

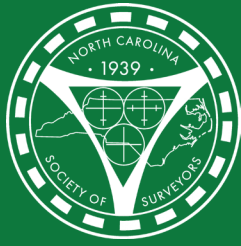
The Tarheel SURVEYOR

FALL 2022 No. 22.2



THE CONVERSIONAL NORTH
LINE OF GEORGIA
P. 14

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BLAZE NC'S TRAILS
P. 18



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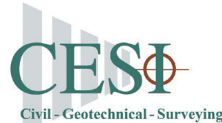
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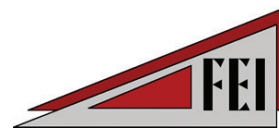
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The Tarheel SURVEYOR Fall 2022

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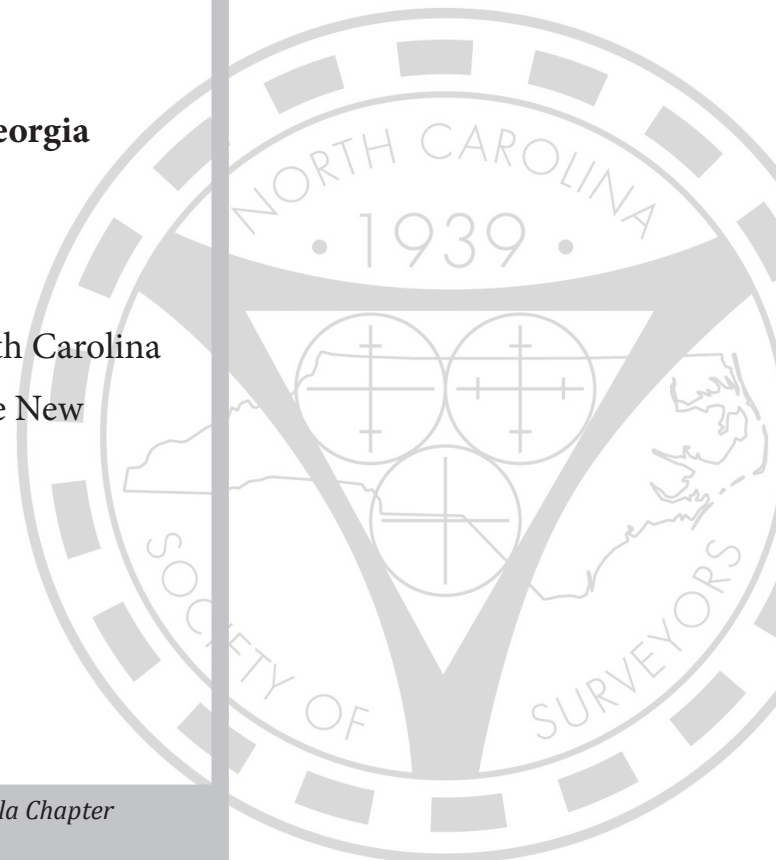
ABOUT NCSS:

- 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 & Jake Stephens of the Nantahala Chapter



WHO WE ARE

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CHAPTER MEETINGS

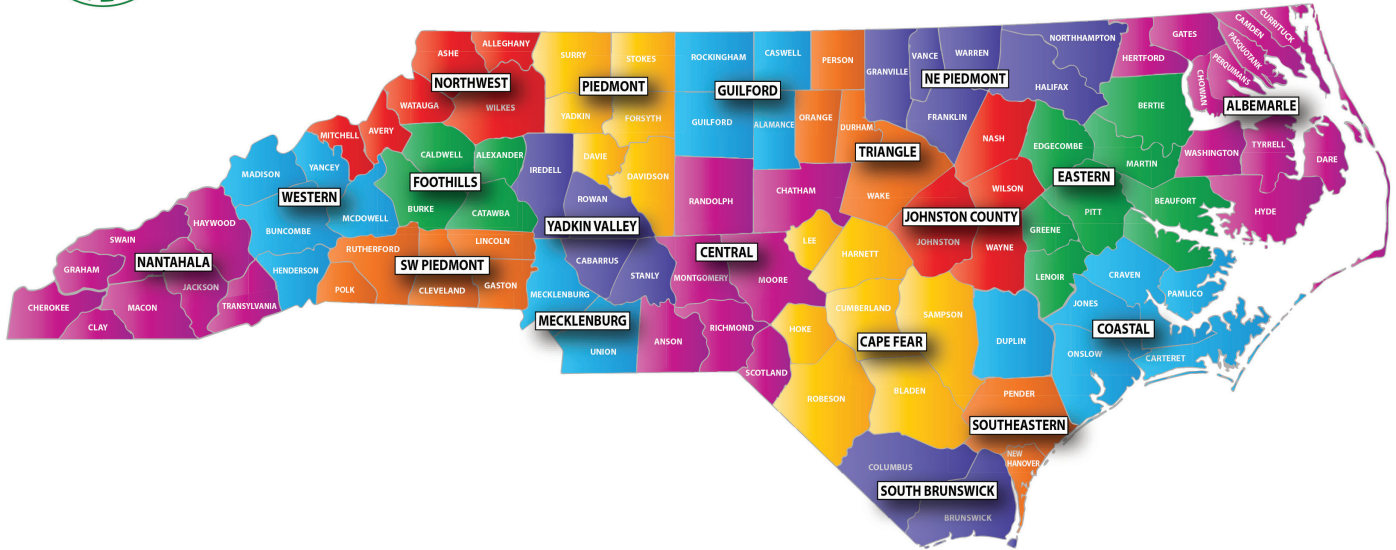
CHAPTER	DATE & TIME	LOCATION
Albemarle	4th Tuesday 6:30 pm	Various Locations, NE Counties
Cape Fear	Last Thursday 6:30 pm	Various Locations, Fayetteville
Central	Last Tuesday 6:00 pm	Blake's B-Que, Candor
Coastal	Last Monday 6:30 pm	Sagebrush Steakhouse, Morehead City
Eastern	2nd Monday 6:30 pm	Parker's BBQ, Greenville
Foothills	2nd Tuesday, 7:00 pm	Timberwoods, Morganton
Guilford	Various Times	Various Locations
Johnston County	2nd Tuesday 6:00 pm *no meeting Jun-Aug	Various Locations, Smithfield
Mecklenburg	1st Tuesday 6:00 pm *no meeting Jul-Aug	Dilworth Grille, Charlotte
Nantahala	3rd Tuesday 6:30 pm *no meeting Jun-Aug	Various Locations, Sylva
NE Piedmont	4th Tuesday 7:00 pm	Johnny Bulls, Louisburg
Northwest	3rd Tuesday 6:00 pm	Various Locations, Boone & Wilkesboro
Piedmont	4th Tuesday 6:00 pm	Foothills Brewpub, Winston-Salem
Southeastern	Last Wednesday 7:00 pm	Various Locations, Wilmington
South Brunswick	Last Friday 12:00pm	Chance's Steak & Seafood, Shallotte
SW Piedmont	2nd Thursday 6:30 pm	Fisherman's Feast, Shelby
Triangle	3rd Tuesday 6:30 pm	Wilsons Eatery, Raleigh
Western	2nd Tuesday 6:00 pm	Various Locations, Asheville
Yadkin Valley	2nd Wednesday 6:30 pm	Pancho Villa's, Salisbury

Please contact chapter president to confirm meeting details before attending.



NCSS CHAPTER AREAS

There are 19 local chapters of NCSS located throughout the state of North Carolina that meet regularly. These meetings are a great way to stay up to date on the latest issues affecting surveyors in the state. If you are not currently attending your local chapter meeting, we would like to encourage you to get involved.



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DIRECTOR'S NOTES



Surveyors are busy! Perhaps even too busy to take the time to read this article. But if you do, I want to take a moment

to celebrate the payoffs of NCSS volunteers! Only members receive The Tarheel Surveyor, so I know my audience consists of those who care. Your dues contribution is the most significant support you can give to your profession outside of performing your daily duties with excellence. We understand it is voluntary. Anything we accomplish at NCSS is because of your membership dollars. But there are other payoffs because you volunteer your time and talents.

First, you have an entire slate of educational opportunities across North Carolina because Chapters have put in the work to host professional development hours for their peers. Eleven Chapters are hosting classes offering a total of twelve classes this fall in your collective backyards! Please reward those hardworking Chapter volunteers by joining them for meetings and sharing the workload. Many hands make the load light.

Second, membership continues to increase because many of you communicate the benefits within your offices and to those whom you mentor. The Associate member category continues to be exciting to watch. You are bringing your associates to our annual conference and encouraging them to participate in the exam reviews and other courses that may benefit their professional development. Thank you for the grass-root volunteer effort that surpasses our best marketing efforts.

Third, the NCSS Annual Conference continues to thrive with exciting

destinations, speakers, and networking opportunities – not to mention a valuable grand prize giveaway! The 2022 Pinehurst event was electric! Licensees, students, associates, and spouses had a great time learning and socializing. Thanks to those volunteers who serve on our Conference Committee each year, making this an exciting annual event for surveyors. We are thrilled to host our 2023 Conference at Harrah's in Cherokee, NC. The excitement is already bubbling, leading me to add room nights to our block. Book early!

Fourth, our workforce development endeavors, partnered with our lobbying efforts, are paying off. The National Council of Examiners for Engineers and Surveyors (NCEES) has completed the market research they've been working on for more than a year, developing a five-point plan supporting state associations as we recruit new professionals.

After Senate Bill 219 (S219) was engrossed into law, the Survey Subcommittee of the North Carolina Board of Examiners for Engineers and Surveyors (NCBEES) worked hard to make clear pathways for those who may now choose an apprenticeship route into surveying. The surveying profession is well-represented by our Governor appointed volunteers Mike Benton, John Logsdon, and Andy Zoutewelle. I, for one, appreciate how they have kept NCSS in the loop through the entire process.

Finally, I want to welcome our newest set of volunteers with the formation of the South Brunswick Chapter of NCSS. A group of six to eight surveyors began meeting for lunch once a month and have decided to make their efforts official by participating with the goals of NCSS and offering surveyors in the southeast corner of our state a place to network and grow.



Schedule at a GLANCE

NOVEMBER 11, 2022

**Yadkin Valley
Chapter Partnership**
8:00am-4:30pm
7.4 PDHs
Gold Hill, NC

NOVEMBER 18, 2022

**Johnston County
Chapter Partnership**
8:00am-4:30pm
7.4 PDHs
Clayton, NC

NOVEMBER 18, 2022

**Western Chapter
Partnership**
8:00am-4:30pm
7.4 PDHs
Mills River, NC

DECEMBER 2, 2022

**Piedmont Chapter
Partnership**
8:00am-4:30pm
7.4 PDHs
Winston-Salem, NC

DECEMBER 2, 2022

**Triangle Chapter
Partnership**
8:00am-4:30pm
7.4 PDHs
Raleigh, NC

DECEMBER 9, 2022

**SW Piedmont Chapter
Partnership**
8:00am-4:30pm
7.4 PDHs
Shelby, NC

Contact Steve Norris if you are interested in joining their meetings. Contact information is on page two of this magazine.

These are the payoffs brought by NCSS volunteers. Some of you play a more prominent role than others, but there is a small role for everyone. If you are interested in one of the areas above or have another idea for supporting North Carolina surveying, contact a member of our Board of Directors or me. We'd love to have you share the success.



Christy C. Davis
NCSS Executive Director

NSPS Memorandum of Understanding

In 2012, NCSS agreed to partner with the National Society of Professional Surveyors (NSPS) to foster membership on both the state and national levels. As a result, your membership with NCSS now includes dual membership with NSPS.

Read the MOU on our website at:
www.ncsurveyors.com/about_ncss/governing_documents/nsps

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LETTER FROM THE PRESIDENT



How time flies. The world has traveled half way around the Sun since our conference at Pinehurst and we have entered autumn. I love autumn. The cool, crisp mornings and temperatures that make it bearable to work and play outside again. It really is my favorite time of year. My time as president of the Society is passing quickly and I want to take a moment and thank everyone for the support and help in the past 6 months. Due to the efforts of our staff in Wake Forest and the volunteers who serve as chapter presidents and committee members, the Society will continue to thrive.

Some of the highlights in the last six months are the addition of a new chapter in the southeast section of the state and recommending one of our members to the Board of Examiners. The new South Brunswick Chapter, which includes Brunswick and Columbus counties, took a seat at the table during the Summer Board of Directors meeting. I would like to welcome Chapter President, Steve Norris and the members of South Brunswick to the table. One of the great pleasures I had this year was writing a letter to Governor Roy Cooper nominating Tim Bowes to the North Carolina Board of Examiners for Engineers and Surveyors (NCBEES). If appointed, Mr. Bowes would replace Mike Benton, whose term will expire in December, as a representative of the surveying committee. I would like to thank Mr. Benton for his years of service on NCBEES and hope that we will continue to see him at our board meetings in the future.

Another item that I am happy to report is that the Society is well prepared if we enter a recession in the next months or year. Thanks to Jerry Callicutt, Cliff Johnson and all the members of the Finance and Budget Committee who have worked on this plan, the Society is in a good position if the worst happens. Thanks, gentlemen, for all you do. Back in February, I laid out some goals for the coming year. We have been moving forward on some, and a little behind on others. Past President, Peter Brennan has been working with his committee to review the bylaws and policy manual for updates. We hope to have that committee's recommendations at the next Board meeting.

In closing, we still have much to do in the next six months. We need to continue finding members of the House and Senate to help with the Society's legislative goals. Additionally, we need to continue looking for partnerships and avenues to recruit new folks into our profession as both professionals and technicians. On both issues, please let our staff know if you have suggestions or ideas on how to achieve these goals. Lastly, we are working hard to prepare for next year's Conference at the Harrah's Cherokee Casino. If you plan to attend, please make your reservations as soon as possible to ensure you can get a room at our group rate. Again, I would like to thank everyone for your support.

A handwritten signature in cursive script that reads "Jerry W. Nave".

Jerry W. Nave
NCSS President

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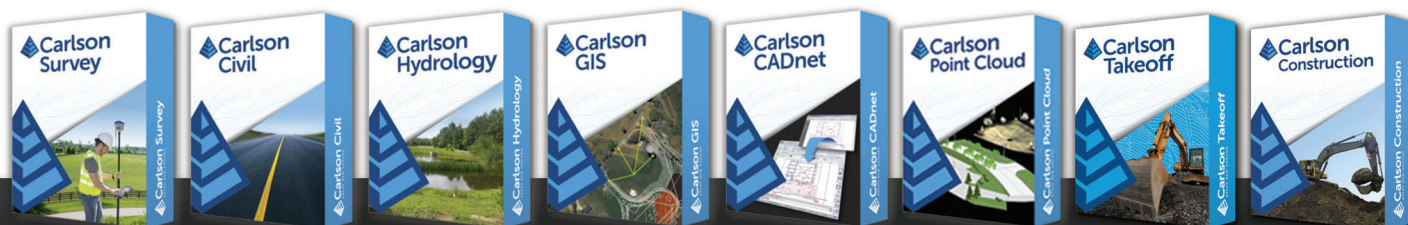
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NSPS North Carolina Report

by Jim Craddock, PLS



Since the fall meeting of NSPS is not until October 12th through the 15th, I am unable to give a report at this time.

However, I have not been idle. I have attended several meetings of the NSPS Workforce Development Committee. The NSPS website states the following under the Workforce Development Committee:

“Workforce Development has been recognized as a key factor for the Future of Surveying initiative.

Workforce Development is a broad issue which will not be successful if only one organization or a few people are involved.

Workforce Development is defined as identifying and preparing those who will perpetuate the surveying profession and other geospatial activities. Among the activities essential to the process is identifying educational, training, and mentoring opportunities.”

The committee has been hard at work developing a PowerPoint presentation which can be used by state member organizations and even individual businesses to speak with high school students about surveying. The plan is to have a presentation which can be modified to meet local needs using a minimal number of slides.

The PowerPoint includes photos and talking points about different aspects of surveying.

1. Historical Surveyors
2. How Surveying Has and Will Change the World
3. Exciting Technological Innovations (GPS, Drones, LiDAR Scanners, and Even Robotic Dogs)
4. Boundary Surveys
5. Construction Surveys
6. Data Collection and Mapping
7. The Impact of Surveying on Resource Management and the Environment
8. Salary Ranges

We are even hoping to embed a video if possible.

We are very close to completion of this PowerPoint and will be presenting it to the NSPS Board of Directors at the fall meeting.

I am also a member of the NSPS Certified Floodplain Surveyor (CFS) Committee. The committee has been working with the New England states to install a CFS program. NSPS has agreed to keep the records of the CFS Certifications to help smaller states administer the details. The CFS program began in North Carolina in 2002. North Carolina currently has 123 Certified Floodplain Surveyors.

They are having a class in Boston, Massachusetts (Worcester) in November. Five states are participating: New York, Rhode Island, New Hampshire, Vermont, and Maine. They had a cut-off of 40 students and hit that number early on.

I look forward to being able to give you more information from the Fall NSPS Board Meeting at our NCSS November Board of Directors Meeting.



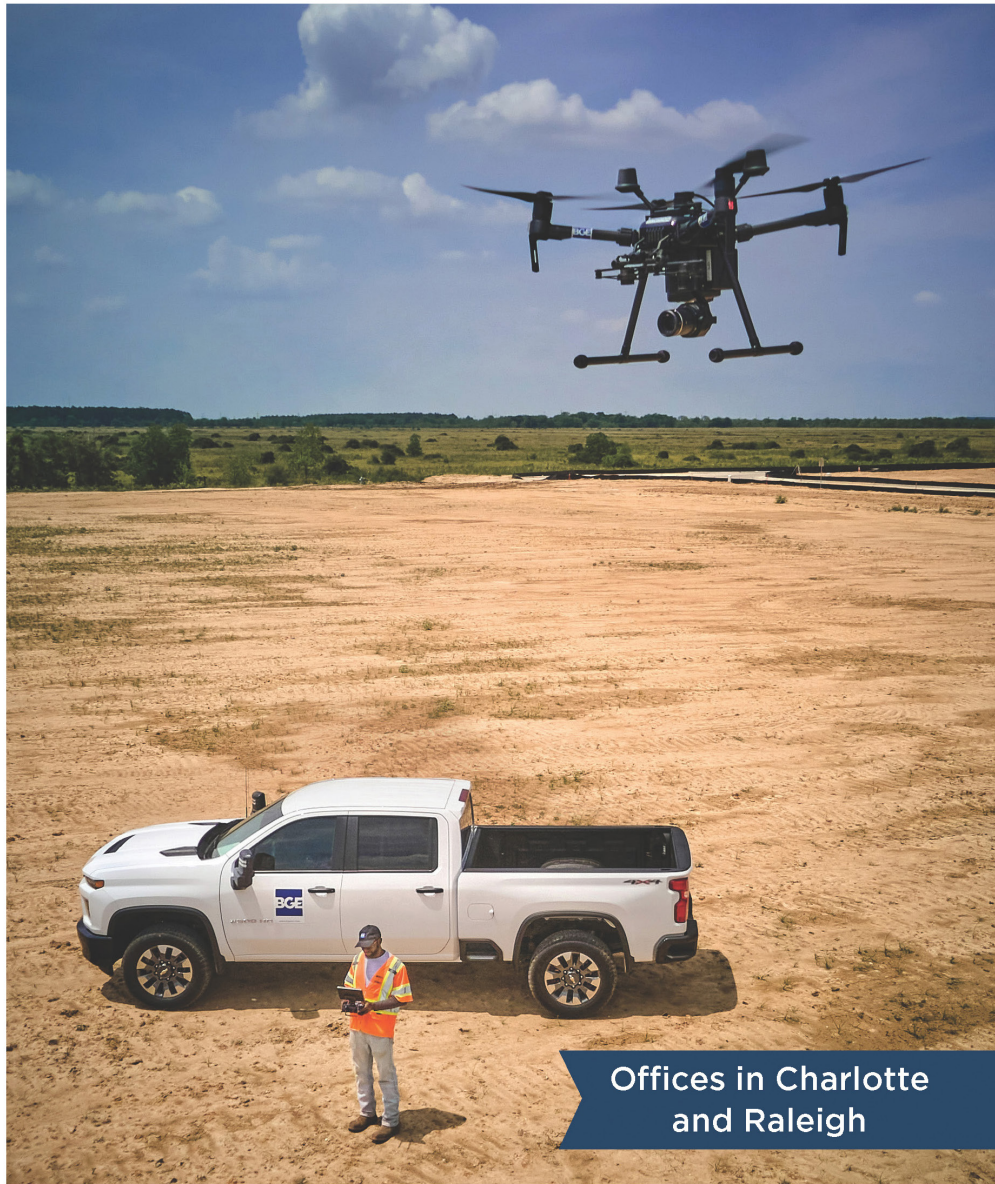
Jim Craddock began his surveying career in 1974. He became President of Concord Engineering and Surveying in 2018. He was elected to serve as the NSPS NC Director in 2021. As a member of NSPS, he serves as a member of the Unmanned Aerial Systems Committee, the Certified Floodplain Surveyor Committee, and the Workforce Development Committee.



Jeff Todd
President

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More Than a Mentor

by J. David Lee II, PLS

Merriam-Webster defines mentor as a trusted counselor, guide, tutor, or coach. As licensed professionals, we have an obligation to our profession to be mentors to the next generation of surveyors. This responsibility is not a task we should take lightly. As we progress in technology, we still need to teach the surveying fundamentals. My mentor was the late James (Jimmy) M. Dennis, PE, PLS, and our relationship was where the technology and fundamentals collided.

Jimmy worked for the North Carolina Department of Transportation (NCDOT) as a Resident Engineer in Mecklenburg County. Jimmy hired me as a survey crew member in September of 1990. I remember the interview very well. It was in his backyard on a picnic table after he had finished mowing grass. I was fresh out of community college, having only one surveying class. I was an Architectural Drafting major. I started, of course, on the low end of the survey crew and worked my way up to Party Chief after about a year and a half. We primarily did the construction layout of roads and bridges with right-of-way and easement staking mixed in between. As I was working my way up, the NCDOT offered many self-study courses and in-house classes known as Fundamentals of Engineering (FEP) and Highway Engineering Concepts (HEC). Jimmy encouraged everyone to take advantage of the opportunities to improve their knowledge, and I did. In the late fall of 1992, Jimmy asked me if I would help him with boundary surveying on the weekends; of course, I said yes, and the beginning of a 32-year mentorship and friendship began.

Now, where do the technology and fundamentals collide? In about year two, I acquired an HP41CX calculator with a survey chip. Jimmy and I were surveying a large tract and keeping my notes in the field book. Every chance I got I would enter the data into my HP. It wasn't long before Jimmy started requesting information. Instead of me giving it to him the way we had always done it, I started using my new HP. Well, that information was not flowing out as fast as Jimmy wanted it, and he made the

comment to me that, "I needed to get rid of the calculator and get a slide rule." Needless to say, that did not help the information come any faster! As time passed, I got better with my HP, and things went smoother.

One day my wife and I were on vacation in Beaufort, NC, visiting an antique store. In the store were several slide rules for sale bringing back memories. I saw Jimmy the following week and told him I found a slide rule for sale. He wanted to know where I found it. I replied, "In an antique store!" What felt like five minutes to me was only a few seconds of awkward silence. Jimmy laughed and said, "Well you got me there!" At that point, I knew he wanted to use my technology as it increased our productivity. I don't think he knew how much I wanted to learn how to use the slide rule the same as I learned his old surveying methods.

The last time I saw Jimmy was in February of 2021. He was sitting in his living room with a map and a magnifying glass. I asked, "Jimmy, what are you doing?" He replied, "I am reviewing this map before I sign and seal it!" Jimmy went home to be with our Lord on October 19, 2021. He had been retired from the NCDOT for over 25 years but continued his love of surveying until he was not physically able. I will forever cherish our time together, the mentoring he provided, the lessons learned, the memories, and most of all, our friendship.

Mentoring is more than just the four descriptors used by Merriam-Webster. It's a life-long commitment to our profession as described in our new licensing requirements for all surveying experience to be under the direct supervision of a Licensed Professional Surveyor. It is where old methods meet new technology and friendships are solidified.



After working for the NCDOT for 7 years, David has spent the last 24 years in the private sector as Principal and Survey Program Manager, Geomatics Director and is currently serving as Division Manager over Transportation Surveys at ESP Associates, Inc. He currently serves as President-Elect of NCSS as well as President of the Education Foundation.

A New Era at NC A&T University

by Dr. Jerry W. Nave

As many of you know, Professor Peggy Fersner retired in May. So, I now have the duty of reporting to you on the health of the Geomatics program at NC A&T. Professor Fersner will be greatly missed by the students and myself as we move forward; however, she has agreed to teach some courses to assist us, for which I am extremely grateful. We have several updates to talk about, so let's get started.

The program at A&T continues to be strong with approximately 65 students this semester. Our students continue to excel at passing the FS and PS with three students reporting that they had passed the PS in the last month. The largest growth areas in the program have been through the support of firms and employers encouraging their employees to seek a degree, followed by students transferring in from our great community college programs. If you have employees that are thinking about licensure, I encourage you to have them talk with us to help develop a plan for future success.

It has been six years since we received our ABET accreditation and it is time for our first review. The faculty and staff have been working hard over the summer in preparation for the visit in November. For those who may not know, ABET is the accreditation agency that reviews surveying and engineering programs around the world to ensure the quality and continuous improvement of programs. Being accredited is required

by many state boards for licensure, so accreditation is a high stakes endeavor. Please forgive us if we are a little behind answering emails in the coming days.

The retirement of Professor Fersner illuminates a problem we are facing. Not only are we short on surveyors on a national and state level, we are also short on qualified faculty to teach in our programs. The future of surveying's teaching profession is in extreme danger. For many years, we have watched university graduate programs shift from preparing surveying educators to turning out geospatial researchers. In addition, we are failing to encourage our most talented students to seek Masters and PhDs. We need to correct this model, or we will have no one to teach the basics of surveying in our programs nationwide. So again, if you know someone who would make a great educator, please encourage them to pursue this course and help our profession.

In closing, I can say it is going to be a very busy semester for me. But Professor Fersner did a fantastic job building the strong foundations of the program, and we will continue to survive and thrive in the future.



Dr. Jerry Nave is an assistant professor of Geomatics at NC A&T State University. He earned his BS and MS in Surveying and Mapping and his doctorate in Educational Leadership and Policy Analysis at East Tennessee State University. He received his PLS in 1993 and has over 21 years of experience in the private and public sectors.

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The Conversional North Line of Georgia

Historical Background

by Milton Denny



SWesterly 110 miles of the Georgia Boundary: sometimes when I am teaching technical classes to surveyors, I ask what the difference is between astronomic and geodetic surveying. Rarely does anyone give me a satisfactory answer. Astronomic deals with star readings only corrected to latitude (In the earliest time-period of Georgia surveys, only astronomic applied). Later, after the development of geodetic surveying, many other corrections that affect the final location were applied, including gravity in an area such as North Georgia. This is important when dealing with historical surveying. All surveying dealing with a latitude prior to Clarke's Spheroid of 1866 were astronomic, not geodetic. The results for latitude calculated by the surveyor were based on many factors, including the size of the earth as known at that time-period.

Demeaning the Character of a Surveyor:

James Camak who was a professor at the University of Georgia, requested a Zenith Sector to properly set the north line of Georgia. Denied, he then used a nautical sextant. Sadly, people who don't know what they are talking about, berate others on the internet with statements such as, "James Camak botches surveying the GA/TN border." As the name implies, a *nautical* sextant was an instrument to be used at sea with an accuracy of about one minute that relates to about a mile, at best. It's use on land, since you could not see the horizon, had to depend on a device called an artificial horizon. I have both items, and I can tell you accuracy within a

mile of latitude is about all you can expect. If the courts ever decided to put the north boundary of Georgia on 35 degrees, where would they place it? Would it be determined by astronomic only, or Clarke's Spheroid 1866, or 1927, or maybe 1983, or the new adjustment to be released January 1, 2023, that has been delayed until 2025, or later? I think you can see what a slippery slope this could become.

Thank goodness for Thomas M. Cooley, Chief Justice, Supreme Court of Michigan, who cited in case law many times that all original surveys contain errors and erroneous points, that the monuments as placed by the original surveyor should be honored and govern the final location. I would guess that means the line should stay where Camak placed it in the field.

Using NAD 83, I calculated the ellipsoidal distance from the Camak stone (now a concrete monument) to the Montgomery Corner. This distance was long per mile by 126 feet, about 8+ inches per 33-foot chain, a little more than most chaining. Maybe over time, if we can establish more points along the line, we could understand why this occurred. Maybe the overage is in just one part of the line.

Some surveyors may not know the original monument set by James Camak was stolen in 2007 (Camak Stone was at the northeast corner of Alabama). A few years later, the





chief surveyor, Jim Hunt, for the Alabama Department of Conservation, reset a concrete monument in the original location of the stone. Two members of the Surveyors Historical Society, myself and Bart Crattie were on the crew.

Easterly 30 Miles of North Georgia:

After many years of fighting between Georgia and North Carolina over their common border, on September 10, 1819, Georgia commissioners Benjamin Cleveland and Allen Daniel met at what has become known as Commissioner's Rock (Sometimes called the Ellicott Rock Latitude 35 00 04.88, Longitude 083 06 30.84), along with surveyors James Camak and Timothy Tyrrel for Georgia, and Robert Love for North Carolina.



This beginning point on the east side of the Chattooga River was the starting point for a survey going west 30 miles along the Georgia / North Carolina border. Surveyors first ran a trial line west 30 miles hoping to meet up with a point known as the Montgomery Corner. This Montgomery Corner was the result of a survey of a line from the northwest corner of Georgia known as the

Camak Stone, 110 miles to the east in 1818. The plan was to see how far north or south of the Montgomery Corner the trial line would fall. After surveying the 30 miles in very difficult terrain, they found themselves about three thousand feet north of the Montgomery Corner.

Adjusting their line bearing, they again ran the 30-mile line from east to west, this time falling 661 yards north of the Montgomery Corner. This jog in the line exists until this day. On the second running of the line, they blazed trees and located them on their map. They also set a stone at 11 miles scribed N&G 1819. This stone became known as the Commissioner's Rock on Commissioner Creek.

Replacing the Commissioners Stone:

During a visit to the Eleven-mile Stone on the Camak survey of the north line of Georgia in 2013, we found the south creek bank of Commissioner Creek on the west bank side, Hale Ridge Road had eroded and the Commissioner's Rock on the state boundary was in the creek. Having now retrieved the stone from the Creek, we are placing a survey disc (thanks to Roger London's hard work), in the original location and placing a map on display in a local historical museum. On August 20, 2022, a group of surveyors met on Hale Ridge Road at the state boundary. The attendance for this event was about 20 people. Surveyors from all the surrounding states were present, and a good time was had by all.

For more information on future work on state boundary events contact the listed surveyors or Surveying and Mapping Society of Georgia (samsog.org).

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Milton E. Denny is the author of many manuals dealing with surveying, mapping and GIS. He is a nationally known speaker and lecturer. He is a past president of the Alabama Society of Professional Land Surveyors and a Fellow in the American Congress on Surveying and Mapping. He most recently worked on the reconstruction of the North boundary of Georgia and Alabama.

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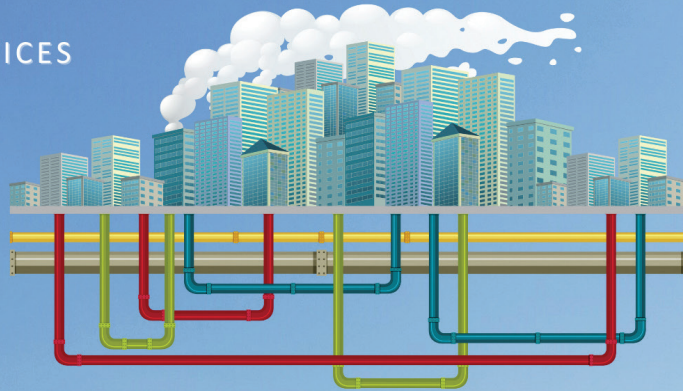
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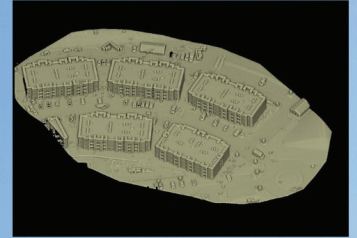
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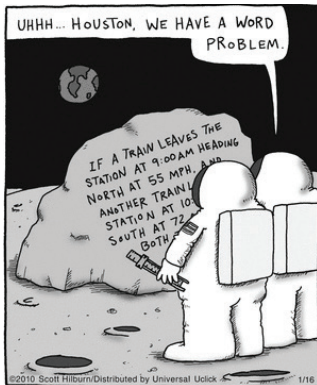
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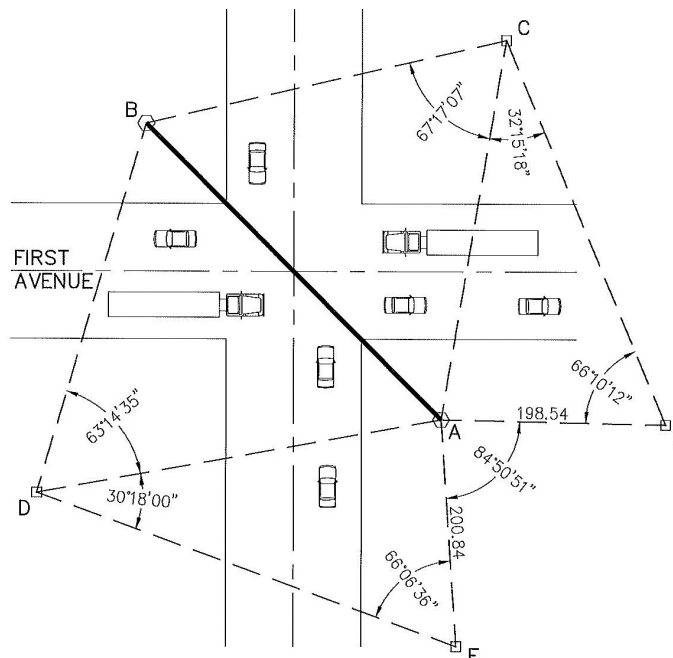
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PROBLEM CORNER

PROBLEM:

A local traffic engineering department has determined the need for an overhead signal light system at a very busy intersection. The support poles need to be placed at points A and B. Due to heavy traffic volume, the field measurements by the survey crew were limited to the following sketch.



FIND:

Distance AC = _____
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Distance DC = _____
Distance BC = _____
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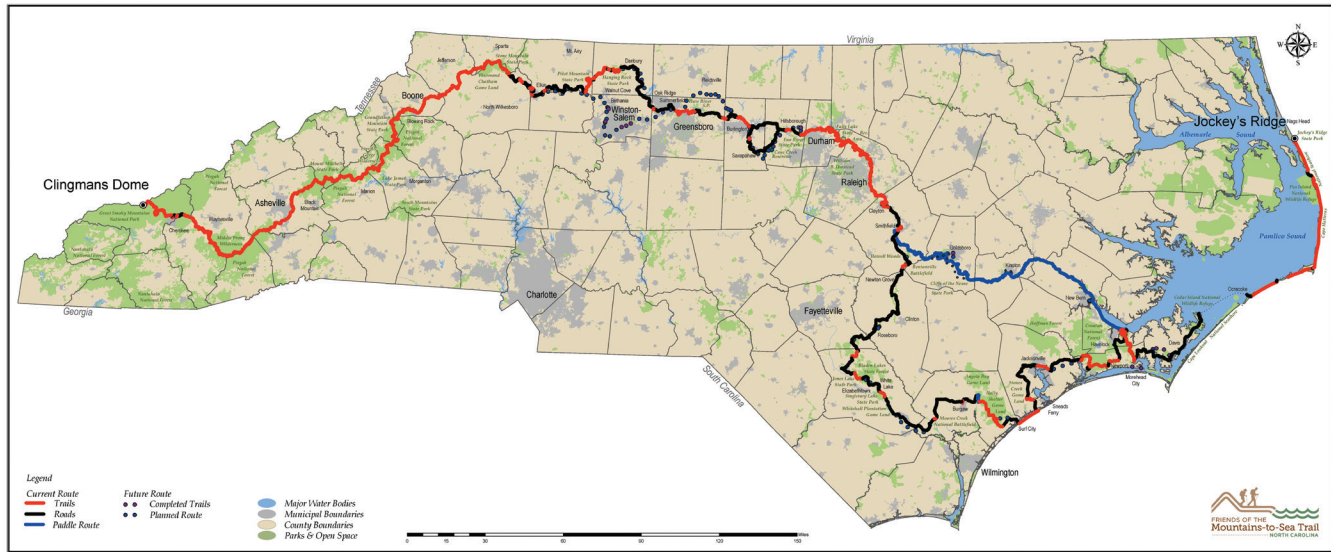


Surveyors Help Blaze NC's Trails

by Brent Laurenz, Executive Director of the Friends of the Mountain-to-Sea Trail

Mountains-to-Sea Trail

Clingmans Dome to Jockey's Ridge State Park; April 8, 2022



The Mountains-to-Sea Trail (MST) stretches from the Great Smoky Mountains on the Tennessee border to the Outer Banks on the Atlantic Ocean. Along the way, it crosses the ancestral homeland of the Eastern Band of Cherokee Indians, traverses ancient mountains, passes small Piedmont farms and changing textile villages, and navigates coastal swamps before the final stretch on barrier islands to the terminus at Jockey's Ridge State Park.

Rather than being planned as solely a wilderness trail, part of the allure of the MST is that it traces the rich diversity and beauty of North Carolina's landscape, culture, and people. To cross the state on the MST is to truly get to know all our state has to offer.

The idea of a trail crossing the entire state was first introduced in 1977 by Howard Lee, who was then serving as Secretary of Natural Resources and Community Development for North Carolina. At a trails conference in Lake Junaluska on September 9, Lee gave a speech in which he proposed "establishing a state trail between the mountains and the seashore in North Carolina." From there, the MST was born.

Lee's speech provided the inspiration and motivation but turning the trail into a reality would require the cooperation of local, state and federal governmental agencies, as well as the hard work of countless individuals and organizations. As the project got underway, there was no dedicated funding for the trail, but there was a passionate and dedicated group of people determined to see the MST come to fruition.

One of the first big breakthroughs came in 1979 when an agreement was reached to allow the trail to be built on National Park Service and U.S. Forest Service land, opening hundreds of miles for potential trail construction in the mountains and along the coast.

In those early years, volunteers led the charge to construct new sections of the MST and to maintain sections after they were completed. Fortunately, that spirit of volunteerism remains strong to this day, and the MST would not be where it is without the hard work of the thousands of volunteers that have helped shape the trail over the past 45 years.

By the late 1980s, momentum for the MST began to fade and the trail languished for several years. In an effort

to revitalize efforts to build the MST, the nonprofit organization Friends of the Mountains-to-Sea Trail was formed in 1997. It would be a while before the organization could bring on professional staff, so in the first years of Friends of the MST's existence, it fell on the shoulders of dedicated volunteers to carry the torch and reinvigorate efforts to build and maintain the trail.

In 2000, the North Carolina General Assembly voted to officially incorporate the MST into the North Carolina State Parks system. Since then, State Parks has been a key partner in the growth and maintenance of the trail across the state. As the MST crosses North Carolina, it connects with 10 different state parks and when new sections of trail are completed, State Parks can officially designate them as part of the MST.

One of the most significant changes to the MST in recent years happened in 2017, when the Coastal Crescent Route was officially included as part of the Mountains-to-Sea Trail. The MST's original route envisioned the trail roughly following the Neuse River east from the Triangle to New Bern but finding suitable land for a trail proved difficult. With the addition of the Coastal Crescent Route, linking several existing off-road areas, hikers and walkers now have the option of trekking through southeastern North Carolina, past sweet potato fields, small towns, Carolina bays, lakes, and more, before the final miles on the beaches of the Outer Banks.

Today, more than 700 miles of off-road footpaths are completed and with temporary routes on backroads, hikers can follow the trail on an adventure across North Carolina.

The MST is continually evolving and growing as minor



reroutes happen on established trails and more and more miles are moved off roadways and onto natural surface trails. And that is where the exciting work on the future of the MST lies.

While building new trail miles is rarely simple, the next few years are poised to be transformative for the MST. The 2021 state budget contained a record investment in North Carolina's 12 official state trails, which includes the MST, and Friends of the MST has been working with State Parks to develop a five-year plan to make the biggest impact on the trail possible.

Friends of the MST will have projects from the mountains to the sea, including bridges, trail construction, trail planning, trailhead enhancements and so much more that will leave a visible, lasting change on the MST as it crosses the state. It's an exciting time for the organization and the trail and Friends of the MST can't wait to complete some of the new projects and start moving more trail miles off road.

As you would imagine, with such a long trail and large geographical footprint, Friends of the MST is going to need many different partners to push the work forward. That is the beauty of the MST community, though. There are thousands of people in towns and communities across North Carolina willing to roll up their sleeves and help do the work of maintaining and building the Mountains-to-Sea Trail.

If you're interested in volunteering your services, please contact Brent Laurenz, Executive Director of Friends of the MST, at blaurenz@mountainstoseatrail.org.

It's been a long journey to this point, and there's a long journey still ahead for the MST. Fortunately, this unique North Carolina treasure is supported by such a strong community that, regardless of how hard the work becomes or the obstacles thrown in the way, the trail will continue to grow and improve and serve as a resource for the enjoyment of all North Carolinians. Whether they want to go for a one mile walk in the woods near their home, or they want to attempt hiking across the entire state, the Mountains-to-Sea Trail is for everyone.

Mike Adams, PLS and current Cape Fear Chapter President has served as a trail volunteer for ten years. If you or your NCSS Chapter would like to become more involved with the MST project, please reach out to info@ncsurveyors.com for more information.

The Centerline Presumption in North Carolina

by Kristopher M. Kline, PLS



The Centerline Presumption, also referred to as the ‘Strip & Gore Doctrine,’ is a rebuttable presumption of law that is critical to proper retracement of property boundaries. It represents a corollary of the Rules of Construction and may be considered a rule for determining intent of the parties to a deed. As such, it exists in that gray area that is sometimes considered the exclusive purview of the legal profession, yet it clearly falls within the realm of boundary retracement.

Courts have justified the presumption in three ways. Applied to rivers and streams, it serves to assure that riparian and littoral property owners may make appropriate use of the waters adjoining their upland. In a broader sense, it also serves to eliminate—or at least minimize—the prevalence of narrow and useless strips of land. Finally, the Centerline Presumption is an extension of the rule that a general call to a monument—such as a tree or wall—extends to its center.

At the general level, there are two obvious exceptions to the Centerline Presumption:

1. The grantor cannot convey to the center of a feature if they do not hold title to the center;
2. The grantor does not convey to the center of the feature if express and unequivocal language limits the conveyance to the margin.

Rivers and Streams

While it is possible to convey land near a non-navigable

watercourse and yet exclude the nearby owners from access to the water, this approach is not presumed by the court. However, confusion arises when the land description calls for a monument on the bank of the river, and then refers to the watercourse only in general terms.

Starr v. Child, 20 Wend. 149 (1838) is a benchmark decision from New York that describes the arguments against excluding the water from a grant: “Lord Hale puts it that fresh rivers do, of common right, belong to the owners of the soil adjacent... It is conceded that the words to and along the river, would include the stream.”

The North Carolina court highlights the rule as it relates to streams in *Rose v. Franklin*, 216 N.C. 289 (1939): “The calls in a State grant of lands to a tree on the bank of a non-navigable stream and thence “down the angles of the river to the beginning” makes the river the boundary and extends the call to the middle or thread of the stream opposite the tree and thence down the thread or middle of the stream to the beginning.” Other state courts also reflect a similar standard.

As non-navigable streams have no line of navigation, the correct survey procedure in this instance is to locate the midline between the banks. This stance is illustrated in the U.S. Supreme Court decision *Louisiana v. Mississippi*: 202 U.S. 1 (1906): “As to boundary lakes and landlocked seas, where there is no necessary track of navigation, the line of demarcation is drawn in the middle, and this is true of narrow straits separating the lands of two different States...”

Oklahoma v. Texas: 258 U.S. 574 (1922) applies the same standard to non-navigable rivers. Note that, for navigable waters with an identifiable line of navigation, the *Thalweg* rule prevails both in North Carolina and other states.

Public Highways

When dealing with the broadest concept of ‘public

highways,' application of the Centerline Presumption becomes more problematic. For example, this standard clearly cannot be applied to limited access highways where a state or federal government agency has purchased a strip of land in fee for the purpose of building a major highway.

In like manner, it cannot apply to those railroad lines (also characterized as public highways in most states) in those cases where the rail company owns the fee title to the corridor. However, the Centerline Presumption is applied to railroad easements in many instances.

Smaller secondary public roads, original inventory roads and public streets created by subdivision each must be considered based on terms of relevant deeds, the surrounding circumstances, the jurisdiction where the dispute occurs and any relevant statutes in force at the time the road was dedicated and accepted for public use.

Original Inventory Roads—Rural Areas

It is common for deeds along long-established secondary roads in rural areas to convey title to the center of the road—at least in those cases where the road is called for as a boundary monument. In North Carolina, roads of obscure origin that already existed as public ways circa 1931 sometimes are referred to as “Original Inventory Roads.”

In many cases, the underlying public right in these early ways originated from Prescription, the Lost Grant Theory or Custom. The resulting easement is legitimate, but the corollary is that the underlying fee title remains in the adjoining property owners. The headnotes from *Brown v. Hodges*: 232 N.C. 537 (1950) illustrate this variation: “Where the location of a highway as it existed at the time of execution of the deeds is not in dispute, and the deeds call for the highway as the dividing line between the contiguous tracts, the location of the dividing line is the center of the highway as it then existed, as a matter of law...” Mere use and maintenance by a state or local government agency does not support the conclusion that the state owns fee title to the road.

One exception to this rule may be found where early roads were created under state or federal statutory authority for the construction or development of a Turnpike.

Alleys in Subdivisions

Subdivision plats for residential areas often show both small alleyways and primary streets. In North Carolina, it is necessary to consider the two categories separately. This state follows the majority rule when applied to alleys shown on subdivision maps. *Patrick v. Jefferson*: 97 S.E. 657 (1918) notes: “As he owned that half of the alley, the fee in it, if nothing was said to the contrary, would have passed with the lots conveyed by him to Porter & Gorrell and to W. A. Caldwell. The following cases state and illustrate the principle...”

“A conveyance describing a lot in a deed as bounded by an alley which is laid off on a certain plat will pass title to the center of the alley if the grantor's title extended so far, and it is immaterial whether or not the alley is ever brought into public use.” The court notes that this rule would not apply if the grantor did not own the fee to the alley. This ruling identifies the Centerline Presumption as applied to alleys as a logical extension of the rule used for non-navigable streams.

Streets in Platted Subdivisions—the North Carolina Standard

Public streets created by a subdivision plat raise unusual problems for Land Surveyors in North Carolina because this state does not follow the standard found in most jurisdictions. *Russell v. Coggin*: 232 N.C. 674 (1950) recognizes the standard that has been followed by numerous more recent North Carolina decisions: “Where the owner of lands subdivides and sells same by block and lot number with reference to a plat showing streets therein, a purchaser of lots acquires only an easement in the streets notwithstanding that he may purchase all the lots on both sides of a particular street and notwithstanding that a deed in mesne conveyances from the original owner purports to convey the fee to the center of one of the streets.” This case emphasizes that the original subdivider retains ownership of the streets under this scenario.

As with many general rules, this one has exceptions. In some limited cases, adjoining owners have been allowed to withdraw dedication of a road under N.C.G.S. 136-96, particularly where the corporation that subdivided and sold the land no longer exists. In most instances however, the original developer must file the withdrawal of dedication.

continued on page 27

Time-Dependent Coordinates in the New Modernized NSRS

by David B. Zilkoski

This is the fifth article in my series on the National Geodetic Survey (NGS) new, modernized National Spatial Reference System (NSRS). My fall 2020 article (https://www.ncsurveyors.com/files/PDFs/20.2_TS_Fall_2020_Online.pdf) provided the expected changes between the old and new NSRS, and stated that the NGS announced that there will be a delay of the modernized NSRS (<https://www.ngs.noaa.gov/datums/newdatums/delayed-release.shtml>). The current estimate is that the project will be ready by 2025. That's only three years away.

This article will provide a few of my thoughts on lessons learned from the implementation of North American Vertical Datum of 1988 (NAVD 88) based on my experience as the NGS NAVD 88 Project Manager.

First, no matter what any agency or an individual does, some users will not worry about a datum change until it is officially published, and they will then ask you why you didn't inform them earlier about the change. Probably the most important thing for surveyors is to keep informed of changes and how the new, modernized system will change their access. <https://geodesy.noaa.gov/INFO/subscribe.shtml>. An example

of a major change, as stated in NGS's Blueprint for the Modernized NSRS, Part 3: Working in the Modernized NSRS, *"The entry point to the modernized NSRS is, for the most part, through geometric channels—geometric coordinate functions at all CORs in the NCN and the use of GNSS and OPUS. That means, access to absolute orthometric heights initially comes from ellipsoidal heights, minus GEOID2022."* Therefore, for new marks, surveyors will have to use GNSS and the NOAA CORs to obtain an orthometric height to be used for a FEMA Elevation Certificate.

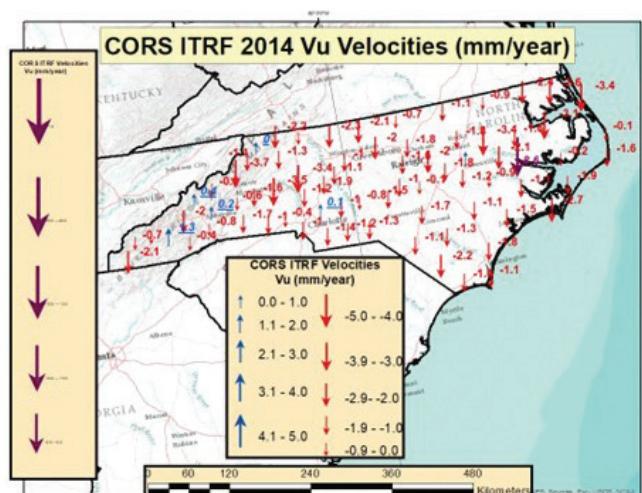
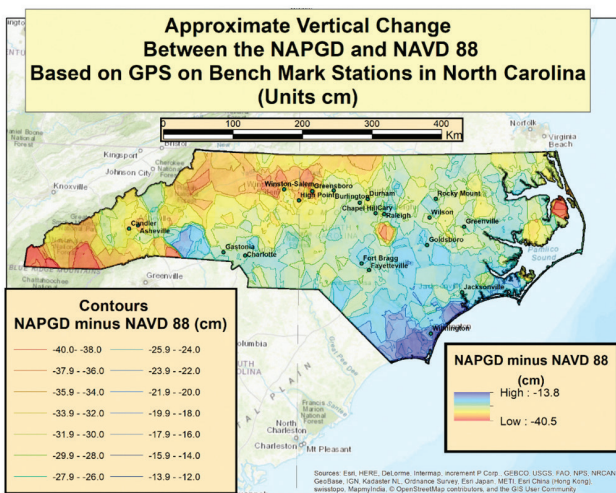
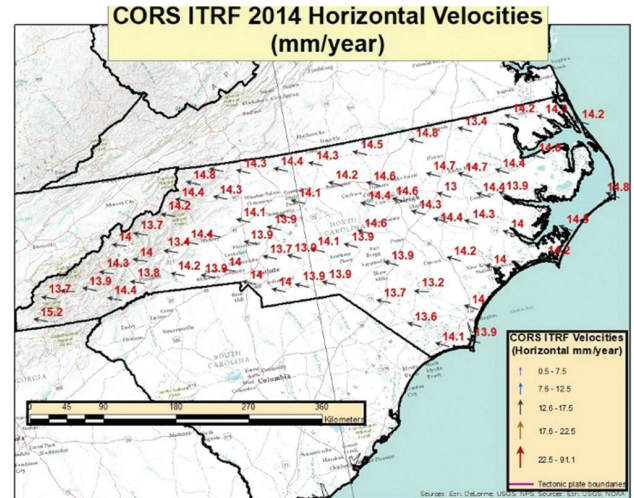
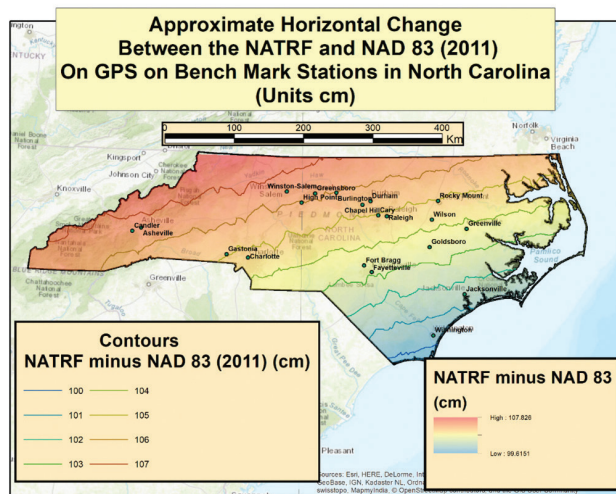
It is important for surveyors to understand these changes but it's also very important for NC agencies and programs such as the NC DOT and NC Floodplain Mapping Program to keep users informed and involved in understanding how the new NSRS will change their products and services. These agencies should use various methods such as newsletter announcements, chat boxes, blogs, and Facebook to allow users to ask questions about how their products and services will be affected by the datum change. I personally presented many talks at conferences and submitted articles on the status of the NAVD 88 project, but I believe in the areas of the country where there was a smooth transition from the NGVD 29 to the NAVD 88 it was due to the local surveyors obtaining an understanding of the datum change and explaining the change to State and local agencies.

It is important for North Carolina agencies to work together to create an integrated, collaborative environment. This means involving all users in the process and working with existing groups to get their input (such as NC DOT and NC Floodplain Mapping Program); convening joint seminars and webinars with product providers and users. Agencies should consider creating "short" non-technical interactive webinars and preparing joint work plans with action items that include North Carolina agencies collaborating with other agencies and surveyors.



As depicted in the plots below, the horizontal change will range from about 99 cm (3.25 ft) to 108 cm (3.54 ft), and the vertical change will range from -55 cm (-1.80 ft) to -13 cm (-0.43 ft). My fall 2020 article (https://www.ncsurveyors.com/files/PDFs/20.2_TS_Fall_2020_Online.pdf) provides more details.

(https://www.ncsurveyors.com/files/PDFs/22.1_TS_Spring_2022_Online.pdf) highlighted the time-dependent aspect of the modernized NSRS and why it is necessary for the new system. See the boxes titled “CORS ITRF 2014 Horizontal Velocities and Vu Velocities.”



Surveyors have been through many changes in reference frames and datums in the last three decades, such as NAD 27 to NAD 83 (1986), NAD 83 (2007), and then NAD 83 (2011), and NGVD 29 to NAVD 88. Some may say what's the big deal? This can be easily dealt with because it has been done before. But this time, there's more. The coordinates will have a time-dependent component to them. This includes the station's latitude, longitude, ellipsoid height, orthometric height, gravity value, and geoid height. The plots depict an estimate of the time-dependent component of the new NSRS. My Spring 2022 article

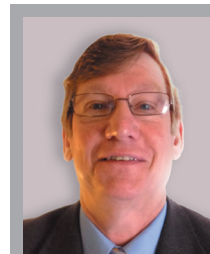
A question that everyone should be asking is, how will this affect the [North Carolina Flood Plain Mapping Program](#)? As NAVD 88 Project Manager, I met with the leadership of FEMA in the early 1990s to educate them on the changes between NGVD 29 and NAVD 88, and then FEMA developed guidelines for local administrators to implement NAVD 88. NGS also assigned an employee to be a liaison with FEMA headquarters to address questions about the datum change. In concept this was great, FEMA headquarters was well prepared for the datum change but, in reality, the local administrators

were not prepared to implement the NAVD 88. It would have been more effective to also involve the regional FEMA leadership, local administrators, and surveyors in the development of guidelines for implementation. There are many issues that the local administrators and surveyors are confronted with that aren't fully understood by FEMA leadership.

So, what does that mean for implementing the [North Carolina Flood Plain Mapping Program](#) into the new, modernized NSRS. FEMA will continue to require use of the NSRS in the National Flood Insurance Program (NFIP), but all products and services are currently based on the old vertical reference systems such as NGVD 29 and NAVD 88. NGS will develop tools that support time-dependent transformations to enable accurate alignment of data but ensuring that all data sources are referenced to the same epoch will be extremely important. A typical Flood Insurance Study (FIS) phase may involve several different types of datasets from various sources provided in different formats that are based on different spatial reference systems and collected at various times. The new, modernized NSRS is expected to alleviate localized vertical datum discrepancies at FIRM boundaries. That said, it will be the responsibility of the surveyor to understand how all the different data sources are integrated when completing a FIS and FEMA Elevation Certificate. Some of the issues raised by surveyors during the implementation of NAVD 88 included: (1) a lack of understanding of how to handle new studies using the new datum when the study region crosses multiple panels, (2) confusion on what datum was required on the maps, profiles, databases and in the FIS, and (3) questions on the appropriate use of a datum shift in a region. Surveyors should obtain an understanding of the effect of the datum change on the Flood Plain Mapping Program, so they are prepared when NGS publishes the new, modernized NSRS.

The new, modernized NSRS will be published in 2025 and surveyors will not be ready unless everyone collaborates to understand how the new NSRS will change NC NSRS products and services. This includes products such as the establishment of the new NC State Plane Coordinate System of 2022 (SPCS2022), the publication of Reference Epoch Coordinates and Survey Epoch Coordinates, (https://www.ncsurveyors.com/files/PDFs/21.2_TS_Fall_online.pdf), the use of the International Foot instead of the U.S. Survey Foot (https://www.ncsurveyors.com/files/PDFs/21.1_TS_Spring_2021_Online.pdf), and the dissemination of NC GNSS CORS and Real-Time Network 2022 coordinates and data. The NC Geodetic Survey under the leadership of Gary Thompson is working with NGS and other agencies to document how the new NSRS will affect NC products and services. That said, every surveyor should still obtain an understanding of the new, modernized NSRS to be prepared to implement the new NSRS in 2025.

com/files/PDFs/21.2_TS_Fall_online.pdf), the use of the International Foot instead of the U.S. Survey Foot (https://www.ncsurveyors.com/files/PDFs/21.1_TS_Spring_2021_Online.pdf), and the dissemination of NC GNSS CORS and Real-Time Network 2022 coordinates and data. The NC Geodetic Survey under the leadership of Gary Thompson is working with NGS and other agencies to document how the new NSRS will affect NC products and services. That said, every surveyor should still obtain an understanding of the new, modernized NSRS to be prepared to implement the new NSRS in 2025.



David B. Zilkoski served as Director, National Geodetic Survey, from 2005 - 2009 and was the Project Manager of the New Adjustment of the North American Vertical Datum of 1988. He currently works as a geodetic consultant on NGS' modernization of the National Spatial Reference System. He is Chair of North Carolina Geodetic Survey Advisory Committee and a member of the North Carolina 2022 Reference Frame Working Group.

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MEMBER PROFILE

Robin L. Lee

**Wife's Name**

BJ Lee

Children

Payton (son) married to Blair Lee

Favortie Move

Any James Bond Movie

Favorite Food

Steak

Favorite Hobbies

Playing golf, surf fishing, cooking, and traveling.

Childhood Ambition

To be a Farmer

Most Recent Purchase

2022 Nissan Pathfinder

First Job

Driving a tractor at age five in the tobacco fields

Anyone who knows Robin Lee knows his quiet exterior doesn't reflect his variety of interests and activities. Robin has been a member of NCSS since first licensed in 1997. He not only supports the Society through membership but also through attendance at conferences and golf outings. Robin is currently

awaiting the results of NCSS's most recent election, where he is a candidate for the Education Foundation Board of Directors. The newest board members will be announced at the next NCSS Board of Directors meeting on November 5, 2022.

Robin began his career in surveying after graduating from Wayne Community College in 1984 with an AAS Degree in Forestry. The course curriculum required him to perform a co-op job in forestry or surveying. Knowing several surveyors in his community, including his brother Dennis Lee, Robin gained employment



with Linwood Byrd Surveying in Four Oaks. After working with Linwood for almost a year, he decided to make a surveying career choice. He enrolled in surveying night courses at Wake Technical Community College in Raleigh, NC. He continued expanding his knowledge of surveying with Linwood Byrd Surveying for another year before moving to Ragsdale Consultants in Smithfield, NC. Robin earned a Surveying Certificate from Wake Technical Community College in the spring of 1987. He worked with Ragsdale Consultants until the merger with McKim & Creed, Inc. During this transition, he worked for Southern



Surveying and Mapping in Smithfield, NC, until he became permanently hired by McKim & Creed, Inc. in June of 1991. Robin became fully licensed as a Professional Land Surveyor in the spring of 1995. He recently celebrated his thirty-first anniversary with McKim & Creed, Inc.

When not working around the farm, Robin is often serving NCSS or improving his professional knowledge. He is serving his third term as President of the Johnston County Chapter of the North Carolina Society of Surveyors. He finds it essential to be involved in organizations that promote and support his profession,



and he loves being able to network with others in his professional field. Robin also graduated from the Otis A. Jones Educational Institute improving his knowledge on a variety of topics. When asked what project Robin was most proud of, Robin said he couldn't name just one. He enjoys the retracement of boundary surveys, where he follows in the footsteps of others. Some of his most memorable are larger boundaries in Bladen, Washington, Tyrrell, and Hyde

Counties.

Robin's favorite equipment is the Schonstedt GA52Cx Magnetic Locator and any new equipment that makes surveyor's jobs easier, even if they must do redundant measures to achieve accuracy.

Robin bestowed the following advice when asked what wisdom he could share with someone just entering the profession.

"Take the time to listen to the older generation of surveyors. You can learn things from their experience that will help you throughout your career. Be observant. Get involved with your local chapter and State Society. When you do this, you will get the opportunity to meet other surveyors in the state and develop friendships which can provide assistance when needed in the future."

Thanks, Robin for all the ways you serve the surveyors of North Carolina.

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The Centerline Presumption in North Carolina continued from page 21

Language contained in N.C.G.S. 136-96, 153A-241 and 160A-299 all include provisions for the transfer of title to the adjoining landowners of a roadbed in the event that a dedication is withdrawn, or an established public way is formally abandoned. The statutes imply that the road was under separate ownership, and only on abandonment do the adjoining owners take title to the bed of the former public way.

Streets in Platted Subdivisions—the Majority Rule

For those surveyors who are licensed in other states besides North Carolina, it is important to realize that the standard described above for subdivision streets does not apply in Tennessee, South Carolina, Georgia, or Virginia. *Hamilton Co. v. Rape*: 101 Tenn. 222 (1898) is an early Tennessee decision that describes the majority rule: "The abutting lot owner is presumed to own to the center of the street... The deed conveys the lots by numbers, and says they adjoin and front each fifty feet on west side of Central Avenue, and extend westwardly to Grand Avenue. The descriptive term, west side of Central Avenue, does not mean that the line is the margin of Central Avenue, but simply that the lots lie on the western side or direction from Central Avenue. It does not expressly provide, nor does it at all imply, that the plaintiff's line stops at the margin of the street."

In *Johnson & Co. v. Arnold*, 91 Ga. 659 (1893), the Georgia court justifies the majority rule based on

the desire to minimize separate ownership of narrow strips that would be a fruitful source of litigation: "Upon principle, and as best subserving public policy, we prefer the trend and tendency of those cases which treat a tract of land having upon its margin a road either public or private, and either actual or only contemplated, as embracing the fee in the road itself when the tract is conveyed and is described in the deed as bounded by the road, the maker of the deed being at the time of its execution owner of the fee in the road, and the deed purporting to convey the fee in the tract thus bounded."

Other examples of the majority stance may be found in the South Carolina decision *Rushing v. Sellers*, 225 S.C. 173 (1954) and in the New Jersey ruling *Wolff v. Veterans of Foreign Wars*, 5 N.J. 143 (1950)

The retracement of boundaries along streets, alleys and watercourses should not be treated lightly. There is an important difference between the edge of the road and its center—surveyors should practice accordingly.

Kristopher M. Kline is a surveyor, author, instructor and consultant living near Asheville, North Carolina. President of 2Point, Inc., he can be reached at kristopherkline1@gmail.com. More information on Kline's continuing education courses and books can be found at www.2Point.net. Kline also presents seminars each year in Tennessee and North Carolina, d.b.a. *Surveyors Educational Seminars*. Information on classes presented by Kline and by Donald A. Wilson may be found at www.surveyorsed.com.

2022 NCSS PLAT CONTEST ENTRY FORM

Enter your best plats from 2022 for a chance to gain recognition among your peers & you just might bring home \$100 for the Best Overall Plat!

Title of Map: _____

Date of Map: _____ (must be between Jan. 1, 2022 & Dec. 31, 2022, except Historical Plats)

Category Entered: _____

Name and Address of Entrant: _____

Entrant's Phone Number: _____ Entrant's Email: _____

Name of Entrant's Firm: _____

Name of NCSS Sponsor (must be NCSS member): _____

I give my permission for this entry to be placed on display by NCSS. I understand that winning entries may be reproduced in a NCSS publication & that copies may be used by NCSS to promote this contest & other NCSS programs via advertising, advocacy, & outreach. I understand that if I am the overall plat winner, my plat will be entered in the NSPS Plat Contest. I understand that all entries, even if disqualified from judging, become NCSS property. Violations of any requirements herein may disqualify an entry from one or all categories. The purpose of this contest is to promote a high standard of drafting within the surveying profession.

Entrant's Signature: _____ Date: _____

CATEGORIES (Submit only one plat per category)

- **BOUNDARY:** A plat of an actual parcel of land which shows the results of a boundary survey. It is recommended that this plat show only the boundary survey, and no other information such as topo or as-built.
- **TOPOGRAPHIC:** A plat prepared to show existing topographic features of a parcel of land.
- **SUBDIVISION:** A plat prepared suitable for recording which shows the subdivision of a parcel of land.
- **AS-BUILT COMMERCIAL:** A plat prepared to show the finished features of a parcel of land for commercial uses.
- **AS-BUILT RESIDENTIAL:** A plat prepared to show the finished features of a parcel of land for residential purposes.
- **NONCONFORMING:** A plat which is unusual or unique. This category is judged based on its uniqueness & method of presenting information.
- **SUBDIVISION DESIGN PLAN:** A plat prepared for the construction design of subdivisions.
- **ALTA SURVEY MAPS:** Any plat prepared to ALTA standards.
- **GIS:** Any plat prepared using a Geographic Information System.
- **HISTORICAL:** A plat prepared at least 50 years prior to the Plat Contest deadline. It should be outstanding in its qualities or unique in its method of presenting information. The purpose is to reflect on maps with modern methods of drafting. Please include letter of explanation if available.

**No entry fee for historical plats and they are not judged. Therefore, they do not receive awards or monetary rewards.*

ALL ENTRIES MUST BE:

- Received in the NCSS Office on or before January 25, 2023.
- Drawn between January 1, 2022 and December 31, 2022 (except for Historical plats).
- Sponsored by NCSS member.
- Submitted with approval of certifying PLS (except for Historical Plats).
- One page only.
- The original size; no reductions or enlargements.
- In compliance with G.S.47-30 (signed and dated, suitable for recording), where applicable.
- Labeled with the category in the upper right-hand margin on the face of each plat and its copy.
- Completed with a signed entry form attached to the back of each plat and its copy.
- One plat per category per entrant. Individual plats may be entered in more than one category.

SEND TO: NCSS, PO Box 2101, Wake Forest, NC 27588 and enclose the following for each plat entered:

- A. \$20.00 for each plat entry (except for Historical Plats).
- B. **Two copies** of each plat & entry forms.
- C. You can hand deliver plats to NCSS office, 331 S. White St, Wake Forest rather than mailing it.
- D. A copy of this form must be completed in its entirety and attached to the back of each entry & its copy.

Overall winner will receive a \$100 cash prize & plaque. Overall winning plat will be entered into the NSPS National Plat Contest.



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