

MALSCE Surveyor is a Quarterly Publication of the Massachusetts Association of Land Surveyors and Civil Engineers

Look Inside for :

- Legal and regulatory matters impacting the Land Surveying and Civil Engineering professions
- An examination of the doctrine of Acquiescence
- News briefs on local and national occurrences of interest to surveyors and engineers
- Information about MALSCE programs and activities

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MALSCE, The Engineering Center
One Walnut Street, Boston, MA 02108

Protect the Future of GPS – Let the FCC Know Your Concerns About LightSquared and GPS by July 30

By Abbie Goodman, MALSCE Executive Director

MALSCE Newsletter Editor Note: information for this article was obtained from the Coalition to Save Our GPS website at: www.saveourgps.org

MALSCE, ACSM and representatives of a wide variety of industries and companies have joined the **Coalition to Save Our GPS** to resolve a serious threat to the reliability and viability of the Global Positioning System (GPS). The Federal Communications Commission (FCC) recently granted a waiver to a company called LightSquared that allows them to

repurpose the satellite spectrum immediately neighboring that of the GPS. You'll find more background on the Coalition web site and on the MALSCE website at: <http://www.malsce.org/index.cfm?cdid=10722&pid=10386>

What can YOU do?

By July 30, 2011, everyone who cares about GPS should let the FCC know about the threat that LightSquared poses.

In writing to the FCC, you should cover the following points:

- How you use GPS

- technology in your business and/or personal life
- What would happen to your business/personal life if GPS became unavailable or unreliable
- While more capacity for wireless broadband services is important, it should not come at the expense of GPS, which is critical to our country's economy
- The results of the testing that were performed at the

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MALSCE President's Report: CEUs: Now or Later

By David Humphrey, PLS, 2010-2012 MALSCE President



As president of MALSCE, I would like to update you on the status of Continuing Education Units (CEUs) in Massachusetts.

There has been some movement recently. At its May 2011 meeting, the MALSCE Board of Directors voted to direct our

Trustees on The Engineering Center (TEC) and The Engineering Center Education Trust (TECET) Boards to encourage those Boards to use TEC staff to inspire the Board of Registration to enact some form of CEUs for Land Surveyors in Massachusetts. The MALSCE Education Trust voted to supply some "seed money" for the effort.

We feel to best possibility of getting CEUs enacted is to work together with our sister associations and TECET may be the best group to lead the effort. The TEC/TECET Boards took the

issue the heart. At the 2011 TEC Leadership Conference in Hudson, MA., Abbie Goodman, Peter Hale and I took part in a well-received panel discussion on the steps needed to implement continuing education for license renewal. The Board of Registration is in their final stages of issuing the 250 CMR revisions. The general feeling is that they will now have time to take up the issue of continuing education.

CEUs were first required in Iowa in 1978. Currently, 42 states require some form of continuing

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- ✦ Mike Pallamary, Author of "**The Curt Brown Chronicles**"
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Visit <http://bit.ly/MALSCEConvention> for 2011 MALSCE Convention updates and look for the Convention brochure that will be emailed to MALSCE members in the near future

MALSCE President's Report

Continued from Page 1

education for license renewal. Massachusetts and Connecticut are the only two states east of Michigan without CEUs. Some people are a bit embarrassed that Massachusetts has not embraced this ground-swell issue.

Why should the government force us to continue our studies? Self-motivation and peer pressure certainly help push each of us to continue our personal education but I think a regulatory motivation will help all of us to learn a little bit more. We may want to learn about a new topic but it is human nature to procrastinate. "Geez, I'd like to go to that seminar on that new black box gizmo that combines GPS with ancient deed research and 3-D color mapping but I have that project deadline and the wife said I had to shop for a new tie and I'd like to go fishing." CEUs may not make everyone learn more stuff but it will surely motivate most of us.

There are a number of factors limiting land surveyors' access to new ideas. Land surveyors typically

work in small companies, many with only one registered PLS, so they have no one with whom to share ideas or learn about new concepts. And, like engineers, land surveyors tend to be technically oriented and prefer to avoid verbal interactions. It is well known that we land surveyors are an aging population and many of us have become set in our ways (I like using these straight leg tripods!).

I like going to seminars and talking with my comrades. Seminars help me learn about topics I feel I need to improve my understanding of or they may expose me to a topic or a technology I have no knowledge of. Discussions with the instructor or my classmates at lunch help to learn alternative points of view or to delve deeper into a finer facet of the topic. Other people have different learning styles and they may prefer on-line courses or more formal college classes.

The Board of Registration certainly understands the importance of education in the land surveying and

engineering professions. They give great preference to applicants who have completed college level courses and the more the better. They must appreciate that learning does not end with graduation and that changes continually affect the professions. For land surveyors, we constantly see changes in statutory law, case law, regulations, and technology. I have learned that for every breakthrough in technology, we are awarded a new method of making mistakes. All of this places demands on us to keep up and learn new things.

There are many perspectives on CEUs. Some feel they are just self-serving for associations; a captive audience to make money on. Others feel they will save the profession and broaden and deepen the knowledge of all land surveyors. The decision should not be about who might benefit from a CEU requirement but whether it will improve the profession. A better-educated professional will better serve the public. Let's work to make CEUs a reality.

Protect the Future of GPS

Continued from Page 1

FCC's request are conclusive - they show that GPS reception would be wiped out by LightSquared's proposed service.

- Now that the test results have shown interference to GPS, the FCC shouldn't allow LightSquared to keep trying out modified versions of its plan to use the spectrum near the GPS band. LightSquared's operations and GPS are fundamentally incompatible and the FCC should order LightSquared out of that band.

How do I tell the FCC to save GPS?

The FCC has an easy-to-use portal on its website to submit feedback on the testing results: Click on this link for the FCC's Electronic Comments Filing System (ECFS): <http://fjallfoss.fcc.gov/ecfs/upload/begin?procName=&filedFrom=X> In the box which says "Proceeding Number," type: 11-109 In the designated boxes, enter (a) your name or your company's name, and (b) your mailing address/city/state/zip. In the box which says "Type in or paste your brief comments," do so. Click "Continue".

A review page will load listing all of

the information entered. If correct, click "Confirm."

If you have trouble, contact the FCC ECFS Helpdesk at 202-418-0193 or email: ecfshelp@fcc.gov.

For reference, here are the actions the Coalition is seeking from the FCC:

1. The FCC must make clear, and the NTIA must ensure, that LightSquared's license modification is contingent on the outcome of the mandated study unequivocally demonstrating that there is no interference to

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Regulatory GIS Data

By J. Thaddeus Eldredge, PLS, Eldredge Surveying & Engineering, LLC

The first paragraph of the definition of the practice of land surveying as cited from c. 112, § 81-D of the M.G.L. is as follows:

“...any service or work, the adequate performance of which involves the application of special knowledge of the principles of mathematics, the related physical and applied sciences, and the relevant requirements of law for adequate evidence to **the act of measuring and locating lines, angles, elevations, natural and manmade features in the air, on the surface of the earth, within underground workings, and on the beds of bodies of water** for the purpose of determining areas and volumes, for the monumenting of property boundaries, for locating or relocating any of the fixed works embraced within the practice of civil engineering, and for the platting, and layout of lands and subdivisions thereof, including the topography, alignment and grades of streets, and **for the preparation and perpetuation of maps**, record plats, field note records and property descriptions that represent these surveys”.

As this definition is very broadly worded, it appears to encompass every facet of map making. An advisory ruling defining the difference between surveying and cartography should be requested from the Board of Registration of Professional Engineers and Land Surveyors. It is assumed that the Board was not established to govern the creation of all maps, especially large-scale maps such as those found in atlases, the creation of which would clearly be the practice of cartography.

Geographic Information Systems (GIS) are a combination of maps and data that are used for a variety

of purposes. There are no regulations that govern the creation of these maps.

Geographic Information Systems are fast becoming invaluable sources of information that has a spatial reference. Examples include, the maps that utility companies use to locate and monitor the maintenance of their respective utilities; Google Earth; and the red, white and blue map of these United States that we all watched on television during elections.

GIS maps sometimes provide results that were not intended as many sources of data can be added to the maps. Databases are linked to spatial locations; queries can be created that describe objects and occurrences within areas; destinations and directions can be listed; and the companies creating the software are increasing the capabilities daily. The projected uses of the software are staggering.

For some background: the spatial data used for GIS maps is of varying quality. Most of these GIS maps do not meet the National Map Accuracy Standards or 250 CMR, the regulations promulgated pursuant to c. 112 § 81D through 81T of the M.G.L. When these maps are used properly, there is no detriment to the public. When these maps are used improperly, they may cause significant detriment to the public good.

The map components are often referred to as data layers or overlays. Some of these overlays are as follows:

- Flood Zones – the paper flood insurance rate maps were digitized by FEMA and the data was distributed to state GIS agencies. The published maps were not created in accordance

with the National Map Accuracy Standards and some spatial ambiguities that have been discovered were never resolved. There is a disclaimer when the data layer is downloaded:

- **IT IS NOT APPROPRIATE TO USE THIS DATALAYER FOR LARGE-SCALE (DETAILED, E.G. PARCEL LEVEL) MAPPING AND ANALYSIS. PLEASE READ ALL DOCUMENTATION PROVIDED BY FEMA TO ENSURE YOU UNDERSTAND THE PROPER USE OF THESE DATA.**

The flood zone elevations are the same as published by FEMA, but the maps do not reflect the true and correct limits of these areas. FEMA has a number of programs to verify, certify and correct the flood status of a given property or structure, typically completed by a surveyor.

- Zone II Watershed Areas of Contribution to Municipal Wells – The Department of Environmental Protection (DEP) maintains this data layer. The publicly available metadata lists a few vaguely described potential accuracies of this data. As the locations of the Zone II's are ambiguous and underground, there is no easy way to verify the quality or correctness of this data layer.
- Areas of Critical Environmental Concern (ACEC) – ACEC's are defined by a legal description similar to a deed, then mapped by the Department of Conservation and Recreation. There is a disclaimer when the data layer is downloaded:
 - **THIS DATALAYER IS INTENDED TO BE USED FOR PLANNING PURPOSES ONLY**

Geographic Information Systems (GIS) are a combination of maps and data that are used for a variety of purposes. There are no regulations that govern the creation of these maps.

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Regulatory GIS Data

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The proper use of a GIS map is not a detrimental. The proper use of these maps is for planning purposes, not regulatory purposes

AND WITH THE WRITTEN BOUNDARY DESCRIPTIONS CONTAINED IN EACH ACEC DESIGNATION DOCUMENT.

There are many discrepancies between the GIS data layer and the actual location of the limits of the ACEC.

- Natural Heritage and Endangered Species Program (NHESP) Estimated and Priority Habitats – These polygons are maintained by the NHESP and the disclaimer includes the following statement: “...Habitats should be displayed as follows: At 1:25,000 scale or smaller (e.g. 1:35,000), as this is the scale at which the polygons were delineated.” For reference, 1:25,000 scale equates to 1” = 2,083 feet. The typical map to view a single house lot is typically less than 1” = 100’. As the scientists employed at the NHESP delineate the limits of these habitat areas, there is no way to verify the accuracy of these data layers.
- Boundary Lines - Assessors’ offices have been sketching maps of parcels for years. There is typically a note stating that the boundaries depicted are for assessing purposes only and are not accurate. Many of these maps have been converted to digital format and have been imported into GIS databases. These boundaries can be erroneous by as much as hundreds of feet.

Proper Use:

The proper use of a GIS map is not a detrimental. The proper use of these maps is for planning purposes, not regulatory purposes.

Unfortunately, these maps are often used for regulatory purposes at scales that are not

recommended. Those who use the maps to enforce regulations are sometimes the same parties who created the maps. Unfortunately it is more often seen that a third party uses the maps and data layers prepared by others and uses them inconsistently with the disclaimers associated with the data. Multiple data layers are compiled onto a single plan to determine applicability of regulations, for example:

- Pursuant to several regulations, when notification of abutters is required, a list prepared and certified by the town assessor is required. Many of these regulations designate notification of abutters within a given distance from the subject property. When the distances are erroneous within the GIS data layer, the abutters’ list generated by the computer may be incorrect.
- There are properties near a mapped flood hazard area whose owners may be required to obtain flood insurance because a GIS analyst has used this approximate data to incorrectly determine the property is within the flood hazard zone. A surveyor can verify and certify to the elevation of a property or structure in accordance with FEMA guidelines to remedy this.
- The local Boards of Health use the watershed data layer to determine if properties are within the Zone II areas and thus uphold the requirements for septic systems within the areas of contribution to a municipal well. Properties located on the fringe of a mapped Zone II may be erroneously mandated to comply with the requirements.

Unfortunately, some properties that are erroneously mapped outside of the watershed may potentially contribute pollutants to the well.

- The work that can be performed on a property within an ACEC is becoming limited. The use of the GIS data layer can lead to the incorrect application of regulations by various agencies. Fortunately, a surveyor can remedy this incorrect designation, but the work performed by the surveyor will likely be questioned, as the two designations will have many inconsistencies.
- The NHESP habitat layers are less consequential. For projects within estimated or priority habitat, the NHESP policy has been to return applications incorrectly made based on incorrect mapping. This does not address the application that is not submitted because the GIS data layer has a flaw.

In order to safeguard, life, health and property, to promote the public welfare, and to establish and maintain a high standard of integrity and practice, [250 CMR Section 4], it is imperative that the creation of certain data layers be regulated by a set of standards.

Glossary

Chapter 112: Section 81D. Definitions

Definitions of the words and phrases that are used in sections eighty-one D to eighty-one T, inclusive, are located at <http://egsc.usgs.gov/isb/pubs/factsheets/fs17199.html#US%20National>.

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Regulatory GIS Data

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National Map Accuracy Standards History

To find methods of ensuring the accuracy of both location (the latitude and longitude of a point) and elevation (the altitude above sea level), the American Society of Photogrammetry and Remote Sensing — an organization actively involved in the science of making precise measurements from photographs (photogrammetry) and acquiring information from aerial photographs and satellite image data (remote sensing) — set up a committee in 1937 to draft accuracy specifications. Sparked by this work, agencies of the Federal Government, including the USGS, began their own inquiries and studies of map accuracy standards. In 1941, the U.S. Bureau of the Budget issued the "United States National Map Accuracy Standards," which applied to all Federal agencies that produce maps. The standards were revised several times, and the current version was issued in 1947.

As applied to the USGS 7.5-minute quadrangle topographic map, the horizontal accuracy standard requires that the positions of 90 percent of all points tested must be accurate within 1/50th of an inch (0.05 centimeters) on the map. At 1:24,000 scale, 1/50th of an inch is 40 feet (12.2 meters). The vertical accuracy standard requires that the elevation of 90 percent of all points tested must be correct within half of the contour interval. On a map with a contour interval of 10 feet, the map must correctly show 90 percent of all points tested within 5 feet (1.5 meters) of the actual elevation.

All maps produced by the USGS at 1:250,000 scale and larger are prepared by methods designed to meet these accuracy standards and carry the statement, "This map

complies with National Map Accuracy Standards." Exceptions to this practice involve areas covered by dense woodland or obscured by fog or clouds; in those areas, aerial photographs cannot provide the detail needed for precise mapping. The USGS tests enough of its maps to ensure that the instruments and procedures the Survey uses are producing maps that meet the U.S. National Map Accuracy Standards.

United States National Map Accuracy Standards

With a view to the utmost economy and expedition in producing maps that fulfill not only the broad needs for standard or principal maps, but also the reasonable particular needs of individual agencies, the Federal Government has defined standards of accuracy for published maps. These definitions are posted online at: <http://egsc.usgs.gov/isb/pubs/factsheets/fs17199.html#US%20National>

250 CMR 4.01: Preamble

In order to safeguard, life, health and property, to promote the public welfare, and to establish and maintain a high standard of integrity and practice, the following Rules of Professional Responsibility shall be binding on every person holding a certificate of registration and on all partnerships or corporations or other legal entities authorized to offer or perform engineering or land surveying services in the Commonwealth of Massachusetts.

The Rules of Professional Responsibility as promulgated herein are an exercise of the police power vested in the Board by virtue of the following General Laws: M.G.L. c. 13, §§ 45 and 46; c. 112, §§ 81D through 81T; c. 143, § 54A, St. 1970 c. 707, §§ 1 through 12; c. 282; c. 707, §§ 13 through 15, St. 1971 c. 1099; St. 1972 c. 684;

St. 1975 chs. 545 and 588; St. 1979 c. 897 with particular reference to M.G.L. c. 112, § 81E.

All persons registered under the above stated Massachusetts General Laws are charged with having knowledge of the existence of 250 CMR 4.00: Professional Responsibility and shall be deemed to be familiar with their provisions and to understand them.

In these Rules of Professional Responsibility, the word "registrant" shall mean any person holding a license issued by this Board.

ACSM to Dissolve; NSPS to Realign

By William Coleman, President, NSPS, Curtis Smith, President, AAGS and Coleen Johnson, President, GLIS

MALSCE Newsletter Editor's Note: The Following letter was received from Curt Sumner, LS, Executive Director, American Congress on Surveying and Mapping (ACSM)

Dear Fellow Professionals,

At the past ACSM Congress meeting on July 13, 2011, the representatives to the Congress approved the following motion:

It is moved that in the interests of leading toward a viable single organization, the ACSM Congress be disbanded and the dissolution of ACSM begin and in

conjunction with the process, ACSM turn over all operation, control, assets and liabilities to NSPS.

And furthermore,

That the NSPS immediately proceed with a realignment into a unified organization made up of individual members with equitable representation that encompasses the broader definition of surveying to include professional surveyors, geodesists and other geospatial professionals; that the realigned organization

adopt the following mission statement: "The mission of the organization shall be to represent and advance the sciences and disciplines of surveying, geodesy, cartography, and related fields through education and communication, in furtherance of public good.;" that the realigned organization adopt a structure similar to that of NSPS; that the realigned organization take immediate action(s) to reduce administrative costs; that the realigned organization

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MALSCE Government Affairs Update

By Abbie Goodman, MALSCE Executive Director

MassDOT Issues RFRs for Surveying Services

In mid-June 2011, MassDOT posted a Request for Response (RFR) for qualified consultants to submit Responses to provide Engineering Field Surveys and/or Total Station AutoCAD Base Plan services. MassDOT will be using a Qualifications Based Selection (QBS) process for services outlined in the two Requests for Responses (RFRs), which can be viewed and downloaded on The Commonwealth Procurement Access and Solicitation System (Comm-Pass) www.comm-pass.com.

MALSCE has been involved with the development of this new QBS process. These are the first MassDOT RFRs to use QBS for Engineering Field Surveys and/or Total Station AutoCAD Base Plan services.

Enter the Document No. shown below to reach the correct document:

S1 Engineering Field Survey (Document No. 201106S1EFS)

MassDOT intends to award approximately 19 contracts, with initial contract lengths of up to two (2) years, throughout the state for Engineering Field Survey services. The estimated value of each contract could be between \$450,000 and up to \$3,500,000 depending on the needs of the Districts, which District(s) the consultant is contracted to work in, and the number of qualified crews the consultant provides under this contract.

S2 Total Station AutoCAD Base Plan services (Document No. 201106S2TSABPS)

MassDOT intends to award approximately 11 contracts, with initial contract lengths up to two (2) years, throughout the state

for Total Station AutoCAD Base Plan services. The estimated value of each contract could be between \$600,000 and up to \$1,850,000 depending on the needs of the Districts, which District(s) the consultant is contracted to work in, and the number of qualified crews the consultant provides under this contract.

Governor Signs FY2012 Budget

Governor Patrick signed the \$30.6 Billion FY2012 budget on July 11, 2011 with no line-item vetoes but did issue vetoes for 16 outside sections, including those dealing with cigar bars, prescription drug waste, small business health insurance rates and a financial audit of the MassHealth program. The budget is \$750 million less than projected spending for FY2011, but does not include any new taxes to balance it. Instead, it relies on spending cuts and a draw of \$185 million from the state's rainy day fund. More information about the budget: www.malegislature.gov/Budget

Governor Signs Municipal Health Reform as Stand Alone Bill

During his ten days in early July 2011 reviewing the conference committee budget, Governor Patrick made clear the biggest concern he had was with the legislature approved language on municipal health care reform. The Governor heard from various state and national stakeholders on the issue and decided the legislature's language was not acceptable. On July 11, he filed stand-alone legislation that was a further compromise on the issue.

On July 12, the Governor signed the municipal health reform bill passed one day earlier in the Legislature, ending one of the most contentious debates of the last few sessions.

The bill that was signed into law this week would allow municipalities to enact plan design changes to employee health care coverage following a 30-day bargaining window, after a three-person resolution panel. It would also require that a portion of the savings that municipalities realize be redirected back to employees. Municipal health reform is expected to help cities and towns cut costs by as much as \$100 million.

Speaker and Senate President Say Gambling Debate to Take Place in September

House Speaker DeLeo (D – Winthrop) and Senate President Murray (D – Plymouth) announced in a joint statement during the week of July 11, 2011 that legislative debate on gambling will begin in September. The Speaker had indicated previously that he hoped to pass a gambling bill in July, following passage of the FY2012 budget. The Joint Committee on Economic Development and Emerging Technologies held a hearing on the expanded gaming bills in early May. Although the House and Senate and the Governor's office are in agreement that expanding gaming would be beneficial for Massachusetts, there still remains contentious issues between the three bodies.

Abbie Goodman is the MALSCE Executive Director at The Engineering Center. She can be reached at agoodman@engineers.org or 617/305-4112.

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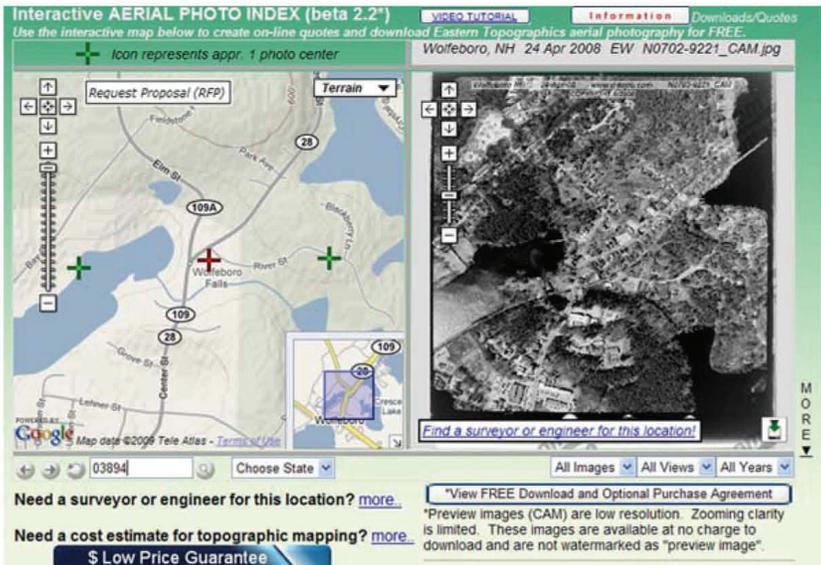
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ACSM to Dissolve; NSPS to Realign

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immediately develop a plan to attract new members in all of the disciplines of surveying, geodesy, cartography and related fields, and develop a marketing strategy.

In response to this motion, the Presidents of the three Member Organizations are prepared to work diligently to create this new "unified organization". Already the process has begun to appoint members from all MO's to a new Strategic Planning Committee to conduct a Financial Operational Analysis of the organization, including review and recommendation of Membership Categories and Rates.

Shortly, we will charge committees to review and recommend member benefits, and develop a marketing plan for our "new" organization.

There are going to be unknown challenges in creating this new organization, but with each other's trust and determination we can succeed and create an organization that will reach out to all members of what is called the "geospatial" community: Licensed and non-licensed, boundary surveyors and construction surveyors, geodetic surveyors and mapping surveyors, GIS specialists and photogrammetrists, machine control and LiDAR specialists,

cartographers and drafters, and any other related disciplines.

We ask your support and continued involvement in making this an organization that will grow and represent all of us in the future.

Sincerely,

William R. Coleman,
President — NSPS

Curtis L. Smith,
President — AAGS

Coleen M. Johnson
President — GLIS

Acquiescence

By Knud Hermansen, University of Maine and Robert Liimakka, Michigan Technological University

Acquiescence, similar to the doctrines of estoppel and practical location, is an equitable doctrine that will fix the location of a common boundary in a location that may differ from the location where a surveyor would place the common boundary based on the rules of construction.

The doctrine of acquiescence is known in some jurisdiction as a consentable boundary. Some states have equated it to a boundary by implied agreement. The motivation for a court recognizing a boundary different from the record is to let boundaries that appear to have been settled to be settled. A person that sleeps on their rights should not be allowed to demand with passion what they have for so long ignored with indifference.

The doctrine of acquiescence generally requires three conditions exist. First, the record boundary must be vague or unknown. The purpose for this element is to prevent persons from usurping the legal requirement that parties alter the location of their record boundaries by written instrument. By requiring the boundaries be vague or unknown, the legal fiction is created that the parties-in-interest have not altered the location of their deed boundaries. Rather, the parties-in-interest have fixed a definite location for the boundaries described in their respective deeds. This fiction survives even though a surveyor would place the boundary with some confidence in a different location than where the boundary location has been historically recognized.

A second condition requires one party act by fixing the boundary in a location by definite monumentation or occupation that appears and is accepted as marking the boundary. The boundary so fixed by the one party cannot be based on fraud or deceit. In other words, the party in

placing the monuments or barriers must have reasonably believed the objects are placed on the common boundary.

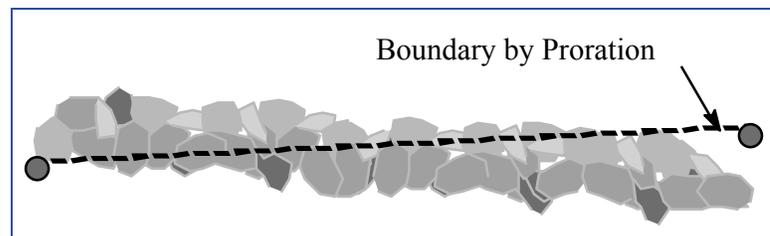
The third condition requires that the non-acting party recognize the barriers or monuments as marking the boundary. Recognition is sufficient if the individual does not contest the location.

The fourth and final condition is that the three conditions exist for some length of time that a reasonable person would have been expected to object or act had they disagreed. A long length of time is not crucial if the location of the record boundary is otherwise vague or difficult to locate and the location of the monuments or barrier is reasonable to the location of the record boundary.

The following situation may be give rise to a boundary by acquiescence:

Bill and Jane live next to each other in an old subdivision. Bill does his best to locate the common boundary he shares with Jane in order to build a rock wall. He makes measurements and sets stakes, eventually building the rock wall along a line between the stakes. Jane watches Bill make the measurements to locate the boundary and observes Bill construct the wall. For many years thereafter, Jane and Bill respect the wall as marking the common boundary. Twelve years later, Jane needs a survey of her property in order to build a garage. In performing the survey for Jane, the surveyor gathers considerable site and record information. Most of the original monuments have disappeared.

The surveyor prorates the distances between found monuments that are located several hundred feet away with the following results shown in the diagram:



In the above situation, the court would be reluctant to adopt the boundary established by prorated distances over the location of the stone wall that has been accepted as the boundary for some length of time. The wall is located within reason to the record boundary. It has been accepted as the boundary for over 12 years. The upheaval and disruption in the neighborhood that would result with adopting lines that differ from the long standing occupation flies in the face of equity.

It is reasonable for a surveyor to adopt an occupation line as the boundary where the record boundary location is vague, difficult to fix, or a reasonable location of the record boundary is on or near the occupation line. Justice Cooley remarked on this very situation in the late 19th century using these words.

Occupation, especially if long continued, often affords very satisfactory evidence of the original boundary when no other is attainable; and the surveyor should inquire when it originated, how, and why the lines were then located as they were, and whether a claim of title has always accompanied the possession, and give all the

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Acquiescence

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Acquiescence is similar to the equitable doctrine of practical location. The major difference is that practical location requires the parties-in-interest all participate, while acquiescence requires only one party act while the other parties-in-interest acquiesce to the acts of the one party.

facts due force as evidence. Unfortunately, it is known that surveyors sometimes, in supposed obedience to the state statute, disregard all evidences of occupation and claim of title, and plunge whole neighborhoods into quarrels and litigation by assuming to establish corners at points with which the previous occupation cannot harmonize. It is often the case when one or more corners are found to be extinct, all parties concerned have acquiesced in lines which were traced by the guidance of some other corner or landmark, which may or may not have been trustworthy; but to bring these lines into discredit when the people concerned do not question them not only breeds trouble in the neighborhood, but it must often subject the surveyor himself to annoyance and perhaps discredit, since in a legal controversy the law as well as common sense must declare that a supposed boundary long acquiesced in is better evidence of where the real line should be than any survey made after the original monuments have disappeared. (Thomas M. Cooley, Chief Justice, Supreme Court of Michigan, 1864-1885 in *The Judicial Functions Of Surveyors*)

Where the surveyor is convinced the location established for the record boundary is different from the markers or barriers acquiesced to by neighbors, the surveyor should report both locations to the client. In reporting both locations, the surveyor would be wise to inform the client that the acquiesced boundary may in fact be determined to be the ownership boundary based on the doctrine of acquiescence.

The surveyor may want to consider wording such as the following in a letter or report to the client when accepting monuments or barriers by the doctrine of acquiescence:

I have established your common boundary to coincide with a stone wall that exists between you and your neighbor. While the stone wall does not coincide with the measurements that were proportioned between existing monuments found beyond your common boundary, it is my opinion that the small difference between the measurements prorated and the measurements made to the wall is insufficient to overcome the equity that courts often find compelling when recognizing occupation lines that were allowed to exist for some time. The courts are often persuaded to leave things settled when it was believed by the parties to have been settled some time ago. You are, of course, at liberty to reject my opinion and advocate that your boundary be the prorated line. Your neighbor may do so as well. In each case, I will be willing to explain both the proration method I used and my belief that the stone wall is ultimately the monument to the common boundary.

Where the surveyor has come to the conclusion that the location of the record boundary is different from monuments or boundaries that were believed to be the boundary, the following example may be used to illustrate the surveyor's opinion as communicated to the client:

I have determined the common boundary to be a line fixed between two monuments. The line was established by dividing the excess distance measured between the two nearby monuments in proportion to the distances shown on the original subdivision plan between the two monuments. It is not unusual to discover that the actual distance measuring in the field is different from the distance shown on the plan, especially given the age of the

original survey. The current surveying technology and education of the surveyor far exceed those of the earlier surveyors.

My opinion places the common boundary in a location different from the wall that exists near this boundary. Although the method I have used to reestablish the common boundary was established by the court as a rule of construction, I feel compelled to warn you that the same court will often adopt occupation lines such as the wall to be the ownership boundary contrary to the record measurements. While I am confident in the methods I have employed in fixing your boundary I would be foolish to predetermine where a court would place the boundary if asked to choose between the boundary I have established and the existing stone wall. I believe you would be wise to consult with legal counsel before taking any action in regard to moving the wall or asking the neighbor to do so.

Acquiescence is similar to the equitable doctrine of practical location. The major difference is that practical location requires the parties-in-interest all participate, while acquiescence requires only one party act while the other parties -in-interest acquiesce to the acts of the one party.

Knud Hermansen is a professor in the Surveying Engineering Technology program at the University of Maine. He is also a consultant on boundary disputes, alternate dispute resolution, land development, real property law, and access law.

Rob Liimakka is a professor in the Surveying Engineering Program at Michigan Technological University. He is a professional surveyor and holds a MS in Spatial Information Science and Engineering from the University of Maine, Orono and is currently working on a doctorate in civil engineering.

Purveyor of Fine Electricity

By David Humphrey, PLS



Recently, I have taken advantage of a great opportunity to develop a new company. I now generate electricity at my house and sell it back to the "grid". By installing 29 photovoltaic solar panels on the roof of my garage, I am now producing more electricity than I use.

Several factors have come together to make this economically feasible.

- Obama and Deval (or whoever is really responsible for these programs) have created a number of government incentives to encourage the development of solar power.
- Due to competition and innovation, the cost of solar panels has decreased dramatically.
- There are now a number of qualified and capable small companies focused on residential and small commercial solar installations.
- Rates on home equity loans are very low.
- And I happen to have a property well suited for solar power. My garage roof has the proper orientation (just west of south), pitch (45 degrees) and, with a

little tree removal, clear access to sunlight.

The major government incentives include:

- 30% federal tax credit (no limit);
- 15% state tax credit up to \$1,000;
- No sales tax on solar installations;
- Assessed value of property cannot be increased for 20 years;
- Commonwealth Solar Grants provide up to \$8,500 (not available in municipal light departments);
- "Net metering" whereby the utility company must buy your excess power;
- And SRECs – Solar Renewable Energy Credits. SRECs are a program established by the state that requires energy suppliers to meet certain target goals on the percentage of total power produced from solar. The SRECs are essentially "carbon credits" that are bought and sold on the open market. For typical residential systems, these amount to \$2,000 to \$3,000 per year. After you pass the "break-even" point, SRECs become pure, un-taxed income.

My installation is a grid-tied, 5.4 kilowatt system with a synchronized inverter which converts the DC current coming from the roof panels into 60 Hz. AC current exactly matching the phase of the electricity running in the wires on the poles in the street. A typical residential solar PV system costs \$25,000 to \$30,000. With all the incentives and electric savings, you should expect to get back about 50% of the initial cost within one year. Break-even happens at about 5 to 7 years and then it is all gravy,

free electricity and income from SRECs. The panels are warranted to produce at least 80% of their rated capacity after 25 years and can certainly be expected to produce power for up to 50 years. There are no moving parts to wear out.

Solar power certainly makes technical and economic sense. But there are other benefits. Solar makes you feel good about helping the environment. Solar electricity means a little less pollution coming out of a smokestack somewhere. By geographically diversifying power generation, the "grid" is less susceptible to outages from sabotage or storms. PV systems produce their maximum output during times of maximum electricity usage; mid-afternoon when offices and factories are in operation. PV systems help reduce the United States' reliance on foreign oil and produce power at a predicable cost.



My career path has bifurcated and I am now a land surveyor and an electricity purveyor.

(Please note that I am not a purveyor of fine tax or investment information and some or all of the information in this article may be completely incorrect. Check with your doctor if this information is right for you and that you are healthy enough for solar activity.)

Protect the Future of GPS

Continued from Page 3

GPS. The study must be comprehensive, objective, and based on correct assumptions about existing GPS uses rather than theoretical possibilities. Given the substantial pre-existing investment in GPS systems and infrastructure, and the critical nature of GPS applications, the results of studies must conclusively demonstrate that there is no risk of interference. If there is conflicting evidence, doubts must be resolved against the LightSquared terrestrial system. The views of LightSquared, as an interested party, are entitled to no special weight in this process.

2. The FCC should make clear that LightSquared and its investors are proceeding at their own risk in advance of the FCC's assessment of the working group's analysis. While this is the FCC's established policy, the Commission's International Bureau failed to make this explicit in its order.
3. Resolution of interference has to be the obligation of LightSquared, not the extensive GPS user community of millions of citizens. LightSquared must bear the costs of preventing interference emanating from their devices, and if there is no way to prevent interference, it

should not be permitted to operate. GPS users or providers should not have to bear any of the consequences of LightSquared's actions.

4. This is a matter of critical national interest. There must be a reasonable opportunity for public comment of at least 45 days on the report produced by the working group and further FCC actions on the LightSquared modification order should take place with the approval of a majority of the commissioners, not at the bureau level.

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MALSCE Surveyor of the Year Nominations Requested by August 31

Nominate a Colleague for Surveyor of the Year Today!

The MALSCE Awards Committee requests that you nominate an outstanding colleague to receive the 2011 *MALSCE Surveyor of the Year Award*. This award will be presented at the 2011 MALSCE Convention on September 23-24, 2011, at the Cape Codder Resort and Spa in Hyannis, MA. To be eligible your nominee must be a current MALSCE member. A past Surveyor of the Year Award recipient is not eligible to win again.

Award information and a nomination form are available at: <http://www.malsce.org/index.cfm?cdid=10773&pid=10386>. Only nominations of eligible award recipients that are received by August 31, 2011 will be considered. Download, complete and return your nomination form by mail or email to MALSCE Awards Committee, MALSCE, The Engineering Center, One Walnut Street, Boston, MA 02108-3616 or to malsce@engineers.org, respectively.

For a list of past Surveyor of the Year Award recipients, go to: <http://www.malsce.org/index.cfm?pid=10418>

MALSCE Life Member Paul Levy

MALSCE is sad to report that MALSCE Life Member Paul A. Levy, PE, PLS passed away in December 2010. We just learned of his loss. Paul was with Weston & Sampson Engineers, Inc. for ten years. He was one of the founders of Levy, Eldridge, and Wagner, which merged into Weston & Sampson.

ACSM Magazine Available Online

The *ACSM Bulletin*, a national magazine published by ACSM and its member organizations, is now available in a dynamic, digital format. Access the magazine online, via secured login, or preview at www.acsm.net. Direct URL: <http://onlinedigitaleditions.com/publication?m=17540&l=1>

Members of MALSCE who are also NSPS members will receive a link to each new issue published. Ensure your email is up-to-date by logging in at: www.nspsmo.org

NSPS News & Views Weekly E-News Update

The National Society of Professional Surveyors (NSPS) publishes a weekly news brief entitled *NSPS News & Views*, which is available for viewing online at <http://multibriefs.com/briefs/NSPS/NSPS071311.php>. There is no charge to receive this newsletter by email. You can sign up for this service at <http://multibriefs.com/optin.php?nsps>.

University of Maine *Surveying Engineering Technology News* for Spring 2011

The University of Maine has released the Spring 2011 issue of *Survey Engineering Technology News*. This newsletter is sent to alumni and friends of the surveying program at the University of Maine. MALSCE encourages students to consider this four year degree program www.malsce.org/malsce/file/SVT%20Spring%202011%20Newsletter.pdf

To learn more about the SVT program please visit www.umaine.edu/set/svt/.

National Museum of Surveying

By Marc Anderson, PLS, Illinois Professional Land Surveyors Association

To learn more about the National Museum of Surveying, including how you can become a member, visit www.surveyingmuseum.org

MALSC E Newsletter Editor's Note: The following is a copy of a letter sent to Kristi Grahl of POB by Marc Anderson of the Illinois Professional Land Surveyors Association. NSPS asked all State Surveying Societies to run a copy in their next newsletters.

Dear Ms. Grahl:

I am writing today to remind all surveyors that they have a National Museum in Springfield, Illinois that is dedicated to their profession and its noble and illustrious history.

American surveyors, stung by the recent economic turndown, may have forgotten the existence of the Museum or they may have felt that they could not afford to support it under the current economic climate. I would urge them to reconsider becoming a member, and also strongly encourage them to actually visit the Museum.

The story of surveying is, in many

ways, the story of America. From the laying out of the original colonial boundaries, roads, and railroads, to the western expansion that inspired the unique Public Land Survey System, land surveyors were at the forefront of a developing and pioneering nation. Surveying has a very rich historical heritage in America, and as we well know, many of our Presidents and statesmen were also surveyors at one point in their careers. It is a fitting tribute for this profession to have a National Museum that honors all surveyors, both past and present.

It is also fitting that this Museum be located in Springfield, Illinois, near the center of the nation and in the hometown of one of our famous surveyor-presidents, Abraham Lincoln. The Museum meshes well with the other Lincoln attractions and sites: The Lincoln Home National Historic Site, The Abraham

Lincoln Presidential Museum and Library, New Salem State Historic Site (where Lincoln learned his surveying skills), and many others. The sites tell a critically important story in the history of the United States leading up to and beyond the Civil War and the abolition of slavery.

Springfield is also the Capitol of Illinois, and attractions related to that status also await the visiting public. In short, I encourage all surveyors to put a visit to Springfield on their travel "to do" list. I'm sure they will not be disappointed. I would also encourage all surveyors to support their National Museum as well in any way they can. It's an undertaking that's worthy of their support.

Thank You,

Marc Anderson - Past President
Illinois Professional Land Surveyors

Massport CST Testing to be Announced

By Jack Hammer, PLS, Mass Port Authority

The Massachusetts Port Authority will become a one-time-only test site for the general survey population for Certified Survey Technicians (CST's) in the coming months... Up to eight surveyors from the general population will be permitted to test at Massport.

The Massachusetts Port Authority will become a one-time-only test site for the general survey population for Certified Survey Technicians (CST's) in the coming months. Massport requires that its surveyors be CST level II (instrument operator) or Level III (party chief). The testing facility is limited in size, so surveyors are urged to make application as soon as possible to NSPS to qualify for the test. Up to eight surveyors from the general population will be permitted to test at Massport. To qualify for a seat at the Massport testing facility, candidates must complete the CST application process with the National Society of Professional Surveyors (including payment to NSPS). Go to www.nspsmo.org for more information on the CST program and to make your application. As the NSPS web site states:

"The National Society of Professional Surveyors sponsors a comprehensive national certification program for survey technicians. The program is recognized by the U.S. Department of Labor as part of the National Apprenticeship Program and the Defense Activity for Non-Traditional Education Support (DANTES). The Certified Survey Technician Board (CST Board), which administers this program, recognizes the importance of technicians to the surveying and mapping profession."

"This four-level certification program for surveying technicians throughout the United States indicates official recognition by NSPS that a person has demonstrated that he or she is minimally competent to perform surveying tasks at a specified technical level. Certification

provides the individual with a sense of achievement, since it reflects advancement in the field of surveying. Certification also provides employers with a method of determining job assignments and advancement since certification is an indication of one's ability to perform specific job tasks."

After interested surveyors have qualified for a seat at the Massport testing facility, they should contact (Caryn Harding or Lillian Ciulla) by mail with their information and provide proof of NSPS prequalification. Massport will advise candidates of the availability of a seat when the test date has been established.

*Massport's address is: Massachusetts Port Authority
One Harborside Drive,
East Boston, MA 02128
ATTN: Human Resources*



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To learn more about the new
Trimble TSC3, visit: trimble.com/TSC3



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The Massachusetts Association of Land Surveyors and Civil Engineers (MALSCCE) promotes professional land surveying registration and provides professional development programs for surveyors, engineers and related professionals throughout the state. We have over 400 individual members in five chapters throughout Massachusetts. In cooperation with The Engineering Center, MALSCCE enhances the land surveying and engineering professions.

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