

TASK FORCE FOR MODEL LAW FOR SURVEYING

GEORGE E. FREEMAN, P.E., P.L.S., CHAIR

ABSTRACT

The NCEES Task Force on Model Law for Surveying was formed by Past-President Dick Cottingham and continued by President Ted Fairfield in response to communication and correspondence received by NCEES regarding the 1995 revisions to the Model Law for Surveying. Those revisions included adopting a broader range of activities into the definition of surveying that were being performed by surveyors, and that were already regulated by a significant number of jurisdictions. The charges set forth below are the most recent issues that have been raised. The NCEES Task Force deliberated over these issues during the past year and offers the following recommendations and conclusions.

TEXT

Charge #1: Evaluate the Report of the Joint Task Force on the NCEES Model Law for Surveying, correspondence received from the California Land Surveyors Association, and other related information. Coordinate with and solicit feedback from the representative members of the joint task force (ACSM, ASCE, ASPRS, NSPS, NSGEC and URISA), to ensure full understanding of their report

The NCEES Task Force on the Model Law reviewed the original 1997 Multi-Organizational Task Force report and it's 2000 Addendum line by line. Greg Johnson, PE, PLS, who was the NSPS delegate to the Multi-Organizational Task Force, was present and provided valuable insight into the deliberations of that group and the reasons for the concerns that were raised. The NCEES Task Force concluded that many of the basic concepts of the original report had already been addressed by NCEES through Model Law changes and the adoption of EP 12 between 1997 and 2000. The NCEES Task Force also reaffirmed that the two-tier licensing approach outlined in the original 1997 report was not well received by many in the surveying community or within NCEES.

In regards to the letter from the California Land Surveyors Association, it was the consensus of the NCEES Task Force that the Association's concerns have been discussed and addressed previously. Their understanding that the Model Law revisions would create two separate classes of surveyors was inaccurate. The NCEES Task Force position resulting from the deliberations over the last year reaffirmed one license with one title.

The detailed review of the 2000 Addendum resulted in the NCEES Task Force considering the Multi-Organizational Task Force recommendations of further revisions to the Model Law. The basis of these revisions was to focus on the specific acts of the professional versus the use of tools. The NCEES Task Force carefully studied the revisions proposed by the Multi-Organizational Task Force to "Section 2(b)(5) Practice of Surveying or Land Surveying," commonly referred to as the "preamble paragraph" and to the subsection definition items (a)

through (h.) The NCEES Task Force accepted some of the their recommendations verbatim, while finding it necessary to modify others.

Charge #2: Discuss the report and solicit input from the NCEES membership. Determine whether and to what extent this information describes and defines the foundation of a desirable “plan” for surveying licensure for the next several decades.

There were several charges to the NCEES Task Force, but in essence the members were charged to do an in-depth study of the definition of surveying. This included studying what activities should be included in the definition of surveying practice, and develop a licensing model that would be the best course for the future.

In addition to the multi-organization task force report, the Task Force looked at the FIG definition of surveying, which is accepted by many of the world’s nations, and the terms of the proposed Mutual Recognition Document being negotiated by NSPS with the Canadian and Mexican surveyors. A survey of the career path of graduates of 2-year and 4-year surveying/geomatics programs was also done. The needs of those states that license surveyors to perform drainage and “minor engineering” were discussed.

After many hours of deliberations, it was decided that the correct course is for all those who practice within the Definition of Surveying, as revised, will have one license, and be called by one name. As need arises, it is anticipated that exam modules for specialty areas within the practice of surveying will be developed, and the breadth and depth model examination will be administered.

The recommendations that you will see in the responses to the remaining charges will reflect this position. Please remember that many viewpoints have been considered and the proposed wording for the Model Law changes were carefully crafted to convey a clear and exact definition of the Practice of Surveying.

Charge #3: Develop one or more alternative or modified “plans” for discussion, comparison and potential implementation purposes.

The multi-organization task force originally recommended a tiered approach to licensing that has been broadly debated for the past few years. NCEES has not adopted that model, and the NCEES Task Force does not recommend it. Currently, the Model Law offers two choices of names for surveyors: Professional Surveyor and Professional Land Surveyor. Many misunderstood this and believed that two classes of surveyors were proposed. This was not and has never been proposed by NCEES members.

Members of the Task Force agreed that knowledge of measurement science is the foundation of all surveying, no matter what specialty one might practice. They felt that the current Model Law path toward licensure should apply to all, including the exception that a jurisdiction might elect to waive the state specific exam for those who practice in a non-boundary area.

To become a Professional Surveyor, whatever name is elected, one ideally must complete a 4-year degree, successfully pass the Fundamentals of Land Surveying exam, gain four years of progressive experience under a licensed professional, and finally pass the Principles and Practice of Land Surveying exam. The extent and nature of the state specific exam is left to the discretion of the individual jurisdiction. The Task Force did discuss the possibility of lengthening the Principles and Practices national examination to 8 hours. However, no recommendation is made at this time.

Charge #4: Include in your deliberations the question of whether, and in what manner, photogrammetry and photogrammetrists should be included in the definition of Professional Surveying, for licensure purposes.

Professional Surveying, for licensure purposes.

The NCEES Task Force members were nearly unanimous (only one dissenter) in their consent that photogrammetry and photogrammetrists should be included in the definition of Professional Surveying.

The NCEES Task Force members agreed that aerial surveys determine the contours and features of land, practices of which are already regulated by many jurisdictions; that once the data is collected, the process of generating contours, and the hardware and software utilized, are virtually the same, whether done aerially or on the ground; and no matter how topographic maps are generated, the National Map Accuracy Standards apply equally.

The NCEES Task Force strongly felt that equal qualifications and accountability are required. The tools used to produce the product may be different, but the outcome is virtually the same. Protection of the public is the primary job of a licensing board, and regulating photogrammetry and photogrammetrists is consistent in carrying out those responsibilities.

Charge #5: Focus primarily on the concept of “Licensure” which, by definition, empowers some persons to perform regulated work and prohibits others who are not licensed from doing so.

- a. This focus necessarily includes consideration of potential implementation plans; i.e., whether some form of transitional process must be included, especially as to those unlicensed persons who are and have been practicing some of the expanded areas to be included in the licensing plan.

NCEES has already recognized that provisions for absorbing existing practitioners must be made when first including a new activity within the definition of practice. Changes to the Model Law between 1995 and 2000 have included adding a Savings Clause, which provides for a “Grandfathering” period when the definition of practice is expanded to include those currently practicing in areas previously not included.

If one can demonstrate long practice in that activity, with a certain number of years in responsible charge, it is not defensible to bar them from practicing that profession. Typically, the

window for becoming licensed in that way is not more than one year from the time the law is expanded.

After careful review of the current Model Law, and discussion from those members who had been through the process, it was felt that no further action was necessary.

- b. In addition, contemplate the potential that “Certification” might play a role in the plan, at least as to the broadening scope of Surveying. (Optional Certification for those who want it for “specialty work”, in lieu of Licensing? Or Specialty Certifications in addition to Licensure as a Professional Surveyor? Should any such Certifications be done under the auspices of NCEES?)

After careful consideration (and agonizingly long discussion) the Task Force did not support certification in lieu of licensing.

The Task Force does not recommend certification in a specialty area of surveying in lieu of or in addition to licensing at this time. All the data gathered from NCEES members and from members of the profession at the various workshops and presentations supports licensure for the breadth of survey practice in conformance with the requirements of a Model Law Surveyor.

Charge #6: Review the draft strategic plan objective I.A.5 and supporting documentation from the February 2001 Board President’s Assembly. Also review examination policy EP12 and make a recommendation for qualifications for licensure for any new surveying disciplines.

Strategic Plan Objective “I.A.5. Assess need and develop further examination modules in the sub-disciplines of surveying to accommodate all those individuals practicing within the definition of land surveying, being sure to communicate with Council members and stakeholders.”

In reviewing the draft strategic plan outlined above, an assessment was made in trying to determine what the demand may be for further examination modules. A questionnaire was developed by NCEES Task Force members and distributed to 2 and 4 year surveying and mapping programs. The response rate on the questionnaire was 26 percent. According to the respondents, between 11 and 13 percent of the graduates will select a career in the non-boundary disciplines of surveying. This resulted in an estimated 100 plus candidates per year possibly selecting an examination depth module.

The NCEES Task Force understands the concerns of Council membership in not fragmenting the profession. However, when ten states request the new exam module (per EP12) the Council will need to consider the request. It is anticipated there will be a new PAKS study within the next few years, regardless of the outcome of the Task Force work. The Task Force recommends the PAKS study also target some of those unlicensed individuals who are practicing within the expanded definition of surveying. This should result in a broader range of professional activities that should be considered.

In response to Council Member input - Presentations at the 2001 Annual Meeting in Little Rock, Arkansas were well attended. There was little opposition to the recommendation of having either a new exam or breadth and depth exam. The Task Force recommendation is to develop a breadth and depth exam module once the requirements of EP12 have been satisfied.

The recommendation for qualifications for licensure for any sub-disciplines of surveying should be the same for all. The qualifications should be consistent with the current NCEES Model Law requirements.

Charge #7: Provide a progress report for review and discussion at the 2002 Zone Meetings and Annual Meeting.

The progress report for the 2002 Zone Meetings was developed in the form of a detailed Power Point Presentation for the Surveyors Forums and a shortened version for General Business Session of the Zone Meeting. The NCEES Task Force will continue our work through E-mail and teleconferencing, making any necessary modifications to the presentations for the 2002 Annual Meeting, as a result from input at the Zone Meetings.

Charge #8: Provide recommendations to the 2002–2003 UPLG Committee for its preparation of amendment language for model law and model rules, for review and potential action at the 2003 Annual Meeting.

The NCEES Task Force recommends to the 2002-2003 UP&LG Committee that the revisions to the Model Law (with rationales) shown in Appendix A be considered and accepted for consideration at the 2003 Annual Meeting.

The Task Force also recommends that the “Inclusions and Exclusions” shown in Appendix B be added to the Model Rules and Regulations.

The “Inclusions and Exclusions” were a product of the Multi-Organizational Task Force. The list is needed to clarify what parts of GIS/LIS are subject to regulation. The “Inclusions and Exclusions” are simply a common-sense enumeration of those activities for which there is need for regulation and for those where no protection of the public is required. The NCEES Task Force reviewed the list directly from the Multi-Organizational Task Force Report and made some suggested modifications (strike-through/underline method) as shown in Appendix A.

The recommendation is that the Model Law and the Model Rules and Regulations revisions be in one motion when it is brought before the Council at the 2003 Annual Meeting. These revisions must be considered simultaneously to protect those who perform work in these areas.

Conclusions: It is hoped that these recommendations will be reviewed thoughtfully by all concerned with respect given to the long work that produced them. Input has been received from members of the affected professional organizations as well as members of the Council. Many hours of discussion, both by the Multi-Organization Task Force and by the NCEES Task Force have resulted in the proposals before you. Debate on these issues has been going on for as much as a decade, in many forums. It is hoped that this study will be supported. The NCEES Task

Force is convinced that the recommendations support the best model for survey licensure for the future.

Respectfully submitted, **Task Force for Model Law for Surveying:**
George E. Freeman, P.E., P.L.S., Chair

Members

Mark T. Jones, P.S.
Richard L. Wavering, L.S.
Timothy R. Cowan, L.S.
Joanne Darcy Crum, L.S.
Jerry M. Goodson, P.L.S.
Patricia Gail Oliver, L.S.
Rita M. Lumos, P.L.S.
George D. Shambeck, L.S.

Consultant

Robert C. Krebs, P.E., L.S.
R. Larry Greene, L.S.
James R. Riney, P.E., P.L.S.
Greg Johnson, P.E., P.L.S.

Board Liaison

Martin A. Pedersen, L.S.

Staff Liaison

John Adams, P.E.

MOTIONS

[Please include all motions here. Note: If a motion will change the approved, proposed, or forecasted operating or capital budgets, the motion must include a financial impact statement.]

SECTION 2. DEFINITIONS

(b) Professional Surveyor (Professional Land Surveyor, Professional Surveyor and Mapper, Geomatics Professional, or equivalent term)

(1) Professional Surveyor - The term “Professional Surveyor” as used in this Act, shall mean a person who has been duly licensed as a professional surveyor by the board established under this Act, and who is a professional specialist in the technique of measuring land, educated in the basic principles of mathematics, the related physical and applied sciences, and the relevant requirements of law for adequate evidence and all requisite to surveying of real property, and engaged in the practice of surveying as herein defined.

(2) Model Law Surveyor - The term “Model Law Surveyor” refers to a person who meets the minimum requirements of this act and is a graduate of an EAC/ABET-accredited Surveying Engineering Group program, an RAC/ABET-accredited Surveying and Mapping Group program, or the equivalent.

(3) Professional Surveyor, Retired - The term “Professional Surveyor, Retired” as used in this Act shall mean a person who has been duly licensed as a professional surveyor by the board and who chooses to relinquish or not to renew a license and who applies to and is approved by the board to be granted the use of the honorific title “Professional Surveyor, Retired.”

(4) Surveyor Intern - The term “Surveyor Intern,” as used in this Act, shall mean a person who has qualified for, taken, and has passed an examination in the fundamental surveyor intern subjects, as provided by this Act.

Rationale: Currently the Model Law offers two choices of names for surveyors: Professional Surveyor and Professional Land Surveyor. Many misunderstood this and believed that two classes of surveyors were proposed. The Task Force recommends the use of only one name throughout. The NCEES Task Force chose the term “Professional Surveyor,” but offers the other choices shown as alternatives in the title to the section. Whichever name is chosen by a jurisdiction, it should be used throughout for all those who practice within this definition. The choices offered are Professional Surveyor, Professional Land Surveyor, Professional Surveyor and Mapper, Geomatics Professional, or equivalent term. These changes should be made globally throughout the Model Law and Rules.

(5) Practice of Surveying - The term “Practice of Surveying,” within the intent of this Act shall mean providing, or offering to provide, professional services utilizing such sciences as mathematics, geodesy, and photogrammetry, and involving both (1) the making of geometric measurements and gathering related information pertaining to the physical or legal features of the earth, improvements on the earth, the space above, on, or below the earth and (2) providing, utilizing, or developing the same into survey products such as graphics, data, maps, plans, reports, descriptions, or projects. Professional services include acts of consultation, investigation, testimony evaluation, expert technical testimony, planning, mapping, assembling, and interpreting gathered measurements and information related to any one or more of the following:

Rationale: These changes were made to clarify the language and to separate professional practice from the work that might be suitably performed by non-surveyors. “Word-smithing” was done on the preamble paragraph to accomplish that task. It is interesting to note that the Multi-Organization Task Force felt that the current language could demand that the TV weatherman must be a licensed surveyor.

- (a) Determining by measurement the configuration or contour of the earth’s surface or the position of fixed objects thereon.

Rationale: This language has been simplified, with emphasis on the task, rather than the method. The NCEES Task Force strongly believes that the aim should be to regulate the professional practice, and not the tools or methods utilized to produce the work.

- (b) Determining by performing geodetic surveys the size and shape of the earth, or the position of any point on the earth.

Rationale: Outcome and not the tools were deemed to be the important issue. Geodetic surveying, by whatever means the current technology allows, is the practice of surveying. The language was restructured slightly to be consistent with the entire list of activities.

- (c) Determining the position for any survey control monument (non-boundary) or reference point; establishing or replacing any such monument or reference point.

Rationale: The language has been clarified to be simple, direct, and to the point. The NCEES Task Force felt the term “principles of surveying” was not appropriate in this context.

- (d) Creating, preparing, or modifying electronic, computerized, or other data relative to the performance of the activities in the above described items (a) through (c).

Rationale: This clause was changed to remove the tools “land information systems, and geographic information systems.” It was also broadened to include work with any data rather than just electronic data. This is the last of the clauses that include non-boundary activities.

- (e) Locating, relocating, establishing, reestablishing, or retracing property lines or boundaries of any tract of land, road, right of way, or easement.

Rationale: This is the first of the boundary surveying activities. The last few words in the original language have caused some confusion. Most felt that those words referred to construction surveying, but others did not. The NCEES Task Force recommends that the words be deleted from this clause and a new clause be added to clear up the confusion.

- (f) Making any survey for the division, subdivision, or consolidation of any tract(s) of land.

Rationale: In this clause the language was expanded from just the subdivision of land to include the consolidation of parcels of land. This is an activity commonly performed by surveyors across the country.

- (g) Locating or laying out alignments, positions, or elevations for the construction of fixed works.

Rationale: This is the new clause that very clearly describes construction surveying. It is recognized that many states also allow professional engineers to perform this function. Its inclusion here does not necessarily preclude engineers from performing that task. It is recognized that there is an overlap of practice possible in this area, just as there is overlap of practice among the engineering disciplines. Review of existing definitions of practice in the various jurisdictions indicate that a significant number of them already include this action in one form or another.

- (h) Determining, by the use of principles of surveying, the position for any survey monument (boundary or non-boundary) or reference point; establishing or replacing any such monument or reference point.

Rationale: The changes recommended are again an attempt to make the language as clear and concise as possible. In the context of boundary surveying, the term “principles of surveying” as it is traditionally used would apply. It is also recognized that survey monuments set when performing boundary or subdivision surveys may be actual boundary corners or monuments set in other positions that control that work.

- (i) Creating, preparing, or modifying electronic or computerized or other data relative to the performance of the activities in the above described items (e) through (h).

Rationale: This language is very similar to that in item (d) previously shown, but here it pertains to those activities within the practice of boundary, or traditional, surveying. The Task Force again recommends removing references to GIS and LIS, since these are deemed to be tools used to perform the work rather than a product.

Any person shall be construed to practice or offer to practice surveying within the meaning and intent of this Act, who engages in surveying or who by verbal claim, sign, advertisement, letterhead, card, or in any other way represents themselves to be a professional surveyor or, through the use of some other title implies that they are able to perform, or who does perform any surveying service or work or any other service designated by the practitioner which is recognized as surveying.

Rationale: The language in the last paragraph of sub-section (5) has been modified to reflect the global change of one title.

SECTION 14. EXAMINATIONS

(d) The board may prepare and adopt specifications for the written examinations in engineering and surveying. They shall be published in brochure form and be available to any person

interested in being licensed as a professional engineer or as a professional surveyor. If a person elects to perform only the activities described in Section 2 (b)(5)(a) through (d), the board may elect to waive any additional written examinations pertaining to activities (e) through (i). If a person elects to perform any of the activities described in Section 2 (b)(5)(e) through (i), additional written examinations, pertaining to these activities, must be completed.

Rationale: The first sentence is relatively unchanged, allowing for the waiver. The revision to this section is necessary since the NCEES Task Force wanted to make it perfectly clear that any person who seeks licensure with the intention of practicing in the boundary areas must complete the state-specific exam. This includes anyone for whom the state exam was waived, but who subsequently gains additional experience and expertise and desires to practice in the area of boundary surveying.

Inclusions and Exclusions of Practice

A. Activities Included within Surveying Practice

Activities that must be accomplished under the responsible charge of a Professional Surveyor (unless specifically exempted in Section B. below) include, but are not limited to, the following:

1. The creation of maps and geo-referenced databases representing authoritative locations for boundaries, the location of fixed works, or topography. This includes maps and geo-referenced databases prepared by any person, firm, or government agency where that data is provided to the public as a survey product.
2. Original data acquisition, or the resolution of conflicts between multiple data sources, when used for the authoritative location of features within the following data themes: geodetic control, orthoimagery, elevation and hydrographic, fixed works, private and public boundaries, and cadastral information.
3. Certification of positional accuracy of maps or measured survey data.
4. Adjustment or authoritative interpretation of raw survey data.
5. Geographic Information System (GIS)-based parcel or cadastral mapping used for authoritative boundary definition purposes wherein land title or development rights for individual parcels are, or may be, affected.
6. Authoritative interpretation of maps, deeds, or other land title documents to resolve conflicting data elements.
7. Acquisition of field data required to authoritatively position fixed works or cadastral data relative to geodetic control.
8. Analysis, adjustment or transformation of cadastral data of the layer(s) with respect to the geodetic control layer within a GIS resulting in the affirmation of positional accuracy.

B. Activities Excluded from Surveying Practice

A distinction must be made in the use of electronic systems between making or documenting original measurements in the creation of survey products, versus the copying, interpretation, or representation of those measurements in such systems. Further, a distinction must be made according to the intent, use, or purpose of measurement products in electronic systems to determine a definitive location versus the use of those products as a locational reference for planning, infrastructure management, and general information. The following items are not to be included as activities within the definition of surveying:

1. The creation of general maps:
 - a) Prepared by private firms or government agencies for use as guides to motorists, boaters, aviators or pedestrians;
 - b) Prepared for publication in a gazetteer or atlas as an educational tool or reference publication;
 - c) Prepared for or by education institutions for use in the curriculum of any course of

- study;
- d) Produced by any electronic or print media firm as an illustrative guide to the geographic location of any event;
 - e) Prepared by laypersons for conversational or illustrative purposes. This includes advertising material and users guides.
2. The transcription of previously geo-referenced data into a GIS or LIS by manual or electronic means, and the maintenance thereof, provided the data are clearly not intended to indicate the authoritative location of property boundaries, the precise definition of the shape or contour of the earth, and/or the precise location of fixed works of humans.
 3. The transcription of public record data, without modification except for graphical purposes, into a GIS- or LIS-based cadastre (tax maps and associated records) by manual or electronic means, and the maintenance of that cadastre, provided the data are clearly not intended to authoritatively represent property boundaries. This includes tax maps and zoning maps.
 4. The preparation of any document by any Federal government agency that does not define real property boundaries. This includes civilian and military versions of quadrangle topographic maps, military maps, satellite imagery, and other such documents.
 5. The incorporation or use of documents or databases prepared by any Federal agency into a GIS/LIS, including but not limited to, federal census and demographic data, quadrangle topographic maps and military maps.
 6. Inventory maps and databases created by any organization, in either hardcopy or electronic form, of physical features, facilities or infrastructure that are wholly contained within properties to which they have rights or for which they have management responsibility. The distribution of these maps and/or data bases outside the organization must contain appropriate metadata describing, at a minimum, the accuracy, method of compilation, data source(s) and date(s), and disclaimers of use clearly indicating that the data are not intended to be used as a survey product.
 7. Maps and databases depicting the distribution of natural resources or phenomena prepared by foresters, geologists, soil scientists, geophysicists, biologists, archeologists, historians, or other persons qualified to document such data.
 8. Maps and geo-referenced databases depicting physical features and events prepared by any government agency where the access to that data is restricted by statute. This includes geo-referenced data generated by law enforcement agencies involving crime statistics and criminal activities.