

# THE NEVADA TRAVERSE

Journal of the Professional Land Surveyors of Nevada

Vol.48, No.2 ■ June 2021



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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



Field Surveyors! Where would our current ecosystem of the profession be without you? Outside of writing a short legal description, no project can get completed without you touching the ground first. Field Surveyors are tech-savvy problem solvers with love for the outdoors. Land surveyors are detail-oriented individuals able to work in sometimes tricky field situations or conditions. (Las Vegas Heat or Reno Winters). But recently, I was scrolling through the land surveyor groups on Facebook, and observing many of the pictures posted got me thinking. Have you ever wondered how other professions perceive us as surveyors? What do they and the general public think of when "land surveyor" is mentioned? To most people, the image of some sloppy-dressed, tattooed person standing in the middle of the street blocking traffic comes to mind, or we are the guys/girls taking pictures with the camera thingy.

To overcome this image in the eyes of the people, we work with is a big challenge. The surveyors working in the street generally do not think of themselves as representing the company's image and the profession. Still, they are the only contact most people have with the surveying professional. We should take every opportunity to educate people as to what it means to be a land surveyor. We should also keep in mind that working in the field involves dressing to deal with the elements, but when we need to meet with clients or the public, we need to put our best foot forward. Our duty as surveyors is to promote our image as competent, intelligent people whose duty is to promote and protect the public interest. The rapidly changing technology over the years has revolutionized the practice of land surveying and is molding land surveyors into highly specialized professionals. Higher educational requirements and adherence to regulated standards for our professional services have all contributed to the betterment of the profession. As land surveyors, we have long known that we are professional. Still, we have come to recognize the necessity of presenting ourselves favorably to obtain the professional respect we deserve. The personal appearance of some Land Surveyors while dealing with clients and the business community may unknowingly perpetuate this image. Personal appearance plays one of the most significant roles in the formation of first impressions. Persons with whom we come in contact will form their first opinions based on how they see us. Each of them will make decisions concerning our character, success, social position, trustworthiness, sophistication, and education, based on our appearance. They are much more likely to deal professionally with those who fit their perceived image of a successful professional. I will say that the professional image has changed over the years, and the days of the shirt and tie in the field are long gone, but there should still be an image of a clean-cut man or woman dressed to impress.

*"Far and away, the best prize that life has to offer is the chance to work hard at work worth doing." – Theodore Roosevelt*

Lastly, as a friendly reminder as we start these summer months, please:

Staying hydrated is the key to a safe summer for you and me.

No need to debate. When it's hot, you must hydrate.

Get off your feet in the heat, drink water and take a seat.

Don't leave heat safety in the dust; staying hydrated is a must.

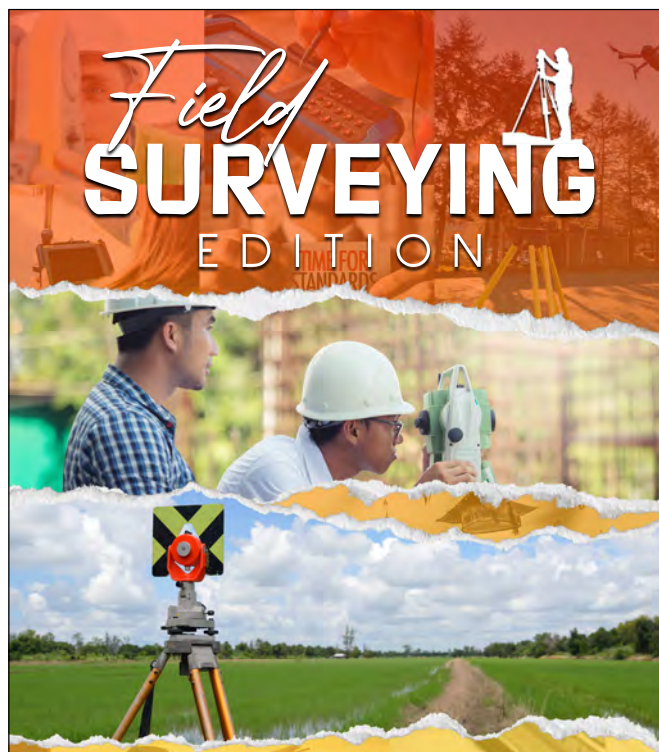
Let's look at this edition. We have some great feature articles again! You will find a couple of well-written abstracts from conversations on both Mentoring Mondays and The Geoholics Podcast. There is a discussion about Saving Surveying and what it takes to get people involved and another good one from the Geoholics podcast on the Concerns of Young Surveyors. There are a couple of insightful reads by Mr. C.de Baca, and lastly, there is an excellent article on Field Notes from a roundtable discussion on The Geoholics Podcast. If you are not interested in podcasts, I will continue creating the written abstracts for those who continue to love the print versions.

Lastly, please send in your comments or articles to me to print what you want to read! Articles are due on August 1<sup>st</sup>, please.

***Every man owes a part of his time and money to the business or industry in which he is engaged. No man has the moral right to withhold his support from an organization that is striving to improve the conditions within his sphere! – Theodore Roosevelt***



## About the Cover...



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

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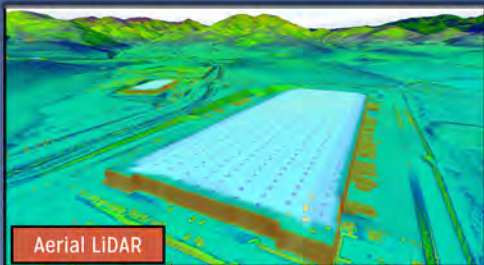
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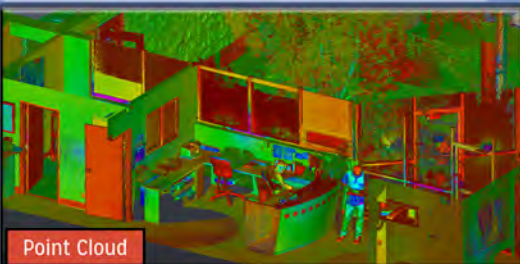
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# NALS JOB BOARD

Visit the NALS Website at: [NVLandSurveyors.org](http://NVLandSurveyors.org)

The screenshot shows the NALS Job Board website. At the top is a banner with the NALS logo and the Nevada Association of Land Surveyors. Below the banner is a navigation bar with links to Home, Board, Jobs, and Job Board. The main content area is titled 'NALS Job Board' and features a search bar and a list of job postings. The job postings are organized into a table with columns for Topic, Replies, Views, and Last Post. The first four job postings are:

TOPICS	REPLIES	VIEWS	LAST POST
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

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 Justin Moore, PLS

Wow... What a magnificent {7} conference we just wrapped up!!! First and foremost, the Nevada Association of Land Surveyors extends a sincere "THANK YOU" to Crissy Wilson and Dorothy Calegari for yet another amazing conference. It does not matter if the conference is virtual or in-person; these two individuals know how to entertain. Of course, it takes a team to follow their leadership, and an essential member of that team, Nancy Almanzan, also deserves a huge "THANK YOU." The planning, time, and dedication to organize one of these conferences happens months in advance and takes years and years of experience for all that preparation to follow through flawlessly. As a small token of our gratitude, the Nevada Association of Land Surveyors has sent each of these amazing ladies a wonderful wine and gift basket for them to enjoy.

With the conference just wrapped up days ago, we are still digesting all the knowledge from our workshops, networking connections, and further research into all the new and exciting technology introduced to us by our vendors and sponsors. However, we do have some interesting stats to share:

Total Attendees = 1,147

Total full-time attendees = 955

Total Nevada attendees = 104

Next year the plan and goal is to resume in-person, in Vegas, and be bigger and better than ever before!

Committee Chairs have also been busy, but one particular has been quite active. Our Legislation Committee, chaired by V.P. Robert Carrington, has been tracking and following state bills and legislation through this year's congressional session that affects Nevada land surveyors. Any pertinent changes or new legislation affecting our members will be distributed through email, Traverse articles, and/or newsletters, so keep an eye out for that material.

As we move into the 2<sup>nd</sup> and 3<sup>rd</sup> quarters of 2021, I made it one of my presidential goals to transition the association back into in-person meetings, workshops, and activities. As the state and nation report the decline of covid cases and the state begins to loosen its restrictions on gatherings, I would urge our chapters to start the conversation amongst your boards to start offering in-person meetings and virtually. Moving forward, even past this pandemic, I would like the chapters to continue in a hybrid platform. I feel that the virtual option provides us the ability

to reach those members who can not attend in-person for various reasons. It allows us to connect and network to reach the masses outside our local areas. NALS state board is here to assist our chapters and offer support to make this happen. To help jump-start this effort, I am proud to announce that NALS is planning a 2-day, in-person workshop and golf tournament this summer in Reno! Proceeds from this event will be donated to the NALS Education Foundation, which in 2020 alone has awarded over \$12,000 in scholarship money. All the details are printed in this edition of the Traverse.

In closing, a final thought. Every year after our conference, I take some time and reflect on what I just learned, ways to improve myself and the professional services I offer, and how we can positively impact the profession. One way to make a positive impact is by supporting those individuals and/or programs that make a tangible difference. One of those individuals/programs specifically is Trent Keenan and Mentoring Mondays ([mentoringmondays.xyz](http://mentoringmondays.xyz)). Trent has started from the ground up a virtual workshop every Monday afternoon that reaches out nationally to our surveying community to offer workshops on business management, field procedures, CAD tips and tricks, standard updates, and so much more. This venture is sponsored solely by Trent Keenan, and it's time for us to step in and show Mentoring Mondays how much we appreciate the platform and desire its continuation. I have asked for NALS to donate \$1,000 to help offset the existing costs and help the promotion of this valuable program. I have also asked our local chapters to make a generous \$500 donation each.


Additionally, I know this publication reaches the masses on a national level. So, I offer this **CHALLENGE** to any and all Associations, Chapters, or Individuals to reach into your wallets and show your support and dedication to the outreach and promotion of our profession. I will start this challenge with a personal donation of \$100 to Mentoring Mondays. Who's next?

[www.MENTORINGMONDAYS.xyz](http://www.MENTORINGMONDAYS.xyz)

—Justin Moore, PLS, 2021 NALS President



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# Saving Surveying: What Does It Take To Get People Involved?

Prepared by Trent J. Keenan, PLS & Kristina Poulter



An abstract of a Mentoring Monday's presentation from March 1, 2021

In almost every state, the number of licensed surveyors is dwindling in comparison to the number of surveyors who are projected to retire in the coming decade.

In Alaska alone, over 12% of surveyors will disappear from the ranks in the coming years. While a short-term viewpoint might celebrate more work and higher wages for the surveyors who remain, from a long-term standpoint, the situation looks grim.

Surveyors are a passionate bunch. Many surveyors who "retire" can't seem to stay entirely out of commission for long. It's the type of passion that results in a thirst to pass down knowledge and wisdom to future generations. So how can we ensure that enough hands will be ready to take up the reins?



During a recent Mentoring Mondays, surveyors in attendance brainstormed the challenges and hurdles facing the profession.

## **Balancing academics and experience**

Michael Schoder, PLS and retired BLM Chief Cadastral Surveyor for Alaska is concerned about filling the surveying ranks.

He thinks that the solution to the dilemma likely lies in creating a system of mentoring.

While the University of Alaska has a strong geomatics program for surveyors, including a dedicated cadastral track, Michael doesn't know if education alone can inspire and prepare the next generation of surveyors.



"The problem is that in my view is that you can't do this all with academia. And I think once we said, hey, well, it's a four-year degree. Great. We can train them. Now I can back off. I don't have to mentor them. I know when I get somebody out of one of those programs, they're going to have some basic knowledge," Michael said.

While programs these days are sophisticated, a thorough career like surveying requires a delicate balance of hands-on experience.

"Working experience is huge. And it's really hard to get the people that want the right desire to be in the field or deal with that," said Michael.

He raised the point that many young potential surveyors are also considering careers like engineering, which can have a much faster return on investment than a surveying degree. When it comes down to weighing finances against passion, passion doesn't always win when higher education degrees clock in at up to \$40k per year.

"I really think the best surveyors are the ones that get the passion. You know here we are, some of us in retirement that we - I thought when I walked out, hey, I've done it for 45 years. I'm going to do something else," Michael said. "I don't think we can take the surveying out of a real surveyor. You can't."

## **A new House Bill in Florida**

Other states are grappling with this same question and experimenting with ways to find the answer.

Florida just introduced House Bill 821, which will allow the education path to open back up in Florida. The concept is that surveyors will need six years of experience, but the balance between academic and work experience can vary.

If the bill passes, it means students can choose to pursue a four-year degree followed by two years of experience, or a two-year degree followed by four years of work experience, or even elect to do six years of experience only.

Mark, another surveyor in attendance, doesn't think the Florida bill will pass - and feels that it would be a disservice to the surveying profession if it did pass.

"I understand professionalism, but I also understand that this isn't a profession that most people don't even know about. And we haven't done a good job of advertising it to the masses. And all the schools are dropping their geomatics programs. So we're at a disadvantage as an industry of getting fresh talent into it. And we're not doing anything to attract that fresh talent," said Mark.

He did note that some of the best surveyors he knows were able to get their license without a four-year degree - so this is a tricky dilemma.

"We've shot ourselves in the foot, and I don't see what we're doing to help solve the situation," Mark said.



**\*UPDATE: the bill died in the Commerce Committee on April 30, 2021, but I am sure this is just the beginning of these types of bills that will be introduced over the next decade! We need to keep a close eye on every state's legislative sessions!**

### **Finding good teachers**



Michael noted that regardless of when and how surveyors-in-training learn, they still need to learn the same quantity of information.

That means that if less training is done in the classroom, it falls on the shoulders of the supervising land surveyor to teach them on the job.

"You're going to have to mentor and train those people in those higher-level subjects and teach them how to learn and teach them how to research and find their answers on their own," said Michael.

"But that's a big commitment. And I don't know. You know you look at a lot of firms; you got one LS and a whole bunch of field and office staff. He doesn't have time to look over the shoulders and walk around and spend those types of hours if they're not getting that four years."

Even if many professional surveyors had lots of free time on their hands, there's also no guarantee that they would be good and effective teachers. True teaching is a skill, and requires preparing content, getting up in front of people, and doesn't always offer the ease of one-to-one mentorship when done in a group setting.

"There never is an easy answer for total learning out of the field. There's never an easy answer for learning totally out of school. So you've gotta balance. You've got to have a balance. You've gotta be able to take the time," Michael said.

### **Crowdsourced mentoring**

Michael described a former job at the Department of Transportation where he experimented with mentoring at scale.

He decided to devote every Wednesday to preparing anyone interested in pursuing their surveying license.

"When I was at DOT, I had bad morale. When I went in there, people were in the union. They didn't know where they wanted to go. And I said, well, hey, how about we do something for you? How about let's get you all your LS license," said Michael.

So every Wednesday, everyone came in early. Those who wanted to learn land surveying did so under his instruction. It took structure and dedication, but it paid off. Today, four of those individuals now have their licenses.



In a way, Michael sees online workshops like Mentoring Mondays as the perfect mentoring program, bringing novices and professionals together every week.

"I mean, this is crowdsourced mentoring, right? So why does every LS that maybe isn't a good teacher, but gosh, you want to learn how to do elevations with GPS? Who better than retired NGS head Dave Doyle who is going to talk about it in two weeks?" said Michael.

**CONTINUED ON NEXT PAGE ►**

Suppose a program like Mentoring Mondays can be formalized, recorded, and turned into lesson plans. In that case, it could serve as the perfect vehicle to take the full weight of teaching off of busy professional land surveyors' shoulders.

### **The value of CFedS**

While how to structure surveying education is up for debate, the value of education as a whole is undeniable.

Every professional surveyors can benefit from life-long continuing education. One program heavily discussed among attendees was the CFedS program, which provides the training necessary to execute boundary surveys on or near federal interest lands.

"As a professional land surveyor and also a past BLM chief, I think it's invaluable. And if you have a need for continuing education, why not? Because you'll get more in-depth sight into the federal procedures of original surveys and dependent resurveys, understand the plats, and how to do acreage from a plat without dimensions when you have government lots. A lot of little things like that," Michael said.

While the value of pursuing CFedS depends on where you live and practice, the program has both educational and social benefits.

"It's good credentials. I know this from being on the other side of the fence at an agency too. If I'm looking at a proposal from a company and they show me some of their staff have CFedS designations, I know that those people took the commitment to do all the hours of going through it. And they had to have a passing grade. That shows an interest in higher learning and a commitment to continuing education far beyond what they needed to do to keep their license," said Michael.

Steve Parrish, PLS, the current chairperson and training coordinator for CFedS, has seen 1,300 people sign up for the program since 2006, with about 550 certified CFedS currently practicing.

He is currently organizing five presenters for an upcoming conference, where participants can take a special two-credit hour CFedS course that is offered at half the price of the regular online course.

### **Attracting attendees**

A shortage of new students in surveying programs isn't the only problem facing the surveying world.

At the state level, chapter organization meetings are not seeing participation and attendance from people from the field.

While private-sector employees tend to show up, others don't. The pandemic has only served to exacerbate this pre-existing issue.

"A lot of it has to do with the influx of probably that individual company and what they're willing to step out and do for those guys that say hey look, we want you to advance yourself and just not be a technician or a robot for us," said one attendee.

### **Surveyor shortages and public scrutiny**

John Brady, PLS, a surveyor located in Fairbanks, Alaska, has his own concerns about surveyor shortages.

"This year, I am president of our local Fairbank's chapter of ASPLS. And I'm the youngest guy in the room by 30 years, usually sometimes even 40. And that's a huge issue to me. Because what is the society going to look like in 10 years when I'm pretty much the only one left?" he wondered.



That's one reason why John is so thrilled to have the opportunity to participate in Mentoring Monday sessions and connect with other surveyors across the United States.

"That's the beauty of the technology we have available these days to be able to network outside of our locales and be able to actually get an idea of what people are doing across the country and across the world," he said.

John is also a fan of the Get Kids Into Survey program, which inspires future geospatial experts. During the pandemic, he's been working the program into the homeschooling curriculum for his own children.

"I mean, it's great in one sense because I'll always have a job. But I also want to see the profession grow and continue on and still be around when I'm ready to pass it off to the next generation. Which hopefully will be quite a ways down the line," said John.

Trent Keenan, PLS, raised the important point that fewer surveyors does not necessarily translate into riches and smooth sailing for the surveyors that remain.

"As much as we talk about it's going to be nice because we're always going to have job security; I think the biggest problem that we're going to run into is the public can't wait around for three, four, five, six weeks when we tell them that we can't get to it for a month and a half. So we're going to have an issue on the PR side of things," he said.

In other words, efforts to grow the surveying profession aren't just to ensure there are more bodies in the office. It's to prevent the unknown of new legislation that could follow when the necessary work of surveying simply can't be done on time.

### **A new teaching model**

It's becoming clear that what the surveying profession needs is a new teaching model, where practicing experts and retired professionals can join forces to create engaging and comprehensive educational content without burning out.

Crowdsourced mentoring like Mentoring Mondays and recorded lessons may be able to provide a digital starting point.

For physical in-person classes, Ian Wilson, PLS, is interested in exploring shared teaching opportunities.

"In Evergreen College out here, I keep getting jingles from them saying, can you come to teach a class? Can you come and teach a class? I do not have time to spend, unfortunately, to teach an entire semester of classes. And one thing that I've proposed over and over again, and it seems to get crickets or falls on deaf ears, is to get together a few surveyors," he said.

In Ian's vision, he would be able to commit to three weeks teaching about survey boundaries, after which another surveyor would pick up where he left off with another topic, and so on until the 16-week semester was over.

Why has his idea fallen on deaf ears? He imagines it must be due to the internal logistics at the college.



"Somebody is going to have to really do some work on this because then you run all the crap about, okay, now we've got ten teachers who are going to be here. Ten guys are going to teach this seminar next semester. Do they all need to be set up as employees? How do we - you know, there's a whole lot of logistics that need to be dealt with, but somebody has got to do it," Ian said.

Despite the unknowns, one thing is clear: a passion for the profession drives surveyors. And where there's passion, anything is possible.

With modern technology at our fingertips, there's hope that we can bridge the centuries-old art of surveying with the modern world, helping to educate and inspire a new generation of surveyors to follow in our footsteps.



***If you are interested in learning more about Mentoring Mondays or volunteering as a featured speaker, please contact Trent J. Keenan.***

# The Attack On Licensing Boards

*Prepared by Carl C.de Baca, PLS*

In 2018 U.S. Magistrate Judge Stacie F. Beckerman ruled in a case filed by a Beaverton man, Mats Järnlström, against the Oregon Board of Examiners for Engineering and Land Surveying.

Järnlström holds a Bachelor of Science degree in engineering from Sweden. Before 2018, he had repeatedly challenged Oregon's timing of yellow traffic lights as too short, leading to an investigation by the Oregon Board of Examiners for Engineering and Land Surveying for the "unlicensed practice of engineering". A review of the case indicates that Järnlström had sent his traffic light calculations to the state board, identified himself as an engineer to local media and the "60 Minutes" T.V. news program, as well as in discussions with the National Council of Examiners for Engineering and Surveying. The state fined Järnlström \$500 for violating a state law governing who may call themselves an engineer, finding he wasn't an Oregon-registered professional engineer.

With backing from the Institute for Justice, which provided him with an attorney, Järnlström asked the court to take a broader look at the state law and its administrative rules and declare them unconstitutional. He won. He is free to call himself an engineer.

I remember the Oregon case. That seemed like kind of a stunner to me, and my initial reaction was that I would thereafter adopt the title of Supreme Court Justice since it's just a free speech issue, and I'm free to be whatever I want to call myself. However, my wife refused to address me as 'Honorable Justice Carl,' so I let go of the idea very shortly. Good thing I hadn't got the robes yet.

Currently, there is a case playing itself out in the courts in North Carolina that could also impede a licensing board's ability to enforce state laws. In this one, the North Carolina Board of Examiners for Engineers and Surveyors ordered an unlicensed individual to stop flying his drone and provide orthorectified imagery to his clients, as orthophotography production is a 'protected' function, only allowed to licensed surveyors. He was also showing 'approximate' property lines on his photography and had developed a disclaimer that said the lot lines were approximate and a land surveyor should be consulted for actual locations.

His case also relies on First Amendment protections, saying the board has violated his right to free speech by making him stop producing this imagery for his clients. This might seem crazy until you read the facts of the case and the arguments he and his attorneys are putting forth. He could win this case.

Coincidentally, or maybe not, this case is taking place in North Carolina where the Supreme Court ruled a few short years ago, in an anti-trust case involving teeth whiteners and the North Carolina Board of Dental Examiners, that a board of regulation made up of active practitioners is inherently susceptible to

restricting free trade and therefore is not granted immunity from anti-trust action. The FTC suit was upheld, and teeth whitening can now happen on street corners and back alleys up and down the state of North Carolina, and I'm sure it does. Get your teeth whitened at the mall and get a free churro besides.

So why all these attacks on Licensing boards? As I may have pointed out once or twice in the past, there is a Libertarian-led movement with strong bi-partisan support to tear down licensure across the nation. Occupational licensing is overly restrictive and not needed, so they claim. In their mind, the natural process of free trade will weed out the weak and bad practitioners. Maybe the public will suffer some harm in the process, but that is the cost of doing (unrestricted) business.

This North Carolina case will be very interesting to watch since the Institute for Justice (IJ) is involved. They are the ones who scored the winning run in the Oregon free speech case. The IJ is trying, with money from the Koch brothers, to eliminate licensing requirements across the U.S. In 2019 NCEES, ASCE, NSPE, AICPA, NCARB, NASBA, ASLA formed a group called Alliance for Responsible Professional Licensing. [\\_\\_\\_\\_\\_](#)

Let's hope their first amendment argument doesn't morph into an argument that the North Carolina Board of Examiners for Engineers and Surveyors is restricting free trade. The one-two punch would be mighty tough to withstand.

While I have your attention, do you notice any relevant national association missing from that coalition?

Why NSPS is not involved and does not see the importance of this is beyond me. Is there an ad-hoc committee working on this, and I just don't know about it? Are NSPS officers attending the coalition meetings in an unofficial capacity to monitor the situation? What is the NSPS position on threats to licensure anyway?



# Poachers

*Prepared by Carl C.de Baca, PLS*

So... there are some people, NCEES folks being the predominant group, who will say there is no problem with the number of surveyors in the US. There are no declining numbers - move along, nothing to see here. And in a way, they are right. Statistically, there are as many licenses now as there were ten years ago, or twenty. What are you worried about? There are plenty of licenses out there.

Ah, but licenses aren't people. I suspect that those who share the view that there is no shortage and that the statistics bear them out are not in the position of trying to recruit new employees. Run an ad for an LS, an LSI, or an experience cad technician and see what you get. What you get is an opportunity to poach from your fellow professionals because personnel is in short supply across all categories. There is no one out there on the waiver wire. And sadly, the lure of filthy lucre is the primary way to pry them out of their cubicle down the street.

We can debate the causes of this predicament all day, but the conclusion is always the same: we were bad boys and girls

through the Nineties and Noughties. We focused on the bottom line when we should have been laying the foundation for the next generation. We were shooting ourselves in the feet back when we were too busy to pay attention to little things like training technicians or reaching out to the youth in our schools. We got busy and skipped a whole generation.

According to statistics provided by NCEES, the average age of an FS examinee is a little more than 34 years old. The average age of a PS examinee is just over 39. Shouldn't those numbers be more like 24 and 26? I was licensed as a PLS at 26. Of course, that was 1987 when we were still in surplus years. But it is not that way no more, folks.

So the next time you take a friend's employee out to lunch to see if they might be interested in jumping ship (and if they have any co-workers they can bring along), you have no one to blame but yourself when your friend is angry at you. Over the last ten years, you should have been training that extra tech you didn't really need, paying a visit to the local high school on career day, teaching the Surveying Merit Badge at a Boy Scout event, and finding time to introduce young people to what is a really cool profession. Let's hope the Young Surveyors Network can succeed where we didn't even bother to go.



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# Field Note Fundamentals: How To Prepare Them & What To Include

Prepared by Trent J. Keenan, PLS & Kristina Poulter



An abstract of The Geoholics Podcast  
Episode #72 from March 7, 2021

Field notes: love them or hate them? Paper or electronic? Clear-cut process or wild west? Professional land surveyors recognize that field notes are a critical part of the surveying process.

In a nutshell, field notes serve to record all pertinent information, measurements, calculations, sketches, and observations made by the surveyor during the course of their duty. These notes become the permanent record of the survey.

The bigger the project or business, the more critical field notes arguably become. And because the individual preparing the field notes may not be the same person who reviews them in the future, their legibility and meaning must be clear.

## **Three professionals share their field note expertise**

On a recent episode of The Geoholics podcast, hosts Kent Groh and Ryan Kelly interviewed three experienced surveyors on exactly how they take field notes and what they include.

The three surveyors in attendance were:

**Philip Adams, PLS:** President and CEO of Adams Surveying Company in Dallas, Texas, Adams specializes in large construction projects. Adams founded his firm 12 years ago and has been in the surveying business for 40 years.

**Ryan Swingley, PLS:** Geospatial Manager for ESP Associates, Swingley is based in Indianapolis and specializes in LIDAR and UAV. He has been surveying for 24 years.

**Phil Fedor, RLS:** A surveyor for Bowman Consulting, Fedor is a project manager based in Tempe, Arizona. A long-time field veteran, he will celebrate 30 years of surveying in July 2021.

## **Why are field notes important?**



Imagine you work for a big surveying company with ten crews. Your company takes on a big construction staking project, and five separate crews have a role on the site.

In this scenario, the importance of being able to follow the surveyor who came before you takes on both a short-term and a long-term significance.

"Following in the footsteps of the surveyor before you - that's what we all been doing. And it's one of the fundamentals. And on the construction side of it is a microcosm of that," said Phil Fedor.

Essentials like where control is and how it was established, and what the line of sight was are critical paper trail. If the surveyor or party chief responsible for the original field notes moves out of town, the new chief needs to pick up the project quickly.

"The new guy coming in has to be able to move in smoothly and seamlessly and take care of his contractor who's jumping up and down and barking at them because things aren't getting laid out, so they can get this stuff built and meet their timeline. Those field notes help make that a seamless transition," he said.

While field notes are an essential piece of the puzzle at every level, they are of particular importance to the crew chief.

If you want to jump into an ongoing project and quickly understand where a project stands, you need access to good field notes.

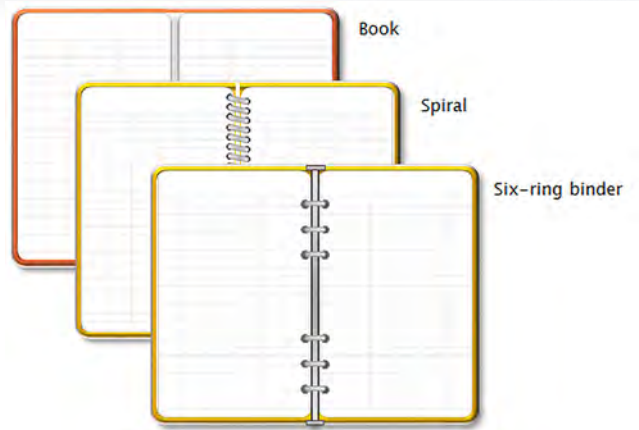
"The crew chief is the eyes and ears of any office personnel. And in today's day and age, not many of our techs and PLS's go out to the field on a regular basis. So obviously, we're relying on that party chief to be those eyes and ears and relay any important pertinent information to the team back to the office," said Ryan Swingley.



## **Essential fieldnote components**

There are many essential elements of field notes in addition to establishing control. Important components that Adams, Swingley, and Fedor mentioned include the following:

- Date
- Team members present
- Weather conditions
- Equipment used
- File naming conventions
- Control used
- Location of first control point
- Rod heights
- Base height and location
- Level information (benchmark location, type, method)
- North arrow
- Relevant drawings
- Relevant variables impacting the site or crew

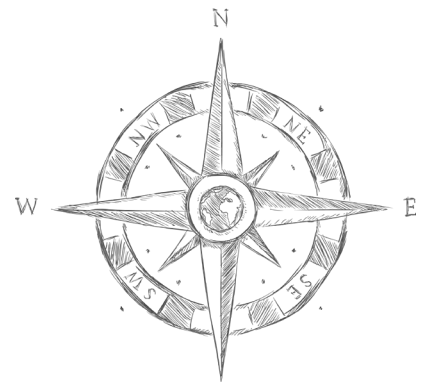


"One of my pet peeves was having a North arrow on every single page that has a sketch. I can't tell you how many times people start drawing things and whenever someone else looks at it, North looks like the other way," said Philip Adams.

He explained that it's also important to give a correct sense of proportions. He recommended that teams complete a practice exercise to ensure they have a method for getting it right.



"It's very difficult when the drawings are substantially out of proportion. You have a building five feet from a property line, but it looks a hundred and comparison to everything else. So the best way to teach these guys how to do it is to have one guy on a crew go out and draw it. And the other guy has to come into the office and draft it. And they started understanding what they need," he said.



## **Electronic versus handwritten field notes**

The question of the hour seems to be: how do you actually go about recording your field notes? Is it all paper? All electronic? Something in between?

Valid arguments were made on both sides of the aisle, with the consensus being that a hybrid model works best.



## **The case for electronic notes**



Ryan Swingley was team electronic notes, citing the fact that you can easily save all notes to an electronic file, timestamp sensitive documents and photos, and save everything safely in the cloud.

"I don't want to say there's little place for paper notes today, but I'm definitely very pro electronic notes because electronic notes don't lie, right?" Ryan said.

With the electronic data from his GPS Rover, he knows every second every shot was taken in history, which is powerful information to have at your fingertips.

"I really liked the data integrity of electronic notes. And what I would say is when it comes to a boundary perspective and a topographic perspective to me, I mean, you can add a written note to any code or any shot. You can add attribution. You can take photos and attach them to points these days. So from that perspective, I find that there's little use of paper notes," he added.

Ryan also made the point that paper notes are fragile. On one job site when he was in college, it

**CONTINUED ON NEXT PAGE ►**

started to rain, and the field book got kicked out of the truck and swept down the gutter, never to be seen again. And while he admits that you can lose a data collector just as easily, there are ways to safeguard and backup electronic data - but not a paper field book.

### The case for handwritten notes

Philip Adams agreed that today's technology is astounding - but sometimes, you need some good old-fashioned backup checks and balances.

"Just to challenge that new technology, we use heavy photogrammetry and LIDAR. We're constantly checking ground observation, ground-truthing, to compare it. In a conventional survey, we still run an actual close level on every GPS point that we do. They are just safeguards," he said.

And while some people may think it's strange, his team still uses levels on every job.

"Being heavy construction, GPS just flat out by itself is not adequate for hardscape construction when you're on a network. You can do all the checks you want, but it has a floating variable of about two tenths so that you just can't mean out in construction. So we do things robotically, but we have to run a level of on every single job because you have to know what your precision is going to be to know which tool to use. And we never lose an argument when we run a level."

The image shows two pages of a handwritten field notebook. The left page is titled 'Three Wire Leveling' and contains a table of survey data. The right page also has a title and contains a diagram of a survey point with a level line and some handwritten notes.

Point	BS (+)	IS (-)	FS (-)	BM
BM 1000				100.000
1	1.234	0.123		100.000
2	1.345	0.234		100.000
3	1.456	0.345		100.000
4	1.567	0.456		100.000
5	1.678	0.567		100.000
6	1.789	0.678		100.000
7	1.890	0.789		100.000
8	1.901	0.890		100.000
9	2.012	0.901		100.000
10	2.123	1.012		100.000
11	2.234	1.123		100.000
12	2.345	1.234		100.000
13	2.456	1.345		100.000
14	2.567	1.456		100.000
15	2.678	1.567		100.000
16	2.789	1.678		100.000
17	2.890	1.789		100.000
18	2.901	1.890		100.000
19	3.012	1.901		100.000
20	3.123	2.012		100.000
21	3.234	2.123		100.000
22	3.345	2.234		100.000
23	3.456	2.345		100.000
24	3.567	2.456		100.000
25	3.678	2.567		100.000
26	3.789	2.678		100.000
27	3.890	2.789		100.000
28	3.901	2.890		100.000
29	4.012	2.901		100.000
30	4.123	3.012		100.000
31	4.234	3.123		100.000
32	4.345	3.234		100.000
33	4.456	3.345		100.000
34	4.567	3.456		100.000
35	4.678	3.567		100.000
36	4.789	3.678		100.000
37	4.890	3.789		100.000
38	4.901	3.890		100.000
39	5.012	3.901		100.000
40	5.123	4.012		100.000
41	5.234	4.123		100.000
42	5.345	4.234		100.000
43	5.456	4.345		100.000
44	5.567	4.456		100.000
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46	5.789	4.678		100.000
47	5.890	4.789		100.000
48	5.901	4.890		100.000
49	6.012	4.901		100.000
50	6.123	5.012		100.000
51	6.234	5.123		100.000
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86	9.789	8.678		100.000
87	9.890	8.789		100.000
88	9.901	8.890		100.000
89	10.012	8.901		100.000
90	10.123	9.012		100.000
91	10.234	9.123		100.000
92	10.345	9.234		100.000
93	10.456	9.345		100.000
94	10.567	9.456		100.000
95	10.678	9.567		100.000
96	10.789	9.678		100.000
97	10.890	9.789		100.000
98	10.901	9.890		100.000
99	11.012	9.901		100.000
100	11.123	10.012		100.000

Philip also said that you can't lose sight of the history of the profession and need to cultivate a deep understanding of how things work and why things are done the way they are.

"When the equipment has a failure or question, you need to be able to go back to the old way," he said. "I think we'll let go of some of the use of it, but we can't let go of the history."

He gave the example of seeing an airplane flying through the sky. It's impossible not to look at the plane and know the general history of how it got into the sky in the first place.

"We'll still have to go back to the root, the core. So everything that we're doing, we have to go back to the core root of the development, whether it's the survey or the equipment that we use to get the survey," he said.

### The benefits of a hybrid notes system



Just because Philip Adams takes an old-school approach does not mean he doesn't value technology. At the end of the day, he sees a clear need for both legacy systems and new technology to work hand in hand.

About seven years ago, Adams' company bought a drone to start their photogrammetry department. Soon, they were taking drone photos for every single boundary. For every image, they then create a compilation mosaic in order to underlay additional survey information such as sidewalks.

"Every photograph associated with that mosaic is stored in a database that has the date and time. So we have that type of record as well, but we still have a handwritten field book that says this drone flight occurred on this date, and this time this was the drone we use," he said. "The photo or photogrammetry has replaced a lot of hand notes because a picture's worth a thousand words." In this way, handwritten notes and photos work together.

"There's a lot of data that is stored in the data collectors. It's processed; it's raw data. But I look at that as like paragraphs in a book. And I look at the handwritten notes as the footnotes describing when and where something occurred because you have to trace it back somehow," He explained.

Phil Fedor agreed. He explained that when it comes to boundary surveying in the construction world, he likes to see handwritten notes that cover key project elements like the state of the control and monuments.

"There certainly has to be a compromise for lack of a better term. But yeah, I mean, you certainly don't want to throw away the old way, and you know, throw the baby out with the bathwater, cut your nose off to spite your face, all those cliches. They both have to work hand in hand," Fedor said.

As with many aspects of surveying, you have to trust the insights of competent, boots-on-the-ground team members as they record important information on the fly and have appropriate technological aids in place.

### ***Field notes as legal evidence***



Perhaps the most significant consideration when it comes to field notes is that the notes aren't just a good handoff between professionals - they are also a key piece of evidence within the courtroom setting.

This is one of the biggest reasons why Philip Adams argues for a combination of handwritten and electronic field notes: in the legal world, he has observed firsthand that handwritten evidence often wins.

"I spent a lot of time in court or trying to avoid being in court because I was an expert witness," he explained.

"The field notes are the genesis of your survey. Everything is rooted in those field notes. You can have a flawless survey, but if your field notes don't support it, the court's going to reject your findings. So it's absolutely imperative to have those field notes as perfect as possible."

Naturally, the first hurdle is that you need to have field notes, period.

"If I don't have the field notes, or if the other side doesn't have field notes, whoever doesn't have good field and usually loses. You can sit there and talk all you want about your survey, but unless you can prove it, it's difficult," he said.

As far as whether electronic field notes will cut it or not, sometimes it just comes down to the judge assigned to the case and which field note format they view as being superior. But more often than not, he's seen surveyors who have some form of handwritten evidence win out.

"If you're in the field and you're taking handwritten notes, those are more valid than the collected data that's processed later. So there's an order of dignity of call, so to speak, in the chain of title of how these notes were created. So you want to get those handwritten notes, even if it's not specific to the details, but what day it was, who did it, and generally what were you trying to accomplish," he said.

If you have text messages and photographs that are meticulously dated and timed, those can certainly be on par with handwritten field notes.

In the end, it all comes down to the aura of thoroughness and trustworthiness that you can present based on your cumulative field note data. Because we live in a very litigious society, you want to make sure you CYA: cover your ass.

### ***Field notes role in the construction world***

If there's a surveying sector where field notes retain extra importance, it's in the construction realm.

**CONTINUED ON PAGE 20 ►**

# GOLF TOURNAMENT



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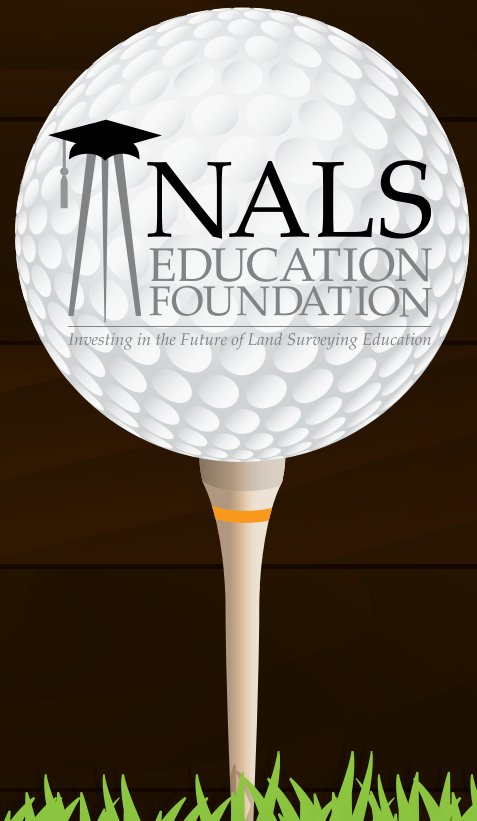
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# The Concerns of Young Land Surveyors

Prepared by Trent J. Keenan, PLS & Kristina Poulter



An abstract of *The Geoholics Podcast Episode #76* from April 4, 2021

When you get bit by the surveying bug, it's safe to say that you're bit for good.

Those with a passion for the profession look at the world in a whole new light. Every job site you walk, every vacation you take - whether you're on the clock or not, your surveyor's brain is working on overdrive.



Surveying today is marked by a generation of experts who are close to retirement.

But there are younger surveyors in the ranks. Some of them are concerned about the profession. Some are optimistic. Most are a little bit of both.

On a recent episode of The Geoholics, host Kent Groh and Ryan Kelly hosted three young surveyors: Farrah, Zach, and Adam, to chat about what's on their minds.

**Farrah Etcheverry** is the co-owner of Etcheverry Land Surveying. Founded by her father, Farrah joined the firm when she started helping out six years ago and was soon sold on the profession hook, line, and sinker.

**Zach Hogan** has been surveying for three years. When a friend mentioned a job opportunity and asked Zach to sign some paperwork and start at 6:00 a.m. the following day, he jumped at the chance. He quickly gravitated to the boundary side of surveying and fell in love with the sense of history.

**Adam Marmoljo** started his career in civil engineering before switching to surveying after speaking with several professional surveyors. After thoroughly researching job opportunities, pay, and licensure requirements, he decided to take the plunge and hasn't looked back.

## **The problems facing surveying**

It may seem uninteresting to state that a generation of surveyors is close to retirement. In any other profession, it might not matter. But in surveying, it does.

The average age of a licensed surveyor in the United States is roughly 59 years old.

In every state in the country, the number of licensed surveyors is on the decline.

While it's clear there is a shortage of surveyors, the question of the hour is, why?

A few things stand out as potential factors in the surveying puzzle.

- Land surveying is not a visible profession
- Education requirements are not standardized
- A mentor system is critical
- Digital resources are scarce

This article will not provide all the answers. But it will dive deeper into each of these problems, pulling together a bigger picture of the surveying puzzle.

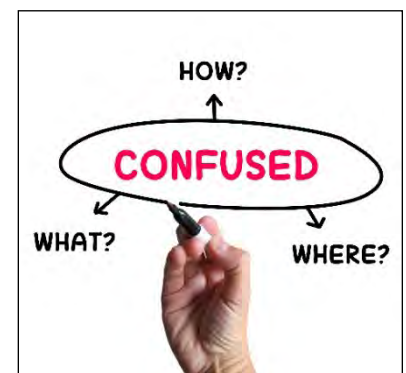
## **Make the profession visible**

For better or worse, surveyors often fade into the background.

Not as high-profile as most engineers or architects, surveyors often work behind the scenes.

Many surveyors do not loudly advertise what they do or engage in heavy marketing campaigns for their businesses.

The truth is, in the past, it often was not necessary. Members of the public knew when they needed a land surveyor, and they knew how to find one.



But that convenience is not as helpful now that most young people have no clue what a surveyor does.

Kent Groh recalled visiting a school to conduct a recent presentation. He asked the roomful of 600 kids if they knew what a land surveyor did. Only one girl raised her hand.

### **Talk up surveying every chance you get**



Farrah landed in the surveying profession thanks to her father, a surveyor with a firm of his own. If she had not had her dad to look up to, Farrah doubts that she would have been aware of surveying as a career path. That is why she thinks one key is for current surveyors to speak up about what they do to friends, acquaintances, and youths.

"If you don't have a parent or somebody really close to you who's good at what they do in surveying and who likes it, you just won't find out about it," Farrah said.

Most surveyors have limited time on their hands, so the first key becomes making time.

"There has to be enough people that have been doing it long enough that are willing even to go in and talk to the kids about it. And we are even having a hard time finding seasoned professionals that are willing to go and take the time to try and talk to young people. So, it's a struggle for sure," said Farrah.

### **Focus on the fun!**

When getting in front of a younger audience, Farrah, Zach, and Adam agreed that the important thing was to make it as engaging as possible.

This applies whether you are talking to young children, such as a Boy Scout or Girl Scout troop, or older kids such as high school students ready to think about their careers.

"I think it definitely takes a special type of person. So, for myself, I love puzzles. And I feel very fulfilled with physical labor," Zach said. "So, I think you need a special type of student or a younger person that enjoys going on adventures every day. If you look at it at least from the boundary side, you look at it as treasure hunting in a way. And when you are going out and finding some really cool stuff, like rebars that were set by some guy back in the eighties," said Zach.

In order to instill excitement and interest in surveying, you need people who are excited by surveying to talk about it. That way, the passion will come through, and you can pass on exactly how exciting and fulfilling surveying can be.

Adam agreed that he wishes he heard about surveying sooner - if he had, he would have looked into it much earlier in life.

"I think reaching younger people through high schools, you know, I think that's a perfect age to go and recruit in that way. Because if that would have been presented to me, I would have definitely taken an opportunity to join a surveying firm," said Adam.

Suppose you cannot physically get into classrooms to make a presentation. In that case, the answer might lie in something like social media - because right now, surveying isn't much more visible online than it is offline.

"I did a lot of research before I went in surveying. There is not a lot of articles or even social media coverage, you know, surveying. You know, if you compare it to civil engineering, it's quite the opposite," Adam said.

Farrah drove home the point that creativity is critical.

"It's pretty tough to come up with creative and unique and effective ways to reach people with something that you really can't express in a classroom setting. The exciting parts of it, you know, 11, 12, 13-year-olds through high school, they don't want to sit and listen to somebody tell them how much math they're going to need to learn, or how many years of college they have to go through," she said.

Instead, it is all about making things exciting and planting a seed that can grow with time.



**CONTINUED ON PAGE 22 ►**



Phil Fedor drove home the point that party chiefs are the critical link to transmit information from the field to the office - and more often than not, that means taking good field notes.

"You're the eyes and ears of the field for the office, and you've gotta be able to convey that story to us. And so that way we can take care of our contractors or our clients, whatever the case may be. So we rely heavily on you guys to be able to draw that picture for us, whether it be in words and numbers or actual drawings," said Phil.

Philip Adams agreed. In the world of land development, where boundary surveys are plentiful, it's hard to move totally away from handwritten notes pertaining to corners and offsets to roads.

Rather than focusing on how the field notes get taken down, Adams is currently focused on accuracy.

"I think one of the things we're trying to do and in our own way is not necessarily getting rid of notes, but trying to avoid transposition errors, human errors, just user errors. We're actually investigating inverted scanning technology so that when we pop a lid on a manhole, we can just scan the manhole instead of having the traditional way of writing it down," he said.

All too often, manhole measurements are transcribed incorrectly, or one-person crew data results in confusion since there is no partner to double-check the notes and calculations.

Ultimately when a contractor is standing in front of you telling you that you screwed up, you want to be able to correct them with confidence rather than slink off with your tail between your legs.

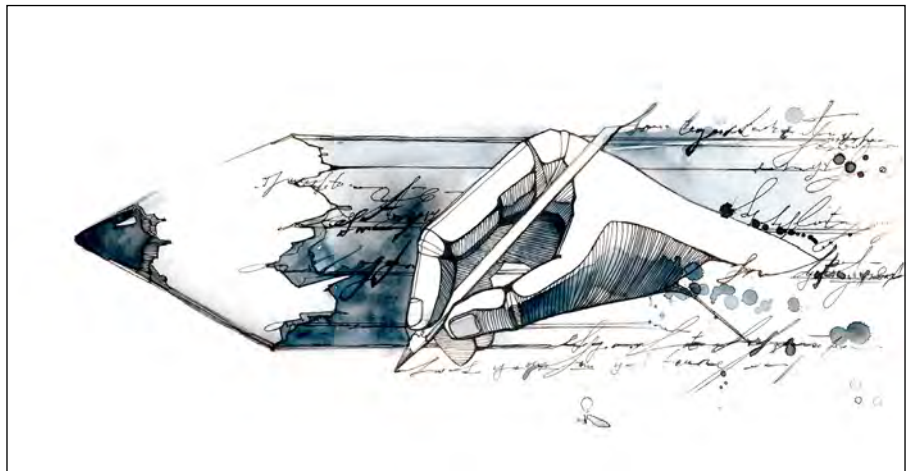
### **Surveying is an art**

Surveying is more than flying drones and beeping machinery.

It's both an art and a science - and field notes are an integral part of that.

Field notes don't just supply evidence for a theoretical courtroom. They tell a story. Looking back at surveyors' field notes from decades past is to witness something both informative and beautiful.

Surveyors can and should take pride in every stamped survey that is sent to a client and every field book that carries that story forward into the future.



To learn more about The Geoholics Podcast, visit their website at: <https://thegeoholics.com>



# NALS Successfully Amends SB 402

The NALS Legislative Committee, chaired by Robert Carrington, is actively following several bills introduced during the 2021 legislative session. The committee reviews the bills and determines what impact they may have on the land surveying profession. Senate Bill 402 was identified as a bill that may negatively impact the profession and harm the public. The bill was introduced on April 8, 2021 and included language that would require the Nevada Board of Professional Engineers and Land Surveyors (BPELS) to provide reciprocity licensure to active-duty service members and their spouses, without administering the Nevada state-specific exam.

On April 12, 2021, the NALS Board of Directors submitted a letter to the Senate Commerce and Labor Committee expressing concern for the health, safety, and welfare of the public if licenses were provided without examination. The letter highlighted the highly technical nature of the land surveying profession and the fact that laws vary from state to state. NALS Board of Directors requested an amendment to SB 402 to mandate the state-specific exam be required for providing reciprocal licenses to active-duty service members and their spouses. On April 19, 2021, Senate Bill 402 was amended to include this requirement.

One of the greatest benefits derived from NALS membership is representation. NALS members are represented locally through Chapters, statewide through NALS Legislative Committee and various Liaisons, regionally through the Western Federation of Professional Surveyors (WFPS), and nationally as members of the National Society of Professional Surveyors (NSPS). NALS will continue to actively represent the land surveying profession while working to promote the common good and welfare of the public in terms of professional land surveying activities.

In addition to SB 402, NALS is also watching the following list of bills:

AB 3 AN ACT relating to land use planning; revising provisions concerning the electronic transmission of certain maps and other documents relating to the approval of divisions of land, and providing other matters properly relating thereto.  
SB 155 Revises provisions relating to the Division of Water Resources of the State Department of Conservation and Natural Resources. State Engineer title changes to Administrator and does not have to be a Professional Engineer.

AB 173 AN ACT relating to professional regulation; revising provisions relating to the exemption from licensure as a

professional engineer for employees of certain public utility companies; revising provisions relating to eligibility to take certain required examinations for licensure as a professional land surveyor, and providing other matters properly relating thereto.  
AB 87 AN ACT relating to land use planning; authorizing cities and counties to establish a simplified procedure for the vacation and abandonment of certain easements; and providing other matters properly relating thereto.

SB 67 AN ACT relating to public works; authorizing a public body to enter into a job order contract for the maintenance, repair, alteration, demolition, renovation, remediation or minor construction of a public work; prescribing the procedure for awarding a job order contract; making certain documents and other information submitted by a person seeking a job order contract confidential until a contract is awarded; prescribing responsibilities of a contractor who enters into a job order contract; revising provisions relating to the expedited process by which the State or a local government solicits bids and awards contracts for certain smaller public works projects or completes such projects itself; and providing other matters properly relating thereto.

SB 106 AN ACT relating to property; enacting the Uniform Easement Relocation Act; and providing other matters properly relating thereto.

You can follow along with any of the bills listed above via a free website: <https://legiscan.com/>



## **Standardize education requirements**



It may not be a popular idea. It may not even be possible. But one issue that is throwing off young surveyors is the noticeable lack of standardized licensing requirements across the United States.

Farrah described an acquaintance who recently moved from Kentucky to Ohio. A licensed surveyor in Kentucky, he struggled to get re-licensed after he moved to Ohio.

"It's just funny because he was already licensed in another state, and yet he had so much trouble. Different states have different requirements that make it quite difficult," Farrah said.

Adam agreed that he almost did not consider surveying as a career for this very reason - and he knows other young professionals who feel the same way.

"I think that has turned a lot of people off," Adam said. "My friend, he was going to go into surveying. He loved the field. But when he found out there was inconsistency with Arizona having a degree, and Texas having just a two-year requirement plus experience, New Mexico having a four-year requirement - all of this inconsistency kind of worried him, you know."

Ultimately, Adam's friend decided to pursue civil engineering instead of surveying. Since he was paying for school out of pocket, a standard four-year engineering degree seemed like a safer return on his investment.

## **The case for education**

Just because the varying education requirements throw off some young surveyors does not mean they don't value it.

Adam made a strong case for requiring education, comparing it again to the civil engineering track for contrast.

"Civil Engineers, at least where I worked at, are really well respected. They earn the title, you know?" he said.

"They're both licensed individuals that are protecting the public. So in that aspect, I think they should be equal."

In addition to public perception, there's an ever-changing technology landscape to consider.



"The way technology is going, you have to understand what's going on," Adam said. "GIS, you know, how coordinates are being made, what coordinates system are they using, you know, stuff like that. That's the science behind it. I think it's only going to become harder."

While Adam fully supports the degree requirement, the challenge he's faced personally is the fact that he is entering the surveying profession later in life.

It's trickier to dive into the degree track when you already have a family than when you are just launching your career - yet another reason he wishes he had been exposed to surveying at a younger age.

"Now I feel like I'm kind of playing catch up. So I'm learning things, and I'm trying to learn things as quickly as I can," he said.

The perk is that in the modern world, there are more options than ever to earn a degree in flexible ways.

"With online schooling and with everything with COVID, everything has been restructured. So I think it's definitely more attainable. It's just putting your efforts and your time towards those things," said Adam.

Setting surveying apart as a profession rather than a trade is important to Adam at the end of the day.

"In my opinion, we are not a trade. It's a special profession," he said. "In today's world, everything is school. Everything is based on the school. So, I think that's number one to me. I think that's key to making this a profession."

It's a strong argument - if surveyors want to be held in the same regard as architects and engineers, requiring a four-year bachelor's degree makes sense.

CONTINUED ON PAGE 34 ►

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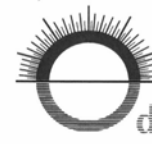
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*NALS is pleased to announce  
our first in-person gathering  
will be held:*

**JULY 15-16  
SILVER LEGACY  
RENO, NV**

## **SUMMER SEMINAR & AWARDS BANQUET**

## **GOLF TOURNAMENT SCHOLARSHIP FUNDRAISER**

**JULY 15<sup>TH</sup>**

**8 HOURS  
CONTINUING  
EDUCATION**

This event will include eight hours of continuing education with multiple topics and speakers. The seminar will include Ethics and NAC Update to meet the new renewal requirement for license renewal.

**JULY 15<sup>TH</sup>**

**LUNCHEON WITH  
CHRIS ORR,  
PBS WILD NV**

Join us for lunch and an entertaining presentation from Chris Orr, host of the PBS show Wild Nevada. Explore exciting activities, exquisite scenery and fascinating history from across the Silver State.

**JULY 15<sup>TH</sup>**

**AWARDS DINNER &  
GOING AWAY PARTY  
FOR STEVE PARRISH**

Let's celebrate! It's been over a year since we have been able to gather. Mingle with friends, recognize the contributions of NALS members, and wish Steve Parrish farewell before he moves to Idaho.

**JULY 16<sup>TH</sup>**

**ED. FOUNDATION  
SCHOLARSHIP  
GOLF TOURNEY**

The NALS Education Foundation Golf Tournament will be held on July 16th at the Toiyabe Golf Club. Proceeds will be used to fund scholarships for land surveying students.

## **REGISTRATION INFO**

Seminar Registration is \$195 and includes:

- 8 Hours Continuing Education
- Luncheon with Chris Orr
- Banquet Dinner & Silent Auction

Golf is \$150 each / \$550 foursome and includes:

- Golf / Cart
- Breakfast, Lunch, 2 Drink Tickets
- Prizes

## **HOTEL INFO**

**SILVER LEGACY RESORT & CASINO  
ROOM RATE: \$59**

**BOOK ONLINE:** [Link available at NvLandSurveyors.org](http://NvLandSurveyors.org)

Any reservations made via the telephone call center (800-455-4770) will be assessed a fee of \$15.00 plus current sales tax, per reservation. This fee will not apply to reservations made via the internet.

**FOR PROGRAM INFO & TO REGISTER ONLINE, VISIT: [NVLANDSURVEYORS.ORG](http://NVLANDSURVEYORS.ORG)**

# NALS



Nevada Association of Land Surveyors

## SUMMER SEMINAR REGISTRATION FORM

July 15, 2021 – Silver Legacy Resort & Casino – Reno, NV

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SEMINAR SCHEDULE			
7:00 AM – 8:30 AM	Registration & Morning Refreshments		
8:30 AM – 10:00 AM	Easements or Hardements? – A Primer in Easements and a Discussion of the Difficulties They Present in Surveying <i>Steve Silva, Esq.</i>		
10:00 AM – 10:30 AM	Morning Break & Networking		
10:30 AM – 12:00 PM	Easements or Hardements? (Continued) <i>Steve Silva, Esq.</i>		
12:00 PM – 1:00 PM	Luncheon <i>Chris Orr, PBS Wild Nevada</i>		
1:00 PM – 3:00 PM	Ethics <i>Speaker TBD</i>		
3:00 PM – 3:30 PM	Afternoon Break & Networking		
3:30 PM – 5:00 PM	NRS/NAC & Board Update <i>Michael Kidd, PLS</i>		
5:00 PM – 7:30 PM	Reception / NALS Awards Dinner & Going Away Party for Steve Parrish		
<div><b>REGISTRATION INCLUDES:</b> 8 Hours CE with Certificate Lunch &amp; Dinner  <b>HOTEL INFORMATION:</b> Silver Legacy: \$59 single/double <a href="https://book.passkey.com/go/SSNALS1">https://book.passkey.com/go/SSNALS1</a>  <b>REGISTER ONLINE AT:</b> <a href="https://NvLandSurveyors.org">NvLandSurveyors.org</a></div>			
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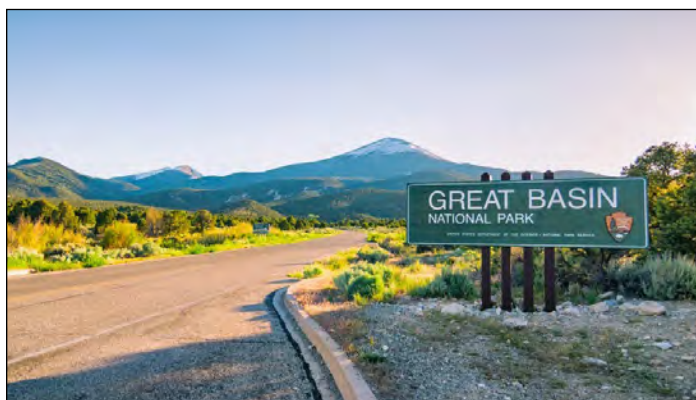
**Register Online At: [NvLandSurveyors.org](https://NvLandSurveyors.org)**

# Nevada Young Surveyor's Network

Prepared by Sarah Walker & Nick Montoya



Upper Lehman Campground with a private tour of Lehman Caves is an exceptional opportunity for Young Surveyors this summer to spend a weekend camping with fellow Y.S.N. members to enjoy and learn more about the unique application of Land Surveying in a Cave while enjoying the beautiful treasures of Great Basin National Park. Pitch your tent, explore caves, and laugh around the campfire with our friendly, fun, and spunky group of Nevada Young Surveyors!



Join the Nevada Young Surveyors Network the last week of July for a weekend campout getaway. We will be camping, exploring caves, networking, discussing, learning, and most importantly, having fun and getting to know one another better! Camping will occur at Upper Lehman Campground (campsites have already been reserved, and it is not necessary to do so), located in the Great Basin National Park near the Easterly border of the State. The campsites are a close 10-minute drive to the Lehman Caves, which will be toured as a private group during the weekend. Tour will be held by an N.V. Energy P.L.S. and investigate the surveying applications to Cave Surveys. Do not miss out on this excellent opportunity to meet and hang out with fellow Young Surveyors and learn more about the Profession of Land Surveying!  
**NO COST - PAY us with YOUR PRESENCE**

To help ensure safe social distance, we have a limited capacity with our campsite reservation. Please RSVP as soon as possible to [info@nvyoungsurveyors.org](mailto:info@nvyoungsurveyors.org) to guarantee your spot! Immediate family members welcomed with prior notice for headcount purposes. Dog and children friendly. Arrival is the evening of Friday, July 30th, and departing the afternoon of Sunday, August 1st, 2021. Breakfast/Lunch/Dinner will be provided throughout the weekend. Please plan to pack your snacks and drinks. If you need to borrow any camping gear, please reach out to us; we would love to help find you what you need to make the campout!



## Backsight Check

Prepared by Todd A. Enke, PLS

I have spent the last few months following the ever-changing drone rules under the FAA 107 tag and had intended to write an article about all of it. Still, I just could not seem to get started without immediately hitting the backspace key to remove my thoughts. This routine lasted for several days until I abandoned this path in favor of a recent field experience I had.

Like many other survey professionals in the United States, I do not get out daily to perform fieldwork. But with the increased workload, I have found it necessary to put my boots and fluorescent vest on and get my hands dirty.

It was one of these days with one of my guys that I realized that my old man, a surveyor of almost fifty years words rang true, "did you check and store your backsight"?

On this day, I enjoyed the search for Nevada Silver today being buried rebar and iron pipe and was not responsible for performing the standard station set-up with our Trimble S5 and ingrained backsight and storing of a topo check shot routine and this would bite us later.

Trimble has a built-in routine under the cogo functions for doing translations and rotations of survey data in the TSC 3 while out in the field that is great for relating collected survey data to a predetermined coordinate system. This is a great routine when you use it on a daily basis and have put in place the proper procedures that allow you to recover when you screw it up. I can tell you that it only took a few times of translating points to the wrong point or rotating points in the wrong direction, or even worse, rotating only a portion of the file or the wrong points that I put in the procedure of always storing the original job file and a .csv file of the data prior to performing any cogo functions in the field. Back to the point where this would bite us.

I have not spent much time with any of my guys in the field to know what their field procedures are; all my guys do good work but do not have my dad's words engrained in their mind as I do.

We were having good success locating points in the back of the lots in the lush, easy to dig, easy to replace grass, a foot or two is not a problem when you have a metal detector and the whole you dig can be put back together without drawing attention to it. Things change when you dig in asphalt or break up concrete on a driveway of a million-dollar home.

As we moved forward, the translation and rotation of the data occurred to allow us to have a more defined search location, I had a sense something was wrong when this relatively straightforward process that can as I stated earlier can go wrong quickly took longer to complete than I thought it should. If it goes right, it goes right in a few minutes; if it goes wrong, it takes much longer.

**CONTINUED ON PAGE 34 ►**

# Upper Lehman Campout

**SAVE  
THE  
DATE**



**DATE RESERVATION  
JULY 30 - AUG. 1, 2021**



**MORE DETAILS SOON**



# Practical Management of Field Surveys

Prepared by Trent J. Keenan, PLS & Kristina Poulter

*Mentoring*  
**MONDAYS**

An abstract of a Mentoring Monday's presentation from March 1, 2021



Managing field surveys is challenging. And the bigger the organization, the more chaotic it can get. With multiple crews, dozens of jobs, and varying equipment needs, it can be a lot to keep track of.

Landon Blake is the President and Senior Land Surveyor at Redefined Horizons. He lives and works in the California Central Valley and is a certified federal surveyor and UAV pilot.

He also has experience organizing field survey crews. In fact, at a previous position, he created a role that was solely meant to streamline the field survey process: the role of a Field Coordinator.

While not every organization requires a Field Coordinator, Landon explained on a recent Mentoring Monday's virtual meeting why it is critical to consider at large organizations.

"It's really hard to run a good surveying business," Landon said. "When I say business, I mean organizations. It could be a public sector organization. It's just really hard to run an effective well-oiled machine as a land surveyor."

When issues arise in the field survey process, it can usually be traced back to a communication breakdown between the field crew and the office team.

After watching the same problems arise again and again, Landon became dedicated to trying to fix those recurring issues.

## **How organization size impacts field surveys**

It might be easy to assume that a field survey is just a field survey, no matter the company. But the truth is, field surveys are exponentially harder to organize at larger organizations.

I tell people it's 50x as hard to run a 20-person firm as it is a ten-person firm," Landon said. "You double the number of people that the management headache doesn't double – it triples or quadruples."

Landon founded his own small surveying firm in 2020, but before that, he worked at much larger operations.

At Redefined Horizons, things are relatively simple. Landon is able to get his boots on the ground on every single job. This means that he no longer needs to prepare field packages. As the senior land surveyor and owner, he is personally integrated with all of the fieldwork.



"It becomes really important when that licensed land surveyor gets one or two or three layers removed from the actual fieldwork," Landon said. "As a licensed surveyor and responsible charge, you better have a system in place to manage your fieldwork. And you should probably really have some written guidelines that your crews follow."

## **Why written guidelines are important**



By written guidelines, Landon does not mean a general checklist. He suggests a specific written handoff on every single field survey assignment.

Why is this important? First off, it will help to improve the quality of your work and streamline your day-to-day workflow.

Secondly, it will give you written proof if you are ever called to the board or by an attorney to prove that your responsibility on a project was fulfilled.

Landon recalls a conference presentation he attended some years ago. The presenter was both a land surveyor and an attorney. "He said the worst part at his job was having to defend land surveyors in a lawsuit that were poorly dressed and poorly documented," Landon said. "You don't want to be that guy."

Avoiding that scenario means documentation on every survey. It means being able to go back and show the written handoff, crew instructions, and checklist.

"If you can't be the LS on the ground, I think you better have some systems in place," Landon said. "As organizations grow in size, the need for this kind of structure gets more and more important."

### **Inspiration for the Field Coordinator role**

When Landon first started working at Rodale Engineering, his first 90 days were spent in observation mode. And what he saw was not pretty.

The company was doing \$3-5 million a year with surveying work. And there were zero organizational systems in place. When his boss made him survey manager, the very first thing Landon did was determine that a central person, or Field Coordinator, would be in charge of managing surveys. In the beginning, that person was Landon himself.

"I don't think I invented the role. I don't want to take credit for that," Landon said. "But it's something that I had never seen before." How it worked was simple in theory: If project managers needed a survey crew, they had to go through Landon to schedule it. Whether they were civil engineers or surveyors, they were responsible for telling Landon what they needed and when.

### **How to select a Field Coordinator**

The ideal candidate for the Field Coordinator role is somebody who the field crews can respect. Somebody who has paid their dues and understands how things work out on the job site.

They also need to be comfortable behind a computer, even if that means they are typing with two index fingers.

"In a lot of organizations, you get somebody that has got a bachelor's degree and you kind of put them in charge of the field crews and they haven't earned their stripes," said Landon. "I've seen that fail more than one time."

### **Field Coordinator is a full-time job**

When Landon started his new program, the results were clear. Things were smoothing out and working great.

But Landon quickly burnt out working 75+ hours per week, as both survey manager and makeshift Field Coordinator. Eventually, he brought in someone new dedicated to running the coordinator duties.

"I was just dying. Because I was trying to run projects, do business development, and run these crews," Landon said. "That's the bottom line. If you don't have a full-time person dedicated to running those crews, your organization is probably a disaster."

The amount of management that goes into properly running eight people, or four crews, is significant.

Your Field Coordinator does not have to be a land surveyor. But they should be given the benefit of a full-time position in order to do the job right.

### **Field Coordinators have to be consistent**

The secret to success when you have a Field Coordinator is to require everyone to follow the same rules – no exceptions.

Yes, there will be some major growing pains as team members adapt. There can very well be pushback. But if you don't enforce the process, the process will break down.

"For the first 60 days, guys would call my Field Coordinator and say, Hey, I need a crew in two days to do X and they wouldn't have the requests," Landon said. "I had to teach my LS you don't get on the schedule without the written request, period."

The first couple of times, this resulted in crews being late with client work because they hadn't gotten things scheduled. Eventually, everyone was trained to follow the new protocols.

**CONTINUED ON NEXT PAGE ►**

Some were fast learners, and some were more stubborn. "There's always one or two guys and they're just like, you know, they bring you a burrito wrapper with some permanent marker on it, you know?" Landon said. "They were just, it was a constant problem, and we had to keep kicking that stuff back."

Even after Landon replaced himself with Brent, a new dedicated coordinator, he made sure to follow his own rules. If he wanted a field survey, he didn't get to just call his favorite group. He scheduled through the coordinator like everybody else.

### **Part #1 of the Field Coordinator role: tracking future requests**

Fifty percent of the Field Coordinator's job is what has been alluded to above – scheduling requests for future field survey work.

At Landon's old firm, this consisted of a one-page form. On the form was all the information that the field crew was going to need: the starting point, the number ranges, the existing control, a sketch of the mapping limits, and contact per site access.

"There's all this stuff that the crew needs to do their job," Landon said. "And so the LS, when he would go to get his work on the schedule, you would have to go to Brent."

With multiple civil engineers and licensed surveyors going to the coordinator to request field work, it's important to have a good system in place to take those requests.

Landon also noted that if you hire a non-licensed surveyor for the coordinator role, you really need to have their back during the growing pain stage of the process.

"Everybody in that organization has to know that you as a survey manager have his back," said Landon. "Those licensed surveyors got to know that when your field coordinator says, 'Hey, I don't have a survey request. You're not getting on a schedule,' that they're not going to get around that requirement."

### **Part #2 of the Field Coordinator role: quality control**



In addition to scheduling future work, the Field Coordinator is also responsible for coordinating questions between the LS and the crew and conducting a thorough QA/QC upon completion.

Questions would often arise in between survey scheduling and survey completion. For instance, crew members would need to clarify things like which street had dips, if there was survey grade stakeout for the boundary, etc.

The coordinator can ensure that the LS requesting the survey is aware of the crew's questions, and get them answered.

### **Managing QA/QC**

Once a crew returns from the field, the second half of the coordinator job really comes into play. Landon's coordinator used a big checklist of things the crew was supposed to bring back to the office, such as field notes, data, and collector files.

The coordinator would check the data into Trimble business center and see if crews had used coding and run their linework.

"You can't believe how freaking hard it was for me to get crews to rely on, you know, did they use lime or did they cover the mapping," Landon said. "So he did a thorough QA/QC." This process could easily take 1-2 hours depending on the project.

If something was amiss, the coordinator would notify the licensed surveyor. They would get the crew scheduled to go back to the job site and make any corrections.

Landon found this part of the Field Coordinator role to be critical. Because if a coordinator wasn't doing this process, it often wouldn't get done at all.

"My average LS project manager in that organization was too busy to take the time to do that QA/QC. They were supposed to be doing it, but the reality is they weren't doing it because when they got busy. The very first thing that got pushed was that QA/QC."

This point drives home Landon's earlier point that a Field Coordinator role is a full-time job.

## **Other duties you can assign a Field Coordinator**

In addition to scheduling surveys and conducting QA/QC, you can leverage your Field Coordinator to help with other important tasks. In Landon's case, his coordinator was also:

- Tracking all equipment maintenance
- Tracking firmware on all the data collectors and toll stations
- Figuring out when batteries needed to be replaced
- Managing maintenance on all survey vehicles
- Taking care of the registration and insurance on the survey boat

Delegating these additional tasks did more than help justify the existence and salary of the coordinator role.

First, they also cleared Landon's own plate so he could focus on high-value tasks as the survey department manager. Secondly, the company soon saw a huge improvement in the quality of their work product.

"We eliminated a bunch of the problems that we were having between field and office," Landon said. "It was great because he made sure that the project surveyors were given a good handoff. And he made sure that the field crews were coming back with a good product."

## **A good system lets you hold people accountable**



Finally, having a secure system in place means that you can begin to hold employees accountable.

"I frequently tell people when I talk about this project, sure, you give your field crew a napkin sketch for handoff, you deserve the pile of horse manure they bring back. That's the deal, right? It's a two-way street," said Landon.

You'd be surprised how much money is lost due to employee mistakes. And when those mistakes are allowed to pile up without consequence, it means the dollars continue to disappear.

Landon recalled instances of sending a crew 1.5 hours away to the Bay Area, only to have them return without getting the manholes done.

Sending that crew back again is pricey. In fact, field crew time is the most expensive time in a survey organization, if you break it down by hourly rate. To make things even more challenging, sometimes crews were already booked for subsequent days, making a quick return to the site impossible.

With a written field package, you can trace the mistakes back to their sources and dole out reprimands and consequences.

"They used to call me the checklist Nazi. I'm not saying you gotta bury people in paperwork. That's not what I'm telling you to do," Landon said. "If you can't hold people accountable, you can't fix the problems, right. That's the bottom line."

## **Preparing a field package**

Landon also described the value of preparing a field package prior to each job.

At a minimum, Landon would complete a road safety review for any job taking place on the roadway. This consisted of a one-page form listing the speed limit, presence of a median, shoulder condition, typical traffic, a photo of the control point, and any special instructions. Most of the time, surveyors don't think about logistics like that. They just have an address for the survey site and they drive over.

"I always had a little exhibit for every survey, an 11x17" exhibit with an aerial background with some standard notes," Landon said. He also is a fan of sending the crew out with some kind of TBC file or data collector file, ready to go. These days, his team usually uploads the KML files right into the job file. Modern technology like cell phones and tablets makes this easier than ever.

If you are interested in learning more about Mentoring Mondays or volunteering as a featured speaker, please contact Trent J. Keenan.



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## **The case for hands-on experience**



While it is true that book smarts set a solid foundation and add an aura of professionalism, it's also true that surveying is a "boots on the ground" profession, where it is possible to learn exclusively by doing - if you have the proper support.

Farrah's opinion is that the hands-on track is valuable in its own right.

"Everybody's college, college, college, you got to go to college," she said. But the truth is that there aren't a lot of dedicated surveying programs and colleges out there.

"I think that imposing a four-year degree is what's part of what's killing the young people from coming in. Unlike engineering, surveying is so much outside, so much exploration, just like all of you guys have said. And so we like to capitalize on that part," she said.

Rather than compare a surveyor to a civil engineer, she sees no shame in comparing a surveyor to a tradesperson like an electrician or a plumber.

"Kids are graduating with massive amounts of debt, and they can't find a job. So part of the appeal of the trades is to say, listen. You do not have to go that route. We have something better for you, and you can finish it under somebody who knows what they're doing in a shorter amount of time and get right into the workplace, making good money, supporting your family, living out the dream," she said.

Most surveyors that Farrah knows in her home state of Arizona got into surveying because they already had families and did not want to go back to college. But they still wanted to find a fulfilling career where they could make a great living and enjoy being at work.

Farrah's own experience is a testament to that path.

She had been joining her father on a couple of surveying jobs for his firm, basically operating as a pack mule, carrying around supplies.

"I was kind of getting tired of just carrying this stuff. And finally, I said to him, can I just do that? I wanted to find where the point needed to go. I wanted to stake it out. I wanted to pound the hub. I wanted to store the data."

It sounds simple, but Farrah's father was taken by surprise. It turns out that not every potential surveyor takes that level of initiative.

"He told me, nobody has ever just said, let me do it. You know, they sit back, and they watch, and they observe, but so many people get nervous or too shy actually to have a hand at it," she said.

For those with both a high level of initiative and zero desire to pay or return to the classroom, the answer is that they can simply move to another state with no formal degree requirement and pursue a surveying career that way. It may not be ideal, but it is an option.

At the end of the day, it comes down to passing an exam. Farrah doesn't think it matters how you learn the material that helps you pass it.

"I think that there is definitely a place for higher education, but of course, probably out of everybody on the panel, I am the most pro mentor route. If it were up to me, there would be no four-year requirement."

## **Create a mentor system**



Regardless of whether the bulk of learning takes place in a classroom or in the field, a mentorship relationship is something that many young surveyors crave.

Zach particularly felt the desire to find an excellent mentor to get his surveying career off the ground.

"I don't even know some of the questions to ask because I'm really new at this. So it's like, you know, in a way, it's my responsibility to learn, but it's also the person that I'm working with or under; it's up to them. If they want me to progress, you got to help show me the way. I don't need you to hold my hand necessarily, but like here's a little nudge," said Zach.

If a more experienced surveyor doesn't make the first overture, it's up to the younger surveyor to take the initiative.

**CONTINUED ON PAGE 36 ►**

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Photogrammetrist  
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**Backsight Check...** continued from page 26

We were able to get the rest of the points located, although we seemed to have a three-to-four-foot shift in our search locations and would decide not to dig into the asphalt driveway on a few due to the large search area for a few of the points.

Our goal for this project was to locate the existing corner positions and provide an exhibit that showed the relationship to the existing home on the parcel.

After arriving back in the office, my guy worked on producing the exhibit we needed to provide the client. After a while, he came in and explained something went wrong with translation and rotation, and he could not get the data to work.

After reviewing the data and seeing no check shots on the backsights to relate the collected data to fix our mess, I headed out to the field to re-shoot our work.

Hours lost and a reminder of how important it is to have essential procedures in place for the collection of field data. We as professionals are put in the position of accepting that the data we use for the resolution of boundaries and preparations of topo maps are collected in a manner that we can rely on, and this starts with the procedure of storing your backsight shot. For all of us who rely on the work of others, we need not assume everything is collected right, we need to know it is collected right, and that begins and ends with proper training, procedures, and occasionally putting your boots and vest on.



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# Lahontan Chapter Update

*Prepared by Jake Johnson, PLS*

Through the beginning of 2021 we have held our chapter meetings in a virtual setting. In February we held a meeting with Sean Fernandez with TURN to discuss the NevadaGPS network and updating to the NAD83 2011 datum. Following the meeting with TURN, the chapter established a committee to work with TURN throughout the datum shift and to help densify the network.

In March, NALS president Justin Moore spoke to the chapter and gave a "state of the state" presentation. In this meeting Justin presented his goals for NALS over the coming year.

Our April speaker was Dean Stanphill who spoke about a grant the city of Reno has been awarded to help redevelop the downtown area.

In May we have a speaker from NDOT scheduled to discuss the Spaghetti Bowl project that is currently taking place in Reno. Due to NDOT requirements, our speaker in May will have to conduct his presentation virtually.

It appears as if things are beginning to turn for the better on the COVID-19 front. Restrictions implemented by county and state officials are loosening. That being the case, the Lahontan Board has been discussing returning to in person meetings once again. As mentioned earlier, our May meeting will be in a virtual setting; however, we are looking forward to in person events this summer. Hopefully, the May meeting with NDOT will be our last virtual meeting. Please keep an eye out for communications from NALS and the Lahontan Chapter as we move into the summer.



# Southern Chapter Update

*Prepared by Frank Wittie, PLS*

2021 SNALS President

At the end of March, NALS collaborated with six other western states to hold the Magnificent Seven online Survey Conference, which was a great success. For those of you that did not attend, you missed some great speakers. Crissy and the conference committee did a great job as usual. If you would like to see the presentations, they will be available for purchase through NALS very soon.

Unfortunately, the Southern Chapter board was forced to reschedule SNALS' annual picnic from spring to fall due to our local parks not being reopened for large events. Like most of you, the SNALS board is suffering from COVID fatigue, so we are planning an in-person happy hour for the evening of May 27, following the NALS Statewide Virtual Lunch Meeting on Water Rights; look for an email blast for more information on both events. NALS is having a workshop followed by an awards dinner in Reno on July 15, 2021, coinciding with the Lahontan Chapter's golf tournament on July 16, 2021. Everyone from the South is encouraged to head up north to participate.

The NALS board and the Lahontan and Southern Chapter boards voted to donate towards Trent Keenan's outreach efforts, mainly his "Mentoring Mondays." Trent has arranged great speakers from a variety of backgrounds. If you have not logged in for one of his weekly Zoom meetings, you are missing out. It is not just for young surveyors, and even a seasoned surveyor can learn something new. Trent does all this on his own, out of his love of our profession, and does not ask for anything, and his outreach efforts are the best we have had in many years. As you are all aware, there is a significant shortage of younger surveyors, and we need to support all outreach efforts. I urge anyone who can donate either their time or their money to do so.

I would like to thank Robert Carrington, NALS Vice President, for his work on the Legislative Committee. Robert is tracking several bills that could affect Land Surveyors. State boards all over the country are under attack by people trying to deregulate them. Senate Bill 402 was to grant reciprocity licensure to active-duty service members, veterans, and their spouses, **without** administering the Nevada state-specific exam. By Robert's urging, the NALS Board of Directors sent a letter to the Senate Commerce and Labor Committee expressing our concerns with the bill's language. Thanks to Robert's efforts, the language was successfully amended, striking out the words "without examination." Make sure to thank Robert when you see him.

Representation is one of the most significant benefits of a NALS membership. If you are not a member or have not renewed your dues, please join/rejoin, and help support the future of your profession. [https://www.nvlandsurveyors.org/secure/join\\_NALS.asp?sid=](https://www.nvlandsurveyors.org/secure/join_NALS.asp?sid=)



## Time to Renew Your Membership

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- Discounts on Continuing Education
- Regional & National Representation
- Networking opportunities including virtual meetings with continuing education

To pay your dues online, you will need to enter your username and password.

Username: **Last Name**

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**Thank you for your continued support!**

### Questions?

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## **The case for hands-on experience**

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## **Create a mentor system**

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If a more experienced surveyor doesn't make the first overture, it's up to the younger surveyor to take the initiative.

"You can't be afraid to ask questions. That's the biggest thing. You cannot swallow your pride. Even if you think it's the dumbest question, ask it. You cannot meet the door. I can't make any assumptions. Because as soon as you start making assumptions, it's going to come around to bite you in the butt," Zach said.

One of the first surveyors that Zach worked under was really good about protecting monuments, going the

**CONTINUED ON PAGE 40 ►**

# 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.*

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# NALS Board of Directors Meeting

Friday, April 9<sup>th</sup>, 2021 • Via Zoom Videoconferencing

## MINUTES

**Nevada Association of Land Surveyors (NALS) Board of Directors meeting held at 10:00 AM on April 9, 2021 via ZOOM video conferencing.**

### CALL TO ORDER

President Justin Moore called the meeting to order at 10:00 AM and

### ROLL CALL

Justin Moore, President  
Robert Carrington, Vice President  
Bill Kruger, Secretary  
Nick Ariotti, Treasurer  
Greg Phillips, Immediate Past President  
Crissy Willson, Executive Director  
Todd Enke, Director  
Jason Higgins, Director  
Jake Johnson, Director  
Frank Wittie, Director

### Guests

Nancy Almanzan, Committee Chair  
Paul Burn, Committee Chair  
Trent Keenan, Nevada Traverse Editor & Committee Chair

### PRESIDENT'S REPORT

Report included in the agenda.

President Justin Moore thanked everyone for their support of the Conference which was a great success. With pandemic restrictions loosening, Justin encouraged Chapters to start transitioning back to in-person meetings.

Justin recognized the extraordinary work of Trent Keenan in outreach programs including Mentoring Mondays, development of a career in land surveying website, as well as other media projects. Trent has independently been paying for these outreach programs. Justin recommended that NALS contribute to these efforts with a donation to offset costs.

**MOVED** by Robert Carrington and **SECONDED** to donate \$1000 from the outreach budget to Trent Keenan to offset the cost of outreach efforts. **MOTION CARRIED.**

Justin challenged NALS Chapters and the NALS Education Foundation as well as individual members to donate to the cause.

### TREASURER'S REPORT

Report included in agenda.

Executive Director Crissy Willson reported that the NALS CD would be maturing soon. As interest rates are still low, it is recommended to roll the funds into a short-term CD.

**MOVED** by Nick Ariotti and **SECONDED** to roll the NALS CD into a short-term CD. **MOTION CARRIED.**

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

**MOVED** by Robert Carrington and **SECONDED** to accept the financial statements. **MOTION CARRIED.**

Crissy will be sending information to each Chapter regarding updating their tax ID number on their bank accounts. Additionally, a revised financial reporting form will be sent to Chapter Treasurers.

### NALS EDUCATION FOUNDATION

Report included in agenda.

Nancy Almanzan serves as the NALS Trustee on the NSPS Foundation Board. Nancy reported that the MOU previously approved by NALS to update the agreement with NSPS for Foundation was returned with changes by the NSPS Foundation attorney. The requested changes do not change the intent of the MOU. The fund will remain a depleting fund and the criteria for use remains flexible beyond just awarding scholarships. It is recommended NALS move forward with approving the MOU.

**MOVED** by Robert Carrington and **SECONDED** to approve the NALS-NSPS Foundation MOU. **MOTION CARRIED.**

### NSPS

NSPS Director Nancy Almanzan reported the NSPS spring meetings and Lobby Day will be held virtually.

A full report will be provided for the next Board meeting.

### CONTINUING EDUCATION/CONFERENCE

Report included in agenda.

The Conference was a great success. There were over 1100 attendees from 33 states. NALS set a goal of 100 full-paid attendees and surpassed this goal ending with 106 full-paid. Based on our attendance, NALS will receive 12% of the Conference proceeds.

The 2022 Conference will include Arizona, California, Nevada, Utah, and WestFed and will be held in Las Vegas. All western states have been invited and provided a deadline of April 30<sup>th</sup> to indicate their interest.

The 2023 Conference has been confirmed for Silver Legacy.

The July Seminar has been confirmed at the Silver Legacy. Board members should send ideas for program/speakers as soon as possible.

### ADVANCED EDUCATION

Advanced Education Chair Trent Keenan reported that progress is being made on development of a minor program at UNLV. The credits would transfer to GBC for those wishing to obtain Bachelors degree.

### ADVANCED TECHNOLOGY

Report included in agenda.

Advanced Education Committee Chair Todd Enke provided FAA 107 drone updates. This information has also been provided to the membership. Todd will write a small article for the Nevada Traverse regarding these changes.

## AWARDS

The 2019 and 2020 awards will be distributed at the July event which will be NALS first in-person event since the pandemic. The deadline for award nomination is April 30<sup>th</sup>.

## BOARD OF REGISTRATION LIAISON

Report included in agenda.

Board of Registration Liaison Jason Higgins reported on the Professional Association Liaison (PAL) Committee meeting. The Standards of Practice sub-committee has met and determined that higher level of review is warranted to best determine the order, format, and subject matter compilation.

## COMMUNICATIONS / PUBLICATIONS

Nevada Traverse Editor Trent Keenan reported that the deadline for the next issue of the Nevada Traverse is May 1st. An index is being prepared that will allow for easy searching of all past issues of the Traverse.

The Board discussed the fact that NALS used to publish the NRS/ NACs in a binder for the membership. Expanding on that idea by adding case law and other codes will provide a good benefit to the membership. Board members to forward case law and codes to Crissy for compilation and preparation for dissemination.

Crissy to include a link to the Department of Labor wage survey in the next NALS e-News.

## LEGISLATIVE

Report included in agenda.

Legislative Committee Chair Robert Carrington provided an overview of the bills the committee is currently watching. Of significant importance is SB 402 which eliminates the requirement for the state-specific exam for active-duty military or their spouse if already licensed in another state. The Board agreed that NALS is prepared to support SB 402 with an amendment striking "without examination" from section 22, allowing the state-specific examination to be administered. This would maintain public protection and still allow for reciprocity for these individuals.

**MOVED** by Jason Higgins and **SECONDED** to adopt a position of Support with Amendment for SB 402 and to write a letter to the Senate Commerce and Labor Committee outlining the requested amendment in the interest of public protection. **MOTION CARRIED.**

## MEMBERSHIP

Report included in agenda.

Crissy Willson reported that NALS members continue to renew their dues. The first two electronic notices have been followed up with a mailed invoice. We have now collected over 80% of the dues. Chapters have received their current list of members and are encouraged to contact individuals with unpaid dues.

## NDOT AD HOC

NDOT Ad Hoc Committee Chair Greg Phillips reported that NDOT has provided a form to request a license for the research system. There will only be 50 licenses available. Crissy will develop a list of member firms and send the form with the direction that each firm should request just one license.

## OUTREACH

Outreach Committee Chair Trent Keenan reported receiving a list of virtual career fairs and STEM events. Trent continues Mentoring Mondays and will be participating on the NCEES podcast. The Outreach Committee is working to develop a package that can be used for virtual events including video, powerpoint, etc. The next edition of the Get Kids Into Surveying (GKIS) comic book is almost complete. The Board discussed development of a good elevator pitch. Crissy to forward Trent the elevator pitches receives from the WestFed Elevator Pitch Contest.

## NEVADA YOUNG SURVEYORS NETWORK (NV-YSN)

The Nevada Young Surveyors Network has launched a website - <http://nvyoungsurveyors.org/> A link has been added to the NALS website. NALS has supported the YSN by purchasing a license for the Jeopardy Night, prizes, and reserved the campsites for their summer meeting. YSN meeting schedule can be found on both the YSN website and the NALS calendar.

## WFPS

Report included in agenda.

The next WFPS will be held on June 12<sup>th</sup>.

## CHAPTER REPORTS

Report included in agenda.

Chapters continue to meet virtually but are moving towards in-person meetings as pandemic restrictions are beginning to lift.

## JOB BOARD

Crissy recommended that the Board provide direction to the Chapters to forward any job announcements to NALS for posting on the NALS Job Board instead of distributing to the membership. This will ensure that the positions that are posted are within NALS guidelines.

**MOVED** by Jason Higgins and **SECONDED** to direct Chapters to forward all job announcement to NALS Executive Office for posting on the Job Board. **MOTION CARRIED.**

## MEETING CALENDAR

May 20, 2021..... Statewide Virtual Meeting (Water Rights)  
July 14, 2021..... NALS Board Meeting, 4 PM (Reno)  
July 15, 2021..... NALS Workshop, Scholarship Auction & Awards Banquet (Reno)  
July 16, 2021..... NALS Education Foundation Golf Tournament (Reno)  
September 9, 2021..... Statewide Virtual Meeting (Program TBD)  
October 14, 2021..... NALS Board Meeting (Las Vegas)  
November 4, 2021..... Statewide Virtual Meeting (Nevada Statutes, Robert Carrington)

Visit the NALS Calendar for more information. <http://nvlandsurveyors.org/calendar.html>

## ADJOURNMENT

The meeting was adjourned at approximately 1:15 PM.



extra mile to preserve the mount stones and treat them like a piece of history.

For Zach, moments like watching that surveyor in action made the classroom experience and the field experience start to harmonize in a really nice way.

As valuable as mentor-mentee relationships are, they can be hard to come by.

One reason is that most experienced surveyors are so busy with their actual jobs that it's hard to find time to give away to the younger generation.

But "mentoring" doesn't always have to mean formal, time-intensive teaching.

Farrah recalls that when her father started his career, his boss would stick around for an extra hour at the end of most days and let him watch and learn one-on-one. It's wasn't formal teaching, but it was still valuable.

"You have to find the right person that is willing to really invest the time. And on the days where they don't have as much time, to at least be willing to let you kind of hover and watch. And then maybe on the drive back, explain why they had to do what they did," Farrah said.

Another growing issue is the increasing trend of one-person field crews. When you're the only person on the job, it quickly becomes impossible to train the next generation side-by-side.

Zach recently took his growing desire for a mentor into his own hands and reached out to Kent Groh on Facebook regarding a mentorship opportunity. They ended up meeting up for beers to kick off the conversation.

Ultimately, if you rely on hands-on experience to solidify your survey skills, that experience is only as valuable as the mentor that is helping you along the way.

### ***Embrace the digital community***



It's clear that time and resources are limited when it comes to meeting, educating, and mentoring young surveyors.

That's why it's perhaps more critical than ever to meet those young or prospective surveyors where they are.

Today, the place that most young professionals are hanging out is online - and this was true even before the onset of the global pandemic.

Case in point: Zach reached out to Kent about mentorship opportunities on Facebook.

Meanwhile, Farrah gets hundreds of likes on her surveying-inspired Instagram account, @lady\_land\_surveyoraz.

Adam agreed that social media is a natural area to focus on when it comes to both education and outreach.

"I think social media right now is the best way. I mean, I'm telling you, I did a lot of research. Since I am paying for school out of pocket, I had to do a lot of research before I made the decision to go into surveying. And I'm telling you, I didn't find a lot of info," said Adam.

Farrah suspects there may be an unconscious battle going on between educational content that's deemed acceptable - such as in the classroom, and content that's not, such as social media.

"I think there is a little group of people that have tried to create content that is survey related, but I feel like it all kind of funnels back into this idea of education," she said.

"For instance, a company reached out to me and was like, hey, what do you think about doing a couple of video courses on sort of the fundamentals, or how you begin being a surveyor? And so I put this up on my LinkedIn, and you can go and read the comments, and there was a good mix. But a lot of what I get and messages and comments is, well, you know, basically how assertive are you going to be?"

Comments were along the lines of: "you can't just teach people how to survey!" or "How dare you to think that you could create a video giving somebody the basics or the fundamentals!"

In a way, it's the mindset of an older generation. Across many professions, there used to be an aura of secrecy, with the instinct that company information and practices should be kept internal versus sharing them with the broader community.

But across industries, that's changing.

"Sometimes we do ourselves such a disservice by making it sound like it's some very deep and mystical thing that we do. And we have a magic walking stick that we carry around, and nobody else can possibly know how to do it without, you know, all these things being in place first. So we kind of shoot ourselves in the foot that way," Farrah said.

In the end, the more walls that come down and the more content that is circulated, the better.

That content doesn't have to be solely online on a social media page or podcast. And it doesn't have to be exclusively offline between student and teacher or mentor and mentee.

Education is powerful in all forms. And the more resources there are to learn about surveying, the better off the surveying professional will be.



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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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