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## Thoughts from the Chair

BY JAMES COUTS, PLS 2018 UCLS CHAIR

ust over 30 years ago, the first desktop GIS product was produced. In the years that followed, GIS began to be used in many different industries, including land planning and development. For the most part, in the beginning, GIS was seen by surveyors as an overview tool and as a precursor to development in surveying the chain of events. Surveyors used (and some still do) phrases like "Generic Information Surveying" and "Get It Surveyed" to describe what they thought GIS was. I have even seen GIS depicted as finger painting in a meme describing what surveyors think of GIS professionals.

Fast forward to today and Salary.com indicates a GIS professional, with less experience, makes on average significantly more money than his more experienced land surveying counterpart. I don't want to get into the many possible reasons for this, other than to say that seeing this is highly concerning, especially knowing that 30 years ago the surveying profession had an opportunity to embrace GIS and incorporate it into the surveying profession. We didn't, and today many of the tasks that a significant number of GIS professionals perform on a daily basis fall squarely within what I would consider to be land surveying. Unfortunately, "the toothpaste can't be put back in the tube." There is no way we are going to convince state legislatures and licensing boards to go after the GIS community for creating maps that include property lines on them, regardless of the accuracy. We must simply move on, realizing that a portion of our profession has been taken from us, mostly due to our own apathy and arrogance.



So, if there is no solution to the above problem, you might be asking why I'd bring it up, or maybe I've bored you already and you stopped reading after the fourth line. Well for that I apologize, but often when we chose not to make something important, it becomes boring. Quite frankly, I think all land surveyors should find the details of our professional erosion important. If you find a discussion of it boring (not specifically my discussion of it, you are welcome to that, as most people close to me find me rather boring, but the general idea of it boring), then quite frankly, you may be part of the problem. This topic cannot be boring, or in 30 years we'll all be greeting people at Wal-Mart (not that there is anything wrong with that).

Back to our professional erosion – why did land surveyors ostracize and marginalize GIS professionals rather than embrace and incorporate them? How can we learn from this serious mistake and prevent it from happening again? Well we already have at least one more "toothpaste" moment in the last 15 years, and that is machine guided control. Once again, the activity, knowledge and education behind it that has historically been a part of surveying has been taken from our profession. Our profession, for the most part, stood idly by and let it happen. If you don't agree with me that it is a surveying activity, read your state code defining land surveying. The items it describes mostly reference the

### I think the first part of the answer is an acknowledgement that the use of drones, in certain instances, is by state statute, a regulated survey activity.



type of measurements and calculations required to use machine guided control.

I believe that the use of drones may become our professions next regrettable "toothpaste" moment. It certainly appears to me that we as a surveying community have embraced the use of drones for surveying, but my concern is all of the non-licensed individuals who are using drones for surveying. I hope we all understand that when I say non-licensed that I am not referring to your crew chiefs or survey technicians. I am concerned about the average construction or utility employee mapping and surveying with readily available drone technology. We can't

firmly plant our head in the sand and assume that this isn't currently going on and that the practice won't expand as drones with LiDAR and orthophotography capabilities become more available, less expensive, and more user friendly.

I'm not here to say I have all the answers, because I don't, but I think the first part of the answer is an acknowledgement that the use of drones, in certain instances, is by state statute, a regulated survey activity. Once we acknowledge that, we then need to educate those within our own profession and our sister professions (engineering, construction, utilities,

etc.), that yes, they are indeed surveying when they use a drone for "measuring the surface of the earth." Although I will agree that most state statues allow that to be performed under an Engineer's license. Without acknowledgement and education, we are doomed to repeat the mistakes we made with GIS and machine guided control, and in a few short years, measuring the surface of the earth will no longer be considered surveying. I can assure you, we are not simply finders of property lines, and I think it would be a disservice to the public if we allowed ourselves to be considered just that.





BY STEVE KEISEL

lack's Law dictionary defines a monument as "anything by which the memory of a person, thing, idea, art, science, or event is preserved or perpetuated. In the

interpretation of the intent of a description in a deed; and all monuments called for by the writings are given preference over conflicting calls of distance, directions, or area."

Surveyors know, or should know, the value of survey monuments. Their very existence, or non-existence, has a direct relationship to what they do, when they do it, how they do it, and resulting compensation for doing what they do. The preservation and perpetuation of monuments provide the land surveyor with undisputable evidence of their work. Therefore, if the survey monument is so important to surveyors – why do surveyors allow them to be removed?

Utah Code 17-23-15 stipulates that a person may not willfully or negligently remove, destroy, or deface any government survey monument, or witness corner. Any person who violates this section is guilty of an infraction and is responsible for the cost of any necessary legal action and the cost of reestablishing the survey monument, corner, or witness corner. Furthermore, 17-23-17.5 defines a corner, and an accessory to a corner, as any exclusively identifiable physical object whose spatial relationship to the corner is recorded; including a property corner, a property-controlling corner, or a public land survey corner.

Most surveyors have a love-hate relationship with survey monuments. They fondly remember that quarter corner which overlooked a beautiful meadow; or that &&%#^ witness corner that required a six mile hike to find. One of the most exhilarating joys of surveying is recovering

a long lost section corner. Likewise, not finding a needed monument is one of the more discouraging moments.

Based on my experience, monuments are typically removed or destroyed in one of several ways:

- 1. Site Development: This is the conversion of undeveloped land (vacant land, open space, or agricultural land) into residential, commercial or industrial use. Most frequently, the monuments are removed when site improvements are constructed. This includes walls, fences, and sidewalks along parcel boundaries. It can also include the installation of new underground utilities serving the parcel.
- 2. Site Redevelopment: This occurs when land is redeveloped for more intense use or reconfigured use. An example would be the removal of old single family homes to allow for the construction of high-density residential structures. The destruction of monuments during redevelopment is similar to that with new site development, with the added risk that monuments are destroyed during site demolition.
- 3. Infrastructure Projects: This includes roads, bridges, railroads, canals, pipelines, and levees. The construction of the physical features of these infrastructure projects often obliterate monuments, like a tornado clearing a swath of land. The destruction of centerline monuments for the placement of a sewer trunk line or installation of a water main is an example.
- 4. Maintenance of Right-of-Way and Infrastructure:

  Maintenance and improvements of roads and streets

The Salt Lake County Surveyor is proactive in the preservation and protection of survey control monuments. Through their monument preservation program, they have documented the spatial details of nearly 19,000 monuments.



often cover, disturb, or remove monuments. Road millings regularly remove all or portions of the monument while overlays make the monument difficult, if not impossible, to access. In Salt Lake County, a new road surface might be several feet above an existing brass cap monument. Additionally, chip seal and crack repair activities have permanently sealed monument ring and lids.

- **5. Landowner Improvements:** Monuments are also lost to construction, maintenance, and improvements of landowners.
- 6. Land Reclamation: Following wildfire events and/or to remove dense or unwanted underbrush, federal and state agencies routinely initiate a "chaining" process. This activity literally removes or disturbs every physical object in its path – including monuments and accessories.

#### Why Does Monument Destruction Continue?

Experienced surveyors throughout Utah will tell you the problem of monument destruction has persisted for many decades. Why does this happen? There are multiple factors that facilitate the removal of land survey monuments. Unfortunately, economics, ethics, and ignorance all contribute to, rather than solve the problem.

- 1. Surveyor Ignorance: Although most land surveyors understand monument preservation, and the requirements of state law, many do not understand their professional responsibilities. They are often reluctant to inform the jurisdictional authority and/or educate their client about the consequences of removing a monument.
- 2. Non-Surveyor Misunderstanding: Many non-surveyors do not understand the value of survey control and the added expenses to resolve a boundary conflict that a missing or disturbed monument might have caused – not to mention accuracy and consistency. Reduction in the quantity of monuments equals an increase in the cost of a boundary or right of way survey.

- 3. Disregard for the Law: The probability of being caught and the consequences for violating the law are relatively small, when compared to the cost savings of non-compliance. This attitude is found among land surveyors, engineers, contractors, and planners in both private and public practice.
- 4. Lack of Enforcement: The licensing board's failure to, swiftly and clearly, enforce the flagrant destruction of survey monuments. Perhaps the threat of losing an occupational license, in addition to any monetary fine, would motive compliance

Why do we (as a profession) tolerate a practice that is so detrimental to a fundamental service we provide? Why do we allow the willful destruction of an object that memorializes our work? Why do we ignore the blatant removal of evidence that our professional license and personal reputation may depend upon? Why do we not voice a concern when we witness the removal of property corners and rivets in sidewalks? Why do we compromise ethics to improve our bottom line? Why do we rationalize and make excuses for our actions and the actions of our peers?

The Salt Lake County Surveyor is proactive in the preservation and protection of survey control monuments. Through their monument preservation program, they have documented the spatial details of nearly 19,000 monuments. However, many of these monuments have not been re-observed for ten plus years. Others are beneath existing street surfaces or may be in inaccessible locations. Notify the County Surveyor when you become aware that a monument has been, or may be removed. Educate clients, contractors, and municipal authorities of the monument's value. Help the County Surveyor help you!

Note: The opinions expressed in this article are my own, and do not necessarily represent those of the Utah Council of Land Surveyors, its membership, or the office of the Salt Lake County Surveyor.

### Golden Spike Chapter Report

e have been a little slow this year in getting meetings scheduled and up and running. Topics are not always easy to come by and we are looking for interesting and enlightening subjects to discuss. If you have something you would like to learn more about, please let myself or another member of the chapter know.

With that plea for help from the membership, we do want to highlight the two meetings we have had this year. In January we were pleased to hear from Dennis Wenger from Frontier Corp. Dennis is a wetlands consultant and discussed what is and is not a wetland, what to look for in the field and discussed the different types of wetland designations we have in the state. It was very informative, and I personally learned a lot.

In May we had the opportunity to hear a presentation from Mike Julian from DOPL. Mike discussed the new model rules and the requirements for making sure each document (i.e. drawing, description or report) is properly identified.

We are excited for the upcoming busy summer months and are working on something in July if we can fit it between the holidays. Have a wonderful summer. Stay hydrated and safe out there.

In the past no stamp designating the type of document was really required, however, with the state adopting the latest NCEES Model rules (Section 240.20.C.1), it is now required to stamp and sign the documents or place a stamp on the face of the document, stating whether it is a final drawing or working drawing. I would recommend reviewing these rules to ensure you are in compliance with them.

We are excited for the upcoming busy summer months and are working on something in July if we can fit it between the holidays. Have a wonderful summer. Stay hydrated, and safe out there.  $\blacksquare$ 



# What's New with Surveying Education

BY KNUD E. HERMANSEN: P.L.S., P.E., PH.D., ESQ.

believe informing survey practitioners about the efforts to educate future surveyors is important.
Sharing information is necessary for a productive partnership between practitioners and educators.

In a previous article I discussed the University of Maine's effort to offer dual degrees, and an online education option. The University of Maine is not unique in these efforts, many surveying programs are pursuing this and other options.

In this article, I would like to provide some insight into the means and methods I use to provide education from a distance. Before explaining these means and methods, I will state that it is my opinion that the traditional classroom is superior to the learning methods I will describe. In the traditional classroom, the interaction between the student and instructor provides immediate visual and verbal interaction and feedback. Oftentimes, for the 18-22 year old students, the compulsory attendance in a scheduled class is a necessary requirement in order to create an effective learning environment.

Technology and software have allowed faculty to produce videos on a variety of topics. Technology and software have allowed faculty to record lectures, integrate audio and visual stimulations, and animate the visual display. To date, I have prepared over 116 videos. My colleagues in surveying education have created many more. In only one of the 116 videos is my face shown. These videos are not the 'talking head' video comprised of a video taken of a classroom presentation.

Currently, I use Camtasia software to produce education videos. Once the video has been prepared on Camtasia, I convert the video to mp4 format and

upload the video on to YouTube. The YouTube address is sent to students who can enter the address into their web browser and view the video.

Students can ask questions via email or using Zoom software. Zoom software allows face-to-face viewing and conversations much like a Skype connection or Go-To-Meeting software. Zoom allows the entire class to interact with each other and with the instructor.

Exams are scheduled on Blackboard software. The exam is scheduled for a certain date and time period. My exam questions are composed of multiplechoice, multiple answer, and true/false questions. The exam format is very similar to the fundamentals of surveying exam and the principles and practice surveying exam. Question and answer choices are scrambled so that students sitting side-by-side will not see the same question at the same time. Even if two students view the same question at the same time, the correct answer to the same question will be in a different order for each student.

There are three general formats for the videos that I prepare. The format depends on the course content. Some courses are predominantly computation or design courses. These videos will display nomenclature, equations, constants, coefficients, and sources for variables followed by example calculations.

The video I prepared explaining vertical curves is an example of this format. The equations and the equation development for vertical curve equations are presented in one video: https://youtu.be/vZ1Xwpozax0. In another video, the vertical curve equations are applied using an example: https://youtu.be/o2cw5nDY4do.



The second format is used to explain the realities of surveying practice. Background, scope and matter-of-fact aspects of practice are presented in this video format. The format usually shows an example explaining the procedure along with suggestions, explanations, and practical advice. The video on public record research is an example of this format: https://youtu.be/rt1BIU0s5YM.

The third and final format I employ is used for explaining legal doctrines and principles that must be utilized by surveyors. The video is an explanation on how the doctrine or principle applies in a particular situation. This video format explains the elements required for the doctrine and application of the doctrine or principle to be employed by the surveyor. A video explaining practical location is an example of this format.: https://youtu.be/FSLmUoi7H08.

The near future will bring many more changes and innovations used for the education of surveying students and practitioners. If you want to receive information on earning a surveying degree by taking online courses, always contact your local or regional surveying program first. The local surveying program will offer a quality education at a reasonable price. If you don't have a local or regional program offering what you need, contact Dr. Raymond Hintz at the University of Maine at Raymond. Hintz@maine.edu.



# Utah Council of Land Surveyors **Education Committee**



BY STEVE COLLIER, P.L.S. EDUCATION COMMITTEE CHAIR

duties of the education committee are to

plan, promote, and implement formal surveying educational programs including workshops, seminars, and forums (e.g.: C.S.T. program); standardize continuing education units; and to oversee the administration of the corporation's scholarship program, as directed by the board of directors.

We are excited to announce Michael Stewart as our first ever recipient of the Walter M. Cunningham Foundation. Michael is a U.V.U. student working towards his bachelor's degree in Geomatics and currently works for Iron Rock Engineering in Kanab, Utah. Michael was recommended by his employers who have been impressed with his hard work, commitment, and character. He looks forward to being able to benefit his hometown of Kanab, Utah, in a new facet as a future professional land surveyor. Congratulations, Michael, and best of luck!

The Walter M. Cunningham Education Foundation was organized as a nonprofit corporation to provide funding and grants to low-income

students and to provide academic opportunities and educational experiences to surveying, mapping, and geomatics students.

#### **Purpose of the Foundation**

- To act and operate exclusively for charitable and educational purposes.
- To cultivate partnerships with public and private organizations committed to ensuring access to applicable learning opportunities.
- To fund educational experiences that focus on creativity, commitment to others, and that cultivate social responsibility.

If you or someone you know would like to donate to the Walter M. Cunningham Education Foundation, please visit https://www.wmcef.org/.

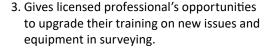
# Salt Lake Community College (S.L.C.C.) Geomatics/Surveying Program Report:

Per the SLCC Program Advisory Committee (P.A.C.) meeting held on April 25, 2018, Adam Dastrup, the program coordinator, reported he spent this last year seeking enrollments. Full Time Equivalent (FTE) enrollments were low because more than half the classes were offered online. College enrollment numbers tend to be cyclical. A poor economy forces many adult learners into the classroom to retrain or hone their skills, but when it improves, enrollment decreases as they return to the workforce. The S.L.C.C. Geomatics/Surveying program is no different. The college is trying to run a minimum of 13 students per class due to budget constraints. Program administration is working on the following three items to increase enrollment: 1) adjust certain courses to be offered annually instead of each semester; 2) simplify registration for courses to allow non-degree seeking students to register for classes as training courses to reduce course cost and increase enrollment; 3) potentially eliminate pre-requisites and disincentives or substituting work experience for course pre-requisites.

The Geomatics/Surveying program serves three distinct purposes:

- Provides students who have little or no experience in the field the skills needed for employment as a surveyor.
- Gives those already working in the profession additional knowledge needed to prepare for their professional licensing examinations.

To fulfil its principal duties, the U.C.L.S. education committee is seeking additional key members and welcomes volunteers interested in educating and promoting the land surveying profession.



With these distinct purposes in mind, the task given to the education committee is to encourage you to find individuals, no matter the skill level, to enroll in the program. It is very concerning to see how few students are pursuing careers as professional land surveyors, we need more. It's basic economics, we need to have a sufficient supply of professional land surveyors to meet public demand.

The U.C.L.S. Education and Membership Committees are currently developing an approach to promote and educate the land surveying profession at career fairs and conferences along with demonstrating survey technologies. We are convinced that if more students are aware of and understand what the land surveying profession is, they would join with us in embracing this profession.

To fulfil its principal duties, the U.C.L.S. education committee is seeking additional key members and welcomes volunteers interested in educating and promoting the LAND SURVEYING profession. The education committee meets every other month on the second Tuesday. Our next meeting is Tuesday August 14, 2018. If you have and questions please contact me at scollier@co.weber.ut.us.



# Year P.L.S. Continuing Education Requirements Established in Each State

Iowa – 1979	Rhode Island – 2001		
Michigan - 1980	Texas - 2001		
Nebraska -1984	Delaware – 2002		
Vermont - 1988	Indiana – 2002		
New Hampshire – 1990	Maryland - 2002		
South Dakota - 1992	Virginia – 2002		
Utah – 1992	New York – 2004		
New Jersey - 1993	North Dakota – 2004		
Tennessee – 1993	West Virginia - 2004		
Maine – 1994	New Mexico – 2005		
North Carolina – 1994	Illinois – 2006		
Alabama - 1995	Washington – 2007		
Nevada – 1995	Ohio - 2009		
Missouri - 1996	Pennsylvania – 2010		
Wyoming - 1996	Wisconsin - 2012		
Georgia – 1997	Oklahoma – 2013		
Montana - 1997	Arkansas - 2017		
Kansas - 1998	Arizona - None required		
Oregon - 1998	California – None required		
South Carolina – 1998	Colorado – None required		
Idaho – 1999	Connecticut – None		
Louisiana – 1999	required		
Minnesota – 1999	Hawaii – None required		
Alaska – 2000	Massachusetts – None		
Florida – 2000	required		
Kentucky – 2000	Washington D.C. – None required		
Mississippi - 2000	required		

# **Benefits of UCLS Membership**

#### **Purpose:**

The Utah Council of Land Surveyors strives to establish common interests of all individuals engaged in the surveying profession; to define a standard of intent on protecting the public welfare while encouraging professional ethics and sound surveying practices; to promote public awareness of professional land surveyors and their work; and to mentor the next generation of surveyors.

#### Representation:

Local - Your local chapter represents you in local issues. Your chapter represents you to the UCLS State Board, where the individual members can have input in directing the course UCLS will take.

**State** - The land surveyor is represented at the state level through a proactive legislative program, legislative advocacy and a legislative consultant, plus liaison with the Utah State Board of Licensing and Division of Occupational and Professional Licensing.

Regional - UCLS is an active member of the Western Federation of Professional Surveyors (WFPS). This federation is composed of associations throughout the western United States like the UCLS and addresses regional issues.

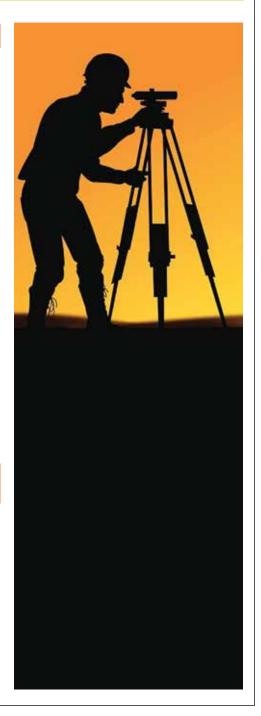
National - Through institutional affiliation with the National Society of Professional Surveyors (NSPS), UCLS is represented at the national level. UCLS has an NSPS Director representing Utah's interest on the NSPS Board of Directors. Additionally, your membership in the UCLS automatically includes your membership in the NSPS Membership Benefits Guide to see how it pays to belong to the NSPS.

#### **Education:**

UCLS offers education and continuing competency programs each year, and at a reduced cost to its members. The annual conferences offer technical, professional, business and managerial programs at all levels, along with exhibits of the latest in surveying and computing technology advancements. Seminars, workshops and roundtables are held to present continuing education opportunities. The Utah Foresights is published biannually as the official journal of the professional land surveyors of Utah. The UCLS Newsletter is published monthly. The focus of this award-winning publication and the newsletter is to impart news and information, to provide a forum for exchange of views, to provide educational material, commentaries and papers, and to serve as a communication medium and historical record of the activities of UCLS.

# Business Office and Membership Services:

UCLS maintains a part-time office which is available to answer questions, provide referrals, serve as the central clearinghouse for member services, and address business and administrative functions of the association.



# How does NSPS benefit members and the surveying profession?

The National Society of Professional Surveyors has an active government affairs program that protects the interests of the surveying and mapping professions in the federal legislative and regulatory arenas. Working with a government affairs consultant, NSPS monitors federal government activities that may be of interest and concern to our members. The consultant works closely with members of the NSPS Government Affairs Committee and our Executive Director to represent members' interests before Congress and Executive Branch Agencies.

# Plus, we offer members these professional benefits:

#### **Advocacy Programs**

- Political Action Committee
- Jefferson Club (contact NSPS to learn more)
- Assistance on state-specific matters
- Other geospatial organizations, such as the International Federation of Surveyors (FIG) and the Coalition of Geospatial Organizations (COGO)

#### **Education**

- ABET-Lead Society for surveying/geomatics program evaluation for accreditation
- Scholarship Program: 15 annual awards

#### **Licensing / Standards**

- NCEES Participating Organizations Liaisons Council
- ALTA/NSPS Land Title Survey Requirements
- NSPS Model Standards

#### **Outreach Opportunities**

- Trig-Star
- Boy Scouts Surveying Merit Badge
- National Surveyors Week

#### **Certification Programs**

- Certified Survey Technician Program
- Hydrographic Certification opportunities
- Certifed Floodplain Surveyor
- Certified Federal Surveyor

#### **Member Discount Programs**

#### **Apparel**







Buy a wide range of NSPS apparel through Lands' End, including tops, bottoms, outerwear and accessories.

 business.landsend.com/ store/nspsinc

#### **Insurance**

#### **NSPS Endorsed Program**

Assurance Risk Managers

- 888-454-9562
- arm-i.com



#### **Professional Liability**

Victor O. Schinnerer and Company

- 301-951-9746
- schinnerer.com/nsps.aspx

#### **Individual Life & Health Insurance**

Marsh Affinity Group Services

- 800-424-9883
- personal-plans.com/nsps

#### **Group Health**

Mass Marketing Insurance Consultants

- 800-349-1039
- mmicinsurance.com/NSPS

#### More insurance info



#### **News & Networking**

Sign up for the NSPS weekly email newsletter:

multibriefs.com/briefs/NSPS

Listen to NSPS Radio Hour, Mondays at 11:00 a.m., Eastern:

americaswebradio.com

Visit the NSPS blog:

dualfrequency.blogspot.com

Search for the "National Society of Professional Surveyors" on all the major social media outlets.









#### **PerksConnect Program**

The PerksConnect program saves you money on the things you use every day. You'll find businesses right in your area offering savings on dining, retail, auto and home services, pet needs, health, fitness, recreation, entertainment and much more.

To sign up for PerksConnect, go to:

- Discounts.perksconnection.com
- Click "Activate your account now"
- Use group code: NSPS

#### **Travel Discounts**

NSPS members qualify for a Member Travel Discount Program through Localhospitality, which applies to hotels and car rentals.

- Go to www.nsps.us.com
- Click "Membership"
- · Click "Member Travel Discounts"
- · You must sign in to search

#### **Car Rental Discounts**

Use Hertz CDP number **94087** when making your reservation.



• 800-654-2210 | hertz.com

Use Avis Worldwide Discount (AWD) number **B287402** when making your reservation.



• 800-331-1212 | avis.com

Use Budget Discount number (BCD) **Z947100** when making your reservation.



• 800-527-0700 | budget.com

#### **Tire Discounts**

- Go to tirebuyer.com/nsps
- Apply the coupon code that appears in the pop-up window for NSPS, and you'll save 10% on your order.



# Survey Conference

February 21-24, 2018, Las Vegas Nevada











## CONVENTION

















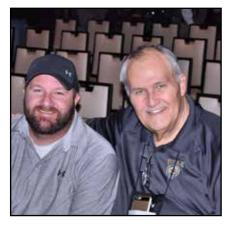


## CONVENTION



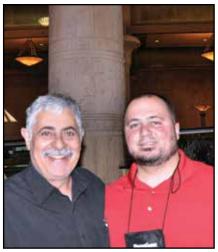


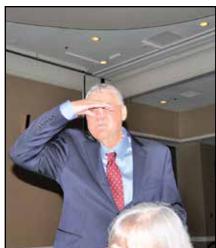














# CONVENTION













#### **National Society of Professional Surveyors**

5119 Pegasus Court, Suite Q, Frederick, MD 21704 Phone: 240-439-4615 \* Fax: 240-439-4952

www.nsps.us.com

June 11, 2018

Dear NSPS Members.

After carefully scrutinizing all of the factors associated with a proposal to raise NSPS membership dues, and hearing from the NSPS Directors who represent the respective state societies, the NSPS Executive Committee is asking for your support of a dues increase of \$10 per year. This increase is necessary in order for NSPS to remain fiscally solvent in supporting its projected five-year budget. As with any enterprise, the cost of doing business continues to rise and, in the case of NSPS (and the state societies), revenues are declining due significantly to lower membership levels resulting, in part, from increasing numbers of retiring surveyors.

As always, the emphasis of NSPS leadership and staff is to be responsible for each expenditure, and being transparent in doing so. The amount of effort required to represent 17,000 members is daunting, and is not taken lightly. NSPS leadership and members commend the staff for their efforts to manage this task and still remain fiscally responsible. This request itself is a result of the staff looking to the future and watching out for our needs.

The NSPS leadership team also realizes that each state society needs to have its membership ratify this change, and to make requisite changes to its MOU with NSPS. If a dues increase were to be approved now, NSPS really wouldn't see any actual revenue increases for six months to a year.

The NSPS Executive Committee would also like to thank the NSPS Directors for their input and general support for this necessary dues increase. Most ExCom members have been directors or governors and realize the anguish associated with asking membership to vote to raise dues. We believe that all NSPS members recognize the importance of a strong national organization supporting the role, and yes survival, of our profession. As you have all witnessed, there are more issues each year requiring our attention and advocacy efforts. With this increase in the number and impact of issues, the support and proactive engagement of all the surveyors in the nation is essential in all aspects of our profession.

We would also like to encourage directors and members to identify and educate, those who are not yet members and stress to them the importance of joining our ranks. We can certainly use more input and ideas. With your continued support we can make this profession that we all love even better than it already is.

Yours Truly, Kim H. Leavitt, PLS, NSPS President

# Surveyor's Historical Society and Utah Council of Land Surveyor's Present 2019 SHS Rendezvous in Salt Lake City, Utah "Surveys and Surveyors of Utah Territory"

#### BY ANDY HUBBARD

I am excited to announce the Surveyor's Historical Society (SHS) is planning its Annual Rendezvous for 2019 in Salt Lake City. This conference will commemorate several events that happened 150 years ago:

- 150th anniversary of the golden spike in Promontory, Utah.
- 150th anniversary of the establishment of the latitude and longitude stations in Salt Lake
- City by the USC&G survey.
- 150th anniversary of the partial retracement and resurvey north, south, east and west of the Salt Lake meridian, Utah's principal meridian. It was originally established in 1855.
- 150th anniversary of the 1869 descent of the Green and Colorado rivers through Utah by John Wesley Powell. Although intended as a scientific expedition using sextant, artificial horizon and barometers to survey and map the river(s), it ended up being a race for survival. Powell later served as director of the US Geological Survey between 1881 and 1894. He returned in 1871 completing his surveying and mapping of both rivers.
- 150th anniversary of the wheeler survey in the Great Basin. An Astro monument still exists in the desert north of Salt Lake.

#### Other topics may include:

- Base line monuments by the USC&GS set in 1896 that still exist in the Salt Lake City area.
- John Fremont expeditions in Utah territory.
- U.S. topographical engineers in Utah territory.
- How Utah, Nevada and Colorado got their shapes.

I know it is a bit early, but we are looking for a few speakers on these or other historical topics to be presented at the Rendezvous. Also there are several surveyors, old and young, who love history of our profession and finding the old marks set when our state was still a territory and a survey crew consisted of a dozen men make 2 or 3 miles a day over rough terrain. This is your chance to share that love of surveying and our predecessors with members of our professional from all over the county.

We would love to see your thoughts and ideas so if you are interested, please submit an abstract of your presentation to Denny DeMeyer denny@nwsurvey.com or, Andy Hubbard andyh@greatbasineng.com.





# Trig-Star in Hurricane, Utah



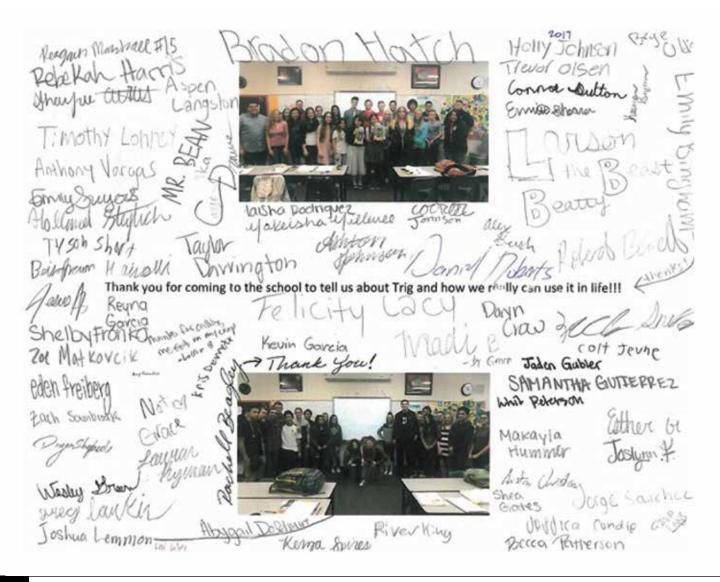
BY ARTHUR LEBARON, PE, PLS, CFM, CITY ENGINEER

#### UCLS Members,

I have had the wonderful opportunity to sponsor the Trig-Star program for the last 8 years at Hurricane High School. It took a little bit of persistence to get the cooperation I needed from the math department, but once the teachers saw what the program is all about, I have only had open arms at the school. In fact, now the math department head contacts me to see when I will be able to come. At this point, I give a 90-minute presentation to

10 sections of Secondary Math 3, which takes up two full days of lecturing and hands-on demonstrations about our profession. Honestly, these are the most fun and satisfying days I spend all year.

"Arthur, Thanks so much for coming again! I really appreciate you spending your day and sharing math in real life with my students. - Shelly"





What is Trig-Star you may be asking? Trig-Star is an outreach program that is sponsored nationally by NSPS and locally by the UCLS and local members. The program consists of two parts: 1. Making a presentation to teach about and promote our profession, and 2. Proctoring a timed survey math test where contestants have the opportunity to win cash prizes. At Hurricane High School, every single Secondary Math 3 student is required by the math department to participate in the class presentation, while entering the math contest is completely voluntary. Out of about 300 students in Secondary Math 3, generally less than 10% choose to participate in the contest. The coolest thing for me is when I get to attend Honors Night in May where hundreds of students receive certificates of recognition for excelling in this or that, and then I get to take the stage and call up the Trig-Star winners and hand out checks, followed by thunderous applause!

Three years ago, I decided to expand my horizons and see if a local private school for troubled youth would be interested in having me present and allow students to participate in the contest. As with Hurricane High School, I had a similar experience with Diamond Ranch Academy - it took a little extra effort to get into the school, but once they saw my presentation I was received with open arms. In fact, this year's second place winner in the State

of Utah is a student from Diamond Ranch Academy. He scored 100% in just over 25 minutes! Impressive for a "troubled youth". The opportunity to be a winner is very impactful, especially in these students' lives.

I am blessed to have an employer that supports me in taking the time to administer the Trig-Star program in Hurricane. Honestly, it takes about 3 full days of my time, annually, to deliver. I feel that the program is one of the best opportunities any of us will have to promote our profession to the next generation, and I encourage each member of UCLS to evaluate how you might be able to sponsor the Trig-Star program in a school close to you, especially if you have friends or family that attend the school. We will only reap what we sow, and our profession is in dire need of new blood. I believe that NSPS and UCLS would find it a low-grade problem to have more participation than they have funding to support.

At UCLS headquarters we have Brad Mortensen at the helm of Trig-Star. If you are interested in sponsoring a school (which will only cost you a little time), please contact Brad at bmortensen@meiamerica.com for Trig-Star instructions and resources. You can also contact me at Arthur@cityofhurricane.com or 435-632-3462 if you need tips or answers to questions.  $\bigvee$ 

# 2018 Trig Star Report

n this year's contest over 300 students and 10 Teachers have been exposed to our profession and how we use math every day, from seven high school level learning institutions within the state. Over 90 students participated in the test portion of the contest, and 22 students qualified for the State portion of the contest.

Of the 22 students who qualified for the state contest, five scored 100% and were only separated by the times that they finished. The top three students in the state were separated by less 3-12 min-

utes. The state winners are Collin Free (first place), Justin Aroesty (second place), and Ender Bailey (third place).

The UCLS presented cash prizes to these 22 student who qualified for the state contest totaling \$3,400.00. Many of these prizes were presented in the final awards assembly in front of the full student body of their respective school.

The state winner, Collin Free, has been in the top three for the last three years. He is pictured with his teacher Ashley Salisbury.

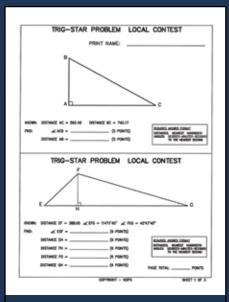


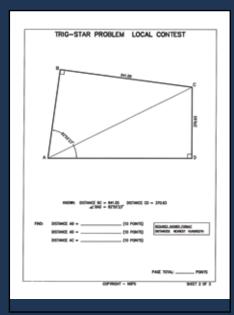
#### Below is a breakdown of the state results:

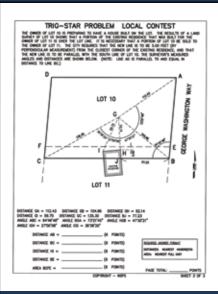
School	Name	Points	Time	Grad. Year	Teacher	Sponsor
Syracuse	Collin Free	100	0:13:22	2018	Ashley Salisbury	Brad Mortensen
Diamond Ranch Academy	Justin Aroesty	100	0:25:20	2019	Stephen Howard	Arthur Lebaron
Timpview	Ender Bailey	100	0:27:39	2020	Terri Taylor	Chad Hill
Clearfield	Emma Ferguson	100	0:32:37	2019	Ashley Martin	Brad Mortensen
Clearfield	Katie Willard	100	0:33:10	2020	Ashley Martin	Brad Mortensen
Timpview	Stephen Cutler	95	0:53:02	2020	Terri Taylor	Chad Hill
Provo	Marissa Angell	94	0:29:22	2019	Stephen Scott	Chad Hill
Provo	Andrew Jenkins	94	0:37:21	2022	Linday Gilson	Chad Hill
Timpview	Hannah Dahl	94	0:40:11	2020	Terri Taylor	Chad Hill
Gunnison	Gabriel Jensen	90	0:30:10	2019	Mark Otten	Chad Hill
Provo	Andrew Parry	88	0:22:51	2020	Melanie Nelson	Chad Hill
Clearfield	Kaitlyn Call	88	0:32:37	2018	Ashley Martin	Brad Mortensen
Clearfield	Heather Anderson	88	0:32:37	2019	Ashley Martin	Brad Mortensen
Gunnison	Garrett Francis	88	0:35:28	2020	Mark Otten	Chad Hill
Hurricane	Tim Amodt	88	0:48:45	2019	Ken Cahoon	Arthur Lebaron
Hurricane	Porter Dansie	84	0:29:58	2020	Ken Cahoon	Arthur Lebaron
Syracuse	Justin Plane	82	0:31:32	2021	Ashley Salisbury	Brad Mortensen
Syracuse	Spencer Brothers	76	0:20:42	2019	Ashley Salisbury	Brad Mortensen
Hurricane	Daniel Thayer	70	0:25:25	2020	Ken Cahoon	Arthur Lebaron
Diamond Ranch Academy	Aaron Scott	70	0:34:01	2020	Stephen Howard	Arthur Lebaron
Diamond Ranch Academy	Andrew Riemer	65	0:37:10	2018	Stephen Howard	Arthur Lebaron
Gunnison	Ethan Hammond	56	1:00:00	2019	Mark Otten	Chad Hill

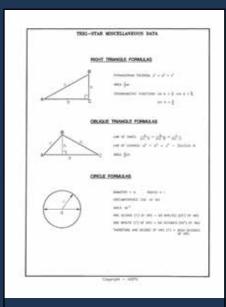
Below is a sample of the typical problems seen in the contest, feel free to try it. The students have an hour to solve these problems, but as you can see above they do so in much less time.

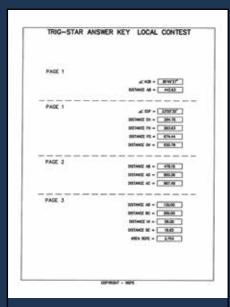












http://thenewslinkgroup.com/clients/Sample-Math/



### Western Federation of Professional Surveyors Report

BY WFPS DIRECTOR: MICHAEL NADEAU, PLS/CFEDS

The Western Federation of Professional Surveyors (WFPS) held a board of directors meeting on April 28, 2018 in Albuquerque, New Mexico. Quite a bit was discussed at that meeting between state reports, the new Western States Disaster Relief fund as well as finalizing the new scholarship application to include two-year degree schools. Here are the highlights from the last meeting.





# Highlights from the 13 Western States

ARIZONA - APLS has launched a new website which provides members new resources (AzPLS.org). The governor's move for deregulation has been a focus of APLS. The Arizona Board of Technical Registration has complied with the Governor's Executive Order to provide information and comparisons with similar boards in other states. The move to deregulate boards stemmed from the group ALEC.org which provides boilerplate legislation for states including the Occupational Board Reform Act.

**CALIFORNIA** - SB 2 went into effect on January 1st and requires a \$75 per parcel fee for the recording of certain documents which is being applied by most County Recorders to Record of Survey maps.

**COLORADO** - PLSC helps fund the website CP-DB.com which includes information on Colorado survey monuments. The legislative bill for mandatory continuing education made it through the house but not the senate. Architects already have continuing education. Engineers are not in favor of continuing education but did

not oppose the bill for surveyors. PLSC has constructed a virtual sandbox as an interactive display for career fairs and other outreach events. A state lobby day was held to celebrate National Surveyors Week. This included exhibits which provided outreach to the legislators and the general public. This was very successful and will be continued on an annual basis. Legislation passed by the county recorders that they no longer have to maintain hard copies. PLSC is working to have this reversed.

**HAWAII** - HLSA has invited WFPS to host the fall meeting as part of their fall gala. Immediate past chair Nancy Almanzan is working with HLSA to confirm the meeting.

MONTANA - Dick Smith reported that Montana is having an issue with archiving survey documents. As this seems to be an issue with several states, the board discussed development of a resolution.

Action Item: WFPS to draft a resolution regarding hard copy vs digital maps for review at the next meeting.

**NEVADA** – NALS Legislative Committee is working on draft language to address the

2022 datum. Membership continues to increase. NALS has voted to donate \$2000 to the WFPS Scholarship & Relief Fund through the NSPS Foundation.

**NEW MEXICO** - PNM Resource Foundation has donated \$200,000 to the NMPS/NMSU endowment fund to maintain the survey program at NMSU. The New Mexico state-specific exam is now a mailed exam instead of proctored.

OREGON - PLSO is going through a rebranding process. A new logo has been developed. One of the goals in the rebranding is to increase participation from public employees. PLSO participated in Design Professional Day which was a state lobby day event. The scholarship auction at the conference raised \$29,000. The raffle of commemorative rifle was very successful. There is a move to dismantle QBS in Oregon. PLSO and ACEC is holding a joint meeting to discuss legislation. A resolution from WFPS on the importance of QBS would be helpful.

Action Item: WFPS to draft a resolution regarding the importance of QBS.

**UTAH** - UCLS has established an Education Foundation which has been named after longtime educator Walt Cunningham. The



Surveyors Historical Society Rendezvous will be held in Salt Lake City in 2019. WASHINGTON - LSAW may be interested in a joint conference with WFPS in 2020. Renton Technical College is working to put their second-year program online. Prevailing wage is still a concern in Washington. The governor is reviewing a bill that adopts CBA wages as the prevailing wages. LSAW is in the process of amending their bylaws and working to get an exemption for surveyors regarding "Call Before You Dig" law. Washington Department of Licensing is proposing an administrative code change that will require licenses to attest they have read the administrative code when they renew their license.

# Western Regional Survey Conference

The 2018 Western Regional Survey Conference sponsored by APLS, NALS, UCLS, and WFPS was a great success. There were over 800 in attendance and 35 exhibitors. Net proceeds were over \$120,000 and were split with the sponsoring associations based on registration.

#### WFPS Foundation

The executive committee has worked with the NSPS Education Foundation to develop an MOU that will create a charitable fund for WFPS for relief efforts and scholarships. The fund will allow WFPS to solicit charitable donations. The board approved the MOU and made changes

to the WFPS scholarship criteria. More information will be posted to the WFPS website once the fund has been fully established.

#### **WFPS Areas of Focus**

Developing and Maintaining Programs to Promote the Profession. WFPS is committed to promoting the land surveying profession. To that end, WFPS is currently developing the following programs:

#### Youth Outreach – Land Surveying as a Career

WFPS has budgeted funds to develop an after school/community program. The program will include 10 hours of curriculum that can be used by state associations and their chapters to promote land surveying as a career. The initial outline of the program is complete. If you are interested in serving on the committee that is developing this program, please contact the WFPS Executive Office.

#### · STEM Outreach Flyer

WFPS has developed a flyer to promote the land surveying profession as part of STEM education.

WFPS state associations may contact the WFPS Executive Office to have the flyer customized with your association logo.

Providing Resources to Benefit State Associations

WFPS is dedicated to providing resources to state associations. Following are a few of the resources currently being developed:

- 1. Speakers Bureau
- 2. Quarterly Book Reviews
- 3. Webinars

#### Serving as a Regional Voice

WFPS has updated resolution 2005-01 which supports having a board of registration for land surveyors in each state. The Executive Committee reviewed the resolution and suggested minor modifications to strengthen the resolution. At the April 2018 board of directors meeting, the board adopted resolution 2018–01 to supersede resolution 2005-01. The final resolution, as adopted, is available on the WFPS website and will be sent to each state association.

#### **About WFPS - PowerPoint**

Get to know WFPS and how we serve the 13 western state surveying association. Visit the WFPS website, click "About WFPS" and download the WFPS PowerPoint.

As always, I challenge the UCLS members to bring up surveying issues that can



be brought to WFPS on a regional platform. As your representative I represent you, so please don't hesitate to contact me at MikeNadeau. UCLS@gmail.com.



BY CLIFF BAKER, PS, CFEDS
PROJECT DEVELOPMENT TEAM LEAD

quick update on Alaska's saga with BLM and Direct Point Position Surveys (DPPS). BLM is now backing off of DPPS and with the current administration, will likely not be pushing DPPS for the next 4 years.

However, BLM did complete 11 project groups, totaling 7.2+ million previously unsurveyed acres, by the DPPS method. Without any previous communication with the State of Alaska, BLM decisively moved away from the survey method that has been in operation since the 1963 Agreement. The 1963 Agreement between the Dept. of Interior and the State of Alaska was a result of special conference committee issuing a report, HR 5279, directing the Dept.

The State has not accepted any of these 11 projects groups to date. If the 11 projects groups were surveyed in accordance with the 1963 agreement, BLM should have set 2,000+ monuments. Under the original DPPS proposal, BLM only wanted to set the exterior angle point corners of each project, equaling roughly 300 new corners for the entire 7.2+ million acres. Since the State has balked at accepting any of the surveys completed using the original DPPS, BLM decided to return to 9 of the project areas to

set the additional monuments at the interior township corners only (bringing the total number of monuments set to 671), again without any communication with the State. BLM is now calling the 9 project areas as having DPPS+.

BLM, under the new administration, has decided to communicate with the State agreeing to complete future Alaskan land selections in accordance with the 1963 agreement. However BLM does not want to revisit the 11 project areas completed using DPPS+ and wants the State to accept the completed surveys. Currently the State and BLM are meeting on how to move forward with a potential compromise between DPPS+, as it is now surveyed, or the addition 1330+ monuments to meet the 1963 agreement.

I, on behalf of the State of Alaska, want to thank NSPS for their strong support of our position in protesting and not accepting DPPS. There is no way to measure the weight of National Society of Professional Surveyors support and truly believe NSPS had influence over the current administration's position.



## CONNECTING THE GEOSPATIAL COMMUNITY

BY DANIEL GILLINS, PH.D., P.L.S., AAGS DIRECTOR

ear Chair Perry and the Executive

Board of UCLS,

The American Association for Geodetic Surveying (AAGS) would like to make you aware that the National Geodetic Survey (NGS) is actively improving the accuracy of its hybrid geoid model and will replace GEOID12B with GEOID18 in early 2019. This new hybrid geoid model will improve the derivation of orthometric heights (elevations) referenced to the North American Vertical Datum of 1988 (NAVD 88) using Global Navigation Satellite System (GNSS) technology. The new model will also thereafter serve as the official means for obtaining NAVD 88 heights via GNSS.

NGS will use GNSS data collected on bench marks to create the new hybrid geoid model. Recent analyses have revealed areas in your state where additional GNSS data will either confirm or update the relationships between ellipsoid, orthometric, and geoid heights. In addition to improving the geoid model, the collection and submission of GNSS data on bench marks will also enable NGS to develop more accurate models for transforming survey data referenced to NAVD 88 to data referenced to the future North American-Pacific Geopotential Datum of 2022 (NAPGD2022). Surveys starting in 2022 involving flood plain maps and so forth will require establishment of vertical control using GNSS; therefore, improving the accuracy of the geoid model is an important endeavor.

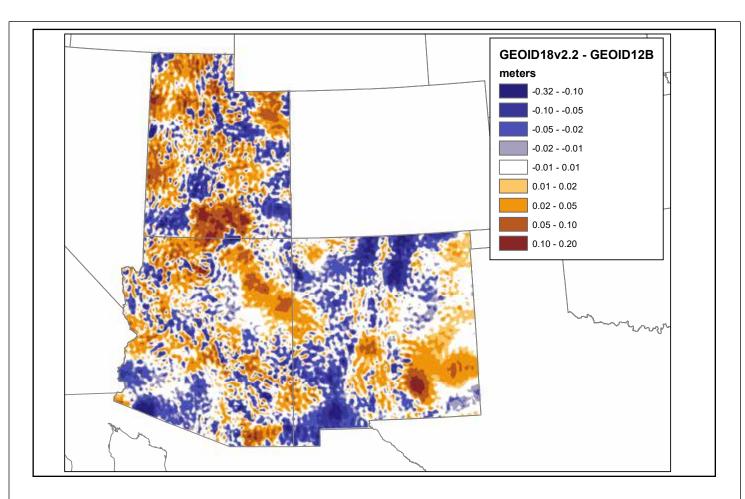
NGS has developed a prioritized list of bench marks. Data collected and submitted on these marks prior to August 31, 2018, will be used in the development of GEOID18. NGS will also continue to accept data on marks through 2020 for the development of the transformation models for 2022. New prioritized lists to support the transformation models will also be made available over the

next few years as analysis of data requirements progresses.

AAGS has obtained a prioritized list of bench marks for your state from NGS (attached). This priority list is also shown in a useful, online tracking map at https://geodesy.noaa.gov/GPSonBM/webmap/.

This is an opportunity for your society to help all constituents in your state in need of orthometric heights. Your state society could organize an effort using your chapters to occupy as many of these bench marks as possible. The provided list contains all of the bench marks that NGS would like to have occupied with GNSS and then shared with them. Surveyors can increase the local accuracy of the geoid model in their area by collecting GNSS data on the identified marks, and this effort will thereby help improve the accuracy of future GNSS surveys for deriving orthometric heights referenced to the national datum in their area. It is also in your best interest to contribute data as it

**GEODETIC** continued on page 28



#### **GEODETIC** continued from page 27

will improve future models for transforming vertical data in your state or local area to the future geopotential datum.

For the bench marks included in the prioritized list, NGS recommends contributing in two ways:

- Attempt to locate the marks on the list and submit a mark recovery through DS World. Check this NGS page for more information on mark recovery.
- 2. Collect 4 or more hours (more is better) of GNSS data on the mark following NGS guidelines, submit the data to OPUS and select the option to share. When sharing an OPUS solution, NGS will also request a brief description and photos of the mark for quality control. Two independent OPUS solutions for each mark are highly desirable for confirming results.

The list indicates how many observations NGS has received on each bench mark (see the "obs\_cnt" column). The aforementioned

This is an opportunity for your society to help all constituents in your state in need of orthometric heights. Your state society could organize an effort using your chapters to occupy as many of these bench marks as possible.

tracking map also shows the number of new, independent observations NGS is requesting for the marks. Please note that this tracking map will be updated as OPUS solutions are accepted by NGS, so we recommend checking it often.

## American Association for Geodetic Surveying

It is also worth noting that marks on this list may be inaccessible, destroyed, or at sites that are unsuitable for collecting GNSS (e.g., trees, buildings, etc.). If this is the case, please locate and observe another nearby NAVD 88 bench mark, within ~10 km.

Attached is a map showing the potential changes between GEOID12B and the new

hybrid geoid model. While data would be helpful on or near all of the marks on the list, you may consider focusing your data collection efforts by looking for areas in this map that show large changes in your region. For further information or to discuss options for collaborating with other regional partners, please consult with your NGS Regional Geodetic Advisor and/or State Geodetic Coordinator. Questions to NGS may also be directed to ngs.GP-SonBM@noaa.gov.

For additional information, Dave Zilkoski recently published an article on this topic for GPS World, which can be viewed at http://gpsworld.com/ngs-2018-gps-on-bms-program-in-support-of-napgd2022-part-5/.



#### **GPS on Bench Marks**

NOAA's National Geodetic Survey encourages anyone with survey-grade Global Positioning System (GPS) receivers to help perform GPS on Bench Marks (GPS on BMs) to support the development of GEOID18 and transformation tools that will be produced for the North American-Pacific Geopotential Datum of 2022 (NAPGD2022). GPS on BM data for GEOID18 will be accepted through the end of August 2018.

# Why Participate?

The nation's height system, the **North American Vertical Datum of 1988** (**NAVD 88**), is founded on historic geodetic leveling surveys that use thousands of bench marks, most of which have not been positioned with GPS. Adding GPS coordinates to these marks allows them to be used in NGS' modern height reference-surface modeling. GEOID18 will be the last hybrid geoid model NGS will produce to enable GPS-derived NAVD88 heights.

# How to do it? It's 1-2-3:

**1. Find local bench marks.** Visit our website at **Geodesy. noaa.gov/GPSonBM** for a priority listing of marks to occupy and maps to help you find them. Contact your **NGS geodetic advisor** for more details, or email us at **ngs.GPSonBM@noaa.gov**.

#### Find

**2. Collect GPS** on your selected bench mark following careful field procedures.

■ Complete reconnaissance at your selected mark to ensure its usability,

#### **Collect**

■ Collect a 4+-hour GPS data file.

and submit a mark recovery via DSWorld.

**Share** 

- Use a fixed-height tripod (recommended), and brace the legs with sandbags or chain.
- Verify antenna type, height, and plumb.
- Take two photos of the mark, and note any changes to the existing mark description. (Optional: use observer field log with this step.)
- 3. Share your data by uploading to our Online Positioning User Service (OPUS) on the NGS website Geodesy.noaa.gov/OPUS.

#### **Contribute!**

NGS will use data collected to develop **GEOID18**, increase access to NAVD 88, and enable conversions to **NAPGD2022**.

National Oceanic and Atmospheric Administration 

National Geodetic Survey

# UTAH COUNCIL OF LAND SURVEYORS MEMBERSHIP APPLICATION

Return this application with fees to the Uto	ah Council of La	and Surveyors, P.O. Box 1032, Salt Lake City, Utah 84110			
Name of Applicant:		Send Mail To: Business Home (check one)			
License Number:		Business Name:			
Address:		Address:			
City, State, Zip:		City, State, Zip:			
Phone:		Phone:			
E-Mail:		Fax:			
I hereby make application for membership in the Utah	Council of Land	d Surveyors and agree to abide by the By-Laws of the organization:			
Date: Signa	ture:				
Check membership applied for:					
ASSOCIATE  OUT-OF-STATE  RETIRED  AFFILIATE  STUDENT	25.00 660.00 650.00 650.00 630.00 30.00	To join or renew membership in the UCLS, please go to our website at https://ucls.memberclicks.net/.			
Chapter with which you wish to affiliate:  Book Cliffs Color Country  The following is a list of the standing committee interested in serving:  Legislation Workshop and Convention  Public Relations		n Spike Salt Lake Timpanogos  nization. Check any committee on which you would be  Publication Testing Membership			
Licensed Member must be individuals who are license	ed as land sur-	Student Members must be enrolled in a college or university in pur-			
veyors in accordance with the laws of the State of Utah and who otherwise have met the membership requirement set forth herein and/ or modified by the Board of Directors from time to time. Only Licensed Members shall have the rights of voting members under the Act;  **Associate Members** must be employed by a licensed land surveyor or employed by a firm or agency engaged in the practice of land surveying and must intend to make their livelihood in the land surveying profession;		suit of a major in surveying or a related field;  Retired Members must (i) be or have been Licensed Members or Associate Members of the Corporation in the past, (ii) be over the age of 60, and (iii) no longer be participants in the business of land surveying;			
		<b>Out-of-State Members</b> must have their full-time residence outside of the State of Utah and desire to receive the informational benefits of the Corporation;			
Affiliate Members must be employed by a private fragency that is engaged in an activity related to the survision. Affiliate Members are those persons who do become professional land surveyors but are interested ciated with the land surveying profession;	reying profes- not desire to	Sustaining Members must be individuals or entities that are engaged in the (i) manufacture or distribution of surveying instruments or equipment, (ii) compilation or reproduction of maps, or (iii) performance of services for land surveyors from a commercial standpoint.			







**Utah Council of Land Surveyors PO Box 1032** Salt Lake City, UT 84110

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