Drones and Surveying

Page 14

INSIDE
Texas Young Surveyors discuss ‘Beyond Ethics’
See page 22
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In August, TSPS held its annual Strategic Planning meeting lead this year by President-Elect Jerry Lehew (see pictures on page 12). Over 60 members participated in the day-long event where many items were discussed, but the upcoming legislative session and membership recruitment prevailed as the initiatives for 2017.

The 85th Texas Legislative Session will begin on January 10, 2017. TSPS Legal Counsel Mark Hanna stated that Medicaid, Child Protective Services, Public Education, Border Security and Transportation will be the important issues this session. Mr. Hanna also reported that mid-September the Comptroller’s office will have a draft rule regarding sales tax on surveying services available for informal review and comment before filing the rule as proposed. The Governmental Affairs Committee and those members who have been specifically working with the Comptroller’s office for many years are excited to see this draft rule and will share it with the membership when published.

Lower membership numbers have created concern among the leadership of TSPS. At this time, total membership for TSPS is 1594 with 1139 being RPLS’s. There are 2868 RPLS’s in Texas per the Texas Board of Professional Land Surveyors yet only 40% are members! Why? Is it cost, employer support, unaware of member benefits, no value, good ‘ole boys’ perception? The membership committee and staff have met to begin trying to answer these questions. New programs and initiatives are being created and will be introduced over the next couple of months specifically targeting non-members. As a member and ambassador of TSPS, we will be asking you to share with others why you are a member of TSPS, and to help with recruiting non-members to increase the value and voice of TSPS.

TSPS Officer and Director Candidates have taken this topic seriously as well. They were asked to answer “What are some new and refreshing ideas for increasing the membership in TSPS?” by the nominating committee. These ideas, combined with the initiatives of the membership committee, have helped to formulate programs that will be introduced. Candidate question and answers were featured in the August issue of Metes & Bounds and can be found in Latest News on the TSPS website. As a reminder, the ballot will be distributed electronically this year, so watch your email around September 15th for this notification.

The 65th Annual Convention & Tech Expo is just around the corner. All convention details, registration and hotel information can be viewed online at www.tsps.org/convention. Classes are filling up quickly so be sure to register today. The education is outstanding, vendor participation is grand and networking opportunities are endless at convention! We look forward to seeing you next month in San Marcos.
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Land Surveying is Awesome!

Many times I have repeated the sentence, “no place is any place until it is surveyed.” If you think about that you will see the truth in it. Before trade routes opened across a continent or an ocean, they have to be charted, mapped, they’re surveyed. Before roads are built, topography and verification of route between origin and destination must be known and recorded. In front of the railroads being built across a continent or over or through a mountain, there were surveyors so that builders would know what was on the other side. The first thing that our governments did when attempting to settle this land was to enlist surveyors to record the relative locations of rivers, mountains, lakes and oceans. Then surveyors developed systems of describing and perpetuating ownership boundaries, determine routes for commuters and mark roads so that pioneers could traverse the wilderness.

Surveyors come in all forms. Nautical navigators recorded heading, speed and time to chart courses across endless expanses of open water. The Lewis and Clark expedition ventured into the unknown for years recording astronomical observations to produce exactly the same kind of product, a record of something never measured before. Likewise, pioneer land surveyors ventured into the unknown, usually along rivers, to make records for others to follow and to allow for the purchase and ownership of the territory. I often tell people that I go to the places on their property where they seldom go.

Surveyors are the seeds of development, prosperity and commerce. Roads and bridges, towns and buildings, energy facilities like electric transmission lines, oil and gas wells and petrochemical delivery systems from well to customer are all initialized and completely dependent upon surveyors to start and end at the correct locations.

Surveyors create security of ownership for building a business and raising a family. Nothing is more disturbing than to invest in something and have it disappear or to discover that it isn’t yours. Even with surveyors, the pre-emption period in Texas was chaotic, conflicts and overlaps continue to be found today, some, over two hundred years after being settled. Imagine how it would be without surveyors developing methods of marking and identifying lines and providing settlers with information which they could use to perpetuate their possession and secure their land.

Surveyors are the arbitrators of questions and disputes about ownership and locations. Most land disputes are rectified by surveyors both before and after lawyers are engaged because surveyors know land law and are uniquely qualified to sort out boundary conflicts. I cannot tell you how many times I have had to educate an attorney on a boundary law principle. Daily, surveyors assist land owners and prospective developers in making decisions based on local and state regulations and boundary law.

Surveyors promote safety. Drainage grades, headroom and even building setbacks contribute to the health and safety of our citizens.

Surveyors have the best tools. Who else gets to use high accuracy measurement instruments like robotic total stations, distance meters, electronic levels, scanners, geodetic satellite systems, unmanned aerial vehicles, powerful computers and giant paper printers all in one day? I won’t mention the metal locators, picks, shovels, machetes, hammer-drills or chainsaws… Even after all of the above there is just something more awesome about being a land surveyor. One thing is the gratitude you get when you help someone achieve their goal. I love meeting new homeowners after I provide their survey or seeing miles of fence get built within an inch of the line. I love the knowledge that I contributed in the creation of something enjoyable or useful or something that makes others’ lives better. I love solving the question, the mystery or the conflict. I love defending the rightful land owner and I even like dispelling the misconception of the transgressor.

Land surveying allows one to be the artist, the arbitrator, the mathematician, the writer, the botanist, the forensic expert, the explorer, the judge, the investigator, the philanthropist and the rescuer all in one pair of boots.

~ Paul Carey, RPLS ~

And on top of that, because of the way I structured my business thirty years ago, I get to work in a new place almost every day or at least every few days a week. I get to cover great distances over new (to me) territory, research the earliest land settlements in Texas, seek out ancient landmarks and meet new people all of the time. I get to spend days in the open countryside, traversing ranch roads and rivers, examining and analyzing Creation in ways in which few have the time and opportunity and on top of that, people pay me to do it. Surveying Is Awesome.
NEW MEMBERS

REGISTERED
John Ables #6102 - Chapter 21
Fred L. Thompson & Associates
William “Jay” Dougherty, Jr. #6457 - Chapter 9
CenterPoint Energy
Enrique “Elizondo” Elizondo #6386 - Chapter 11
Elizondo & Associates
Isidro Garza #5905 - Chapter 9
S&V Surveying, Inc.
Rodric “Rod” Reese #5883 - Chapter 17
Frank X. Spencer & Associates, Inc.
Curtis Watts #6614 - Chapter 13
TRUE-SURV Professional Land Surveying, LLC

ASSOCIATE/SIT
Nathan Andrews - Chapter 18
Boerm Family Properties
Michael “Mike” Black - Chapter 2
Crowley Pipeline & Land Surveying, LLC
Erica Carter - Chapter 3
SKG Engineering
Jonathon “Tyler” Carter - Chapter 5
Kimley-Horn and Associates, Inc.
Quentin Garin - Chapter 10
SAM, LLC
Christopher “Chris” Gugino - Chapter 5
Nathan D. Maier Consulting Engineers, Inc.
Paul “Pablo” Isbell - Chapter 5
GeoShack S.A.
Richard Morris - Chapter 9
Morris P. Hebert, Inc.
Luis Ortega - Chapter 10
Dawson Geophysical Company
Martin Padilla - Chapter 22
CCS, Inc.
Misty Ryan - Chapter 23
Ark-LA-Tex Surveying Co., Inc.
Blake Sudduth - Chapter 5
Jones | Carter

AFFILIATE
Matthew Broderick - Chapter 5
GEONA
William “Bill” Harmeyer - Chapter 9
W Harmeyer & Associates PC
Scott MacKinnon - Chapter 5
GEONA
Adam Shaw - Chapter 5
Dunaway Associates, LP
Mark Staab - Chapter 5
Ringley & Associates, Inc.

STUDENT
Mitchell Grimm - Chapter 13
Stantec
Grason Underwood - Chapter 11
Student

GEOSPATIAL
Rachel “May” McKenna - Chapter 10
Dawson Geophysical Company
Westley “West” Neinast - Chapter 10
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WELCOME!

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- make the right decision
Strategic Planning Meeting
August 5, 2016 • Canyon of the Eagles

TSPS members at work!

Membership discussion among attendees

View of Lake Buchanan

To see pictures from the 2016 Ray Wisdom Auction & Dinner, visit www.tsps.org/RayWisdom2016.

Peter Cottontail

View from the cabins

Panel participants for Strategic Planning

L-R: Don King, President-Elect Jerry Lehew, Mark Hanna

L-R: Mike Hoover, Henry Kuehlem, Bill Coleman

Ken Gold & Maxey Sheppard

Photo by Jerry Lehew, RPLS

Photo by Philip Adams, RPLS

Photo by Kristen Evon

Photo by Kristen Evon

Photo by Kristen Evon

Photo by DJ Kyle

Photo by DJ Kyle

Photo by DJ Kyle
Situational Awareness

By Joe Breaux, RPLS, TSPS Safety Committee Chair

Earlier this summer one of our Safety Officers sent out a picture of a nice young family - a Mom, Dad and a small child, posing in the bluebonnets for a picture. Their camera was on a tripod and a timer snapped the picture. The caption under the picture asked “Did you notice anything unusual?” Taking a second look, it was more apparent that a problem was about to happen. A rattlesnake was about to strike. The explanation went on to say that the Mom was bitten by the snake. When the picture was sent to us, she had been in the hospital for about 2 weeks or so, and was still there undergoing treatment for a serious rattlesnake bite.

From the limited details of this situation, I question the awareness of the individuals to the conditions of their particular surroundings. Did they think about being in tall vegetation where snakes might roam among the beauty of the flowers?

Experts call this Situational Awareness. What is Situational Awareness? How does it affect our safety and the safety of others working near us? It is very easy to perform a quick search on the internet and to find many sources of information and several definitions of Situational Awareness. A common definition of Situational Awareness is being aware of one’s surroundings at all times to ensure your safety and the safety of those around you. Adding on a bit, Situational Awareness also includes making adjustments to changing conditions.

Maintaining situational awareness is one of the keys to a safe office or work place (read this as surveying on a construction site, in a traffic control zone, on a roadway, setup on a sidewalk or out in the wilderness performing a survey).

In the above snake scenario, not being aware of the potential for snakes, which is enhanced by the time of year and the terrain, the chances are high for snakes to be on the prowl and to be quite aggressive. With or without the bluebonnets, a survey crew could encounter the same situation of walking upon or stopping to search or set up where a poisonous snake could be. Without taking some precautions such as using a walking stick or purposely making some noise, a snake just might not move on. The potential for a snake bite is high.

Situational awareness applies to just about every thing done while working and is especially critical while in the field. Consider when a survey crew parks their vehicle to go searching for property corners or to occupy a survey point. Before stopping and exiting the vehicle, does the driver assess his or her surroundings such as traffic speed, shoulder slope, depth of a roadside ditch, obstructions, proximity to the lane of travel, and other critical elements? Without paying attention, the vehicle could be left in a precarious situation where damage to the vehicle could easily occur. Or even worse, the vehicle could be struck by another and someone could be hurt or killed.

The term situational awareness can be traced back to World War I where the term was used in military aviation. The concepts of situational awareness can be identified in military history as far back as 5 BC in a writing titled The Art of War by the Chinese military strategist Sun Tzu. The term was used by US Air Force air crews who returned from combat after Korea and Vietnam. Their survival in dog fights was attributed to observing and orienting themselves enabling them to anticipate their opponents moves. Since then, the Air Force and the US Coast Guard, as well as aircraft manufacturers and other industries, have done extensive studies on situational awareness.

How does this apply to our daily activities and most importantly, our safety and the safety of others? Here are some suggestions: When in the office or in the field, stay focused on the right things. Ensure that you are not only looking at your feet. Constantly scan, looking around and look up. Maintain your safety zone or cushion. In the field, look as you work and walk, at the terrain, at others around you, at fixed objects and other activities going on. Be alert to impending danger. Make sure to share known or observed hazards with others who work with you or working in your area. In offices, know where exits are and know the location of fire extinguishers and first aid kits. Scan areas around you for developing danger. Prepare for emergencies by practicing quick and safe exits. Know emergency procedures for dealing with intruders.

All too often, we focus on tasks at hand and use our direct vision. We concentrate and are looking only at items in our path or directly in front of us. Good situational awareness involves using our peripheral vision which expands our view up to approximately 180 degrees of view. Also, trust your intuition. Our senses can alert us to impending danger. If instinct is telling us of danger, listen to it. If danger is discovered, tell others and work to eliminate that danger. Often when in the field, especially in a construction or work zone, danger quickly develops. Good situational awareness will provide an opportunity to avoid and then eliminate a dangerous situation.

(See SAFETY, page 15)
Drones and Surveying
Frank Willis, PhD, PE, PLS

Multirotor drone technology owes its success to the development of the lightweight lithium polymer battery. Combustion engines cannot be throttled precisely enough to propel a multirotor drone. However, lithium polymer batteries and highly controllable brushless motors made multirotor drones feasible. Eight years ago, the only way to own a drone for under $20,000 was to build it yourself. Holger Buss and Mikrokopter of Germany developed a computer board for drones that controlled motor speeds to enable a drone to fly with surprising stability. They even added GPS. Mikrokopter sold kits that had to be soldered and assembled. Assuming that the builder knew something about electronics, it took about 40 hours of work to decipher instructions, assemble, solder, configure the firmware, and solve glitches. The cost of parts to build a drone was between $2,000 and $5,000. Several years ago, DJI designed one of the first systems that required only minimal assembly. Now, multirotor drones are available already assembled for less than $800. They require only a battery charge before launching for a GPS-controlled flight that virtually anyone can pilot. Panic-stricken pilots need only to press the “return home” button on their controllers, and the drone will return home on its own and land at the same location from which it took off. FAA licensing has been implemented. Now that drones are legal, they are really taking off. More than 400,000 drones have been registered with the FAA in the US alone.

Multirotor drones usually have between 4 and 8 engines. They usually range in size from about one foot in diameter to about 4 feet in diameter. Some can carry payloads of more than 5 pounds. They are an excellent platform for aerial photography and remote sensing, and may be gaining popularity for transport of light-weight goods. Now that drones have become a reliable platform for hauling virtually any light-weight device, aerial applications of technology are being invented and attached to drones. Currently, the obvious applications for the surveying profession are aerial photography and LiDAR.

Although standard ortho aerial photography is possible on a drone, the cameras that drones are able to transport are not large enough to have fields of view that are as large as the cameras deployed on conventional aircraft. This was a severe limitation until faster PC microprocessors enabled companies like Photomodeler and Pix4D to develop complex algorithms that facilitated the complex science of close-range photography to produce reasonably accurate 3D data and orthomosaics for areas of 25 acres or more. At present, Pix4D at $8,700 and Photomodeler Scanner at $2,500 are two of the leading software packages. Other startup software companies are beginning to appear in the market, and competition will drive the price down for industrial-grade drones and software.

The decision to deploy a drone for an engineering or surveying business leaves the entrepreneur with many options. One option is to buy an expensive system and to extensively adapt it to the profession, such as with the Trimble drone system. Another option is to buy a low-cost drone with a camera, or to buy an even lower-priced drone and mount one’s own camera on the drone. In my opinion, a good option is the DJI Inspire 1 with camera and GPS for $2,000 or a DJI Phantom 4 with camera and GPS for $1,400. They are almost ready to fly right out of the box. They take surprisingly good photographs and videos. The photographs can be processed by close-range photogrammetry software to produce reasonably good aerial photos and 3D data. I have used a cell phone strapped to an $800 drone and collected surprisingly good data. The 3D data and aerial photographs can be georeferenced to any ground control system and exported in ASCII format or DXF to standard engineering or surveying software. The gap between the low-cost approach and a high-end system is huge. For many, a good plan of action might be to start out on the low end, learn the technology, and gradually move up as business warrants. One will no doubt be surprised at what can be accomplished with the lower-priced technology.

Total stations with distance measuring produced a quantum leap in surveying production, followed by GPS and robotics. Drones are the next step. As technology has improved over the years, the process of surveying has become easier and more efficient, and surveying has become more enticing. Unfortunately, the novelty of drones and the power of aerial photography have caused GIS and non-trained people to encroach into the regulated profession of land surveying. Obviously, aerial photography is not regulated by land surveying statutes. However, it is unfortunate that many people with drones claim to be able to provide property surveys and property maps. Now that the cat is out of the bag: anyone with a drone and software can fly over a quarry, punch a few buttons, and come up with what they claim is the accurate volume of the quarry. This problem is exacerbated by claims of the software being more reliable than it often is, and by clients looking for the most inexpensive way to get something surveyed or mapped. While the photogrammetry software packages produce impressive-looking 3D models, the models can be grossly erroneous without warning, even if the control points match. If the theory of close-range photogrammetry is not understood by end users, drones and their software can lead to incompetent button pushing.

Although the FAA has published rules for registration and flight procedures, drones must be operated with extreme caution. A small nut dropped from 100 feet can be fatal. FAA currently

(continued on next page)
regulates drones to no more than 400 feet of altitude above the ground and makes it illegal to fly a drone over non-participating people not protected by rooftops. However, FAA regulations do not appear to stop everyone from doing this, as documented on hundreds of YouTube videos.

Drones are not a complete solution for any survey. However, when used correctly, they can greatly improve workflow on some projects. They will become a common component of the surveyor’s toolbox, especially as the technology that they transport develops.

Frank Willis is a PLS, PE in Civil Engineering, PE in Environmental Engineering and Professional Geoscientist. He holds a BS in Civil Engineering, BS in Biology, Master of Engineering and PhD in Engineering and Applied Sciences. He will present ‘How Can Drones Transform Surveying?’ and ‘Forensic Surveying’ during the TSPS 65th Annual Convention in October - www.tsps.org/convention.

Situational awareness is often degraded by loss factors. Loss factors include inattention, distraction, stress, supervisor or peer pressure, a new or unfamiliar situation, repetition and complacency, and “get-there-itis.” Get-there-itis is when the one’s vision is clouded and judgment becomes impaired by fixation on the goal or the destination. Loss factors must be acknowledged and then reduced or eliminated as much as possible to maintain safety.

Situational Awareness is being aware of one’s surroundings at all times to ensure your own safety and the safety of those around you. It also includes making adjustments to changing conditions. Good situational awareness is critical to maintaining a safe work place, whether in the office, in the field, to and from the work site or survey job, or to and from home. Knowing the loss factors and reducing their effects goes a long way in creating good situational awareness and a safe work place.
Education and Exhibitor Schedule

**Friday, October 14**
- 8:00 am–10:00 am: Educational Session: *Wetlands and Waters of the US* (2 CEUs)
- 8:00 am–12:15 pm: Educational Session: *How Can Drones Transform Surveying?* (4 CEUs)
- 8:00 am–12:15 pm: Educational Session: *Three New Ways to Find Trouble* (4 CEUs)
- 8:00 am–12:15 pm: Educational Session: *TBPLS Quarterly Board Meeting* (4 CEUs - includes Ethics hours)
- 10:00 am–12:15 pm: Educational Session: *What is a Conservation Easement?* (2 CEUs)
- 2:00 pm–5:30 pm: Exhibit Hall Grand Opening and Reception

**Saturday, October 15**
- 7:30 am–9:30 am: Educational Session: *Bulletproofing Your Surveys* (2 CEUs)
- 7:30 am–12:00 pm: Educational Session: *Abstract & Research: Skills for the Hunt* (4 CEUs - includes Rules hours)
- 7:30 am–12:00 pm: Educational Session: *Forensic Surveying* (4 CEUs)
- 7:30 am–12:00 pm: Educational Session: *Wars Between the States* (4 CEUs)
- 9:30 am–10:00 am: Break with Exhibitors
- 10:00 am–12:00 pm: Educational Session: *Pre-Proposal Meetings: Your Path To A Great Scope* (2 CEUs)
- 12:00 pm–1:30 pm: Lunch with Exhibitors
- 1:30 pm–3:30 pm: Educational Session: *Controlling Scope Creep* (2 CEUs)
- 1:30 pm–5:45 pm: Educational Session: *Re-Engineering Surveyors and Their Business* (4 CEUs)
- 1:30 pm–5:45 pm: Educational Session: *Courtroom Preparation and Testimonies* (4 CEUs - includes Ethics hours)
- 1:30 pm–5:45 pm: Educational Session: *TxDOT ROW Mapping Deliverables* (4 CEUs)
- 3:45 pm–5:45 pm: Educational Session: *When It Is Time to Move On* (2 CEUs)

For session descriptions and speaker bios, please visit www.tsps.org/convention.

Events and Auxiliary

- Space is available for the Golf Tournament, Sporting Clay Shoot, Annual Luncheon featuring Brad Henderson’s “What?!” presentation, and the Annual Awards Gala & Dinner with music by The Derailers. Buy your tickets when you register!
- Ladies Auxiliary - Make some memories, shop and lunch in Gruene, and stay for the Annual Business Meeting & Luncheon. Visit www.tsps.org/auxiliary to view the full schedule and to register!

Mobile App

Introducing the 2016 TSPS Annual Convention App! Now available for download in iTunes and Google Play.

This live engagement app allows you to learn, connect, interact, and share with other attendees, giving you increased control over your convention experience. Download for FREE today!
# Attendee Information

(One form per attendee. Please print or type.)

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Special Assistance Required □

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# Auxiliary Member Information

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# Registration Fees (please check one)

## Registration Options

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# Events & Educational Sessions

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<td>□ 1:00 pm TSPS Sporting Clay Event</td>
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<table>
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You can also register for classes online at [www.tsps.org/convention](http://www.tsps.org/convention).
Auxiliary Events & Registration Fees

- Auxiliary Annual Membership Dues (required to attend Auxiliary Events) $10
- Auxiliary Convention Registration (includes admission to Tech Expo) $30
- Thursday 9:00 am-11:30 am Making Memories
- Friday 10:00 am-3:00 pm Shopping and Lunch in Gruene, TX (offsite)
- Saturday 11:00 am-3:00 pm Color Your World Annual Business Meeting & Luncheon

<table>
<thead>
<tr>
<th>Event</th>
<th>No. of Tickets</th>
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<tr>
<td>Making Memories</td>
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<td>Color Your World</td>
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Cancellation Policy:

Cancellations minus a $50 administrative fee will be made if written request is received by Friday, September 23rd. No refunds will be made after that date.

Total from previous page = __________
Auxiliary Total = __________
GRAND TOTAL = __________

Payment Information

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- Card # ____________________________
- Exp Date __________________________ Sec. Code __________________
- Name on Card ______________________
- Billing Address _____________________
- Billing CSZ _______________________

Payments made for the TSPS Annual Convention are not deductible as charitable contributions, however, they may be deducted as a trade or business expense. Consult your tax advisor.
Selected Short Course Reports (May 20-21, 1940)

In May 1940, a group of leaders in the fields of surveying, engineering, and government gathered at the Agricultural and Mechanical College of Texas for the First Annual Conference on Surveying and Mapping. Five of the conference papers selected as being of interest to the modern Texas Surveyor are included in this volume:

1. Duties and Responsibilities of the General Land Office, by Bascom Giles
2. The Value of a Plane Co-ordinate System, by W. P. Moore
4. Retracing Texas Land Lines, by W. J. Powell
5. Discussion of Major W. J. Powell’s Paper on Retracing Texas Land Lines, by T. A. Munson

Many of the concepts in these classic works are as relevant today as they were 75 years ago and, with the adjustable text size and go-anywhere portability of an eBook, more accessible than ever.


Since 1977, Texas land surveyors, attorneys, real estate and title professionals, and many others have relied on the Manual of Practice for preparation and analysis of surveys conducted to the Texas Society of Professional Surveyor's Standards and Specifications.
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Beyond Ethics

By Stuart Warnock, RPLS, GISP

There is a word that is not focused on nearly enough in the surveying profession, a word that is also a measure of trust, universal throughout the entire world and deeply rooted within the subconscious mind of every human. That word is integrity. We have discussions about ethics, board rules on ethics, continuing education requirements on ethics, codes of ethics, and ethics classes in school. Integrity, however, is a concept that is much harder to discuss. To do so, we need to determine exactly how it differs from ethics. Dictionary.com defines ethics as “the rules of conduct recognized in respect to a particular class of human actions” and further defines integrity as “soundness of moral character; honesty. The state of being whole.” To put it another way, ethics is about following the rules, while integrity is about doing what is right. Integrity goes beyond what is defined by rules or laws.

Every good set of laws or codes should incorporate ethics, but they can also become ethically corrupt, becoming a function of power that only serves agendas or particular interests or, on the other hand, is slow to adjust to a changing environment. A person can certainly be ethical but not have integrity. Some are simply trying to stay out of trouble, only doing something because it would otherwise be against the rules. If something is not explicitly spelled out, then is it fundamentally wrong? This gray zone is where having integrity truly comes into play. In the gray zone, acting with integrity reflects a much greater depth of character.

I would argue that integrity is the most fundamental and important pillar of professional conduct in regard to land surveying, because without integrity, nothing else can be relied upon. A paragraph written by Curtis Brown in his 1961 paper “The Professional Status of Land Surveyors” states, “Advocating observances of ethics is not sufficient; the surveyor’s personal example is far more important. It is not sufficient that the surveyor alone feels that he has honesty and integrity; the public, clients, and fellow practitioners must also believe so. The proof of observance of integrity lies in the opinions of others”[1].

Therefore, an individual or organization should not simply state that they practice with integrity. It is a right that must be earned through the opinions of others.

Being a land surveyor is more than just holding a license and having the knowledge needed to practice. There is a central commitment and responsibility of the land surveying profession to take into account and protect the interests of the public above all other considerations. Every registered surveyor in Texas takes that oath before becoming licensed or renewing his/her certification (Rules §661.46, subsection b). In fact, that oath is the first official document that a Texas surveyor certifies with his/her brand-new seal. Yet, too often that oath is forgotten when considering the public’s interests. The professional land surveyor’s responsibility is NOT to solely satisfy the needs of individual clients, employers, or employees. As practicing professionals, maintaining public trust is something we should all hold sacred, both within ourselves and within our organizations.

Organizational integrity starts with the employees. Billionaire investor Warren Buffett once said, “In looking for people to hire, you look for three qualities: integrity, intelligence, and energy. And if they don’t have the first, the other two will kill you.” However, this idea extends far beyond employees and is pivotal in defining an organization as well. The integrity of a company does not refer to a single action of one individual; rather, it is the total added effect of the integrity shown by each employee or leader within that company. It may be weighted based on an individual’s position within that company, but it still has a cumulative effect. Therefore, an organization must be quick to recognize ethical dilemmas, it must be transparent with its clients, and it must support employees who uphold the values and integrity of the organization.

Integrity cannot be discussed without talking about individual integrity. At the personal level, integrity becomes far more than ethics; it’s about the character of the person. Individuals who live with integrity build integrity and trust with others. Without trust, it does not matter how experienced a person might be. In fact, his/her competencies become meaningless. Trust is a fragile thing that is built up over time but can dissolve rapidly. When you think about personal integrity, you would be wise to remember an old Chinese proverb that reads, “The reputation of a thousand years may be undermined by the conduct of one hour.”

Each one of us has run into instances of poor integrity throughout our careers. It largely defines the reputation that you, your organization, and the profession at large all carry, and all it takes is one wrong choice to destroy the reputation that took a lifetime to build. Emphasis on ethics and integrity is always important, but in today’s world it is needed more than ever. It is vital to recognize that many of the problems and boundary disputes we face from day to day in land surveying have been caused by the failure of an organization or an individual to practice with integrity. Sometimes putting integrity before profit is not an easy decision. However, integrity does not need to be compromised to become a successful company; in fact, it might just be the key to your success and the reputation of our...
profession. After all, integrity breeds trust, and is there anything more important than trust?


Stuart Warnock is the Owner and President of Pioneer Mapping in Fort Worth, and currently serves as the Texas Young Surveyor Network North Region Coordinator.

Upcoming Events:
09/29/16: NSPS Young Surveyor Network Fall Meeting - Phoenix, AZ
10/13/16: Texas Young Surveyor Social at TSPS Convention - San Marcos, TX

Texas Young Surveyors' Officer Team

Director: Anna Burroughs

Region Coordinators:
Brady Stanford, West Region
Connor Brown, East Region
Julienne Henson, Central Region
Richard Neubauer, III, South Central Region
Stuart Warnock, North Region

TYS is still looking for coordinators for the Panhandle, Coastal and South Region! If you are interested, please contact Anna via email: annaintx@hotmail.com.

To learn more about Texas Young Surveyors, visit www.tsps.org/TYS.

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Thank you for your support of SurPAC!
An Attorney’s Angle

Mark Hanna – TSPS Legal Counsel

Mark J. Hanna practices law in Austin and has served as TSPS Legal Counsel since 1992. In addition to providing legal and legislative representation for the Society, Mr. Hanna specializes in representing the interests of individual business and professional clients located throughout the State.

Texas Real Estate Law Recent Cases

The following is a summary of the recent Texas real estate law cases as prepared by the Real Estate Section of the State Bar of Texas. For more information regarding these cases or other legal issues of significance to the surveying profession, contact TSPS Legal Counsel, Mark J. Hanna, 900 Congress Avenue, Suite 250, Austin, Texas 78701; telephone: 512-477-6200; facsimile: 512-477-1188.

1. Mortgages and Foreclosures


The purpose of a loss-payable clause in an insurance policy is to protect the security interest of the mortgagee who has advanced money to others for the purchase of property and who has taken a note and deed of trust, or mortgage, on the subject property.

A mortgagee’s insurable interest under an insurance policy containing a mortgagee loss-payable clause is limited to the indebtedness which the mortgagor owes under the note and deed of trust.

A foreclosure under a deed of trust has the effect of reducing the indebtedness owed by the mortgagor by the amount paid for the property at foreclosure. If the foreclosure fully satisfies the mortgage debt or the mortgage debt is otherwise released as a result of the foreclosure, the mortgagee no longer has a right to any of the insurance proceeds paid for a preforeclosure loss. If a deficiency remains following the foreclosure, however, the mortgagee retains a right, but only to the amount of the insurance proceeds necessary to satisfy the deficiency.

If, however, a surplus exists after the extinguishment of the debt upon a foreclosure where the insurance proceeds have not been applied to reduce the mortgage debt before the foreclosure, the mortgagor is entitled to retain all of the insurance proceeds and to bring suit against the insurance company for any underpayment because the excess value of the property as it existed at the time of the loss is the property of the mortgagor.

2. Guaranties


Property Code § 51.003 can be waived.

A provision in a guaranty stating the guaranty would not be discharged, impaired, or affected by any defense the guarantor might have is sufficient to waive Property Code § 51.003.

Villages borrowed a loan secured by real property in Denton County. Moayedi executed a guaranty. The guaranty included two provisions dealt with in this case. First, in paragraph seven of the guaranty, it provided that the guaranty would not be discharged, impaired, or affected by any defense that the guarantor might have. Second, in paragraph thirteen of the guaranty, it provided that the guarantor waived and relinquished “all rights and remedies of surety.”

The borrower defaulted and the lender foreclosed. At the time of foreclosure, the fair market value of the property was $840,000, but the lender bid only $487,200 at the sale. The lender sued the guarantor. He answered, claiming that Property Code § 51.003 provided an offset to the deficiency. The lender argued that the waiver of “all rights and remedies” and the waiver of defenses meant that § 51.003 did not apply.

Section 51.003 provides for a determination of the fair market value of the property sold at foreclosure. Then, if the fact-finder determines the fair market value is greater than the foreclosure sale price, the person obligated on the indebtedness is entitled to offset the deficiency amount by the difference between the fair market value and the sale price.

The trial court held in favor of the guarantor. The court of appeals reversed, holding that the guarantor had waived his right to apply § 51.003. The court of appeals held that the offset is an affirmative defense. It concluded that the use of “any,” “each,” and “every” in the agreement encompassed all possible defenses and conveyed an intent that the guaranty would not be subject to any defense other than payment. It further concluded that at least three other provisions in the agreement indicated the same intent, including the guarantor’s agreement that I-35 could enforce the guaranty without first resorting to or exhausting any security or collateral. According to the court of appeals, then, because the guarantor waived all defenses, he waived the right to avail himself of § 51.003’s offset provision.

(continued on next page)
The supreme court affirmed the court of appeals. Texans have long embraced the principle of freedom of contract. And the supreme court’s decisions respect the strong public policy of respecting parties’ freedom to design agreements according to their wishes.

The first thing the court did was to address whether § 51.003 can be waived. This had not been argued by the parties, but the court had never ruled on this question. It held that § 51.003 can be waived.

The next thing was to address whether the guarantor had waived § 51.003. Here, the court agreed with the court of appeals that the general waiver provision waives the application of § 51.003.

To be effective, a waiver must be clear and specific. Until now, this court has not addressed the level of specificity required to waive § 51.003. Most cases in which courts have concluded § 51.003 was waived involved language with more specificity than the language at issue here. The guarantor argued that Shumway v. Horizon Credit Corp., 801 S.W.2d 890 (Tex. 1991) should apply. In that case, the court held that a borrower’s waiver of the requirement that a lender provide clear and unequivocal notice that it intends to accelerate a debt and that it has accelerated must also be clear and unequivocal. In that case, the court required specific enumeration of the matters being waived. The supreme court said, essentially, that Shumway did not really apply here.

The court’s decision really rested on this question: What did the guarantor think he was waiving when he waived “any,” “each,” and “every” defense? As the court of appeals concluded, the plain meaning of “any,” “each,” and “every” used in paragraph seven results in a broad waiver of all possible defenses. Just because the waiver is all-encompassing does not mean that it is unclear or vague. To waive all possible defenses seems to very clearly indicate what defenses are included: all of them.
List your card here! Send a digital copy of your business card to Kristen@tsps.org, or call 512-327-7871 for more details.

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Currently seeking:

- TX RPLS/Project Surveyor
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Urban Engineering, founded in 1965, is a family owned multi-disciplined Engineering and Surveying Company based in Corpus Christi, Texas. We are seeking an RPLS, SIT, Survey Technician and Party Chief for projects in Corpus Christi and surrounding areas. Candidates may have working experience in ALTA/NSPS Land Title Surveys, Boundary and Topographic Surveys, Construction Staking, Subdivision Platting, Easements, and preparing Metes and Bounds Descriptions/Exhibits. Industrial/Energy Surveying experience desirable. Proficient in Carlson Software and AutoCAD or similar computer-aided software. Knowledge of Geographic Information Systems preferred. Candidates expected to be organized, self-sufficient, and task driven. RPLS candidate also to include:

- State of Texas Licensure
- Ability to function in a fast-paced environment
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- QA/QC ensuring compliance to industry regulations and standards
- Quote, prepare, produce, manage, and deliver projects in a timely manner within budget
- Work closely with Survey Department Manager, providing direction and support to staff

Urban Engineering offers a competitive compensation package and benefits including Medical/Dental/Vision/Life/401K/Paid Leave. All offers of employment are contingent upon the prospective employee passing a background check, drug screen, and acceptable driving record. Please send all resumes and correspondence to jolenep@urbaneng.com.

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**HARRIS KOCHER SMITH**

Harris Kocher Smith is a multi-disciplined consulting firm specializing in civil engineering design and professional land surveying services serving clients in Texas and Colorado. We are looking for someone to operate initially as both field operator and project manager for a growing survey department. You will perform boundary, topography, ALTA, right-of-way, and construction surveys; reduce field data and prepare calculations; prepare and/or review land survey plats, legal descriptions, and exhibits; and manage a variety of survey projects for public and private clients. The right candidate will be a key component in the growth of the department. To view complete job description and apply, please visit: http://harriskochersmith.com/careers/.

MULTIPLE POSITIONS – DALLAS/FORT WORTH, TX

**MARSHALL LANCASTER & ASSOCIATES, INC.**

Marshall Lancaster & Associates, Inc. is a DFW area professional land surveying firm seeking resumes for:

- **Project Manager:** Supervision of technical staff and budget management. Ability to operate or learn Carlson Survey and TBC. RPLS preferred.
- **Office Technician:** Preparation of ALTA surveys, topographic surveys, subdivision platting, and construction calculations. Ability to operate or learn Carlson Survey and TBC. LSIT preferred.
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Email resume to hr@mla-survey.com and visit our website at www.mla-survey.com.

SURVEY PROJECT MANAGER – DALLAS, TX

**GORRONDONA & ASSOCIATES, INC.**

Gorrondona & Associates, Inc. is seeking a qualified Survey Project Manager in our Dallas office.

**Responsibilities:**

- Prioritize and manage multiple projects within timelines and budget constraints.
- Coordinate and direct work for technicians and field crews.
- Perform research, field investigations, and project boundary calculations.
- Preparation of boundary and topographical surveys, project control, metes and bounds descriptions and general survey support for engineering design projects.

**Desired Qualifications:**

- Valid registration as a R.P.L.S. in the State of Texas (preferred) or S.I.T. with Bachelor’s degree in surveying-related field.
- TxDOT Precertifications a plus.
- Experience in AutoCAD, Microstation, Carlson and Trimble Business Center software.
- Experience in:
  - TxDOT right-of-way mapping
  - Boundary/Topo
  - Transportation/Bridges
  - Preparation of Right-of-Way Acquisitions and Easements
  - ALTA/ACSM (NSPS) Land Title Surveys
  - Project Control for LiDAR and Aerial Mapping

Must have valid driver’s license and clean driving record. Must pass pre-employment drug screen and background check. Salary commensurate w/experience. Benefits include 401K, tuition assistance, 100% paid employee health insurance, life insurance and Long Term Disability. Email resume to employment@ga-inc.net.
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Baseline Corporation, a professional land surveying firm with offices in Houston, Richardson, and College Station, Texas is currently accepting applications from qualified, organized and detail oriented personnel for the following positions:

TBPLS Firm No. 10193933 (Richardson)

Survey CAD Technician - A minimum of five (5) years of experience using AutoCAD Civil 3D to develop Topographic Design Surveys, Digital Terrain Models and Right-of-Way Maps. GEOPAK & MicroStation experience a plus.

Survey Crew Chief – A minimum of five (5) years of experience as a Survey Crew Chief responsible for a survey field crew using modern total stations, data collectors, digital levels and RTK GPS. Experience using Leica equipment a plus. Some in-state travel may be required. Good driving record mandatory.

Instrument Operator – A minimum of three (3) years of experience as a Survey Instrument Operator on a survey field crew using modern total stations, data collectors, digital levels and RTK GPS. Experience using Leica equipment a plus. Some in-state travel may be required.

Baseline Corporation offers a competitive benefit and compensation package, which includes medical, dental, vision, life insurance, long term disability plans, 401k match and ESOP.

Email resumes to info@baselinesurveyors.net.

MULTIPLE POSITIONS – HOUSTON, TX

Baseline Corporation

Lupher, LLC offers Competitive Salary & Year End Bonus. Full Benefits include Medical, Dental, Vision, Life, IRA, & PTO.

Please email resume to rlupher@lupherllc.com.

TBPLS FIRM No. 10193807

MULTIPLE POSITIONS – HOUSTON, TX

Lupher, LLC, Texas Professional Land Surveyors located in Houston, Texas has the following Full Time positions available. Typical TXDOT or Public works type Projects involve Control Surveys, Boundary, Route & ROW Acquisition, Topographic, Utility Line surveys, Private Development Surveys, Survey Mapping, etc.

• RPLS (2-5 years’ experience)
• SURVEY PARTY CHIEF (5+ Years’ Experience)
• INSTRUMENT MAN (2+ years’ experience)
• RODMAN (1+ years’ Experience)
• SURVEY TECH OR S.I.T. (2+ years’ experience)
• SR CAD TECH (Autocad/Microstation/Geopak PREFERRED)
• MICROSTATION CAD TECH
• ADMIN ASST (1+ years Experience: HR & Quickbooks experience a plus)

Lupher, LLC offers Competitive Salary & Year End Bonus. Full Benefits include Medical, Dental, Vision, Life, IRA, & PTO. Please email resume to rlupher@lupherllc.com.

SURVEYOR TECHNICIAN – HOUSTON, TX

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Search legal and survey records and land titles to obtain information about property boundaries and areas to be surveyed.

• Responsibilities include but are not limited to:
  • Process field data using TBC for multiple survey crews on a daily basis
  • Work closely with Survey Supervisor to address data issues as well as field notes
  • Maintain and organize field data in a file structure as set forth by the company
  • Work closely with the RPLS in setting properties and plotting deeds

Requirements Basic Requirements:

• A minimum of six (6) years surveying experience or degree relative to surveying is required
• Must be proficient in Microstation w/GEOPAK and AutoCAD Civil 3D a Plus and TBC software
• Must be positive, self-motivated and detail oriented
• Must be dependable with the ability to work independently

Pay based on experience.

Please send resume to jeremy.kowis@mboengineering.com.

MBCO Engineering, LLC

MULTIPLE POSITIONS – HOUSTON, TX

Baseline Corporation

Baseline Corporation, a professional land surveying firm with offices in Houston, Richardson, and College Station, Texas is currently accepting applications from qualified, organized and detail oriented personnel for the following positions:

TBPLS Firm No. 10030200 (Houston)

Survey Crew Chief – A minimum of five (5) years of experience as a Survey Crew Chief responsible for a survey field crew using modern total stations, data collectors, digital levels and RTK GPS. Experience using Leica equipment a plus. Some in-state travel may be required.

Baseline Corporation offers a competitive benefit and compensation package, which includes medical, dental, vision, life insurance, long term disability plans, 401k match and ESOP.

Email resumes to info@baselinesurveyors.net.
Spooner and Associates, Inc is seeking a motivated, hands-on Registered Professional Land Surveyor in good standing with the Texas Board of Professional Land Surveyors, to oversee project management, maintain quality control processes/procedures and production oversight. The ideal candidate for this position is hard-working, honest, dependable, ambitious and ready to enjoy a career with a growing, family-owned company that has been in business for over 25 years. This is a senior position which will require knowledge and experience with Easement/Right-of Way Surveys, Plats, ALTA’s, boundaries, property descriptions, topographic surveys, client relations, and project management.

Requirements:

• Minimum of two (2) years of experience supervising multiple survey personnel.
• Must have an active license with the State of Texas as a Registered Professional Land Surveyor.
• Excellent cooperative skills in working efficiently with a team, and training, coordinating, and leading others in accomplishing work activities.
• Excellent time management skills; thorough understanding of task assignment and schedule, budgeting, and efficient use of time and resources.
• Federal, State, and municipal government project experience preferred.
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• Trimble TBC software and equipment preferred.
• Experience with Easement/Right-of Way Surveys, Plats, ALTA’s, boundaries, property descriptions and topographic surveys.
• Ability to do survey related research is desired.
• Must be able to pass a drug test and background check.
• Valid driver’s license and a good driving record required.

Thank you for your interest and submit resumes to owner Eric Spooner at espooner@spoonersurveyors.com.

Langan is an award-winning ENR Top 500 Design Firm that offers integrated engineering and environmental services for public and private sector clients at sites located throughout the U.S. and abroad. Join our team of industry leaders and make a difference on some of the most exciting and interesting projects in the field!

Langan has an opportunity for a Surveyor Senior Manager with extensive oil & gas and site development experience to start our survey practice in our Houston, TX office. The successful candidate will be responsible for managing, leading, and growing all aspects of a regional survey department in both Houston and Midland, TX.

If interested, please apply online at geoshack.com/careers.

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**MULTIPLE POSITIONS – SAN ANTONIO, TX**

**ELIZONDO & ASSOCIATES**

Elizondo & Associates - Land Surveying & Mapping, LLC. is a full service land surveying firm based out of San Antonio, TX.

Our office has immediate openings for a full-time RPLS, (Surveyor in Training) S.I.T., Party Chiefs, and Rodman.

Projects include Boundary and Topographic Surveys, Construction Surveys, ALTA Surveys, Title Surveys, and a vast array of land surveying services.

RPLS and Survey Techs must have 5 years experience with deed research and also be proficient with AutoCAD LDD and Civil 3D. Party Chiefs must have 5 years experience in Alta Surveys, Title Surveys, and Construction Surveying. (Must be able to pass a criminal background check and also possess a valid driver’s license).

Competitive compensation. Benefits offered after 90 days

**Required education:**

- Bachelor’s Degree or equivalent work experience

**Required experience**

- RPLS: 5 years
- Surveyor in Training (SIT): 5 years
- Party Chief: 5 years
- Survey Tech: 5 years

Send resume to henry@elizondoassociates.com

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Happy job hunting!
**COMING EVENTS**

**SEPTEMBER**

**Sept 16-17**  
El Paso Annual Seminar  
Camino Real Hotel  
101 South El Paso Street | El Paso, TX 79901

**Sept 22-24**  
Locating Original Corners Seminar  
Neal's Lodge and Annandale Ranch  
Concan, TX 78838  
This unique interactive experience is presented and led by some of the state’s most highly experienced practicing LSLS surveyors and teachers.

**OCTOBER**

**Oct 12-15**  
65th Annual Convention & Tech Expo  
Embassy Suites San Marcos Hotel  
Spa & Conference Center  
1001 E McCarty Lane | San Marcos, TX 78666  
Classes are filling up, be sure to register today!

**NOVEMBER**

**Nov 11**  
TSPS West Texas Chapter 18 Seminar  
Abilene Civic Center  
Upstairs Conference Room  
1100 North 6th Street | Abilene, TX 79601  
*Contracts for the Land Surveyor* (4 CEUs) - This course covers the basics of contract law and attendees will walk away with a one-page “Letter of Engagement” that can be utilized for most professional service offerings.  
*Ethics for the Land Surveyor* (4 CEUs) - This seminar will study ethical consideration in everyday practice.

**Nov 12**  
Certified Survey Technician (CST) Exam  
North Lake College (West Campus)  
1401 Royal Lane | Coppell, TX 75261  
8:15 am

**DECEMBER**

**Dec 3**  
Riverine Adventure Seminar  
Crowne Plaza Northwest  
12801 Northwest Freeway | Houston, TX 77040  
Surveying boundaries along rivers and streams in Texas can present the surveyor numerous problems. Is it navigable? Should a gradient boundary be performed; if so, should the RPLS determine such a boundary? What rights does the public have within, over and across any such stream? How does the surveyor handle a boundary line along a tidally influenced stream? This course will answer those questions and more. 6 hours (3 Ethics)

**2017**

**Jan 28**  
1st Quarterly Board Mtg  
Austin Marriott North  
2600 La Frontera Blvd. | Round Rock, TX 78681

**Feb 24-25**  
Symposium  
Pearl South Padre Hotel  
310 Padre Boulevard | South Padre, TX 78597

**Apr 29**  
2nd Quarterly Board Mtg  
Austin Marriott North  
2600 La Frontera Blvd. | Round Rock, TX 78681

**Aug 4-5**  
Strategic Planning & 3rd Quarterly Board Mtg  
Omni La Mansion  
112 College Street | San Antonio, TX 78205

**Oct 4-7**  
66th Annual Convention & Tech Expo  
Embassy Suites Dallas-Frisco Hotel, Convention Center & Spa  
7600 John Q. Hammons Dr. | Frisco, TX 75034

**Oct 5-6**  
NSPS/TSPS Joint Meeting  
Embassy Suites Dallas-Frisco Hotel, Convention Center & Spa  
7600 John Q. Hammons Dr. | Frisco, TX 75034

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Jeff Ryall
jeff.ryall@leicaus.com
713-516-5446

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<td>Base/rover or network rover configurations available</td>
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**Leica Network Rover Packages**

- Starting at $11,495

**GeoMax Zenith 25 Pro Packages**

- Starting at $166.00 per month

**Spectra Precision SP80 Packages**

- Starting at $239.00 per month