

THE NEVADA TRAVERSE

Journal of the Professional Land Surveyors of Nevada

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THE FUTURE OF SURVEYING

A person is silhouetted against a bright sunset sky, standing on a rocky outcrop and using a surveying instrument. The scene is framed by dark tree branches in the foreground. The overall mood is adventurous and professional.

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R12

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THE NEVADA TRAVERSE

This publication is issued quarterly by the Nevada Association of Land Surveyors (NALS) and is published as a service to the Land Surveying profession of the state of Nevada. *The Nevada Traverse* is an open forum for all Surveyors, with an editorial policy predicated on the objective of NALS and Bylaws, Article II, which reads:

'The purpose of the association shall be to promote the common good and welfare of its members in their activities in the profession of Land Surveying; to promote the common good and welfare of the public in terms of professional land surveying activities; to promote and maintain the highest possible standards of professional ethics and practice; to promote public awareness and trust in Professional Land Surveyors and their work.

This organization, in its activities and in its membership, shall be non-partisan, non-sectarian, and non-discriminatory."

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The Editor's Corner

by Trent J. Keenan, PLS



I am sure I can speak for all of us, but I'm glad that 2020 is over. This is going to be a year we will remember for the rest of our lives, and not in a good way. 2020 has been the most extended year in history it feels like, with the Covid-19 Pandemic causing us to live in house arrest, Massive wildfires around the world, murder hornets, droughts (235+ days in Las Vegas without rain, where the previous record was 150 days), a record number of hurricanes, BLM became one of the most search terms on the internet after the riots spread across the nation, and this has been the worst year that I can remember for celebrities deaths with some of the biggest names to be born in the twentieth century passing away, with names like Kenny Rogers, Charlie Daniels, and Eddie Van Halen to Alex Trebek and Sean Connery to name a few. The Stock Market Crash and Oil Industry bust are just a few more highlights, but let us not forget about the presidential election where the most ballots were cast in US History.

Not everything that happened in 2020 was all bad. There were a lot of good things to come out of all this bad. With the technology advancements we were forced into this year with Zoom, we were able to keep business as usual for the most part on the association business side. Crissy & Dorothy proved we could have a successful conference even on a virtual platform. Lastly, we were also able to bring the whole state together with a few virtual lunch meetings and bring surveyors to the gatherings who haven't attended in years! There have been some other wild advancements in the surveying equipment world as well. Would you believe me if I told you, you could now store a point with an unplumbed rod in your hand and still have a very accurate location? Yes, you read that right. With a new Trimble GPS receiver, you can take a shot on a point with a GPS rod at a 45-degree angle and still get the same result as a correctly plumbed rod. That would seem like the craziest thing ever said out loud ten years ago. To learn more, search Trimble R12i receivers in your web browser. What will they think of next? Automated drafting? Oh wait, that is the works already!

Well, enough of the depressing stuff; let's talk about the Future of Surveying and what things might look like with the current economic climate and technological advancements. In this edition, I wanted to look back at SB- 103 and the bachelor's degree requirement since we just passed our 10th anniversary of the requirement going into effect. I also wanted to provide an in-depth look at what it means when we say the average surveyor is 61 years old. We hear it all the time, we are an aging profession, so I spent about six months doing a research project and reaching out to every licensing board across the country trying to get as much information as possible. I was not given enormous data, but about 28 states responded to my request with some data. However, in the end, I only have six matching data sets and a few other partial data sets that provide a very

similar outlook, so I feel like I could offer a good feel for where we are headed! Given the changes to the profession and the threats to deregulate licensing, I think it is inevitable that surveyors will need to start being a little more active in our recruitment of the profession moving forward.

In this edition, we have an article by Carl C.de Baca on what a tiered and or National licensure may look like if we decided to go down this path in the years ahead. The other story looks into the history of Lidago (LightSquared as we all know it) and what effects it may have on the surveying profession if their technology is allowed to move forward. Lastly, Carl again talks about the "Collector" and his stories of the conference silent auctions to a great new find while recently surfing the internet.

And finally, as I close out this last issue of the Nevada Traverse for 2020 and wrap up my first year as the new editor, it's time to follow our former editors' annual plea for new material. You folks all have a variety of unique experiences in the world of Surveying. You can all tell great stories at the bar or at the table before a chapter meeting starts. And there's certainly no shortage of opinions on the leading surveying topics of the day. Why is it so difficult to turn that into an article or editorial? Please help me keep this magazine as Nevada-centric as possible.

Enjoy this edition. My hope is you see in the data provided and articles that the time to act is now!

May you all have a safe holiday season and a Happy New Year!



About the Cover...



A composite image of different photos taken from articles throughout this year's editions of The Nevada Traverse. Photo credit: Jeremy Long (Full Metal Worldwide)

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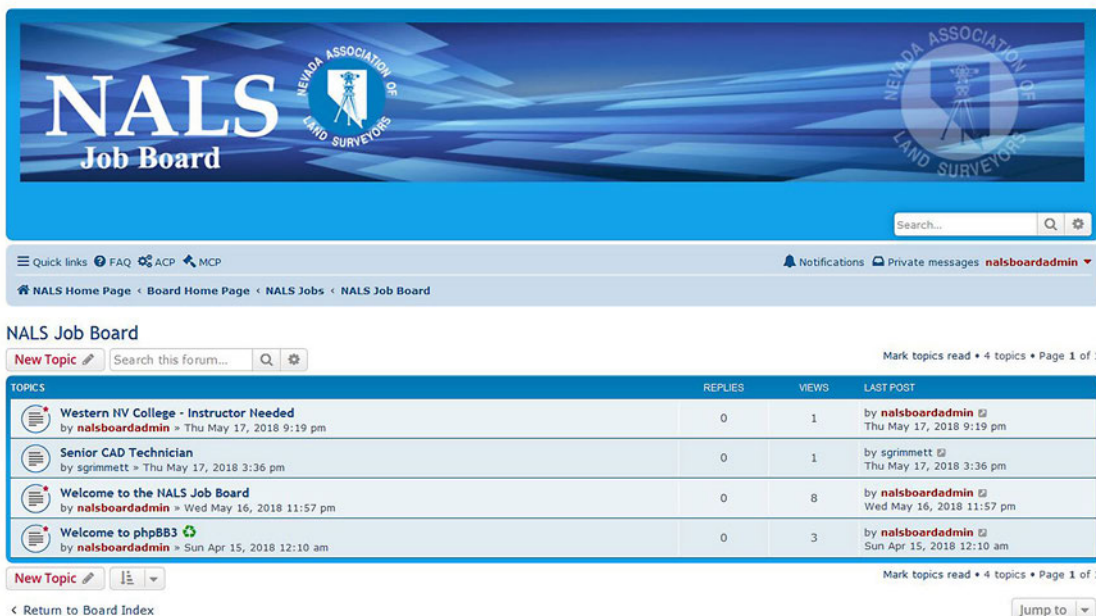
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 Western NV College - Instructor Needed by nalsboardadmin • Thu May 17, 2018 9:19 pm	0	1	by nalsboardadmin • Thu May 17, 2018 9:19 pm
 Senior CAD Technician by sgrimmitt • Thu May 17, 2018 3:36 pm	0	1	by sgrimmitt • Thu May 17, 2018 3:36 pm
 Welcome to the NALS Job Board by nalsboardadmin • Wed May 16, 2018 11:57 pm	0	8	by nalsboardadmin • Wed May 16, 2018 11:57 pm
 Welcome to phpBB3 by nalsboardadmin • Sun Apr 15, 2018 12:10 am	0	3	by nalsboardadmin • Sun Apr 15, 2018 12:10 am

New Topic Search this forum... Mark topics read • 4 topics • Page 1 of 1

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NALS has launched a new job board to help employers fill vacancies and members search for new opportunities. The job board is a separate system from our members' portal, to post you will need to register and follow the onscreen prompts. Registration is free. You do not have to register to view postings.



The President's Message

by Greg Phillips, PLS

Happy winter, and goodbye to 2020! I think we are all looking forward to moving on and getting back to some normal life in 2021. It has been a challenging year, but I am grateful for the opportunities I have had. So far, my family has stayed healthy, and we have been able to keep busy and productive at work. My family has been fortunate to spend a lot of time outdoors this year, and hopefully, we can continue through the winter, staying active while socially distant.

When I started this journey over eight years ago, serving different capacities on the Lahontan and State Boards, I definitely did not see me finishing out as the COVID President. This will be my final message to you as NALS President, but you haven't seen the last of me. I am looking forward to being a Past President and am excited to continue serving on committees as needed and being one of the 2 Nevada delegates to WestFed. I am committed to following some of our recent past presidents' footsteps to remain active and help the next generation of NALS leaders. I would specifically like to thank both Jason Higgins and Trent Keenan for their continued support of this organization, as well as them personally mentoring me.

I am very excited about the future leadership at both the State and Chapter levels. Frank Wittie has put together a great team of seasoned veterans and some newer faces on the Southern Chapter Board. The Lahontan Chapter is coming out of the gate strong with Jake Johnson taking the reins. Jake has recruited quite a bit of new talent that I am confident will keep them going strong well into the future. With Justin Moore as our new State President, it will be an excellent year for NALS. I have known Justin for a long time, and his work ethic is unrivaled. I am glad to see we are in a strong position to move forward as an organization.

Virtual meetings have been a blessing and a curse. We have been missing some faces that are either reluctant to turn on the camera or don't have or want the technology. The plus side is that we have been connecting with members in the state and regionally that we would usually not see at an in-person meeting. The Board just made the difficult decision to shift our 2021 conference to a virtual platform. We are talking with other western states to partner with to provide the best value and learning experience that we can while still maintaining our social distancing. When the pandemic threat begins to recede, I am sure we will be planning a live get together as soon as it is safe to do so. I would love to see a late summer – early fall workshop, golf tournament, beer-drinking social event.

I want to thank you all for the opportunity to have served you and NALS. This is a great organization, and the relationships I have developed through my years of service have been more rewarding than ever imaginable. Happy New Year, welcome 2021, get that vaccine rolling, and I will see you all in person very soon!



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Professional Land Surveying: Then, Now, and Where Are We Headed?

Prepared by Trent J. Keenan, PLS

Introduction.

The landscape of the licensing requirements for the land surveying profession has changed dramatically over the past decade. In this article, I will take an in-depth look at where the Nevada Legislature has brought us today, current trends of the profession, and the direction our future actions might take us.

Specifically, I will explore:

- The shift that occurred when Nevada Senate Bill No. 103 passed (B.D.R. 54-408).
- The new distinction between land surveying as a "trade" versus a "profession."
- The results of my nationwide research into current land surveying educational trends and exam rate statistics; and
- The importance of how and why we should invest energy in the land surveying profession's future.

The History of Nevada Senate Bill No. 103.

We will start with how and why Nevada Senate Bill No. 103 (SB103) came to fruition. Before SB103 was passed, surveying was not considered a degree-based profession. Rather, it was an apprentice trade. The winds of change began in 1992, with a Florida Supreme Court Decision (*Garden v. Frier* (1992) 602 So.2d 1273) that sought to determine if a land surveyor was a "professional" in relation to Florida's professional malpractice statute. This case followed an earlier court case (*Pierce v. AALL Insurance Co.* (1988) 531 So.2d 84), which in short said:

"we hold that a 'profession' is any vocation requiring at a minimum a four-year college degree before licensing is possible in Florida. There can be no equivalency exception...a vocation is a profession if any graduate degree is required as a condition of state licensure, without regard to the nature of the undergraduate education."

In *Garden v. Frier*, the Florida Supreme Court ruled that land surveying was indeed a trade, as no formal surveying education was required to enter the profession. The Florida Supreme Court's decision soon led every other state in the nation to review their land surveying licensing requirements. The state of Nevada was no exception.

Let us fast-forward to the Nevada Legislative Session of 1999 and the passage of Senate Bill No. 103 — Committee on Commerce and Labor, Approved June 8, 1999. SB103: The Nevada State Board of Professional Engineers and Land Surveyors' (BOPE&LS) Bill entitled *"An act relating to professionals. This Bill requires applicants for licensure as professional engineers and land surveyors to be graduates of certain curricula approved by the Nevada State Board of Professional Engineers and Land Surveyors, etc."*

The Bill incorporated Senate Amendment No. 581 and Assembly Amendment No. 985 and was signed into effect by Nevada's Governor on June 6, 1999. Key to SB103 was Section 7, which was not scheduled to go into effect until 2010.

To read the full Bill as it was enrolled, please visit:

https://www.leg.state.nv.us/Session/70th1999/bills/SB/SB103_EN.pdf

The 1999 Nevada Senate Committee on Commerce and Labor meeting contained some interesting Meeting Minutes dated February 12, 1999. These Meeting Minutes show initial discussions that resulted in what would become the final SB103 language. Below are the positions held by three (3) of the key individuals in attendance.

- Larry L. Spitler**, Lobbyist, American Consulting Engineers Council of Nevada (ACEC/Nevada), read from a prepared testimony stating that ACEC/Nevada could not support the elimination of the experience and testing option for land surveying licensure because it may lead to an artificially induced shortage of licensed land surveyors.
- Senator Raymond C. Shaffer** commented that most land surveyors work beneath engineers. Because many engineering companies had their own land surveyors, this meant that there was typically someone on the record and responsible, therefore protecting the public.
- Rita Lumos**, P.L.S., pointed out that although surveying and engineering were often housed within the same firm, they were separate positions. Thus, the engineer had no authority under the law to oversee land surveying. She also stated the Nevada Association of Land Surveyors had been working towards establishing a degreed program at the University of Nevada, Las Vegas (UNLV), and that there was an existing 2-year program in place at the Community College of Southern

Nevada with 78 students enrolled. Finally, she argued that Nevada's 400 existing licensed surveyors were on a path that required further education. In short, both national and local trends demonstrated a need to keep standards high and move towards a degree-based profession.

Needless to say, the resulting SB103 favored the position of Ms. Lumos, and a trajectory was set in Nevada that would shift land surveying from the realm of trade to the realm of profession.

Trade Versus Profession – What Do These Terms Mean?

A discussion of trade vs. profession should start by defining the terms in question. According to *Black's Law Dictionary*, the term "profession" is defined as a vocation requiring special or advanced education, knowledge, and skill. The labor and skill involved is predominantly mental or intellectual, rather than physical or manual.

In contrast, *Black's Law Dictionary* defines a "tradesman" as a "mechanic, craftsman, or artificer of any kind, whose livelihood depends primarily on the labor of his hands." Further, it defines a trade as a business or industry occupation; a craft or profession.

As you can see, the real difference between a trade and a profession is education. For Nevada to officially move the land surveying profession from the realm of "trade" to that of a "profession," Nevada needed to change state law and require everyone entering the profession to have a bachelor's degree. As mentioned, SB103 passed in 1999, and the education component of this Bill officially went into effect on July 1, 2010.

You can now see that Nevada had devoted over ten (10) years before 2010 fighting to make land surveying a "profession." Nevertheless, there was another battle brewing on Capitol Hill soon after SB103 went into effect. There is no direct correlation between this battle and SB103, but this back-door decision ultimately hurt the land surveying profession's professionalization.

Progress Prevented: The 2013 "Laborers and Mechanics" Classification.

On August 4, 2011, the International Union of Operation Engineers (Local 12) sent a letter to Mr. Timothy J. Helm, Chief, Branch of Government Contracts Enforcement - Division of Enforcement Policy and Procedures Wage and Hour Division (W.H.D.) requesting a meeting to discuss the reclassification of land surveyors within the Davis-Bacon wage determination schedules. This 26-page letter stated that land surveyors should be included as part of the Davis-Bacon Act for wages.

In making their argument, the union members did not provide a favorable evaluation of the land surveying profession. The W.H.D. followed through on Local 12's request, and the Union was successful in reclassifying certain individuals of the land survey crew as "laborers and mechanics" within the W.H.D. However, it should be noted that this reclassification does not apply to licensed professional land surveyors or party chiefs working on the site. The Department of Labor's Wage and Hour Division issued an All Agency Memorandum (AAM-212) on March 22, 2013.

To understand the delta between the land surveying licensed professional and union field staff surveyors, the IUOE letter argues that:

a. Educational Requirements.

There is no minimum level of formal education required to become a field land surveyor. A GED is sufficient. Acting Solicitor of Labor Harold C. Nystrom's August 31, 1960 letter stating: "[R]odmen, chainmen, axemen (grubbing brush, etc.) stakemen, and the like, clearly perform the work of laborers and do not in fact even approach the educational or other qualifications associated with the true professional."

b. The Jobs of Office Surveyors and Field Surveyors Are Not the Same.

The job of a field survey crew is similar to that of a grade checker: to ensure that the heavy equipment operators dig or fill to the correct depth and in the correct location. The office surveyors determine the depth and location based upon measurements provided by the field surveyors and, in turn, provides field surveyors at the site of the work with the necessary step-by-step instructions concerning grade and elevation. The office surveyors make mathematical calculations and plot the coordinates of the locations that need to be staked, and the field surveyors carry out this work, bringing errors and issues to the attention of the project manager, registered engineer, or licensed office surveyor.

Additionally, the IUOE Letter, page 19 states:

c. Field Surveyors Are Clearly Not "Professional," "Semiprofessional," or "Subprofessional."

In the Davis-Bacon context, the W.H.D. issued an opinion letter characterizing work as "subprofessional" and "semiprofessional" as a justification for failing to extend coverage to skilled tradespersons. Under this view, a field surveyor is clearly not a professional—nor

CONTINUED ON NEXT PAGE ►

even a “subprofessional” or “semiprofessional.” There is no requirement that field surveyors be licensed, obtain a certification, or earn a college degree or even a high school diploma.

Thus the framework was laid out for compensating some members of a land survey crew as simple laborers and mechanics—a move separate from but in direct competition to the SB103 movement that sought to solidify land surveying as a profession.

In January 2015, NSPS Federal Lobbyist John “J.B.” Byrd published an article on the XYHT website. In the article, he argued persuasively against the Local 12 Letter and the AAM 212 Memorandum. Byrd stated in no uncertain terms that the surveying community was facing the most serious threat to its professional image in decades. The U.S. Department of Labor—without consultation with the community, public notice, or opportunity for public comment—had issued the Order on March 22, 2013, declaring that members of survey crews are “laborers and mechanics” subject to the controversial Davis-Bacon Act. The Order reversed more than 50 years of policy that, since President John F. Kennedy’s administration, had largely exempted survey crews from the Davis-Bacon Act.

NSPS has strongly objected to the U.S. Department of Labor’s classification of members of land survey crews as laborers and mechanics, stating it is “an affront to the surveying profession” and “detrimental to our profession and an inappropriate demotion of valued and skilled employees.”

Much time and effort have been expended in attempting to reverse the 2013 W.H.D. decision. There have been nine (9) Opinion Letters issued from 1960–1964 listing several examples of the physical work performed by land surveying crews. However, there have also been six (6) W.H.D. Opinion Letters from 1975 to the present that demonstrate a failure to understand the 1960–1964 Opinion Letters from the U.S. Secretary of Labor and the U.S. Solicitor of Labor.

NSPS has not given up on their fight yet. Curtis W. Sumner (Executive Director at NSPS) testified before Congress on June 18, 2013. More recently, on September 8, 2020, NSPS sent a letter to The Honorable James Comer, Ranking Member for the United States House Committee on Oversight and Reform, urging his oversight and investigation into the applicability of Davis-Bacon labor standards to members of land surveying crews.

In a September 8, 2020 letter, Mr. Sumner held that the memorandum “provides no rationale for this change in policy, cites no recent

legislation, and references no court case to explain the basis of this new policy. There has been no action by Congress, no ruling by a court, and no other recent development to change a 50+ year policy. Moreover, this change in policy was made with no public notice, no public comment, no consultation with affected stakeholders, no economic or regulatory impact analysis, and no study of its effect on small businesses.”

Nevada State as of 10/27/2020							
Age Range	Total Active PLS	In State Surveyors	Non-Resident Surveyors	New - Land Surveyors By Year	Total:	In State Surveyors	Non-Resident Surveyors
Nevada could theoretically lose 120 +/- In-State Land Surveyors with an age 61 and older = 42.2% over the next 10 years. However, for comparison Nevada has only awarded 46 new In State licenses in the last 10 years.				2000	21	0	0
				2001	16	0	0
				2002	18	0	0
				2003	11	0	0
				2004	34	0	0
21-25	1	0	1	2005	31	0	0
26-30	1	0	1	2006	27	0	0
31-35	10	3	7	2007	33	0	0
36-40	31	9	22	2008	43	0	0
41-45	60	25	35	2009	47	0	0
46-50	85	35	50	*2010*	*52*	*14*	*38*
51-55	80	40	40	2011	19	9	10
56-60	109	52	57	2012	17	3	14
61-65	120	49	71	2013	13	7	6
66-70	92	35	57	2014	9	1	8
71-75	52	26	26	2015	13	2	11
76-80	18	4	14	2016	18	0	18
81-85	9	5	4	2017	13	2	11
86-90	1	1	0	2018	14	1	13
91-95	0	0	0	2019	24	5	19
				2020	18	2	16
Total:	669	284	385	Total:	439	32	126

It goes without saying that Nevada has taken all the right steps to solidify land surveying’s place as a professional career. However, as with most change, it rarely comes easy. Today, we remain faced with defending ourselves against the 2013 issuance of AAM212. In contrast, there is no legal change to the victory of SB103, the W.H.D. consideration of land surveying as being the domain of “laborers and mechanics” is disheartening and could open the door to the profession’s deregulation.

To review the letters referenced above and stay up-to-date with the Davis-Bacon decision, visit the NSPS website: <https://www.nsp.us.com/general/custom.asp?page=DavisBacon>

2020 Education and Licensing Trends.

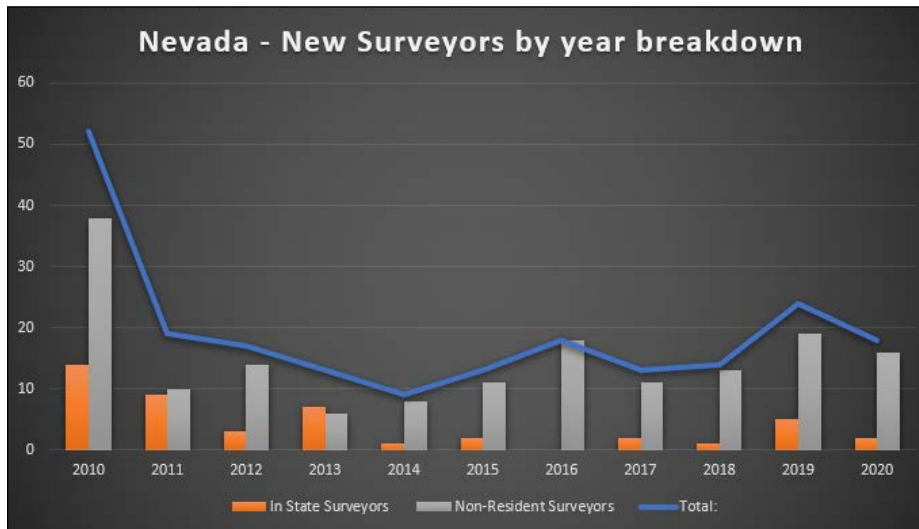
We now know that in 2010 new educational requirements were implemented for all individuals entering the land surveying profession here in Nevada. The question is, what has changed since then? The answer is that we are about to see a dramatic reduction in licensed land surveying personnel in the coming years unless action is taken to attract and nurture new surveying professionals.

To find this answer, I conducted an in-depth national investigation to determine how Nevada has fared since the 2010 implementation of SB103 Section 7 and the trends in other states that adopted similar measures. This meant examining data from all states that publicly provide their existing licensing data.

The first data point to review was the number of licenses awarded to college-educated surveyors from the ten years before SB103 went into effect (2000–2010). The data revealed that there was already an educated applicant base here in Nevada before SB103 went

into effect. 53% of those applying had some type of college education and could therefore be considered professionals. 47% of those applying did not have a college education and could therefore be regarded as tradesmen.

The second data point to review was the number of new licenses awarded during the most recent ten years (2010–2020). In total, I wanted to look at both the ten years preceding the degree requirement and the ten years following the degree requirement set forth by SB103. Below are the numbers for all licenses for both “In-State” and “Out of State” land surveyors. As you can see from the Tables below, there was a big push in 2010 for licensees trying to beat the July 1, 2010, effective date for SB103.



a. An Aging Workforce.

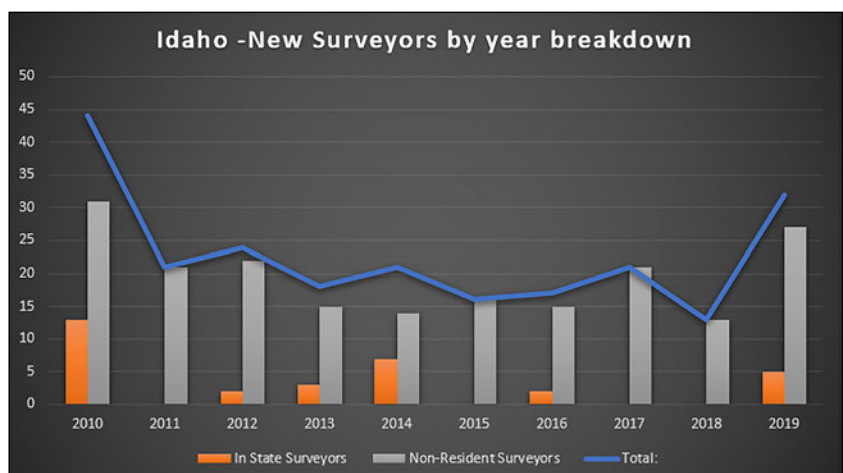
It is shocking is when you put the trend of these data points into context. Nevada could theoretically lose 120 “In-State” land surveyors aged 61+ over the next ten years if current trends continue. That is the equivalent of 42.2% of all currently licensed surveyors. In comparison, Nevada has only awarded 32 new “In-State” licenses in the last ten years. This means that Nevada will potentially lose a net of 88 or more land surveyors in the next ten years.

It quickly becomes apparent that land surveying is an aging profession needing an infusion of new members. The data in the following tables illustrate that Nevada is not a unique state in this regard. From California to Florida and almost everywhere in between, the number of anticipated new professionals cannot hope to replace the number of surveyors expected to retire.

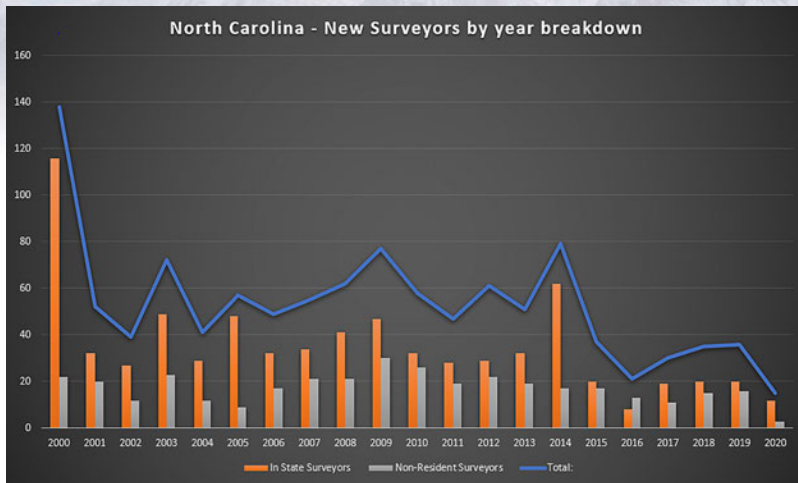
The following data sets are all compared with anyone over the age of 61 that may retire in the next ten years.

Idaho could theoretically lose 102 “In-state” land surveyors aged 61+ over the next ten years. That is the equivalent to 39.3% of all currently licensed land surveyors. In comparison, Idaho has only awarded 32 new licenses in the last ten years.

- **Education Requirements:**
Effective on July 1, 2010, all P.L.S. applicants must have a 4-year degree either in surveying or related science plus 30-semester credits of surveying courses.



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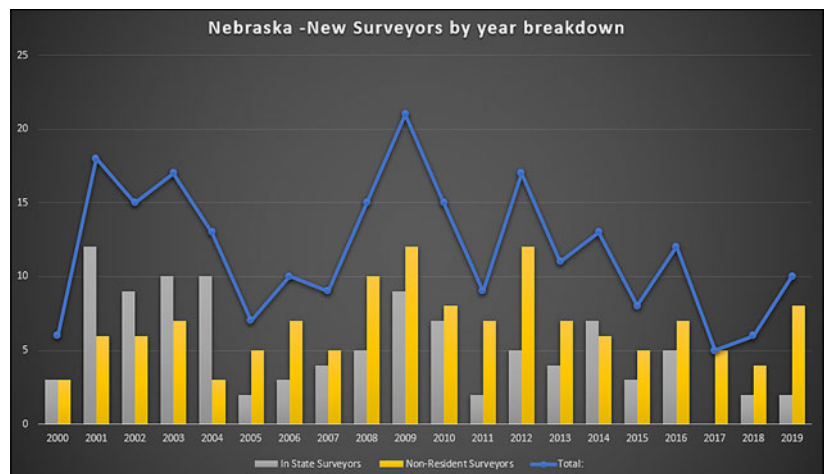


North Carolina could theoretically lose 787 in-state land surveyors aged 61+ over the next ten years. That is the equivalent of 43.9% of all currently licensed land surveyors. In comparison, North Carolina has only awarded 250 new licenses in the last ten years.

- Education Requirements: Effective on January 1, 2013, all P.L.S. applicants must have a Bachelor of Science degree in surveying or other equivalent curricula.

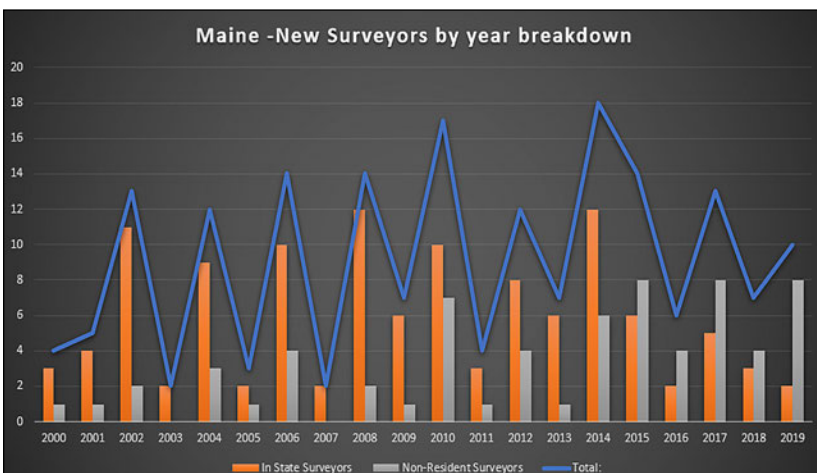
Nebraska could theoretically lose 77 in-state land surveyors aged 61+ over the next ten years. That is the equivalent of 38.1% of all currently licensed land surveyors. In comparison, Nebraska has only awarded 37 new licenses in the last ten years.

- No Education requirements.



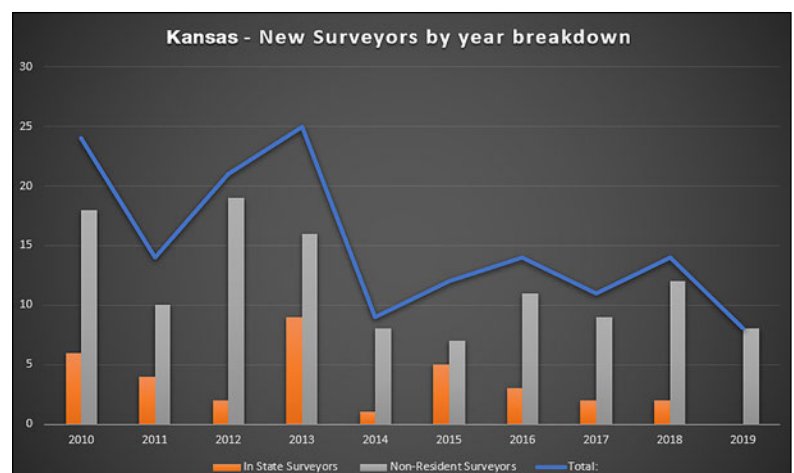
Maine could theoretically lose 188 in-state land surveyors aged 61+ over the next ten years. That is the equivalent to 37.8% of all currently licensed land surveyors. In comparison, Maine has only awarded 57 new licenses in the last ten years.

- Education Requirements: There are four ways to get a license in Maine. Either with education, four (4) years bachelor's degree and no experience or no education, and seven (7) years experience.

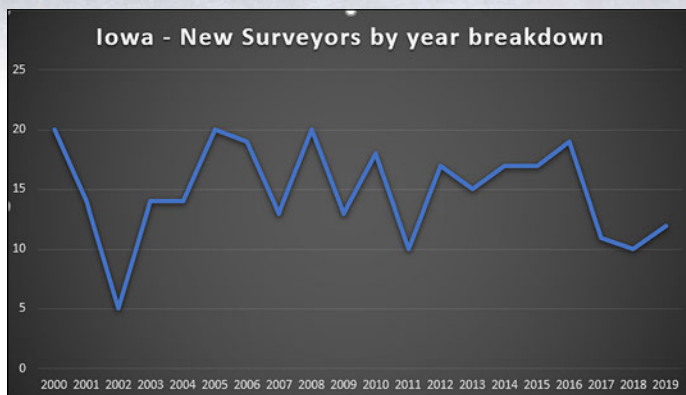


Kansas could theoretically lose 174 in-state land surveyors aged 61+ over the next ten years. That is the equivalent of 55.4% of all currently licensed land surveyors. In comparison, Kansas has only awarded 34 new licenses in the last ten years.

- Education Requirements: graduation from a four-year surveying baccalaureate curriculum accredited by (ABET); implementing K.S.A. 2013 Supp. 74-7022, as amended by 2014 SB 349, sec. 15

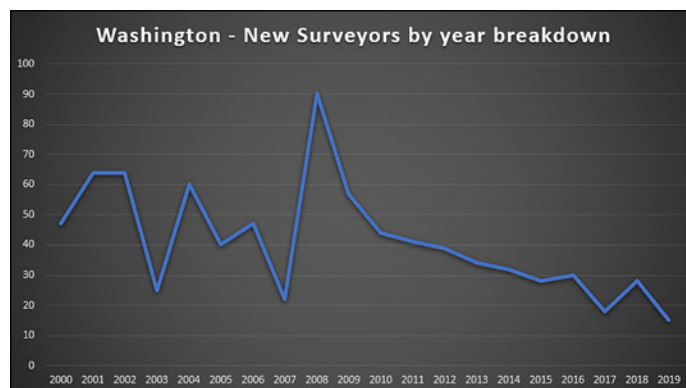


The following data sets are for information about the entire state (both In-State and Out-of-State Surveyors).



Iowa could theoretically lose a total of 163 in-state land surveyors aged 61+ over the next ten years. That is the equivalent of 35.9% of all currently licensed land surveyors. In comparison, Iowa has only awarded 146 new licenses in the last ten years.

Washington could theoretically lose a total of 407 in-state land surveyors aged 61+ over the next ten years. That is the equivalent of 40.1% of all currently licensed land surveyors. In comparison, Washington has only awarded 309 new licenses in the last ten years.



The number of new licenses issued by the states to "In-State" land surveyors versus the number of licenses issued to "Out-of-State" land surveyors is drastically different. When you look at the number of land surveyors combined in the two totals above from Washington and Iowa, the "Net" number is not alarming because we have added the reciprocity numbers to the data sets.

A few other notable data sets from other states continue to show a downward trend. These states did not provide a full data set, so I could not thoroughly compare the data. However, I feel the data gives an accurate representation surrounding the numbers of in-state land surveyors.

- South Carolina could lose 379 +/- In-State Land Surveyors with an age of 61 and older (40.1%) over the next ten (10) years. However, for comparison, South Carolina has only awarded 299 new In-State licenses in the last twenty (20) years.
- Florida could lose 1,297 surveyors (50.12%) over the next ten (10) years. However, for comparison, Florida has only licensed 1,292 in the last twenty (20) years.
- Montana could lose 79 +/- In-State Land Surveyors with an age of 61 and older (35.9%) over the next ten (10) years. However, for comparison, Montana has only awarded 53 new In-State licenses in the last ten (10) years.
- New Mexico has more Out of State Land Surveyors (300) than In-State Land Surveyors (250).
- Wyoming has more Out of State Land Surveyors (196) than In-State Land Surveyors (148).
- Arizona is very close in numbers for both In-State Land Surveyors (914) and Out of State Land Surveyors (712). There was no age data provided; however, Arizona did say they have licensed 797 land surveyors in the last twenty (20) years. They have about 524 licenses that either retired, canceled, expired, etc., since 2000. However, of the 797, I was not provided a split on In-State versus Out-of-State land surveyors.

The real data is found in the primary home state, where the land surveyor practices. For example, I am personally licensed in five (5) states. Another land surveyor in my office is licensed in seven (7) states. Our main work focus is Nevada; however, we have 12 licenses between us. Add our colleague Steve Parrish, P.L.S., to the mix, and suddenly we have 22 licenses between just three (3) land surveyors. Now there are roughly 50,000 licenses in the United States, but what is the real number? The fact that the number of national licensees remains steady over time could be misleading, as many surveyors have earned multiple state licensures.

Average Age at Licensure.

One additional point that should be made is the exceedingly long time for the average land surveyor to obtain a professional license in the United States. In Nevada, the average age of an individual obtaining their Professional Licensure is 42 years old. According to the data in the 2019 NCEES Squared Report, national trends follow suit. The average age of individuals taking The Principles and Practice of Surveying (P.S.) exam is just under 39 years old. In comparison, the national average of individuals taking The Fundamentals of Surveying (F.S.) exam is just over 34 years old.

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The fact that it takes a minimum of 8-10 years to become a professional land surveyor in most states is problematic. In some cases, it will take you longer to become a professional land surveyor than it will to become a dentist! We need to explore ways to help expedite this process to get young surveyors started on their professional journeys much sooner in their careers.

College Enrollment Trends and Licensure Examinations.

In terms of what is happening at college campuses, enrollments have been relatively steady. Most programs graduate five (5) or six (6) students per year. The most recent National Council of Examiners for Engineering and Surveying (NCEES) report shows some interesting trends.

First-time exam takers of The Fundamentals of Surveying (F.S.) are going up, with a 40% increase in first-time exam takers between 2015 and 2019. As a refresher, the F.S. exam is designed for recent college graduates and college students who are close to completing an undergraduate degree in surveying. Passing this exam is an essential first step in the surveying licensure process. The roughly six-hour computer-based exam is comprised of 110 questions and is administered year-round.

However, first-time exam takers of The Principles and Practice of Surveying (P.S.) are going down, with 15% fewer exam takers than in 2015. The P.S. exam is designed for surveyors who have gained at least four (4) years of work experience in their respective field. It is an eight-hour computer-based exam.

NCEES seeks to address this downward trend by focusing on recruitment in the geomatics profession. With a coalition of interested parties, NCEES is formally focused on the surveying profession's needs by enhancing current efforts nationwide. These new opportunities to bring recruitment, education, and diversity to the surveying profession work are carried out in tandem with NCEES goals, which are to promote the value of licensure and increase the number of people entering the surveying workforce. In July 2020, Marisa Trzemzalski became a member of the NCEES Public Affairs team. At NCEES, Marisa works closely with Surveying Candidate Objectives for Recruitment and Education (SCORE) partners on surveying marketing and outreach projects. She coordinates NCEES surveying marketing activities through print and digital advertising, exhibitions, and sponsored collaborations. She is also responsible for marketing NCEES services, promoting the value of licensure in surveying, and coordinating K-12 surveying outreach events.

Investing in Our Profession's Future.

Land surveying has undoubtedly come a long way over the years. Surveyors today can work with technologies that those before us could only have dreamed of. This is not to suggest that today's land surveyors are better or more experienced than those of the past. We merely have a more advanced set of tools allowing us to create more accurate results.

The advancement of technologies comes with a price. We now need the higher educated and more advanced workforce to complete the everyday tasks of creating a boundary survey or running the advanced software to make the 3D Building Information Modeling (BIM). We need to pursue this goal of professionalization while simultaneously combatting the effects of an aging workforce and jumpstart a new generation of young surveyors on the road to licensure.

Listed below are some first thoughts on revitalizing the land surveying profession and better preparing for the years ahead.

a. Invest in STEM (Science, Technology, Engineering, and Math) Education.

1. Work with your local technical high schools.
2. Identify the Work-Based Learning Coordinators for each school district.
3. Promote the Get Kids Into Survey initiative and become a Brand Ambassador.
4. Continue to teach the Surveying Merit Badge contents to the Boy Scouts and the STEM Badges to the Girl Scouts.
5. *"rapid growth will require a large, steady and incredibly capable workforce with an eye for innovation. By investing in STEM education opportunities and promoting its importance to the younger generation now, the engineering *surveying added* industry will have a better chance of closing the skills gap in the future, which will aid in attracting and retaining the talent the industry needs."*

-Yvonne Garcia Thomas, Now is the time to invest in the next generation of engineers, San Antonio Business, September 24, 2020

b. Commit to Diversity.

1. It is clear that the land surveying profession remains critical and would benefit from attracting new and diverse members. The statistics mentioned above also reveal the sobering fact that, out of all 669 active P.L.S.'s in Nevada,

only 14 are female. That is correct; only 2% of our current surveyors are women.

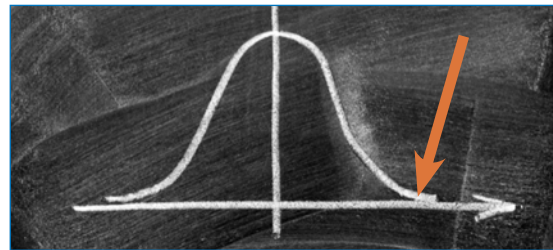
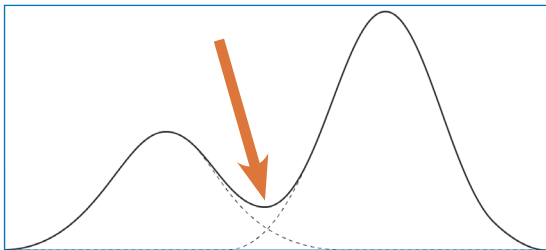
2. *Despite efforts to close the gender gap, women and girls remain underrepresented in STEM fields and in college STEM programs. While women make up half of the college-educated labor pool in the United States, they only account for 29 percent of the STEM workforce. The United States Bureau of Labor Statistics also confirms that African Americans, Latinos, and Native Americans are underrepresented in the engineering industry, where they represent only 22 percent of the workforce.*

--Yvonne Garcia Thomas, Now is the time to invest in the next generation of engineers, San Antonio Business September 24, 2020

c. Provide Mentorship.

1. There is a growing need for industry mentorship opportunities, both in the profession and associations. I recently started Mentoring Mondays for the Land Surveying Profession, a weekly meeting room via Zoom for surveyors of all ages.
3. Create "Career Ambassadors" like the current program in North Carolina. I would like to see NSPS create a "school/training" for every Career Ambassador from across the country to learn about land surveying, learn how to present, and what tools to bring to a career fair or class presentation. One voice for all of us to preach.
4. Ensure we have a very active NSPS -Young Surveyors Network in your home state and nationally. I feel like the young surveyors could be the ones up in front of the class or the career fairs, bringing the energy and excitement we need to show off our best tools!

Suppose we can embrace the type of initiatives described above and successfully promote and market the land surveying profession. In that case, I feel there is real hope that we can pull the profession out of this "sag" point of what I hope is a Bimodal Curve. If we do not make any meaningful changes and simply rely on trends to correct themselves, we may well end up in the bell curve's asymptotic tail. Together, we can reflect on the long and storied history of land surveying and take the steps needed to influence our profession's future.



In an upcoming edition next year, I will follow up with another article that will provide an in-depth look at The Surveying Candidate Objectives for Recruitment and Education (SCORE) initiative, which is a regional pilot program to promote the geomatics profession. SCORE was devised by a coalition of surveying societies including the National Society of Professional Surveyors, Maryland Society of Surveyors, North Carolina Society of Surveyors, Surveying and Mapping Society of Georgia, Tennessee Association of Professional Surveyors, and Virginia Association of Surveyors. These organizations are working together to address recruitment in the geomatics profession—such as the recruitment of women and racial minorities, who are underrepresented in the field—as well as engineers who may become dual licensees. In so doing, we can strengthen licensed professional representation in an evolving geospatial world. The coalition requested funding from NCEES to support the study and implementation of recruiting, marketing, and public relations strategies for the geomatics profession.

The NCEES board of directors fully supported the aims of the project and saw the need for this initiative not just on a regional level but also on a national level. Therefore, the board wanted NCEES to have more direct involvement and approved the development of a national marketing program to increase the number of licensed professionals in the geomatics field and for NCEES staff to work in conjunction with the National Society of Professional Surveyors and the coalition of state surveying societies to support the initiative.



About the Author: *Trent Keenan, P.L.S., W.R.S., CFedS. Trent's surveying career started when he was 19 and now spans over twenty-five (25) years, including ten (10) years in the public sector working for a large utility company, and fifteen (15) years in the private sector, with 12 of the 15 years being the President / Founder of Diamondback Land Surveying. He has served through all officers positions of both the Southern Chapter and State Association of NALS (Nevada Association of Land Surveyors), received the Meritorious Service Award for NALS in 2013, and was honored as the NALS Surveyor of the Year (2015). He is a past-President of NALS (2015), Current, Editor of The Nevada Traverse Publication (NALS), Current WestFed (The Western Federation of Professional Surveyors) Director from NALS, Current Director on The Nevada Land Surveyors Education Foundation Board (NLSEF), Current Director on the Southern Nevada Chapter of the NALS, Moderator/ Facilitator/ Founder of Mentoring Mondays for the Land Surveying Profession, and a proud sponsor and brand ambassador for Get Kids Into Survey (GKiS). He is currently licensed in 5 Western States (Arizona, California, Nevada, Utah & Washington). He is also a Certified Federal Surveyor and a Nevada Water Rights Surveyor. He has been an active board member in NALS since 2007 and a regular member since 1997.*



The Grand Unifying Theory of Surveying/Geomatics

Prepared by Carl C.de Baca, PLS

Surveying or land surveying is the technique, profession, art, and science of determining the terrestrial or three-dimensional positions of points and the distances and angles between them.

– Wikipedia

Surveying, is a means of making relatively large-scale, accurate measurements of the Earth's surfaces. It includes the determination of the measurement data, the reduction and interpretation of the data to usable form, and, conversely, the establishment of relative position and size according to given measurement requirements. Thus, surveying has two similar but opposite functions: (1) the determination of existing relative horizontal and vertical position, such as that used for the process of mapping, and (2) the establishment of marks to control construction or to indicate land boundaries.

– Britannica

"I shall not today attempt further to define the kinds of material I understand to be embraced within that shorthand description, and perhaps I could never succeed in intelligibly doing so. But I know it when I see it..."

-Justice Potter Stewart U.S. Supreme Court

The Honorable Justice Stewart was definitely not talking about Surveying/Geomatics, but he might well have been. We know what 'Surveying' is when we see it. Even so, we seem to be going through a generational (maybe 'seismic' is a better word) shift at the moment. Sometimes it looks like we are on different plates moving in different directions. These powerful forces are converging to change the shape, the size, the purpose, the very definition of our profession. What we *know* about our profession is quickly becoming what we *knew* about it. We are fragmenting into specialties, a wide array of boutique services if you will, and boundary surveying is no longer holding it together. And while this is happening, or just maybe *because* this is happening, we have sprung some leaks. Work that used to be ours is leaking out and being sopped up by non-surveyors.

Let's recap the forces of change at work in our professional lives these days:

- Technology has rushed full-speed ahead into a whole new paradigm lately. So much of what we do can be accomplished with a single person in the field these days that it is not possible to mentor the up-and-coming in a one-person crew environment.

- The skilled and knowledgeable young party chief that used to be brought into the office to become a technician, on their way to eventual licensure, is now too valuable to take away from their field duties because you never hired the young inexperienced person that would become the next party chief. Why would you?
- Remote sensing has legitimately become just a tool in the toolbox and not exclusive to Professionals or those who work under their supervision. Plenty of non-surveyors are flying UAVs, operating drone boats, using LiDAR in various platforms to produce three-dimensional data. Sometimes because the state law does not place limits on them, sometimes applicable law has no meaning for them, and sometimes they just don't care. As long as the only downside is a cease-and-desist letter, this last group won't change their ways.
- Like it or not, contractors are doing much of their own surveying these days, even in jurisdictions where the work is the exclusive domain of the surveyor, like Nevada and California. Automated grading done via machine guidance technology works much better if the grade setter has GPS and/or a total station, and well, if he has that equipment and a little something here and there needs staking, why bother the surveyors...
- Demands from clients have changed. As they get exposed to more sophisticated data, they get more sophisticated, or so it would seem. This is primarily related to the above comment regarding remote sensing topography available to the client. It might not be any good, but it tends to be cheaper than the real thing (as prepared by professionals) and is just as readily available. Not all surface models are created equal, but how does the client know that?
- Related to the previous observation, clients now expect an immediate presentation of the data, and with the diminishing number of surveyors being now too obvious to discount (or hide), it would seem that we can't keep up with the demand.
- Society is increasingly embracing a 'Libertarian' outlook that deemphasizes licenses and encourages entrepreneurship. It's our version of the 'Gig Economy'. If a market exists, then the ambitious tend to rush in and flood it. This is an insidious threat, couched as it is, in the feeling that free-enterprise is an infallible, self-regulating system. What could possibly go wrong with the unlicensed taking most of our work away from us? It's not as if the public could be harmed, right? Right.

I would be remiss to not point the reader toward this group: <http://www.responsiblelicensing.org/> for a quick synopsis of what they are doing go here:

<https://cseengineermag.com/asce-ncees-nspe-launch-new-coalition-to-protect-professional-licensing/>

This coalition is an active alliance organized to temper the overly-zealous trend toward deregulation, as this trend pertains to the engineering field. I encourage readers to find out all they can about this group and the serious threat they have come together to combat.

What does this all mean? Where do we go from here? Is it time to panic about the loss of previously valuable workstreams? No, but one common reaction has produced a detectable undercurrent of protectionism, making itself felt through suggested legislation in various states. It is certainly reasonable to attempt to regulate and prevent the unlicensed from offering 'protected' services. But is that a smart tactic and one likely to succeed in the long run, especially in light of the Libertarian mindset taking over the country? But wait, maybe more outreach is a viable pursuit. How would outreach work - who are we to be reaching out, anyway, and to whom? Do we really think more people will care about our profession if they just knew more about us? What is Surveying in 2020? Are some of us leaving the traditional Boundary Surveying community behind and becoming part of the greater 'Geospatial Community', (which includes many unlicensed professionals)? There might be more questions like this than there are answers right now.

Even at this great remove, distant as we are from the times when all measurement and mapping was done by a surveyor (or, gulp, an engineer), there is more that unites us than divides us. It's time to pull closer together. At the signing of the Declaration of Independence, old Ben is supposed to have said, "We must all hang together, or, most assuredly, we shall all hang separately." That makes sense to me. We should all be members of our state societies, and we should all be members of NSPS or NSPE or ASCE or some other similar organization because these are the folks who advocate for us at the national level. That is just a common-sense observation. It is not any sort of solution by itself.

It occurs to me that at least some of the heartburn we are having can be solved by, (wait for it...) a National Surveying License. Years ago, we looked at, and mostly rejected out of hand, a suggestion for a tiered licensing structure. In its simplest form, it could mean a state-regulated license for Boundary surveys, which we have today, and a new national license for things like bathymetric, photogrammetric, geodetic, and topographic surveys. Look me in the face and tell me that topographic surveys are different in Maine and Malibu or that bathymetry is different in Portland or Puerto Rico. An aspiring (or perhaps previously unlawful) surveyor could test for one or more of these specialties and upon receipt of the license, could offer services within their area of expertise, anywhere in the US, lawfully. I suspect more than half of those 'unlicensed practitioners', at least the ones doing photogrammetry/topography / bathymetry, could come in from the cold and be part of our community under such a framework. And we should welcome them. Personally, I'll take anything short of a Yeti to bolster our ranks these days (not talking about the ice chest...), and I'd want to see the furry devil's resume before sending him/her/it away. Consider the following: NCEES has already recognized that the needs for Surveying licenses vary by region or by state, and the requirements for licensure are less than monolithic. In the last few years, they have moved toward a multi-divisional PS Exam. The most obvious example is segregating the PLSS questions into a separate division that surveyors in the Colonial States, Texas, and the Island states and territories would not have to take unless they want to.

By the same token, Bathymetry, Photogrammetry, Geodesy could all be separate modules or 'divisions' to use the NCEES

terminology. And it is a short, straight line from there to implementing licenses for each of these modules. Pardon me while I make an editorial comment (this is, after all, an editorial). This would solve the photogrammetry issue once and for all. They are accomplished professionals who don't deal with boundaries - let's test and if they pass, license them. And that would presumably include newer folks who use UAS technology to model the Earth's surface, as well.

This might force closer ties between the NSPS, THSOA, NCEES, and ASPRS, and maybe give our combined forces more lobbying power. It might also address some of the Libertarian issues with our practice. Remaining licensure restrictions after implementation of such a scenario could be almost completely limited to Boundary and state law questions, as they should be.

One thing this proposal does not address is construction staking and topographic surveys done by contractors. That is a legitimate concern in many geographic areas, almost an every-day occurrence and therefore an every-day violation of state law, at least in the jurisdictions where I practice. Before we let our frustration and anger take the lead and start drafting legislation to buttress the wall around our profession, we should explore and exploit the laws that are already on the books. And to do that, we must simply identify the instances where a contractor has gone too far and reported the offenses to the Board of Regulation. In other words, don't whine about it, do something about it. The Board assures us they will investigate all complaints. I take them at their word. Ah, but I digress.

Let me wrap this up. To conclude, we need to stop thinking that there is Surveying and then separate from that a 'Geospatial Community' and start realizing that we are the Geospatial Community, and our cousins in GIS, Bathymetry, Photogrammetry, Geodesy are surveyors too. You know 'em when you see 'em, so let's recognize 'em and give them a path to licensure.




About the Author

Carl C. de Baca, PLS is a longtime practicing land surveyor in both Nevada and California and a thirty-plus year member of NALS. He has a passing familiarity with the Nevada Traverse and great enthusiasm for provoking thought in his fellow surveyors



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Nevada Young Surveyor's Network

*Prepared by Sarah Walker, NV YSN Chair
& Heather Keenan*



Who are the Young Surveyors?

The Young Surveyors are defined by surveyors aged 35 years or under, surveying students, or those surveyors within ten years of graduating with a Bachelor's or Master's Degree. Whether you are a field crew chief, CAD technician, LSIT, or PLS- all are welcome; however, the focus is to provide support for those individuals who meet the definition. The main focus of the group so far has been on networking and getting to know more people. Being involved will help expand our personal and professional networks and entice people to get involved in the movement, allowing room for success. Please reach out to us via email or through our social media accounts on Facebook and Instagram for more detail to join our next statewide meeting. Meetings will be held quarterly (every three months), and the next one will take place Tuesday, February 2nd, 2021, 6-7 pm PST.

The Nevada Young Surveyors Network is one of the 44 States with an active Young Surveyor Network established under the direction of the NSPS National Surveyors. As you can tell by the numbers, nearly every State has a Young Surveyors Network, except for a few, and the numbers are continually growing. If you haven't already done so, please check out the National NSPS Young Surveyors website, <https://youngsurveyors.org/>, click the join now button and fill out the form to receive updates. The next National meeting will be on December 4th, 8-11 am PST. If you are interested in participating, please do not hesitate to email us at nvyoungsurveyors@gmail.com.

What are the goals of Nevada's YSN, and how can you help?

What started with the two founders here in Nevada has turned it into a strong group of 5 dedicated board members and 46 network members spread throughout various parts of the State. The group generated enough membership in the past two years to break into chapters modeling the NALS framework, incorporating a Northeast, Northwest, and Southern Nevada Young Surveyors sub-chapters. State Coordinator Sarah Walker is in charge of the Lahontan (Northwest) chapter, Nick Montoya runs the Elko (Northeast) chapter, and Heather Keenan heads the newly formed Southern Chapter. A primary group chat and full state membership are included for every group member when you sign up; however, members are directed to their local YSN chapter to be involved in regional meetings and events. During the current situation, much of the board's work has been getting together and making the membership of NALS who are 35 or younger and recent graduates aware of YSN. Social events, both virtually and in-person, have helped the group connect and get to know each other's faces within the society. The group is also looking for ways to help out and volunteer! Unfortunately, with COVID-19, we have not volunteered much, but traditionally we would attend career fairs or get into schools. Regardless, members are willing to help out where we are needed, whether surveying or community-related. If you or anyone you know has

an idea on how the NV Young Surveyors could help out in the community, please reach out to us, as we would love to hear your thoughts. Sponsors and Supporting Members from outside the group are encouraged to contribute, mentor, and guide those in the network! If you have someone who works for you that might want to join the group, encourage them to take the next step in their careers, and get involved with society.

November's Meeting

November's meeting was a great turn out. We had about 15 people who attended the meeting via the Zoom forum. We started the discussion with four ice breaker questions to introduce everyone joining, including a few special guests; Nolan Marks (Indiana's YSN state chair), Rob Mcmillian (CLSA 2021 president), Byron Calkins (Great Basin College Land Surveying Professor), and James Combs (NSPS YSN Vice President). There were a lot of great connections and conversations throughout the hour-long meeting. There was also an overview of the December 2019 meeting and the pre-COVID meeting in March and a reminder of when the upcoming scholarship submissions were due. This month's main topic was to talk about outreach and how we as young surveyors need to get involved within the community and speak up; the best thing a young surveyor can do is participate in the state board meetings and get involved. Get involved with career fairs and schools. Engaging the power of social media and have fun! Thank you so much to everyone who attended. We have such a great group of people, and we couldn't be more thrilled to be able to bring everyone together.



Great Basin College students hold a lab class by doing solar observations. Kevin Almeter as the mentor.



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The Collector

Prepared by Carl C.de Baca, PLS

My favorite part of our annual conferences is the auction. Live or silent, I love to snoop through the merch and see if I can spot any gems. It's like going to a yard sale where all of the goods are surveying-related.

Over the years, I have drug home compasses, antiquated, if not antique, drafting tools, lamps, old levels, old transits, old alidades, old theodolites, old maps, and most enthusiastically, old books. I love old surveying books. I can't get enough, not sure why. Call it an obsession. I have probably three dozen in the basement. I probably even have duplicates. I work the silent auction pretty hard each year.

When I go to a used book store, I always ask. Sometimes it pays off. A few years ago, I was in Pocatello for a high school wrestling tournament, and during some off time, I went down to the old downtown area and found a used bookstore. Huge and dimly lit. It was dusty as hell, but I was in heaven. The books were relatively well organized, and I found a section of engineering and surveying books. There were seven books from our profession, including an absolutely pristine 1930 *GLO Manual of Instruction for the Survey of the Public Lands of the United States*. I bought the whole stack for \$30.

Other good places to hunt for survey books, at least in my experience, are estate sales and thrift stores. Recently I went to an estate sale in the town of Rescue and started in the garage, where I saw the usual contingent of fishing poles, garden tools, and miscellaneous stuff that accumulates in a garage over a lifetime. Then I spied a Spencer tape. Sadly, it was in someone's hands so that I couldn't snatch it up, but it got me wondering who but a surveyor would own a Spencer tape? In a back bedroom, I hit the jackpot: a 2nd edition *Clark on Surveys* – 1939 and a Rubey, Lommel & Todd *Engineering Surveys* 1954. A buck each and both were in good condition!

I was at the local thrift store last summer and found a like new 1942 *Surveying* by Charles Breed. The book was remarkably in brand-new condition. \$1.99 since it was determined to be a soft cover. Otherwise it would have been a whopping \$2.99. I hit a used book store by the university when I was in San Diego this summer and ended up paying 10 bucks for a like new 1941 copy of *Surveying* by Raymond Davis. Some bored college kid had sketched a hammer and sickle inside the cover. Ah, the good old days...

Recent Finds:

Last month I stepped into my favorite used bookstore in Orangevale with a sack of trade-in books, and after shopping for various books, I spotted the gold mine. Three books in a

stack, all in excellent condition – Hosmer and Breed – *Principles and Practice of Surveying Volume 1* - 1908, Hosmer and Breed – *Principles and Practice of Surveying Volume 2*, 1908, and *Railroad Location Surveys and Estimates* by F. Lavis – 1906. Those babies set me back 50 bucks for the stack. The store had three other old Surveying texts, but Laurie cut me off at three, so I never scrutinized the others. But I know where they are...

I also found an HP 11C at a thrift store last year, and that cost me almost five dollars. I use it daily.

But wait – look what I found yesterday while surfing the web:

<http://www.survivorlibrary.com/index.php/8-category/131-library-surveying>

<http://www.survivorlibrary.com/index.php/8-category/59-library-geodesy>

I may never buy another old book again. Yeah right.



About the Author

Carl C.de Baca, PLS is a longtime practicing land surveyor in both Nevada and California and a thirty-plus year member of NALS. He has a passing familiarity with the Nevada Traverse and great enthusiasm for provoking thought in his fellow surveyors



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Get Kids Into Survey: Educating The Next Generation of Surveyors and Geospatial Experts

Prepared by Elly Ball

Over 85% of UK surveyors said they have problems recruiting due to a lack of qualified applicants (RICS, 2015). In fact, "the skills shortage has now overtaken planning and regulation as the second biggest problem facing the industry" (Telegraph 2017). In the USA, POB Magazine reported a shortage of surveyors, full stop! The FIG and the NSPS both launched young surveyor's networks to support surveyors aged up to 35 – but there's a more basic challenge: to generate interest in surveying as a career while kids are still in school!

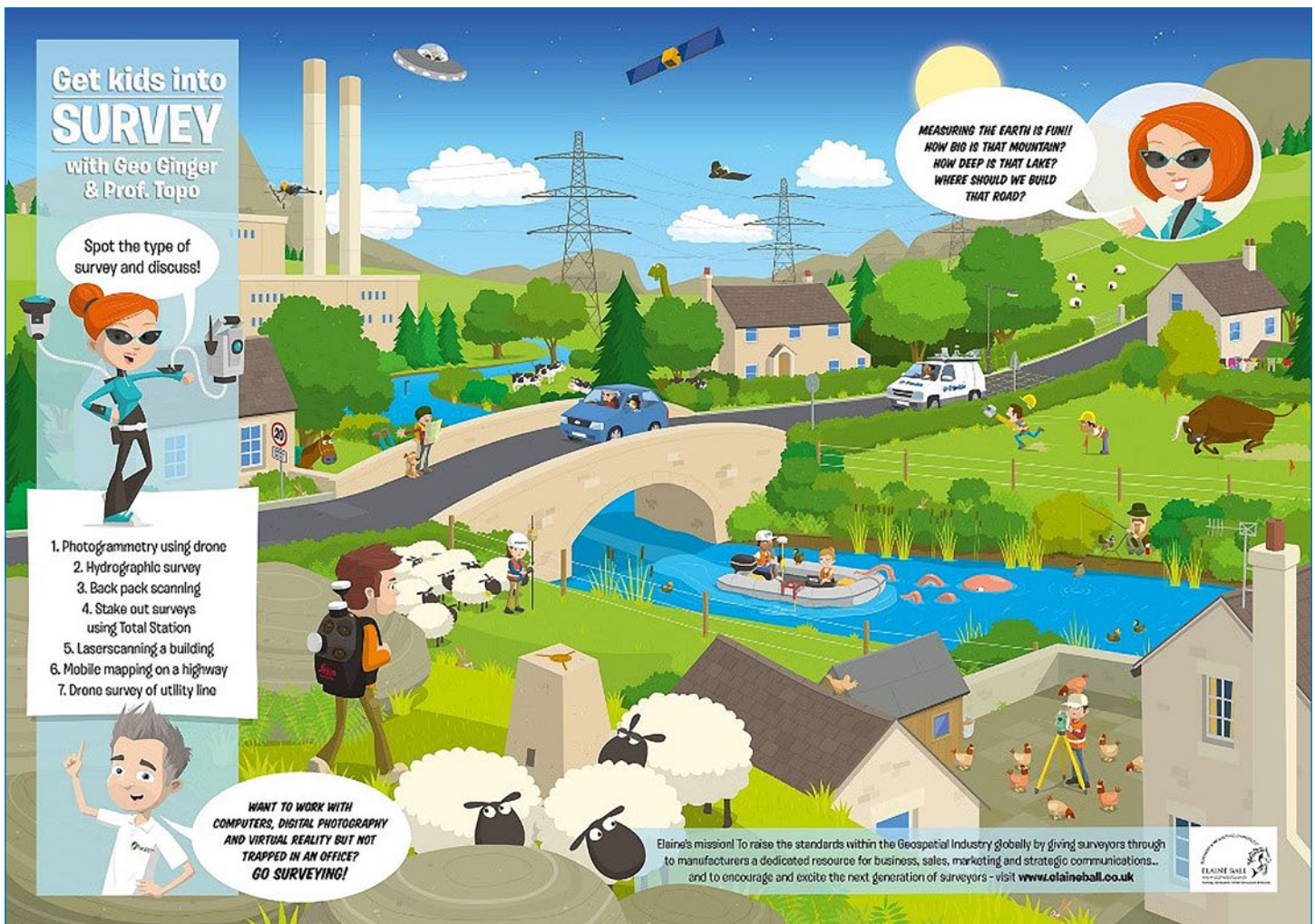
In October 2017, Elaine Ball of Elaine Ball Ltd, a marketing consultancy specializing in the geospatial industry, was asked to provide material for the free packs given out at The Survey

Association (TSA) conference in the United Kingdom. Instead of creating promotional material about her marketing workshops, Elaine wanted to give something back to the industry and address the issues we face. With help from some of her friends in the industry to provide support for the cost of artwork and printing, Elaine created a kid's poster for the surveyors attending the conference. Through the poster, the surveyors could teach their kids at home or at a local school, all about surveying and the geospatial world. It was a success.

After the initial 500 posters were printed, Elaine then went on to produce the Antarctica poster. The interest skyrocketed and went beyond anything we imagined. In 2018 Timothy Burch of NSPS (National Society of Professional Surveyors) went out of his way to visit Elaine in Florida, where she was attending a conference. It was then that the NSPS took on the distribution of the posters for the Americas. With that, we went into a more regular production of posters and other educational resources, including lesson plans.

In the last year, we have gained 2 more distributors: The Chartered Institution for Civil Engineering Surveyors (CICES) in the UK and, more recently, The NSW Surveying Taskforce in Australia, who help us to distribute our posters to their region as well as promote and support us. Additionally, 37 Brand Ambassadors (and growing) now represent GKIS in

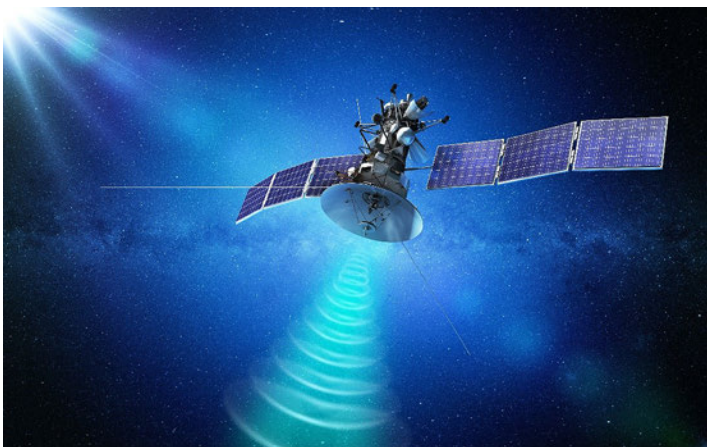
CONTINUED ON PAGE 28



LIGADO KNOW YOUR ENEMY

Prepared by Carl C.de Baca, PLS

Author's note: Portions of this first appeared in the Nevada Traverse magazine in 2011 Vol 38 Issue No. 4



A brief history of Ligado / LightSquared

The company once known as LightSquared started life in 1988 as American Mobile Satellite Corporation. In April 2000, the company changed its name to Motient Corporation and then to Sky Terra Corporation. In 2005, they purchased fifty percent of Hughes Network Solutions, a subsidiary of the News Corp. owned by DirecTV Group. In January 2006, DirecTV sold its remaining fifty percent share in Hughes Network Solutions to the company. Hughes Communications was then spun off as a separate company in February 2006. Interestingly then-Senator Obama invested some \$90,000 in SkyTerra in 2005 but sold his stock in 2007. SkyTerra ran into financial problems, and Harbinger Capital Partners moved to acquire SkyTerra in March 2010. It became part of LightSquared in July 2010.

In January 2011, the FCC granted LightSquared the right to use wireless spectrum to construct a national 4G wireless network in a most expedited fashion. By taking over a 'distressed' satellite company, LightSquared has been able to take advantage of an FCC loophole that eliminates the need to invest the billions of dollars normally required to purchase and use wireless spectrum. This allowed the firm to enter the wireless phone and Internet market at a fraction of their competitors' cost. LightSquared stated that it plans to lease or sell a part of its spectrum for wireless phone or Internet service to a consumer wireless company or companies that would share in the costs of building and operating the network. Their planned first step was to secure FCC approval for Harbinger's acquisition of SkyTerra, which they did. Step two would require getting the FCC to grant approval for Harbinger to take advantage of a loophole for satellite licenses, which allows the spectrum holders to "supplement" satellite spectrum with free terrestrial (land-based) spectrum. FCC implemented that policy because satellites have limited transmission power, so satellite operators are permitted to run base stations on the ground at the same frequency and use the free terrestrial spectrum to fill in the gaps.

On November 19, 2010, LightSquared initiated step two of its plan by applying for a waiver of FCC's rules to allow the company to begin selling wireless phone and Internet services utilizing free terrestrial spectrum to wholesale customers without having to

operate its satellite system. The FCC placed the waiver request on a fast track approval schedule with a truncated 10-day comment period over the Thanksgiving holiday. The FCC granted the waiver in January 2011, allowing LightSquared to proceed.

In February 2011, LightSquared released a description of its three-phase plan for deployment. All three phases identified by LightSquared for the study used a portion of the MSS band directly adjacent to GPS, 1545.2-1555.2 MHz (the "Upper MSS band"). LightSquared planned to construct 40,000 ground-based transmitters similar to cell phone towers and broadcasting 1,500W each across the U.S. These were targeted at metropolitan areas with a high-density population. They proposed to transmit signals in the band adjacent to GPS that are billions of times more powerful than GPS satellite signals. In fact, the highest recorded power levels during a study done in Las Vegas were 800 billion times the power of GPS signals.

On June 30, 2011, the FCC-mandated Technical Working Group filed a 1,000-plus page report analyzing interference from LightSquared's proposed deployment plans in the Mobile Satellite Service (MSS) band adjacent to the Global Positioning System (GPS). The working group test results showed that the use of this portion of the MSS band caused overwhelming interference to every category of the 500 million GPS receivers in use in the United States, from those used by airplanes, police vehicles and ambulances to everyday consumer cell phones and personal navigational devices.

After the FCC granted the waiver to LightSquared, and the potential impact to GPS was revealed, a coalition of interested parties (potential victims) was formed to combat this threat. The coalition was made up of hundreds of companies, corporations such as Air Line Pilots Association, International (ALPA), American Association of State Highway and Transportation Officials (AASHTO), American Congress on Surveying and Mapping (ACSM), California Land Surveyors Association, Case New Holland, Caterpillar, Deere & Company, Delta Air Lines, Esri, FedEx, Fire Department of New York (FDNY), National Association of Manufacturers (NAM), National Utility Contractors Association (NUCA) and Southwest Airlines, not to mention virtually every manufacturer and seller of survey equipment and numerous survey companies and municipalities throughout the United States.

Even the head of the European Commission's Directorate-General for Enterprise and Industry, the agency that oversees all Galileo program operations, has filed an official comment on the Federal Communications Commission's (FCC) docket regarding the LightSquared proposal. Heinz Zourek told the FCC chair that, "Analysis carried out in Europe, including by our own technical partner the European Space Agency, has shown that transmissions from LightSquared base-stations do indeed have considerable potential to cause harmful interference to Galileo receivers operating in the United States."

In light of the magnitude and severity of the protests regarding the impact on the GPS spectrum, the FCC suspended LightSquared's waiver while it considers the matter. The FCC issued a public notice announcing a comment period in the LightSquared/GPS matter. The House Committee on Science, Space, and Technology held meetings throughout 2011 to shed light on the issue and to hear the perspectives of witnesses from a variety of agencies, as well as from a spokesperson for LightSquared.

Encouraged by the FCC and apparently not intimidated by the opposition coalition or the concerns of Congress, LightSquared proceeded with its plan to develop a network through several interesting partnership arrangements. Clearly, LightSquared believed it would be allowed to continue by the FCC. On July 28, 2011, LightSquared and Sprint Nextel announced that

they have entered into a 15-year agreement that includes spectrum hosting and network services, 4G wholesale, and 3G roaming. Under the agreement, LightSquared would pay Sprint approximately \$9 billion to deploy and operate a nationwide LTE network that would host an L-band spectrum licensed to or available to LightSquared. They also signed deals with Best Buy, ClearTalk, and EarthComm not to mention a multi-year wholesale agreement with Advanta Technologies, a US-based voice, video, and data service provider. Earlier in 2011, they inked a cooperative agreement with Inmarsat. And coincidentally or perhaps not, Harbinger Capital partners disclosed owning 300,000 shares of Research In Motion, the makers of the Blackberry mobile device.

On February 14, 2012, the FCC initiated proceedings to vacate LightSquared's Conditional Waiver Order based on the NTIA's conclusion that there was currently no practical way to mitigate potential GPS interference. LightSquared declared bankruptcy three months later.

In July 2013, the National Review, parroting feelings expressed throughout the Libertarian worldview, published an article entitled "Open Skies and Open Spectrum," which advocates in no uncertain terms, the idea that license holders should be allowed to use their spectrum for any valid purpose. Which is another way of saying GPS be damned.

Also, in 2013 Dish apparently attempted to buy a controlling interest in LightSquared because the spectrum has value. According to sources cited by the WSJ, a couple of DISH directors had been buying up LightSquared debt at a discounted rate with the obvious intent of gaining control of the company's assets.

December 4 2015 FCC grants change-of-control application allowing LightSquared Subsidiary LLC, Debtor in Possession to transfer the licenses for its frequencies to LightSquared Subsidiary LLC, and permitting foreign ownership of the parent company in excess of 25%, which paved the way for newly reorganized firm Ligado to emerge from LightSquared's bankruptcy. The company announced the new name in February 2016 and immediately began petitioning FCC to reconsider the application to use their spectrum for terrestrial applications.

Between 2016 and 2020, Ligado amended its application to significantly reduce its base stations' power levels from 32 dBW to 9.8 dBW (a reduction of 99.3%). Ligado has also committed to providing a significant (23 megahertz) guard-band using its own licensed spectrum to further separate its terrestrial base station transmissions from neighboring operations in the Radionavigation-Satellite Service allocation. As such, Ligado is now only seeking terrestrial use of the 1526-1536 MHz, 1627.5-1637.5 MHz, and 1646.5-1656.5 MHz bands.

April 19, 2020. Despite objections from the U.S. Defense Department (DOD), other federal agencies, and major U.S. airlines, the five-member Federal Communications Commission (FCC) voted unanimously to approve an order to allow Ligado Networks to deploy a low-power nationwide 5G network. The FCC said the approval order included stringent conditions aimed at ensuring GPS would not experience harmful interference. To quote from the official document, FCC Order and Authorization No. 20-48,

"Today, we draw to a close a 17-year old proceeding by granting Ligado Networks LLC's (Ligado's) mobile satellite

services (MSS) license modification applications, as amended.¹ Our decision authorizes Ligado to deploy a low-power terrestrial nationwide network in the 1526-1536 MHz, 1627.5-1637.5 MHz, and 1646.5-1656.5 MHz bands that will primarily support Internet of Things (IoT) services. Our action provides regulatory certainty to Ligado, ensures adjacent band operations, including Global Positioning System (GPS), are sufficiently protected from harmful interference, and promotes more efficient and effective use of our nation's spectrum resources by making available additional spectrum for advanced wireless services, including 5G."

Not to be a sore loser or anything, on May 5, 2020, Mark Esper, The U.S. Secretary of Defense, penned an editorial in the Wall Street Journal entitled "The FCC's Decision puts GPS at Risk". And, on May 22, the National Telecommunications and Information Administration requested the Federal Communications Commission officially reconsider its vote in favor of Ligado Networks while also filling a separate request for the commission to put a stay on the company's plan.

Most recently (prior to going to press, that is...), On June 15, Aviation International News published this tidbit through their AIN Online:

Senate Panel Moves To Pause Ligado Cellular Network

[A] U.S. Senate committee voiced its own concerns about the ramifications on military operations and moved to stall those [Ligado] plans... the Senate Armed Services Committee called the Federal Communications Commission's decision to approve Ligado's bandwidth request "misguided," expressing concerns that it would interfere with GPS signals. "As our warfighters rely on these signals, the bill prohibits the use of DOD funds to comply with the FCC Order on Ligado until the Secretary of Defense submits an estimate of the costs associated with the resulting GPS interference, and directs the Secretary of Defense to contract with the National Academies of Science and Engineering for an independent technical review of the order to provide an additional technical evaluation to review Ligado's and DOD's approaches to testing."

So after all the expert opinions in the known world have stated why Ligado's plan spells doom for GPS; after the Department of Defense, which oversees what we have become accustomed to thinking of as the most powerful military on Earth has condemned Ligado's plan; after a powerful congressional committee has expressed concern that the plan puts our military at risk; after ten years of battle against first LightSquared and now Ligado, and one apparent victory vacated by a group of appointed bureaucrats obviously motivated by something other than common sense or patriotism, where does all this leave us, one small group of GPS users? Standing on the edge of a precipice and hoping that Congress will help us. I am not very confident that GPS will continue to exist as it is.

About the Author

Carl C.de Baca, PLS is a longtime practicing land surveyor in both Nevada and California and a thirty-plus year member of NALS. He has a passing familiarity with the Nevada Traverse and great enthusiasm for provoking thought in his fellow surveyors



The Western Federation of Professional Surveyors (WFPS) held a virtual Board of Directors meeting on October 17, 2020 via Zoom video conferencing.

HIGHLIGHTS FROM THE 13 WESTERN STATES

ALASKA (ASPLS) Steve Buchanan – No report.

ARIZONA (APLS) Mike Fondren – Current membership is 307. The 2020 conference with California and Nevada was held virtually. The conference was well attended and we received positive feedback from the attendees regarding the virtual platform. Senate Bill 1274 passed and became effective in August 2020. This changed the composition of the Board of Technical Registration (BTR). Each profession will have one representative on the BTR however, public members will now comprise the majority of the Board. There are approximately 1280 active land surveyors. Approximately 800 have an in-state address. And we have granted only 7 new licenses in 2020 as of June.

CALIFORNIA (CLSA) Ray Mathe & Warren Smith – Current membership is 1483. The 2020 Conference with Arizona and Nevada was held virtually. A white paper has been drafted regarding monument preservation during and after a disaster such as wildfires.

COLORADO (PLSC) Roger Nelson & Todd Beers – Current membership is 338. License renewal fees increased to \$94 this year. PLSC is assisting NSPS directors to create legislation related to railroad abandonment of property in order to have the existing infrastructure surveyed prior to destruction. PLSC is currently tracking a bill that is intended to eliminate polyester/mylar plats from being stored by the Clerk and Records of the state.

HAWAII (HLSA) Cliff Yim – Current membership is 81. HLSA Board is poised to resume working on a bill to amend the 2017 Land Court Deregistration Legislation when the 2021 legislature session returns to business. The HLSA Board recently updated our digital newsletter to bring a refreshed and modern presentation. The newsletter continues to be released every two months and includes a president message, announcements, and resources for our members.

IDAHO (ISPLS) - Jeremy Fielding was recently appointed as the new WFPS Director from Idaho. ISPLS recently launched a new website at www.idahopl.org. Working on standard of practice document which have not been updated in several years.

MONTANA (MARLS) Dick Smith & Russ Kluesner – Current membership is 431. MARLS continues to meet virtually during the pandemic. Our MT Subdivision and Surveying Laws Digest was published and distributed to all MARLS PLS members

in good standing and are also available for purchase on the MARLS website. MARLS has requested clarification from BLM on the use of geodetic bearings on smaller area surveys. A final point is being planned to honor James Flansburg, a local land surveyor and artist who contributed wonderful artwork for the MARLS magazine.

NEVADA (NALS) Trent Keenan & Greg Phillips – Current membership is 246. NALS membership has increased 40% over the last four years. NALS first virtual conference was held in August and was a great success. NALS continues to support the four-year land surveying degree at Great Basin College (GBC). GBC is in the process of hiring a second professor. Trent Keenan has started a Mentoring Mondays weekly Zoom meeting. NDOT provided a 30-minute introduction to the AX System at the last NALS statewide virtual meeting, NALS worked with NDOT to allow land surveyors to access to right of way mapping and other records. In an effort to keep membership engaged, NALS is hosting monthly statewide virtual meetings. This has been very successful and has allowed participation from members in the more remote areas of the state that otherwise would not be able to participate in NALS meetings.

NEW MEXICO (NMPS) Allen Grace – Oral report provided. No significant activities due to the pandemic shut down.

UTAH (UCLS) Mike Nadeau – Current membership is 399. The UCLS recently found out that the statute that covers subdivision plats was amended this last year and came as a surprise to the UCLS board. The change affects the surveyor's certification language and the surveyor certifying that he/she has also prepared a record of survey of the property per state code 17-23-17. The Standards and Ethics committee is working to revise the UCLS subdivision guide document to incorporate this change.

WASHINGTON (LSAW) Ben Petersen & Chris Jepson – Current membership is 879. LSAW is supporting the monument preservation fund legislation that is being proposed. A virtual survey technicians webinar series is underway and is well attended. The series consists of six weeks with each week providing two hours of education on various topics for the survey technician. LSAW Board of Directors and Chapters continue to meet virtually during the pandemic.

WYOMING (PLSW) Mark Corbridge – Current membership is 198. PLSW is currently soliciting comments on draft legislation addressing the 2022 Datum. The Fall Technical Session is planned for November and will feature speaker Chuck Karayan. PLSW is working with the Board of Registration and GeoInquiry to provide outreach to K-12 schools. Work is progressing towards a RTN in Wyoming.

WESTFED SERVES AS A REGIONAL VOICE

WFPS sent a letter to NALS (Nevada) for support of mandatory continuing education requirement. WFPS serves as a regional voice for the 13 western states. If your state association is dealing with an issue and would like a position letter from WFPS, please contact admin@wfps.org

CONTINUED ON PAGE 32 ►

Mentoring Mondays



Prepared by Trent J. Keenan, PLS

Do you ever wish that you could have a weekly cup of coffee with like-minded surveying professionals? We are here to tell you that you can do just that – by participating in the virtual Mentoring Mondays program.

This fantastic program is a weekly Zoom meeting featuring live Q&A's on your favorite surveying topics. Every Monday, the forum is hosted by a rotating series of guest speakers who are among the best in the surveying business.

Think of Mentoring Mondays as the weekly "office hours" of the surveying profession. The meeting room is open and available to anyone in the profession who is looking to stay informed on current industry topics and trends or just needs a little more help understanding a specific topic within the profession.

Recent Mentoring Monday topics include "Practical Management of Field Surveys" with Landon Blake, PLS, "Star*Net Adjustments" with Tony Cuomo, PLS, and "Drone Surveying 101" with Logan Campbell, CEO of Aerotas. A full lineup of exciting topics is planned for the year ahead.

Register for the free weekly meeting with the click of a button on the Mentoring Mondays website. Are you interested in attending but cannot make the meeting? All meetings are video-recorded and uploaded to the website upon completion so that you can watch past meetings at your convenience. However, we encourage live participation; after all, this program was created to be a live and interactive Mentoring Program.

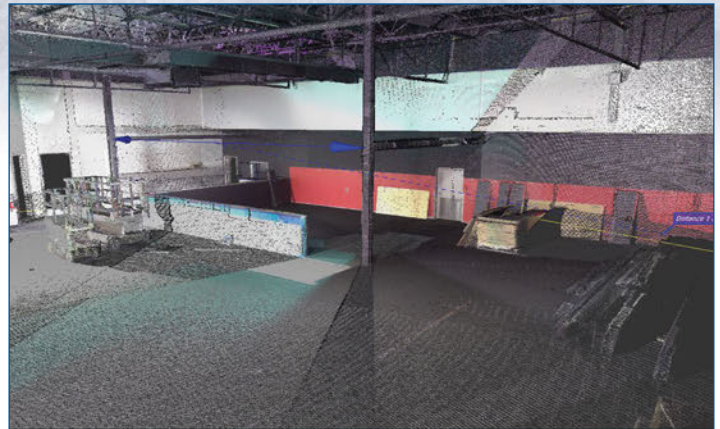
While college students and young surveyors will benefit enormously from this program, do not assume that the word "mentoring" means this program is just for 20-year-olds. Instead, think of Mentoring Mondays as a free professional conference that goes on all year long.

Anyone in the surveying profession will benefit from these weekly meetings and the chance to network, stay informed, and bounce ideas and questions off of fellow land surveyors.

In addition to the weekly video feeds that are uploaded to the website, the site contains a wide array of podcast and book suggestions that any surveyor will find interesting and valuable.

So, whether you are a freshman in college or a 50-year Professional Land Surveyor looking to contribute your wisdom and experience, we hope to see you at the next installment of Mentoring Mondays!

If you are interested in being a featured guest speaker on Mentoring Mondays, or you need help with a specific topic, please contact trent@mentoringmondays.xyz



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Applications

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Mining

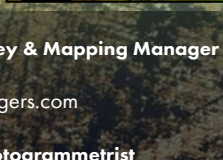
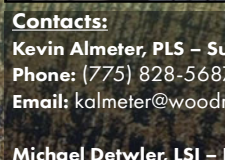
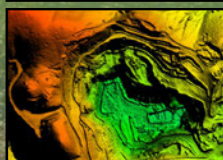
- Pit and leach pad volume measurements
- Disturbance and reclamation monitoring
- Mine claim base maps
- Site documentation for regulator permitting

Monitoring & Inspection

- Geological surface monitoring
- Infrastructure and facility inspection
- Change detection over time
- Removing personnel from dangerous situations

GIS

- Imagery and elevation layers for databases
- Imagery classification and analysis



Contacts:
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Michael Detwiler, LSI – Photogrammetrist
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Email: mdetwiler@woodrogers.com

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AERIAL MAPPING**

Sustaining Members

Following is a listing of sustaining members of the Nevada Association of Land Surveyors. Please remember that these firms and businesses, through their NALS membership, are supporting the aims and objectives of our association.

Aerial Mapping Consultants

4011 W. Cheyenne Avenue, Ste. A
North Las Vegas, NV 89032
T. (702) 291-2875
info@aerialmappingconsultants.com

AeroTech Mapping

2580 Montessouri St., Ste. 104
Las Vegas, NV 89117
T. (702) 228-6277
F. (702) 228-6753
leotorres@atmlv.com

Atkins Global

617 Alexander Avenue
Las Vegas, NV 89106
T. (323) 425-5680
chevyhdz23@gmail.com

Berntsen International, Inc.

PO Box 8670
Madison, WI 53708
Reno, NV 89511
T. (608) 249-8549
awiegand@berntsen.com
www.berntsen.com

Carlson Software

T. (859) 568-8429
lrojas@carlsonsw.com

Monsen Eng. Supply

1190 Corporate Blvd.
Reno, NV 89502-2381
T. (775) 359-6671
F. (778) 359-6693
marty@monsengengineering.com

Nevada Transit & Laser

Joe Schneiderwind
5720 S. Arville, #110
Las Vegas, NV 89118
T. (702) 960-2833
joe@rmtlaser.com

Paul R. Wolf's Artisan Surveying Group Las Vegas' Pioche' McGill"

PO Box 33434
Las Vegas, NV 83133-3434
T. (702) 233-3451
twolf@ArtisanSurveying.com
www.ArtisanSurveying.com

US Survey Supply

PO Box 2127
Bandon, OR 97411
T. (541) 404-6825
rod@ussurveysupply.com

Vertical Mapping Resources, Inc. Andrew Babian

1610 Montclair Avenue, Suite D
Reno, NV 89509
T. (775) 737-4343
info@verticalmapping.com

NALS Board of Directors Meeting

Thursday, October 22, 2020 • Via virtual meeting

MINUTES

CALL TO ORDER

President Greg Phillips called the meeting to order at 9:00 AM.

ROLL CALL

Greg Phillips, President
Justin Moore, Vice President
Jason Higgins, Immediate Past President
Todd Enke, Director
Frank Wittie, Director
Crissy Willson, Executive Director

Guests: Trent Keenan and Bill Kruger

PRESIDENT'S REPORT

Report included in agenda.

President Greg Phillips reported that NALS will be hosting a statewide virtual meeting featuring guest speaker Lucas Beauchamp. Lucas will be discussing the transition from the GCDB era to the Parcel Fabric era and the Cadastral National Spatial Data Infrastructure data standard. Currently there are over 60 registered for the virtual meeting.

The Board discussed the fact that virtual meetings provide those members in more rural areas an opportunity to participate and engage with NALS in a more meaningful level. In addition to in-person meetings, NALS will continue to host virtual meetings so that these members can continue to participate.

Action Item: Crissy to contact Patty Mamola, Matt Gingerich, and Michael Kidd to determine if any or all of them would be available to provide a BPELS update during the December 10th virtual meeting.

VICE PRESIDENT'S REPORT

Vice President Justin Moore reported that he is working to fill committee chair positions.

SECRETARY/TREASURER'S REPORT

The Board of Directors reviewed the financial statements as included in the agenda.

MOVED by Justin Moore and **SECONDED** to accept the financial statements as included in the agenda. **MOTION CARRIED.**

A draft 2021 budget was included in the agenda.

MOVED by Todd Enke and **SECONDED** to adopt the 2021 budget. **MOTION CARRIED.**

EXECUTIVE DIRECTOR

Executive Director Crissy Willson provided a report on the APLS-CLSA-NALS Virtual Conference. The 2020 Conference, originally scheduled for March was rescheduled for August and then shifted to a virtual platform. The in-person conference had 442 full paid registrants. We only lost 79 in the shift to a virtual platform ending with 363 full paid registrants. The registration fee for the virtual conference was reduced and registrants received a partial refund check. Recordings of the conference webinars are available for attendees to view through December 31st and are available in the Conference app. Of the 363 full paid registrants, 32% were from Nevada. This means that Nevada will receive 32% of the net proceeds of the conference. We are waiting on the final bills to come in and we anticipate we will be able to reconcile and cut proceed checks by the first week in November. Special thanks to all the vendors and sponsors that continued to support the associations through the pandemic. The virtual exhibit hall is still available and we encourage you to all visit that and support these vendors.

Crissy reported there are still a few members that have not paid their 2020 membership dues. An unpaid dues report was provided and it was recommended that Chapter Officers contact those members on the unpaid dues list in their area and encourage them to pay their dues.

EDUCATION FOUNDATION

Reports included in agenda.

In 2006 the Nevada Association of Land Surveyors (NALS) entered into multiple memorandums of understanding (MOUs) with the National Society of Professional Surveyors Foundation (NSPS Foundation). Each of these MOUs defined the donation made on behalf of NALS to the NSPS Foundation and provided specific criteria for the awarding of funds. Between 2006 and present day, two of the funds were merged. It is recommended that we consolidate the funds and create new, more flexible criteria. A draft of the revised MOU and criteria was included in the agenda.

MOVED by Justin Moore and **SECONDED** to combine the NALS Equipment Fund and the NALS Scholarship Fund into one depleting "NALS Fund" account and adopt flexible criteria that will allow funds to be used for a variety of educational needs for the survey profession. **MOTION CARRIED**

ADVANCED EDUCATION

Advanced Education Chair Trent Keenan has reached out to Byron Calkins but has not received an updated report. Trent participated on the committee to interview potential second professor. A candidate was selected and an offer has been extended. Trent maintains contact with GBC and expresses NALS support of the program.

BOARD OF REGISTRATION LIAISON

Report included in agenda.

Liaison Jason Higgins reported on the PAL Council meetings that were held July 15, September 11, and September 28th. This included a strategic planning session. NALS had representation at all three meetings.

NEVADA TRAVERSE

Editor Trent Keenan provided a preview of the next issue of the Nevada Traverse which is currently being printed. The issue is the first "Living Legend" edition and recognizes Steve Parrish for his tireless contributions to NALS and the survey profession.

NDOT ADHOC

Report included in the agenda.

NDOT AdHoc Committee Chair Greg Phillips reported NDOT has received 50 licenses for software that will allow public access to their records database. Currently they are developing an application to submit for individual logins and working through a few bugs before releasing to the public. Margaret Nutt (NDOT) demonstrated the software and how to access the database on the statewide NALS meeting September 23. There is a new GIS based platform being developed that will hopefully launch by the end of 2021.

LEGISLATIVE COMMITTEE

The Legislative Committee has requested the tracking service subscription be reactivated for 2021.

NOMINATING COMMITTEE

The slate of candidates was approved by the Board of Directors at the last meeting. The slate was sent to the membership with opportunity to nominate additional candidates. No additional candidates were nominated therefore, per the bylaws, a unanimous ballot was cast by the Secretary.

2021 Officers

Justin Moore, President
Robert Carrington, Vice President
Bill Kruger, Secretary
Nick Ariotti, Treasurer
Greg Phillips, Immediate Past President (by succession)

NSPS

NSPS will be meeting at the end of the month as there September meetings were postponed.

WFPS

Report included in agenda.

WFPS is in the process of developing an online

CONTINUED ON PAGE 28 ➤

NSPS Nevada Director's Report



Prepared by Nancy J. Almanzan, PLS

The Fall 2020 NSPS Committee and Business Meetings were held virtually in September and October due to the pandemic. Plans for in-person meetings are scheduled for the Spring of 2021.

The NSPS Foundation Board of Trustees meeting was held on September 18, 2020. The Thomas A. Foote Memorial Scholarship has been converted to a depleting scholarship fund. Priority will be given to land surveying students in Nevada and those enrolled in the Great Basin Surveying Program. The foundation is currently managing 15 funds, which include scholarships and grants to surveyors experiencing hardships.

The Workforce Development Committee was held on October 14, 2020. Discussions included the Bureau of Labor Statistics Operational Outlook handbook; retention of qualified instructors at Colleges, Universities, and Technical Schools; what states are doing in terms of recruitment of new surveyors and the role of NSPS in recruitment efforts; and developing a database for states to share their resources and activities involving outreach and recruiting. The short and long-term impacts of COVID-19 on the surveying industry and future efforts on outreach were also discussed.

The Western States Director's Council: Meeting was held on October 27, 2020. A discussion was held on the requirement of Geodetic Bearings on BIA Surveys. The Rocky Mountain, Tribal Leaders Council, is expected to pass a resolution requesting that the BLM issue a "Letter of Instruction" providing clarification on the acceptance of grid or ground bearings rather than geodetic bearings on small scale surveys. Ride TV, a cable TV network, is interested in a pilot program showcasing Land Surveyors. Several directors volunteered to be part of the initial discussions with the network. Jim Coan, Director from Washington, was elected to serve as Chair of WSDC for the upcoming two-year term.

The NSPS Board of Directors and General Membership Meeting was held on October 30, 2020. There were several motions voted on during the meeting. Because of the COVID-19 pandemic, Article V of the bylaws was amended to allow the extension of the term of office for NSPS officers. This motion passed, and the 2020 officers will continue in their roles throughout 2021.

The Joint ALTA/NSPS Standards Committee and the NSPS Subcommittee on the ALTA/NSPS Standards have, over the past two years, worked through approximately 12 pages of suggestions and arrived at a consensus for the 2021 Minimum Standard Detail Requirements for ALTA/NSPS Land Title Surveys. In the process, over 300 surveyors reviewed the suggestions and provided input and suggestions on a series of drafts. The Joint

Committee adopted the consensus 2021 Standard in August, and ALTA approved and adopted it on October 1 of 2021. The motion was passed by the NSPS Board of Directors, and the new standards will become effective on February 23, 2021.

One of the highlights of the meeting was the approval of Fellow status for Carl CdeBaca. In addition, Rick Brooks, Don Falken, and Craig Palmer were also nominated and approved as Fellows. The requirements to be considered for Fellow status include achieving distinction in one or more of the following areas: perennial and progressively more responsible service to NSPS; significant contributions to an associated profession; and/or, notable professional qualifications in a position of responsible charge or occupying a senior position for at least ten years. Carl has gone above and beyond serving the survey community on the local, state, and national levels. Congratulations Carl!

The final motion considered at the meeting was regarding the various wildfires that ravaged the West over the past few years, leaving a lasting mark on those communities affected, not just from the loss of improvements but also from the destruction of survey monuments will be removed due to the cleanup efforts. Typically, once an area is deemed safe to rehabilitate, soil (12"-18") is removed to clear the toxins and deposits left from the fire. It is anticipated that most of the monumentation and control points used to establish property and rights-of-way will be destroyed in these efforts to reclaim the land for redevelopment. The surveyors within these areas are concerned that during the cleanup measures (not the firefighting), many controlling PLSS corners (not to mention lots of local lot corners) will be dozed out or destroyed. The motion by the Western States Director's Council requesting NSPS to pursue congressional support to seek funding to support the restoration of Survey and Rights-of-Way Monument Control in the Western States adversely affected by the wildfires was approved.

The next NSPS meetings will be held in April 20-24, 2021 in Arlington, Virginia. Please feel free to contact me with any concerns, suggestions, or questions you may have about NSPS.



Congratulations!



Congratulations to NALS Past President Carl C. deBaca for being named an NSPS Fellow! Thank you from all of us within NALS and everyone in the Land Surveying Profession across the country for the passion and energy you bring every day!

review course (zoom recordings) for studying for the FS exam. Each of the WFPS member states will be able to market the program to their membership. It is anticipated that the course will be complete in June 2021.

WFPS Director Trent Keenan recommended visiting the Alliance for Responsible Professional Licensing - <http://www.responsiblelicensing.org/> This group is providing outreach to the public regarding the importance of licensing for technical professions such as CPAs, Engineers, Architects, and Land Surveyors.

CHAPTERS

Chapters are currently working to fill their leadership roles.

SNALS was able to hold a Golf Tournament although, due to current pandemic restrictions, the number of attendees they could accept was limited. A holiday party is being planned.

Executive Director Crissy Willson reported that the dissolution of the Great Basin Chapter has been finalized.

MEETING SCHEDULE

December 10, 2020	Statewide Virtual Meeting
January 14, 2021	Statewide Virtual Meeting
January 20, 2021	NGS GPS on Benchmark Update
January 22, 2021	NALS Board Meeting (Las Vegas)
March 26, 2021	NALS Board Meeting (Reno)
March 27-30, 2021	CLSA/NALS Conference (Reno)
May 2021 (TBD)	Statewide Virtual Meeting
July 2021 (TBD)	Statewide Virtual Meeting
July 16, 2021	NALS Board Meeting (Las Vegas)
September 2021 (TBD)	Statewide Virtual Meeting
October 15, 2021	NALS Board Meeting (Reno)
November 2021 (TBD)	Statewide Virtual Meeting

Chapter meetings to be added to the calendar as they are scheduled.

ADJOURNMENT

The meeting was adjourned at approximately 11:30 AM.



Get Kids Into Survey...continued from page 19

8 different countries who go above and beyond to share our free resources as well as take part in career fairs and presentations in schools.

"HELP US GET CHILDREN EXCITED ABOUT GEOSPATIAL CAREERS! I'M ON A MISSION – TO RAISE STANDARDS AND GET YOUNG PEOPLE INTO THE SURVEYING INDUSTRY"
—Elaine Ball

Since 2017 we have gained more than 70 sponsors over 15 posters who each support our mission and help us to produce not only posters, but comic strips, coloring in sheets, activity pages, and lesson plans. In 2021, we will also be producing a full comic book complete with activities supported by our sponsors as well as a teaching curriculum that complements it. Our plan is for kids not only to enjoy the comic book for fun but that it can be used in the classroom or as a homeschooling resource.

To help us with our mission to educate and excite the next generation of surveyors and geospatial experts, please check out our website and get in touch.

WFPS FOUNDATION

The WFPS Disaster Relief and Scholarship fund has been established through the NSPS Education Foundation. Donations are now being accepted. The criteria and application information has been sent to all State Associations and can be found on the WFPS website.

Donations can be made mailed to WFPS: 526 South E Street, Santa Rosa, CA 95404.

<https://www.nsps.us.com/donations/donate.asp?id=18191>



About WFPS

The Western Federation of Professional Surveyors (WFPS) was formed in 1979. The Board of Directors includes two delegates from each of the 13 western states. WFPS serves as a regional voice for Land Surveyors and meets quarterly to discuss practice issues affecting western state surveyors. For more information about WFPS and the state associations, visit WFPS.org

WFPS Executive Office

T. (707) 578-1130 | F. (707) 578-4406 | E. admin@wfps.org

For sponsorship inquiries: hello@getkidsintosurvey.com

Free Resources to order or download:
www.getkidsintosurvey.com/resources



ADVERTISER INDEX

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Members have spoken and we are listening! To fill the void left by the ending this past July of the NSPS Radio Hour, the weekly radio show hosted by Executive Director Curt Sumner, we are proud to announce our new podcast, **"SURVEYOR SAYS!"** featuring all things surveying.

SURVEYOR SAYS!



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