FALL 2008

The MALSCE SURVEYOR

The Quarterly Newsletter of the Massachusetts Association of Land Surveyors and Civil Engineers

www.malsce.org

President's Message

By Ken Anderson

By the time you read this message, Adam Webb, our association manager for the past five years, will have moved on to a new phase of his life. Adam and his fiancé have left the Boston area to pursue their lives and careers in the Chicago area. We wish Adam and his fiancé happiness and success in their new home and careers. Adam will be sorely missed.

• • •

At the August President's meeting an ad hoc committee was formed to prepare a unified response from the three Engineering Center sponsors to the latest Board of Registration draft advisory ruling on the usage of title "engineer." For those who don't know, once every quarter the presidents of the three original sponsors, (MALSCE, ACEC and BSCES) of The Engineering Center (TEC) meet along with the Executive Director of TEC to discuss problems or ideas that arise, share information and in general keep the lines of communication open between the sponsors. Two members of each sponsor were chosen to work on a response to the Board of Registration. They will report their findings in early September so that each sponsor society Board of Directors can discuss the response. After the Board of Registration settles upon a final advisory ruling on use of the term "engineer" it is assumed that they will work on one for the term "land surveyor."

At the meeting, we also formed a committee that will explore and define opportunities for the sponsoring societies to promote continuing education. I appointed two MALSCE members to this committee. Once the sponsoring societies approve and implement a program, we will approach the Board of Registration about establishing continuing education requirements for professional license renewal.

• • •

As the summer winds down and we gear up for the year ahead it seems like the more we get done the more lies ahead awaiting our attention.

The decline in numbers of new surveyors continues as the average age of licensed surveyors continues to creep upwards. I am happy to admit that I am still below the average age, but not for long. The revisions to 250 CMR are finally getting closer to being adopted. Wentworth's continuing need for adjunct professors will be an ongoing problem, along with drumming up enough students to keep the program viable. Planning is already underway for the next regional convention.

As my term as president winds down and I switch gears to sit on the TEC/TECET board it seems like all the tasks ahead are overwhelming. But our challenges are no more difficult than those faced by our predecessors and we will only solve them one at a time.

On a closing note, when first elected to office it seemed like such a chore, but now that it's over I realize that it actually was an honor to be chosen to serve. As corny as it sounds I'd like to thank all those who donate their time and effort to make MALSCE work as well as it does. There are too many to name and that's a good sign for the future of MALSCE.

CONTENTS

MALSCE Conference
NOVEMBER 7
at The Radisson in Plymouth, MA

Anthony Calcagni, Massachusetts Trig-Star Champ, takes Third at Nationals

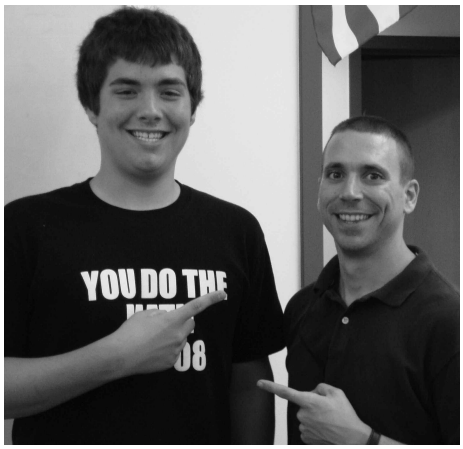
Anthony Calcagni, a student in the Hudson High School Class of 2009, won the Massachusetts Trig-Star Exam and took Third Place in The Richard E. Lomax National Trig-Star Scholarship Contest.

Anthony was awarded $250 by MALSCE and will receive $500 from NSPS. His teacher at Hudson High School, Nathan Meleo, will receive an award on his recognition of excellence in education.

All of the top participants received a score of 92, as there was one question that no one correctly answered. The awards were given based on how quickly the top scorers completed the test.

Anthony's interests include running and tennis. He is taking mostly AP Classes and is due to graduate in the fall.

Thanks to Susan Sullivan of Zanca Land Surveying for administering the Trig-Star Exam at Hudson High School.



Anthony Calcagni and teacher Nathan Meleo

If you are interested in administering the Trig-Star Exam to the high school in your area, please contact our Trig-Star Coordinator, Cliff Robert, at rsurvey@aol.com.

Surveying a Town's Boundaries

By Richard J. Leslie, P.L.S.

History

Early in 2007 Bay Colony Group, Inc. was asked by Ernest G. Hirsch to assist the Town of Foxborough in the perambulation of the Town's boundaries. It was Mr. Hirsch's hope that, through the use of modern surveying equipment, specifically Global Positioning System (GPS) equipment, we would be able to locate and plot the original town corners/monuments. The benefits as well as the limitations of using GPS equipment to locate the original corners/monuments were then discussed.

It was obvious from the beginning that, by far, the greatest benefit of using GPS equipment/methods as opposed to traditional surveying equipment/methods would be the reduction in time and manpower. GPS provided the ability to leapfrog from monument to monument forgoing the need for the long traverse baselines required when using traditional surveying equipment. In addition, monument location could be accomplished using a single operator and GPS receiver as opposed to the traditional two or three person survey crew. Although the potential reduction in time and manpower was significant, it wasn't without limitations.

When using state of the art GPS equipment in conjunction with a locally established reference station network, a GPS survey can provide highly accurate results. A limitation of the equipment and, therefore, results is the impact of obstructions upon the data being collected. Since Foxborough is a rural town, the majority of the corner

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tabula rasa graphic design

Surveying a Town's Boundaries *continued from page 2*

monuments are located in wooded areas. As a result the main obstructions would not be buildings, but rather vegetation and leaf cover. Determining the accurate location of these monuments was a concern, but when put into perspective with the projects' main objective, which was to recover, locate and graphically depict the Town boundaries, it was decided that the benefits of using GPS equipment/ methods far outweighed the limitations.

It was agreed that Bay Colony Group would assist the Town in its endeavor to recover and locate the Town corners/monuments. In addition, we would prepare a boundary map for the Town that would graphically depict the Town boundaries and corner/ monument locations. It was explained that the Town corners are controlled by the original monuments called for in the governing Atlas and that the physical location of these original monuments would govern over all other descriptions or calls for corner locations. Therefore, neither bearings/ distances, longitudes/ latitudes nor coordinates of any type would be shown on the map.

Planning

Using as a basis Mr. Hirsch's immense personal knowledge of the Town's history and corner locations, Bay Colony Group undertook an investigation of the Town's boundaries in preparation of the survey. This investigation included a detailed review of the 'Commonwealth of Massachusetts Harbor and Land Commission Atlas of the Boundaries of the City of Newton, Middlesex County and Towns of Dedham, Dover, Foxborough, Medfield, Needham, Norwood, Sharon, Walpole, Wellesley and Westwood, Norfolk County' dated: 1904. It also included a review of the Foxborough-Walpole line change as shown on a plan entitled, "Plan of Alterations in Foxboro-Walpole-Sharon Town Lines", prepared by: Massachusetts Department of Public Works, Division of Waterways and Public Lands, dated: December 1938 and corresponding letter from Richard K. Hale, Director, Department of Public Works Division of Waterways dated: February 1, 1939. A review of the governing Atlas provided not only graphical depictions of the corners/monuments but also written locations and very detailed descriptions of the monuments marking the corners. With regards to the aforementioned plan, although there were no written descriptions, the mathematical information derived in terms of directions and distances proved to be extremely valuable. Armed with a plethora of information it was time to move the survey from the office to the field.

Execution

The GPS survey would be conducted using Leica GX1230 dual frequency receivers equipped with cellular modems. The use of the cellular modems would provide a connection to the MTS SpiderNet, which is a local network of continuously operating reference stations (CORS stations). This network, which is managed by Maine Technical Source in conjunction with Leica, allows the user to receive processed data in real-time. The network is constantly receiving information from the CORS stations, processing/adjusting that information and sending it out to the GPS receiver. Since the information you are receiving is "real-time" post processed data it eliminates the time that would normally be spent at the office processing field data. In addition, it allows one to evaluate the accuracy of the data being collected and determine in the field whether to accept or reject it. Simply put, you are able to receive almost instantaneously very accurate positional locations for baselines as long as 30km. Of course, the usual factors inherent to GPS surveys would affect the results, such as: visibility (i.e. obstructions), network geometry and other miscellaneous factors. That being said, the use of high quality GPS equipment with a well maintained reference network system has proven to be a very successful and accurate method in determining locations. It should also be noted that we would use the XMTS Foxboro base station as the main base station for the survey. Since the XMTS Foxboro base station is mounted on the building of our office we had first hand knowledge of the base station's physical integrity. In addition, since our office is located, for the most part, in the geographical center of the Town, at the Town Common, it provided excellent geometry for our survey.

The first set of GPS observations were conducted on June 6, 2007. As expected, the dense vegetation and leaf cover during that time of the year proved to be a significant factor. Although we were able to obtain good

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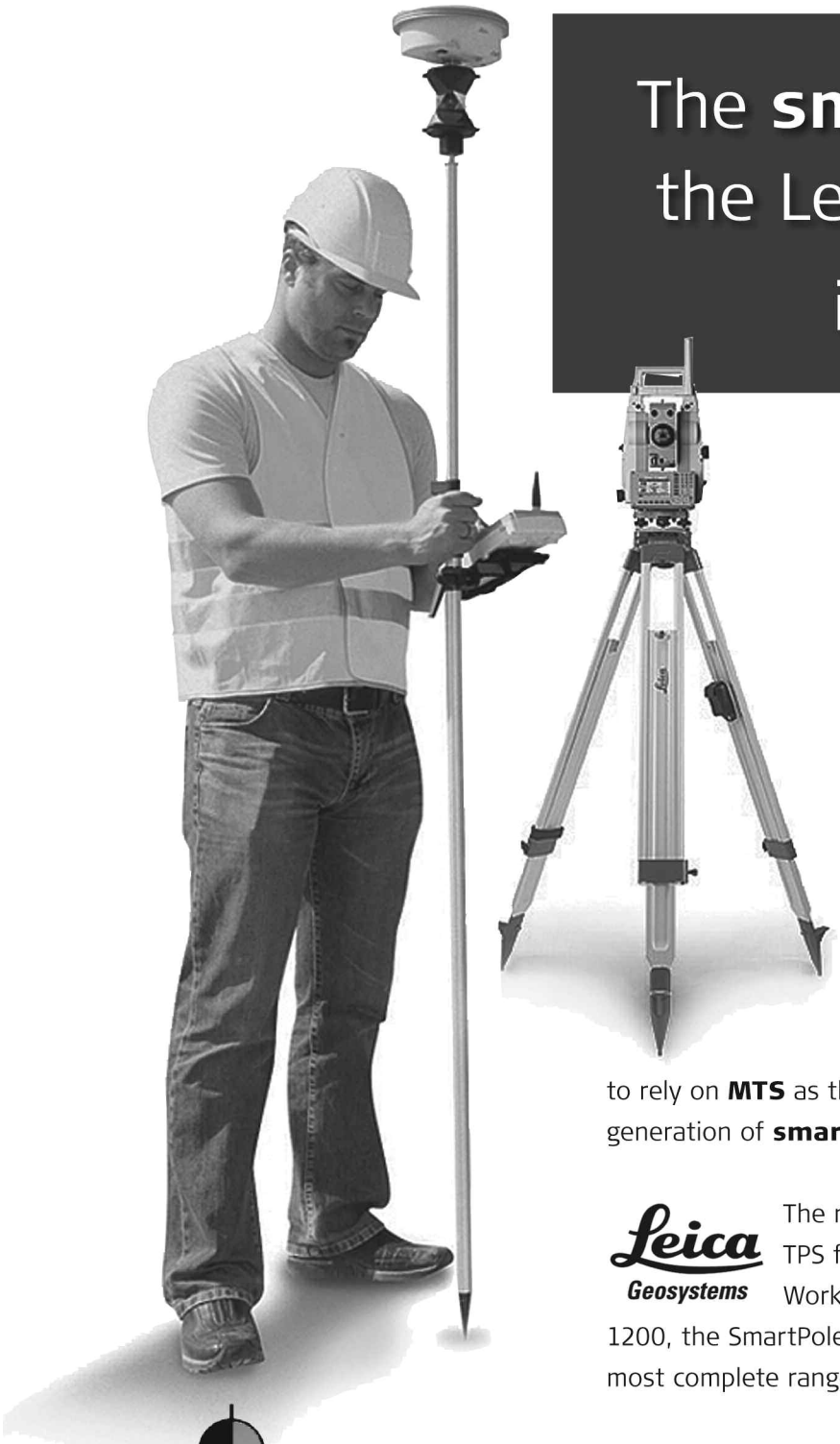
TOWN-NAME TRIVIA QUESTION:

What town was formerly known as Black Horse Village?

Answer on page 19



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Questions & Answers about GIS

By Richard Gosselin

1. Is GIS regulated in Massachusetts? Are there any statutes governing GIS? If so, who governs, or what are the statutes?

GIS is not 'regulated" in the way that surveying is regulated. MassGIS was created by state statute (see Massachusetts General Laws (MGL) Chapter 21A, Section 4B). Some other agencies are statutorily responsible for specific kinds of mapping. For example, while the primary function of the Survey Section at the MassHighway Department is supporting the surveying needs of the department, it also has statutory responsibility for maintaining the authoritative record of state and municipal boundaries (MGL Ch. 42, Sections 7-9). Other state agencies with mapping responsibilities include the Secretary of the Commonwealth's Elections Division (boundaries related to voting) and Registries of Deeds. The Department of Conservation and Recreation is responsible for mapping the boundaries of state parklands and the Department of Fish and Game likewise maps the boundaries of state wildlife refuges. The Department of Environmental Protection is charged with delineating boundaries around various sensitive resources including wetlands and drinking water recharge areas. The mapping responsibilities of all these agencies are carried out in accordance with statute and regulations and in many cases they use GIS to produce the authoritative maps.

It's not clear what you would "regulate" if you wanted to. GIS is a multi-faceted technology that is used in many different ways in many different kinds of organizations. These organizations range from agencies at all levels of government, to engineering/surveying consultants, to utilities, to financial firms (Fidelity has a GIS group originally established to help their marketing efforts), to hospitals. Very often, people who use GIS software are trained in another field and are using GIS in the context of their specialty. From a surveyor's perspective, it might seem logical to "regulate" creation of large scale map information before it goes into a GIS database or who produces maps with that information. However, the problem with that idea is map information in a GIS can be used for many different purposes. Some people will use very accurate information in quite general ways; they simply need a representation of a particular map feature and "regulating" who can make maps for representational purposes does not make sense. Therefore, legitimate concerns about unqualified individuals making maps of a stated accuracy are best addressed by making sure the organizational processes involved require that these maps be created by a surveyor. In other words, regulate the process, not the information.

2. What standards, or are there any standards, for collection and publishing of GIS information?

You cannot talk about a single standard for "GIS information". Typically, there are standards specific to particular data types, say assessor's parcels or elevation data. Mapping standards may include requirements for horizontal or vertical accuracy. However, the requirements for data vary with use, geographic area, and scale, so you might have one standard at a municipal level and another at a federal level. There are also different bodies that set standards. The Federal Geographic Data Committee (FGDC), representing the interests in spatial data of many federal agencies, has established a widely accepted standard for metadata, or "data about data". Complying with this standard means that you have created information in a standard format that tells who created the data, and how, what the spatial accuracy is and how that was determined, what the database attributes are and what they information they contain, how the data set is maintained, and who distributes the data. In Massachusetts, MassGIS has exercised its authority to set a variety of standards. One widely used standard is the MassGIS Digital Parcel Standard. MassGIS can require conformance with its standards as a condition for state funding, but there is no statutory requirement that any entity conform to MassGIS standards.

3. What are the most current/popular programs/software for viewing/working with GIS information? What are some of the AutoCAD-related or work-with AutoCAD programs for GIS?

The most widely used GIS software in Massachusetts is ArcGIS (also known as ArcView) from ESRI. There are other excellent GIS software packages, including Autodesk Map, MapInfo, Maptitude, and GeoMedia. There is also an array of free desktop GIS software packages with more limited capabilities including ArcExplorer, UDIG, MapWindow GIS (from Autodesk), and many others. Also, AutoCAD Civil 3D can display GIS data and export CAD data to a GIS data format. ESRI products and many other GIS software packages can work with CAD files, although there are fundamental differences in how ESRI and Autodesk in particular model map features in their GIS databases; these differences can be important to how well their respective products meet your needs.

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August 12, 2008

Mr. Kenneth B. Anderson, P.L.S.
President, MALSCE
The Engineering Center
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Ken:

Once again it is our pleasure to thank MALSCE and the MALSCE Education Trust for the generous and kind donations to the SVT program.

Our plan with the check from the MALSCE Education Trust is to place the funds in a MALSCE-SVT scholarship fund administered by the University of Maine Foundation. We will send you a fund description for your approval. The principal in the scholarship fund is never used. Once the fund is in excess of $5000 (hopefully this time next year with another donation) any accumulated funds derived from investment will be used for scholarships for Massachusetts' students. The Foundation has an excellent track record for investment, and we currently have ten scholarships with them. Please advise us if you do not approve of this approach.

MALSCE has been a wonderful partner in our education efforts. The support from MALSCE is reflected in the significant number of students that come from Massachusetts and the numerous graduates from the program that are returning to Massachusetts to seek employment.

On behalf of the Surveying Engineering Technology (SVT) faculty and students, please extend our heartfelt thanks to MALSCE and its members for the support of the program.

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Advancing technology is at the heart of my business plan. It allows me to compete directly on projects in ways that weren't possible 8 or 10 years ago. It takes a lot of effort to stay on the leading edge and it takes support as well. Hands down, Hayes has the best technical support that I have ever used. They know their equipment and they know their software.

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There will always be logistical issues in surveying. The one thing I haven't learned to do is to be in two places at once, but I am working very hard on learning how to do that. Hayes in Tennessee and me in Florida has never been an issue. The truth of the matter is that with overnight deliveries, the internet, email, FTP access and the telephone we can all do business with just about anyone we want.

I'm a Consulting Surveyor and I wouldn't have it any other way. Things change and my business will change right along with them. The keys are motivation, support and always remembering that the harder we work, the more luck we have."

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Electronically Transferring Information: "Behold Your Exposures"

The use of Computer Aided Design & Drafting software has been an effective tool by professional service firms to help explore the options for serving a client while minimizing potential conflicts. Clients have become accustomed to requesting CADD information as a means of producing documents more quickly, less expensively, and in a re-useable format which they want. Unfortunately, the expectations of clients in using CADD information have created unique challenges to the professional in protecting its intellectual property rights and managing its professional liability exposures. This article is designed to outline some of the more typical concerns which can develop when information is electronically transferred to others and what risk management strategies can be considered in order to minimize the potential exposure to a professional firm.

Specific Concerns of the Professional Firm

When a surveyor agrees to electronically share information which was developed for a certain client or project, it can effectively lose control as to how the information will be subsequently used. The issues to a surveyor are numerous if it does not take a diligent approach to managing the potential exposures. For example, a number of key questions can develop which could lead to disputes, conflicts, or even an unjustified claim. Consider the following:

- What does the surveyor do when there is a question raised over the accuracy of electronically transferred information and the original documents?
- While the electronically transmitted information may have been created for the benefit of a certain client, how does the surveyor ensure that his intellectual property is not used by others or even changed in some fashion after being released?
- When asked to transfer information to a third party with whom the surveyor has no contractual relationship, does the surveyor have the legal right to transfer such information when it may be contractually owned by the client?
- By transferring information electronically, how does this affect the license agreement with the underlying software?

While these questions are not designed to suggest a legal basis for which this article is being prepared or that legal advice in any fashion is being offered, the questions are designed to help a professional stop and think first about the possible consequences of yielding to a request to electronically transfer information.

Risk Management Strategies

A surveyor who uses CADD or some other similar software-based format that incorporates its professional services and or opinions in documents that are released to others should be entitled to certain rights to protect them against the improper use of the documents by clients or other third parties. While it would be wise to consult with an attorney who can provide appropriate counsel about any rights and privileges, there are certain strategies which a professional should consider to guard against the inappropriate use of electronically transferred information. Consider the following strategies:

1. USE A 'TRANSFER AGREEMENT'

One of the more commonly recommended strategies is to use a 'Transfer Agreement' which will outline the terms and conditions upon

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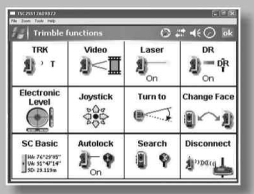

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Join us on September 26, 2008 for an OSHA 10-Hour Safety Program at the New England Water Works Association in Holliston, MA. See below to learn why you may need this certification.

OSHA 10-Hour Safety Training and the Land Surveyor on Public Construction Projects

By David Corkum, Esq., Donovan Hatem, LLP

As of July 1, 2006, the provisions of Chapter 306 of the Acts of 2004 have required specific safety training for certain employees engaged in public construction projects. Chapter 306 delegates the enforcement of the new statute to the attorney general's office. The requisite level of training and certification of successful completion of that training is the so-called OSHA 10 hour course. In August of this year, the Attorney General's Office issued an advisory to clarify its interpretation and intended enforcement of the new regulations. That advisory does not specifically address land surveyors in their role on a public construction project, but the AG's logic can be extrapolated to provide guidance for surveyors.

www.mass.gov/Cago/docs/Workplace/osha10_advisory.pdf is the link to the advisory.

www.mass.gov/legis/laws/seslaw04/sl040306.htm is the link to Chapter 306.

While the apparent original intent of the legislation was to target all individuals that participate in a construction project, the language of the statute only address those individuals that are employed by the signatory to a chapter 30, §39M or chapter 149, §§ 44 E &F contract entered into after July 2006. Arguably, this would include subcontractors and sub consultants (at any tier) to the General Contractor. Accordingly, a surveyor retained by a contractor performing layout work on a public construction project would fall under the ambit of the Act and be required to have its employees trained prior to performing work at the site. That same surveyor, performing similar or related services, but retained by a design professional selected by the Commonwealth pursuant to a qualification based procurement, chapter 30 B or chapter 7§§ 38A1/2-O, would not fall under the Act.

Legislative Report

by Abbie Goodman, MALSCE Executive Director

July 31, 2008 marked the end of the 2007–2008 formal session of the Massachusetts legislature. The legislature will continue to meet in informal session, handling non-controversial matters affecting state business until December 31, 2008. At press time for this newsletter, I saw some general media reports that the Governor may ask the legislature to come back into formal session to deal with a serious tax revenue shortfall for FY2009. Meanwhile, let's review the status of certain bills we worked on this session.

Board of Registration of Professional Engineers and Land Surveyors

Issue: The Board of Registration of Professional Engineers and Land Surveyors should have the same authority as other Boards of Registration that are part of the Division of Professional Licensure.

We won passage of H.4339, "An Act Relative To Professional Engineers And Land Surveyors," that gives this Board of Registration the authority equivalent to other registration boards that are part of the Division of Professional Licensure. It also corrects a drafting error from a prior legislative session by adding 2 more land surveyors to the Board of Registration of Professional Engineers and Land Surveyors. This bill has passed to be engrossed in both chambers and, at press time, we're awaiting enactment and the Governor's signature.

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TOWN-NAME TRIVIA QUESTION:

What town was formerly known as Number Thirteen?

Answer on page 19

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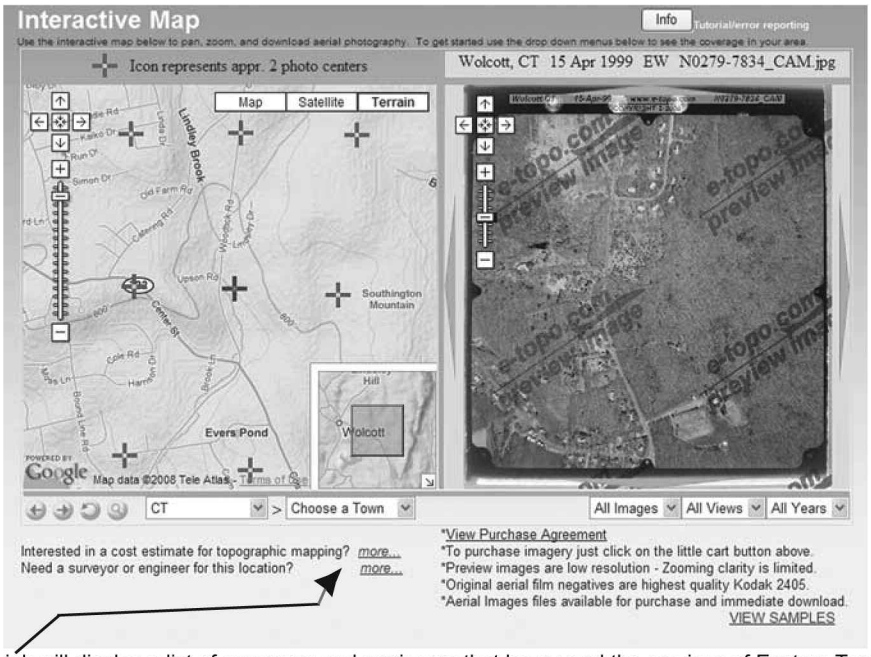

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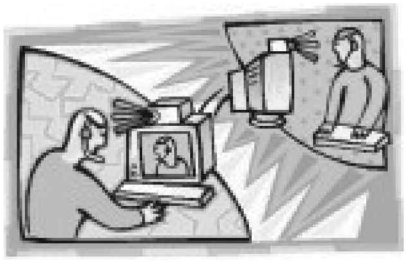

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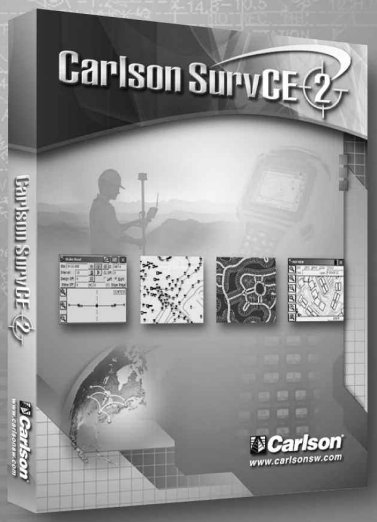

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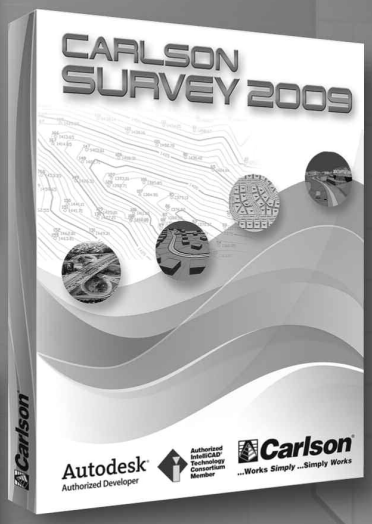

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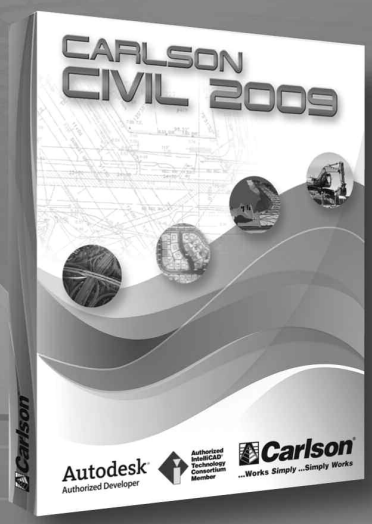

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The Inapplicability of the Colonial Method to the Division of Flats in Massachusetts

A discussion of Emerson v. Taylor 9 Me. 3, (1832) in terms of various Massachusetts cases

By A. Richard Vannozzi, PLS

There is no question which presents itself to a court of justice, which in its details is attended with greater difficulty than that of the course and direction of flats, as appurtenant to or incident to the land bounding upon salt water. The Colony ordinance has laid down no practical rule but only declared a general principle, which it is extremely difficult to apply to the great variety of locations to be affected by it.

Valentine v. Piper 39 Mass. 85, (1839)

On page 241 of Boundary Control and Legal Principles (5th Edition, by W. Robillard, D. Wilson and C. Brown, 2005, New York: John Wiley and Sons, Inc.) in Figure 9.4 there is a picture that most every Land Surveyor could draw in their sleep. It is a picture of the method for dividing the flats between adjacent owners by the "Colonial Method." For Massachusetts Land Surveyors the 1832 case that sets down this rule, Emerson v. Taylor, is probably the one case from Maine that they can recognize by name. Apparently however, it is not the law in Massachusetts, which presents a special problem because it is clearly within the Land Surveyor's purview to determine such boundaries.

Before the geometries of the various flats problems are explored, it should be noted that common to all the methods and all the geometries, is the fact that unless a clear intent otherwise is demonstrated, extension of the upland boundary between owners from the high water mark to the low water line is not appropriate as noted in Rust v. Boston Mill Corp. 23 Mass. 158, (1828):

"The owner of land bordering on a cove where the sea ebbs and flows, who is entitled, under the colony ordinance of 1641, to the adjoining flats "to the low-water mark," cannot always claim the flats in the direction of the exterior lines of his upland, but only in the direction towards low-water mark from the two corners of his upland at high-water mark."

Therefore, in terms of factors affecting the boundary in the flats, once the intersection of the upland boundary line between the parties and the high water mark is determined (referenced herein as the "Upland Boundary"), the direction and location of the boundary on the upland becomes irrelevant.

There are three basic shoreline geometric cases which to consider: a straight line, convex and concave. Specific cases discussing each exist in Massachusetts and though some reference Emerson v. Taylor on the importance of "equity" in a division, the Massachusetts cases articulate very different methods to actually perform a division, and none embrace it.

The Straight Line

For the condition where the shore line is a straight line, lines perpendicular to the shore line are run from the Upland Boundary to the low water mark. This is described in the following passage from Valentine v. Piper:

"the demandants would be entitled to the flats in front of their upland between Summer street and a parallel line to the south, so as to give them the same width throughout as their lot measured at high water."

The same concept articulated again, but more succinctly in Stone v. Boston Steel & Iron Co. 96 Mass. 230, (1867):

"Where the shore line of a tide water cove does not depart much from a straight line, the flats may be divided by drawing a base line from headland to headland, and running straight lines at right angles with the base line from the ends of the division lines of the upland to low water mark, even if the sea never wholly ebbs beyond the base line, provided the situation and shape of the channel are not such as to require a different mode of division."

It should be noted that the closer the high water line and low water line are to being parallel lines, the more "equitable" the above division will seem, and that in the application of this principle to locations where the high water line is straight but the low water line is either straight and not parallel, or undulating, inequities may become apparent that will require modification of the rule.

This concept of equity is discussed at length in Inhabitants of Deerfield v. Arms 34 Mass. 41, (1835):

"The object is, to establish a rule of division among these proprietors, which will do justice to each, where no positive rule is prescribed, and where we have no direct judicial decisions to guide us. The case most analogous to the present, which has occurred in this Commonwealth, is that of the division of flats ground, among coterminous proprietors, conformably to the general principle laid down in the colony ordinance, giving to the proprietors of lands bounding on salt water, where the tide ebbs and flows, propriety to low-water mark, with some qualifications. Rust v. Boston Mill Corp. 6 Pick. 158; Emerson v. Taylor, 9 Greenl. 44. In both cases we think two objects are to be kept in view, in making such an equitable distribution; one is, that the parties shall have an equal share in proportion to their lands, of the area of

the newly formed land, regarding it as land useful for the purposes of cultivation or otherwise, in which the value will be in proportion to the quantity; the other is, to secure to each an access to the water, and an equal share of the river line in proportion to his share on the original line of the water, regarding such water line in many situations as principally useful for forming landing-places, docks, quays and other accommodations with a view to the benefits of navigation, and as such constituting an important ingredient in the value of the land. Without attempting to establish a rule of general application, we think that the one which shall most nearly, in general, accomplish these two conditions, will come nearest to doing justice."

It should also be noted that the specific reference to Emerson v. Taylor does not relate to the specific methodology of the "Colonial Method" as mentioned above.

The Convex Shoreline

When the shore line is irregular and forms a headland (convex) it is acknowledged in Gray v. Deluce 59 Mass. 9, (1849) that parallel lines will not work and that divergent lines must be used:

"So if a division were to be made of flats surrounding a headland, it would be impracticable to make a just division by parallel lines; and to give to each proprietor his due proportion of the flats, the lines of division must diverge from high-water to low-water mark."

However, further on in the case it dismisses the Colonial Method from Emerson v. Taylor because of the Colonial Method's requirement that the Upland Boundary corners need to be determined beyond the instant property:

"We are aware of the rule laid down by the learned court in the state of Maine, in the case of Emerson v. Taylor, 9 Greenl. 42 But, in none of the cases which we have been called upon to consider, have we found that rule practicable, for want of a full survey of all the connected flats in and about Boston. No such survey has ever been made, and probably never will be, as the expense of such a survey would be very great. The rule we have adopted, therefore, is the only just rule by which these cases can be decided."

It appears from the record however that there are few, if any, other cases that specifically deal with a convex shoreline situation beyond Gray v. Deluce. This is probably attributable to the fact that since the lines dividing the flats diverge and the width of the lot at the low water line is greater than at the high water line, the exact location is less the subject of controversy then the concave situation where lots must have lesser widths at the low water line than the high water line. This is born out in the fact that the vast majority of cases on diving the flats relate to coves.

The Concave Shoreline

One of the earliest decisions on a cove was in Rust v. Boston Mill Corp. where a hypothetical was used to illustrate the methodology:

"Thus in the case of a circular cove in which there is no natural channel, if a straight line across the mouth of the cove is 100 rods in length and the circular line of high-water mark is 200, each owner of a lot abutting on the cove is entitled to run his lines from the two corners of his lot in a direction towards low-water mark, so as to include a parcel of flats, which at the mouth of the cove will be one half the width of the lot at high-water mark; and thus each will hold his share in severalty."

By way of example it creates a rule which for lack of a better name would be the "proportional mouth of the cove method" whereby the proportion of ownership of the shoreline of the cove is used to layoff distances at the mouth of the cove to define the lines between adjacent owners of flats.

Interestingly, 21 years later the court laid down a slightly different rule in Gray v. Deluce. It still required that the line across the mouth of the cove be determined, but rather than give each littoral owner land at the mouth of the cove in proportion to their shoreline, the line across the cove was treated like a baseline and lines perpendicular to the baseline were drawn from the Upland Boundary to the base line, and either shortened or lengthened to meet the low water line or extend 100 rods, as appropriate.

"The division is to be made by running a base line across the mouth of the cove, and the whole flats within the cove are to be divided among the proprietors, by parallel lines, at right angles with the base line. These parallel lines, if extended to low water, or to the distance of a hundred rods from the upland, as the case may be, cannot interfere with the rights of proprietors of the adjacent lots."

The judge in Gray v. Deluce attributes his ruling to the fact that the Valentine v. Piper case requires parallel lines be drawn from the Upland Boundary to the low water line, and that because in Rust v. Boston Mill Corporation the mouth of the cove was too narrow to make parallel lines equitable it did not control and that a division that allowed for parallel lines and provided all owners access to the mouth of the cove should prevail. Clearly the concept of equity was at the root for the variation which is itself instructive.

In 1857 in the case of Commonwealth v. City of Roxbury 75 Mass. 451, (1857) the Court very conveniently articulates a set of "rules" for dividing

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The Inapplicability of the Colonial Method to the Division of Flats in Massachusetts

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the flats. Excerpts from that decision are presented here:

The general rules for the division of flats among coterminous proprietors, so far as they can be ascertained from the adjudged cases, maybe thus stated:

1st. The intention of the ordinance was, "if practicable, to give to every proprietor the flats in front of his upland, of equal width with his lot at low water mark." Gray v. Deluce

2d. The nearest channel from which the tide never ebbs, though not adapted to navigation, is the limit. Sparhawk v. Bullard, 1 Met. 107.

3d. The direction of the side lines of the flats is not governed by that of the side lines of the upland. Rust v. Boston Mill Corporation, 6 Pick. 169. … Unless expressly so agreed by the parties. Dawes v. Prentice, 16 Pick. 442.

4th. Where there is no cove or headland, a straight line is to be drawn according to the general course of the shore at high water, and the side lines of the lots extended at right angles with the shore line. Sparhawk v. Bullard, 1 Met. 106.

5th. Around a headland, the lines dividing the flats must diverge towards low water mark. Gray v. Deluce

6th. In a shallow cove, in which there is no channel, a base line may be run across the mouth of the cove, and parallel lines drawn, at right angles with the base line, from the ends of the division lines of the upland to low water mark. Gray v. Deluce

7th. A deep cove, out of which the tide entirely ebbs at low water, is to be divided by drawing a line across its mouth, giving to each proprietor a width upon the base line proportional to the width of his shore line, and then drawing straight converging lines from the divisions at the shore to the corresponding points on the base line. Rust v. Boston Mill Corp.

8th. The direction of the side lines of flats in a cove may be modified by the course of the channel bounding them, or by the position of other channels between part of that channel and the upland. Walker v. Boston & Maine Railroad, 3 Cush. 22, 23, 24.

9th. It seems, that after passing the mouth or narrowest part of a cove, the lines may diverge, if necessary to preserve the proportions of different estates. Walker v. Boston & Maine Railroad, 3 Cush. 25.

10th. An agreement of coterminous proprietors as to the direction of their boundaries may be proved, or presumed from their acts and those of public authorities. Sparhawk v. Bullard, 1 Met. 95.

The rule which has been adopted in Maine for the division of flats among coterminous proprietors, in the absence of any agreement between them, or any adverse possession, is to draw a base line between the two corners of each lot at the shore, and then run a line from each corner, at right angles with the base line, to low water mark; and, if the side lines diverge from or conflict with each other, to divide equally between the two proprietors the land excluded or included by both lines; and not to allow any subdivision of lots to change the side lines as required by an earlier division of the upland. How this rule should be applied in a cove so deep as to bring more than two of such side lines into conflict with each other has never been decided. Emerson v. Taylor, 9 Greenl. 42.

It should be noted that the above list of the ten (10) "rules" does not includes the "Colonial Method," and that, in fact, the reference to Emerson v. Taylor and the Colonial Method follows the listing of the rules and is not enumerated. It should also be noted that Emerson v. Taylor is only mentioned in one Massachusetts case after this set of rules is laid down in 1857. In that case, Wonson v. Wonson 96 Mass. 71 (1867), three commissioners were appointed to divided the flats in a cove and in reporting their results articulated not less than five different possible solutions, one of which was analogous to the Colonial Method from Emerson v. Taylor, however in the end, it was not chosen since one of the other methods was determined to be both equitable and consistent with the concepts of proportionality as employed in many of the other decisions in coves up until that point in time.

In conclusion three things should be taken away from this discussion. First the Colonial Method is clearly not the law in Massachusetts for dividing flats; second, the concept that the division of flats must be equitable supersedes any geometric operation to the contrary; and third, even in all the instances when the Massachusetts Courts have discussed the possible application of the Colonial Method when they have needed to modify a method in order to assure that a division is equitable, they have determined that other more equitable rules should be applied. This demonstrates that the reason the Colonial Method is not employed in Massachusetts is not due to a passive omission but rather is the result of a deliberate decision by the Courts to not apply it.

Surveying a Town's Boundaries *continued from page 3*

positional quality (location) on monuments where there was good visibility, we were not as successful with the monuments in heavily wooded areas, such as the State Forest. In order to obtain more accurate locations for the monuments that had poor visibility the decision was made to postpone future survey work until the leaves had fallen and the trees were bare.

After a short fall and long winter, the second set of GPS observations were conducted on April 11, 2008. Although the gap between the two sets of observations was longer than expected, the results yielded from the second set of observations proved to be well worth the wait. Eleven out of the fifteen monuments that were located in the first set of observations were re-located. In all but two instances the positional quality (location) between the first and second observations improved by anywhere from 0.5' to as much as 5' +/–. Pleased with these new results, it was time to plot the data and begin preparing the boundary map.

Map Preparation

As a result of the previously discussed surveys, we were able to recover original monuments for fifteen of the sixteen total Town corners. Although the positional quality for six of these monuments was of survey grade, less than 0.05', the positional quality for the remaining monuments ranged from 1.5' to 4' +/–. In an effort to improve upon the location of these later monuments, a search of our data archives was conducted to obtain locations of these, as well as other monuments located at abutting Town corners during previous surveys. Surprisingly, this search not only discovered survey grade locations for five of the Foxborough corner monuments, but also provided extremely valuable and accurate survey data for three additional corner monuments for abutting towns. Sometimes you just have to look! Satisfied with the amount and overall accuracy of the data it was time to pull it all together. As always, a task that seemed so difficult at the beginning of the job became much easier when all of the pieces of information had been collected. As previously discussed the goal was to recover the original Town corner monuments/boundaries and prepare a graphical depiction of their locations. The final result is a plan prepared by Bay Colony Group, Inc. entitled, "Boundary Map of the Town of Foxborough Massachusetts Incorporated: June 10, 1778" dated: May 2008. Although this project took longer than expected, and required a significant contribution of time from office and field personnel, the general consensus at Bay Colony Group is that it has been a very worthwhile and informative project.

Richard J. Leslie is the Vice President at Bay Colony Group, Inc.

Electronically Transferring Information *continued from page 8*

which information is being released and used. Naturally, it would be wise to first consult with a competent attorney about the drafting of any such agreement. While an attorney can provide an Agreement with more complete terms and conditions, the following are just a few suggestions of certain points which should be considered:

A) Firstly, the Agreement should clearly state that any re-use of information, without the professional's agreement and approval, will be solely at the risk of the client or other third parties.

B) Secondly. The Agreement should also clearly state that the client shall indemnify and hold harmless the professional for all claims and losses which can develop from the re-use of such information. This is particularly important because of the potentiality of electronic information being modified, altered, or renovated, upon re-use by clients or other third parties, which can result in unwarranted claims against the professional.

C) Thirdly, the Agreement should clearly state that nothing in the transfer

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TOWN-NAME TRIVIA QUESTION:

What town was formerly known as Jericho Plantation?

Answer on page 19

Electronically Transferring Information *continued from page 17*

should be construed to provide any right to a third party to rely on the information provided or that the use of the information implies that the surveyor has reviewed and approved the information or any subsequent rendering of the information.

D) Fourthly, the Agreement should state that the electronic information provides certain information as of the date of its release and that it is the responsibility of the user to arrange for any updates which may be required subsequent to the preparation date of the transferred information. This condition can become critically important if the client should request CADD files or other software based formats used by surveyors that will be transferred to a contractor who may rely on this information.

2. REMOVE FIRM SPECIFIC INFORMATION When negotiating or outlining the scope of service which will be provided, it is recommended that the surveyor or engineer reserve the right to remove any professional seal and title block from the documents which will be turned over to the client. Naturally, some professionals may view this strategy as a technique that will reduce the authenticity or creativity of their work. It is important to note, however, that this recommendation is not suggesting that site-specific information be adjusted. By removing any firm-specific information, the chance of an unjustified claim being developed can be hopefully reduced.

3. 'HARD COPY' RETAINS CONTROL One of the potentially critical issues which can develop when electronically transferring information is losing control over the possibility that changes might be introduced by others in the transfer or re-use of the information. While some firms may be able to use electronic software which prevents the alteration to the documents, this may not be possible with other formats used by professionals. Accordingly,a common risk management strategy is to issue a statement that a 'Hard Copy' will be retained by the professional and will prevail over any changes subsequently made to the electronic information or any questions which may develop between the electronic information and the original work of the professional. As previously suggested with using a 'Transfer Agreement'. it should specifically state that if a conflict should develop between the 'Hard Copy' and the electronically transferred information or if a variance is introduced from any source, then the 'Hard Copy' will govern or prevail over any disputes.

Another risk management strategy used by some professionals is to produce two reprints of the 'Hard Copy' and provide one to the client who must compare it to a facsimile of the electronically transferred information. If their 'Hard Copy' is consistent with the electronic information, then the client will be asked to acknowledge in writing that the copies are identical and return it's reprint of the 'Hard Copy' to the professional with a release from any future claims. Finally, a professional should consider using an agreement which requires indemnity for the time and costs to a professional who becomes involved in a controversy regarding electronically transferred information. Again, a competent attorney should be consulted who can draft an agreement or provide appropriate language which can be incorporated into the professional's standard contract.

4. USE 'DISCLAIMER LANGUAGE' It can be argued that documents provided by professionals are 'instruments of service' and are not products. Therefore, it is important to recognize that the continued and uncontrolled reuse of information may lead some to construe the documents as 'products' with a product liability exposure, which may not be insured. And, it could be construed that a warranty or guarantee exists, which it is important to mention is not an insurable exposure under Professional Liability insurance policies. Therefore, it would be prudent to consult with an attorney on developing 'Disclaimer' language to prevent 'instruments of service' from being mis-interpreted as a product with an accompanying warranty or guarantee.

Other Resources For Guidance

The Engineers Joint Contract Documents Committee (EJCDC) provides additional guidance on the ownership and re-use of plans in its standard agreement 1910-1, Standard Form of Agreement Between Owner and Engineer. Their website is www.ejcdc.org which will permit the purchase of certain documents. No matter what guidelines are followed when asked to electronically transfer information, it is prudent to consider the exposures that are created when releasing

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Electronically Transferring Information *continued from page 18*

information which can potentially be re-used by others. The strategies outlined above are some suggestions to consider; but, in all cases involving contractual matters, it is wise to first seek the counsel of a competent attorney.

This article contains information from a Management Advisory published by Victor 0 . Schinnerer & Company, Inc. It is being provided as risk management information and guidance, only. It is not intended as legal advice nor should it be construed in anyway as a legal opinion or whether insurance will apply for any specific claim.

This article is presented by Robert H. Cooper, Jr., Certified Insurance Counselor, with R. H. COOPER & COMPANY, LLC; a Sustaining Member of the Professional Land Surveyors of Ohio, Inc. His firm is an independent insurance broker dedicated to providing risk management service and PROFESSIONAL LIABILITY insurance to Architects, Engineers, and Land Surveyors. He can be reached by electronic mail at rhcooperjr@rhcooperandcompany.corn and by telephone at 614-761-8808.

Legislative Report *continued from page 10*

Water Infrastructure Finance Commission

Issue: The Commonwealth and its municipalities are facing a water and wastewater crisis created by antiquated infrastructure and a failure to properly invest in maintaining existing infrastructure. We supported S. 2292 (new draft of H. 855 and S. 543), that creates a special commission charged with evaluating this public health and public safety problem and recommending ways to increase the investment in water and wastewater. We inserted this bill into the Environmental Bond Bill that passed on July 31. Unfortunately, Governor Patrick vetoed the section containing our language. We've requested a meeting with Environmental and Energy Secretary Ian Bowles to discuss alternatives.

Infrastructure Funding: Transportation

Issue: Massachusetts should invest in maintaining, repairing and upgrading its infrastructure, and identify new sources of revenue to meet the Commonwealth's infrastructure needs. We supported certain current transportation bills including:

H. 4609, the second part of the Transportation Bond Bill, which passed this session.

H. 4743, a bill that creates a $3 billion accelerated structurally-deficient bridge improvement program, which passed this session.

Homeowner Heating Oil Spill Remediation

Issue: Massachusetts homeowner insurance policies do not provide coverage for residential oil spills, which have serious environmental, financial and health impacts if left unaddressed. At press time, the key bill, S. 2404, "An Act to Facilitate Homeowner Heating Oil Spill Remediation," had passed in the Senate and was stuck in the House Committee on Third Reading. This bill would require Massachusetts's homeowner's insurers to provide coverage, with specified limits and deductibles, for the costs of investigating and cleaning up home heating oil releases.

Qualifications Based Selection (QBS)

Issue: When procuring design services, government agencies should award contracts based on the qualifications of the firms; this is called Qualifications Based Selection (QBS). To bring Massachusetts in line with the federal government and 44 other states, we filed and support H.3182, "An Act Relative to Public Safety and Fair Practices in Procurement Relating to the Commonwealth of Massachusetts Selection of Architects Engineers and Related Professionals." This bill stayed in the House Ways and Means Committee.

Note: The Massachusetts Primary Election will be on Tuesday, September 16, 2008 with the State Election (and Presidential Election) on Tuesday, November 4, 2008. Please remember to vote in these two important elections.

If you have questions about the issues, please let me know. I hope to see you all at MALSCE's November 7, 2008 Convention.

ANSWERS TO FORMER TOWN-NAME TRIVIA QUESTIONS:

Winchester was formerly known as Black Horse Village. Chelsea was formerly known as Number Thirteen. Hancock was formerly known as Jericho Plantation.

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