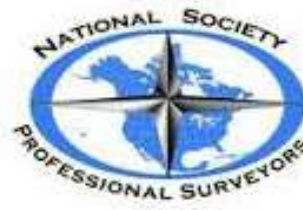


# The UCLS Newsletter



August 2021

## Where is it?



If you live in Utah, you know and appreciate its unpredictable weather - particularly in the Spring. We watch television, listen to the radio, and/or check the online weather forecast to determine what we can do, when we can do it, and how we should dress to do what we do. This month's "where is it" contest is the location of the first U.S. Government weather station in Utah. The first UCLS member that correctly identifies the location of this monument is eligible for a free lunch at their next chapter meeting.

Answers may be emailed to Susan at [srmerrill@ucls.org](mailto:srmerrill@ucls.org). The earliest date and time of response will determine the winner.

**In this issue:** Because it has been awhile since the last newsletter, we have packed much into this edition. In this edition, we updated the leadership page of the UCLS Board and committee chairs. Please contact a member of the Board or the applicable committee chair if you have a question or suggestion.

In this issue of the newsletter, we explore the ethics side of business and how it affects us personally and professionally. In a blast from the past, Lynn Curt gives us a brief history of Salt Lake City Monuments. Using augmented reality to delineate boundary lines is ascertained while changes to Utah State is provided.

Unfortunately, this issue also contains the obituary of two of our outstanding members.

We invite you to share charismatic photos of yourself and/or a coworker, panoramic images of Utah's scenic wonders, or pictures of survey related tools and equipment. Additionally, we need interesting and unique descriptions or survey related stories to share with our membership. Remember, if you do not participate you have no right to complain. Please let us know your thoughts, recommendations, suggestions, or complaints.

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**INDEX TO PAGES:**  
Page 2.....Officers & Committees  
Page 3-4.....Been There Done That  
Page 5-9.....The Business Ethics  
Field Guide  
Page 10.....SLC Monument  
Page 11.....JD Gailey Obituary  
Page 12.....Lonnie Olson  
Obituary  
Page 13.....Boundary Line  
Agreement  
Page 14-16..Boundary Lines  
Through Augmented  
Reality  
Page 17.....Dastardly Deed  
Page 18.....Executive Order

**"You're either in or you're out.  
Sometimes it's that simple. No  
more stories, no sidestepping,  
excuses, or veiled retreats. You're  
either in or you're out"  
- Jeff Brown**

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**Been There, Done That:  
Another Tale From A Country Land Surveyor  
“Riparian Rights Wrangle”**

By Edward Goodrich, Jr., LLS 677

Reprinted from the TBM of the New Hampshire Land Surveyors Association

Flowage rights or fee ownership? Erosion, accretion or evulsion? Land Surveyors spend lots of time with riparian rights stuff. If you look at a Monadnock USGS 15' quadrangle map you will see that we have lots of lakes, ponds and rivers in Southwestern, NH. Water, water everywhere! Surveyors around here get to know riparian issues up close and personal. You throw in the NH Shorelands Protection Act, the plot thickens and water is no longer crystal clear.

Many properties border water, but where is the property line on the ground? Don't know yet. Do you own the land under the water or does someone else? Depends. Is that stream or river navigable? Could be. Is that lake or pond manmade? If natural, is it over ten acres in size and considered a Great Pond in New Hampshire? Suddenly a mountain cabin starts to have more appeal to buy than waterfront property. That will certainly be the case in this tale.

Buying waterfront property is all the rage. The view, the recreation, all have an enormous appeal that commands sky high real estate prices. When you spend that top dollar and are not allowed to enjoy that expensive site, your water boils!

My favorite tale about this problem occurred about thirty-five years ago. I will only say that this happened in New England. No names or places will be cited. I am innocent of any wrong doing, except laughing, to myself a great deal, and having sympathy with the abutters at the same time.

There was this small, tight curving cove on a very nice pond with several cottages around the shore. My client in this cove decided that he wanted a much larger dock so that he could hold parties on it, swim off it and tie up his motor boat. Apparently, this guy had a lot of friends and needed a large space on which to entertain. He had built a dock, 7 feet wide for 120 feet out into the cove with a 16' wide platform for the last 20 feet of the dock. The problem was that his aquatic marvel with a view and dance floor cut a couple of neighbors off from the easy path out into the pond. His neighbors were not included in his friend list.

The neighbors complained to the town. Not much happened. The neighbors complained to the State. That got some attention. The big bad government people paid a visit and did not like what they saw and let the dock owner know. The perpetrator became my client when he called me and asked for help. This land surveyor then arrived on site and saw the problem immediately. I was tasked with doing a survey of the dock owner's lot and several adjoining lots near the water line. After the required time spent at the Town Hall, Registry of Deeds, and a call to the State DES we were armed for bear. We brought in the elevation of the dam and splash boards to the site and did a topo survey of the pond bottom in the cove to determine where the property lines into this flowage pond went. We were going to determine just how long of a dock would legally fit at his shoreline.

Pretty straight forward survey of gathering data points and determining locations of boundaries. However, the dock owner did not like my findings. Fortunately, I was paid in full and dismissed for the time being.

Now this guy was crafty. Crafty happens to be an understatement. Let me expand on that. This guy was very crafty! Let me go back and add that my client was a dirt mover, with all of the big boy toys that go with his profession. He also had the equipment to move all kinds of large objects over great distances as you will soon read.

My client dismantled his outdoor ballroom and helipad to build a new dock and asked me to come back and do an “as built” plan for the authorities. I complied, he, being creative, not so much!

Upon my arrival, I was amazed at what was before me. There was the same tight little cove and there was my client's new, 5' wide dock extending about forty-two feet out into the pond. BUT the main attraction was what was secured to the end of the dock. At the end of his downsized entertainment center was the bow of his new water craft.



*Been There, Done That continued*

Now this guy was used to solving problems with the, "ye olde out of the box thinking." This was a skill that he employed to the excess on this situation. He had not pleased the neighbors. Why not you may ask? You would think that they would be happy with their victory in this size matters battle. The dock sounds like a very big improvement for the abutters. That it was. That it was indeed.

What you need to know now is the rest of the story. He had traded in his pleasure boat, but kept the outboard motor. The motor that was now attached to a sixty-foot barge tied to his little dock. Sixty feet of Party Central that was picked up at an auction outside of New York City and transported by his ever-trusty equipment hauler tractor and trailer to this rural setting. The workhorse from the city was now put out to pasture for a new life of entertainment and slow putt, putts around the pond. You can't make this stuff up!

Whenever he did take the barge out on the pond for a spin, it made those pontoon party boats look like rubber duckies. A big case of flotation envy.

I updated my plan with the new dock size and location and turned over copies to my client. No mention of his watercraft was mentioned on my plan. I have not been back there since. My client was a hoot, a one of a kind. I do not know what happened in the next chapter. I do know that I am also very glad that he is not my neighbor.

This poem was found on a scrap of paper in a School Yard and discovered to be written by a 9 year old boy.

### What is a Sirvayur

A sirvayur is something that grubs around in the woods looking for little sticks and stones. When he finds them he does some kind of weird dance around them with a funny looking 3 leg crutch which he leans on and looks at when he don't find them he walks around all day like he's lost.

Sometimes you see them squashed by cars along roads, expeshelly in the summer when all the other bugs are out. A sirvayur has one big eye and one little eye like popeye. He usually walks around bent over all the time which is why he looks so stooped. His face looks like old lether.

He cusses terriful. He can't read because he measures between things and then puts down a number in a little book he always making marks on sidewalks and rodes so he can find his way home. His pants is always tore from rock salt and his shoes look like they are made of mud. People stare at him, dogs chase him, and he always looks worn out. I don't know why anyone wants to be a Sirvayur.

Submitted for use by Mr. Bob O'Briend from Ft. Myers, Florida and where he found it is anybody's guess!!



## The Business Ethics Field Guide

By: Brad Yarbrough

**EDITOR'S PREFACE:** This is the prologue to a series of thirteen articles centered on ethics in business. These articles were originally produced for and published serially by the International Right of Way Association beginning in the November/December . 2018 issue *Right of Way*. The similarities in ethical challenges faced by professional land surveyors and professional landmen or right of way agents makes this series well suited for the Utah Surveyor.

Business has often been compared to a jungle and for the most part, I have to agree. After all, many of us have experienced the fear of being lost amid towering career threats and feeling trapped by the overgrowth of unsolvable situations. We want to make the right decision and do the right thing, but we need help doing it. And if my 40 years of business and leadership experience has proven anything, it is that the journey does not get easier. So instead of hoping for less problems, it seems wiser to gain additional skills in order to overcome them. As Socrates once said, "The only true wisdom is in knowing you know nothing." You may be wondering who exactly can help you become better prepared to face these dilemmas in business. Who are the experts? Well, it is my privilege to introduce three individuals that have majored in the study of ethics. Brad Agle, Aaron Miller and Bill O'Rourke have co-authored the highly acclaimed book, *The Business Ethics Field Guide*. I met Brad and Bill in Oklahoma City a few months ago while attending a meeting of the Oklahoma Ethics Business Consortium. Their presentation was marvelous and showed a mastery of the subject. Not only did they autograph my book, they inscribed an increased passion for ethics in my life. These are experts. *The Business Ethics Field Guide* is the best I've read on the subject and serves as a superb guide for making ethical decisions in "the wilderness." It distills our everyday ethical challenges into 13 common dilemmas with real life examples and insightful solutions. It teaches the vital skills we need to make ethical decisions and find choices that are not only right for each of us, but for those around us as well.

Each of these 13 ethical dilemmas will be featured in upcoming articles written by Brad, Aaron and Bill. I'm launching this series with an interview to introduce you to these outstanding individuals and whet your appetite to read the articles that will follow in the months to come.

### 1 What led you to become experts on the subject of ethics?

**BILL O'ROURKE** - When Brad Agle invited me to come to his Business Ethics class at the University of Pittsburgh to discuss ethical situations, I had been with Alcoa, Inc. for over 30 years and I had come across quite a number of ethical dilemmas. I soon realized that students could benefit

from learning about my experiences, so I have documented hundreds of real ethical situations that I have faced and I routinely speak about them with university students, corporations and other organizations. My exposure with Brad Agle and Aaron Miller has helped me to appreciate the rationale for making decisions, the importance of integrity as an organizational value, the importance of fact gathering and the need to act fast when faced with an ethical dilemma.

**AARON MILLER** - I started out as a practicing attorney, but I found my way into academia as an adjunct professor teaching business ethics and nonprofit law & finance. Teaching was so enjoyable that when I had the change to teach full-time, I jumped at it. So, I would say that my expertise comes from 12 years of teaching ethics, coupled with my prior background as lawyer. Though I'm primarily a teaching professor, I've been lucky enough to be involved in research as well - the most important being the five years of research and writing that went into *The Business Ethics Field Guide*. (Reading hundreds of real ethical dilemmas and their outcomes would help anyone develop greater expertise.) This is a subject that fills me with curiosity, passion and excitement for all that's yet to be discovered.

**BRAD AGLE** - I began a PhD program in Business, Government and Society at the University of Washington in 1988, and one of the primary emphases of this program was business ethics. After completing my PhD and two years of working on CEO leadership at a CEO Institute, I began my professional career at the University of Pittsburgh in 1992, where I taught business ethics and was the inaugural director of the David Berg Center of Ethic and Leadership. I've been involved in research, teaching, writing, speaking and consulting on business ethics for 30 years, the last nine of which have been at Brigham Young University. I'm a big believer in an individual's ability to make a difference in the world, and I'm trying my best to lift the institution of business to become an even greater positive force in society.

## 2 Your pursuit of the subject led to co-authoring *The Business Ethics Field Guide* in 2016. Can you explain the title?

**BILL** - Life can be tough. Sometimes we need help to traverse the challenges we face. There are guidebooks that tell us how to survive the various categories of challenges we might encounter in the wilderness, such as getting lost, having an encounter with a dangerous animal and how to treat injuries. Sometimes, the challenges we face in life are similar to those wilderness challenges. Research conducted by Brad Agle and Aaron Miller over the years allowed them to identify 13 categories of business ethics issues. Each category is addressed in the book in a manner that the reader will understand when they face that issue. It then provides advice on how best to deal with that situation. In this way, the book serves as a helpful “field guide” and reference for individuals when they encounter an ethical dilemma in their life.

## 3 The foreword was written by Paul O’Neill, former U.S. Treasury Secretary and Alcoa CEO. He said, “...ethical behavior, for leaders, is more than avoiding clear wrongs.” Can you elaborate on that statement?

**BILL** - I reported to Paul O’Neill when he was the CEO of Alcoa and he was the most enlightened leader I have ever known. When Paul came to Alcoa in 1987, he established a vision: Alcoa aspires to be the best company in the world. He wanted ever function, every individual and every product to be the best. He complimented that vision with a set of articulated values, which began with integrity. By practicing integrity, you challenge other to do more than expected, to perform far beyond the legal compliance requirements and make the world a better place. I believe that’s what Paul meant by saying that ethical behavior is more than avoiding clear wrongs.

**AARON** - Very compelling research points to the idea that leadership and ethics are inseparable. Put another way, there’s no aspect of leadership without ethical importance. Joanne Ciulla, a top academic in the study of leadership as well as ethics, has incredible insights in the connection. She says, “Leadership is not a person or a position. It is a complex moral relationship between people based on trust, obligation, commitment, emotion, and a shared vision of the good.” In the end, no one can be a good leader without also making ethical choices.

## 4 In the book, you identify 13 Ethical Challenges we each face in business. How did you define these?

**BRAD** - I’ve taught executive MBA students for the past 18 years in Pittsburgh, Sao Paulo, Prague and Salt Lake City. My students’ first assignment is to write up an ethical dilemma they’ve faced in their career. I’ve now read close to 2,000 of these dilemmas. In doing so, I began to notice patterns - certain “types” of ethical issues would come up again and again. While the specifics would be different, the fundamental challenge being faced fit a common pattern. There is a type of research designed to detect different “types” called textual or qualitative analysis. We conducted research using my students’ dilemmas until we had identified the fundamental dilemmas they faced. This was a collaborative process among Aaron, myself and other researchers at BYU.



BRAD AGLE (left) BILL O’ROURKE (middle) AARON MILLER (right)



## 5 Why should I be ethical?

**AARON** - There's a multitude of reasons to be ethical (trustworthy relationships, peace of mind, leadership opportunities, etc.) Even biological evidence points to fairness and honesty being important to human beings. In the end, every argument in favor of bad ethics usually has to rely on us abandoning the very things that make us people, namely love, purpose and connection. There is an idea that bad ethics can give us a competitive edge, but that takes a short-sighted view about what winning really means and about what matters in the end. For example, a massive, multi-decade Harvard study identified meaningful, reliable relationships as the single strongest predictor of human happiness. It's impossible to get those through unethical behavior, no matter what edge you think it gives your career.

**BRAD** - Part of being ethical is realizing that it will not always be to your personal benefit. Because ethics is about how we treat others, most of our greatest ethical heroes are those who have sacrificed for others. Meanwhile, my experience is that those who are dedicated to living ethically in their professions are universally happy and oftentimes highly successful.

**BILL** - There is also the undeniable cost of wrongdoing. Unethical behavior will have a cost to you and your business. In the long run, those who make the wrong choices end up paying for them in terms of fines, imprisonment, loss of sales and profits and damage to their reputation.

## 6 Do you find that most people want to do the right thing?

**BILL** - Beyond avoiding costs of wrongdoing, there is a desire by most people to act properly and to be ethical. In fact, most people who have made poor ethical choices wish they could have the opportunity to do it again and choose differently. It's hard to put a value on personal harmony but it is clear that losing your personal integrity matters significantly.

**AARON** - I believe most people want to do the right thing. I also believe most of us have gaps in our skills and abilities that help us accomplish the right thing. Good ethics is more than just having good intentions. That's why we wrote our book! Our hope is to give people the tools they need to do the right thing.

**BRAD** - The vast majority of the people I've met want to do the right thing. However, there are a lot of forces pushing us toward less than ethical behavior. Ethical decision making is a very complex process involving our values, intellect and emotions, as well as our group, organizational and cultural influences. Unfortunately, just wanting to do the right thing isn't enough.

## 7 Can you expand on the dilemma between doing what's right versus what's easy?

**BILL** - Our book addresses moments when values conflict. These situations are particularly difficult because they don't lend themselves to the typical framework of right versus wrong. Note that our book does not provide insights on theft, assault, or other crimes that are clearly wrong; there's no dilemma involved. Instead we deal with situations where an individual must

## 13 ETHICAL DILEMMAS

Upcoming articles in this series will take a closer look at each dilemma.

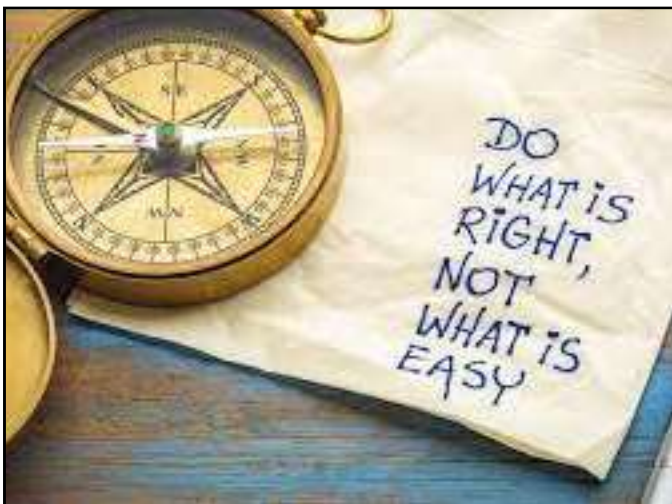
1. **STANDING UP TO POWER**  
Someone in power is asking you to do something unethical.
2. **MADE A PROMISE**  
Conflicting commitments force you to choose.
3. **INTERVENTION**  
You see something wrong. How do you proceed?
4. **CONFLICTS OF INTEREST**  
Multiple roles put you at cross purposes.
5. **SUSPICIONS WITHOUT ENOUGH EVIDENCE**  
You believe something is going on, but you're not sure.
6. **PLAYING DIRTY**  
Achieving justice but by doing something unethical.
7. **SKIRTING THE RULES**  
Bending the rule for a better outcome.
8. **DISSEMBLANCE**  
Misrepresenting the truth for better outcome.
9. **LOYALTY**  
Giving up ethical stance to protect valued relationship.
10. **SACRIFICING PERSONAL VALUES**  
Living ethically might put burden on others.
11. **UNFAIR ADVANTAGE**  
When opportunity exists to wield an unfair upper hand.
12. **REPAIR**  
When you are responsible for a mistake.
13. **SHOWING MERCY**  
You could grant forgiveness, but you don't know if you should.

*Business Ethics continued*

choose between two highly prized values. For example, is it better to honor a promise to keep information confidential or to reveal that information in order to protect a supplier or your employees? We recognize that these “right vs. right” decisions are common in life and we attempt to provide the reader with a framework for addressing those situations. What we also hope to drive is a desire for individuals to choose more right over right. If something is found that does not belong to them, a good leader knows that they cannot take it. Excellent leaders take steps necessary to get the item into the hands of the rightful owner. A good leader of a manufacturing plant that has a toxic spill reports the spill to the government authorities as required. An excellent leader takes the steps necessary to clean the spill, notify affected persons, get them necessary medical attention and take steps to assure that the spill never occurs again. When crafting an organizational culture, the leader has an obligation to set the tone. Push your organization to strive to achieve the best outcome possible, often far beyond compliance. Then, support those who choose to do “more right” and recognize their efforts.

## 8 Many media-covered, corporate scandals can be traced to unethical behavior. In addition to a damaged reputation, what are other costs of doing unethical business?

**BILL** - It seems that we hear about these scandals regularly. A recent example of corporate misbehavior is the Wells Fargo situation. The company devised an incentive in which employees were rewarded for opening more accounts. As a result, bank employees began opening accounts for customers, often without ever telling the customers they were doing so. However, I believe that it is the reaction to these events that will determine future success or failure. Once



a company has lost the trust of its customers, it is difficult to get back. Wells Fargo took their situation seriously. The CEO was fired and about 700 employees who intentionally deceived their customers were fired. Four directors on their Board were released for not exercising appropriate oversight of the situation. Ethics training was expanded. The values were reinforced and Wells Fargo publicly admitted their mistake. Their new advertising campaign notes that although Wells Fargo is an old company, they have been re-founded in 2018. It seems that most customers believe that Wells Fargo has seriously addressed the situation. Another point to be made is that although we read about these corporate ethical failures, we don't read about the tens of thousands of companies and millions of business leaders who are working hard every day to make the right ethical decisions. I believe that the vast majority of businesses and their leaders are driven to do what's right. So, keep that in mind whenever you read about those caught doing wrong - there are a lot more doing right.

**AARON** - To add to Bill's insights, I would also emphasize that we live in an age where it's harder than ever to get away with bad behavior. Smartphones with cameras are everywhere. Social media can spread news of a scandal in seconds. When you consider how hard it is to build a reputation for ethics and how quickly it can be destroyed, ethical leadership has never involved higher stakes!

## 9 Can a person learn ethical decision-making skills and master them?

**BILL** - Definitely. Ethics is not merely a matter of good intentions. Ethical behavior can be a result of thoughtful application of ethical skills. These ethical skills are especially necessary for effective leadership. You need more than a love of nature to lead people on a journey through the wilderness guide. In the same sense, wanting to be ethical falls short of actual ability to guide others through ethically precarious terrain.

**AARON** - Years of experience in teaching ethics proves to me that these are skills and they can be mastered. I have so many stories about students who come back years later to tell me about how they used skills they learned to navigate some devilishly tricky ethical territory. These are not the kind of problems you resolve with good intentions alone.

**BRAD** - No question. In fact, one of the most enjoyable aspects of my job is meeting individuals who are truly ethical experts. When I meet them, they jump out at me like



*Business Ethics continued*

great athletes to a talented sports scout. Bill O'Rourke was one of the first ones I got to know well. It was immediately apparent to me that he was a highly skilled ethical leader. Learning from him has been one of my greatest professional advantages and personal blessings.

## 10 The IRWA has placed an emphasis on the subject of ethics throughout its history. What is your opinion on the role a professional association can have in ethically-shaping its industry?

**BILL** - Professional associations can play a very important role. The association is often the face of a profession. Their communications, conferences and membership activities allows the profession to define itself, to portray the qualities of its members and to shape the culture of the profession. The association can play a role in reinforcing the values of its members through reward and recognition programs, touting the positive actions and values of its members. The association and their leaders help to build pride in its members that is typically based on strong values beginning with integrity.

**AARON** - The truth is that people just don't talk enough about ethics and values at work. This is where professional associations can fill an otherwise dangerous vacuum. When people develop camaraderie and mutual respect in a profession, they can also set high ethical standards for each other. It means something to be a member of IRWA, and that has a lot to do with the ethics consistently reinforced and expected of each other.

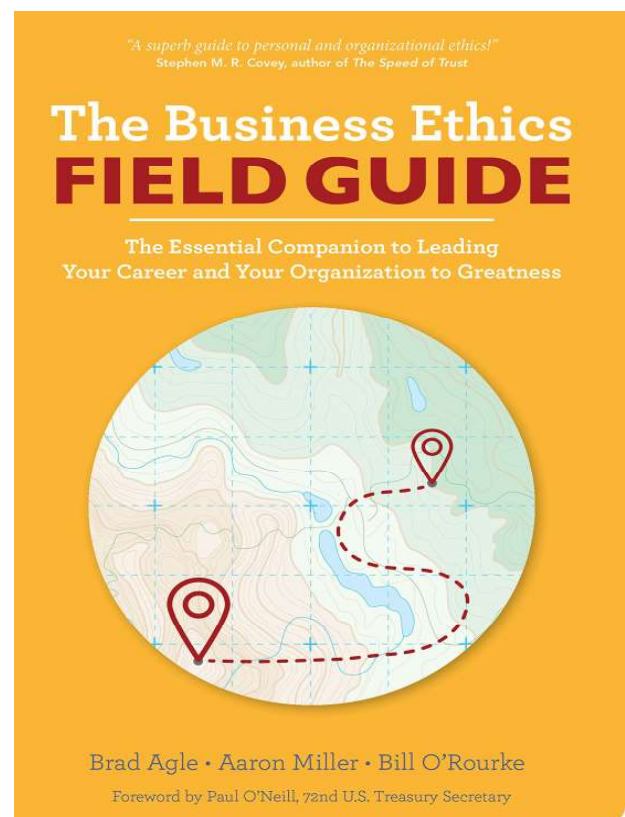
**BRAD** - The actions of leaders can have profound effects on those in the organization. Aaron is absolutely correct that people don't talk about ethics at work nearly enough. In fact, one of the recommendations of the U.S. Sentencing Commission (which developed some best ethics practices for organizations) is to spend time identifying the types of ethical issues prevalent for the organization, and then do training on those ethical issues. Professional associations are in the best position to understand the types of ethical issues most prevalent for their practitioners and to provide training on those issues.

## 11 Right of Way Magazine will feature one of the 13 challenges in each of its upcoming issues. How excited are you to be a part of this effort?

**BILL** - We are very excited to be a part of this initiative. Our desire is to help others be better able to navigate through the ethical perils in life. Having the opportunity to reach so many of your readers on a regular basis gives us a unique opportunity to achieve our goal. We appreciate the opportunity.

**AARON** - This is such an honor! We want nothing more than to empower good people, and this opportunity is exactly that.

**BRAD** - We're thrilled that your professional association is interested in our work and in helping your members develop into the type of ethical leaders we all hope to be. We know that we are all beneficiaries of the work of your members. We anticipate that you will all find the journey to be interesting, exciting and ultimately useful. Thanks for joining us on this mission to make the world a better place for all of us.



### SALT LAKE CITY MONUMENT

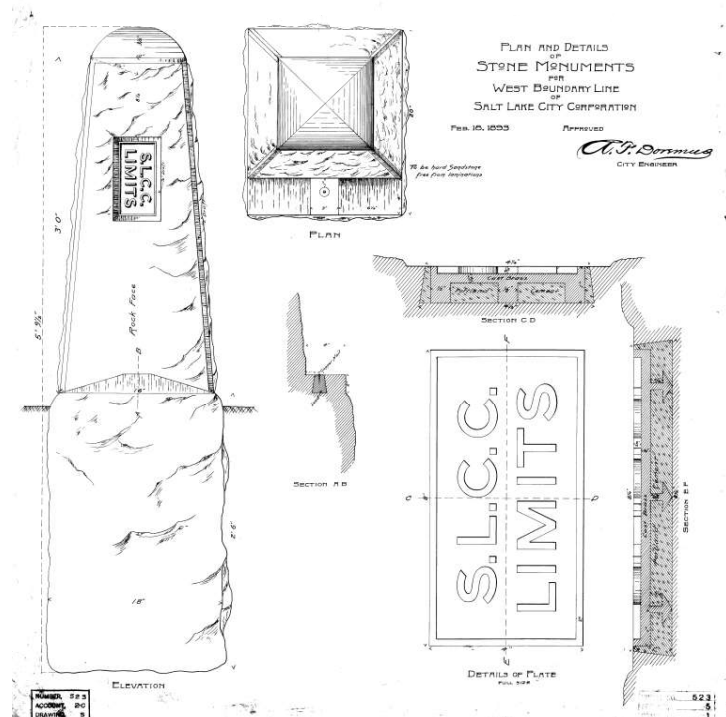
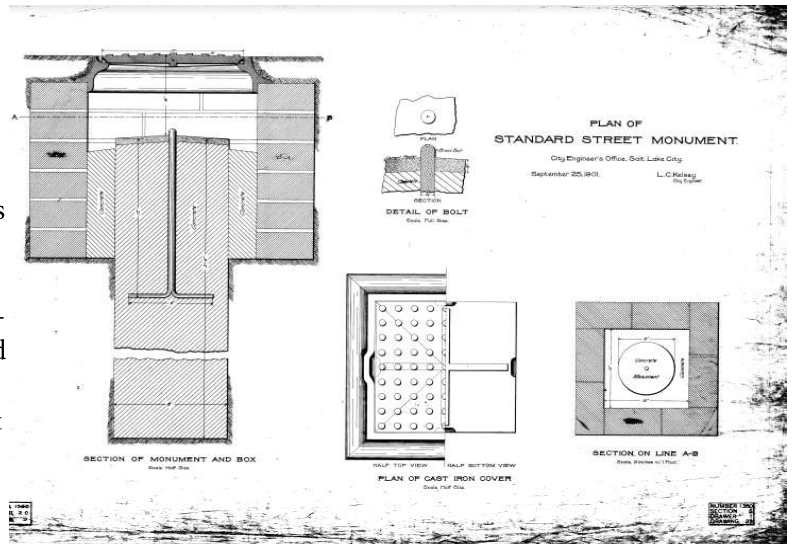
By: Lynn Curt, PLS

In 1982 the City Engineer for Salt Lake City, A.F. Doremus, was supervising the ongoing process of re-surveying the City. This is evidenced by an ordinance adopted by the City Council of January 5, 1892. “creating and establishing the standard of measure used and established by A.F. Doremus, City Engineer of Salt Lake City, in his re-survey of the City...”, and also by quarterly reports made by Mr. Doremus which specified the funds used in this project.

In a report to the City Council on May 24, 1892, the City Engineer made the Council aware of the need to locate the north and west City boundaries. His memo read in part as follows “I take this opportunity to call your attention to the indefinite location of the north and west boundaries of the City, and to suggest the desirability of having these definitely fixed and permanently marked by suitable stone monuments at the earliest date which in the judgment of the Council will be expedient. The cost of the work will be approximate \$300.00.”

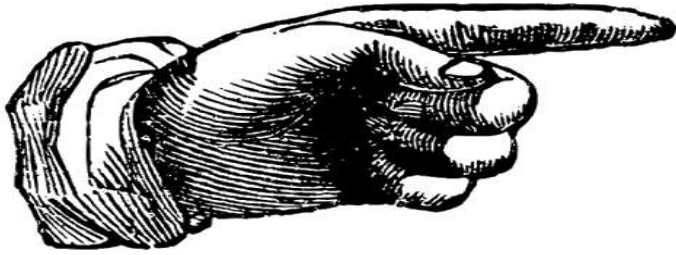
This request was referred to the Committee on Streets which, on May 27, 1892, recommended that the work be authorized.

The City Engineer proceeded by having plans for the stone monument drawn, surveying the boundaries, and placing the monuments. In his annual report for 1893 he reported that “substantial stone monuments have also been placed, at intervals of about one mile, along the west and parts of the south and north boundary of the City, and mark with precision these heretofore imaginary lines.” Salt Lake City covered significantly less area in 1892 than it does today with expansion occurring primarily on the east, south, and west edges. As the City grew, and urban development replaced rural/agricultural areas, the monuments set over 100 years ago gradually disappeared. Very few remain that I know of. This one is located on the City/County line on the hillside above Beck Street. It can be easily visited from the Bonneville Shoreline Trail, either from Salt Lake City or North Salt Lake.





# Please Notice This



AGENCY: The National Institute of Standards and Technology and National Geodetic Survey (NGS), National Ocean Service (NOS), National Oceanic and Atmospheric Administration (NOAA), Department of Commerce (DOC).

ACTION: Notice; final determination.

SUMMARY: The National Institute of Standards and Technology (NIST) and the National Geodetic Survey (NGS), National Ocean Service (NOS), National

Oceanic and Atmospheric Administration (NOAA), have taken collaborative action to provide national uniformity in the measurement of length. **This notice announces the final decision to deprecate use of the “U.S. survey foot” on December 31, 2022. Beginning on January 1, 2023, the U.S. survey foot should not be used and will be superseded by the “international foot” definition (i.e., 1 foot = 0.3048 meter exactly) in all applications.** The international foot is currently used throughout the U.S. for a large majority of applications and is typically referred to as simply the “foot.” Over time this terminology will become more prevalent in land surveying and mapping communities. Either the term “foot” or “international foot” may be used, as required for clarity in technical applications. This notice describes public comments received, along with the plan, resources, training, and other activities provided by NIST and NOAA to assist those affected by this transition.

## JOSEPH DAVID “JD” GAILEY

1948-2021

Park City, UT - We were finally able to celebrate the life of our beloved friend and relative, Joseph David “JD” Gailey Jr. JD was born on March 23, 1948 in Bountiful, Utah and passed away at his home in Park City, Utah, on January 5, 2021, in the company of his life companion, Marit Gleene. A private Celebration of Life service was held recently with family and close friends.

JD was a timeless explorer, adventurer and a fiercely independent soul. The once Bountiful High School socialite later found solace in solitude. After attending the University of Utah, where he was an infamous member of the Pi Kappa Alpha fraternity, JD hitchhiked to Alaska where he spent the better part of 16 years. Much of this time he spent living alone in a remote cabin where the closest sign of civilization was train tracks a few miles away. He hunted and trapped for survival but also ventured into society on occasion where he worked on commercial fishing boats and as a scuba diver for abalone and salvage work. He surely was most at home in a tent in an isolated setting. He practiced social distancing long before it became popular!

After years of exploring Alaska and Mexico, JD found something that motivated him to finally set down roots - Marit, who became a worthy companion in his adventures. Together they enjoyed traveling the remote trails and wonders of the world. Gina and Olin enjoyed JD’s companionship while growing up and learned many crafts and trades from him. JD had an incredible work ethic but always worked to live rather than living to work.

JD was highly competitive, especially with himself, in individual sports, hobbies and professions, always striving for mastery. He was fully committed to any endeavor that he undertook whether it was logging or fishing in Alaska, surveying the remote areas of Utah or recharging on a beach in Baja, Mexico. Professionally, he began surveying in Fairbanks, AK, and continued as a well-known and respected licensed surveyor in Park City, Utah, where he started his own surveying company, Alpine Survey, Inc.

JD was an avid reader with a particular interest in Greek philosophers. He became a dedicated student of Friedrich Nietzsche during a summer reading marathon in the deserts of Utah and revisited the works often. JD was a jazz music aficionado with a substantial record collection and was eager to hear new sounds and cultivate new artists.

JD succumbed to pancreatic cancer after a short but valiant struggle. He is survived by Marit, step-children Gina and Olin Glenne and their respective families, and by sister Shery Gailey Roth and brother Robert Nelson Gailey and their families.





**LONNIE MERRILL OLSON**

1975-2021

Lonnie Merrill Olson, 45, of Salem, Utah, passed away on Friday, July 23, 2021 at Mountain View Hospital in Payson, UT.

Lonnie was born on October 15, 1975 in Provo, Utah to Gregory Carl and Jann Marie Chorniak Olson.

He married the love of his life, his co-captain, his dancing partner and his help meet, Tracy Lynn Tangren on August 28, 2004.

He attended schools in American Fork, Utah and Utah Valley University in Orem, Utah, and received his Associates Degree in Surveying and Geomatics from the Salt Lake Community College.

He was employed at Horrocks Engineers in Pleasant Grove for twenty-eight years and eventually served as the Company Wide Survey manager. His numerous contributions to Horrocks Engineers were invaluable. He was on the leading edge of survey mapping using the most advanced technology including drones, sonar, and LiDAR scanning.

Lonnie was the most kindhearted, loyal, compassionate and generous man anyone has ever known. He encouraged everyone to excel in everything they did in life. He was the best at turning a negative into a positive. Lonnie was selfless with his time and was always willing to help others at a moment's notice. He always saw the best in everyone and people were drawn to him. He was a best friend to everyone.

He was passionately dedicated to his family and friends. They will always cherish memories of celebrating Easter camping at the Sand Dunes, exploring beautiful Lake Powell, and his love for muzzle loader hunting and passing down that enthusiasm to his family. He enjoyed many lakes and the fish gods definitely loved him and his fish call. He loved to live off the land, from scouting wild game, to getting the kill, to starting our favorite meat processing experience "Sausage Fest". There was never a shortage of Lonnie's specialty beef sticks and smoked fish on all of our outings. He loved golfing with his buddies and would always out drive anyone he played with.

Lonnie's love for his three boys and his baby girl surpassed everything else. His grandkids were the light of his life, whom they affectionately called Pop-pop.

Lonnie strived to share his love for the Lord by living it out daily in life and encouraging others in their walk with the Lord. Our hearts are broken and we are going to miss him deeply and we are comforted to know that we will all be together again.

He is survived by his beloved wife Tracy; children, Kade (Ashley) Olson, Spanish Fork, UT; Riley Olson, Salem, UT; Braxton (Deborah), Payson, UT; Paityn Olson, Salem, UT and three grandchildren, Charleigh Jo Shepherd, Kaybree Lane Olson and Jaxon Lonnie Olson and one on the way; his parents, Gregory & Jann Olson; parents-in-law, Jeremy Tangren, Provo, UT; sisters-in-law, Kittie Fox, Grants Pass, OR; Alicia Fox, Grants Pass, OR; many nieces and nephews and countless friends.

He was preceded in death by his nephew, Warran Jay Sisson; grandparents, Elwyn and Bonnie Olson and Joe and June Chorniak and Frank Salisbury; father-in-law, Lucian Kelly Tangren.

His celebration of Life will be held on Saturday, July 31, 2021 at 11:00 a.m. at the Nelson Family Mortuary on 4780 North University Avenue, Provo, UT 84604 with a viewing one hour prior to the Celebration of Life. A viewing will be held on Friday, July 30, 2021 from 6:00 to 8:00 p.m.

Interment will be at East Lawn Memorial Hills Cemetery in Provo, Utah.



**Effective 5/5/2021**  
**10-9a-524 Boundary line agreement**

- (1) If properly executed and acknowledged as required by law, an agreement between owners of adjoining property that designates the boundary line between the adjoining properties acts, upon recording in the office of the recorder of the county in which each property is located, as a quitclaim deed to convey all of each party's right, title, interest, and estate in property outside the agreed boundary line that had been the subject of the boundary line agreement or dispute that led to the boundary line agreement.
- (2) Adjoining property owners executing a boundary line agreement described in Subsection (1) shall:
- (a) ensure that the agreement includes:
    - (i) a legal description of the agreed upon boundary line and of each parcel or lot after the boundary line is changed;
    - (ii) the name and signature of each grantor that is party to the agreement;
    - (iii) a sufficient acknowledgment for each grantor's signature;
    - (iv) the address of each grantee for assessment purposes;
    - (v) a legal description of the parcel or lot each grantor owns before the boundary line is changed; and
    - (vi) the date of the agreement if the date is not included in the acknowledgment in a form substantially similar to a quitclaim deed as described in Section 54-1-13;
  - (b) if any of the property subject to the boundary line agreement is a lot, prepare an amended plat in accordance with Section 10-9a-608 before executing the boundary line agreement; and**
  - (c) if none of the property subject to the boundary line agreement is a lot, ensure that the boundary line agreement includes a statement citing the file number of a record of a survey map in accordance with Section 17-23-17, unless the statement is exempted by the municipality.**
- (3) A boundary line agreement described in Subsection (1) that complies with Subsection (2) presumptively:
- (a) has no detrimental effect on any easement on the property that is recorded before the day on which the agreement is executed unless the owner of the property benefiting from the easement specifically modifies the easement within the boundary line agreement or a separate recorded easement modification or relinquishment document; and
  - (b) relocates the parties' common boundary line for an exchange of consideration.
- (4) Notwithstanding Part 6, Subdivisions, or a municipality's ordinances or policies, a boundary line agreement that only affects parcels is not subject to:
- (a) any public notice, public hearing, or preliminary platting requirement;
  - (b) the review of a land use authority; or
  - (c) an engineering review or approval of the municipality, except as provided in Subsection (5).
- (5)
- (a) If a parcel that is the subject of a boundary line agreement contains a dwelling unit, the municipality may require a review of the boundary line agreement if the municipality:
    - (i) adopts an ordinance that:
      - (A) requires review and approval for a boundary line agreement containing a dwelling unit; and
      - (B) includes specific criteria for approval; and
    - (ii) completes the review within 14 days after the day on which the property owner submits the boundary line agreement for review.
  - (b)
    - (i) If a municipality, upon a review under Subsection (5)(a), determines that the boundary line agreement is deficient or if the municipality requires additional information to approve the boundary line agreement, the municipality shall send, within the time period described in Subsection (5)(a)(ii), written notice to the property owner that:
      - (A) describes the specific deficiency or additional information that the municipality requires to approve the boundary line agreement; and
      - (B) states that the municipality shall approve the boundary line agreement upon the property owner's correction of the deficiency or submission of the additional information described in Subsection (5)(b)(i)(A).
    - (ii) If a municipality, upon a review under Subsection (5)(a), approves the boundary line agreement, the municipality shall send written notice of the boundary line agreement's approval to the property owner within the time period described in Subsection (5)(a)(ii).
  - (c) If a municipality fails to send a written notice under Subsection (5)(b) within the time period described in Subsection (5)(a)(ii), the property owner may record the boundary line agreement as if no review under the Subsection (5) was required.

## Boundary Lines in Augmented Reality

By: Dennis McKay

Augmented Reality (AR) is here. TV sports fans experience it as an imaginary line superimposed onto a football field indicating where the ball needs to advance to get a first down. Glass™ by Google is a small wearable computer in the form of conventional glasses with a transparent display that allows workers to view information hands-free. And while AR glasses have a see-through computer display for lenses, other forms of AR use conventional LED screens with a live camera feed. For instance, many recent land surveying instruments allow mapped points and lines to be superimposed over real time video feeds on data collectors for field staking or other surveying tasks. The benefits are obvious: an operator can see the real world with augmented visual data superimposed onto the display. Surveyors are already using augmented reality for quick access to digital data, but AR glasses are evolving, opening up even more possibilities. Even new smartphones have stereo cameras and 3-D scanners built in to accommodate graphics rendering that appears to project images upon the surfaces in our surroundings. From Pokemon to monsters emerging from your living room wall, smart phones support a variety of virtual or augmented reality games. And coming soon, we will be able to see what that IKEA dining room set looks like superimposed in our homes before ever visiting a showroom. Commerce and gaming will continue to drive the rapid evolution of these technologies.



Figure 1: Example of how Augmented Reality might appear to a lay person in the near future.

But what happens when parcel boundaries, published in digital map form by government agencies, appear as augmented reality, superimposed upon the physical world a lay person witnessing? The figure above is a mockup of how that might appear. AR technologies already help surveyors in corner searching and could help hunters or other outdoors persons know when they pass to/from areas of differing jurisdictions. Before looking at the great potential benefits AR offers for survey field operations and for lay

users of parcel data such as hunters, campers, or appraisers, let us first examine some of the pitfalls.

If you jumped ahead of me, you are concerned that the Internet's idea of a parcel corner's location (coordinates) causes the corner to be superimposed over the ground in the "wrong" spot. Admittedly, the superimposed line will never be "exactly" where the boundary exists. There will always be some level of error or uncertainty in the measurements used to create the data as visualized. We see this using any GIS or CAD application to view existing parcel boundaries layered over satellite imagery. The closer we zoom in, the more evident it becomes that the parcel lines are not aligned with the fences and road centerlines seen in the image. Similarly, AR promises to let us see a survey monument superimposed on the surroundings at our feet, yet inherent in that scene will be some agency's idea (and error) of where the property lines are. This mismatch between reality and digital will be more evident and potentially more misleading with AR than the previous GIS technologies.

### Surveyors are the true Measurement Scientists. Imperfection and Uncertainty is our wheelhouse:

The true position of a legal point may never be measured exactly and a measured bearing and distance between two points is never perfect. But, once we can conceptualize and accept that **exact distances, angles and coordinates are never perfectly locatable**, we can focus on the real value that surveyors bring to the public: recognizing, evaluating and estimating the uncertainty of measurement values. This is not nitpicking! It is a perspective fundamental to our focus on the **always-inexact nature of measurements between monuments**. The conveyance of that information is critical in creating digitally published parcel locations.

Prior to my retirement from the Bureau of Land Management (BLM), I spent many years working with the Geographic Coordinate Database (GCDB). One of the most important concepts I learned is that digital parcel data is most trusted when derived from record survey measurements, properly analyzed by seasoned surveyors, integrating all data of various vintages and thereby deriving the best estimates of positional values. Rigorous network analyses through properly weighted least squared adjustments best accomplishes estimated coordinate values, as well as **predicting the amount of uncertainty expected for each derived coordinate pair**. The GCDB was created using this optimal approach. A simplified version of GCDB, boiled down for usage by the general public, has been formatted in



*Boundary Lines in Augmented Reality Continued...*

an accepted national standard for parcel data. This standard is properly known as the Publication Standard of the Cadastral Theme of the Federal Geographic Data Committee (FGDC) National Data Spatial Infrastructure (NSDI), commonly referred to as the CadNSDI. This data can be found at <https://nationalcad.org/download/PLSS-CadNSDI-Data-Set-Availability.pdf> However, this national standard does not include any measurement data for surveyors to analyze or inspect. It has parcel polygons that are attributed with legal land descriptions and a bare minimum of attributes such as official acreage. For surveyors, it is useful to zoom and pan or otherwise navigate to parcels in an area of interest [and thereby access any openly published measurement data]. Notably, there is a point entity in the CadNSDI at every vertex of each parcel polygon which includes a unique defensible value predicting the reliability of each coordinate value.

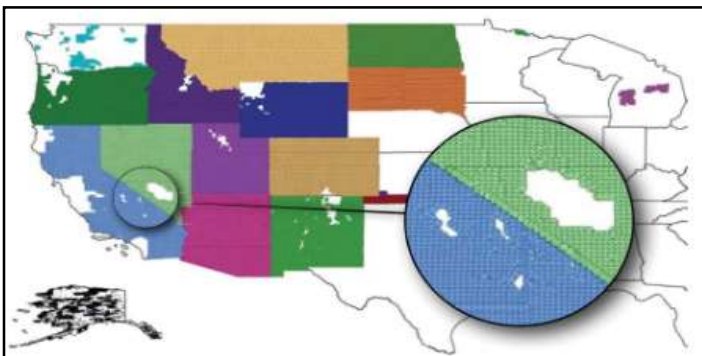


Figure 2 - BLM's GCDB coverage as of 2012-2017 (varies by state). Each dot represents a township. The data breaks down sections at least to the 40 acre parcel level. Private land holdings are not included in this particular data unless they were or are fully bounded by federal land.

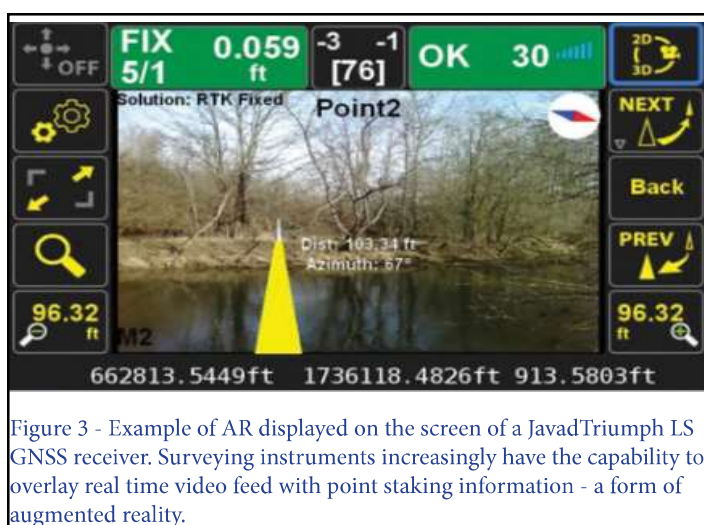


Figure 3 - Example of AR displayed on the screen of a JavadTriumph LS GNSS receiver. Surveying instruments increasingly have the capability to overlay real time video feed with point staking information - a form of augmented reality.

Within the GCDB, the range of point uncertainty can be dramatic. In modern surveys the uncertainty may be less than an inch. However, for a few corner coordinate values in remote areas, the uncertainty is over a quarter of a mile. This is most often due to misclosing measurements in the

ancient-but-best-available survey plats and the lack of nearby control points. My point is that this variation in uncertainty must be clearly (and preferably graphically) communicated to the end user, especially if the end use is some form of augmented reality.

Transitioning to the advantages of AR, just imagine looking for a quarter section corner in a remote area. The GCDB or CadNSDI should already have best-guess coordinates for the corner monument and uncertainty indicators. Presently you can be guided to the search area by any GPS device, but in the near future this guidance will include a corner symbol projected onto the landscape within your AR display. In a corner recovery, surveyors would normally drive a stake in the ground at the published coordinates and start searching, bearing in mind the x,y uncertainty attributes in GCDB for this point may be a large ellipse representing a 95% chance that the true corner point falls within that ellipse. With augmented reality however, the stake would already appear on your screen as a symbol and the uncertainty ellipse would be superimposed, at scale, upon the ground. Ideally, the AR software would also superimpose the connected boundary lines as a wide line, similarly scaled and tangent with the ellipse. Perhaps the AR app could be trained to "paint in" all the ground a person covered during a search so that he or she could avoid overlap. And, if survey plat images were indexed by geographic location it would be a simple matter to layer relevant plats on the AR display based on where you stand, as well as toggling the AR boundary line labels with the different published bearing and distances.

Returning to the use by a lay person, consider the difficulty of hunters wandering in the woods. The AR glasses could make good use of uncertainty indicators. The jurisdictional lines defining the different hunting zones could be projected onto the ground. A clearly shaded dividing line, perhaps ninety-feet-wide at one corner of the plot and tapering down to seventy-feet-wide at the other end-point, would graphically represent an area of uncertainty. A pop-up information window would inform the user that AR boundary lines have uncertainty and therefore to rely on physical fencing and posting in that zone. Once inside a jurisdictional area, such as a non-wilderness US Forest Service, a pop-up display could also display other geo-attributes such as the designation for that area along with a list of the rules which the hunter or visitor must obey. The same functionality would be useful for law enforcement personnel. Similarly, real estate agents or property appraisers could better understand and communicate the extent of land for sale and void mistakenly placing too much confidence in digital data.

*Boundary Lines in Augmented Reality Continued...*

As Augmented Reality software makes it increasingly easy to access the parcel geometry theme of a city or county, any landowner can potentially see and be misled by land boundaries projected onto the ground as a line or a wall on their smartphone's AR display or AR glasses. There **MUST** be a way to communicate the inexactness of these displays whether it is boundary lines with a width of the uncertainty or with some other method. Perhaps in this situation, a pop-up display with a message like: "CAUTION: DATA UNCERTAINTY MAKES LOCATION IN THIS AREA UNRELIABLE!" Otherwise confusion will reign as a landowner fails to see or misunderstands the boundary line going down their property fence or wall. Based on the uncertainty we know exists in most GIS data, such visualization may mistakenly go through a house or indicate a violation of setback rules. **It is a disservice to publish digital parcel lines and points as static, exact features.** As surveyors, we know this error is foreseeable but preventable. We should actively promote solutions, not passively wait to say "told you so."

Digital parcel boundaries created without the rigorous network data analysis used by Bureau of Land Management, likely lack indicia of positional uncertainty and so it is hard to defend the practice as presently served upon many GIS and government websites. See the above figure for a typical example of assessor data overlaid on aerial photography. Note, some aerial mapping providers do attempt to provide uncertainty indices in their data measurement tools. But reliability is unknown because many vendors of imagery products do not publish accuracy statements or employ a professional surveyor who, in California, is the only qualified profession to make accuracy assessments of measured data. Most agencies of course defend their practice by disclaimers and assert their data is good enough for their purposes. As we all know, any measurement may be good enough for something, but for what? Zoning decisions? Appraisals? Road maps? Unfortunately, these decisions are often made with a large amount of latent positional uncertainty.

Might the same misleading parcel geometry data foster decisions in property disputes erroneously arising from inaccurate displays? How useful is the superimposed information to supporting facility management such as underground utility improvements that improperly appear to be correlated to parcel corners? When the uncertainty of parcel boundaries is not visualized, how does a user know if it is sufficient to support certain decisions? And if uncertainty is quantified, what is the most effective (and economical) approach to communicating such information? Hint: hidden deep inside a nearly incomprehensible meta data attribute table is not the solution. As professionals, we could throw up our arms and declare the situation a mess. On the other hand, we could also consider the situation an opportunity and communicate persuasively to resolve these upcoming difficulties.

For surveyors to assert themselves into the maintenance of digital parcel boundaries will, for some, be an introduction to new concepts. For example:

1. A parcel corner or a parcel boundary measurements (coordinates, bearing or distance) of known reliability and uncertainty must published in such a way that others can easily access and adopt the information. This means using an open data concept and having a standardized, consistent data format.
2. National standards should be adopted for parcel lines as well as parcel boundary measurement dimensions. A parcel line may have redundant measurement values over time. All should be available and be properly weighted in correspondence with their relative accuracy. I proposed such a standard in the May 2018 issue of Surveying and Land Information Science.
3. National standards should be adopted for parcel corner point control measurement data. An example of this is the Multi-state Control Point Database is use by the States of Idaho and Montana.
4. Network error analysis is essential in properly weighting survey measurements to arrive at the most likely coordinate values as well as a defensible indication of positional uncertainty. The key technology is a full parametric least squares analysis/adjustment. Statistical uncertainty information provided by surveyors in an extremely useful service for public usage only if and when presented in an understandable visualization.

Augmented Reality survey technology exists and will improve immensely. Surveyors have a peek at this technology in their present instruments. It is only a matter of time until consumer grade devices can access mapping data such as soil type, vegetation type, historic topo maps and parcel boundaries. When these parcel boundaries are projected true scale through smartphone screens or AR glasses they will not be projected onto their exact locations. Without some visualization of positional uncertainty, these AR boundaries will cause misinterpretations and confusion. The advantages of using AR glasses for survey fieldwork also will continue to grow. For all these reasons, it is prudent for surveyors to anticipate these AR problems and benefits. A committee of leading professional surveyors should develop a narrative to best frame the problem to the public as well as formulate an approach to organizing current and future digital data. Surveyors can seize the opportunity to create and maintain properly published parcel geometries which include positional uncertainties and to work with software engineers to effectively render visualizations of these uncertainties through augmented and virtual reality platforms. create and maintain properly published parcel geometries which include positional uncertainties and to work with software engineers to effectively render visualizations of these uncertainties through augmented and virtual reality platforms.

**Dastardly Deed**  
**Case of the Missing Monument**  
By: Paul Dobberstein

Most surveyors get a good feeling when they read the deed for a property and there is reference to what appears at first glance to be solid monument. I am talking about stable, readily identifiable, and critical monuments that are unlikely to have succumbed to the ravages of time, construction work, or unscrupulous property owners. I had one recently like that, a call for “the old stone marker” in a deed.

Beginning at the old stone marker at the westerly corner of a lot now or formerly of Frank A. Mudgett and Marion E. Mudgett and then running North 36° 26’ West 41 feet to a hub;

1. North 46° 50’ East 182 feet 8 inches to a hub;
2. South 37° 45’ East 25 feet 9 inches to land now or formerly of said Mudgetts;

As I prepared a folder for the field crew to take with them on their monument finding expedition I took a look at Google street view to see if I could see the old stone. Oh yes! There it was, standing proud by the side of the road having stood guard for over 100 years. At that point I was confident that with that solid point of beginning we would have little trouble finding the rest of the monuments, if they existed at all.

My excitement was short lived however, with the crew chief calling me up to tell me that the stone was gone. There had been no road construction since the street view shot had been taken 10 years back, where had it gone! To make matters worse, only a couple other monuments were found, reconstructing this puzzle was going to be harder than I thought.

The mystery was solved a couple hours later when the crew chief sent me a picture of the bound, it had been found after all! Unfortunately, it was found in the garden of our client.

The best part about this mystery of the missing stone was the explanation of the homeowner as to why the stone was moved from its original spot. You see, the owner had cut some trees that were along the road, the stone being originally located within these trees. After clearing the trees, he felt like the stone sticking out of the ground was a safety hazard for the neighborhood kids riding their bikes down the road. He said to himself “I better get that stone out of there or someone is going to get hurt!” He explained to my crew chief that the stone was really in the ground good and really a challenge to get out! First, he tried digging it out, but the stone just kept going as he dug deeper. Even having dug down over a foot the stone would not budge. I think we all know what to do in that case, and that is exactly what he did. He got out a chain and the F-250. It still took him a few good tugs to get the stone out, but now the kids would be safe. My budget for the job? Not so much.







**Executive Order**

**2021-01**

*Requiring a Review of All Regulated Occupations and Professions*

**WHEREAS**, government provides necessary protections for Utah residents by regulating certain occupations and professions;

**WHEREAS**, excessive regulation creates barriers to working;

**WHEREAS**, government should impose only those regulations that are necessary to protect the health, safety, and well-being of Utah residents;

**WHEREAS**, government should periodically review regulations to ensure they are serving their intended purpose;

**NOW, THEREFORE**, I, Spencer J. Cox, Governor of the State of Utah, by virtue of the authority vested in me by the Constitution and the laws of the state of Utah, do hereby order that:

1. As used in this order, “agency” means an agency within the Executive Branch that establishes administrative rules or other regulations for an occupational or professional license.
2. No later than June 30, 2021, each agency shall:
  - a. Review administrative rules and other regulations for occupational or professional licenses within the agency’s scope of authority and identify rules and regulations that are no longer necessary or can be amended to reduce barriers to working while still protecting the health, safety, and well-being of Utah residents; and
  - b. Submit a report to the Governor’s Office including recommendations regarding ways to remove barriers to licensing and limit unnecessary government regulation.

**IN WITNESS, WHEREOF**, I have hereunto set my hand and caused to be affixed the Great Seal of the State of Utah.  
Done in Fillmore, Utah, on this, the 4th day of January, 2021.



Spencer J. Cox  
Governor

Deidre M. Henderson  
Lieutenant Governor