

*Leica MS 50 Use & Applications*

Ken Perry

3:30 PM – 5:30 PM

*Enhancements to NGS Tools, Products and Services*

Pam Fromhertz

**LUNCH:** PLSC Awards, Long Standing PLSC Members, Trig Star Winner, Scholarship Winner, Introduction of New PLS & LSIT, Raffle

### SATURDAY, FEBRUARY 28TH

#### BUSINESS & GENERAL TRACK

7:30 AM – 11:30 AM

*Conflict Coaching Strategies-Helping You Deal With Conflict*

Martin Cobb, PLS

1:00 PM – 5:30 PM

*Leading At Any Level*

Robert Schout

#### PROFESSIONAL TRACK 1

7:30 AM – 5:30 PM

*Easements: Beyond the Basics*

Don Wilson, PLS

**LUNCH:** Survey Olympics Winners, Raffle

Courses and schedule subject to changes; please go to [www.plsc.net](http://www.plsc.net) for updated information and to register online. Registration opens at 7AM each day.

<b>FEE SCHEDULE 2015</b>	<b>One Day</b>	<b>Two Days</b>	<b>Three Days</b>
PLSC MEMBER:	\$200	\$375	\$550
NON-MEMBER:	\$300	\$475	\$650
STUDENT:	\$ 75	\$125	\$200
EXHIBITORS (PLSC Sustaining Members Only):	\$400		

An additional \$25.00 will be added to registrations received after February 18th, 2015. Catered breakfasts & lunches will be provided on all days. Online registration will be available at the PLSC web site ([www.plsc.net](http://www.plsc.net)).

#### SILENT AUCTION

We will be holding a silent auction during the conference. If your equipment room is cluttered up by equipment you are no longer using, please consider donating an item or two to the PLSC silent auction.

#### EXHIBITORS

In keeping with our traditional practice, our Sustaining Members and other exhibitors have been invited to display their latest products and services. Exhibits will be in the Arvada Center entrance hall adjacent to the classrooms. Please visit their displays and show our appreciation for their continued support.

#### TRANSPORTATION TO/FROM CONFERENCE HOTEL

There will be a shuttle bus to and from the conference hotel each day. Pick up and drop off times will be announced prior to and at the conference.

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# PLSC Refresher Courses Begin

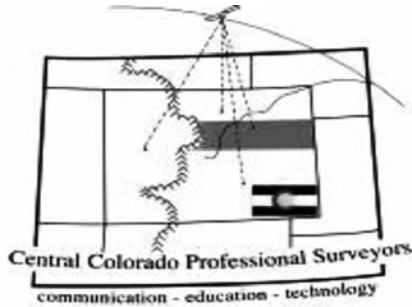
The faculty for the 2015 Colorado Land Surveying Refresher Courses at the Jefferson County Courts and Administration Building met for the first session on January 7<sup>th</sup> and posed for this photo.



Front, L to R: Becky Roland, Lynn Patten, Gaby Neunzert. Back, Roger Nelson, Jan Van Sickle, JB Guyton, Todd Beers, Mike Greer, Randy Bloom and Alan Blair.

Gaby Neunzert, Professor Emeritus from the Colorado School of Mines, demonstrates the joy of learning and education to the first class session.





## 2015 Colorado Land Surveying Refresher Course

The Professional Land Surveyors of Colorado are offering a comprehensive Land Surveying Refresher Course beginning January 7, 2015. This course offers a review and self-study plan for those taking the National Council of Examiners for Engineering and Surveying (NCEES) **Fundamentals of Surveying (FS)** and **Principles and Practice of Surveying (PS)** examinations. The course is designed to aid candidates in developing and expanding exam-taking proficiencies. The Wednesday evening classes will be 3 hours in length, starting promptly at 6:00 PM.

### Fundamentals of Surveying

<u>Session</u>	<u>Date</u>	<u>Topic</u>
1	Wed., Jan. 7	Overview of NCEES FS and PS Examination Use of calculators and formulas
2	Wed., Jan. 14	Fundamental Survey Calculations I
3	Wed., Jan. 21	Fundamental Survey Calculations II
4	Wed., Jan. 28	GIS, State Plane, Geodesy
5	Wed., Feb. 4	Public Land Survey System I
6	Wed., Feb. 11	Legal Terms and Definitions

### Principles and Practice and Colorado Specific

7	Wed., Feb. 18	Boundary Law
8	Wed., Feb. 25	Public Land Survey System II
9	Wed., Mar. 4	Colorado Survey Law I
10	Wed., Mar. 11	Colorado Survey Law II
11	Wed., Mar. 18	Principles and Practice Topics
12	Wed. Mar. 25	Mock PS and FS Examinations

The Wednesday evening classes will be 3 hours in length, starting promptly at 6:00 PM.

### Registration, Fee, Location

The fee for the entire course is \$400, or \$75 per 3-hour block taken individually. Registration is open beginning November 1, 2014. See <http://www.plsc.net/> for registration information. Classes will be held in one of the conference rooms at the Jefferson County Courts and Administration Building (Taj Mahal), 100 Jefferson County Parkway, Golden, CO. Use the parking lot and main door on the east side of the building. Signage will lead you to the classroom. For questions, contact Becky Roland, Executive Director, PLSC, 303-551-3266, [broland@plsc.net](mailto:broland@plsc.net). Visit the NCEES site at <http://ncees.org/exams/> to learn more about the FS and PS examinations.

# Control Points – Number 27

## Shaft Surveying

By Warren Andrews, PLS

As somewhat of a continuation of the immediately preceding Control Points article on Borehole Surveying, there is another area in mine surveying that is somewhat unknown to most professional land surveyors. I did not cover that in the previous Control Points Number 6 on mine surveying instruments but I would like to mention it now.

The problem to be solved is how do you “carry the meridian down the shaft” or correspond directions on the surface with directions deep underground. If you have essentially horizontal openings or even declines from the surface there is no problem; you just shoot ahead with the scope on transit or total station. But what if the only opening is a vertical shaft, say 2,000 feet deep (or even more so in South Africa if two successive 5000-ft. vertical shafts and a lower decline go down 13,200 feet below the surface such as at Western Deep Levels?

The historical solution to the problem was by hanging two very strong steel wires or thin cables down the vertical shaft as far apart as possible, determining the direction on surface at the collar across the wires and then taking that same direction between the wires off at the bottom. Sounds simple, doesn't it? Well it's not as simple and easy in practice as it sounds in theory.

The first problem is the extremely short distance between the wires for the foresight and backsight. At close range that thin wire looks like the big suspension cable holding up the Golden Gate Bridge! Topside at the shaft collar with multiple sights the average bearing can be determined pretty tightly. But at the bottom there are two problems.

The first is a problem in Physics called the Foucault Pendulum. Due to the Coriolis Effect from the earth's rotation, the long pendulum never stops swinging. So you have to take the average center of swinging on each wire by many sights. (One technique is to put a scale behind each wire and read the maximum swing in each direction.) If you can't wiggle in on line with the wires you have to very carefully measure the small angle involved and the three distances and compute the Weisbach triangle. This happens if you're in a tight space at the bottom of the shaft. This is the second problem. It can be solved with many very careful measurements.

Two sometimes helpful techniques are to first use a very heavy weight on each wire with each weight in a bucket of oil to slow the pendulum swings. The second technique on a deeper shaft is to “wire the shaft” in increments, say 100 to 300 foot increments if there are intermediate mine levels. As I remember the Henderson Mine did it this way, but the problem they ran into was that the ventilation down the shaft rotated the wires

some 13 minutes from top to bottom which was hard to catch and correct.

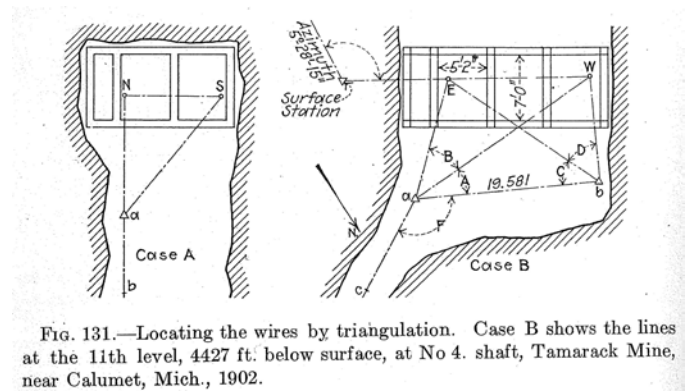
An example here in Colorado of “wiring the shaft” is the Roberts Tunnel that transports water between Dillon and Grants of the Denver Water Board. According to the detailed report given in the U.S. Geological Survey Professional Paper No. 831, Sections A through E, the tunnel is 122,912 feet long (23.3 miles). The west portal at Dillon was at Sta. 9+46 and the east portal at Grants was at Sta. 1238+58. The intermediate shaft (the Montezuma Shaft) was 16 feet in diameter, sunk 910 feet deep at Sta. 459+43, therefore the distance west portal to shaft was 44,997 feet and shaft to east portal was 77,915 feet. The tunnel was driven simultaneously from the four headings. The west breakthrough was at Sta. 281+58 giving a distance from west portal to breakthrough of 27,212 feet and breakthrough back to shaft of 17,785 feet off of the wires.

The east breakthrough was at Sta. 712+40 so the distance from the east portal to breakthrough was 52,618 feet and the distance from the east breakthrough back to the shaft was 25,297 feet off of the wires. The statistics on breakthrough meetings were as follows:

- At the west breakthrough there was 0.12 feet in alignment, 0.21 feet in grade, and 0.02 feet in stationing;
- At the east breakthrough the alignment was 3.25 feet, the grade was 0.343 feet, and the stationing was 4.533 feet different from the two directions.

One of the older Mine Surveying texts by Edward B. Durham, McGraw Hill, 1913, p. 230, (Figure 131) of my Dad's shows two of the many variations in hanging the wires in some of the smaller shafts.

To me, the Roberts Tunnel extending almost 5 miles off a little less than a 16 foot backsight I thought was fairly good surveying!



# Professional Land Surveyors of Colorado, Inc. Membership Application



The PLSC represents land surveyors' interests in the State, proposes new legislation and changes to existing legislation as the industry's needs change, and works with the State Board of Licensure as an advocate for Land Surveyors. PLSC Chapters include: Central Colorado Professional Surveyors (CCPS), Colorado Spatial Reference Network of the PLSC (CSRN), Northern Chapter—PLSC (NCPLSC), Northwest 1/4 Colorado Land Surveyors (NW1/4CLS), Southern Colorado Professional Land Surveyors (SCPLS), Southwest Chapter PLSC (SWPLSC) and Western Colorado Land Surveyors (WCLS). Voting membership includes NSPS membership. Others can add this option.

---

## 1. Member Information:

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Company: \_\_\_\_\_

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\_\_\_\_\_

City, State Zip: \_\_\_\_\_

Daytime Phone: \_\_\_\_\_

Email: \_\_\_\_\_

PLS or LSI Number(s) and State(s): \_\_\_\_\_

☐ Please do not include my information in the PLSC Member Directory or online directory.

---

## 2. Membership Information:

**Membership Type:** ☐ Sustaining—\$230 ☐ Voting—\$150 ☐ Associate—\$75 ☐ Student—\$30 ☐ Retired—\$60  
(Please check.)

**Included Chapter:** ☐ CCPS ☐ NCPLSC ☐ NW1/4CLS ☐ SCPLS ☐ SWPLSC ☐ WCLS  
(Each membership includes one free Chapter membership. Please check—see above for descriptions.)

**Additional Chapter:** ☐ CCPS ☐ NCPLSC ☐ NW1/4CLS ☐ SCPLS ☐ SWPLSC ☐ WCLS  
(additional Chapter memberships are \$20 each. Please check.)

**NSPS Membership (included in Voting Membership):** ☐ \$40 for professionals/\$10 for students

---

## 3. Payment Information:

Membership Type: \$ \_\_\_\_\_

Add'l Chapters/NSPS: \$ \_\_\_\_\_

Total Enclosed \$ \_\_\_\_\_

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# United States Department of the Interior

## BUREAU OF LAND MANAGEMENT

Colorado State Office  
2850 Youngfield Street  
Lakewood, Colorado 80215  
[www.co.blm.gov](http://www.co.blm.gov)



CO-956  
9650

December 17, 2014

Mr. John B. Guyton, Editor  
Side Shots  
3825 Iris Ave.  
Boulder, Colorado 80301

Dear Mr. Guyton:

This letter is to inform you of official BLM cadastral surveys in Colorado that have been accepted and officially filed from August 14, 2014, through December 5, 2014, and are now available in the Public Room, Bureau of Land Management, Colorado State Office, 2850 Youngfield Street, Lakewood, Colorado 80215. The surveys will also be available at <http://www.glorerecords.blm.gov>.

The accepted surveys are listed below by township, range, meridian, group number, type, approval date and number of plats.

<u>Township</u>	<u>Range</u>	<u>Meridian</u>	<u>Group No.</u>	<u>Type</u>	<u>Approved</u>	<u>Plats</u>
T. 13 S.	R. 78 W.	Sixth	1588	Plat & Notes	08/14/14	1
T. 7 S.	R. 70 W.	Sixth	1500	Notes Only	08/20/14	0
T. 51 N.	R. 14 W.	NMPM	1616	Plat & Notes	08/26/14	1
Ts. 12 S.	Rs. 67,68 W.	Sixth	1605	Plat & Notes	08/26/14	2
T. 12 S.	R. 68 W.	Sixth	1638	Suppl. Plat	08/27/14	1
T. 37 N.	R. 2 E.	NMPM	1603	Plat & Notes	09/24/14	2
T. 51 N.	R. 13 W.	NMPM	1606	Plat & Notes	10/02/14	1
T. 36 N.	R. 13 W.	NMPM	1609	Plat & Notes	10/17/14	1
T. 13 S.	R. 91 W.	Sixth	1631	Suppl. Plat	11/03/14	1
T. 12 S.	R. 90 W.	Sixth	1631	Suppl. Plat	11/18/14	1
T. 42 N.	R. 9 W.	NMPM	1642	Suppl. Plat	12/05/14	1

As other surveys are completed, I will advise you of their acceptance. You may circulate this letter among the membership of the Professional Land Surveyors of Colorado.

Sincerely yours,

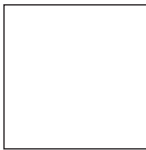
Randy Bloom  
Chief Cadastral Surveyor for Colorado

# Rule of the Month, Center of Section

By Earl Henderson, PLS

Take a deep breath, because here we go. In truth, I love talking about the center of section. Part of the reason is that it can be so simple but so often misunderstood. I often feel the same way personally, but you aren't my therapist so let's continue. I would be willing to bet that the vast majority of land surveyors in the PLSS think that the center of section is most often found at the intersection of the lines between the 1/4 corner monuments. And yet most often they would be wrong in today's world. I know that is a bold statement and some reading this are going to stop right here and not finish this article. They are certain that I'm nuts. That's okay. As I was recently reminded, Curtis Brown wrote in 1961 in *The Professional Status of Land Surveyors*, "...there is no reason for allowing a professional surveyor to be registered without having superior knowledge. Without superior knowledge we have an inferior profession." What I think he meant by this is that it is incumbent upon us to obtain knowledge beyond that of the public or a mere technician. If you read further you may gain some bit of knowledge that adds to your accumulation of said superior knowledge. If you disagree with me, I suggest you do additional research to back up your opinion and in doing so you will also add to your accumulation of said superior knowledge. Either way you will become a better professional and less of a technician.

But let's return to my point about the center of section. As I see it, there are about two (2) situations in which the center of section is at the intersection of the 1/4 corner monuments. The first is if you have a tax map of the section that looks like this:



In this case you have a property owner that owns the entire section and wants to have the center of section established, for whatever reason, and the section has never been subdivided before. That makes you the original surveyor of the subdivision of this section, so the center of section is at the intersection of the 1/4 corner monuments as best as you can measure. It is incumbent upon you to do the best technical job you can. But, and this is a big but here, if you make an error and place the original center of section monument somewhere other than at the mathematical center, even though your plat shows it at the mathematical center, and especially if the land owner subsequently sells any

one of the four quarter sections, and either land owner now builds a fence to your monument rather than the mathematical center, then the center of section is no longer at the mathematical center but at your original monument's location. That's simple boundary law. The setting of the original monument establishes the location of the corner. You may have goofed. That's okay. We all do sometimes. But the land owners will rely on your monument for generations to come, so all future land surveyors are responsible to recognize that you goofed and adjust to the original corner location. That's one reason we show both record and measured dimensions on our retracement survey plats. But this is a pretty rare situation these days since most of the PLSS has been surveyed and most sections have previously been subdivided by an original land surveyor.

The second situation when the center of section is at the intersection of the lines between the 1/4 corner monuments is if the section were previously subdivided but now there is no evidence whatsoever of the original corner location. This situation is even more rare than the first, in my opinion. You may have noticed that I didn't say that you didn't find any evidence of the corner location. I said there is no evidence. Just because you didn't find it doesn't mean there isn't any out there. Another surveyor with more experience, a better eye for detail, or more drive to look further or deeper, or who likes to talk to people more than you do, may find evidence that you have overlooked. Personally, I don't like to be outdone like that so I tend to go overboard when looking for evidence. But what I've experienced is that in most cases the evidence is clear and either right in front of my eyes or ringing in my ears if I am open to seeing or hearing it. Remember what I said. If there is no evidence of the original survey *whatsoever*.

In every other case, when performing a retracement survey, the center of section is NOT at the intersection of the lines between the 1/4 corner monuments. I know that's hard to swallow for some of us, but that's the law. If it weren't we wouldn't be so fond of the old adage, "Follow in the footsteps of the original surveyor." would we? That saying would be meaningless. The courts have been very clear on this issue in respect to any boundary line, not just the center of section. Even if the said footsteps of the original surveyor don't agree with his/her own plat dimensions, the lines and corners run and set in the field by the original surveyor control over calls and references on the plat and in the notes. So when evidence exists of the original survey, our job as retracement surveyors is to...you guessed it...retrace the

original survey, not recreate the wheel center. Of course we can measure better now than the surveyors could in 1898. Of course we can get closer to the intended location then they could. But this is now and that was then and they did just fine then. We think we're really precise and that the old methodologies were crude. But some day someone else is going to say the same thing about our methodologies.

So what does all this mean in practical terms for us? It means that our duty is to look for, find, and document the evidence that leads us to the lines and corners run and set by the original surveyor as our primary task. Then we can measure those bits of evidence with our newfangled electronic gizmos and describe them with mathematical dimensions to six places past the decimal as we've measured them. But it's important not to get that order of importance reversed. We don't want to mistakenly use the mathematical dimensions to lead us to some calculated corner or line location when the evidence clearly should direct us elsewhere. Our duty, as I see it, is to make decisions about where a property line lies based on a reasonable legal argument. Then measure the locations of the evidence that supports

and conflicts with those decisions. And only after that process is complete do we describe those legal decisions by means of dimensions on a plat. The dimensions describe our legal decisions they don't drive them.

So, now I'm sure you can all see the simple and obvious truth. The center is not at the center. It's at the center.



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# In Memorium

## Warren Alloway, PLS 1934 – 2015

Longtime surveyor at the Climax Mine and the first mayor of Silverthorne, Warren Alloway, PLS passed away at age 81 on January 2, 2015. Tragically, he was the victim of a fire at his home at 914 Blue River Parkway in Silverthorne. The cause of the fire was still unknown at the time of this writing.

Warren, originally of Wheatland, Wyoming and a resident of Silverthorne for nearly 60 years, was the town's first full time mayor, between 1968 and 1976. He moved to the area in 1958, first working as an engineer on the Roberts Tunnel, a demanding project to bring water from the then-new Dillon Dam to the Front Range. Some of the many other survey projects he worked on in the area included the Dillon Dam and realignment of Route 6 from 1961 to 1963, and the Climax Mine

from 1963 until 1995, a decade after the mine was shut down.

He was known for keeping a small herd of pack mules on his 15-acre property, loading the mules on weekends to explore old prospector routes between Red Peak and Buffalo Mountain. In a 2007 interview, he told the *Summit Daily News*, "Every job I had, I really enjoyed. Surveying was good because I was out running through the mountains. To me, it's heaven." City councilwoman Peggy Long, who remembers the mules vividly, said, "We knew and loved Warren very much. He was such a fascinating character. He was one of those very mild-mannered guys, the sort who wasn't boastful about himself. But when he started talking, he had done so many incredible things."




Warren is survived by his wife Barbara and two children.

(Photograph and quotations courtesy of the *Summit Daily News*, by permission)

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# Report of the September 13, 2014 meeting of the Western Federation of Professional Surveyors, held in Phoenix, AZ.

By John B. Guyton, PLSC WFPS Delegate

NSPS President Pat Smith reported on the activities of NSPS, as follows:

## 100% Membership

- Currently 46 states have signed the MOU which equates to approximately 15,000 members
- Texas will have an annual meeting and a final vote to adopt the 100% membership MOU
- Colorado will enter into negotiations regarding the MOU
- NSPS is working through administrative issues associated with the rapid adoption of the MOU. Because of the different fiscal years of the associations, it could be up to 5 months before members receive information from NSPS.
- As the majority of states have signed on to the 100% membership and now have a Director on the NSPS Board of Directors, the NSPS Governor will be disbanded beginning spring 2015.
- NSPS is adjusting to a larger board

of directors. ABET is currently discussing ways to reduce the size of their board of directors. In the future, NSPS may consider ways to reduce the size of the board as 50 people is logistically difficult.

## NCEES Future's City Program

NSPS is looking into how state associations and NSPS can become involved in the NCEES Future's City program.

## NCEES Model Law

NSPS has assigned a task force to research "engineering surveys."

## NSPS Conference

NSPS and MAPPS will host a conference in spring of 2015 in Washington DC. The education offered will include federal topics including NGS

Committees: Chris McDonald and Mike Nadeau will Co-Chair the Conference Committee. Nancy Almanzan will serve as Education

Committee Chair. Richard Heieren reported that NCEES is still reviewing the "engineering surveying" portion of the Model Law. Nancy Almanzan reported that nominations for WFPS office will be made at the summer meeting. Carla Merritt reported that the TwiST program was a great success.

Crissy Willson reported drafting a survey to be sent to association Presidents and Executive Directors requesting input on programs that WFPS can provide.

An Action List was distributed to the delegates. For Colorado, I will be sending information on the QBS/Mini Brooks Act and the syllabus for the Surveyors Summit workshop for publishing on the WFPS Events webpage. The WFPS matrix will be updated, and responses to other policy issues will be provided as needed.

The next meeting will be held in conjunction with the ISPLS Conference on February 28, 2015 in Boise, Idaho.

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Published by the Colorado Professional Land Surveyors Educational Foundation, Inc., a non-profit foundation, Initial Points of the Rectangular Survey System is undertaken in the spirit of, and dedication to, Mr. White's remarkable contributions to his field. Net proceeds from its sale will be returned to the Professional Land Surveyors of Colorado Inc. Scholarship Fund.

# PLSC Board of Directors Meeting Minutes

## December 10, 2014; 4:00 PM

Call In only. Call to Order: (Mike)

### **Recognition of PLSC Board Members and Officers:**

Officers: Roger Nelson (Central), Mike Bouchard (VP - Southern), Terry Maw (Treasurer - Southern), and Becky Roland (Exec. Dir.).

Board: Todd Beers (Central), Alan Blair (Central), Bill Buntrock (Central), Patrick Green (Western), Leif Joy (NW1/4), Peter Krick (Western), Parker Newby (SW), and Kayce Keane (Northern).

Exofficio: Brian Dennis (CSRN).

Nonvoting: Warren Ward, Tom Adams (Past President), J.B. Guyton.

County Surveyors Representative: Patrick Green – Also Board Member.

Present: Mike Bouchard, Todd Beers, Alan Blair, Bill Buntrock, Leif Joy, Peter Krick, Kayce Keane, Brian Dennis, JB Guyton, Pam Fromhertz, Steven Parker, Chris Raml, Warren Ward, and Becky Roland.

Absent: Roger Nelson, Terry Maw, Patrick Green, Parker Newby, Tom Adams.

Determination of Quorum

### **Welcome of Guests:**

**Additions, deletions and modifications to agenda: Add report from Pam on NGS.**

### **1: Approval of Minutes from Previous meeting(s):**

**MOTION:** To approve as amended - JB was in attendance. (Todd/Bill).  
Approved

### **2: 2013 Budget –Becky Roland.**

2.1 –2014 Budget Review - Warren Ward – as NSPS Governor, asked that a higher priority be given to sending the Executive Director to the NSPS Meetings (proposed budget for NSPS Governor will be \$2,500). Suggest Executive Director attend the State Director Meeting and the NSPS Board Meeting (est. \$3,000). Trips would be April and October for 3 nights minimum for NSPS

meetings. The fall meeting could be optional.

WestFED has 3 meetings each year. Estimate \$500 per meeting for one attendee per meeting.

BOD Expenses estimate \$800 for travel expenses to another location outside of Denver.

Suggest breaking out budget line item to specific travel line items (ex: NSPS, BOD and WestFed).

2.2 – Scholarship Funds, Checking & Savings Accounts have been consolidated

2.3 – Membership Renewals will be sent pending NSPS discussion at this meeting

**3: PLSC Elections:** President, Vice President, Treasurer, 4 BOD's Positions (Todd Beers, Peter Krick, Bill Buntrock, & Parker Newby).

Assignment of new PLSC GIS in the Rockies representative.

### **Nominations:**

President: Todd Beers  
Vice President: Kayce Keane  
Treasurer: Terry Maw  
Board Member #1: Yes (Paul Bacus)  
Board Member #2: Yes (James Rihanek)  
Board Member #3: Yes (Steve Parker)  
Board member #4: Yes (Eric Carson)

NSPS Memorandum of Understanding (MOU) for PLSC membership.

Add \$40 mandatory for Voting Members. Optional for other member types.

**MOTION:** To increase Voting Member dues by \$40 per year to be forwarded to NSPS for member dues. Other member types would be given the option to join NSPS with PLSC membership for \$40 per year. (Todd/Kayce). Approved unanimously.

Need to elect members to an ad-hoc Committee to develop the NSPS

MOU. Becky, Roger and Todd should be on this Committee.

**4: 2014 Surveyor's Summit,** Chair Todd Beers: Apprentices: Kayce Keane & Steve Parker

Venue, Sponsors, Tract assignments, speakers, advertisements.

4.1– Planning Status Update – only have one 4-hour slot to complete, promotion can be started as soon as possible.

4.2 – Notify IRWA contact Al Morganfield, other organizations – for RMSS promotion, adjoining State Societies, WestFED, any other associations, schools (JB will work on list of programs), GIS list.

### **5: Review PLSC 2014 Goals & Purpose**

- PLSC exist for the purpose of promoting the Profession of Surveying!
  - To improve and protect the profession of land surveying in Colorado.
  - To provide educational and instructional opportunities for those persons presently licensed as land surveyors within the State of Colorado, and for any other persons who are in any manner interested in learning of the profession of land surveying.
  - To promote in general the good and welfare of the profession of land surveying within the State of Colorado.
  - To provide a forum for the discussion of matters of professional interest to land surveyors
- All Chapter Membership Drive – Status
  - Northern Chapter sent drive earlier in the year with no results (mail and phone).
  - year with no known response – new chair this year will reformat the letter.

- Southern Chapter promoted at the five meetings this year – difficult to track success.
- Western Chapter promoted this year – difficult to track but attendance at the meetings is up.
- Northwest – no report.
- Financial Stability.
- Public Outreach - Status
  - CSRN GPS Day – Status of CSRN? Brian Dennis Appointed Pres.
    - GPS Day in Spring – asking Trimble to host (approx. April 18)
    - Cost is \$800-\$1,200 depending on food.
  - Recommended CSRN be moved to a Committee.
  - Move website to PLSC website.
  - Remove as a Chapter option on 2015 dues renewal.
- Trig Star – Jan Sterling \$500 Check – no request from Jan yet.
- Twist Program (2 – Teachers 2015).

6: IRWA/PLSC Golf Tournament – Roger Nelson will work with IRWA representatives to determine involvement and arrange a PLSC committee to participate with organization.

Consensus is to participate with IRWA and still maintain the Paul Grout Memorial Golf Tournament. Need to work out agreement with IRWA for Board approval. Todd will work with Roger on this.

## 7: Reports:

President, Roger Nelson – no report

Vice President, Mike Bouchard – no report

Secretary-Treasurer, Terry Maw – no report

Executive Director, Becky Roland – Revise By-Laws to remove procedures posted, but link not showing on website. Becky has call in to webmaster on this.

NSPS Governor – Warren Ward – new Board Member for TrigStar, has designed a brochure to promote TrigStar to teachers and post on the

website. NCEES will develop the brochure graphics. Board members are encouraged to provide input to Warren on this program.

Proud to be a part of NSPS and PLSC. There will be one more Board of Governors Meeting with NSPS. At that point, PLSC will have a seat on the NSPS Board. This could still be an appointed position per current PLSC bylaws. The Board will need to consider whether the NSPS Representative should be a PLSC Board Member (voting) or Ex-officio.

WFPS Delegates Mike Bouchard and JB Guyton:

MOU with NSPS discussed as to continuing support of NSPS and its programs. JB has a report for Side Shots (if there is room) and for the website.

Paul Reed, Wyoming Delegate, passed away.

Front Range Surveying and Mapping Program, JB Guyton, Chair – no report

University of Colorado

## 8: Standing Committees

Legislative Committee – Alan Blair, Chair – New Legislation?

Completing the language for the Board Rules to require reasoning for establishing a corner when one already exists. DORA will contact Alan when there is a date to review the Rules. Alan will present final language for PLSC Board review/ approval via email. This topic will be part of a Symposium at the Summit.

No pending legislation at this time.

Peg Ackermann is monitoring this year.

Survey Monumentation and Standards - Inactive

Membership Committee, Mike Bouchard, Chair – All Chapter membership drive, New SI's and LS's free membership invitation?

Ethics and Fair Practices, Patrick Green, Chair

Education Committee, Todd Beers, Chair – Apprentices: Kayce Keane & Steve Parker.

Focus is on Summit and Refresher Course. CFED Scholarship Program established and working well.

Liaison Committee, (QBS Colorado)

- Inactive

Special Committees:

Trig Star

GIS-In-The-Rockies – Steve Parker.

Had first meeting. September 22-24, 2015 at Cable Center-Denver Univ. Need more volunteers.

## 9: Chapters

Southern – Steve Parker, President

Election due January 5. Christmas Party upcoming. Discussing a tech conference later in year. Will send in budget by end of week to Terry. Awarded a \$500 scholarship this year.

Central – Chris Raml, President

On Winter Break. Elections completed – new Board in January. Still have some open Board spots to fill – please send suggested volunteers.

Northern –Laine Landau, President

Christmas event went well. Presentations begin again in January.

NW ¼ - Brian T. Kelly, President

Western – Richard Bullen –Western Slope ex-officio appointment - Peter Krick,

Next meeting is 2<sup>nd</sup> week of January. Looking to increase attendance. May 1 is the Annual Seminar.

Southwestern – Josh Casselberry, President – no report

CSRN – Brian Dennis, President – GPS Day – no additional report

Pam – completed field work for calibration baselines, CDOT assisting with one site for access. Working with NOAA funding for outreach material to promote Surveyors' Week and possibly creating interactive maps to access station data – need ideas on how to get this done.

## 10: Next Meeting Date and

Location: January 13 – 4:00 PM

## 11: Adjourn: (Todd/Alan) 5:41 PM

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## CSRN

The CSRN has been busy organizing the 2015 GPS Day event. We have been working with the Trimble Headquarters, in Westminster, to host the GPS Day event on April 18, 2015. Trimble seems as excited as we are for them to host the event and we are on the final lap to complete the details. Once everything is in place, the CSRN will post all information on the PLSC website and email fliers for the event, so PUT IT ON YOUR CALENDAR. With the help from members of the Northern, Southern and Central Chapter we anticipate a great event.

In addition, the CSRN is dissolving as a chapter of the PLSC and will become a committee. You will notice on your PLSC renewal forms that the CSRN is no longer a chapter option. This is in effect January 1, 2015. This was difficult to execute for those

of us who have been a part of the CSRN for so long but the decision was necessary and clear. The CSRN has always relied on participation for its Board from PLSC members who were generally already involved deeply with the regional chapters. This places a strain on the individuals and a strain on new Board recruits and participants. Moving the CSRN into a committee allows the CSRN to continue its outreach efforts, including GPS DAY, without the necessity of elections and other requirements that are part of being a chapter. The PLSC Board, at its next meeting, will be appointing the new Committee Chair and asking for volunteers. Information will be posted on the PLSC website. If you are or have been interested in the outreach efforts the CSRN has initiated but did not want to be an elected Board member, now is your opportunity to join, participate

and make a difference.

Brian Dennis, PLS  
CSRN Acting President

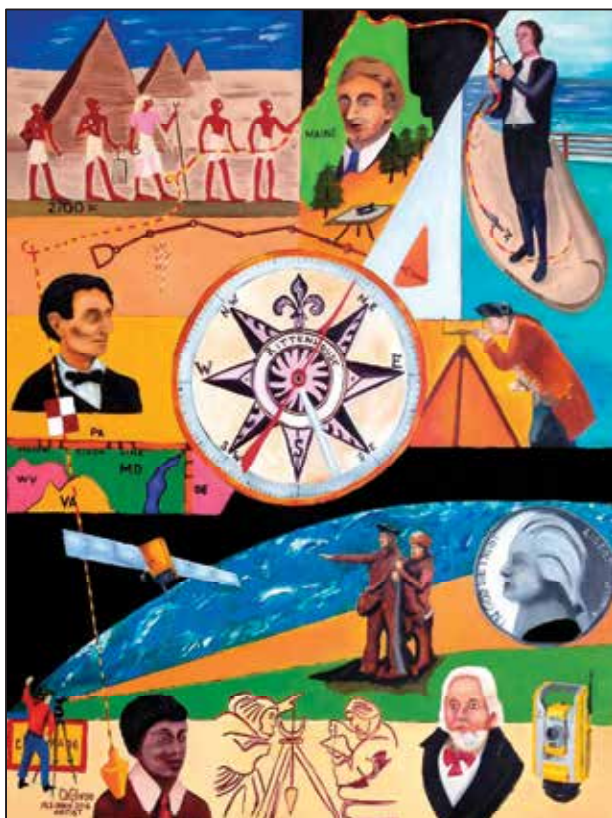
## CCPS

The CCPS BODs hopes you had a safe and happy holiday season.

My term as CCPS President is now coming to an end and I wanted to say thank you to everyone who assisted with meetings and projects. It was a pleasure working with all of you...

Here is a brief recap of the great speakers and interesting topics we have had at our general membership meetings this past year: Riparian rights and the effects of the 2013 floods, hiking the Pacific Crest trail, unmanned aerial systems, railroads and all things NGS. Thanks again to all of our presenters over the past year.

There are five General Member-



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# CHAPTER NEWS

ship meetings every year (January, April, June, August and October). We always welcome topic or speaker suggestions. Includes free dinner, cash bar, great speakers and the way to stay "tuned in" to what is happening with the chapter and the PLSC as a whole. Come out and support your chapter!

We still have a few copies of the "Colorado Land Surveying Laws – 2014 Sunset" booklet available to our membership. This booklet is an invaluable reference and can be obtained at one of our general membership meetings.

If you know of anyone pursuing an education in land surveying or a related field please advise them to review the scholarship application on our website and contact David Kuxhausen at 303-925-1400 for more information.

The 2015 CCPS board of directors

will be in need of at least 3 directors. This is a great opportunity to voice your opinions and help your chapter promote land surveying in Colorado. Contact any of the current board members for more information.

The 2015 CCPS board of directors consists of:

Officers; David Kuxhausen, President; Kevin Kucharczyk, Vice President; Mark Wilson, Secretary; Aaron Willis, Treasurer. The directors are Anthony Perazzo, Shawn Clarke, Devon Arnold and Brian Socia. Thanks to all of you who serve on our board.

Please visit us at [www.centralcosurveypro.com](http://www.centralcosurveypro.com) for contact information, meeting details, and general CCPS news.

Christopher Raml, PLS  
CCPS President

## NC-PLSC

We are still looking for a President Elect to serve on the Northern Chapter Board and then take over the reins in September of 2016. We have had some new members join and step up to fill vacant positions. A special thanks to Kevin Bowman for filling in for Rob Hintz who deserves special thanks of his own for the many years he has served as the Northern Chapter Secretary-Treasurer.

We had a good fall line-up of programs and are looking forward to the spring sessions. Starting us off in January will be Steve Varriano from Tait with a "Math Tips and Tricks" or "CFedS Section 4 made easy" session. His mom was a math teacher so he knows some old tricks and got a good grounding to teach us some new ones. Kathi Lyon, CDOT Surveyor, will follow in February with

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a presentation on Microstation and CAD for CDOT projects. Heather Lassner will be hosting that session in Longmont.

The end of February will find many of us gathering for the Survey Summit which is always well attended and educational. Please plan to participate in this worthwhile event. The Northern Chapter will once again be announcing our scholarship award for the CFedS course. Please look for the application link on our website <https://sites.google.com/site/ncplsc/home> after January 15th.

March, April & May are focused on community events. We plan to participate in GPS day with the CSRN and have some Girl Scouts and Boy Scouts we hope to have in attendance from Northern Colorado. We have been struggling to get TrigStar kicked off in Northern Colorado so if anyone has some suggestions or contacts we'd love to hear about your successes.

Laine Landau, PLS  
President, Northern Chapter

## NW 1/4 CLS

The changing of the calendar from 2014 to 2015 brings to mind the changes we have all seen in this past year, and what we are likely to see in this next year, 2015. Here in the NW1/4 we are almost a microcosm of the overall country. We had a number of local elections for County Commissioners, Treasurers, County Clerk and of course County Surveyors! Routt County will be seeing a new County Surveyor who takes over for Skidge Moon after twelve years of service. Thank you Skidge and best wishes for Tom Effinger! County Surveyors in the other counties include Randy Miller in Jackson County, Leif Joy in Rio Blanco County, Peter Epp in Moffat County and the inestimable Warren Ward in Grand County. Beside Routt County, the rest were all incumbents, but in some cases (Moffat County being one) they will be term limited at the next election cycle. Since the only other remaining surveyor in the County will be near seventy in four years, they have an

interesting predicament, one that mirrors the aging population of the surveying profession throughout the country.

The aging, training and availability situation is becoming increasingly prevalent, not just in Moffat County but throughout our society. The millennium generation is just not nearly as large as the disappearing Baby Boomers. Thus, the NW 1/4 accurately mirrors the societal shift - we have 2/3 of our membership over the age of sixty. In five to ten years, when the last of the baby boomers retire or pass away surveying on a plot of land, who will replace them? I have asked this same question in previous columns and each year seems to accentuate the issue with no solution in sight. Tom Effinger, our new Routt County Surveyor, believes we can all survey into our nineties with the use of rubberized wheel chairs, drones, GIS, Goggle Earth, Robotics and GPS. I just hope we can all read the screens as we get cataracts.

As the economy continues its general recovery in the NW1/4 and throughout the country, this issue is also becoming more obvious. Oil production is certainly flagging throughout the region as crude has plunged below \$50/barrel, but real estate prices are up in Routt County roughly 10-12%, inventory is down, single family houses are on the rebound and an emerging hedge fund has now even relocated to Steamboat Springs, complete with its forty high paying jobs. The help wanted ads in the paper have grown significantly. Looking back at the NW1/4 columns from two to four years ago, the economy is certainly looking brighter in this region of the state!

The problem, of course, is as you put the two together: More demand for surveying services with a recovering economy, combined with an aging surveying profession which is now seven years older than the start of the great Recession. We do have some suggestions for solutions here in the NW1/4, but those will need to wait until next issue!

Brian T. Kelly, PLS  
President, NW1/4 Chapter

## SCPLS

In October, the southern chapter hosted Don Whitmore, Senior Commercial Title Officer, Land Title Guarantee Company, who presented on finding the vesting deed(s), elements of a title commitment, and common mistakes when writing legal descriptions. Don is a well-known and dynamic speaker, and a larger than usual group of surveyors gathered and received answers to their questions. Bird Dog BBQ was served, and members picked up their copies of the 2014 Revised Statutes. Also in October, the chapter awarded Andrew Kotwica, a student at PPCC the 2014 Academic Scholarship in the amount of \$500. Congratulations!!! In November, two members of the chapter spent the day with Colorado Springs District 11 students during "career day," meeting with future geospatial professionals and demonstrating how cool a career in land surveying can be. In December, Southern Colorado Surveyors Christmas Party was celebrated at DJs steak house. Twenty one land surveyors and their wives dined on incredible cuts of steaks, and held a white elephant gift exchange. 2015 is looking bright with new guest speakers and new Southern Colorado business networking opportunities. Happy New Year.

Steve Parker, PLS CFM  
SCPLS President

## SWC-PLSC

The SWPLSC held our most recent chapter meeting on Tuesday, November 11 in Durango. Our guest speaker was Larry Connolly, PLS. Mr. Connolly is the La Plata County Surveyor and member of The State Board of Licensure for Architects, Professional Engineers and Professional Land Surveyors. Mr. Connolly spoke about state statutes, board rules and board rulings for surveyors.

The 2013 Colorado Land Surveying Refresher Course is now available to surveyors in the SW Chapter area. This course offers a review and self-study plan for those taking the National Council of Examiners for

Engineering and Surveying (NCEES) Fundamentals of Surveying (FS) and Principles and Practice of Surveying (PS) examinations. Attached is the order form for the Refresher Courses. These are on DVD and being offered to the Chapters at a 25% discount. Please contact Parker Newby at [pnewby@goffengineering.com](mailto:pnewby@goffengineering.com) with questions or to request an enrollment form.

Our next meeting is scheduled for Tuesday, February 10 here in Durango. We are planning some changes and will be having a guest (or SWPLSC chapter member) speaker at all of our future chapter meetings. Look for guest speaker information, time and location in the upcoming email. If anyone has any ideas about future speakers or topics, please contact Josh Casselberry at [josh@morenosurveying.com](mailto:josh@morenosurveying.com). We are trying to accommodate surveyors in our area by having technical, professional and other associated topics.

Southwest Chapter members are encouraged to show up and receive a copy of Paul Bacus' Colorado Land Surveying Laws Booklet.

Joshua J. Casselberry, PLS  
President, SWC-PLSC

## WCLS

The next meeting of the WCLS will be January 14th at 6pm at the Grand Junction City Hall. An installation of our newly elected directors will occur during our dinner meeting. We will be discussing our upcoming Spring Seminar to be held on Friday, May 1st. We all look forward to a better 2015, business wise, than the rather soft economy of 2014. The Western Slope has unfortunately not rebounded like the Front Range. Wish us well.

Peter T. Krick, PLS  
President, WCLS



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