

The Tarheel

SPRING 2017 | No. 17.1

SURVEYOR

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2016-2017 NCSS SUSTAINING MEMBERS



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Atlanta, GA
www.landsurvey.com



Leica Geosystems, Inc.
Peachtree, GA
www.leica-geosystems.us

The Tarheel SURVEYOR Spring 2017

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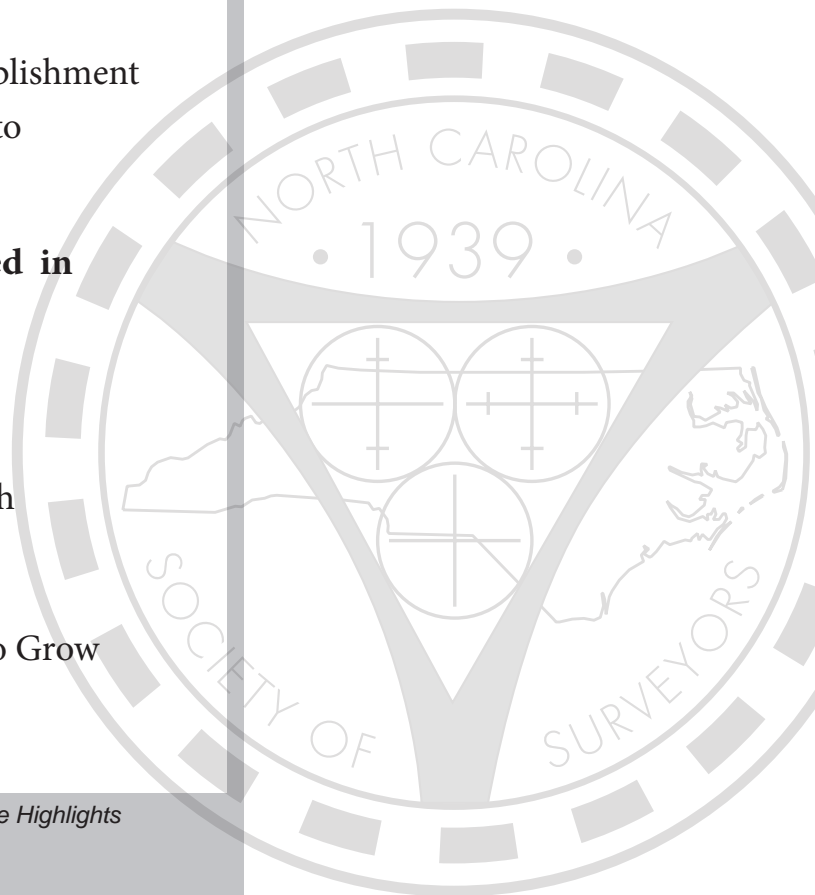
ABOUT NCSS:

- Founded January 31, 1939
- Second oldest professional surveying organization in the United States
- Only professional surveying organization in NC
- Affiliated with the National Society of Professional Surveyors and, therefore, all Professional Members are also accounted as members of NSPS as of July 1, 2013

OUR MISSION:

"A society of professional surveyors and their associates dedicated to enhancing professionalism, improving legislative awareness and promoting the profession of surveying."

Cover Image: Joel Johnson - See Page 16 for Conference Highlights



WHO WE ARE

**NCSS PRESIDENT**

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YADKIN VALLEY CHAPTER PRESIDENT

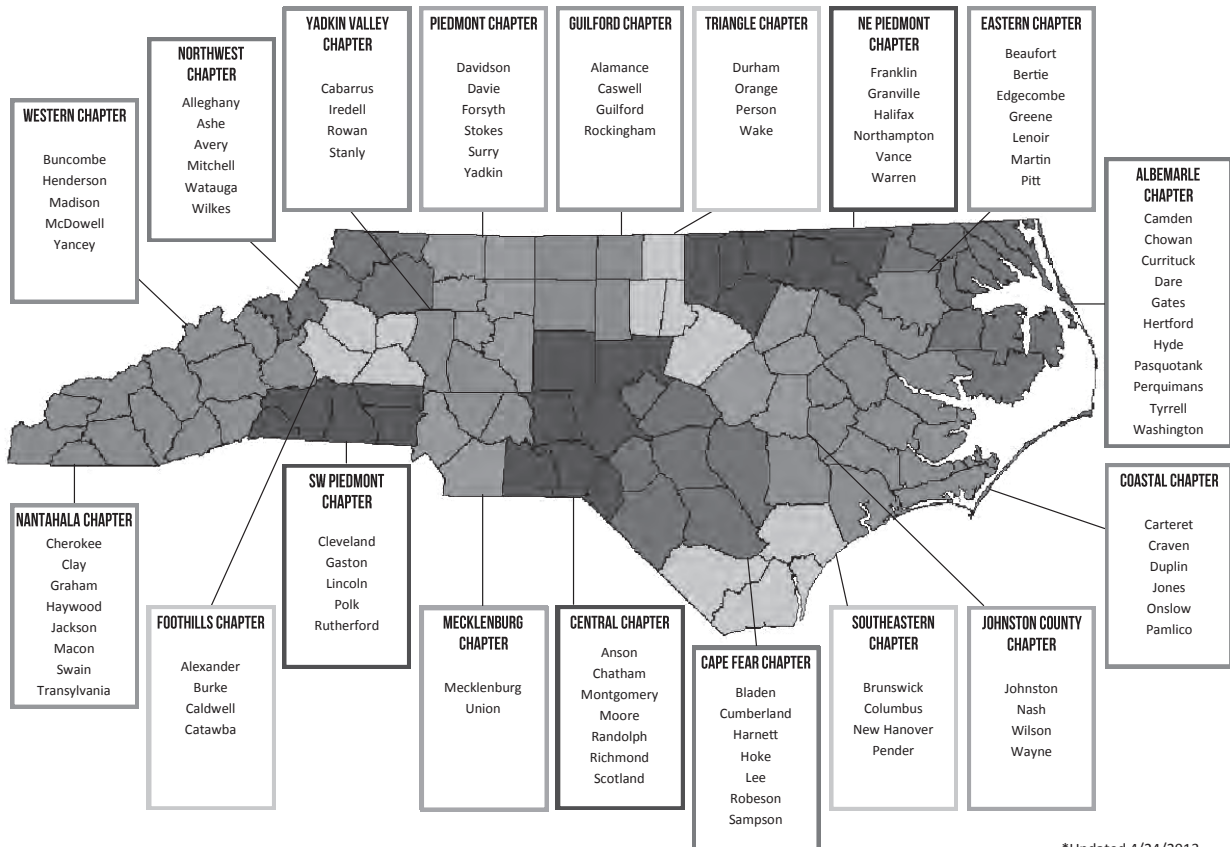
Marion L. Sandlin Jr.
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CHAPTER MEETINGS

CHAPTER	DATE & TIME	LOCATION
Albemarle	3rd Tuesday 6:30 pm	Cypress Creek Grill, Elizabeth City
Cape Fear	Last Thursday 6:30 pm	Various Locations, Fayetteville
Central	Last Tuesday 7:00 pm	Westmore Family Restaurant, Westmore
Coastal	Last Monday 6:30 pm	Texas Steakhouse, Morehead City
Eastern	2nd Monday 6:30 pm	Parker's BBQ, Greenville
Foothills	2nd Tuesday, 7:00 pm	Timberwoods, Morganton
Guilford	3rd Wednesday 6:00 pm	Various Locations in Greensboro
Johnston County	2nd Tuesday 6:00 pm	Holt Lake BBQ, Smithfield
Mecklenburg	1st Monday 6:00 pm *no meeting Jul-Aug	Dilworth Grille, Charlotte
Nantahala	3rd Tuesday 6:30 pm *no meeting Jun-Aug	Sunset Restaurant, Franklin
NE Piedmont	Last Tuesday 7:00 pm	Various Locations, Louisburg
Northwest	3rd Tuesday 6:00 pm	Daniel Boone Inn Restaurant, Boone
Piedmont	4th Tuesday 6:00 pm	Ham's Restaurant, Winston-Salem
Southeastern	Last Wednesday 7:00 pm	Carolina BBQ, Wilmington
SW Piedmont	2nd Thursday 6:30 pm	Mario's Restaurant, Forest City
Triangle	3rd Tuesday 6:30 pm	Peddler Steakhouse, Raleigh
Western	2nd Tuesday 6:30 pm	Cornerstone Restaurant, Asheville
Yadkin Valley	2nd Wednesday 6:30 pm	Various Locations, Salisbury

NCSS Local Chapter Areas

*Updated 4/24/2013

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DIRECTOR'S NOTES



Dictionary.com defines momentum as, force or speed of movement; impetus, as of a physical object or course of events.

We have all seen momentum change the outcome of a football or basketball game. We saw momentum change the course of our economy on September 15, 2008, when Lehman Brothers collapsed after a series of subprime mortgage failures. Once they failed, other banks and investment firms followed suit like well-placed dominoes. That is why it feels so good to write to you about the positive momentum occurring throughout our Society.

Membership momentum set a post-recession record in 2015. The current 2016 year, although not quite as robust as last year, continues to follow an upward trend.

We are gaining momentum in the General Assembly as an active Professional Society. NCSS hopes that the Legislature will pass our Standards of Practice technical corrections bill and repeal the Control Corner general statute. We are also taking the first investigative steps towards changing our educational requirements to a four-year degree based upon the membership's vote in September, 2016. Many legislators are beginning to recognize us as we walk the halls of the General Assembly.

The momentum to make technological changes to our administrative process at the Conference was embraced by attendees as we utilized an app this year for the first time, making information readily available for attendees on their smartphones. Another momentous change at the Conference in Pinehurst (see pg. 16 for details) was tracking PDHs with bar codes on attendees' name badges. Although we expected some glitches as part of the learning curve, I am thrilled that so many of you embraced the technology and new methodology.

Online courses are now available, making it easy to capture that last PDH or two before time runs out. When I was hired in 2011, online courses were being discussed as a possibility for the future, so it was exciting to unveil four online courses available for surveyors to take from the convenience of their office.

Finally, I feel a momentum to reach out on a different

level this year to high schoolers and those we are trying to recruit into this old and worthy profession. A profession that records facts about one of the most sacred liberties we have, which is to own property. I have sent letters to Science, Technology, Engineering and Mathematics (STEM) Associations and Educators with the hope of being invited into more schools to talk to them about surveying and offer them the Trig Star program as a means to encourage students to study math and science. It will also offer scholarship money to those who participate. I feel strongly that if we can get in front of high school students frequently, we'll find the niche of students who would excel and enjoy the field of surveying.

Remember the Super Bowl in February? Atlanta led almost the entire game, but when the "mo" started swinging in the other direction, many Atlanta fans knew that Tom Brady had the talent to win the game. Final score –Patriots 34, Atlanta 28 in Overtime! Let's keep the momentum swinging in our favor as we work together to protect and grow this wonderful profession.

A handwritten signature in cursive script that reads "Christy C. Davis".

Christy C. Davis, Executive Director



Christy receiving a personalized gift from Past President Chad T. Howard at the 53rd Annual Conference & Trade Show.

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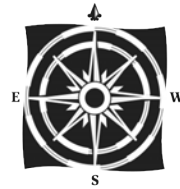


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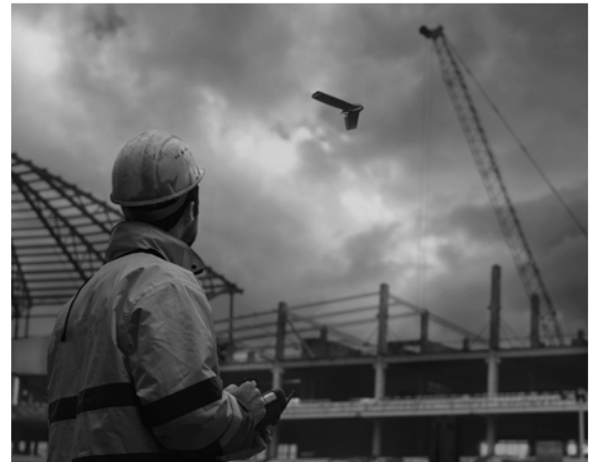
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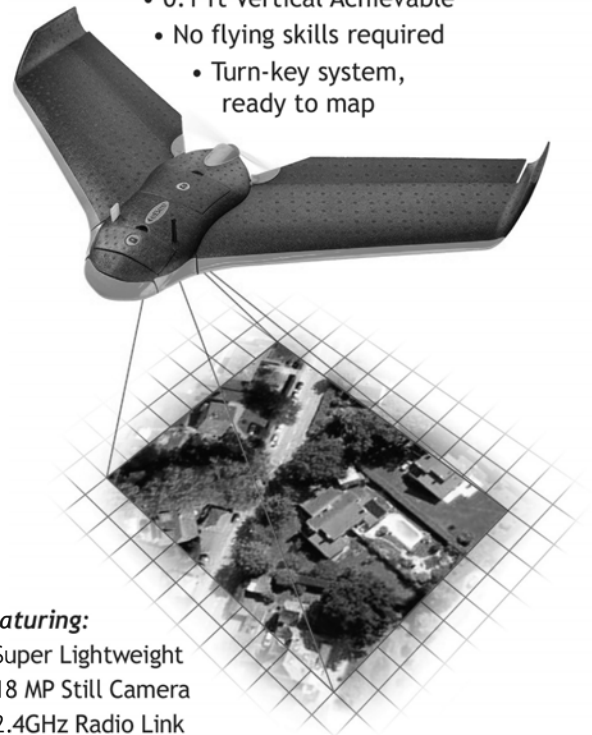


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LETTER FROM THE PRESIDENT



What can I say? I am truly honored to serve as President of NCSS. I am humbled to know that I am following in the footsteps of a long list of very distinguished land surveyors that have led this organization since 1939. To be elected by your peers, to represent one of the most trusted professions in the history of this great nation, is a most humbling experience. Thank you to each and every one of you.

As you know, this year's theme during our recent Conference and Trade Show in Pinehurst, was Proud of the Past, Positioned in the Present and Preparing for the Future. I would like to share just a few of my remarks given at Friday night's Presidential Banquet in Pinehurst.

Proud of the Past

Rightfully so, we should be and are proud of our past.

This Conference was exceptionally special to me as the Pinehurst and Southern Pines areas are where my past began as a Land Surveyor. After graduating from Sandhills Community College, just a few miles northeast of here, my first job surveying was with C.H. "Pat" Blue and Associates in Southern Pines just a few miles to the east. Every time I work in the Pinehurst area or if I am just passing through, I am reminded of the various projects we worked on and the impact we had in this area. Pat was a tremendous mentor, he also saw to it that we attended NCSS chapter meetings and he enabled us to attend the annual conference. This was important to me as well as to Pat. He knew the importance of NCSS and encouraged us to be involved. I would like to challenge each of you that own a business or are a supervisor, to provide that opportunity to your associates. A good start would be to help them engage as an Associate Member of NCSS.

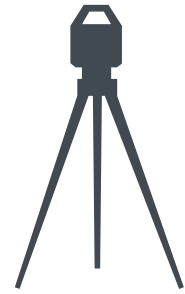
Every surveyor I know is proud of their past. We all have felt the pride you have as you ride around your specific areas where you conduct business and see the development that depended on your work. We might not have built the office buildings, homes, schools and shopping centers, etc.; we can't ride by and say, "I built that," but rest assured they would not have happened if our profession wasn't one of the first on the development scene.

We know the pride you have when you have researched some old handwritten deeds, generated your working map, gone into the field and then using your skill, experience and sometimes gut feelings, you find a corner that no one has seen in several decades.

Again we know the pride you have as you watch someone begin their career as a PLS and move on to advance in this profession.

Finally, you enjoy the pride you have in your surveying stories, whether they are funny, an interesting project or a major challenge that tested everything you know.

All of us have a funny story or an interesting project story. It never fails, when a group of surveyors get together at a chapter meeting, stories will fly. If your chapter is like mine, because of these stories, it becomes hard to carry on business. Our common interests are



Schedule at a GLANCE

MARCH 24, 2017

**NCSS Workshop
with Nantahala Chapter**

8:00am-4:30pm

7.5 PDHs

Jackson County Family
Resource Center
Webster, NC

APRIL 21, 2017

Civil 3D

8:00am-4:30pm

7.5 PDHs

Matthews Community
Center
Matthews, NC

APRIL 28, 2017

CFS Update

12:00pm-4:00pm

4 PDHs

NCSS Office
Wake Forest, NC

MAY 5, 2017

Ethics of New Data

8:00am-4:30pm

7.5 PDHs

Gateway University
Research Park
North Campus
Browns Summit, NC

MAY 12, 2017

NCDOT Construction

Stake Out &

Tree/Plant ID

8:00am-4:30pm

7.5 PDHs

Weymouth Woods
Sandhills Nature Preserve
Southern Pines, NC

what create the community of surveyors. That is why wherever you may be in this state and need help whether it is a flat tire, help finding an old map, or local help with a survey project, you can count on your surveyor network.

Positioned in the Present

This is a profession where one must be in a position of knowledge; knowledge of not only how to survey, but knowledge of pressing issues, policies, procedures and the knowledge with the latest technology to do your job well.

Many of you are on the same email threads as I am. Our staff is on top of what is happening in Raleigh and Christy is constantly notifying us regarding anything that may be coming up that may affect our profession. I don't see any reprieve in sight as we have a busy legislative year forecast for 2017.

There is no better way I know to keep up with what is happening in our profession than to get involved in NCSS. I know I am probably preaching to the choir and it is safe to say most of you are involved. We all know of non-members that are reaping the benefits of the efforts of NCSS and/or NCSS members that are not very actively involved. I urge you to encourage them to get involved. There are standing committees and special committees that are working in many different areas. Find a committee that is focusing on an area of your interest and ask if they need help. I can almost promise that you will not be turned away. If you don't know who to call, call me or the NCSS office and we'll help place you where your interests and talents will be the most beneficial.

On a daily basis our profession gets to use some of the neatest toys and technology. Many thanks to all of our vendors that keep us informed of the latest and greatest. If you weren't able to attend the Conference, I hope you will take the opportunity to visit the Affiliates page on our website. Each Sustaining Member has a logo which links directly to their website where you can shop products and services. I don't know of any Sustaining Members that don't enjoy showing you how to use their newest, latest and greatest to keep your business positioned to provide the best service you can to your clients.

Preparing for the Future

One of the most memorable phrases Pat Blue used with us when we went to a job site was, "Make sure you have your gun loaded." Not because we were going into some shady neighborhood, but rather, he was telling us to make sure we had all the information we needed to get the job done. NCSS is the place and resource for metaphorically loading your gun. Look at the variety of seminar topics and locations all across this state that you have to obtain your required PDHs. Look at the political advocacy available as evidenced by some of our distinguished guests that attended Friday night's Presidential Banquet.

Finally, our Conference was focused on preparing for the future. All of us will acknowledge that Land Surveying and the way we survey have changed tremendously in the last 43 years. I use 43 because that is how long I have been in this profession. I never imagined in 1974 that we would be surveying with the equipment and techniques we have today. I can only imagine where technology will take this profession in the next 40 years. There is no doubt in my mind that NCSS will be an integral part of seeing how these changes will affect our profession. My prayer is that we, as a profession, embrace this coming change, embrace it and use it to our advantage.

I am proud to be a Professional Land Surveyor, I am proud to be a member of NCSS. I am honored to serve as your president. I am proud of what NCSS has meant to me personally and to our profession. NCSS is positioned to take on 2017. NCSS is prepared and optimistic about what the future holds for our profession and the critical role NCSS is taking now and will take in future.

Let NCSS help you be prepared for your future.

Thank you and may God bless each of you!



NCSS President 2017-2018



Leland & his wife Judy

Milestones in Education

by Peggy Fersner, PE

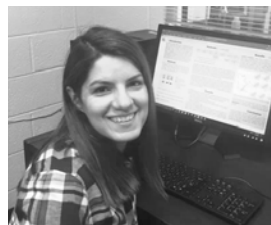
As previously discussed last fall in the issue of Tarheel Surveyor, the Geomatics program was scheduled for its initial accreditation visit from ABET in November of 2016. We hosted our official accrediting team with members from Tennessee, Oregon, and Alaska – we received the prize for the most miles traveled by an accreditation team. The team also added one official ABET observer from Oklahoma. This was that person's first ABET accreditation visit. Now the team had four members. But the list of team members did not stop there. It is common for ABET to notify the state licensing board when "local" accreditation visits are occurring so board members may choose to observe the three day process. Two members – both engineers - from the North Carolina Board of Examiners for Engineers and Surveyors had previously expressed a general interest in the ABET accreditation process and volunteered to participate in our accreditation site visit.



The team arrived on the first day (Sunday) and received a tour of our facilities followed by their analysis of our documentation. Specific tasks were delegated and each and every piece of assessment data was examined.

The photo shows a majority of the documentation. During the second day, team members met with the administration, students, alumni, and our Geomatics Advisory Committee. For the team members, this is not an 8 to 5 day – they worked on their report well into the evening. Day three wrapped up any extra meetings that needed to occur as well as the initial debriefing of the team's findings with the faculty, department chair and dean. In the early afternoon, the team officially debriefed the Chancellor or Provost of the University with the entire team attending as well as the faculty, department chair and dean. The great news is that the program got an excellent review with only a few minor items that needed to be rectified. Those items were handled at our Geomatics Advisory Committee in December and those actions were reported to ABET in January. The Applied Science Accreditation Committee of ABET will hold its annual meeting in July and the official results will be announced in August. We are confident

that the Geomatics program will be fully accredited at that time!



The other major and I mean MAJOR news is that we are now a faculty of three! We welcomed Dr. Leila Hashemi at the beginning of the semester in January. Her undergraduate and Master of Science degrees are in Geomatics

Engineering and her PhD is in Geomatics from Laval University in Canada. She will be focusing her teaching efforts in our GIS, photogrammetry and remote sensing courses. Her research areas will delve into the applications of GIS and remote sensing in environmental management and risk assessment; LiDAR, UAV collected data, and hyperspectral data processing; spatial and spatio-temporal analysis as well as Web GIS and mobile mapping – just to mention a few.



Peggy Fersner is the Geomatics Coordinator at NC A&T State University in Greensboro. She has been on staff since 1993, teaching surveying, GIS, and hydrology courses. She has earned both her BS and MS in Civil Engineering.

Welcome New Licensees

Brian T. Ellington	Eric S. Smith
Matthew S. Jarrell	Eric F. Starnes
Richard G. Greene	Barry W. Suggs
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A Good Fit

The Certified Survey Technician (CST) Board

by Randy S. Rambeau, Sr., PLS

Last year at the NSPS Spring meeting in Washington, DC I volunteered to be on the NSPS CST Board or to assist in the promotion of the CST Program in some minor way. I've had a keen interest in the program for the past decade, as my company has used it as a tool to advance the knowledge of our technicians. We have viewed this as a valuable benefit to both the employee and our company. It is also a useful step for employees seeking to further their professional careers.

The level of contribution I had in mind was somewhere on the ground floor, so needless to say I was very surprised when I received a telephone call in late May from Mr. Art Haase, the long-time chairman of the National CST Board. He invited me to attend the board's three-day summer meeting at Vincennes University in Vincennes, Indiana. The purpose of my attendance was to evaluate the fit for both the board and myself. Near the end of the meeting I was interviewed by several of the long-time board members to determine if I still had an interest in joining the board after participating in the meeting. I responded with a resounding yes and Mr. Haase extended an invitation to join the board, subject to approval by NSPS. My efforts and work that week were acceptable to the board!

The board is composed of nine members from across the country, and there are three meetings in person and one meeting by teleconference. Board members review the exam results from all four exam levels during the previous quarter, including evaluating any question challenges on those exams. We also review the questions on the various levels to determine their relevancy and clarity, and the need to update questions or insert new questions. We also review the financial report and work to keep the CST a positive income program. Another item on the agenda is a discussion of ways we can expand the program to increase the number of organizations participating and the number of certified technicians.

This board is fully involved with the program and we put a minimum of three very full days tending to the business of the CST program every meeting. Although the board works very hard, I will have to say my involvement has been most rewarding. I look forward to more proactively

promoting the CST to our NCSS members in the coming year.

The NSPS Certified Survey Technician (CST) Program

For those not familiar with the CST Program: The CST program was created over 30 years ago and is sponsored by NSPS and by extension, each of us as NSPS members. It is a four-level certification program offered throughout the United States to provide recognition to survey technicians, to aid in the advancement of both field and office technicians, and to provide a means for employers to evaluate the capabilities of current or future employees.

I believe there are numerous benefits to participating in this program, including:

- Identifying the important contributions that the technicians provide to the surveying and mapping profession,
- Providing credentials to technicians,
- Identifying those who have achieved specific technical competencies,
- Providing a career ladder for technicians not yet seeking a professional license, and
- Providing firms who support and utilize certified technicians a way to evaluate applicants and to promote the fact that their technical staff are certified.

The CST Level I exam is an entry level exam and can be taken with little or no work experience. Work elements within the Level I exam include types of surveys, field equipment and instruments, survey computations, horizontal and vertical control points, field operations, field notes, plan reading, first aid and safety, drafting and CAD skills, and surveying history.

The CST Levels II, III, and IV exams have both a field and office track so that technicians can select one or the other, or obtain certifications in both tracks. The Level II exam requires a minimum of 1.5 years of experience and a more detailed knowledge of the work elements included in the Level I exam, along with an understanding of plan preparation and principles of the surveying profession. The Level III exam requires a minimum total of 3.5 years of experience and, in addition to the above Level I and II exam



*October 20, 2016 at the
Homewood Suites in Orlando.*

*Board members (l-r): Ron
Torrence, Celeste Van Gelder, Tim
Kent, John Fenn, Bob Moynihan,
Jon Warren, and Chairman
Art Haase.*

*Discussing the length, number
of questions, and content of
the exams.*

work elements, includes office operations and supervisory skills. The Level IV exam is in a “take home/open book” format and consists of one essay/technical report question taken from any of the above-listed work elements. This exam requires a minimum total of 5.5 years of experience, two years of which must be in a supervisory capacity. The applicant must also hold a Level III certification.

Detailed information about all facets of the CST program can be found on the NSPS website under the “PROGRAMS” drop-down. That information includes the application, testing process and fees, online and paper tests, test site and

exam proctor requirements, availability of study materials, and a book detailing the entire program. On the state level, Christy and I have begun a dialogue to explore the possibility of NCSS administering the paper exam at our NCSS office in Wake Forest in the near future. Hopefully we could add an online testing option later on.



*Randy Rambeau has been the Geomatics
Office Manager at McKim & Creed, Inc.
in Raleigh since 1991. He graduated
from NCSU and became a PLS in
1978, when he joined NCSS. Randy
now serves as our NSPS Director.*

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NCSS Education Foundation

by James E. Davis, PLS
Education Foundation President



The NCSS Education Foundation returns the same board members for this year. The board members are Billy DiGiacomo, Larry Greene, Lora Younts, Jim Davis (President), Doug Suttles (Vice President), John Furmage (Treasurer), Charles Morgan (Secretary), Gale Brown and Chris Witherspoon. The Education Foundation was formed to support the purposes of NCSS. Primarily, the Foundation has been involved in conducting fund raisers and raffles to raise money for scholarships. More specifically, the Foundation developed a set of objectives designed to focus the Board's activities on a few key issues. The objectives are: 1) Grow the endowment, 2) Funding mechanism to support four year program, 3) Funding mechanism for scholarships.

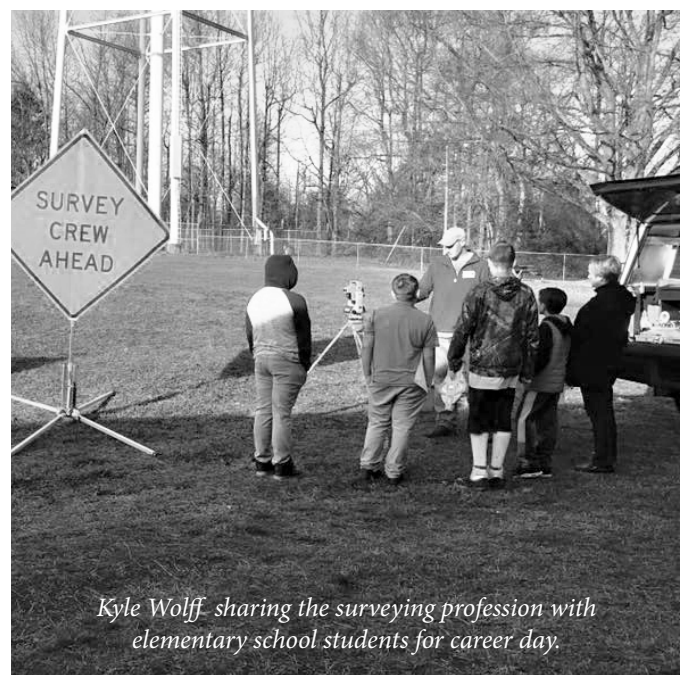
For those of you who didn't attend the Conference in Pinehurst, you missed the wonderful sight of all of those NCSS specialty license plates in the parking lot of the Carolina Hotel. We are happy to report that we have over 500 license plates still active, but we want that number to grow. The Foundation receives \$15 annually for each specialty license plate and has received over \$8000 to date from the NCDMV. The primary uses for the funds from this program are to grow the endowment and to provide a funding mechanism to support the four-year degree program at North Carolina A&T University. Last year, we were able to make a \$4,000 contribution to the endowment. As of December 31, 2016 the endowment balance was \$229,532.51. We also continued our support of the four-year program with ten \$500 incentive scholarships for students newly enrolled in the Geomatics Program at NCA&T. We are exploring opportunities to provide additional funding for students at four year programs who enroll in surveying classes.

We are wrapping up a very successful raffle season which resulted in \$7,000 in revenue for the Foundation. This year marks four years in a row where the Foundation has sold all 100 of the cash raffle tickets. The winners of the cash raffle

are as follows: First Ticket Out, Geraldine Bock (\$500); next to last ticket out Sherrill Futrell (\$500), and Grand Prize, Victor Cowan (\$2000). The Foundation would also like to recognize the NCSS Chapters that made contributions to the raffles including Southeastern Chapter, Johnston County Chapter, Foothills Chapter, Central Chapter, Yadkin Valley Chapter, Southwest Piedmont Chapter and Piedmont Chapter. The primary purpose of the cash raffle program is to provide scholarships to students enrolled in two-year and four-year programs in the state. Last year, we were able award \$7,250 in scholarships.

The Foundation also recently participated in the NC Math Teachers Conference. The conference took place on Oct. 27-28 at the Koury Convention Center in Greensboro. Foundation board members worked the booth and provided information to math teachers who may have students interested in surveying. Participation in this conference helps to support all of the surveying programs in the state by spreading the word about surveying as a career. As part of the conference, the Foundation held a drawing for two Survey Intern Exam Booklets to provide teachers with practical examples of surveying problems to use for their students. The drawing also helped bring teachers to the booth and provided contact information for participation in Trig Star and career fairs.

If you would like participate with the Foundation or just attend a meeting, we would be happy to have you. Please contact me or one of the other board members if you have any feedback or suggestions for Foundation programs.



Kyle Wolff sharing the surveying profession with elementary school students for career day.



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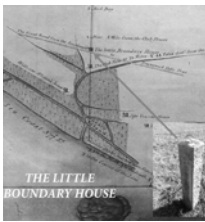
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NC/SC State Line Boundary Reestablishment Survey *by Jim Davis, PLS*

COMMISSIONERS ROCK

JULY 1813 - LAT 35, AD 1813, NC + SC



“Commissioners Rock” which is located on the eastern bank of the Chattooga River, a total distance of almost 20 miles.

Surveyors recently completed a multi-year, multi-phase project to retrace the NC/SC State Line. In the first phase of the project surveyors retraced a total 54 miles of ridgeline forming the NC/SC state line between Transylvania, Henderson and Polk counties in North Carolina and Pickens and Greenville counties in South Carolina. This first project phase began at the point where the Cherokee line intersected the ridgeline (beside Continental Divide Road) and proceeded eastward along the watershed boundary of the Saluda River in South Carolina and the Green and Pacolet Rivers in North Carolina. The survey required discerning and locating the ridgeline dividing the watersheds, retracing the original 1815 survey, surveying property lines, and setting monuments every 200-300 feet along the state line. Upon successful completion of the first phase, surveyors continued with the second phase, which required setting monuments along the straight-line section of the NC/SC State line that extends from the point on the ridge at the Cherokee line westward to the NC/SC corner at

The third phase of the project required retracement of the original 1772 NC/SC survey beginning at the “Old North Corner”, located just off US 521 where Lancaster County, SC, makes a 90 degree corner with Union County, NC, and running north and then westward with the old Catawba Indian Line to the Catawba River, proceeding up the river to the confluence of its northern and southern forks and then continuing westward to the mountains, a total distance of almost 110 miles. The retracement of this phase was completed in three different sections. The first section began at the point of confluence of the Catawba River and the South Fork of Catawba River and proceeded approximately 67 miles westward to the “Block House” at the end of the ridgeline survey. The beginning point, which is currently located under Lake Wylie, was determined using historical surveys that were performed prior to the formation of the lake. The next section of the survey was completed by the South Carolina Geodetic Survey who utilized hydrographic surveying procedures to determine the centerline of the Catawba River. The third section began at the “Old North Corner” and ran with the Catawba Indian Line northerly, northwesterly, and southwesterly around to Lake Wylie where the line

intersected the centerline of the Catawba River that was determined from the hydrographic survey.

The fourth phase of the project was a retracement of the 1764 NC/SC survey that began at the “Old North Corner” and proceeded approximately 50 miles eastward to the Pee Dee River.



The fifth phase of the project was a retracement of a 32-mile portion of the line that was re-surveyed in 1905 between Richmond County and Scotland County, NC and Marlboro County, SC. The 1905 retracement survey included the recovery and positioning of granite monuments that were set at approximately one mile intervals along the line. Surveyors recovered 16 of the 37 original monuments and computed the location of 2 additional monuments from historical evidence.

The final phase of the project was a retracement of 1735-1737 survey of the state line between Robeson County, NC and Dillon County, South Carolina. This section of line was approximately 31 miles long and included several large properties and swamps and also confirmed that “South of the Border” is indeed located in South Carolina.

One additional section of the state line was completed by the South Carolina Geodetic Survey and was a retracement of a 1928 survey that ran from the coastline to the Lumber River.

After completion of the technical portion of the survey, the final determination required the approval of the political bodies in both states. For some residents, the re-establishment of the state line meant changing jurisdictions for such things as taxes, schools, utilities, emergency

services and medical services. In order to address these changes, both states developed identical legislation that coordinated the transition of services. Both states approved the legislation in 2016 and the re-established line was officially recognized on January 1, 2017.



You Don't Need to be a Millionaire to Leave a Legacy

Estate Planning is not something reserved only for the rich. The word ‘estate’ may bring to mind an image of riches with a mansion and landscaped grounds. In legal terms it simply means “property or possessions”. I think it’s safe to assume that everyone seeing these words has property or possessions and for you to depart this life without a formal declaration of what happens to your possessions creates a huge potential for your loved ones to become embroiled in a destructive conflict. Without a will, your property or possessions will be distributed according to state guidelines which may not match your final wishes. A will should be created with the proper documents, and accordingly, we strongly encourage you to engage a professional for assistance or there are several books available to guide you through the process. In short, almost everyone needs a will.

The NCSS Education Foundation, Inc. is a non-profit, all-volunteer group which raises funding for the education of future surveyors. We urge all of the NCSS members, fellow surveyors and others to create a will to represent their own personal wishes. The Foundation can offer you an opportunity to leave a legacy (a gift of property or personal possessions) to assist the future of surveying through the education of newcomers to the profession. The following sentence included in your will is one way to ensure that you can leave that legacy to reflect your passion for the surveying profession: I give _____ (specific or identified property, possessions, percentage or residue) to the NCSS Education Foundation, Inc. (a tax-exempt organization located in Wake Forest, NC) for the purpose of supporting its education-stewardship programs.



Proud, Positioned and Prepared in Pinehurst

by Christy Davis, NCSS Executive Director

The NCSS Annual Conference and Trade Show took place at the Carolina Hotel in Pinehurst, February 15-18, 2017. It was an amazing venue and a wonderful opportunity for surveyors, instructors and vendors to come together for a couple of days to build relationships and improve their knowledge. This year's theme was "Proud of the Past, Positioned in the Present and Preparing for the Future." The activities and education exemplify the desire of NCSS leadership to set a steady course for 2017.

Proud of the Past

The beautiful Carolina Hotel is rich in history and was

an amazing venue to emphasize the pride North Carolina surveyors have in their past. The original building, the Holly Inn, was built in 1895; the Carolina Hotel followed in 1901. Each guest room was slightly different with beautifully appointed decor and the occasional creaking floorboard. The hallways were lined with memorabilia from celebrities and professional golfers of the past.

We kicked off the event on Wednesday night with a repeat of last year's MAPS Mix and Mingle, but instead of watching the Duke vs. Carolina basketball game as we did in 2016, this year we watched the NC State vs. Carolina basketball game. It was a great time to hang out

in the Hospitality Suite and raise money for MAPS. The funds we raised will support a college intern scanning old unrecorded maps. Our database continues to grow with over 4,500 maps on file.

Thursday morning Timothy Guisewhite, PLS began the day teaching about colonial period surveying. He discussed the journey through the Carolinas of John Lawson, explorer and surveyor. Timothy loves history and makes replicas of old surveying chains as a hobby.

Honoring the short term past is another way we take pride in the work of our surveyors across the state. The Plat Luncheon on Friday awarded the best plats of 2016 as judged by the host, Central Chapter. Linda Humphrey, with Mack Gay Associates, took first place in the Boundary and ALTA categories and won Best Overall Plat. Her ALTA plat will be entered into the NSPS national competition in April. Other winners this year were: Missie Flanagan who won first place in the Topographic and Subdivision categories; Catherine Warner won first place in the As-built Commercial category; William Ciccolella won first in As-built Residential; Bentley Robison won first place in the Non-Conforming category. Congratulations to all of these excellent mappers!

Finally, we had a very special ceremony as part of the Friday night Presidential Banquet that honored both our past and present. The NC/SC Boundary Reestablishment was effectively put into law in 2016. NCSS took the opportunity to honor those who were involved with the project which took over 20 years to complete! Rep. Ted Davis; William Polk, Assistant General Counsel with the Department of Public Safety; and Mike Sprayberry, Director of North Carolina Department of Emergency Management, were all guests that evening and were presented with the book, *Following in Their Footsteps* and a brass disk designed by Sherri Barron to commemorate the event. Jim Davis was also honored as the surveyor that signed and sealed each plat along the border. Alex Rankin was also acknowledged

NC/SC Boundary Reestablishment Ceremony



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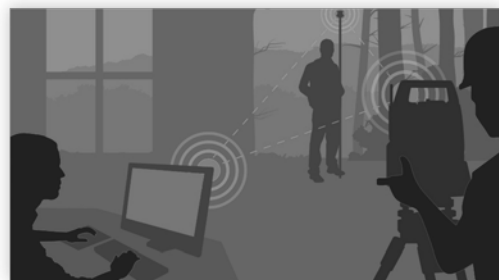
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as the owner of Concord Engineering & Surveying, Inc. (CESI) for his role as Senior Partner of the surveying firm charged to survey the boundary.

Positioned in the Present

Embracing technology is required in today's culture to be positioned in the present. For the first time, NCSS used an app as a means for attendees to track conference details. The staff was so pleased to see everyone embrace the new technology and actually enjoy many of the features that it provided. We look forward to it replacing the costly printing of programs in the future.

Our education also addressed positioning ourselves in the present with Adam Lovelady from the UNC School of Government addressing all the new subdivision laws and regulations on Thursday. Jared Ownbey increased the knowledge and skills of surveyor technicians who are in the field on a daily basis. Finally, in another new avenue for instruction, vendors spoke to attendees on topics increasing their professionalism during the Trade Show on Friday at their booths rather than moving the groups to other locations. NCSS was able to track the attendees by scanning a bar code on their name badges which provides NCSS actual times of attendance for PDH reporting. There was a slight learning curve, but everyone seemed to be very excited about the new format and administration of PDHs. Positioning oneself in the present means enjoying each other's company over the course of the extended weekend, and there was plenty of time for social gatherings. Attendees had golf outings, a night light putting contest and our traditional Vendor Appreciation Dinner on Thursday evening. Everyone enjoyed themselves and enjoyed a meal together as friendships were established and businesses were enhanced through knowledge, networking and products.

Preparing for the Future

The final leg of our theme prepared us to return to our offices the following week. Peter Brennan taught the final segment on Thursday discussing with attendees how to integrate data that surveyors now have at their fingertips. New technology gives surveyors more and more options for their clients, but sometimes the ability to transfer or translate is lacking. There are similar classes with technology being offered during our Spring Schedule that was released at the Conference. Log onto our calendar at ncsurveyors.com to find the topics in which you have an interest.

Along those lines, we had several new vendors this year displaying the latest technology and services. NCSS

would like to welcome Ram Jack Foundation Solutions, Synergistic Solutions International, MicroSurvey Software and Javad GNSS to our list of newest Vendors at Pinehurst. Of course, our faithful vendors from the past also had the latest and greatest on display.

We hosted a new event which is designed to leave our mark on the town that hosts us each year. The President's Charity Choice is a means to take contributions and give to the incoming President's charity of choice thus giving back to the community. This year's incoming President, Leland Strother and his wife, Judy, decided to support the local hospital by creating baskets for patients and their families who are involved in the Cancer Center and the Memory Care Unit. The hospital was appreciative and everyone enjoyed paying it forward. The NCSS staff can't wait to see what Jamie Watkins will choose next year in Asheville.

Finally, as we prepare for the future, awards were presented, the new Board of Directors was sworn in, and the gavel was passed from Chad Howard to Leland Strother. North Carolina surveyors are surrounded by professionals that volunteer their time to protect and support surveying. Christopher Witherspoon was awarded the coveted Surveyor of the Year award due to all of his hard work with the Education Foundation and for making our specialized license plate a reality. It was fantastic seeing the parking lot of the Carolina Hotel dotted with beautiful blue and green license plates. Jared Ownbey was awarded Young Surveyor of the Year. Jared gives of his time as instructor and Chapter President of the Western Chapter of NCSS. The other awards given were: Shining Star, Tim Bowes; Polaris, Jamie Watkins; and Jerry Nave, President's Award. We are proud to celebrate the contributions of all these true professionals as we move forward into 2018!





PROBLEM CORNER

by John Furmage, PLS

The mutually bisecting diagonals of a four-sided field are 480 and 360 ft. Having bearings of N 35° 37' E and N 54° 23' W.

Find: the bearings and the lengths of the four sides in a clockwise direction from the southwest corner of the field. Find the area of the field in acres.

Tools: scientific calculator, pencil/pen, paper, scale and protractor.

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North Carolina NFIP Coordinator



Dan Brubaker is now the North Carolina National Flood Insurance Program (NFIP) Coordinator for the Department of Public Safety. John Gerber is on a 12-month assignment with the US Army at Fort Bragg, North Carolina.

Dan has served for five years as the NFIP Engineer before taking over as the coordinator, and will continue in both roles. As always, Dan and the rest of the Risk Management staff are happy to assist with questions or issues that may arise relating to floodplain management.

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Comparing Drone Technology to Conventional Methods for Beach Monitoring Surveys

by Christian Stallings, CP, Research & Development Manager, McKim & Creed, Inc.

There's a buzz in the air....literally. It's coming from an unmanned aerial system (UAS), more commonly referred to as a drone. By now you've probably heard it.

The residents of Wrightsville Beach, North Carolina heard it last spring when two national firms came together to test the efficacy of using UAS to collect data for beach monitoring surveys.



McKim & Creed and Esri conducted a proof of concept (POC) to test the accuracy, efficiency, cost effectiveness and environmental efficacy of using low-cost, commercial unmanned aerial systems (UAS) for beach monitoring surveys. Here, McKim & Creed's Christian Stallings, CP, (yellow vest) explains the UAS technology to representatives from local, state and federal agencies, as well as UNC Wilmington, Audubon Society and NC Land Trust.

The POC Premise

According to NOAA, shorelines constitute less than 10 percent of total land area in the U.S. but are home to 39 percent of the nation's population. Nearly 130 million people live in communities that depend on accurate, cost-effective beach monitoring surveys to maintain healthy coastlines.

Coastal communities prepare for a land-falling storm event year round. Most municipalities that have oceanfront assets have a beach management plan, which is required for communities that have or are seeking federal funds

to help maintain their beaches. Included in the plans are beach monitoring surveys. These are performed twice per year to capture current, existing conditions of the beach. Comparing the surveys helps engineers analyze the beach's performance in terms of erosion and accretion, and plan and predict maintenance and renourishment events. In the case of a storm event where significant loss of beach occurs, these surveys can be used to help secure emergency funding for restoration.

Data is typically collected using terrestrial LiDAR, aerial LiDAR, and/or conventional surveying technologies.

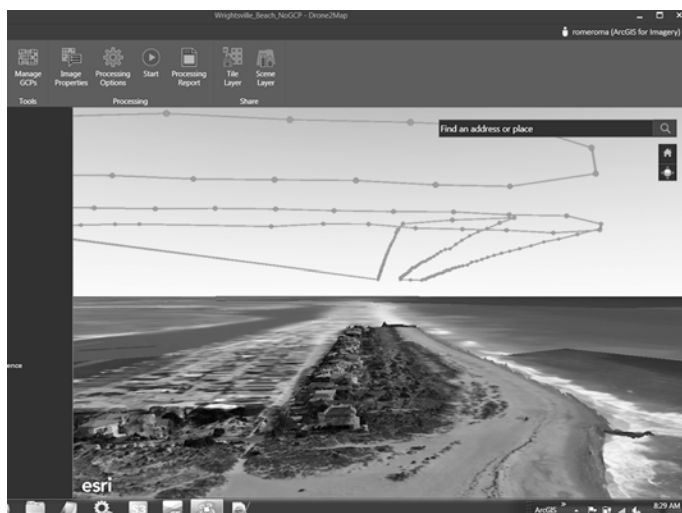
On May 16, 2016 during National Hurricane Preparedness Week, national engineering, surveying and planning firm McKim & Creed, Inc., headquartered in Raleigh, North Carolina, teamed with Redlands, California-based Esri, the world's largest geographical information systems (GIS) company. The two companies performed a proof of concept



McKim & Creed field crews collected blind checkpoints at the site to independently verify the accuracy of the UAS data.

(POC) to determine if UAS technology could provide coastal communities with a faster, more cost-effective, and more environmentally friendly way to produce beach monitoring surveys.

Representatives from local, state and federal agencies,



The data was processed in Esri's Drone2Map software. Blue dots represent the location each image was taken and the 3D model is laid over existing imagery.

as well as UNC Wilmington, Audubon Society and NC Land Trust, were onsite to observe the test flights and data collection. The processed data and results of the study were presented to the observers the following day.

The Site

The test site for the UAS POC covered approximately 100 acres along Wrightsville Beach, North Carolina and included two rock jetties. This area is prone to erosion and is surveyed regularly to accurately measure and map the erosion and determine the urgency of beach renourishment programs. Such erosion can cause costly property damage and disturb environmentally sensitive shore bird nesting areas.

The Technology

The POC showcased Esri's Drone2Map software, which



The test site included two rock jetties. The inset is the 3D model produced from the UAS data, and the background image is a photo of the jetty taken by the drone.

processes imagery collected by UAS into an accurate, usable dataset that can be seamlessly imported into Esri's GIS mapping platform. McKim & Creed, which was operating under FAA Section 333 and has a long history of performing coastal surveys using conventional methodologies, performed the UAS data acquisition. This included filing a flight plan with the FAA, setting ground control, working with the local municipality to help secure the test areas during the data collection, and flying the site.

McKim & Creed conducted four data-collection flights. Two flights were flown with the 3DR Solo UAS equipped with a Sony R10C camera with 16-mm prime lens (operating altitude of 400 ft. above ground level [AGL], 1.21 inches ground sampling distance [GSD]). To compare the accuracy of various drone cameras, one flight was flown using a Solo/GoPro Hero 4 Black edition setup (400

	CONVENTIONAL SURVEY	TERRESTRIAL LIDAR	AERIAL LIDAR
ACCURACY	UAS is within 4 cm on control points	UAS is within 2 cm of LiDAR specifications	UAS is within 2 cm of LiDAR specifications
COST	UAS is 30% less expensive for competitive project	UAS is 15% less expensive for competitive project	UAS is 60% less expensive for competitive project
TIME	UAS captures greater detail in less time	Similar mobilization & coverage, faster collection & processing	Similar mobilization & coverage, faster collection & processing
ENVIRONMENT	Onsite naturalists confirmed that bird nesting habitats were not disturbed when using UAS.		
OVERALL	the POC indicated that UAS outperforms conventional technology by producing a more detailed digital elevation model at a 60 percent savings in time and cost. It's resource conservation at its finest.		

The UAS data was compared with data collected of the same site via terrestrial LiDAR, aerial LiDAR and conventional surveying. Overall, the POC indicated that UAS, a highly accurate, non-invasive technology, outperforms conventional technology by producing a more detailed digital elevation model at a 60 percent savings in time and cost. Just as importantly, it does not disturb wildlife and bird habitats.

ft. AGL 2.44 inch GSD), and another was flown with a Phantom 4 (200 ft.AGL 1.01 inch GSD). The same day, a federal agency used terrestrial LiDAR to collect data in the same area.

To verify accuracy, McKim & Creed field crews surveyed 14 targets on the beach using virtual reference station (VRS) double occupancies, and collected 22 blind check shots in random locations.

Esri processed the data using its Drone2Map software, and compared it with data collected via aerial LiDAR, terrestrial LiDAR and conventional surveying on the basis of accuracy, cost, delivery time and environmental efficacy.

The Results

The data comparison showed that, in the correct environmental conditions such as open beaches or moderately vegetated berms and basins, UAS outperforms conventional services by producing a more detailed digital elevation model (DEM) more quickly and at a lower cost. Specifically, the 3D results provided an accuracy of 2.5 centimeters (about one inch), which far surpassed the conventional accuracy of approximately 6.5 inches.

With UAS the McKim & Creed/Esri team was able to provide a detailed elevation model with 3D points every few inches, rather than a more traditional map showing cross sections every few hundred feet. Overall, the team estimated that UAS provided up to a 60 percent savings in time and cost when compared to conventional techniques for beach monitoring surveys. UAS also required fewer people, offered greater safety to crews, provided higher accuracy, produced a faster deliverable, and did not disturb bird nesting or other coastal wildlife habitats.

The data that was collected was used to create a profile of Wrightsville Beach's pre-hurricane season condition, which can then be compared to a profile developed in the event of a storm. A federal agency was able to use the UAS imagery collected from the jetties to verify work that had recently been conducted by a subcontractor. Using the UAS imagery, the agency determined that most new rocks had been placed correctly; however, some were not. This allowed the agency to return to the contractor to make the necessary corrections. It would not have been possible to quickly gather this information by any means other than UAS.

About McKim & Creed: McKim & Creed is an employee-owned engineering, surveying and planning firm with nearly 400 staff members in offices throughout the U.S., including North Carolina, Florida, Virginia, Georgia,



The POC team in a photo taken by the drone. The UAS proof of concept was named the "2017 Grand Conceptor" engineering excellence award winner by the North Carolina Chapter of the American Council of Engineering Companies. The Grand Conceptor is highest award given in the engineering excellence awards program.

Texas, and Pennsylvania. McKim & Creed specializes in civil, environmental, mechanical, electrical, plumbing, and structural engineering; industrial design-build services; airborne and mobile LiDAR/scanning; unmanned aerial systems; subsurface utility engineering; and hydrographic and conventional surveying services for the energy, transportation, federal, land development, water and building markets. The firm was recently ranked the #1 surveying and mapping firm in the U.S. by ENR Southeast magazine. For more information about McKim & Creed, visit www.mckimcreed.com.

About Esri: Esri is an international supplier of geographic information system software, web GIS and geodatabase management applications. www.esri.com.



Christian Stallings holds a Masters in Geographic Information Technology and Graduate Certificate in Remote Sensing and has extensive instruction in Advanced LiDAR Data Processing and Advanced Production Workflow from Penn State. He is responsible for overseeing LiDAR production operations and the Unmanned Aerial Systems program at McKim & Creed.



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How May I Help You?

by Ken Mills, PLS

This is one of my favorite types of phone calls. The characters are not real and any semblance to someone you know is an accident. Of course, I'm sure everyone will recognize the scene as one you've been through over and over again.

Mr. Sam Johnson is in his office working on a proposal for a five-acre boundary and topographic survey that some nitwit needs completed tomorrow. While he's deep in thought, the phone rings.

He reaches for the phone without thinking. "Johnson's Land Surveying, how may I help you?"

"Yes, my name is Mrs. Needy, and I want one line of my property lines surveyed. I've taken tomorrow off from work so I can be here when you come out. I also want to know how much it will cost. My friend at the bank said it shouldn't cost more than one hundred dollars."

Sam leans back in his chair and runs his hand down over his face. *Great, the bank has struck again. It will cost at least one thousand dollars*, he thinks to himself. "I'm sorry Mrs. Needy but I can't come out tomorrow. I have a long list of clients and couldn't possibly do your survey for at least four weeks."

Silence descends over the phone line.

"Mrs. Needy, are you there?"

"Yes, I was thinking." Ten more seconds pass. "You were highly recommended by a friend of mine and I'd still like for you to mark my boundary line for me."

Sam reaches for a pad of paper and a pen. "Okay, Mrs. Needy, I'll need a little more information on your property and why you need the boundary line survey." He writes her name at the top of the page and draws a line under it. "First, what is the address of your property?"

"I live at 251 Haywood Street."

Since Sam has lived in the town all of his life and has operated his surveying business for twenty-two years, he's familiar with the area she named. He adds this information to the note pad.

He knows from past surveys in the same area how difficult it could become. *Make it one thousand, two hundred dollars*, he thinks.

"Okay, Mrs. Needy, which boundary line do you need surveyed?"

"The side where Mr. Potter lives."

Sam adds that to the note pad. "Are you planning to put up a fence?"

"No."

"You just need to know where that one boundary line is located."

"That's all."

"Well, how large is your property?"

"I don't know, but it's not real big."

"I know the area, Mrs. Needy, and it's difficult to find existing corner markers in order to complete an accurate survey. Since I'll have to survey your entire property and look for additional supporting markers on both sides of your property, would you like a complete survey with the location of your house and other improvements such as fencing and the driveway?"

"Why do you have to survey all of my property when all I need is one line marked?"

"If we find a corner marker at both ends of the line, we can't tell if they are in the correct location without supporting proof from other corner markers. Hopefully on both sides."

"I know the markers are correct because my father showed me where he put them."

Make it one thousand, five hundred dollars, Sam thinks. "Still, Mrs. Needy, the surveying standards in this state require me to find other markers so I can prove the ones your father showed you are correct."

"Well, okay, I only want what's mine."

Sam closes his eyes as his chin drops to his chest. *She only wants what's hers. The kiss of death*, he thinks. *I'll never get it right in her eyes even if I find all the original corner markers.*

"When you come out I don't want you to tell Mr. Potter what you're doing."

Here comes the real reason she wants a survey. "Why not?"

"Well, he put up a shed beside his house and it's on my property. I've told him to move it and he's been very rude to me."

One thousand, eight hundred dollars.

"Mr. Potter has a shed on your property?" Sam asks in a subdued voice.

"Yes, he does and I'm going to use your survey to make him take it down."

Two thousand dollars.

Sam takes a deep breath and concentrates on slowing his heart rate. He notices a slight tremble in his right hand and begins flexing his fingers. "What if I find out the shed is on his property?"

"It's on my property. I know it is," Mrs. Needy replies

forcefully.

"Well, if it is, you'll need a lawyer to file a lawsuit against him. Otherwise, he won't move the shed," Sam states.

"I'll hire someone to take it down."

"He could have you arrested for damaging private property."

"He can?"

"Yes."

"Well, I'll just hire a lawyer then."

Two thousand, two hundred dollars.

Sam swallowed the lump in his throat. "Well, I'll do the best survey I possibly can, but I can't change the boundary evidence I find. If his shed is on his property, there's nothing I can do."

"I understand. Now, how much will the survey cost?"

A slight smile appeared on Sam's lips. "Two thousand, five hundred dollars with the map your lawyer will need." There was silence on the phone, so Sam continued. "If the case goes to court, my fee as an expert witness will be one hundred dollars an hour for any meetings required with your lawyer, review of the survey data prior to testifying in court, preparing court exhibits for the jury to view and for my time in court."

When Sam heard a swallow on the other end of the phone, he leaned back in his chair and began to relax.

Mrs. Needy cleared her throat. "Well, I didn't realize

it would be that expensive. My friend at the bank said it shouldn't cost more than one hundred dollars."

Great, let the banker survey your property, Sam thinks. "The type of survey services you'll need are not cheap."

"Well, yes. Let me think about it and I'll call you back."

"We require a 50% retainer before we add a name to the survey list and the balance when we deliver the survey map. Call back soon. As I mentioned earlier, the list is getting longer every day."

"Yes, I'll do that. Thank you for your information. I'll call back. Goodbye."

"Goodbye."

Sam placed the phone back on the cradle, picked up his cup of coffee and took a sip. *Thank goodness she'll never call back,* he thought, and went back to the proposal.

The End

He hopes!



Ken Mills became a PLS in 1975. He has been an active member of NCSS, serving three terms as the Western Chapter President. He served as the NCSS President in 1998. Mills co-authored *Following in their Footsteps* with Otis A. Jones. He has written for *American Surveyor Magazine* and is a columnist for *Madison County's News-Record & Sentinel* newspaper.

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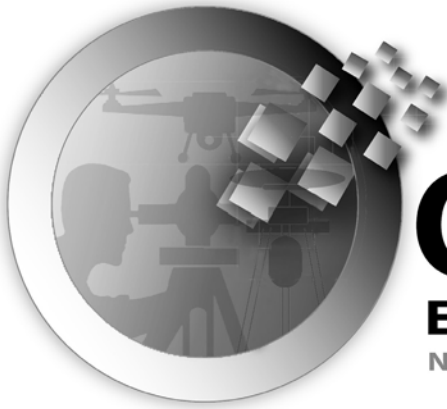
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Surveying Professionals Continue to Grow Through Continuing Education

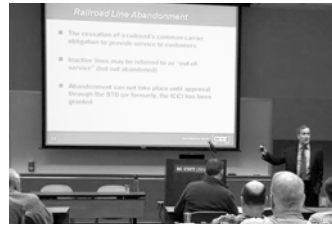
by Elisabeth (Lissa) G. Turner, PLS

Do you need to get your PDHs for the year? Wouldn't it be great to earn nearly two years' worth of hours in just a few days? If your answer is "yes" to these questions, I have a tip for you. The Otis A. Jones Educational Institute can take care of your needs. The Otis A. Jones Educational Institute, or just "The Institute" for those in the know, offers a wide selection of first-rate courses taught by experts and leaders in the survey world. Most of you have heard of The Institute through the Tarheel Surveyor, emails from the NCSS staff, and the registration brochure that shows up in the mail every couple of years. Have you gone yet? I would highly recommend everyone take advantage of this event held biennially in the fall.

What I like about the Institute is its main purpose, namely, continuing education. There are no sales pitches to listen to or social events to attend. We are there to learn and not just from the speakers, but also from our peers who offer their own wide-variety of experiences and opinions, as well as concerns about the future of the survey profession. In November 2016, I attended the full three days of classes for Section C – Emerging Issues. The first day was packed full, beginning with Christian Stallings, GISP of McKim & Creed, teaching the fundamentals and applications for LiDAR & Photogrammetry. He

explained how digital imaging is changing the techniques of photogrammetry, while the concepts remain the same. Digital photogrammetry, whether performed by plane or UAV, still requires a significant amount of understanding of the cameras & lenses, as well as, the principles of light and optics. As easy as it looks to fly a drone with a camera, there are still best practices that should be followed for mission planning, setting ground control, collecting, analyzing, and editing the data to ensure you are delivering a product that is reliable to use for its intended purpose. Mr. Stallings reviewed the standard LiDAR process, the ways the data can be acquired, and when it would be of beneficial use. He rounded out the discussion with the different variations of UAV equipment and what to consider if you are thinking of purchasing one.

The first day was extremely informative, so I was anxious for day 2 of Emerging Issues and the next round of speakers. Up first, Gary Thompson, North Carolina Chief Geodetic Surveyor, gave us an update on North Carolina Geodetic Survey. He reviewed the number of CORS stations currently in operation, the EDM baseline locations, and the NGS tools. He also recommended a great on-line resource, the Flood Inundation Mapping and Alert Network website (FINMAN.nc.gov). This resource provides rain and flood stage gauge data, flood inundation maps, flooding impacts, and alerts in real-time to support risk-based decisions regarding flooding. Next, Frank Mundy, PLS & Dustin Manning, Manager of Geomatics Technology, both of Stewart Engineering, spoke with us about phase based laser scanning. They discussed the field and office software used for collection and analysis of the data and for creating the final 3D surface model. They used some of their actual projects as examples of real world applications for this exciting technology. David Bowers, a Trimble Certified Technologies Trainer for Duncan-Parnell, managed to keep us awake for the remainder of the day. The enthusiasm he brought to his topic, Project Workflows & GPS, and his impressive knowledge made it clear we were continuing to gain the knowledge for which



we had come. He explained the uses of VRS with RTK, how it works, and the importance of having established standard field procedures to follow. He reviewed the procedures for site calibration (or localizations) with GPS observations. Machine Grade Control, while not brand new, is quickly becoming much more common in construction. Mr. Bowers explained how it works and the roles and responsibilities the surveyor must still perform for MGC projects.

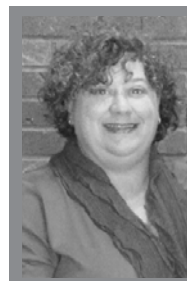
Arriving at day 3 of Emerging Issues, I knew it would be another great day of learning. Kris Nixon, PLS of Meridian 3D gave us a good look into the not so distant future. Mr. Nixon is a dynamic speaker with an incredible project portfolio of laser scanning experience. His story about how he came to be an expert in laser scanning, BIMS, and 3D CAD Modeling was amazing and inspiring. He showed us a number of unique projects he has done around the world; some are so large that it is hard to imagine. It was easy to see that his success was not only due to his hard work, but also to the great respect he shows to his clients and employees. He makes sure that they have the training they need and the tools necessary. He provides valuable software and training to his clients so they can make use of every bit of information he provides. As an unexpected treat, I got a chance to walk through the interior of an industrial building from one of his projects on his Virtual Reality system! As the day progressed, the classes kept with the emerging issues. Kyle Snyder, the Director of NGAT at ITRE, was up next and he gave us an update on the status of UAV research and testing. He provided a number of on-line resources to keep abreast of UAV news and regulations including knowbeforeyoufly.org, assureuas.org, and auvsi.org, as well as sharing aspects of the main FAA website. He also explained that the FAA plans to develop a smartphone app which will tell you where you can fly a drone with a camera. Richard Mankin of Go Unmanned, a Division of Benchmark, finished our day by discussing the current FAA Commercial UAV Requirements referred to as Part 107. He reviewed the many things to consider before getting a drone and the steps to take towards being a licensed operator. He shared valuable tips for safe operation of commercial UAVs.

In addition to the classes on day 3, Section C included an open forum. The forum was moderated by Chad

Howard, President of NCSS and a prestigious panel of guests including, Mike Benton, NCBEES; Dr. Jerry Nave, Professor of Geomatics at NCA&T; Kris Nixon, Principal of Meridian 3D; & Kyle Snyder, NCGAT. We had the opportunity to ask questions or raise concerns about our profession, education, licensure, and enforcement of rules and policies. The discussion took many turns and we quickly ran out of time. It was evident to all who participated that the conversation about emerging issues and communication with our peers must continue. We cannot sit on the sidelines hoping that emerging issues with technology and our profession will all work out. We must be active participants in the advancement of our field and the knowledge we acquire at the Institute.

Before I finish, I would like to reiterate that the Institute is all about continuing education. That means, in addition to the 8 hours of intensive classroom training, the Institute makes it possible for you to earn a PDH at lunchtime! There are guest speakers at each lunch break which allows you to attain 9 PDHs in one day or a bargain, 27 for all three days! The course topics and speakers change with each biennial fall session, so there is not much repetition from year to year. From a value stand point, it is well worth the time and money to attend just for those reasons. However, when you factor in the peers you get to meet and the friendships fostered, you can't beat it! I am planning on attending next year and will continue in years to come.

Lastly, I encourage each of you to attend the Institute as often as you can and to participate in your local chapter of NCSS whenever possible. We need to keep our skills polished while keeping abreast of the current issues affecting the surveying industry in North Carolina, and the Otis A. Jones Educational Institute is a great way to do that while supporting the North Carolina Society of Surveyors. I hope to see you there!



Elisabeth (Lissa) G. Turner, began her surveying career in 1999 as a rod woman and instrument operator in Asheville, NC. Lissa received her Associate Degree in Surveying Technology from AB Technical Community College in 2001 and became a PLS in 2003. She co-founded Turner Land Surveying, PLLC in January 2009 with her husband, David, who is also a PLS. They live in Swannanoa, NC with their cat, Ashes.

MEMBER PROFILE

Donald H. McNeil



Current Position

Appalachian Professional Land Surveyors & Consultants, PA

Most Recent Purchase

My biggest recent purchase was a 2014 F150. As far as surveying equipment, I bought a Leica robotic instrument to replace one that got blown over in a heavy wind. At least that is what the crew said; but to be fair, we did have some high winds that day.

First Job

I worked on my grandfather's and uncle's poultry farm. I helped gather hay and eggs, cleaned out the chicken houses and fed the cows. I can't imagine a better way to grow up.

Favorite Movies

O' Brother, Where Art Thou

Childhood Ambition

I wanted to be John Wayne or Roy Rogers. My cousins and I played on the farm and in the woods all the time. Cowboys and Indians were what we played most. The grace of God protected us from getting hurt or worse.

Favorite Surveying Equipment

You can't beat a bush ax or machete. It is amazing how much stress you can get rid of in a day of cutting line.

Areas of Service within NCSS

Donald has served as Secretary/Treasurer of Northwest Chapter and twice served as President of Northwest Chapter. Currently, he has completed his first year as Secretary/Treasurer of NCSS.

Even though Donald had never worked for a surveyor, he decided his senior year in high school that he wanted to study Forestry and Land Surveying. "I can credit this influence to a man that would eventually become my father-in-law," Donald remembers. He applied to the School of Forestry at North Carolina State University (NCSU) and was accepted. While acquiring a BS in Forest Land Management, he took surveying courses through the School of Forestry and the Engineering School, graduating in 1976. Upon graduating from NCSU, Donald began working with a Professional Forester and then began surveying for his current business partner, Frank L. Hayes. That was 40 years ago in March 1977. Donald worked for Frank until late 1981 when he began working with Ronald Carpenter, who served on the Board of North Carolina Board of Examiners for Engineers and Surveyors (NCBEES) during the years of his employment.



Donald & wife Karen



Donald & Karen have 8 grandchildren.

Donald received his license in the spring of 1982 and continued working for Ron until 1984, when Frank Hayes, Russell Shaw and Donald became business partners. They were partners until 2000 when Russell opened his own business, but Donald and Frank have continued in their partnership known in Watauga County as Appalachian PLS & Consultants, PA. They have a small firm in Boone, NC with seven employees. Donald reflects, "I have continued through the years, building my professional portfolio with skills in the surveying field including boundary, topography, control, construction, subdivision design & development." Donald is married to Karen McGee McNeil and they have just celebrated their 40th anniversary. Donald and Karen have three grown children, Joshua, Jennifer, and Julie Ann. They also have eight grandchildren. Kaylee, Karey, Kenleigh, and Kole belong to Joshua and his wife Kristina. Jennifer and her husband Devin have Guenevere and Gabriel. And finally, Coda and Corwin belong to Julie and her husband, Chris.

Donald loves to spend his free time (when he has any), hunting and camping.

Carlson Software Tip of the Day...

Drawing Inspector

Carlson's Drawing Inspector is a transparent command that can be toggled on and off as needed. The command is available in all Carlson desktop software programs under the Inquiry menu.

Drawing Inspector can be configured to display object properties at the cursor location simply by hovering your mouse over objects.

Some of the properties that can be displayed are: Layer Name, Elevation, Azimuth-Distance, Bearing-Distance, Point Data, Text Data, Curve Data, Polyline Data or Polyline Direction. One of the cool things is that properties like Bearing-Distance and Curve Data will report on individual arc or line segments even if they're part of a polyline.

After toggling Drawing Inspector ON, right-click in the drawing area to change the properties that are displayed.

Visit www.thatcadgirl.com for more helpful tips

Keyboard Enter
Exit Menu
Turn Off Drawing Inspector
✓ Display Layer Name
Display Entity Type
✓ Display Elevation
Display Angle-Distance
Display Point Data
Display Text Data
Display Curve Data
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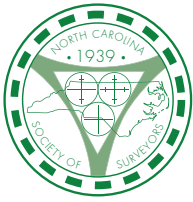


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The graphic features the word "GOLF" in large, bold, black letters. The "O" is replaced by a white golf ball with orange dimples, which sits on an orange tee. The text "MAY 19th" is written in orange on the golf ball. Above the "SS" in "GOLF", the letters "NCSS" are written in orange. Below "GOLF", the word "TOURNAMENT" is written in large, bold, black letters. In the top right corner, there is a black silhouette of a golfer in mid-swing. The entire graphic is set against a blue background with a subtle pattern of small white dots.

GOLF TOURNAMENT

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