Landscape Architecture Body of Knowledge Study Report

American Society of Landscape Architects
Canadian Society of Landscape Architects
Council of Educators in Landscape Architecture
Council of Landscape Architecture Registration Boards
Landscape Architectural Accreditation Board

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APPENDICES

Landscape Architecture Body of Knowledge: What, Why and Why Now?[1]

As professionals, we must work to meet changing needs and expectations. This makes it imperative that we attain adequate tools through formal education, experience, and life-long learning. We must assimilate new knowledges and practices and respond to changing realities. However, we cannot be merely reactive. We must anticipate shifts and work with them. With ever-expanding knowledge and technology, with ever more multifaceted information and understanding of our world, the "body of knowledge" that is expected of landscape architects, the core knowledge that helps define our profession, becomes somewhat daunting in its breadth, depth, and complexity.

The Landscape Architecture Body of Knowledge Study (LABOK) is the first time a majority of the landscape architectural organizations in North America have worked jointly on a specific project. In 2000, proposed changes to the Landscape Architectural Accreditation Board's (LAAB) accreditation standards led to discussions about changes in both practice and higher education. The American Society of Landscape Architects (ASLA), the Council of Educators in Landscape Architecture (CELA), and the Council of Landscape Architectural Registration Boards (CLARB) suggested that LAAB join them in a discussion concerning current expectations. Representatives from ASLA, CLARB, LAAB, and CELA first met in July 2000 to discuss what came to be called the common core of the profession—that which is expected of every landscape architect no matter what type of practice or research pursued. It became evident early on that this was not just a LAAB or CELA issue but one of vital importance to all, and it was suggested that the Canadian Society of Landscape Architects (CSLA) be invited to participate as well.

Participants in the 2000 meeting concluded that there could be no defensible consensus as to a body of knowledge for landscape architects without systematic research to ensure that the breadth of the profession was included. Prior research and resources were either outdated or specific in their focus. Albert Fein's *A Study of the Profession of Landscape Architecture*, the last comprehensive examination of the profession, was published in 1972. CLARB's Task Analyses address knowledge and skills required for licensing, a specific subset of the body of knowledge of the profession. At that meeting, the idea of the LABOK Task Force was formed with the primary purpose of producing objective, scientific data that addressed educational and professional expectations. Through licensure, accreditation standards, and educational curricula, it was obvious that there was some body of knowledge upon which these were based, but it also seemed obvious that both the body of knowledge and expectations would change over time. What was needed was a systematic, quantifiable way to take a snapshot of a particular time, and, in the future, update the body of knowledge. Plans were made to develop a study plan, seek support from the landscape architecture organizations, and then develop a Request for Proposals to be sent to professional research groups.

The Task Force had to address two key questions:

- What are the core competencies shared by the profession in general that help define the profession?
- What is the fundamental body of knowledge that should be expected of all graduates from accredited schools?

Within these were more specific questions:

- Is there a definable core body of knowledge for landscape architecture? What should a licensed private practitioner in a design-build firm have in common with a professor researching visual preference? What do both have in common with the landscape architect working on policy and large scale planning in the public realm?
- Are these knowledge and/or skills mandatory or optional?
- To what degree (exposure, understanding, or mastery) should professionals possess these skills and knowledge?
- Should these be obtained at the first professional degree level or post-professional degree level? Are some of these to be attained through work experience? Continuing education? Are there areas of the profession that may be specializations-important, yet not expected of everyone?

[1] Prepared by Sara Katherine Williams, FASLA, on behalf of the LABOK Task Force.

A reasonable organization for the survey document emerged over time. There are "knowledge" statements, which measure what we *know*, and "competency" statements, which deal with what we *do* with what we have learned. This organization marked a significant shift in the study. At the beginning of the study, survey statements were organized as either a "task" or "knowledge." Tasks focus on specific, discrete activities. The Task Force decided that competencies, built upon the application of knowledge, would be better indicators of what professional expectations are. An additional benefit of competencies was the capability to reduce a large, cumbersome list. The domain of COMMUNICATIONS is a good example of the breadth and complexity of competencies in that they focus on the goals and results of communication rather than the tools used.

The basic questions were deceptively simple, as the Task Force and focus group participants soon discovered. Crafting the correct questions to ask proved to be a balancing act. Too much detail and the study instrument becomes unwieldy. Yet "inclusive" and "comprehensive" were always key objectives. One strategy was to make individual statements as broad as feasible by assuming that several implicit or unstated knowledges or competencies form the basis for a broad single statement, and recognizing that some knowledges and competencies are basic to several statements. For example, "plants and horticulture" are not explicitly given their own statement, but are vital to any knowledge of "natural site conditions and features," "resource conservation, habitat restoration and urban ecology," "landscape maintenance techniques," and many other knowledge statements. Indeed, in the entire DOMAIN VI, SITE DESIGN AND ENGINEERING, it is difficult to find a knowledge statement that does not include plants. Likewise, competency in planting design is implicit in a number of explicit competency statements.

Through meetings, conference calls and e-mails, the LABOK Task Force worked with The Chauncey Group to clarify and refine the study instrument and to identify professionals for interviews, focus group, pilot study, and final survey. Task Force participants over the past few years include Sara Katherine Williams, FASLA (chair); Lu Gay Lanier, FASLA; Patrick Miller, FASLA; Gere Smith, FASLA; Peter Pollack, FASLA; Cecelia Paine, FCSLA; Fran Pauze; Clarence Chaffee; Vince McDermott, FASLA; Joanne Westphal, ASLA; Dan Donelin, FASLA; Timothy Keller, FASLA; Brian Orland, FASLA; and Ron Leighton. Representing the American Society of Landscape Architecture, the Landscape Architectural Accreditation Board, the Council of Educators in Landscape Architecture, the Canadian Society of Landscape Architects, and the Council of Landscape Architecture Registration Boards, these individuals' significant time commitments and considerable experience made this project happen.

Many thanks are owed to the individuals who participated in interviews, the focus group, and the pilot study. For each group, the Task Force prepared a list of potential participants who represented the range of experience, practice type, demographics, region, and other variables. This list was compiled to get a representative cross-section of the profession and to enlist individuals known to be thoughtful contributors. Trying to summarize the depth and breadth of the profession into a workable study instrument was challenging, but watching it unfold was fascinating. The astuteness, richness of experiences, and passion of the participants has been gratifying.

The importance of the professionals who agreed to be interviewed and to participate in the focus group and pilot study cannot be overemphasized. The content of the body of knowledge was crafted by those individuals, and the final survey indicated relative importance. Interviews provided a long list of potential knowledges and competencies. These were edited by the focus group to construct a thorough yet workable survey document. A small representative segment of the LABOK Task Force further edited the survey document. This was sent out to a pilot group for further evaluation, and the resulting edits became the final survey.

Demographics were important so that there might be insights as to differences between subgroups, such as private vs. public vs. academic practice; office size; gender; or new vs. seasoned professionals. In each step, diversity of the profession would be a major factor in selecting participants. Task Force members consistently sought out those who were licensed and those who were not, those who fit into "traditional" types of practice, and those who were on the fringes or involved in cutting-edge work and research. Geographic and other issues were also considered.

Do the findings of the LABOK survey answer the basic questions? Not entirely in black and white. They are findings and must now be analyzed to ascertain their meaning. One participant in the LABOK pilot study group summed all this up quite well: "*Good survey, now what?*"

The following sections provide a beginning general analysis; however, LABOK may provide different interpretations and insights for different organizations. These findings give data upon which the various groups can base thoughtful discussions and make informed decisions. Thus, the meaning of the findings may differ from one organization to another based upon their specific mission and goals. CLARB, for example, can use LABOK to aid them in their imminent Task Analysis and in their ongoing investigations on apprenticeship (the years between graduation and licensure). Potential areas for continuing education can be identified. Schools can use the findings to evaluate curriculum and to validate their research, service and educational goals. The findings may also be used to communicate what landscape architects do. (It is interesting to note that "grading, drainage, and stormwater treatment" earned such a high score under "Command of Knowledge at Time of Professional Responsibility" when some governmental entities do not allow landscape architects to sign and seal drainage and stormwater documents.)

It must be recognized that LABOK is a snapshot of the profession's expectations at this time. It was not within this study's purpose to look to the future and determine what should be—although that is a task the profession must take on. The LABOK findings can serve as a starting point.

It is also reasonable to assume that our expectations may need to change. To play devil's advocate: "history" was a more highly valued knowledge than "historic preservation principles." Does that mean that preservation is not important? Is it a specialization? The American Institute of Architects' *Vision 2000* study predicted that over 90% of building projects in the 21st century will involve standing and/or historic buildings. There are many reasons for this projection, including tax laws that provide incentives for preservation, the dwindling numbers of undeveloped sites, and the economic and social success of many revitalized historic areas. Might landscape architecture need to re-examine the future of preservation and our roles in it? Also, with changes in our technological, cultural, and environmental contexts, many survey issues that may seem "fringe" or specialized may take on more importance in the very near future. They might even be important now and we do not realize it yet. Staying within expectations will never move the profession to new levels. Clearly, all of the findings need to be examined in the larger context. Again, these findings are a basis for discussion—not a recipe for the average landscape architect.

In the evaluation of the findings, it is important not to pick out individual statements and statistics. The study should be analyzed as a whole to find patterns and relationships. The discussions presented here and in the next sections are exploratory. The constituent organizations will, amongst and between themselves, discuss what meanings the data may have for them. It has been suggested several times that this whole process be repeated in five to seven years so as to keep current with the profession. There have also been suggestions that different types of research studies build on LABOK.

There were contradictory responses within all the steps of the process: *"Too academic!" "Too private-practice oriented." "Only specialists need to know X-delete it." "No, X is vitally important to include."* Concerns often arose about the needs of a particular segment of the profession being under- or over-emphasized. Balance was sought, but the survey inherently has limitations as to how much can be covered. One interesting insight from the demographic data is that "them" and "us" is perhaps less accurate than "we" based upon the high number of respondents who claim affiliation with multiple organizations.

A quantitative study such as this necessarily focuses on the "what" and not as much on the "how" or "why." However, the survey participants' written responses are included as Appendix J and give some useful insights and critiques, particularly as to the future. A constraint of this study is that it emphasized *current* expectations. Looking to the future is a critical exercise. As a profession, we are not defined merely by *what* we do, but also *how* we do it. Attempts were made to include the critical thinking and synthesis skills important to the processes of our profession, but again, this line of inquiry would be best served by another form of systematic research. The Task Force sees this study as a beginning, anticipating thorough analysis and multiple discussions and offering rich opportunities for further research.

Description of the Study[2]

The Landscape Architecture Body of Knowledge study was designed to address two questions:

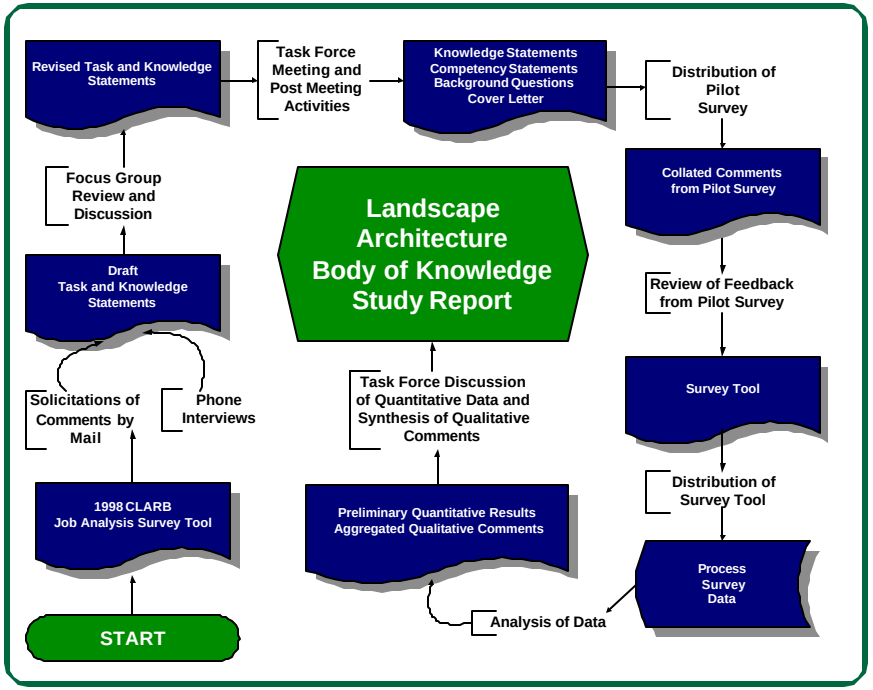
1. What are the core competencies shared by the profession in general that help define the landscape architecture profession?
2. What is the fundamental body of knowledge that should be expected of all graduates from accredited landscape architecture degree programs?

The approach used to answer these two questions consisted of several iterative steps that required input from incumbents in the field of landscape architecture. During these steps both detailed knowledge and competency statements identifying the components of the Body of Knowledge for consideration by the academic community or for post-graduation on-the-job learning were developed.

The LABOK Task Force was established in response to these questions raised through the Landscape Architectural Accreditation Board's regular review of accreditation standards. The Task Force consists of representatives of the American Society of Landscape Architects (ASLA), the Canadian Society of Landscape Architects (CSLA), the Council of Educators in Landscape Architecture (CELA), the Council of Landscape Architectural Registration Boards (CLARB), and the Landscape Architectural Accreditation Board (LAAB). The Task Force authorized The Chauncey Group International to perform the Body of Knowledge study described in this part of the report.

Chauncey Group's role was to facilitate the multiple interactions with Landscape Architect subject matter experts and/or incumbents in the field. The graphic in the right column summarizes the steps followed.

[2] Prepared by Nancy Thomas, SPHR, The Chauncey Group International.



Survey Development

The development process used input from several groups of subject matter experts to develop, critique, and refine the study instrument. The initial survey content began with an examination of the master list of tasks and knowledge statements surveyed in the 1998 CLARB job analysis, *The Practice of Landscape Architecture: A Study of the Activities and Knowledge Areas for the Licensed Landscape Architect* (Williamson, Montgomery, Bonell, June 10, 1998). The job analysis report was based on responses from 1,718 licensed landscape architects. These statements were shared with a group of individuals employed in the field of landscape architecture. The participating organizations provided names for the initial review of the task and knowledge statements. Some individuals were contacted directly by telephone and others were mailed the documents for comment. Appendix A contains the list of those who participated in this step and the collated comments from the various respondents.

On January 31-February 1, 2003, The Chauncey Group facilitated a focus group held in Washington, D.C., to review the expanded list of tasks and knowledge statements developed during the previous step. Appendix B contains the list of participants at this meeting.

Following the meeting, several discussions were held among the members of each of the participating organizations. It was decided that the draft survey that had resulted from the focus group session might connote too strong a focus on the licensure elements of the profession. As a means to address the academic goals of the study in particular and to reach the broadest audience in general, a meeting of the Task Force was convened in May 2003 to revise the survey tool. Appendix C contains the summary of that meeting. As noted in the meeting summary, the transformation of tasks to integrative competency statements required additional work on the part of the Task Force members. Individual assignments were submitted to The Chauncey Group and were collated for the two Web-based conferences held in June 2003. Appendix C contains the results of those calls.

The next step in the development process was to send the complete package to a pilot group of respondents. The people identified for the pilot group were asked to complete the survey and to record their comments on the review form included in their packages. Appendix D contains the cover letter, the review form and the list of those individuals who were invited to respond. A total of ten responses were received. Their comments were shared with Sara Katherine Williams, FASLA, Task Force chairperson for final disposition.

Many of these responses dealt with ambiguities or possible alternative interpretations. Statements were slightly edited to clarify and simplify without losing the depth and breadth that were so important to participants at each step of the process. The pilot group reviewed the documents with fresh eyes and were valuable in pointing out phrases that would be more specific, key issues that needed to be made obvious, and terminologies that might be misleading or not clear to the range of practice and scholarship the study hoped to address.

A major concern from the beginning was to keep the study instrument from becoming too cumbersome. Early on, each group of participants moved away from explicit simplistic statements toward trying to incorporate them into more integrative concepts. For example, plants are important to the profession, but constant reference to topics like plants everywhere they are important would risk lengthening the survey, which in turn might affect the response rate. It was determined to embed such topics into other statements. The Task Force's perspective was that one must understand plants to enable acquisition and application of the knowledge statements listed in the survey. The same can be said for climate, soils, and other basic knowledge areas.

Throughout the various steps above, the expertise provided by the different panels and reviewers resulted in a survey that they believed contained the important content and competencies for those in landscape architecture. The purpose of the survey was to establish formal confirmation that the knowledge and competency statements were in fact what should be included in the Landscape Architecture Body of Knowledge.

In November 2003, the survey was distributed to 1,458 members of the landscape architecture community. Lists of names were supplied by ASLA, CELA, CLARB, and CSLA and a short list was provided by one of the members of the Task Force. Each organization approached the development of their lists with the goal of reaching the broadest possible group of individuals. The ASLA developed its list by selecting 250 associates and 250 full members including Fellows. Each group of 250 was then organized by zip code. One name from each zip code was selected until the required number of names was reached. The CELA list was generated in two ways: (1) The first part of list was composed of a junior faculty member (Assistant Professor), a senior faculty member (Associate or Full Professor), and the Department or Program Head from each CELA School. The second part of list contained alumni who are not currently working at an academic institution but were identified by CELA Department or Program Heads. The CLARB list contained 505 names selected from licensed landscape architects and those currently in the licensure process. Because the names in the database tend to be concentrated in certain areas such as those states in which people apply to CLARB for the examination, additional steps were taken to ensure a uniform distribution of people. All of the names were sorted by the first three digits in their zip code. The first person from each three-digit area was then selected. The CSLA distribution was developed in three different ways. (1) CSLA identified 180 full members from the 10 component associations. Every fourth person was selected from each of the component lists. Because the

survey was only produced in English, the representation from Quebec was limited to Anglophones. (2) Each of the other groups (ASLA, CELA, and CLARB) had identified individuals with Canadian addresses, totaling 38, which were included in the CSLA distribution. (3) It was also desired that associates be included in the study. For that reason, The Chauncey Group sent an additional 32 packages without address labels for the associates identified by CSLA. All 32 packages were distributed.

Each of the organizations created the lists independently. The Task Force suggested that it might be possible that a person's name would appear on more than one list. Before the final mailing labels were produced, The Chauncey Group compared the lists and dropped duplicate names, randomly assigning the person to only one list.

A total of 255 surveys were returned. Colored labels were on the return envelopes for the U.S. mailing to match the organization that provided the name. The Canadian forms were collected by CSLA and returned in a group. Table 1 contains the breakdown of the surveys received, based on the list from which they originated.

Table 1: Surveys Received by Organization

Organization	Number of Names Post Edit for Duplicates	Number Received
ASLA	481	76
CELA	222	51
CLARB	489	91
CSLA	250	31
Task Force	16	6
Total	1,458	255

Each package contained a cover letter in which the purpose of the survey was described, a survey, and directions on how to return the survey. Appendix E contains the components of the mailing.

Components of the Survey

Section 1: Body of Knowledge

The first section contained the knowledge statements organized in nine (9) domains:

1. **Landscape Architecture History and Criticism**
2. **Natural and Cultural Systems**
3. **Design and Planning Theories and Methodologies**
4. **Public Policy and Regulation**
5. **Design, Planning and Management at Various Scales and Application**
6. **Site Design Engineering: Materials, Methods, Technologies and Applications**
7. **Construction Documentation and Administration**
8. **Communication**
9. **Values and Ethics in Practice**

Each of the knowledge statements had three (3) rating scales. The first scale, Time of Acquisition, focused on when the knowledge should be acquired:

When should this knowledge be primarily learned or attained?

0. Not required at all
1. Before entrance to a university program
2. In a first professional degree university program
3. In a post-professional degree university program
4. In an entry-level employment position
5. In a mid-level employment position
6. In a continuing education program

The second and third scales were intended to measure the level of knowledge for a landscape architect at two different points in time:

> To what level should the knowledge be acquired at completion of a first professional degree?
>
> To what level should this knowledge be attained before an individual takes professional responsibility for his or her landscape architectural work?

0. Unnecessary — not required at all
1. Exposure — sufficiently aware of the knowledge to be able to look it up
2. Comprehension — able to discuss the concepts involved
3. Application — able to use the knowledge to solve problems
4. Mastery — able to apply the knowledge to new problems, to integrate information and to create, synthesize, and evaluate solutions

At the end of each domain, respondents were asked how well the knowledge statements in the domain covered the important aspects and were provided the opportunity to add statements if necessary.

Section 2: Competencies

The second section contained the competencies organized in eight (8) domains:

1. **Landscape Architecture History and Criticism**
2. **Natural and Cultural Systems**
3. **Public Policy and Regulation**
4. **Design, Planning and Management at Various Scales and Application**
5. **Site Design Engineering: Materials, Methods, Technologies and Applications**
6. **Construction Documentation and Administration**
7. **Communication**
8. **Values and Ethics in Practice**

Each of the competencies represented an integrative use of the knowledge and skills acquired as the result of formal academic program(s) or on-the-job training and experience. Respondents were asked to evaluate the importance of each competency at two different time periods:

> How important is this competency at completion of a first professional degree in landscape architecture?
>
> How important is this competency before an individual takes professional responsibility for his/her landscape architectural work?

0. No importance
1. Moderately important
2. Important
3. Very important

At the end of each domain, respondents were asked how well the competencies listed in the domain covered the important aspects and were provided the opportunity to add statements if necessary.

Section 3: Background and General Information

The information gathered from the responses to these questions was evaluated by the Task Force during a Web conference held in February 2004. As part of the review, the Task Force examined the analysis of the background questions. The complete analysis is provided in Appendix F. Of particular concern was that the number of respondents who might represent the licensed community might be more prevalent than those in non-licensed industry settings. One question in which they were asked to indicate the organizations to which they held membership or in which they participated showed that many of the respondents were members of more than one organization. Table 2 on the next page summarizes the responses.

Table 2: Respondent Participation in Organizations

ASLA	CSLA	CELA	CLARB	LAAB	NUMBER OF ORGANIZATIONS	NUMBER OF RESPONDENTS
X		X	X	X	4	4
X	X	X		X	4	1
X		X	X		3	3
X		X		X	3	3
X			X	X	3	2
X	X	X			3	1
X	X		X		3	1
X			X		2	57
X		X			2	32
X	X				2	7
	X	X			2	3
	X		X		2	2
X				X	2	1
X					1	95
	X				1	21
			X		1	10
		X			1	5
					0	7

The largest group of respondents (207) indicated that they were members of ASLA. CLARB was represented by 79 respondents, CELA by 52, and CSLA by 36. The Task Force suggested that the 11 who responded that they were associated with LAAB may have served as visiting team members.

The membership in multiple organizations makes it very difficult to make statements about the representativeness of the sample from each group. As noted above, the lists generated by the various organizations had to be edited to eliminate duplicates. Although only one survey was sent to each individual, it is clear that there is strong cross-membership. Nearly 46 percent of the respondents identified themselves as related to more than one organization.

The Task Force reviewed these results along with the responses to the other background questions. The characteristics of the group appear to be comparable to those of the groups they represent. As a follow-up activity, each of the individual organizations may want to compare the characteristics of their members to the characteristics of the survey respondents.

Section 4: Comments

This section offered the respondents a final opportunity to comment on the survey. The comments are summarized in Appendix J.

Subgroup Analyses

Throughout the development of the study, discussions included references to the possibility that large differences in opinion may exist based on type of practice, size and type of organization or other demographic variables. Appendix I contains the mean knowledge ratings by subgroup from three different perspectives based on the responses to the following background questions:

1. In how many states, provinces, or territories are you currently licensed as a landscape architect?

   Group 1: None (n=55)

   Group 2: One (n=104)

   Group 3: More than one (n=96)

2. Which of the following best describes the type of organization in which you are currently working?

   Group 1: Exclusively landscape architectural firms (n=65)

   Group 2: Multidisciplinary firms (n=75)

   Group 3: Education-academic positions (n=45)

   Group 4: Others including government (n=56)

3. For how many years since graduation have you been in Landscape Architecture?

   Group 1: One to five years (n=39)

   Group 2: Six to twenty years (n=62)

   Group 3: Twenty-one or more years (n=138)

Tables 3-7 provide consistency information for each of the three sub-group analyses. The tables show the amount of agreement in either passing or failing each of the knowledge or competency statements according to the relevant criterion.

For example, a knowledge statement was considered to have passed the time of acquisition criterion if the average rating of the subgroup was 2.50 or greater. Similarly, a statement was considered to have failed the time of acquisition criterion if the average rating was less than 2.495. If two groups passed the same 64 knowledge areas and failed the same two knowledge areas (out of the 68 total knowledge areas), the consistency index would be computed as: Agreement =(64+2)/68=.97. (Note: scale in each table to the right refers to the value that constituted "passing" on the question posed.)

Agreement on all of the rating scales on all of the questions was high, ranging from .78 to 1.00. Based on these values, it is reasonable to conclude that there is high agreement regardless of type or membership of a particular subgroup.

Table 3: Rating of Knowledge at Time of Acquisition

Rating of Knowledge Time of Acquisition - Overall agreement between subgroups
When should this knowledge be primarily learned or attained?
Scale = 2.5

		1	2	3	4
In how many states, provinces or territories are you currently licensed as a landscape architect?					
1	None				
2	One	0.87			
3	More than one	0.83	0.88		
Which of the following best describes the type of organization in which you are currently working?					
1	Exclusively LA firm				
2	Multidisciplinary firm	0.84			
3	Educators	0.81	0.78		
4	Others including government	0.91	0.88	0.84	
For how many years since graduation have you been in landscape architecture?					
1	1-5				
2	6-20	0.84			
3	21 or more	0.91	0.88		

Table 4: Rating of Command of Knowledge at Time of Degree

Rating of Command of Knowledge at Time of Degree - Overall agreement between subgroups
To what level should the knowledge be acquired at completion of a first professional degree?
Scale = 2

		1	2	3	4
In how many states, provinces or territories are you currently licensed as a landscape architect?					
1	None				
2	One	0.97			
3	More than one	0.91	0.94		
Which of the following best describes the type of organization in which you are currently working?					
1	Exclusively LA firm				
2	Multidisciplinary firm	0.96			
3	Educators	0.88	0.87		
4	Others including government	0.94	0.92	0.90	
For how many years since graduation have you been in landscape architecture?					
1	1-5				
2	6-20	0.95			
3	21 or more	0.88	0.94		

Table 5: Rating of Command of Knowledge Before Taking Professional Responsibilty

Rating of Command of Knowledge Before Taking Professional Responsibility - Overall agreement between subgroups
To what level should this knowledge be attained before an individual takes professional responsibility for his or her landscape architectural work?
Scale = 2

		1	2	3
In how many states, provinces or territories are you currently licensed as a landscape architect?				
1	None			
2	One	0.99		
3	More than one	0.99	0.97	
Which of the following best describes the type of organization in which you are currently working?				
1	Exclusively LA firm			
2	Multidisciplinary firm	0.99		
3	Educators	0.99	0.97	
4	Others including government	0.97	0.99	0.99
For how many years since graduation have you been in landscape architecture?				
1	1-5			
2	6-20	0.97		
3	21 or more	1.00	0.97	

Table 6: Rating of Importance of Competencies at Time of Degree

Rating of Importance of Competencies at Time of Degree - Overall agreement between subgroups

How important is this competency at completion of a first professional degree in landscape architecture?

Scale = 1.5

		1	2	3	4
In how many states, provinces or territories are you currently licensed as a landscape architect?					
1	None				
2	One	0.98			
3	More than one	0.92	0.94		
Which of the following best describes the type of organization in which you are currently working?					
1	Exclusively LA firm				
2	Multidisciplinary firm	0.94			
3	Educators	0.96	0.90		
4	Others including government	0.94	0.92	0.98	
For how many years since graduation have you been in landscape architecture?					
1	1-5				
2	6-20	1.00			
3	21 or more	0.96	0.96		

Table 7: Rating of Importance of Competencies at Time of Assumption of Professional Responsibilities

Rating of Importance of Competencies at Time of Assumption of Professional Responsibilities - Overall agreement between subgroups

How important is this competency before an individual takes professional responsibility for his/her landscape architectural work?

Scale = 1.5

		1	2	3	4
8. In how many states, provinces or territories are you currently licensed as a landscape architect?					
1	None				
2	One	0.98			
3	More than one	0.98	1.00		
10. Which of the following best describes the type of organization in which you are currently working?					
1	Exclusively LA firm				
2	Multidisciplinary firm	1.00			
3	Educators	0.98	0.98		
4	Others including government	0.98	0.98	1.00	
13. For how many years since graduation have you been in landscape architecture?					
1	1-5				
2	6-20	1.00			
3	21 or more	0.98	0.98		

Study Findings

Survey results were presented to the members of the Task Force on a Web-based conference call in February 2004. For the Time of Acquisition scale, data was presented in two ways: means and standard deviations and percent of response. Because of the type of scale, the means were of interest but not as meaningful as the distribution of responses. To meet the first goal of the project, the primary focus of the survey in terms of time were topics to be acquired by "completion of a degree program" or "upon assumption of professional responsibility." Those knowledge statements that seemed to have higher than expected values in other responses such as "not required" or "continuing education" were discussed and possible explanations were noted. The knowledge statements are presented in Appendix G as two different tables. Table A in Appendix G contains the mean ratings and the standard deviation for all three scales for the knowledge statements.

Table 8 below is an excerpt from Table A and shows the ratings for the two knowledge statements for Domain 1, Landscape Architecture History and Criticism.

Table 8: Excerpt from Appendix G, Table A.

	Time of Acquisition		Command of Knowledge at Time of Degree		Command of Knowledge at Time of Professional Responsibility	
	Mean	SD	Mean	SD	Mean	SD
I. Landscape Architecture History and Criticism						
history of landscape architecture and allied professions	2.00	0.23	2.15	0.69	2.57	0.85
historic preservation principles	2.57	1.13	1.69	0.83	2.27	1.01

The Time of Acquisition mean rating for the first knowledge statement is 2.00, which corresponds to the rating of 2, "In a first professional degree university program." The standard deviation is a statistic that characterizes the magnitude of the differences among the individual ratings. The more spread out the ratings, the larger the standard deviation. The level of agreement is much tighter for the first knowledge statement than for the second knowledge statement, with a mean rating that fell between 2 and 3. Also of

interest is the fact that the means for the command of knowledge are appropriately higher at the time of professional responsibility than at time of degree. A mean rating of 2 on the command of knowledge scale represents "Comprehension" while a mean rating of 3 represents "Application."

Table B in Appendix G contains the distribution of responses by percent for all three scales. Table 9 below contains an excerpt from Table B, which shows how each of these values is displayed in the appendix. Interpretation of these values may vary for the various groups involved in consideration of the results. For a first analysis, the following ranges may be used. Any rating where the percentage is greater than 50 percent on the Time of Acquisition in a first professional degree university program may be considered for inclusion. Any that are 41-49 percent may be considered borderline and any that are 40 percent or lower may be considered potentially excluded from an academic curriculum. However, these ranges should not be seen as across-the-board measures. Borderline knowledge statements are highlighted with the light gray and those that may be excluded are highlighted with dark gray.

Table 9: Excerpt from Appendix G, Table B.

VIII. Communication	Not Req	Before Univ	1st deg	Post-deg	Entry-lev emp	Mid-lev emp	Cont. Ed.
determination of user values such as focus groups and surveys	3.92	1.57	**39.22**	18.82	13.73	13.33	6.27
consensus and team building	1.96	5.10	**44.31**	9.02	14.90	16.86	5.49
techniques for conducting meetings	0.78	1.18	**33.73**	6.27	25.10	22.35	6.27
the roles of visual communication, including photographic and video documentation	0.00	2.35	73.33	5.49	9.02	4.71	2.35

The importance ratings of the competency statements were reviewed following the discussions on the knowledge statements. Table A in Appendix H provides the mean importance ratings at the completion of the first professional degree and upon assumption of professional responsibility. The Task Force reviewed each of the means but only commented on the low importance ratings in Domain III, Public Policy and Regulation, at the degree level. They suggested that the competencies within that domain may be specific, depending on the location of the landscape architect. As a result, the rating as important or very important when the landscape architect assumes professional responsibility supports on-the-job emphasis on these competencies. Table B in Appendix H displays the frequency distribution by percent of the responses to each of the competency statements.

Additional Knowledge Topics and Competencies

At the end of each domain, survey respondents were asked to rate the adequacy of the coverage of the knowledge topics or competencies and were offered the opportunity to add topics if they believed they were missing. The rating scale offered for the adequacy of coverage ranged from 1 to 5:

1 Very Poorly
2 Poorly
3 Adequately
4 Well
5 Very Well

Table 10 provides the mean ratings and standard deviations on the adequacy of coverage for each of the domains.

Those that have a mean of 3.0 or higher were deemed to have covered the content at least adequately.

Table 10: Mean Ratings and Standard Deviations on the Adequacy of Coverage for each of the domains.

How well do the knowledge statements in this domain cover important aspects of	Mean	S.D.
I. Landscape Architecture History and Criticism	3.01	0.68
II. Natural and Cultural Systems	3.31	0.70
III. Design and Planning Theories and Methodologies	3.34	0.69
IV. Public Policy and Regulation	3.25	0.68
V. Design, Planning and Management at Various Scales and Applications	3.35	0.70
VI. Site Design and Engineering: Materials, Methods, Technologies and Applications	3.48	0.75
VII. Construction Documentation and Administration	3.52	0.70
VIII. Communication	3.29	0.67
IX. Values and Ethics in Practice	3.26	0.67
How well do the competencies in this domain cover important aspects of:		
I. Landscape Architecture History and Criticism	3.44	0.69
II. Natural and Cultural Systems	3.38	0.70
III. Public Policy and Regulation	3.41	0.71
IV. Design, Planning, and Management at Various Scales and Applications	3.61	0.79
V. Site Design and Engineering: Materials, Methods, Technologies and Applications	3.49	0.75
VI. Construction Documentation and Administration	3.44	0.71
VII. Communication	3.51	0.72
VIII. Values and Ethics in Practice	3.53	0.74

Each member of the Task Force was assigned the task of reviewing the suggested additions within a domain. They noted those that they identified as meriting inclusion as a knowledge statement or a competency. Appendix J contains the complete list of knowledge statements and competencies that the Task Force members suggested should be added.

In the last section of the survey, individuals were given the opportunity to provide any additional comments. Appendix J also contains a summary of these comments.

In Conclusion

By building upon the information from the earlier task analysis for landscape architects and input from the Task Force, then augmenting that information through consultation with multiple panels of subject matter experts, the Task Force developed a survey that covered the body of knowledge thoroughly. The distribution of the survey reached the varied groups desired and resulted in strong indication of the knowledge and competencies that are required upon graduation from a degree program and those that should be developed on the job. Each of the contributing organizations will need to carefully examine the data to make the most efficient use of the information that is available. As suggested in the cover letter to the survey respondents, this information may be used to make curricula determinations, to guide the development of continuing education activities, and to continue strong requirements for licensure through the regulatory bodies. Based on the apparent high agreement among the various subgroup responses and the process used to develop the Body of Knowledge in this study, it is reasonable to conclude that the goals of the study were obtained.

Reading the Landscape Architecture Body of Knowledge Survey Data[3]

Landscape Architectural Knowledge, its Time of Acquisition, and the Command Expected at Different Career Stages

The profession of Landscape Architecture is highly diverse in the range of issues faced by contemporary practice, and hence aspiring professionals are expected to have been exposed to a broad range of topics. Of the range of knowledge areas examined by this study most respondents are agreed that the first professional degree program is the principal career stage for acquiring an operational base that can later be expanded and refined.

However, for some knowledge areas there is strong agreement that gaining that knowledge should be focused in the first professional degree, whereas for other areas many think the knowledge may be gained through a post-professional degree or through learning while in practice. Some respondents believe certain key knowledge areas should be acquired prior to university.

Overlaid on the time of acquisition is the extent of mastery of the knowledge to be expected at the key career stages—for example, time of first professional degree vs. time of taking full professional responsibility. Respondents are thoughtfully discriminating in identifying their expectations for the degree of command of knowledge expected at those stages.

To illustrate how the data that have been gathered might be interpreted, in our first category of responses, Landscape Architecture History and Criticism, 97.25 percent of the respondents believed that knowledge of the history of landscape architecture and allied professions should be gained during the first professional degree, to the extent of good Comprehension of the area at time of degree, advancing to Application of the knowledge to solve problems at the time of taking professional responsibility (Table 11.) Historic preservation principles, however, were felt critical at first degree level by a lesser number, 60.78 percent, while 23.53 percent expect the knowledge to come from post-professional degree work and 11.77 percent expect knowledge to be gained on-the-job or through continuing education. This different pattern of responses is mirrored by expectations for command split between exposure and comprehension at first degree, and between exposure, comprehension and application at taking professional responsibility (Table 12.) The difference between these two sets of responses indicates that the survey respondents largely agreed that knowledge of landscape history gained in a first degree program is of central importance to the profession at large, whereas historic preservation is an area of particular expertise important to those practicing in that area but of less importance to others. Any required specialized knowledge is expected to be gained through extra study beyond the first degree.

Table 11: Time of Acquisition

	Not Req	Before Univ	1st deg	Post-deg	Entry-lev emp	Mid-lev emp	Cont. Ed.
I. Landscape Architecture History and Criticism							
history of landscape architecture and allied professions	0.00	1.57	97.25	0.39	0.78	0.00	0.00
historic preservation principles	1.96	0.39	60.78	23.53	3.14	3.53	5.10

Table 12: Command at Key Stages in Professional Development

	Command at time of First Professional Degree						Command at time of Taking Professional Responsibility				
	Not req	Expos.	Comp.	Appl.	Mastery		Not req	Expos.	Comp.	Appl.	Mastery
I. Landscape Architecture History and Criticism											
history of landscape architecture and allied professions	0.39	13.73	58.82	23.53	2.75		1.18	9.80	29.41	48.63	9.80
historic preservation principles	4.31	39.61	38.43	15.29	1.18		3.14	21.96	27.06	38.04	8.63

These kinds of distinctions continually recur. In the following sections we will identify examples of some broad categories of responses found throughout the survey that may be used to guide further examination.

[3] Prepared by Brian Orland, FASLA, on behalf of the LABOK Task Force.

Knowledge Area Categories Emerging from the Survey Responses

The numerical responses suggest that respondents are identifying Knowledge categories they regard differently in terms of the desired time of acquisition and the level of skill expected at stages of professional development. The categories outlined here are preliminary and are offered as a starting point for further and more detailed study.

- Core of the first Professional Degree
- Context for Professional Practice
- More Specialized Knowledge
- Important Areas for Post-Professional Degree and In-practice Acquisition

The first two categories include a wide range of topics with focused (70-100 percent of respondents) expectations for acquisition during the first professional degree. Within these responses there are distinctions that further divide the category. For some areas, core skills for practice, a relatively high level of command, Application, is expected on acquiring the first professional degree. For others, respondents expect a lesser level of command, Comprehension, on gaining the first degree.

Core of the First Professional Degree

The first category encompasses the core areas of knowledge that define professional practice, enjoying focused expectation for inclusion in the first degree and with command expected at the level of ability to Apply the knowledge at that stage (>40 percent). Command is expected to be at the level of Mastery at the point of taking professional responsibility (>40 percent). This category includes: use of land information sources; understanding of natural site conditions and ecosystems; design creativity and process; aesthetic principles; natural factors; influence of context on design; accessibility regulations; wehicular and pedestrian circulation; grading, drainage and stormwater; erosion control; roles of visual communication; and graphic presentation techniques (Table 13).

Table 13: Core of the First Professional Degree—Distribution of Responses by Percent for Knowledge Statements

		Time of Acquisition							Command of Knowledge at Time of Degree					Command of Knowledge at Time of Professional Responsibility				
		Not Req	Before Univ	1st deg	Post-deg	Entry-lev emp	Mid-lev emp	Cont Ed.	Not req	Expos.	Comp.	Appl.	Mas-tery	Not req	Expos.	Comp.	Appl.	Mas-tery
II. Natural and Cultural Systems																		
3.	land information sources	0.00	0.78	92.94	1.18	4.31	0.78	0.00	0.39	8.63	33.33	49.02	7.06	0.00	3.92	4.71	45.10	45.49
5.	natural site conditions and ecosystems	0.00	6.27	89.41	0.78	2.75	0.39	0.00	0.00	2.35	28.63	57.65	9.80	0.00	1.57	6.27	46.67	43.14
III. Design and Planning Theories and Methodologies																		
8.	creativity and process including design theory and problem-solving strategies	0.00	10.20	86.27	1.18	0.78	0.78	0.00	0.39	2.75	20.00	67.06	9.41	0.00	0.39	5.88	36.86	55.69
9.	aesthetic principles of design	0.00	11.76	83.53	1.18	1.18	1.18	0.00	0.39	3.53	25.10	58.43	11.76	0.00	1.18	7.84	42.35	47.45
11.	natural factors such as ecological relationships	0.39	8.63	82.35	3.53	3.14	0.00	0.39	0.78	7.06	36.08	49.02	6.27	0.78	2.75	10.59	51.76	32.55
13.	influence of context on design, planning, and management decisions	0.00	0.39	72.16	10.20	7.45	6.67	1.18	0.78	9.41	38.04	46.67	4.71	0.39	2.75	9.80	45.10	40.00
VI. Site Design and Engineering: Materials, Methods, Technologies and Applications																		
35.	accessibility regulations	0.00	1.96	77.25	4.31	11.76	1.96	2.35	1.57	18.43	34.51	40.78	4.31	0.78	2.75	11.76	42.75	41.18
37.	elements of vehicular and pedestrian circulation systems and their design requirements	0.00	0.78	92.55	0.78	3.53	0.39	1.57	0.39	7.45	31.37	55.69	4.71	0.00	2.35	6.27	43.53	47.45
42.	grading, drainage and stormwater treatment	0.00	1.18	89.41	2.35	2.35	0.78	0.00	0.00	1.57	23.92	65.88	5.88	0.00	1.57	7.84	33.73	54.51
VIII. Communication																		
61.	the roles of visual communication, including photographic and video documentation	0.00	2.35	73.33	5.49	9.02	4.71	2.35	0.78	21.96	29.02	44.71	1.96	1.57	6.27	17.65	52.16	20.39
62.	graphic presentation techniques, systems and symbols	0.00	1.96	89.41	0.39	3.53	0.78	0.39	0.00	7.06	23.14	58.82	9.02	0.39	1.96	10.59	37.25	47.06

Context for Professional Practice

The second category might be characterized as those knowledge areas that provide the context for professional practice and includes history; patterns of land use and built form; social and cultural influences on design; human factors; visual resource management; urban landscape; planning principles; conservation of natural resources; ecological planning principles; design for special populations; roadway design principles; landscape maintenance; structures; ethics; and social responsibility. This category is somewhat coherent in representing knowledge of central importance to the profession to be gained at first degree (Comprehension >40 percent), developing into practical design office skills at the time of taking professional responsibility (Application >40 percent), (Table 14).

Table 14: Context for Professional Practice—Distribution of Responses by Percent for Knowledge Statements

		Time of Acquisition							Command of Knowledge at Time of Degree					Command of Knowledge at Time of Professional Responsibility				
		Not Req	Before Univ	1st deg	Post-deg	Entry-lev emp	Mid-lev emp	Cont. Ed.	Not req	Expos.	Comp.	Appl.	Mas-tery	Not req	Expos.	Comp.	Appl.	Mas-tery
	I. Landscape Architecture History and Criticism																	
1.	history of landscape architecture and allied professions	0.00	1.57	97.25	0.39	0.78	0.00	0.00	0.39	13.73	58.82	23.53	2.75	1.18	9.80	29.41	48.63	9.80
	II. Natural and Cultural Systems																	
4.	patterns of land use and built form	0.00	2.35	89.02	4.71	1.96	1.96	0.00	0.39	9.02	42.75	40.39	5.88	0.00	3.92	14.51	51.37	29.02
6.	social and cultural influences on design	0.00	5.49	73.73	15.29	1.96	1.18	0.78	0.39	20.39	40.78	33.33	3.14	0.00	9.02	21.18	49.41	18.04
	III. Design and Planning Theories and Methodologies																	
10.	human factors such as behavior, perception, psychological and sensory response	0.00	5.88	75.69	9.80	3.53	0.78	1.96	0.39	12.16	45.49	36.47	4.31	0.00	5.10	19.61	51.76	21.57
	V. Design and Planning and Management at Various Scales and Applications																	
22.	visual resource assessment	1.96	0.00	74.51	11.76	5.10	2.75	2.35	4.71	27.45	41.57	24.71	1.57	3.53	14.51	22.75	41.96	16.86
24.	urban landscape	0.78	0.39	83.14	8.24	2.75	1.96	1.57	0.39	15.29	52.16	30.98	1.18	1.18	5.10	23.14	51.37	18.43
25.	planning principles including regional community and neighborhood planning	0.78	0.00	72.55	16.86	2.75	3.92	1.96	1.18	18.82	48.63	29.80	1.57	1.96	2.75	27.45	48.24	19.22
26.	conservation of natural resources	0.78	11.76	73.33	6.67	3.14	1.18	1.57	0.78	12.55	44.71	36.47	5.49	1.18	4.31	16.47	49.80	27.84
28.	ecological planning principles	1.18	2.35	80.39	7.45	3.53	1.18	1.96	0.78	16.86	43.92	33.73	3.92	0.78	6.27	21.18	45.49	24.71
	VI. Site Design and Engineering: Materials, Methods, Technologies and Applications																	
34.	design needs for special populations	0.39	1.18	68.63	11.37	7.84	3.14	5.88	2.35	27.45	47.06	22.35	0.39	1.18	6.27	21.57	51.76	18.43
36.	roadway design principles	0.39	0.39	84.71	5.10	4.31	3.92	0.39	1.57	21.18	39.22	35.29	1.96	1.57	6.27	23.14	47.84	20.78
38.	landscape maintenance techniques, materials, equipment, and practices	1.57	2.35	69.02	5.10	13.73	5.10	2.75	3.14	30.59	37.25	27.84	1.18	0.39	8.24	25.88	44.31	20.78
44.	erosion and sedimentation control	0.00	0.39	78.43	3.14	10.59	3.14	2.35	1.96	13.73	40.78	39.22	3.14	1.18	2.75	16.08	49.41	29.41
48.	structural considerations	0.78	0.00	81.96	3.14	6.67	5.88	1.18	1.96	23.53	42.75	30.20	1.57	0.78	7.84	21.18	45.10	24.71
	IX. Values and Ethics in Practice																	
65.	environmental ethics	0.78	11.37	67.06	7.84	4.31	3.14	1.18	1.57	20.00	48.24	22.35	4.31	1.57	5.88	18.82	46.27	23.92
66.	social responsibility in design	0.39	5.88	72.55	5.88	5.49	3.14	1.96	0.78	19.22	48.24	23.92	3.14	1.57	4.31	17.25	45.49	27.06

More Specialized Knowledge Areas

Historic preservation principles was already cited as an example of a topic area of great interest to some sectors of the profession but less so for others. Such topics are identified as appropriate to the first professional degree by 40-69 percent of respondents with expected levels of command ranging from Exposure to the topic to Application. In all cases the Application level of Command is expected at the time of taking professional responsibility.

Topics where a principle source of knowledge may be the post-professional degree include: historic preservation principles; relationship between human and natural systems; research methods; therapeutic design; communication methods; photogrammetry and remote sensing; rural analysis; water resource management; wetland management; floodplain management; biofiltration; user surveys (Table 15).

Table 15: Specialized Topics—Post-Professional Study—Distribution of Responses by Percent for Knowledge Statements

		Time of Acquisition							Command of Knowledge at Time of Degree					Command of Knowledge at Time of Professional Responsibility				
		Not Req	Before Univ	1st deg	Post-deg	Entry-lev emp	Mid-lev emp	Cont Ed.	Not req	Expos.	Comp.	Appl.	Mas-tery	Not req	Expos.	Comp.	Appl.	Mas-tery
I. Landscape Architecture History and Criticism																		
2.	historic preservation principles	1.96	0.39	60.78	23.53	3.14	3.53	5.10	4.31	39.61	38.43	15.29	1.18	3.14	21.96	27.06	38.04	8.63
III. Design and Planning Theories and Methodologies																		
12.	relationship between human and natural systems	0.39	3.53	68.24	18.04	3.53	2.35	1.57	0.78	12.94	39.61	42.35	3.92	0.78	3.14	16.08	50.20	28.24
14.	research methods including data collection, interpretation, and application of results	0.39	7.84	51.76	29.80	4.31	2.75	1.18	1.96	17.65	29.02	42.75	7.45	3.14	5.88	17.65	43.14	29.41
15.	therapeutic aspects of design	4.31	0.78	42.35	32.94	3.53	4.71	10.20	8.24	36.08	36.47	18.04	0.39	7.06	15.69	31.76	36.47	7.84
16.	communication and education met hods	2.35	8.63	43.14	26.27	6.67	6.67	4.71	5.49	20.78	30.59	37.25	4.71	3.14	9.02	18.82	43.14	24.71
V. Design, Planning and Management at Various Scales and Applications																		
21.	photogrammetry and remote sensing	6.27	0.00	56.08	16.86	7.06	3.53	7.45	9.80	45.49	32.16	12.55	0.00	9.02	20.78	34.90	29.41	5.49
23.	agricultural and rural landscape analysis	3.53	0.39	59.22	23.14	3.92	4.31	4.71	6.67	36.86	38.82	17.25	0.39	4.31	20.39	31.37	34.51	9.02
29.	water resource management	1.96	1.57	58.82	17.65	7.45	3.14	7.84	3.14	29.02	43.53	22.75	1.57	1.57	9.80	30.98	43.53	13.33
30.	wetland management	1.57	0.78	52.16	23.92	7.06	3.53	9.02	3.53	35.69	41.57	17.65	1.57	2.35	11.76	31.76	41.57	11.37
31.	floodplain management	1.57	0.78	52.55	21.18	7.06	4.71	9.80	4.71	33.33	40.39	20.00	1.18	3.14	11.37	31.76	43.14	9.41
VI. Site Design and Engineering: Materials, Methods, Technologies and Applications																		
43.	biofiltration and other alternative drainage methods	1.57	0.78	60.39	10.98	10.20	5.88	9.02	3.14	29.41	40.00	25.10	0.78	2.35	9.02	29.02	43.53	14.51
VIII. Communication																		
58.	determination of user values such as focus groups and surveys	3.92	1.57	39.22	18.82	13.73	13.33	6.27	8.24	44.71	32.94	12.55	0.39	4.71	12.94	30.20	42.35	7.84

More Specialized Knowledge Areas (continued)

Topics where practice may be a principle source of knowledge include: regional hazard considerations; land development policy and law; emerging trends; noise control; sustainable construction; construction technologies; utility systems; irrigation; lighting; geographic coordinate systems; specifications; construction administration; construction law; contracts; team building; interpretive methods; organizational management; and resolving moral dilemmas (Table 16).

Table 16: Specialized Topics—Gained In Practice—Distribution of Responses by Percent for Knowledge Statements

		Time of Acquisition							Command of Knowledge at Time of Degree					Command of Knowledge at Time of Professional Responsibility				
		Not Req	Before Univ	1st deg	Post-deg	Entry-lev emp	Mid-lev emp	Cont. Ed.	Not req	Expos.	Comp.	Appl.	Mas-tery	Not req	Expos.	Comp.	Appl.	Mas-tery
	II. Natural and Cultural Systems																	
7.	regional hazard design considerations	0.00	3.14	61.96	13.73	15.69	2.75	1.57	0.78	26.67	35.69	31.76	3.14	0.00	6.27	17.65	44.31	30.20
	IV. Public Policy and Regulation																	
17.	governmental policies and laws that affect the use and development of land	0.39	1.18	49.02	10.59	22.75	14.12	0.39	2.75	37.65	38.82	18.04	2.35	1.18	2.75	17.25	49.41	28.24
20.	emerging trends and issues	0.78	2.35	43.92	9.80	10.59	9.80	20.39	5.88	38.82	40.00	13.33	1.18	2.75	9.80	38.82	41.18	6.27
	VI. Site Design and Engineering: Materials, Methods, Technologies and Applications																	
39.	noise attenuation and mitigation techniques	3.14	0.78	48.24	10.59	13.33	9.41	14.51	4.71	41.96	35.69	16.47	0.39	3.14	14.12	33.33	41.57	6.27
40.	sustainable construction practices	1.96	1.57	58.43	7.06	7.84	7.45	14.12	4.31	31.37	41.96	20.78	0.78	2.75	7.84	29.80	43.92	14.51
41.	construction equipment and technologies	0.78	1.96	58.82	6.27	18.82	6.67	5.10	5.88	34.12	36.86	21.18	0.39	1.57	9.02	32.16	40.39	15.29
45.	utility systems	1.96	1.18	60.78	3.92	16.86	9.02	4.31	3.14	32.94	45.88	16.08	0.39	1.18	9.02	37.65	39.22	11.37
46.	Irrigation systems	5.10	0.00	66.67	3.53	14.12	4.71	4.31	6.67	32.94	39.61	19.61	0.78	3.14	13.73	25.49	43.53	12.94
47.	lighting systems	1.96	0.00	63.53	5.10	17.65	6.27	3.92	3.53	39.22	40.78	15.69	0.39	1.18	11.37	30.98	46.67	8.63
	VII. Construction Documentation and Administration																	
52.	geographic coordinate systems and layout techniques and conventions	1.57	0.78	62.35	7.84	16.86	5.49	1.96	5.49	26.67	38.43	25.49	1.18	3.92	7.06	25.10	43.53	17.25
53.	specification types and components for a project	0.00	0.39	64.31	1.57	21.18	8.24	1.18	2.75	31.37	38.82	25.10	0.39	0.00	2.75	16.08	49.80	29.02
55.	construction administration and details	0.39	0.00	41.96	1.57	26.67	25.10	1.18	8.24	32.55	34.90	20.78	0.78	0.39	3.92	15.69	50.20	27.06
56.	basic construction law	2.35	0.00	47.45	3.53	17.25	15.29	10.20	7.84	48.24	30.20	10.59	1.18	1.96	11.76	22.35	43.53	17.65
57.	construction contracts	0.78	0.39	44.71	3.92	17.65	25.10	4.31	10.20	38.04	36.86	10.98	1.57	0.78	6.67	21.18	42.75	26.27
	VIII. Communication																	
59.	consensus and team building	1.96	5.10	44.31	9.02	14.90	16.86	5.49	5.88	37.65	32.55	21.57	1.18	3.14	10.59	18.82	47.06	18.43
63.	interpretive methods and techniques such as information displays and brochures	3.14	0.00	49.41	5.88	21.57	9.41	8.24	8.63	30.20	29.80	28.24	0.78	6.27	9.80	23.53	45.49	11.76
	IX. Values and Ethics in Practice																	
65.	environmental ethics	0.78	11.37	67.06	7.84	4.31	3.14	1.18	1.57	20.00	48.24	22.35	4.31	1.57	5.88	18.82	46.27	23.92
68.	resolving moral and ethical dilemmas	0.39	14.51	43.53	8.63	10.59	12.55	5.10	4.71	30.20	35.29	23.53	2.75	1.57	6.67	20.39	46.67	21.18

Important Areas for Post-Professional Degree and In-practice Acquisition

Where less than 40 percent of respondents identified a topic for inclusion in the first degree, the focus may be on acquisition by other means.

Topics where a principal expectation for acquisition is post-professional study or continuing education include: land and water reclamation; and treatment of toxic materials (Table 17).

Topics where the source of knowledge is expected to be practice include: regulatory approval processes; land and development economics; construction quality control; sequencing of design; life-cycle cost analysis; conducting meetings; and public relations (Table 17).

Table 17: Post-Professional and In-Practice—Distribution of Responses by Percent for Knowledge Statements

		Time of Acquisition							Command of Knowledge at Time of Degree					Command of Knowledge at Time of Professional Responsibility				
		Not Req	Before Univ	1st deg	Post-deg	Entry-lev emp	Mid-lev emp	Cont. Ed.	Not req	Expos.	Comp.	Appl.	Mastery	Not req	Expos.	Comp.	Appl.	Mas-tery
	IV. Public Policy and Regulation																	
18.	political and regulatory approval processes	0.00	0.39	34.51	8.63	35.29	18.04	2.35	7.06	40.78	31.37	18.82	1.57	0.78	4.71	16.47	51.37	26.27
19.	land and development economics	1.18	0.78	29.80	20.39	13.33	21.96	9.80	8.63	47.45	30.98	10.98	0.78	1.96	12.16	34.90	40.78	8.63
	V. Design, Planning and Management at Various Scales and Applications																	
32.	land and water reclamation procedures including quarry, mine and landfill reclamation	3.14	0.00	38.82	28.24	5.49	8.63	13.73	10.59	46.67	31.76	9.80	0.78	5.88	23.53	37.65	25.49	6.27
33.	treatment of toxic materials	13.33	1.57	20.78	20.39	5.88	12.16	23.14	28.24	45.49	19.61	6.67	0.00	16.47	28.24	31.37	17.65	5.49
	VII. Construction Documentation and Administration																	
49.	quality control procedures for construction, such as delivery, storage, testing, etc.	3.92	0.00	25.10	5.88	32.55	24.71	4.71	18.04	43.92	27.06	8.24	0.39	2.35	9.80	28.63	45.10	10.20
50.	sequencing of design, approval, permitting, and construction activities	0.00	0.00	38.04	3.53	36.08	18.43	1.57	7.84	36.47	35.29	16.47	1.96	0.39	3.53	18.43	47.06	27.45
51.	the life-cycle cost - analysis process	3.92	0.39	27.84	7.84	18.04	27.84	11.76	16.08	43.14	30.20	7.84	0.39	5.10	14.90	34.90	35.29	7.06
	VIII. Communication																	
60.	techniques for conducting meetings	0.78	1.18	33.73	6.27	25.10	22.35	6.27	12.94	33.73	30.59	18.43	0.78	4.71	6.27	17.25	50.20	17.65
64.	public relations, outreach, and image development	3.14	1.18	29.02	11.76	17.65	22.75	11.37	16.47	33.73	32.55	14.90	0.78	7.45	9.80	26.67	38.43	14.90

Landscape Architecture Competencies Expected at Different Career Stages

While any University education is expected to impart Knowledge, a professional preparation for Landscape Architecture must include the development of Competencies—the ability of aspiring professionals to take learned Knowledge and apply it to achieve successful practice.

Respondents to this study indicate that, in all areas, Competency is initiated during or before the first professional degree and is continued, embellished and refined in practice. However, within this general trend of improving competency there are different patterns of expectation. It might be expected that specific competencies are of less importance to one mode of practice, yet critical in another. These survey results do not seek to reveal those kinds of differences but rather to look at a broader view of competency. Nevertheless, respondents appeared to be carefully discriminating in identifying how important different competencies are to nascent professionals at different stages of their careers.

For example, in the first category of responses, Landscape Architecture History and Criticism, the ability to critique and learn from precedent (Survey Item #72) and the ability to learn from fields outside landscape architecture (Survey Item #73) receive their highest rate of responses indicating that they are viewed as Important to the graduate of a professional degree program, and Very Important for someone approaching the licensing examination.

Core Competencies for Landscape Architects

Four Competencies were rated Very Important by 40 percent or more respondents at the completion of first professional degree, and correspondingly as Very Important by 80 percent or more respondents at time of taking professional responsibility (Table 18). Three of these focus on issues of Design, Planning and Management; the fourth is the area of Values and Ethics in Practice.

Table 18: Items Rated Very Important at First Degree, and Very Important at Professional Responsibility—Distribution by Percent for Competencies

		How important is this competency at completion of a first professional degree? 0 Of no importance 1 Moderately important 2 Important 3 Very Important					How important is this competency before an individual takes professional responsibility for his/her landscape architecture work? 0 Of no importance 1 Moderately important 2 Important 3 Very Important				
		Percent Responding					Percent Responding				
	Competencies	0	1	2	3	Missing	0	1	2	3	Missing
	IV. Design, Planning, and Management at Various Scales and Applications										
83	Analyze relationships among design elements by determining opportunities and constraints	0.00%	7.84%	50.59%	40.00%	1.57%	0.00%	1.18%	17.65%	79.61%	1.57%
84	Develop conceptual design, planning, and management solutions	0.00%	6.27%	47.45%	45.10%	1.18%	0.00%	1.18%	11.76%	85.49%	1.57%
85	Evaluate design alternatives to determine the appropriate solution	0.00%	5.10%	43.92%	49.80%	1.18%	0.00%	0.78%	13.33%	84.71%	1.18%
	VIII. Values and Ethics in Practice										
110	Maintain and promote professional and ethical standards	3.53%	20.78%	35.29%	40.00%	0.39%	0.00%	2.75%	16.86%	80.00%	0.39%

A significant second category of Competencies show a pattern where 40 percent or more of respondents rate them as Important at completion of the first professional degree and 60 percent or more rate them as Very Important at taking of professional responsibility (Table 19.) These items include Competencies from History and Criticism, Natural and Cultural Systems, Site Design and Engineering, and Document Preparation.

Table 19: Items Rated Important at First Degree, Very Important at Professional Responsibility—Distribution by Percent for Competencies

		How important is this competency at completion of a first professional degree? 0 Of no importance 1 Moderately important 2 Important 3 Very Important					How important is this competency before an individual takes professional responsibility for his/her landscape architecture work? 0 Of no importance 1 Moderately important 2 Important 3 Very Important				
		Percent Responding					Percent Responding				
	Competencies	0	1	2	3	Missing	0	1	2	3	Missing
	I. Landscape Architecture History and Criticism										
73	Develop an ability to synthesize and make connections between aspects of landscape architecture and disciplines outside of landscape architecture	1.18%	23.92%	50.98%	23.92%	0.00%	0.78%	6.67%	26.27%	65.49%	0.78%
	II. Natural and Cultural Systems										
74	Conduct field investigations to identify significant natural and cultural features, characteristics, and systems	1.18%	20.78%	48.24%	29.02%	0.78%	0.00%	7.84%	28.24%	63.14%	0.78%
77	Predict implications of design, planning, and management proposals on natural cultural systems both within the site and in the larger context	2.35%	28.24%	47.06%	20.78%	1.57%	0.39%	9.02%	28.63%	60.78%	1.18%
	IV. Design, Planning, and Management at Various Scales and Applications										
82	Develop a design program based on users' needs and clients' goals and resources	1.96%	16.08%	48.24%	32.55%	1.18%	0.00%	1.96%	13.33%	83.53%	1.18%
	V. Site Design and Engineering: Materials, Methods, Technologies and Applications										
86	Design for protection and management of land resources (e.g. land forms, vegetation, habitat, erosion and sedimentation control)	0.00%	14.90%	56.08%	27.45%	1.57%	0.00%	2.75%	22.35%	73.33%	1.57%
87	Design for protection and management of water resources (e.g. storm water, water supply, ground water)	0.00%	18.82%	55.69%	23.53%	1.96%	0.00%	1.96%	26.27%	70.20%	1.57%
88	Design pedestrian, vehicular, and non-motorized circulation systems	0.00%	9.02%	52.94%	36.08%	1.96%	0.00%	1.57%	20.39%	76.47%	1.57%
89	Design elements for construction considering materials, structural issues, and construction technologies	1.57%	21.57%	56.08%	19.22%	1.57%	0.00%	3.14%	24.31%	70.59%	1.96%
	VI. Construction Documentation and Administration										
90	Prepare construction documents including plans, working drawings, and technical specifications	3.92%	24.71%	50.98%	20.00%	0.39%	0.00%	0.78%	16.08%	82.75%	0.39%
	VII. Communication										
101	Prepare and deliver oral presentations such as meetings, demonstrations, and outreach	1.57%	13.73%	49.02%	34.90%	0.78%	0.39%	3.53%	27.06%	68.24%	0.78%

A third category includes Competencies judged relatively less important at time of first professional degree, yet of significantly higher importance as individuals take professional responsibility (Table 20.) These items fall in the areas of Construction Documentation and Administration, Communication, and Professional Practice.

Table 20: Items Rated Less Important at First Degree, Yet Important at Professional Responsibility—Distribution by Percent for Competencies

	Competencies	How important is this competency at completion of a first professional degree? 0 Of no importance 1 Moderately important 2 Important 3 Very Important — Percent Responding					How important is this competency before an individual takes professional responsibility for his/her landscape architecture work? 0 Of no importance 1 Moderately important 2 Important 3 Very Important — Percent Responding				
		0	1	2	3	Missing	0	1	2	3	Missing
	III. Public Policy and Regulation										
78	Identify and collect regulatory information, applicable data and required approvals governing a project (e.g., relevant laws, codes, and regulations)	9.80%	54.90%	27.45%	6.67%	1.18%	0.00%	4.71%	27.84%	66.27%	1.18%
79	Confirm code compliance (e.g. zoning, environment, and accessibility)	12.55%	45.49%	32.16%	8.24%	1.57%	0.00%	6.27%	17.25%	74.90%	1.57%
	VI. Construction Documentation and Administration										
93	Provide construction administration and observation throughout the project	38.04%	43.14%	16.08%	2.35%	0.39%	0.78%	8.63%	35.69%	54.51%	0.39%
94	Conduct project closure including review and distribution of close-out documents	47.06%	39.22%	11.76%	1.18%	0.78%	2.75%	12.55%	38.82%	44.71%	1.18%
95	Perform post construction evaluation	32.94%	44.71%	18.82%	2.75%	0.78%	1.96%	16.08%	40.78%	40.39%	0.78%
96	Perform construction services including design-build	45.88%	40.39%	12.16%	0.39%	1.18%	15.29%	34.51%	32.16%	16.47%	1.57%
	VII. Communication										
98	Maintain clear communication among collaborators through correspondence and project coordination	14.12%	34.51%	37.25%	13.73%	0.39%	0.78%	3.14%	22.75%	72.94%	0.39%
99	Develop written documentation, such as projects reports, grant proposals, and promotional materials	12.16%	42.75%	33.33%	10.59%	1.18%	1.57%	9.80%	34.12%	52.94%	1.57%
100	Create graphic materials in a variety of media	1.96%	14.90%	44.71%	38.04%	0.39%	0.39%	9.41%	38.04%	50.98%	1.18%
102	Conduct project and public meetings including preparing of meeting agendas and notes, and facilitation of the meeting	17.65%	40.78%	30.98%	10.20%	0.39%	0.78%	8.63%	37.25%	52.94%	0.39%
	VIII. Values and Ethics in Practice										
104	Manage business practices and organizations	36.47%	47.84%	13.33%	1.96%	0.39%	2.35%	14.12%	40.00%	41.96%	1.57%
105	Manage risk and liability	36.86%	42.75%	16.08%	3.53%	0.78%	1.96%	10.20%	30.20%	56.47%	1.18%
106	Negotiate and prepare client and consultant agr eements	43.92%	39.22%	12.94%	2.75%	1.18%	2.35%	9.80%	31.76%	54.51%	1.57%
107	Participate in life -long learning (e.g., a professional organization, continuing education activities)	18.82%	27.06%	31.37%	21.57%	1.18%	0.39%	9.41%	28.24%	61.57%	0.39%
108	Participate in professional and public service activities	8.63%	38.04%	39.61%	13.33%	0.39%	1.96%	16.08%	39.61%	41.96%	0.39%
109	Train, educate and mentor other professionals	36.47%	36.47%	20.00%	6.27%	0.78%	2.75%	14.90%	41.57%	40.39%	0.39%

A final category of Competencies is that of those failing to receive solid majority responses in the Very Important category at either career stage (Table 21.) They are a diverse group with the majority in the categories Landscape Architecture History and Criticism, Natural and Cultural Systems, Public Policy, and Construction Administration.

Table 21: Items Failing to Receive Consistent Importance Ratings—Distribution by Percent for Competencies

		How important is this competency at completion of a first professional degree? 0 Of no importance 1 Moderately important 2 Important 3 Very Important					How important is this competency before an individual takes professional responsibility for his/her landscape architecture work? 0 Of no importance 1 Moderately important 2 Important 3 Very Important				
		Percent Responding					Percent Responding				
	Competencies	0	1	2	3	Missing	0	1	2	3	Missing
	I. Landscape Architecture History and Criticism										
69	Develop an understanding of design as exemplified by historically significant works of landscape architecture, urban planning, civic design, and architecture	0.00%	25.49%	45.88%	27.84%	0.78%	0.78%	24.31%	42.35%	30.98%	1.57%
70	Examine economic, political, social, ecological and esthetic relationships and their influence on the development of the profession of landscape architecture	2.75%	45.88%	34.90%	16.08%	0.39%	2.35%	27.45%	42.75%	25.49%	1.96%
71	Demonstrate an understanding of the evolution of landscape architecture as an art and a profession through knowledge of its terminology, literature, personalities, and concepts	1.18%	33.33%	43.14%	21.18%	1.18%	3.92%	30.98%	34.90%	28.63%	1.57%
72	Demonstrate the ability to critique prior work and understand the relevance in addressing current issues and problems	2.35%	26.27%	50.20%	20.00%	1.18%	1.96%	10.98%	38.43%	47.06%	1.57%
	II. Natural and Cultural Systems										
75	Perform quantitative analyses to evaluate the interactions of natural and cultural features, characteristics, and systems	5.49%	38.04%	42.35%	13.33%	0.78%	2.35%	23.53%	36.08%	36.86%	1.18%
76	Perform qualitative analyses to evaluate the relationship between the natural and cultural features, characteristics, and systems	4.31%	29.41%	47.84%	17.65%	0.78%	1.18%	17.25%	37.25%	43.14%	1.18%
	III. Public Policy and Regulation										
80	Assist in the preparation of ordinances, regulations, covenants, standards, and guidelines	35.69%	50.98%	10.20%	1.57%	1.57%	7.06%	29.02%	38.43%	24.31%	1.18%
81	Influence public policies on areas such as growth and land and water management by testifying, lobbying, or preparing written documents for public distribution	41.96%	42.35%	11.76%	1.96%	1.96%	6.67%	27.45%	39.61%	24.71%	1.57%
	VI. Construction Documentation and Administration										
96	Perform construction services including design-build	45.88%	40.39%	12.16%	0.39%	1.18%	15.29%	34.51%	32.16%	16.47%	1.57%
97	Prepare management and maintenance manuals and documents	33.73%	50.98%	12.16%	1.57%	1.57%	4.71%	33.73%	36.86%	23.14%	1.57%
	VII. Communication										
103	Review and critique peer work	6.67%	31.37%	38.04%	23.53%	0.39%	5.49%	19.61%	35.69%	38.82%	0.39%

APPENDIX A

LIST OF PARTICIPANTS

COLLATED COMMENTS BY KNOWLEDGE AND TASK AREAS FROM TELEPHONE AND WRITTEN REVIEWS

LIST OF PARTICIPANTS

Name	Company/Organization	City	State
Gerdo Aquino	SWA, Principal	Sausalito	CA
Kent Brinkley	Colonial Williamsburg	Williamsburg	VA
Jane Burmer	URS Corporation	Tampa	FL
Timothy Coppola	University of California Berkeley Extension	San Francisco	CA
Stuart Dawson	Sasaki Associates, Inc.	Watertown	MA
Terry DeWan	Terrance J. DeWan & Assoc	Yarmouth	ME
Christie Dunbar	Pollack Design Associates	Ann Arbor	MI
Steve Estrada	Estrada Land Planning	San Diego	CA
Kathleen Garcia	WallaceRobertsTodd	San Diego	CA
Donna Hinde	The Planning Partnership	Toronto	ON
Perry Howard	North Carolina A&T University	Greensboro	NC
Gregg Hudspeth	Niles Bolton Associates	Atlanta	GA
Greg Jones	Dunbar/Jones Partnership	Des Moines	IA
Leslie Kerr	National Park Service	Kodiak	AK
Deb Kinney	Michigan State University	East Lansing	MI
Alan McKnight	Columbus, Ohio Park Department	Columbus	OH
Scott Mears	City Councilman	College Station	TX
Beth Meyer	University of Virginia	Charlottesville	VA
Ron Middleton	Alberta Infrastructure	Edmondton	AB
Moreen Miller	Aggregate Producers of Ontario	Alton	ON
Thomas Nieman	University of Kentucky	Lexington	KY
Patricia O'Donnell	Landscapes - LA	Charotte	VT
James Palmer	State University of New York, Syracuse	Essex Junction	VT
James Patchett	Conservation Design Forum, Inc.	Elmhurst	IL
Ron Stoltz	Director, Landscape Architecture, U. of Arizona	Tucson	AZ
Bill Thompson	Landscape Architecture Magazine	Washington	DC
Elizabeth Wiese	Bellomo Herbert and Company	Orlando	FL
J. Daniel Wojcik	The Saratoga Associates	Sarasota Springs	NY

COLLATED COMMENTS FOR KNOWLEDGE AREAS

GENERAL COMMENTS FOR KNOWLEDGE AREAS:

- For consistency, define all or most listings, or none
- Add **ENVIRONMENTAL** as a domain

(A) LEGAL AND ADMINISTRATIVE ISSUES	
KNOWLEDGE OF:	**COMMENTS:**
1. Planning and land use law	
2. Basic construction law	
3. Labor laws and requirements	
4. Governmental policies and laws that affect the use and/or development of land	Public/site plan approval process
5. Development restrictions (e.g., zoning, easements, covenants, codes)	
6. Construction contracts and the responsibilities of the various parties under the construction contract	The unseasoned person would not have much experience with this.
7. The bid evaluation process, including alternates, unit prices, bidder qualifications, bonds, etc.	The unseasoned person would not have much experience with this.
8. Legal aspects of the bidding process, such as bid form, bid bond, addenda, etc.	The unseasoned person would not have much experience with this.
9. Legal procedures for changes orders and addenda	The unseasoned person would not have much experience with this.
10. Development economics (e.g., financing costs, depreciation, land values, estimating)	Estimating is a separate line item and not part of #10 The unseasoned person would not have much experience with this.

(A) LEGAL AND ADMINISTRATIVE ISSUES	
KNOWLEDGE OF:	**COMMENTS:**
11. Funding sources	Grant administration process
12. Forest Service capital investment process	Too specific. Opens doors to other groups, i.e., BLM Regional
13. Sources and procedures for securing grants	
14. Business management principles	
15. Basic accounting principles	
16. Marketing techniques	
17. Scheduling techniques and job progress tracking	Sequence of construction from site plan approval to certificate of occupancy
18. Staff and resource allocation	
19. Insurance principles related to professional services and construction	
20. Ethical standards for professional practice	
21. Professional liability issues	
Legal and administrative issues general comment:	Add knowledge of hiring laws, sexual harassment, and other contemporary issues

(B) INVENTORY	
KNOWLEDGE OF:	**COMMENTS:**
22. Empirical research procedures and techniques	Generalized. Numbers 23, 24, 26, 31, and 32 are subsets of number 22.

(B) INVENTORY	
KNOWLEDGE OF:	**COMMENTS:**
23. Sources of demographic information	Remove "sources." Source is not knowledge. Part of subset #22.
24. Sources of economic data	Remove "sources." Part of subset #22.
25. Information sources, such as existing documentation, land surveys, land use plans, aerial surveys, zoning	Remove "sources."
26. Sources of information on specific site uses, such as sports fields, amphitheater seating, picnic areas, loading docks, etc.	Remove "sources." This is how you do empirical research. Part of subset #22. Does this mean site inventory?
27. Surveying practices	
28. Geographic information systems (GIS)	
29. Photogrammetry and remote sensing systems	
30. Group dynamics and techniques for conducting meetings	Why is this placed in Inventory Domain? Move to L & A. Similar to #60. Special area under ANALYSIS see #69
31. Photography	Part of subset #22.
32. Reading and interpreting drawings, maps, and aerial photos	Part of subset #22.
33. Conditions of natural elements (e.g., vegetation, water features) and build elements (e.g., buildings, roads)	Assessment not Inventory. Understanding of water/natural systems.
34. Interpretation techniques	Is this talking about interpreting techniques or the act of interpreting? If techniques, then it is a part of #22. Reinstatement of #22.

(C) ANALYSIS	
KNOWLEDGE OF:	**COMMENTS:**
35. Mathematics	Application or knowledge? Assume use of #35-#66 to analyze something. "Application" could be placed in front of #35, #36, #37, #38, #39, and #46 and "of principles" added at the end. Statistics. Trig and stat.
36. Archaeology	Subset of geology
37. Geology, including seismic issues	All other geology subsets should be there, too. Karst, bearing capacities of stone. Regional
38. History of landscape architecture	Same as #39. Knowledge of history or application of past land use. Should be with #70 art, architecture, cultural form.
39. Historical patterns of land use	Same as #38. Not a process.
40. Historical and cultural landscapes	Not a process
41. Historic preservation principles	Preserving #39 and #40? Process not application.
42. Forest management	This is a process. Regional.
43. Agricultural and rural landscape analysis and conservation.	Delete not analyzed. Agricultural practices and rural practices is the same as #39. Rural land use practices. Make two separate listings.
44. Environmental ethics	Should be defined. Suggest ethic, not ethics. How

(C) ANALYSIS	
KNOWLEDGE OF:	**COMMENTS:**
	do you do this? Ethics are personal and ethic is of a group. Environmental ethic of a group or region. The ethic of living in a desert or on ice.
45. Relationship between construction and ecology	What does this mean? Analysis or relationship? Or areas of construction and areas of ecology? Buzz word, add definition, like #17.
46. Urban ecology	
47. User analysis methods (i.e., direct and indirect observation, surveys, interviews, demographics, etc.)	
48. Sociological and cultural influences on design	
49. Behavioral factors relating to design	Use #50 to get at #48 and #49. Human and animal behavior.
50. Quantitative and qualitative research methods	Use this to do analysis. These are techniques. Use them to get at something. #22, #35, #50, and #66 are skills. They are saying the same thing. Not under Analysis.
51. Psychological and sensory implications of landscape design	
52. Natural site conditions and ecosystems	
53. Resource preservation	
54. Visual resource assessment and management	
55. Floodplain management principles	
56. Littoral effects on design and construction (e.g., tidal)	Regional

(C) ANALYSIS	
KNOWLEDGE OF:	**COMMENTS:**
57. Stormwater management techniques	
58. Water supply and conservation management techniques	
59. Characteristics of fire hazard areas	Other natural hazards should be included depending on geographic location, i.e., earthquakes, volcanoes, etc. Regional.
60. Visual analysis methods and techniques	
61. Techniques of conducting surveys of users and clients	Use techniques to conduct analysis.
62. Topography	
63. Hydrology	
64. Hydraulics (e.g., stormwater collection systems, pumping systems)	Skill used to analyze
65. Soils (e.g., pedology, suitability, mechanics)	What does pedology mean?
66. Global positioning system (GPS)	Maybe better under Inventory?
General comment:	Add **PLANNING** domain and include numbers 69, 74, 86, 93, 94, 111, and 112 and add Interpretation category.

(D) DESIGN ISSUES	
KNOWLEDGE OF:	**COMMENTS:**
67. The fine arts (e.g., music, painting, sculpture, literature, the performing arts)	
68. Basic design principles (e.g., scale, function, balance)	See #30 – techniques.

(D) DESIGN ISSUES	
KNOWLEDGE OF:	**COMMENTS:**
69. Participatory planning and design	Techniques similar to #30. #69 and #30 are related
70. History of allied professions (i.e., architecture, planning, etc.)	#70 and #38 should be together
71. Tourism (including ecotourism, heritage/cultural tourism, hotel and resort)	
72. Environmental education	It's a process, not a knowledge area. Not a Design issue, but a process. Knowledge about environmental education or about environmental remediation?
73. Aesthetic principles of landscape design	See #21. #72 and #73 are not parallel.
74. Regional, urban, and community planning principles	Clarify.
75. The influences of internal and external views on land use and development	Is this a psychological question? What does this mean? . . and vice versa?
76. Special populations (e.g., therapeutic/pragmatic designs for mentally ill, children, elderly, physically challenged, etc.)	i.e. or e.g.? Is etc. appropriate?
77. International issues	What does this mean? Related to design or politics?
78. Functional relationships among program elements	
79. The influences of transportation systems on land use and development	
80. Roadway alignment design principles	Subset of #81.
81. Elements of vehicular and pedestrian circulation systems and their	Collapse with #80 or make into two, incorporating

(D) DESIGN ISSUES	
KNOWLEDGE OF:	**COMMENTS:**
design requirements	#80. "vehicular circulation" and "pedestrian circulation"
82. Code requirements and design principles for accessibility	Suggest: code requirements and principles for universal accessibility
83. Design characteristics of site elements	Delete.
84. How previous, existing, or potential uses surrounding a site affect land use and development	
85. Micro and macro climatic conditions and systems (wind rose, sun orientation)	Suggest: micro and macro climatic conditions
86. Principles of sustainability	Smart growth, how land use policies effect development growth patterns Clarify. New term.
87. Characteristics of plant material (e.g., size, shape, texture, color)	Suggest: characteristics of plant material
88. Fuel modification techniques (e.g., fire protection plantings)	This is a technique for conservation. Different in scale than #66. It's a subset of #86. Regional.
89. Plant materials including hardiness, moisture requirements, soil requirements, etc.	Suggest: culture of plant materials
90. Landscape maintenance techniques, materials, equipment and practices	Legitimacy of this? Should also speak to management and stewardship plans, which are more encompassing and would include maintenance, i.e. natural landscape which requires additional plantings, invasive species removal, monitoring, prescribed burns . . . etc.
91. Noise attenuation and mitigation techniques	Suggest: techniques of noise attenuation and

(D) DESIGN ISSUES	
KNOWLEDGE OF:	**COMMENTS:**
	mitigation
92. Laws and regulations related to the design arts (e.g., Americans with Disabilities Act Accessibility Guidelines, National Forest Management Act)	Move to L & A. Add NAPA, OSHA, ETA
93. The concept of " a sense of place" in analysis design and management	Part of #68 – move
94. Indigenous peoples'/other cultures' values and traditions	Move to Analysis
General comments:	Add **DESIGN REQUIREMENTS** domain Knowledge of other projects/literature and writing ability for expressing design intent, writing reports, master plans, grant applications, etc.

(E) CONSTRUCTION METHODS AND PROCESSES	
KNOWLEDGE OF:	**COMMENTS:**
95. Construction methods and techniques	Delete words "and techniques"
96. Construction equipment and technologies	Delete words "and technologies"
97. Quality control procedures for construction, such as delivery, storage, testing, etc.	ADD installation, get to the heart of the matter.
98. sequencing of design, approval, permitting and construction activities	
99. the life-cycle cost analysis process	This is more for the seasoned professional. Should not be deleted, but not delved into too much.
100. Methods of installation of construction materials	Similar to #95.
101. Principles of grading and drainage	

(E) CONSTRUCTION METHODS AND PROCESSES	
KNOWLEDGE OF:	**COMMENTS:**
102. land and water reclamation procedures (e.g., quarry, mines, landfill)	
103. wetland creation and mitigation	This is more for the seasoned professional. Should not be deleted, but not delved into too much.
104. biofiltration systems	This is more for the seasoned professional. Should not be deleted, but not delved into too much.
105. materials and techniques for erosion and sedimentation control	
106. utility systems and their design requirements	This is more for the seasoned professional. Should not be deleted, but not delved into too much.
107. irrigation types and systems	Add to DETAILS and expand. Regional.
108. the elements of lighting systems, including light sources and their design requirements	Functional aspects, health, safety, and welfare issues. Expand the aesthetic aspects of it and efficiency.
109. factors influencing selection of plant materials (e.g., availability, cost, maintenance, location, survivability, dependability)	What is necessary to the public regarding health, safety, and welfare. Public safety and welfare vs. aesthetics, types of poisonous plant materials.
Construction Methods and Processes general comments:	The Domain, Construction Methods and Processes, has a problem. It needs to be expanded and broken down. Currently there are methods, processes, technologies, principles, and systems. Technologies, systems, and methods are all the same. Questions #95-109 should be Construction Details and Construction Methods. Expand this Domain.

(E) CONSTRUCTION METHODS AND PROCESSES	
KNOWLEDGE OF:	**COMMENTS:**
	Add PLANNING Domain after DESIGN Domain. Add "producing working drawings" to PLANNING.

(F) DOCUMENTATION AND ADMINISTRATION	
KNOWLEDGE OF:	**COMMENTS:**
110. Computer-aided design and drafting (CADD)	This is a tool, more importantly is knowing how to communicate graphically. Just knowing CADD or other computer drafting programs does not mean that one can communicate effectively with graphics.
111. Computer graphic systems (e.g., video imaging)	Move video imaging to INVENTORY domain. See #31. Move to PLANNING Domain.
112. Presentation techniques (e.g., computer visualization/simulations, renderings, perspectives)	
113. Common graphic symbols	
114. Reprographics	
115. Coordinate systems and layout techniques and conventions	Standard symbols used in the industry Too many words here – ask just specification writing or project specifications.
116. Components of specifications for a project	Combine #116 and #117.
117. Specification types (e.g., material, workmanship, performance,	

(F) DOCUMENTATION AND ADMINISTRATION	
KNOWLEDGE OF:	**COMMENTS:**
proprietary)	
118. General and supplemental conditions, special provisions, and technical specifications and their organizations.	This is more for the seasoned professional. Should not be deleted, but not delved into too much. More legal, like #6--#10.
Documentation and Administration general comments:	Add coordination with other designers – architects, engineers Add DESIGN REQUIREMENTS domain DETAILS domain should be after DESIGN REGULATIONS domain

(G) DETAILS	
KNOWLEDGE OF:	**COMMENTS:**
119. typical construction details (e.g., material, fasteners, finishes, assemblies)	Remove “details.” DESIGN domain issue.
120. site construction materials, including availability, costs, basic characteristics and applications	
121. site amenities (e.g., benches, kiosks, waste receptacles)	Suggest: benches, kiosks, waste receptacles
122. pools, fountains, and their design requirements	Suggest: "pools and fountains" under water heading
123. marine and water-related structures (e.g., docks, ramps, floats)	Suggest: "docks, ramps, floats" under water

(G) DETAILS	
KNOWLEDGE OF:	**COMMENTS:**
	heading Regional
124. playground equipment and their design requirements	Suggest: playground equipment
125. decks, walls, and overhead structures	
126. structural considerations below grade (e.g., soil bearing, footing foundation systems)	Important issues, more a DESIGN issue
127. structural considerations above grade (e.g., walls, handrails, spans, decking)	Important issues, more a DESIGN issue. Leave walls, handrails, spans, decking in DETAILS
128. structural considerations for small structures	Suggest: small structures
Details general comments:	Add lighting to DETAILS domain Add signage to DETAILS domain

END OF KNOWLEDGE AREAS

COLLATED COMMENTS FOR TASK AREAS

ADMINISTRATION	
TASK STATEMENT	**COMMENTS:**
1. Manage a business or agency, including cash management, taxes, employee benefit programs, selecting, hiring, and/or dismissing employees, allocating and scheduling staff, consultants, and other resources to projects, selecting, acquiring and/or maintaining appropriate business consultants, such as accountants, lawyers, insurance agents	"working with, and contracting other design professionals, architects, engineers, lighting consultants, ecologists, naturalists . . . etc." Is all this text necessary?
2. Serve as an expert witness.	This belongs in OTHER Domain. Not with #1. This goes with #3.
3. Prepare and manage grant applications	Is this for the office or for clients? This belongs in OTHER Domain. Not with #1. This goes with #2.
Administration general comment:	Does this mean Office Administration? Break down between managing a business and personnel management/human resources. Add OTHER domain.

GOVERNMENT AND REGULATORY	
TASK STATEMENT	**COMMENTS:**
4. Assist client in obtaining regulatory agency approvals	
5. Prepare or assist in the preparation of codes, ordinances, regulations, covenants, conditions, restrictions, policies, standards, and guidelines	This is too all-encompassing. Covenants, conditions, restrictions are at the site level. The others are at the municipal level.
6. Confirm code compliance (e.g., zoning, environment, accessibility, seismic)	

GOVERNMENT AND REGULATORY	
TASK STATEMENT	**COMMENTS:**
Government and Regulatory general comment:	Add Peer Review under this domain.

PROJECT MANAGEMENT	
TASK STATEMENT	**COMMENTS:**
7. Formulate and respond to requests for proposals (RFPs) or requests for qualifications of consultants	
8. Negotiate and prepare client/landscape architect agreements and landscape architect/consultant agreements	
9. Monitor projects for compliance with quality standards, schedule, budget	
10. Coordinate with consultants and design team members	Add half of #15 – coordinate field investigations to #10
11. Evaluate and update project status and schedule	

RESEARCH / DATA GATHERING	
TASK STATEMENT	**COMMENTS:**
12. Elicit clients' and users' intentions and capabilities and determine needs	
13. Formulate project guidelines (e.g., numbers, sizes, relationships, and functions of elements; preliminary project scheduling and costs)	Replace the word guidelines with the word program.
14. Determine and collect data needed and identify sources of data including relevant laws, rules, and regulations governing the project and required approvals	

RESEARCH / DATA GATHERING	
TASK STATEMENT	**COMMENTS:**
15. Conduct and/or coordinate field investigations	Two very different skills. Move coordinate field investigations to #10. This is part of Develop Project/Site. Incorporate conduct field investigations with #16.
16. Prepare site inventories (e.g., cultural systems, natural systems, visual systems)	Include behavioral analysis/observation. Add conduct field investigations.
17. Undertake research for the purpose of expanding the body of knowledge of landscape architecture	
18. Undertake project specific research (e.g., case studies)	
19. Research and identify potentially hazardous areas (e.g., fire hazard areas, slope instability, flooding)	Remove the word "research."
Research / Data Gathering general comments:	Remove Research from the Domain name. Add Site Inventory to Domain name. Add Programming as a Domain and insert #12 and #13 as categories. Add Research as a Domain near the end of TASKS and add #17 and #18 as categories. Add three categories to Data Gathering—Traffic, Ambient Lighting, and Noise.

ANALYSIS	
TASK STATEMENT	**COMMENTS:**
20. Evaluate natural site conditions and ecosystems (e.g., slopes, wetlands, soils, vegetation, climate) and cultural conditions including current site utilization and uses surrounding the site (e.g., land uses, occupancy, and existing buildings)	Human behavior.
21. Integrate findings of consultants' studies	
22. Determine the opportunities and the constraints of the site including legal restraints and economic impact and evaluate the capability of the site to support the program requirements	Help client to develop/establish programming. Too wordy.
23. Prepare evaluations including environmental impact evaluations, historic preservation reports, and tree inventories design, approval, permitting and construction activities	
24. Prepare life-cycle costs analysis (value engineering)	

COMMUNICATION	
TASK STATEMENT	**COMMENTS:**
25. Prepare documents including feasibility studies, environmental impact evaluations, site analysis documents, site base plans, project schedules, design guidelines, site selection recommendation(s), etc.	Content or communications aspects of them. These could be PLANNING also. ADD page layout software.
26. Prepare presentation materials such as illustrative site plans, perspective drawings, elevations, sections, scale models, project reports and recommendations, etc.	Too all-encompassing. This mixes 2-dimensional and 3-dimensional aspects and they should be separate. Breakout 2-D as MANUAL and 3-D as ELECTRONIC.
27. Train others in various aspects of landscape architecture	
28. Facilitate community input in participatory meetings (e.g. workshops and public meetings)	
29. Make formal and informal presentations to clients, agencies and public	
Communication general comments:	Have Domain for COMMUNICATION/WRITING SKILLS. Have four Domains for communications – VERBAL, WRITTEN, ELECTRONIC, and MANUAL ADD category for preparing PowerPoint presentations, videos, booklets using PageMaker. ADD categories under ELECTRONIC COMMUNICATION - Operate and set up Web site and Photosimulations. ADD categories under MANUAL COMMUNICATION – Hand drawn and Scale models.

PLANNING AND DESIGN	
TASK STATEMENT	**COMMENTS:**
30. Analyze relationships among program elements	
31. Translate analyses into graphic diagrams (e.g., bubble diagrams, matrices)	Design issue
32. Evaluate, select and prepare alternative design solutions including location of site elements (e.g., buildings, vehicular and pedestrian circulation, use areas)	Open space and stormwater infrastructure DESIGN issue
33. Translate design schematics into finalized site plans including on-site utilities, water management strategies, stormwater management plans, irrigation systems, landscape structures, grades and elevations, earthwork calculations, erosion and sedimentation control measures, and project details	Assimilate/respond to client/public comments to formulate the final design DESIGN issue
34. Prepare large-scale plans for campuses, new towns, subdivisions, office parks, land use, recreation, open space, environmental resource management, visual analysis, land and/or water reclamation, and park systems	Transportation systems/corridors PLANNING issue. Open space, environmental resource management are town-wide issues and the others are county-wide issues.
35. Prepare wetlands and mitigation plans and/or reports	DESIGN issue.
36. Research and/or prepare master plans	PLANNING issue.
37. Design biofiltration systems	DESIGN issue. What about all the other things that are listed in #38?
Planning and Design general comments:	These are different parts of the profession—has to do with scale. Add category for Playgrounds, streetscapes, parks. Needs a list like #34. Add categories—storm water management, grading and drainage, irrigation.

CONSTRUCTION DOCUMENTATION AND ADMINISTRATION	
TASK STATEMENT	**COMMENTS:**
38. Prepare working drawings for project construction including demolition, clearing and grubbing plans, final site plans, layout plans, grading and drainage plans, storm drain schedules and calculations, storm sewer plan-profile drawings, storm water detention/retention system plans, planting plans, irrigation plans, site (landscape) lighting plans, erosion and sediment control plans, roadway plan-profile drawings, and vegetation preservation/salvage plans	Break down some of this in DESIGN Domain. Break down this long list into separate listings under CONSTRUCTION Domain.
39. Coordinate consultant drawings	
40. Prepare construction details for steps, ramps, fountains, pools, fences, screens, overhead wood structures (e.g., trellis) and decks, retaining walls, play equipment, drainage systems (e.g. catch basins, end walls and outlet structures), site lighting, pavement and curbs, signage, planting, irrigation, and miscellaneous site amenities (e.g., benches, kiosks, waste receptacles).	Whatever details are necessary to achieve the design intent and carry out the construction documents.
41. Perform construction management services	
42. Prepare bid documents	Conduct pre-bid and pre-construction meetings
43. Prepare (write, select, or edit) general and special and/or supplemental conditions of the contract	
44. Write, select or edit technical specifications and coordinate specifications with contract drawings	
45. Manage bidding process, including issuing addenda, receiving and/or reviewing bids, and recommending award of contract(s)	
46. Prepare contracts and review bonds, insurance, and other requirements for execution of contract	

CONSTRUCTION DOCUMENTATION AND ADMINISTRATION	
TASK STATEMENT	**COMMENTS:**
47. Perform periodic field observations of construction which include reviewing and recommending acceptance or rejection of materials, conducting job progress meetings, preparing and negotiating change orders, reviewing shop drawings and submittals, reviewing and approving payment requests, and performing final inspections	
48. Prepare as-built/record drawings	
49. Review and distribute closeout documents (e.g., affidavits and certificates for payment)	
50. Perform warranty inspections and post-occupancy evaluations	
51. Prepare operational management/maintenance manuals (e.g., landscape maintenance, irrigation schedule)	Natural systems management/stewardship plans
52. Perform construction contracting services (including design-build services)	
53. Prepare statements of probable construction costs	

END OF TASKS

APPENDIX B

MEETING PARTICIPANTS

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JANUARY 31 — FEBRUARY 1, 2003

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APPENDIX C

SUMMARY OF ASLA LABOK TASK FORCE MEETING

Summary of ASLA LABOK Taskforce Meeting
May 23, 2003

Participants: Buck Chaffee, Tim Keller, Lu Gay Lanier, Ron Leighton, Vince McDermott, Brian Orland, Peter Pollack, Kay Williams, and Nancy Thomas of the Chauncey Group

Kay opened the meeting with a brief background of how project developed and how the decision to use a survey was made. Chauncey Group was selected to facilitate the process, which consisted of the following activities to date.

- Information collected from multiple sources including the most recent job analysis conducted by CLARB
- Phone interviews conducted
- Focus group meeting January
- Draft survey tool shared with representatives of contributing organizations

Concern was expressed by some of the organizations that the resultant survey would not achieve the goal of the project because of its implied focus on licensure requirements. Kay noted that if the task was going to be easy, it would have been done before. She emphasized that the findings from the survey should be viewed as a beginning.

Brian noted that concerns had been expressed about the larger picture; knowledge is only a piece of the program.

Questions asked included a question about what the impact of the findings would be. For example, what would the impact on accreditation standards be?

Lu Gay commented that each organization will use the results as seems reasonable. The goal of the survey is to identify a core of knowledge that is common to all groups. It is not expected to become a checklist.

Ron noted that the Council of Higher Education is looking for a standard of curriculum.

Vince note that the results should not generate a checklist to follow but that learning is accumulated in different points in time. From the practitioner's perspective, he would like to know what potential employees are graduating with; the licensing board is interested in a different set of information.

Buck added the comment that how the results will be used depends on who the group is. For example: CLARB may use them to support discussions with political entities on the gap between licensed architects and university programs, what they learn from schools and what they need to get in internships. The CLARB task analysis will be delayed until the results of this activity are known.

Kay summarized the overall goal of the survey. The results should provide a catalyst for future discussions and activities not a set of answers.

The taskforce talked about the importance of the cover letter to the document. Attached is the draft cover letter from the meeting. During the conference call the final wording will be determined.

The committee then proceeded to discuss the rating scales. The scales below are those that were approved for use with the pilot group. They will be specifically asked for feedback on the appropriateness and their perception of the scales.

Section 1: Knowledge
Time of Acquisition

When should this knowledge be primarily learned or attained?
0 Not required at all
1 Before entrance to a university program
2 In a first professional degree university program
3 In a post-professional degree university program
4 In an entry-level employment position
5 In a mid-career employment position
6 In continuing education

Command of Knowledge

To what level should this knowledge be acquired at completion of a first professional degree?
0 Unnecessary–Not required at all
1 Exposure–Sufficiently aware of the knowledge to be able to look it up
2 Comprehension–Able to discuss the concepts involved
3 Application–Able to use the knowledge to solve common problems in familiar contexts
4 Mastery–Able to apply the knowledge to new problems, to integrate information and to create, synthesize, and evaluate solutions

To what level should this knowledge be acquired at the point of licensure?
0 Unnecessary–Not required at all
1 Exposure–Sufficiently aware of the knowledge to be able to look it up
2 Comprehension–Able to discuss the concepts involved
3 Application–Able to use the knowledge to solve common problems in familiar contexts
4 Mastery–Able to apply the knowledge to new problems, to integrate information and to create, synthesize, and evaluate solutions

Section 2: Competencies
How important is this competency at completion of a first professional degree in landscape architecture?
0 No importance
1 Moderately important
2 Important
3 Very important

How important is this competency at point of licensure as a landscape architect?
0 No importance
1 Moderately important
2 Important
3 Very important

The group then turned its attention to the knowledge statements. The domains were recast based on the content topics used currently by LAAB. The group then assigned the topics from the draft created in January to the new domains. Working in small groups, these knowledge statements were reworked.

Because of time constraints, the competencies were assigned to the new domains. It was agreed that each member of the taskforce would rework the competencies within one domain. This rework will be to create a minimum of 3 and a maximum of 5 competency statements for each domain.

The following list provides the assignments by domain.

1. Landscape Architecture History and Criticism (Tim)
2. Natural and Cultural Systems (Kay)
3. Design and Planning Theories and Methodologies (Peter)
4. Public Policy and Regulation (Lu Gay)
5. Landscape Planning, Design and Management at Various Scales and Applications (Brian)
6. Site Design and Engineering: Materials, Methods, Technologies and Applications (Buck)
7. Construction Documentation and Administration (Vince)
8. Communication (Brian)
9. Professional Values and Ethics (Vince)

Below is the timetable for the next steps.

Chauncey to send meeting summary and updated survey	June 2
Taskforce members to complete update of competencies and review of the full survey and return comments to Chauncey	June 16
Chauncey to schedule a Web conference of the taskforce	week of June 16

The group then talked about the distribution of the survey tool. It will be important to look at the following groups as well as others. The demographic information collected in Part 3 of the survey will assist in these comparisons.

Aspects of practice—private, public, academic, non-practice
Licensed/unlicensed
Recent graduate
ASLA/nonASLA.
Canada/non Canada

The following recommendation is that each organization will provide the numbers in the following numbers: 750 from ASLA; 500 from CLARB; 200 CELA, and 200 from CSLA. It was also suggested that a means to contact alumnae of a couple of programs be forwarded copies of the tool. Chauncey cannot send them directly to the alumnae because of the prohibition of the release of alumnae contact information. The CELA representatives agreed to identify an alternative method for reaching those graduates.

The meeting ended at 7:00 p.m.

PROPOSED REVISIONS TO THE ASLA DOCUMENTS

Summary of Conference Call(s)
Wednesday, June 18, 3-5 p.m. EDT
Thursday, June 11:00 a.m. – 1:00 p.m. EDT

Proposed Competencies

Landscape Architecture History and Criticism (Tim)

Develop an understanding of design as exemplified by historically significant works of landscape architecture, urban planning, civic design, and architecture.

Examine economic, political, social, ecological and esthetic relationships and their influence on the development of the profession of landscape architecture.

Demonstrate an understanding of the evolution of landscape architecture as an art and a profession through knowledge of its terminology, literature, personalities, and concepts.

Develop an ability to synthesize and make connections between aspects of landscape architecture and disciplines outside of landscape architecture.

Natural and Cultural Systems (Kay)

Conduct field investigations to identify significant natural and cultural features, characteristics, and systems

Perform quantitative analyses to evaluate the interactions of natural and cultural features, characteristics, and systems

Perform qualitative analyses to evaluate the relationships between natural and cultural features, characteristics, and systems

Predict implications of planning, design, and management proposals on natural and cultural systems both within the site and in the larger context

Public Policy and Regulation (Lu Gay)

Identify and collect regulatory information, applicable data and required approvals governing a project (e.g., relevant laws, codes, and regulations)

Confirm code compliance (e.g., zoning, environment, accessibility, etc.)

Assist in the preparation of ordinances, regulations, covenants, standards, and guidelines

Influence public policies on areas such as growth and land and water management by testifying, lobbying, or preparing written documents for public distribution

Design, Planning, and Management at Various Scales and Applications (Brian)

Develop a design program based on users' needs and clients' goals and resources

Analyze relationships among design elements by determining opportunities and constraints

Develop conceptual design and planning, management solutions

Evaluate design alternatives to determine the appropriate solution

Site Design and Engineering: Materials, Methods, Technologies and Applications (Buck)

Design for protection and management of land resources (e.g. land forms, vegetation, habitat, erosion and sedimentation control)

Design for protection and management of water resources (e.g. stormwater, water supply, ground water)

Engineer pedestrian, vehicular, and non-motorized circulation systems

Design elements for construction considering materials, structural issues and construction technologies

Construction Documentation and Administration (Vince) start here

Prepare construction documents including plans, working drawings, and technical specifications

Prepare contract documents including agreements, general conditions, and bid documents

Manage the bidding/tendering process

Provide construction administration and observation throughout the project

Conduct project closure including review and distribution of close out documents

Perform post construction evaluation

Perform construction services including design-build

Prepare management and maintenance manuals and documents

Communication (Brian)

Maintain clear communication among collaborators through correspondence and project coordination

Develop written documentation, such as project reports, grant proposals, and promotional materials

Create graphic materials in a variety of media

Prepare and deliver oral presentations such as meetings, demonstrations, and outreach

Conduct project and public meetings including preparation of meeting agendas and notes, and facilitation of the meeting

Review and critique peer work

Practice, Values and Ethics (Vince)

Manage business practices and organizations

Manage risk and liability

Negotiate and prepare client and consultant agreements

Participate in life-long learning (e.g., a professional organization, continuing education activities)

Participate in professional and public service activities

Train, educate and mentor other professionals

Maintain and promote professional and ethical standards

Knowledge Statements

Domain 2: Natural and Cultural Systems (Kay)

~~rare, threatened, and endangered species approved~~

Domain 3: Design and Planning Theory and Methodology (revisions by Peter)

Creativity and process including design theory and problem solving strategies.

Aesthetic principles of design

Human factors such as behavior, perception, psychological and sensory response

Natural factors such as ecological relationships

Relationship between human and natural systems such as resource conservation, habitat restoration and creation, and urban ecology

Influence of context on design, planning and management decisions (Note to Nancy correct order is design planning and management everywhere)

Research methods including data collection, interpretation, and application of results.

Communication and education methods including sharing knowledge and evaluating outcomes.

Domain 4: Public Policy and Regulation

~~multiple use management (e.g., timber management, grazing, water management, recreation, etc.)~~
~~laws and regulations related to practice (e.g., accessibility, forest management, building codes, historic preservation, water management, etc.)~~
~~planning and land use law and development restrictions~~
~~labor laws and requirements~~
governmental policies and laws that affect the protection, use, and development of land
political and regulatory approval processes
land and development economics
emerging trends and issues

Domain 5: Landscape Planning, Design and Management at Various Scales and Applications (revisions from Brian)

photogrammetry and remote sensing;

visual resource assessment;

agricultural and rural landscape analysis

urban landscape analysis

Planning principles including regional, community, and neighborhood planning

Conservation of natural resources

historic preservation

Ecological planning principles

Water resource management

Wetland management (inland and coastal)

floodplain management

Land and water reclamation procedures including quarry, mine, landfill reclamation;

treatment of toxic materials;

Domain 8: Communication (revisions from Brian)

Determination of user values such as focus groups and surveys

Consensus/team-building (from 7

techniques for conducting meetings

The roles of visual communication, including photographic and video documentation;

graphic presentation techniques, systems and symbols

Interpretive methods and techniques such as information displays, brochures

Public relations, outreach, and image development

Discussion on the introduction to the survey

(The underscores are suggestions from Lu Gay, ~~strike-through deletions~~ and red additions from Brian).

This survey is intended to identify expectations for a body of knowledge of landscape architecture. The American Society of Landscape Architects, the Canadian Society of Landscape Architects, the Council of Educators in Landscape Architecture, the Council of Landscape Architect Registration Boards, and the Landscape Architecture Accreditation Board, have contracted with the Chauncey Group International to facilitate the development and distribution of this survey. The results will be made available to the landscape architecture community.

This survey is divided into four parts.

- Part I, Knowledge areas, asks questions about when the specific items of knowledge are acquired. It also asks about the level of command of the knowledge that graduates must possess and the level of command of the knowledge required at the time of licensure.
- Part II, Competencies, asks about the importance of the core competencies upon completion of a first professional degree in Landscape Architecture and at the time of licensure.

Both Parts I and II are divided into 9 Domains. At the end of each domain, you are given the opportunity to write in topics or competencies that may have been omitted for that domain.

- Part III contains several different demographic questions.
- Part IV provides additional opportunity for comments about the completeness of the tool.

Draft text for the cover letter (Text in red from Brian, in green from Cecilia)

Dear Participant:

Landscape Architecture is undergoing change. We need an hour of your time to gather your opinions as a means to provide assistance for the following:

1. Landscape architects in broadening understanding of their role and contributions to society
2. Universities in defining curricula for the education of future landscape architects
3. Landscape architecture registration boards in *setting* standards for licensure of current landscape architects

(order reversed to match chronology and breadth of impact)

Five organizations have collaborated in the design of this survey that seeks to identify areas of knowledge *that* are important to landscape architecture, to examine how critical each is for the typical practicing landscape architect, and to explore how that knowledge should be gained.

Each organization has a goal for the use of the results of this survey. ASLA will apply the findings in arenas as diverse as publicizing the breadth of our professional contribution and developing continuing education opportunities. LAAB will use the information to make certain its accreditation standards adequately reflect professional expectations. CLARB will apply the results to enhance and defend licensure requirements and laws and to develop post-graduation career development and mentoring programs. *CELA will work with its members to ensure concurrence between the goals of Landscape Architecture programs and the institutions that house them;* CSLA will use this information to support its commitment to maintaining professional standards of education and practice that are relevant to the present and future needs of society.

We appreciate your willingness to give us this important information. Please complete the survey and return it in the prepaid envelope provide.

Sincerely,

Who?

APPENDIX D

PILOT SURVEY COVER LETTER, PARTICIPANT REVIEW FORM, AND INVITEES LIST

Pilot Survey Cover Letter

July 24, 2003

Inside name
Inside address
Inside city state

Dear (first name):

The Chauncey Group International has been asked by the American Society of Landscape Architects, the Landscape Architecture Accreditation Board, the Canadian Society of Landscape Architects, the Council of Educators in Landscape Architecture and the Council of Landscape Architect Registration Boards to conduct a survey of the Landscape Architect body of knowledge. You have been identified by one of these organizations to participate in the pilot administration of the survey. The purpose of the pilot is to determine if the survey directions are clear and easy to follow and if the knowledge statements and competencies are clearly written and comprehensive.

Your role as a pilot participant has three parts:

- Perform all of the steps required of the survey respondents
- Complete the form entitled LABOK Pilot Participant Review Form
- Participate in a follow up phone call, if necessary

Enclosed are the following materials:

1. The cover letter that will be sent to all respondents
2. The survey tool
3. The LABOK Pilot Participant Review Form
4. A postage-paid return envelope

We have targeted distribution of the survey to the larger group for the early September. Please return the completed materials by August 15.

On behalf of the five collaborating organizations and the Chauncey Group International, I would like to thank you in advance for your efforts to complete this activity.

Sincerely,

Nancy Thomas
Director

Cc: R. Leighton
K. Williams

LABOK Pilot Participant Review Form

Name: _____

Daytime telephone number: _____

Best time to call this number: _____

Best e-mail address for the month of August: _____

Please respond to each of the following questions after you have responded to the complete survey.

How much time did it take you to complete the survey? _____

Cover Letter to Participants
Is the purpose of the survey clear?
Do you perceive that the ways in which the results of the survey may be used as positive ones?

Introduction
Are the directions for completing the survey clear?

Knowledge Statements
Are the rating scales clear?
Are the topic areas ordered in a logical way?
Are the knowledge statements clearly written?
Are the knowledge statements within each content area comprehensive?
Are there any knowledge statements that require revision?
Did you add any knowledge statements on the survey?

Competencies
Are the rating scales clear?
Are the topic areas ordered in a logical way?
Are the competency statements clearly written?
Are the competency statements within each content area comprehensive?
Are there any competency statements that require revision?
Did you add any competency statements on the survey?

Background and General Information
Are the questions clear?
Are the response categories comprehensive?
Is there any additional information that is critical to collect?

Comments
Are the questions clear and relevant?
Did you add any comments to this section of the survey?

Invitees for the Pilot Survey for the LABOK Study

Tony	Barnes	
Ken	Bassett	Sasaki Associates, Inc
Kent	Brinkley	The Colonial Williamsburg Foundation
Adrienne	Brown	Member, BCSLA AND CSLA Board of Governors
Stephen	Carter	US Army Corps of Engineers
Russell	Chung	PBR HAWAII
Rick	Conant	Foster Conant & Associates
Craig	Coronado	EDAW
Van	Cox	Louisiana State University
Joe	Crystal	National Park Service
Karen	Hanna	Utah State
Richard	Hawks	State University of New York College of Environmental Science and Forestry
Mark	Hoversten	Landscape Architecture Program College of Architecture, Construction, Management, and Planning
Linda	Jewell	UC Berkeley
Todd	Johnson	Design Workshop
Victor	Kallos	BKDI Architects/Matrix Landscape Architecture
Vern	Krahn	Carson City Parks and Recreation Dept.
Alan	McKnight	Columbus Recreation & Parks Department
Joan	Nassauer	School of Natural Resources and the Environment
Maurice	Nelischer	School of Landscape Architecture, University of Guelph
Steve	Whitesell	NYC Dept. of Parks and Recreation
Chip	Winslow	KS State University
Gale	Wittwer	G. Wittwer-Laird, ASLA
Dick	Zweifel	

Appendix E

Landscape Architecture Survey and Cover Letter

November 24, 2003

Dear Participant:

Landscape Architecture is undergoing change. We need an hour of your time to gather your opinions as a means to provide assistance for the following:

1. Broadening the understanding of landscape architects and their diverse roles and contributions to society
2. Helping universities to define curricula for the education of future landscape architects
3. Assisting landscape architecture registration boards in setting standards for licensure of current landscape architects

Five organizations have collaborated in the design of this survey that seeks to identify areas of knowledge that are important to landscape architecture, to examine how critical each is to being a typical practicing landscape architect, and to explore how that knowledge should be gained. Within the breadth of the profession and discipline, what are the commonalities that are essential for the definition of "landscape architecture"?

Each organization has a goal for the use of the results of this survey. ASLA will apply the findings in arenas as diverse as publicizing the breadth of our professional contribution and developing continuing education opportunities. LAAB will use the information to make certain its accreditation standards adequately reflect professional expectations. CLARB will apply the results to enhance and defend licensure requirements and laws and to develop post-graduation career development and mentoring programs. CELA members will use information from the survey to inform curriculum development. CSLA will use this information to support its commitment to maintaining professional standards of education and practice that are relevant to the present and future needs of society.

We appreciate your willingness to give us this important information. Please complete the survey and return it in the prepaid envelope provided.

Sincerely,

LANDSCAPE ARCHITECTURE BODY OF KNOWLEDGE TASK FORCE

Canadian Society of Landscape Architects

L'association des architectes payagistes du Canada

November 24, 2003

Dear Participant:

Landscape Architecture is undergoing change. We need an hour of your time to gather your opinions as a means to provide assistance for the following:

1. Broadening the understanding of landscape architects and their diverse roles and contributions to society
2. Helping universities to define curricula for the education of future landscape architects
3. Assisting landscape architecture registration boards in setting standards for licensure of current landscape architects

Five organizations have collaborated in the design of this survey that seeks to identify areas of knowledge that are important to landscape architecture, to examine how critical each is to being a typical practicing landscape architect, and to explore how that knowledge should be gained. Within the breadth of the profession and discipline, what are the commonalities that are essential for the definition of "landscape architecture"?

Each organization has a goal for the use of the results of this survey. ASLA will apply the findings in arenas as diverse as publicizing the breadth of our professional contribution and developing continuing education opportunities. LAAB will use the information to make certain its accreditation standards adequately reflect professional expectations. CLARB will apply the results to enhance and defend licensure requirements and laws and to develop post-graduation career development and mentoring programs. CELA members will use information from the survey to inform curriculum development. CSLA will use this information to support its commitment to maintaining professional standards of education and practice that are relevant to the present and future needs of society.

We appreciate your willingness to give us this important information. Please complete the survey and return it to the address below.

CSLA, PO Box 13594, Ottawa, ON K2K 1X6

Sincerely,

LANDSCAPE ARCHITECTURE BODY OF KNOWLEDGE TASK FORCE

SURVEY FOR LANDSCAPE ARCHITECTURE BODY OF KNOWLEDGE

Conducted on behalf of the

ASLA

cela
COUNCIL OF EDUCATORS
IN LANDSCAPE ARCHITECTURE

CLARB

LAAB

Canadian Society of Landscape Architects

L' Association des architectes paysagistes du Canada

American Society of Landscape Architects
Canadian Society of Landscape Architects
Council of Educators in Landscape Architecture
Council of Landscape Architecture Registration Boards
Landscape Architectural Accreditation Board
November 2003

SURVEY FOR LANDSCAPE ARCHITECTURE BODY OF KNOWLEDGE

This survey is intended to identify expectations for a body of knowledge of landscape architecture. The American Society of Landscape Architects, the Canadian Society of Landscape Architects, the Council of Educators in Landscape Architecture, the Council of Landscape Architect Registration Boards, and the Landscape Architecture Accreditation Board, have contracted with The Chauncey Group International to facilitate the development and distribution of this survey. The results will be made available to the landscape architecture community.

This survey is divided into four parts.

- **Section I, Knowledge Areas**, asks questions about when the specific items of knowledge are acquired. It also asks about the level of command of the knowledge that graduates must possess and the level of command of the knowledge required when an individual takes professional responsibility for his or her landscape architectural work.

- **Section II, Competencies**, asks about the importance of the core competencies upon completion of a first professional degree in Landscape Architecture and when an individual takes responsibility for his or her landscape architectural work.

  Both Sections I and II are divided into domains. At the end of each domain, you are given the opportunity to write in topics or competencies that may have been omitted for that domain.

  In Sections I and II, every statement must have a response in order to validate your survey results. Please do not leave any statement blank.

- **Section III, Background and General Information**, contains several different demographic questions. These demographic questions ask you to describe yourself and your professional experience as a landscape architect. These questions are used solely for research purposes in describing the characteristics of respondents and are optional. We appreciate your cooperation in responding to this portion of the survey.

- **Section IV, Comments**, provides additional opportunity for comments about the completeness of the tool.

INSTRUCTIONS FOR SECTION I: BODY OF KNOWLEDGE

In this section, you will be asked to rate knowledge needed to perform work-related tasks using three rating scales: **Time of Acquisition**, **Command of Knowledge upon Completion of a First Professional Degree** and **Command of Knowledge at the Point of Professional Responsibility**. Before you begin, please take a moment to familiarize yourself with the rating scales and the knowledge statements.

RATING SCALES

This scale measures the appropriate time of acquisition of the knowledge by a graduate of and landscape architecture program–rather than that of your personal experience.

Time of Acquisition

When should this knowledge be primarily learned or attained? (Select one response.)

0 Not required at all
1 Before entrance to a university program
2 In a first professional degree university program
3 In a post-professional degree university program
4 In an entry-level employment position
5 In a mid-level employment position
6 In a continuing education program

These scales measure the appropriate level of knowledge for a landscape architect at two different points in time.

Command of Knowledge at Time of Degree

To what level should the knowledge be acquired at completion of a first professional degree? (Select one response.)

0 Unnecessary – not required at all
1 Exposure – sufficiently aware of the knowledge to be able to look it up
2 Comprehension – able to discuss the concepts involved
3 Application – able to use the knowledge to solve common problems
4 Mastery – able to apply the knowledge to new problems, to integrate information and to create, synthesize and evaluate solutions

Command of Knowledge Before Taking Professional Responsibility

To what level should this knowledge be attained before an individual takes professional responsibility for his or her landscape architectural work? (Select one response.)

0 Unnecessary – not required at all
1 Exposure – sufficiently aware of the knowledge to be able to look it up
2 Comprehension – able to discuss the concepts involved
3 Application – able to use the knowledge to solve common problems
4 Mastery – able to apply the knowledge to new problems, to integrate information and to create, synthesize and evaluate solutions

PLEASE REFER TO THE INSTRUCTIONS ON THIS PAGE WHEN RATING THE KNOWLEDGE STATEMENTS.

Section 1: Knowledge

Landscape Architecture History and Criticism

Knowledge of:

1. history of landscape architecture and allied professions (e.g., urban design, architecture, planning, etc.)

2. historic preservation principles

Time of Acquisition							Command of Knowledge at Time of Degree					Command of Knowledge Before Taking Professional Responsibility				
Not required	Before university	First degree program	Post-degree program	Entry-level employment	Mid-level employment	Continuing education	Not required	Exposure	Comprehension	Application	Mastery	Not required	Exposure	Comprehension	Application	Mastery
⓪	①	②	③	④	⑤	⑥	⓪	①	②	③	④	⓪	①	②	③	④
⓪	①	②	③	④	⑤	⑥	⓪	①	②	③	④	⓪	①	②	③	④

How well do the knowledge statements in this domain cover important aspects of Landscape Architecture History and Criticism?

Very poorly Poorly Adequately Well Very well

① ② ③ ④ ⑤

What important aspects – if any – are not covered?

Natural and Cultural Systems

Knowledge of:	Time of Acquisition							Command of Knowledge at Time of Degree					Command of Knowledge Before Taking Professional Responsibility				
	Not required	Before university	First degree program	Post-degree program	Entry-level employment	Mid-level employment	Continuing education	Not required	Exposure	Comprehension	Application	Mastery	Not required	Exposure	Comprehension	Application	Mastery
3. land information sources (e.g., existing documentation, land surveys, land use plans, aerial surveys, zoning, economic data, demographic information)	⓪	①	②	③	④	⑤	⑥	⓪	①	②	③	④	⓪	①	②	③	④
4. patterns of land use and built form	⓪	①	②	③	④	⑤	⑥	⓪	①	②	③	④	⓪	①	②	③	④
5. natural site conditions and ecosystems	⓪	①	②	③	④	⑤	⑥	⓪	①	②	③	④	⓪	①	②	③	④
6. social and cultural influences on design (e.g., indigenous and other cultures, historical and cultural landscapes)	⓪	①	②	③	④	⑤	⑥	⓪	①	②	③	④	⓪	①	②	③	④
7. regional hazard design considerations (e.g., fire, geologic, flooding, hurricane, snow, ice, etc.)	⓪	①	②	③	④	⑤	⑥	⓪	①	②	③	④	⓪	①	②	③	④

How well do the knowledge statements in this domain cover important aspects of Natural and Cultural Systems?

Very poorly ① Poorly ② Adequately ③ Well ④ Very well ⑤

What important aspects – if any – are not covered?

Design and Planning Theories and Methodologies

	Time of Acquisition							Command of Knowledge at Time of Degree					Command of Knowledge Before Taking Professional Responsibility				
Knowledge of:	Not required	Before university	First degree program	Post-degree program	Entry-level employment	Mid-level employment	Continuing education	Not required	Exposure	Comprehension	Application	Mastery	Not required	Exposure	Comprehension	Application	Mastery
8. creativity and process including design theory and problem-solving strategies	⓪	①	②	③	④	⑤	⑥	⓪	①	②	③	④	⓪	①	②	③	④
9. aesthetic principles of design	⓪	①	②	③	④	⑤	⑥	⓪	①	②	③	④	⓪	①	②	③	④
10. human factors such as behavior, perception, psychological and sensory response	⓪	①	②	③	④	⑤	⑥	⓪	①	②	③	④	⓪	①	②	③	④
11. natural factors such as ecological relationships	⓪	①	②	③	④	⑤	⑥	⓪	①	②	③	④	⓪	①	②	③	④
12. relationship between human and natural systems such as resource conservation, habitat restoration and creation, and urban ecology	⓪	①	②	③	④	⑤	⑥	⓪	①	②	③	④	⓪	①	②	③	④
13. influence of context on design, planning, and management decisions	⓪	①	②	③	④	⑤	⑥	⓪	①	②	③	④	⓪	①	②	③	④
14. research methods including data collection, interpretation, and application of results	⓪	①	②	③	④	⑤	⑥	⓪	①	②	③	④	⓪	①	②	③	④
15. therapeutic aspects of design	⓪	①	②	③	④	⑤	⑥	⓪	①	②	③	④	⓪	①	②	③	④
16. communication and education methods, including sharing knowledge and evaluating outcomes	⓪	①	②	③	④	⑤	⑥	⓪	①	②	③	④	⓪	①	②	③	④

How well do the knowledge statements in this domain cover important aspects of Design and PlanningTheories and Methodologies?

Very poorly ① Poorly ② Adequately ③ Well ④ Very well ⑤

What important aspects – if any – are not covered?

Public Policy and Regulation

Knowledge of:	Time of Acquisition							Command of Knowledge at Time of Degree					Command of Knowledge Before Taking Professional Responsibility				
	Not required	Before university	First degree program	Post-degree program	Entry-level employment	Mid-level employment	Continuing education	Not required	Exposure	Comprehension	Application	Mastery	Not required	Exposure	Comprehension	Application	Mastery
17. governmental policies and laws that affect the use and development of land	⓪	①	②	③	④	⑤	⑥	⓪	①	②	③	④	⓪	①	②	③	④
18. political and regulatory approval processes	⓪	①	②	③	④	⑤	⑥	⓪	①	②	③	④	⓪	①	②	③	④
19. land and development economics	⓪	①	②	③	④	⑤	⑥	⓪	①	②	③	④	⓪	①	②	③	④
20. emerging trends and issues	⓪	①	②	③	④	⑤	⑥	⓪	①	②	③	④	⓪	①	②	③	④

How well do the knowledge statements in this domain cover important aspects of Public Policy and Regulation?

Very poorly ① Poorly ② Adequately ③ Well ④ Very well ⑤

What important aspects – if any – are not covered?

Design, Planning and Management at Various Scales and Applications

Knowledge of:	Time of Acquisition: Not required	Before university	First degree program	Post-degree program	Entry-level employment	Mid-level employment	Continuing education	Command of Knowledge at Time of Degree: Not required	Exposure	Comprehension	Application	Mastery	Command of Knowledge Before Taking Professional Responsibility: Not required	Exposure	Comprehension	Application	Mastery
21. photogrammetry and remote sensing	⓪	①	②	③	④	⑤	⑥	⓪	①	②	③	④	⓪	①	②	③	④
22. visual resource assessment	⓪	①	②	③	④	⑤	⑥	⓪	①	②	③	④	⓪	①	②	③	④
23. agricultural and rural landscape analysis	⓪	①	②	③	④	⑤	⑥	⓪	①	②	③	④	⓪	①	②	③	④
24. urban landscape	⓪	①	②	③	④	⑤	⑥	⓪	①	②	③	④	⓪	①	②	③	④
25. planning principles including regional community and neighborhood planning	⓪	①	②	③	④	⑤	⑥	⓪	①	②	③	④	⓪	①	②	③	④
26. conservation of natural resources	⓪	①	②	③	④	⑤	⑥	⓪	①	②	③	④	⓪	①	②	③	④
27. historic preservation	⓪	①	②	③	④	⑤	⑥	⓪	①	②	③	④	⓪	①	②	③	④
28. ecological planning principles	⓪	①	②	③	④	⑤	⑥	⓪	①	②	③	④	⓪	①	②	③	④
29. water resource management	⓪	①	②	③	④	⑤	⑥	⓪	①	②	③	④	⓪	①	②	③	④
30. wetland management (inland and coastal)	⓪	①	②	③	④	⑤	⑥	⓪	①	②	③	④	⓪	①	②	③	④
31. floodplain management	⓪	①	②	③	④	⑤	⑥	⓪	①	②	③	④	⓪	①	②	③	④
32. land and water reclamation prodcedures including quarry, mine and landfill reclamation	⓪	①	②	③	④	⑤	⑥	⓪	①	②	③	④	⓪	①	②	③	④
33. treatment of toxic materials	⓪	①	②	③	④	⑤	⑥	⓪	①	②	③	④	⓪	①	②	③	④

How well do the knowledge statements in this domain cover important aspects of Design, Planning and Management at Various Scales and Applications?

Very poorly ① Poorly ② Adequately ③ Well ④ Very well ⑤

What important aspects – if any – are not covered?

Site Design and Engineering: Materials, Methods, Technologies and Applications

Knowledge of:	Time of Acquisition							Command of Knowledge at Time of Degree					Command of Knowledge Before Taking Professional Responsibility				
	Not required	Before university	First degree program	Post-degree program	Entry-level employment	Mid-level employment	Continuing education	Not required	Exposure	Comprehension	Application	Mastery	Not required	Exposure	Comprehension	Application	Mastery
34. design needs for special populations (e.g., elderly, children)	⓪	①	②	③	④	⑤	⑥	⓪	①	②	③	④	⓪	①	②	③	④
35. accessibility regulations	⓪	①	②	③	④	⑤	⑥	⓪	①	②	③	④	⓪	①	②	③	④
36. roadway design principles (e.g., horizontal and vertical alignment, etc.)	⓪	①	②	③	④	⑤	⑥	⓪	①	②	③	④	⓪	①	②	③	④
37. elements of vehicular and pedestrian circulation systems and their design requirements	⓪	①	②	③	④	⑤	⑥	⓪	①	②	③	④	⓪	①	②	③	④
38. landscape maintenance techniques, materials, equipment, and practices	⓪	①	②	③	④	⑤	⑥	⓪	①	②	③	④	⓪	①	②	③	④
39. noise attentuation and mitigation techniques	⓪	①	②	③	④	⑤	⑥	⓪	①	②	③	④	⓪	①	②	③	④
40. sustainable construction practices (e.g., LEEDS certification requirements, “green” construction, xeriscaping, etc.)	⓪	①	②	③	④	⑤	⑥	⓪	①	②	③	④	⓪	①	②	③	④
41. construction equipment and technologies	⓪	①	②	③	④	⑤	⑥	⓪	①	②	③	④	⓪	①	②	③	④
42. grading, drainage and stormwater treatment	⓪	①	②	③	④	⑤	⑥	⓪	①	②	③	④	⓪	①	②	③	④
43. biofiltration and other alternative drainage methods	⓪	①	②	③	④	⑤	⑥	⓪	①	②	③	④	⓪	①	②	③	④
44. erosion and sedimentation control	⓪	①	②	③	④	⑤	⑥	⓪	①	②	③	④	⓪	①	②	③	④
45. utility systems (e.g., sanitary sewer, water, electrical distribution)	⓪	①	②	③	④	⑤	⑥	⓪	①	②	③	④	⓪	①	②	③	④

Site Design and Engineering: Materials, Methods, Technologies and Applications *(continued)*

	Time of Acquisition								Command of Knowledge at Time of Degree					Command of Knowledge Before Taking Professional Responsibility				
Knowledge of:	Not required	Before university	First degree program	Post-degree program	Entry-level employment	Mid-level employment	Continuing education		Not required	Exposure	Comprehension	Application	Mastery	Not required	Exposure	Comprehension	Application	Mastery
46. irrigation systems	⓪	①	②	③	④	⑤	⑥		⓪	①	②	③	④	⓪	①	②	③	④
47. lighting systems (e.g., light sources and their design requirements, luminosity, energy efficiency, etc.)	⓪	①	②	③	④	⑤	⑥		⓪	①	②	③	④	⓪	①	②	③	④
48. structural considerations (e.g., base, foundations, footing, loads, bearing, spacing)	⓪	①	②	③	④	⑤	⑥		⓪	①	②	③	④	⓪	①	②	③	④

How well do the knowledge statements in this domain cover important aspects of Site Design and Engineering: Materials, Methods, Technologies and Applications?

Very poorly ① Poorly ② Adequately ③ Well ④ Very well ⑤

What important aspects – if any – are not covered?

Construction Documentation and Administration

Knowledge of:	Time of Acquisition							Command of Knowledge at Time of Degree					Command of Knowledge Before Taking Professional Responsibility				
	Not required	Before university	First degree program	Post-degree program	Entry-level employment	Mid-level employment	Continuing education	Not required	Exposure	Comprehension	Application	Mastery	Not required	Exposure	Comprehension	Application	Mastery
49. quality control procedures for construction, such as delivery, storage, testing, etc.	⓪	①	②	③	④	⑤	⑥	⓪	①	②	③	④	⓪	①	②	③	④
50. sequencing of design, approval, permitting, and construction activities	⓪	①	②	③	④	⑤	⑥	⓪	①	②	③	④	⓪	①	②	③	④
51. the life-cycle cost-analysis process	⓪	①	②	③	④	⑤	⑥	⓪	①	②	③	④	⓪	①	②	③	④
52. geographic coordinate systems and layout techniques and conventions	⓪	①	②	③	④	⑤	⑥	⓪	①	②	③	④	⓪	①	②	③	④
53. specifications types and components for a project (e.g., materials, products and execution)	⓪	①	②	③	④	⑤	⑥	⓪	①	②	③	④	⓪	①	②	③	④
54. general and supplemental conditions, special provisions, and technical specifications and their organizations	⓪	①	②	③	④	⑤	⑥	⓪	①	②	③	④	⓪	①	②	③	④
55. construction administration and details	⓪	①	②	③	④	⑤	⑥	⓪	①	②	③	④	⓪	①	②	③	④
56. basic construction law	⓪	①	②	③	④	⑤	⑥	⓪	①	②	③	④	⓪	①	②	③	④
57. construction contracts	⓪	①	②	③	④	⑤	⑥	⓪	①	②	③	④	⓪	①	②	③	④

How well do the knowledge statements in this domain cover important aspects of Construction Documentation and Administration?

Very poorly ① Poorly ② Adequately ③ Well ④ Very well ⑤

What important aspects – if any – are not covered?

Communication

Knowledge of:	Time of Acquisition							Command of Knowledge at Time of Degree					Command of Knowledge Before Taking Professional Responsibility				
	Not required	Before university	First degree program	Post-degree program	Entry-level employment	Mid-level employment	Continuing education	Not required	Exposure	Comprehension	Application	Mastery	Not required	Exposure	Comprehension	Application	Mastery
58. determination of user values such as focus groups and surveys	⓪	①	②	③	④	⑤	⑥	⓪	①	②	③	④	⓪	①	②	③	④
59. consensus and team building	⓪	①	②	③	④	⑤	⑥	⓪	①	②	③	④	⓪	①	②	③	④
60. techniques for conducting meetings	⓪	①	②	③	④	⑤	⑥	⓪	①	②	③	④	⓪	①	②	③	④
61. the roles of visual communication, including photographic and video documentation	⓪	①	②	③	④	⑤	⑥	⓪	①	②	③	④	⓪	①	②	③	④
62. graphic presentation techniques, systems and symbols	⓪	①	②	③	④	⑤	⑥	⓪	①	②	③	④	⓪	①	②	③	④
63. interpretive methods and techniques such as information displays and brochures	⓪	①	②	③	④	⑤	⑥	⓪	①	②	③	④	⓪	①	②	③	④
64. public relations, outreach, and image development	⓪	①	②	③	④	⑤	⑥	⓪	①	②	③	④	⓪	①	②	③	④

How well do the knowledge statements in this domain cover important aspects of Communication?

Very poorly ① Poorly ② Adequately ③ Well ④ Very well ⑤

What important aspects – if any – are not covered?

Values and Ethics in Practice

Knowledge of:	Time of Acquisition							Command of Knowledge at Time of Degree					Command of Knowledge Before Taking Professional Responsibility				
	Not required	Before university	First degree program	Post-degree program	Entry-level employment	Mid-level employment	Continuing education	Not required	Exposure	Comprehension	Application	Mastery	Not required	Exposure	Comprehension	Application	Mastery
65. environmental ethics	⓪	①	②	③	④	⑤	⑥	⓪	①	②	③	④	⓪	①	②	③	④
66. social responsibility in design	⓪	①	②	③	④	⑤	⑥	⓪	①	②	③	④	⓪	①	②	③	④
67. organizational management principles such as leadership principles and landscape architect career cycle	⓪	①	②	③	④	⑤	⑥	⓪	①	②	③	④	⓪	①	②	③	④
68. resolving moral and ethical dilemmas	⓪	①	②	③	④	⑤	⑥	⓪	①	②	③	④	⓪	①	②	③	④

How well do the knowledge statements in this domain cover important aspects of Values and Ethics in Practice?

Very poorly ① Poorly ② Adequately ③ Well ④ Very well ⑤

What important aspects – if any – are not covered?

YOU HAVE COMPLETED SECTION I OF THE SURVEY.

PLEASE PROCEED TO SECTION II.

INSTRUCTIONS FOR SECTION II: COMPETENCIES

Before you begin, please take a moment to familiarize yourself with the Importance rating scales and the competency statements.

RATING SCALES

IMPORTANCE

These scales measure the importance of competent performance of work-related tasks by a Landscape Architect at two different points of time -- rather than what is important to your specific job.

At time of Degree

How important is this competency at completion of a first professional degree in landscape architecture? (Select one response.)

0 No importance
1 Moderately important
2 Important
3 Very important

At time of Professional Responsibility

How important is this competency before an individual takes professional responsbility for his/her landscape architectural work? (Select one response.)

0 No importance
1 Moderately important
2 Important
3 Very important

PLEASE REFER TO THE INSTRUCTIONS ON THIS PAGE WHEN RATING THE WORK-RELATED COMPETENCIES.

Section 2: Competencies

Landscape Architecture History and Criticism

	Degree					Professional Responsibilities				
	No importance	Moderately important	Important	Very important		No importance	Moderately important	Important	Very important	
69. Develop an understanding of design as exemplified by historically significant works of landscape architecture, urban planning, civic design and architecture	⓪	①	②	③		⓪	①	②	③	
70. Examine economic, political, social, ecological, and esthetic relationships and their influence on the development of the profession of landscape architecture	⓪	①	②	③		⓪	①	②	③	
71. Demonstrate an understanding of the evolution of landscape architecture as an art and a profession through knowledge of its terminology, literature, personalities and concepts	⓪	①	②	③		⓪	①	②	③	
72. Demonstrate the ability to critique prior work and understand the relevance in addressing current issues and problems	⓪	①	②	③		⓪	①	②	③	
73. Develop an ability to synthesize and make connections between aspects of landscape architecture and disciplines outside of landscape architecture	⓪	①	②	③		⓪	①	②	③	

How well do the competencies in this domain cover important aspects of Landscape Architecture History and Criticism?

Very poorly ① Poorly ② Adequately ③ Well ④ Very well ⑤

What important aspects – if any – are not covered?

Natural and Cultural Systems

	Degree					Professional Responsibilities				
	No importance	Moderately important	Important	Very important		No importance	Moderately important	Important	Very important	
74. Conduct field investigations to identify significant natural and cultural features, characteristics and systems	⓪	①	②	③		⓪	①	②	③	
75. Perform quantitative analyses to evaluate the interactions of natural and cultural features, characteristics and systems	⓪	①	②	③		⓪	①	②	③	
76. Perform qualitative analyses to evaluate the interactions of natural and cultural features, characteristics and systems	⓪	①	②	③		⓪	①	②	③	
77. Predict implications of design, planning, and management proposals on natural and cultural systems both within the site and in the larger context	⓪	①	②	③		⓪	①	②	③	

How well do the knowledge statements in this domain cover important aspects of Natural and Cultural Systems?

Very poorly ① Poorly ② Adequately ③ Well ④ Very well ⑤

What important aspects – if any – are not covered?

Public Policy and Regulation

	Degree					Professional Responsibilities				
	No importance	Moderately important	Important	Very important		No importance	Moderately important	Important	Very important	
78. Identify and collect regulatory information, applicable data and required approvals governing a project (e.g., relevant laws, codes, and regulations)	⓪	①	②	③		⓪	①	②	③	
79. Confirm code compliance (e.g. zoning, environment, and accessibility)	⓪	①	②	③		⓪	①	②	③	
80. Assist in the preparation of ordinances, regulations, covenants, standards, and guidelines	⓪	①	②	③		⓪	①	②	③	
81. Influence public policies on areas such as growth and land and water management by testifying, lobbying, or preparing written documents for public distribution	⓪	①	②	③		⓪	①	②	③	

How well do the competencies in this domain cover important aspects of Public Policy and Regulation?

Very poorly ① Poorly ② Adequately ③ Well ④ Very well ⑤

What important aspects – if any – are not covered?

Design, Planning and Management at Various Scales and Applications

	Degree					Professional Responsibilities				
	No importance	Moderately important	Important	Very important		No importance	Moderately important	Important	Very important	
82. Develop a design program based on users' needs and clients' goals and resources	⓪	①	②	③		⓪	①	②	③	
83. Analyze relationships among design elements by determining opportunities and constraints	⓪	①	②	③		⓪	①	②	③	
84. Develop conceptual design, planning, and management solutions	⓪	①	②	③		⓪	①	②	③	
85. Evaluate design alternatives to determine the appropriate solution	⓪	①	②	③		⓪	①	②	③	

How well do the competencies in this domain cover important aspects of Design, Planning and Management at Various Scales and Applications?

Very poorly ① Poorly ② Adequately ③ Well ④ Very well ⑤

What important aspects – if any – are not covered?

Site Design and Engineering: Materials, Methods, Technologies and Applications

	Degree					Professional Responsibilities				
	No importance	Moderately important	Important	Very important		No importance	Moderately important	Important	Very important	
86. Design for protection and management of land resources (e.g. land forms, vegetation, habitat, erosion and sedimentation control)	⓪	①	②	③		⓪	①	②	③	
87. Design for protection and management of water resources (e.g. stormwater, water supply, ground water)	⓪	①	②	③		⓪	①	②	③	
88. Design pedestrian, vehicular, and non-motorized circulation systems	⓪	①	②	③		⓪	①	②	③	
89. Design elements for construction considering materials, structural issues, and construction technologies	⓪	①	②	③		⓪	①	②	③	

How well do the competencies in this domain cover important aspects of Site Design and Engineering: Materials, Methods, Technologies and Applications?

Very poorly ① Poorly ② Adequately ③ Well ④ Very well ⑤

What important aspects – if any – are not covered?

Construction Documentation and Administration

	Degree					Professional Responsibilities				
	No importance	Moderately important	Important	Very important		No importance	Moderately important	Important	Very important	
90. Prepare construction documents including plans, working drawings, and technical specifications	⓪	①	②	③		⓪	①	②	③	
91. Prepare contract documents including agreements, general conditions, and bid documents	⓪	①	②	③		⓪	①	②	③	
92. Manage the bidding/tendering process	⓪	①	②	③		⓪	①	②	③	
93. Provide construction administration and observation throughout the project	⓪	①	②	③		⓪	①	②	③	
94. Conduct project closure including review and distribution of close-out documents	⓪	①	②	③		⓪	①	②	③	
95. Perform post-construction evaluation	⓪	①	②	③		⓪	①	②	③	
96. Perform construction services including design-build	⓪	①	②	③		⓪	①	②	③	
97. Prepare management and maintenance manuals and documents	⓪	①	②	③		⓪	①	②	③	

How well do the competencies in this domain cover important aspects of Construction Documentation and Administration?

Very poorly ① Poorly ② Adequately ③ Well ④ Very well ⑤

What important aspects – if any – are not covered?

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_____

Communication

	Degree					Professional Responsibilities				
	No importance	Moderately important	Important	Very important		No importance	Moderately important	Important	Very important	
98. Maintain clear communication among collaborators through correspondence and project coordination	⓪	①	②	③		⓪	①	②	③	
99. Develop written documentation, such as projects reports, grant proposals, and promotional materials	⓪	①	②	③		⓪	①	②	③	
100. Create graphic materials in a variety of media	⓪	①	②	③		⓪	①	②	③	
101. Prepare and deliver oral presentations such as meetings, demonstrations, and outreach	⓪	①	②	③		⓪	①	②	③	
102. Conduct project and public meetings including preparing of meeting agendas and notes, and facilitation of the meeting	⓪	①	②	③		⓪	①	②	③	
103. Review and critique peer work	⓪	①	②	③		⓪	①	②	③	

How well do the competencies in this domain cover important aspects of Communication?

Very poorly ① Poorly ② Adequately ③ Well ④ Very well ⑤

What important aspects – if any – are not covered?

Values and Ethics in Practice

	Degree					Professional Responsibilities				
	No importance	Moderately important	Important	Very important		No importance	Moderately important	Important	Very important	
104. Manage business practices and organizations	⓪	①	②	③		⓪	①	②	③	
105. Manage risk and liability	⓪	①	②	③		⓪	①	②	③	
106. Negotiate and prepare client and consultant agreements	⓪	①	②	③		⓪	①	②	③	
107. Participate in life-long learning (e.g., a professional organization, continuing education activities	⓪	①	②	③		⓪	①	②	③	
108. Participate in professional and public service activities	⓪	①	②	③		⓪	①	②	③	
109. Train, educate and mentor other professionals	⓪	①	②	③		⓪	①	②	③	
110. Maintain and promote professional and ethical standards	⓪	①	②	③		⓪	①	②	③	

How well do the competencies in this domain cover important aspects of Values in Ethics in Practice?

Very poorly ① Poorly ② Adequately ③ Well ④ Very well ⑤

What important aspects – if any – are not covered?

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_____

YOU HAVE COMPLETED SECTION II OF THE SURVEY.
PLEASE PROCEED TO SECTION III.

INSTRUCTIONS FOR SECTION 3: BACKGROUND AND GENERAL INFORMATION

The information that you provide in this section is completely confidential. It will be treated as personal information subject to the United States Information Practices Act (Civil Code, Section 1798 et seq.) and will be used for research purposes only. Please answer each question by selecting the response(s) that most closely describe(s) you or your current job.

1. What is your gender?
- ❍ (1) Female
- ❍ (2) Male

2. How do you describe yourself?
- ❍ (1) Asian, Asian American or Pacific Islander
- ❍ (2) Black or African American
- ❍ (3) Hispanic, Mexican American, Latino, Chicano or Puerto Rican
- ❍ (4) Native American, Inuit or Aleut
- ❍ (5) White (non-Hispanic)
- ❍ (6) Other (Please specify) _____

3. Please indicate your participation or membership in the following organizations. (Mark all that apply.)
- ❍ (1) American Society of Landscape Architects
- ❍ (2) Canadian Society of Landscape Architects
- ❍ (3) Council of Educators in Landscape Architecture
- ❍ (4) Council of Landscape Architectural Registration Boards
- ❍ (5) Landscape Architectural Accreditation Board

4. What is your age?
- ❍ (1) Under 25
- ❍ (2) 25 to 34
- ❍ (3) 35 to 44
- ❍ (4) 45 to 54
- ❍ (5) 55 to 65
- ❍ (6) Over 65

5. Which of the following best describes your highest educational degree in landscape architecture?

- ❍ (1) No degree
- ❍ (2) Certificate program
- ❍ (3) Associates Degree (2-3 year)
- ❍ (4) Bachelors Degree (4-5 year)
- ❍ (5) Masters Degree - 1st professional degree
- ❍ (6) Masters Degree - 2nd professional degree
- ❍ (7) Doctoral Degree

6. Which of the following best describes your highest educational degree in any field? (Select one.)

- ❍ (1) No degree
- ❍ (2) Certificate program
- ❍ (3) Associates Degree (2-3 year)
- ❍ (4) Bachelors Degree (4-5 year)
- ❍ (5) Masters Degree
- ❍ (6) Doctoral Degree

7. In what major field of study was your highest degree received?

- ❍ (1) Landscape Architecture
- ❍ (2) Plant and Soil Sciences
- ❍ (3) Forestry / Natural Resources
- ❍ (4) Geography
- ❍ (5) Planning
- ❍ (6) Architecture
- ❍ (7) Engineering
- ❍ (8) Other (Please specify) _____

8. In how many states, provinces or territories are you currently licensed as a landscape architect?

- ❍ (1) None
- ❍ (2) 1
- ❍ (3) 2
- ❍ (4) 3
- ❍ (5) 4-5
- ❍ (6) 6-10
- ❍ (7) 11 or more

9. In what year did you receive your terminal degree in landscape architecture?
19__ __ or 20__ __

10. Which of the following best describes the type of organization in which you are currently working?

❍ (1) Exclusively landscape architectural firm
❍ (2) Multi-disciplinary firm - Predominately Landscape Architecture
❍ (3) Multi-disciplinary firm - Predominately Planning
❍ (4) Multi-disciplinary firm - Predominately Architecture
❍ (5) Multi-disciplinary firm - Predominately Engineering
❍ (6) Multi-disciplinary firm - Balanced
❍ (7) Industry / Commerce
❍ (8) Federal Government
❍ (9) State / Provincial Government
❍ (10) County or City Government
❍ (11) Education - academic position
❍ (12) Institutional
❍ (13) Design / Build firm
❍ (14) Consulting
❍ (15) Design / Development firm
❍ (16) Other (please specify):_____

11. Does your current position require you to be registered?

❍ (1) Yes
❍ (2) No

12. Is your primary position concerned with landscape architecture?

❍ (1) Yes (continue to Question 13)
❍ (2) No (please skip the rest of the background questions)

13. For how many years since graduation have you been in landscape architecture?

❍ (1) 1-5
❍ (2) 6-10
❍ (3) 11-15
❍ (4) 16-20
❍ (5) 21 or more

14. Which of the following best describes the expanse of areas in which you practice?

- ❍ (1) Within one city or county
- ❍ (2) Within one state or province
- ❍ (3) Within two or three states or provinces
- ❍ (4) More than three states or provinces
- ❍ (5) International

15. What is your position within your organization?

- ❍ (1) Sole owner
- ❍ (2) Partner or stockholder
- ❍ (3) Manager / Director / Department Head
- ❍ (4) Associate
- ❍ (5) Employee
- ❍ (6) Faculty member
- ❍ (7) Other (Please specify) _____

16. In which fields do you specialize? (Mark as many as apply.)

- ❍ (1) Historic Preservation / Restoration
- ❍ (2) Industrial
- ❍ (3) Institutional - educational, medical, etc.
- ❍ (4) Commercial
- ❍ (5) Single Family residences
- ❍ (6) Single Family developments or subdivisions
- ❍ (7) Multifamily residential
- ❍ (8) Transportation planning and design
- ❍ (9) Urban design
- ❍ (10) Visual assesment and management
- ❍ (11) Environmental management
- ❍ (12) Golf courses
- ❍ (13) Parks
- ❍ (14) Other recreational (Please specify) _____
- ❍ (15) Other (Please specify) _____

17. What is the total number of employees (professional and support) in your department or firm?

- ❍ (1) 1
- ❍ (2) 2-5
- ❍ (3) 6-10
- ❍ (4) 11-20
- ❍ (5) 21-50
- ❍ (6) 51-100
- ❍ (7) Over 100

18. How many employees in your department or firm are licensed LA's?

- ❍ (1) none
- ❍ (2) 1
- ❍ (3) 2
- ❍ (4) 3
- ❍ (5) 4
- ❍ (6) 5
- ❍ (7) 6-10
- ❍ (8) 11-20
- ❍ (9) Over 20

19. If your firm is involved in planning and/or design, what is the approximate total annual fees obtained by your firm?

- ❍ (1) Less than $10,000
- ❍ (2) $10,001-50,000
- ❍ (3) $50,000-250,000
- ❍ (4) $250,000-1 million
- ❍ (5) Over $1 million

20. If your organization or department is involved in research/contract work, what is the approximate total amount of money generated annually?

- ❍ (1) none
- ❍ (2) $1 - 10,000
- ❍ (3) $10,001 - 50,000
- ❍ (4) $50,001 - 250,000
- ❍ (5) $250,001 - 1 million
- ❍ (6) Over $1 million

21. What are your primary job functions in the firm at the present time? (Check as many as apply.)

- ❍ (1) Firm Management
- ❍ (2) Marketing / promotion
- ❍ (3) Code research
- ❍ (4) Project management
- ❍ (5) Client Relations / Programming
- ❍ (6) Site/Environmental Analysis
- ❍ (7) Design
- ❍ (8) Planning
- ❍ (9) Construction documents and administration
- ❍ (10) Sales
- ❍ (11) Teaching
- ❍ (12) Research
- ❍ (13) On-site construction activities
- ❍ (14) Construction contracting

YOU HAVE COMPLETED SECTION III OF THE SURVEY.
PLEASE PROCEED TO SECTION IV.

INSTRUCTIONS FOR SECTION 4: COMMENTS

Please feel free to provide your comments about content, organization, clarity, etc. If referring to a specific task or knowledge statement, please cite a specific number. If you need more space, please attach additional pages.

1. Do you have any comments about Section 1: Knowledge? For example, were any important topics omitted from the survey? Were any knowledge statements unclear? If yes, please write your comments below.

2. Do you have any comments about Section II: Competencies? For example, were any important competencies omitted from the survey? Were any competency statements unclear? If yes, please write your comments below.

3. Additional comments:

THANK YOU FOR COMPLETING THIS SURVEY. YOUR ASSISTANCE IS GREATLY APPRECIATED.

PLEASE CHECK TO BE SURE THAT YOU HAVE ANSWERED ALL ITEMS.
RETURN THE SURVEY BY FOLLOWING THE DIRECTIONS PROVIDED IN THE LETTER THAT ACCOMPANIED THIS SURVEY.

APPENDIX F

BACKGROUND INFORMATION AND GENERAL INFORMATION

1. What is your gender?

Response	Frequency	Percent
Female	54	21.2%
Male	200	78.8%
Missing	1	0.4%

2. How do you describe yourself?

Response	Frequency	Percent
Asian, Asian American or Pacific Islander	5	2.0%
Black or African American	1	0.4%
Hispanic, Mexican American, Latino, Chicano or Puerto Rican	7	2.8%
White (non-Hispanic)	228	89.4%
Other (Please specify)	10	3.9%
AMERICAN WITH MEXICAN		
AMERICAN		
CAJUN		
NOT NECESSARY		
MOORISH AMERICAN		
CANADIAN	2	
CAUCASIAN		
ARAB-AMERICAN		
Missing	4	1.6%

3. Please indicate your participation or membership in the following organizations. (Mark all that apply.)

Response	Frequency
American Society of Landscape Architects	207
Canadian Society of Landscape Architects	36
Council of Educators in Landscape Architecture	52
Council of Landscape Architectural Registration Boards	79
Landscape Architectural Accreditation Board	11

4. What is your age?

Response	Frequency	Percent
Under 25	1	0.4%
25 to 34	43	16.9%
35 to 44	41	16.1%
45 to 54	73	28.6%
55 to 65	77	30.2%
Over 65	20	7.8%

5. Which of the following best describes your highest educational degree in landscape architecture?

Response	Frequency	Percent
No degree	6	2.4%
Certificate program	2	0.8%
Associates Degree (2-3 year)	2	0.8%
Bachelors Degree (4-5 year)	135	52.9%
Masters Degree - 1st professional degree	52	20.4%
Masters Degree - 2nd professional degree	45	17.7%
Doctoral Degree in	7	2.8%
Missing	6	2.4%

6. Which of the following best describes your highest educational degree in any field? (Select one.)

Response	Frequency	Percent
No degree	2	0.8%
Certificate program	0	0.0%
Associates Degree (2-3 year)	2	0.8%
Bachelors Degree (4-5 year)	126	49.4%
Masters Degree	105	41.2%
Doctoral Degree	19	7.5%
Missing	1	0.4%

7. In what major field of study was your highest degree received?

Response	Frequency	Percent
Landscape Architecture	201	78.8%
Plant and Soil Sciences	2	0.8%
Forestry / Natural Resources	4	1.6%
Geography	3	1.2%
Planning	10	3.9%
Architecture	7	2.8%
Other (Please specify)	17	6.7%
AMERICAN STUDIES		
ART		
BUSINESS		
ENVIRONMENTL SCI EMPHASIS		
HISTORIC PRESERVATION		
HORTICULTURE	4	
HORTICULTURE AN LANDSCAPE		
HUMANITIES		
LIBERAL STUDIES		
LINGUISTICS		
ORGANIZATNL COMMUNICATION		
TRADE & INDUSTRIAL ED		
URBAN AND REGIONAL SCIENCE		
URBAN DESIGN/PLANNING		
Missing	11	4.3%

8. In how many states, provinces or territories are you currently licensed as a landscape architect?

Response	Frequency	Percent
None	55	21.6%
1	104	40.8%
2	51	20.0%
3	20	7.8%
4-5	12	4.71%
6-10	12	4.71%
11 or more	1	0.4%

9. In what year did you receive your terminal degree in landscape architecture?

Response	Frequency	Percent
1942	1	0.41%
1947	1	0.4%
1951	1	0.4%
1956	1	0.4%
1957	1	0.4%
1958	1	0.4%
1959	2	0.8%
1960	3	1.2%
1961	4	1.7%
1962	1	0.4%
1963	4	1.7%
1964	2	0.8%
1965	4	1.7%
1966	5	2.1%
1967	7	2.9%
1968	6	2.5%
1969	5	2.1%
1970	5	2.1%
1971	9	3.7%
1972	8	3.3%
1973	8	3.3%
1974	5	2.1%
1975	11	4.5%
1976	8	3.3%
1977	4	1.7%
1978	4	1.7%
1979	7	2.9%
1980	7	2.9%
1981	8	3.3%
1982	7	2.9%
1983	3	1.2%
1984	6	2.5%
1985	5	2.1%
1986	3	1.2%
1987	2	0.8%

9. In what year did you receive your terminal degree in landscape architecture? *(continued)*

Response	Frequency	Percent
1988	2	0.8%
1989	8	3.3%
1990	1	0.4%
1991	8	3.3%
1992	2	0.8%
1993	6	2.5%
1994	2	0.8%
1995	5	2.1%
1996	4	1.7%
1997	6	2.5%
1998	7	2.9%
1999	6	2.5%
2000	10	4.1%
2001	8	3.3%
2002	7	2.9%
2003	2	0.8%

10. Which of the following best describes the type of organization in which you are currently working?

Response	Frequency	Percent
Exclusively landscape architectural firm	65	25.5%
Multi-disciplinary firm - Predominately Landscape Architecture	15	5.9%
Multi-disciplinary firm - Predominately Planning	6	2.4%
Multi-disciplinary firm - Predominately Architecture	8	3.1%
Multi-disciplinary firm - Predominately Engineering	27	10.6%
Multi-disciplinary firm - Balanced	19	7.5%
Industry / Commerce	0	0.0%
Federal Government	6	2.4%
State / Provincial Government	3	1.2%
County or City Government	19	7.5%
Education - academic position	45	17.7%
Institutional	1	0.4%

10. Which of the following best describes the type of organization in which you are currently working? *(continued)*

Response	Frequency	Percent
Design / Build firm	9	3.5%
Consulting	7	2.8%
Design / Development firm	1	0.4%
Other (please specify):	10	3.9%
RETIRED		
UNEMPLOYED		
COMMUNITY FOUNDATION		
GOLF COURSE ARCH.		
ASSOCIATION		
REAL ESTATE INVESTMEN		
RESEARCH FACULTY		
RESEARCH/PRACTICE/EDU		
SELF EMPLOYED/CONSULT		
Missing	14	5.5%

11. Does your current position require you to be registered?

Response	Frequency	Percent
Yes	123	48.2%
No	132	51.8%

12. Is your primary position concerned with landscape architecture?

Response	Frequency	Percent
Yes (continue to Question 13)	241	94.5%
No (please skip the rest of the background questions)	14	5.5%

13. For how many years since graduation have you been in landscape architecture?

Response	Frequency	Percent
1-5	39	15.3%
6-10	21	8.24%
11-15	22	8.63%
16-20	21	8.24%
21 or more	140	54.90%
Missing	12	4.71%

14. Which of the following best describes the expanse of areas in which you practice?

Response	Frequency	Percent
Within one city or county	26	10.2%
Within one state or province	71	24.84%
Within two or three states or provinces	67	26.27%
More than three states or provinces	35	13.73%
International	35	13.73%
Missing	21	8.24%

15. What is your position within your organization?

Response	Frequency	Percent
Sole owner	49	19.22%
Partner or stockholder	42	16.5%
Manager / Director / Department Head	39	15.3%
Associate	19	7.5%
Employee	43	16.9%
Faculty member	36	14.1%
Other (Please specify)	9	3.4%
CHAIR		
COMMUNITY PROGRAM OFF		
PROG MGR/POLICY DEVEL		
CHIEF L.A.		
ASSISTANT V.P. UNIV.		
ADMIN		
CONSULTANT		

15. What is your position within your organization? *(continued)*

Response	Frequency	Percent
DIRECTOR		
URBAN DESIGN PLANNER		
DEAN		
Missing	18	7.1%

16. In which fields do you specialize? (Mark as many as apply.)

Response	Frequency	
Historic Preservation / Restoration	55	
Industrial	50	
Institutional - educational, medical, etc.	108	
Commercial	131	
Single Family residences	105	
Single Family developments or subdivisions	92	
Multifamily residential	89	
Transportation planning and design	67	
Urban design	132	
Visual assessment and management	45	
Environmental management	59	
Golf courses	19	
Parks	152	
Other recreational (Please specify)	39	
NATIONAL FORESTS, N.		
ATHLETIC FLDS/COMPLXS	9	
THEME PARK DESIGN		
RESORT DESIGN		
RECREATION & TOURISM		
SKI AREAS		
TRAILS PARKS		
STORMWATER MGT DESIGN		
CONSERVATION AREAS		
PLAYGROUND, --		
CAMPING,POOLS,SPORTS		
TENNIS COURTS		
GRANT WRITING		

16. In which fields do you specialize? (Mark as many as apply.) *(continued)*

Response	Frequency	
FIELDS, MASTER PLANS		
GREENWAYS/BLUEWAYS/TRAILS /HIKE/BIKE	7	
PLAZAS		
WATERFRONT DESIGN		
STREETSCAPE IMPROVEME		
REGIONAL OPEN SPACE P		
URBAN TRAIL CONSTRUCT		
TOURISM PLANNING		
Other (Please specify)	69	
ADMINISTRATION		
ALL OF THE ABOVE IN A		
ARBORICULTURE		
ATHLETIC FIELD DEVELOPMENT		
BOTANICAL GARDEN DESIGN		
CAMPS AND CONFERENCE		
COMMUNICATIONS, PLANT		
CONSERVATION PLANNING		
COURTYARDS, SITE DESI		
CULTURAL LANDSCAPE		
CUSTOM RESORT DEVELOP		
DESIGN,INSPECTION,PLA		
ECOLOGICAL PLANNING		
ECONOMIC DEVELOPMENT		
EDUCATION IN DESIGN,		
ENVIRONMENTAL & COMMU	6	
ETHNOGRAPHIC LANDSCAP		
EXPERT WITNESS, WATER		
FOR PUBLIC UTILITIES		
GENERAL/ALL CATEGORIE		
GRANT APPLICATIONS		
GREENWY/OPENSPACE/TRL		
HISTORY & DESIGN THEO		
I DON'T SPECIALIZE		
INTERPRETIVE DESIGN		

16. In which fields do you specialize? (Mark as many as apply.) *(continued)*

Response	Frequency	
LANDSCAPE PLANNING & LANDSCAPE ECOLOGY	4	
MAINTENANCE		
MIXED USE-DESIGN AND		
MULTI-USE DEVELOPMENT		
MUNICIPAL LANDSCAPE L		
MUNICIPAL PLAN/DESIGN		
NATURAL RES CONSERVAT		
NEIGHBORHOOD PLANNING		
PLANNER		
POLICY & PROG DESIGN		
PRESERVATION & OPPOSI		
PROGRAM DEVELOPEMENT		
PUBLIC CONSULTATION;		
PUBLIC PARTICIPATION		
PUD'S		
RECLAMATION		
RECLAMATION & RES MGT		
REGIONAL DESIGN, MINE		
RESEARCH?		
RSCH; RURAL PLAN & DE		
SACRED SPACES, LABYRI		
SEA PORT & PUBLIC WOR		
SITE SECURITY		
SOIL & FREE CONSUL TIN		
TECHNOLOGY, ECOLOGY		
TESTING		
TOURISM/TOURISM CONSULTING	1	
TRAIL SYSTEMS		
UTILITIES ELEC GAS LN		
VISITOR ATTRACTIONS,		
VLG/SMALL TOWN DESIGN		
WATERFRONT SITE PLANN		
ZONING AMENDMENTS		

17. What is the total number of employees (professional and support) in your department or firm?

Response	Frequency	Percent
1	25	9.8%
2-5	55	21.57%
6-10	47	18.43%
11-20	46	18.04%
21-50	21	8.24%
51-100	16	6.27%
Over 100	34	13.33%
Missing	11	4.31%

18. How many employees in your department or firm are licensed LA's?

Response	Frequency	Percent
none	16	6.27%
1	75	29.41%
2	39	15.29%
3	29	11.37%
4	24	9.41%
5	21	8.24%
6-10	25	9.80%
11-20	5	1.96%
Over 20	8	3.14%
Missing	13	5.10%

19. If your firm is involved in planning and/or design, what is the approximate total annual fees obtained by your firm?

Response	Frequency	Percent
Less than $10,000	9	3.5%
$10,001-50,000	18	7.1%
$50,000-250,000	50	19.6%
$250,000-1 million	37	14.5%
Over $1 million	66	25.9%
missing	75	29.4%

20. If your organization or department is involved in research/contract work, what is the approximate total amount of money generated annually?

Response	Frequency	Percent
none	85	33.3%
$1 - 10,000	19	7.5%
$10,000 - 50,000	21	8.2%
$50,000 - 250,000	37	14.5%
$250,000 - 1 million	16	6.3%
Over $1 million	10	3.9%
Missing	67	26.3%

21. What are your primary job functions in the firm at the present time? (Check as many as apply.)

Response	Frequency	
Firm Management	123	
Marketing / promotion	127	
Code research	61	
Project management	159	
Client Relations / Programming	139	
Site/Environmental Analysis	134	
Design	187	
Planning	140	
Construction documents and administration	127	
Sales	44	
Teaching	84	
Research	67	
On-site construction activities	95	
Construction contracting	34	

APPENDIX G

TABLE A—MEAN RATINGS FOR KNOWLEDGE STATEMENTS

TABLE B—DISTRIBUTION OF RESPONSES BY PERCENT FOR KNOWLEDGE STATEMENTS

TABLE A—MEAN RATINGS FOR KNOWLEDGE STATEMENTS

Time of Acquisition When should this knowledge be primarily learned or attained? 0. Not required at all 1. Before entrance to a university program 2. In a first professional degree university program 3. In a post-professional degree university program 4. In an entry-level employment position 5. In a mid-level employment position 6. In a continuing education program	To what level should the knowledge be acquired at completion of a first professional degree? 0. Unnecessary – not required at all 1. Exposure – sufficiently aware of the knowledge to be able to look it up 2. Comprehension –able to discuss the concepts involved 3. Application – able to use the knowledge to solve problems 4. Mastery – able to apply the knowledge to new problems, to integrate information and to create, synthesize and evaluate solutions	To what level should this knowledge be attained before an individual takes professional responsibility for his or her landscape architectural work? 0. Unnecessary – not required at all 1. Exposure – sufficiently aware of the knowledge to be able to look it up 2. Comprehension –able to discuss the concepts involved 3. Application – able to use the knowledge to solve problems 4. Mastery – able to apply the knowledge to new problems, to integrate information and to create, synthesize and evaluate solutions

		Time of Acquisition		**Command of Knowledge at Time of Degree**		**Command of Knowledge at Time of Professional Responsibility**	
		Mean	**SD**	**Mean**	**SD**	**Mean**	**SD**
	I. Landscape Architecture History and Criticism						
1.	history of landscape architecture and allied professions	2.00	0.23	2.15	0.69	2.57	0.85
2.	historic preservation principles	2.57	1.13	1.69	0.83	2.27	1.01
	II. Natural and Cultural Systems						
3.	land information sources	2.11	0.50	2.55	0.77	3.33	0.75
4.	patterns of land use and built form	2.12	0.56	2.43	0.76	3.07	0.77
5.	natural site conditions and ecosystems	2.01	0.47	2.76	0.66	3.35	0.67
6.	social and cultural influences on design	2.21	0.70	2.19	0.81	2.78	0.85
7.	regional hazard design considerations	2.57	0.99	2.10	0.87	3.00	0.86
	III. Design and Planning Theories and Methodologies						
8.	creativity and process including design theory and problem-solving strategies	1.95	0.46	2.83	0.64	3.50	0.63
9.	aesthetic principles of design	1.95	0.53	2.78	0.71	3.38	0.68
10.	human factors such as behavior, perception, psychological and sensory response	2.22	0.81	2.33	0.76	2.92	0.79
11.	natural factors such as ecological relationships	2.02	0.58	2.53	0.75	3.14	0.78
12.	relationship between human and natural systems such as resource conservation, habitat restoration and creation, and urban ecology	2.35	0.86	2.36	0.79	3.04	0.81
13.	influence of context on design, planning, and management decisions	2.50	0.98	2.45	0.76	3.24	0.78
14.	research methods including data collection, interpretation, and application of results	2.44	0.91	2.37	0.93	2.91	1.00
15.	therapeutic aspects of design	2.87	1.41	1.66	0.88	2.23	1.04
16.	communication and education methods, including sharing knowledge and evaluating outcomes	2.66	1.29	2.15	0.99	2.78	1.02
	IV. Public Policy and Regulation						
17.	governmental policies and laws that affect the use and development of land	3.00	1.19	1.80	0.85	3.02	0.83
18.	political and regulatory approval processes	3.43	1.22	1.67	0.92	2.98	0.83
19.	land and development economics	3.53	1.46	1.47	0.83	2.43	0.89

Time of Acquisition When should this knowledge be primarily learned or attained? 0. Not required at all 1. Before entrance to a university program 2. In a first professional degree university program 3. In a post-professional degree university program 4. In an entry-level employment position 5. In a mid-level employment position 6. In a continuing education program	To what level should the knowledge be acquired at completion of a first professional degree? 0. Unnecessary – not required at all 1. Exposure – sufficiently aware of the knowledge to be able to look it up 2. Comprehension –able to discuss the concepts involved 3. Application – able to use the knowledge to solve problems 4. Mastery – able to apply the knowledge to new problems, to integrate information and to create, synthesize and evaluate solutions	To what level should this knowledge be attained before an individual takes professional responsibility for his or her landscape architectural work? 0. Unnecessary – not required at all 1. Exposure – sufficiently aware of the knowledge to be able to look it up 2. Comprehension –able to discuss the concepts involved 3. Application – able to use the knowledge to solve problems 4. Mastery – able to apply the knowledge to new problems, to integrate information and to create, synthesize and evaluate solutions

		Time of Acquisition		**Command of Knowledge at Time of Degree**		**Command of Knowledge at Time of Professional Responsibility**	
		Mean	**SD**	**Mean**	**SD**	**Mean**	**SD**
20.	emerging trends and issues	3.41	1.69	1.65	0.83	2.39	0.86
	V. Design, Planning and Management at Various Scales and Applications						
21.	photogrammetry and remote sensing	2.60	1.38	1.47	0.84	2.02	1.04
22.	visual resource assessment	2.36	0.96	1.91	0.88	2.54	1.05
23.	agricultural and rural landscape analysis	2.56	1.18	1.68	0.85	2.24	1.02
24.	urban landscape	2.24	0.78	2.17	0.71	2.81	0.84
25.	planning principles including regional community and neighborhood planning	2.41	0.91	2.12	0.76	2.80	0.85
26.	conservation of natural resources	2.10	0.84	2.33	0.80	2.99	0.85
27.	historic preservation	2.60	1.15	1.73	0.76	2.33	0.94
28.	ecological planning principles	2.22	0.82	2.23	0.80	2.88	0.88
29.	water resource management	2.69	1.29	1.91	0.84	2.58	0.90
30.	wetland management	2.82	1.31	1.78	0.83	2.48	0.93
31.	floodplain management	2.87	1.37	1.80	0.86	2.45	0.93
32.	land and water reclamation procedures including quarry, mine and landfill reclamation	3.16	1.53	1.43	0.84	2.03	1.00
33.	treatment of toxic materials	3.37	2.02	1.05	0.86	1.67	1.12
	VI. Site Design and Engineering: Materials, Methods, Technologies and Applications						
34.	design needs for special populations	2.59	1.17	1.91	0.78	2.81	0.85
35.	accessibility regulations	2.41	0.96	2.28	0.87	3.22	0.82
36.	roadway design principles	2.26	0.77	2.15	0.83	2.80	0.89
37.	elements of vehicular and pedestrian circulation systems and their design requirements	2.15	0.65	2.57	0.72	3.37	0.71
38.	landscape maintenance techniques, materials, equipment, and practices	2.54	1.14	1.93	0.87	2.77	0.89
39.	noise attenuation and mitigation techniques	3.16	1.61	1.66	0.82	2.34	0.91
40.	sustainable construction practices	2.98	1.59	1.82	0.84	2.60	0.93
41.	construction equipment and technologies	2.82	1.29	1.76	0.87	2.60	0.91
42.	grading, drainage and storm water treatment	2.09	0.45	2.78	0.57	3.45	0.71
43.	biofiltration and other alternative drainage methods	2.82	1.39	1.91	0.84	2.60	0.93
44.	erosion and sedimentation control	2.44	0.98	2.28	0.82	3.04	0.82

Time of Acquisition When should this knowledge be primarily learned or attained? 0. Not required at all 1. Before entrance to a university program 2. In a first professional degree university program 3. In a post-professional degree university program 4. In an entry-level employment position 5. In a mid-level employment position 6. In a continuing education program	To what level should the knowledge be acquired at completion of a first professional degree? 0. Unnecessary – not required at all 1. Exposure – sufficiently aware of the knowledge to be able to look it up 2. Comprehension –able to discuss the concepts involved 3. Application – able to use the knowledge to solve problems 4. Mastery – able to apply the knowledge to new problems, to integrate information and to create, synthesize and evaluate solutions	To what level should this knowledge be attained before an individual takes professional responsibility for his or her landscape architectural work? 0. Unnecessary – not required at all 1. Exposure – sufficiently aware of the knowledge to be able to look it up 2. Comprehension –able to discuss the concepts involved 3. Application – able to use the knowledge to solve problems 4. Mastery – able to apply the knowledge to new problems, to integrate information and to create, synthesize and evaluate solutions

		Time of Acquisition		**Command of Knowledge at Time of Degree**		**Command of Knowledge at Time of Professional Responsibility**	
		Mean	**SD**	**Mean**	**SD**	**Mean**	**SD**
45.	utility systems	2.78	1.32	1.77	0.77	2.51	0.86
46.	irrigation systems	2.54	1.29	1.75	0.88	2.50	0.99
47.	lighting systems	2.72	1.24	1.70	0.79	2.51	0.85
48.	structural considerations	2.37	0.96	2.06	0.82	2.85	0.91
	VII. Construction Documentation and Administration						
49.	quality control procedures for construction, such as delivery, storage, testing, etc.	3.61	1.43	1.27	0.87	2.53	0.90
50.	sequencing of design, approval, permitting, and construction activities	3.41	1.22	1.68	0.92	3.01	0.81
51.	the life-cycle cost-analysis process	3.70	1.61	1.32	0.86	2.25	0.98
52.	geographic coordinate systems and layout techniques and conventions	2.64	1.13	1.90	0.90	2.65	0.99
53.	specification types and components for a project	2.75	1.14	1.89	0.83	3.08	0.76
54.	general and supplemental conditions, special provisions, and technical specifications and their organizations	3.29	1.32	1.64	0.88	2.91	0.81
55.	construction administration and details	3.38	1.32	1.73	0.92	3.02	0.80
56.	basic construction law	3.25	1.56	1.48	0.84	2.65	0.98
57.	construction contracts	3.34	1.44	1.55	0.88	2.89	0.91
	VIII. Communication						
58.	determination of user values such as focus groups and surveys	3.05	1.45	1.52	0.83	2.36	0.97
59.	consensus and team building	3.05	1.48	1.74	0.91	2.68	1.00
60.	techniques for conducting meetings	3.52	1.41	1.59	0.97	2.73	1.00
61.	the roles of visual communication, including photographic and video documentation	2.46	1.03	2.25	0.85	2.85	0.88
62.	graphic presentation techniques, systems and symbols	2.10	0.55	2.71	0.73	3.32	0.78
63.	interpretive methods and techniques such as information displays and brochures	3.06	1.47	1.82	0.98	2.48	1.04
64.	public relations, outreach, and image development	3.58	1.58	1.49	0.97	2.45	1.10
	IX. Values and Ethics in Practice						
65.	environmental ethics	2.18	0.94	2.08	0.82	2.88	0.91
66.	social responsibility in design	2.29	0.96	2.10	0.78	2.96	0.89
67.	organizational management principles such as leadership principles and landscape architect career cycle	3.23	1.58	1.61	0.93	2.58	1.00
68.	resolving moral and ethical dilemmas	2.76	1.47	1.89	0.93	2.82	0.91

TABLE B—DISTRIBUTION OF RESPONSES BY PERCENT FOR KNOWLEDGE STATEMENTS

		Time of Acquisition When should this knowledge be primarily learned or attained? 0. Not required at all 1. Before entrance to a university program 2. In a first professional degree university program 3. In a post-professional degree university program 4. In an entry-level employment position 5. In a mid-level employment position 6. In a continuing education program							**Command of Knowledge at Time of Degree** To what level should the knowledge be acquired at completion of a first professional degree? 0. Unnecessary – not required at all 1. Exposure – sufficiently aware of the knowledge to be able to look it up 2. Comprehension – able to discuss the concepts involved 3. Application – able to use the knowledge to solve problems 4. Mastery – able to apply the knowledge to new problems, to integrate information and to create, synthesize and evaluate solutions						**Command of Knowledge at Time of Professional Responsibility** To what level should this knowledge be attained before an individual takes professional responsibility for his or her landscape architectural work? 0. Unnecessary – not required at all 1. Exposure – sufficiently aware of the knowledge to be able to look it up 2. Comprehension – able to discuss the concepts involved 3. Application – able to use the knowledge to solve problems 4. Mastery – able to apply the knowledge to new problems, to integrate information and to create, synthesize and evaluate solutions				
		Not Req	**Before Univ**	**1st deg**	**Post-deg**	**Entry-lev emp**	**Mid-lev emp**	**Cont. Ed.**	**Not req**	**Expos.**	**Comp.**	**Appl.**	**Mas-tery**	**Not req**	**Expos.**	**Comp.**	**Appl.**	**Mas-tery**
	I. Landscape Architecture History and Criticism																	
1.	history of landscape architecture and allied professions	0.00	1.57	97.25	0.39	0.78	0.00	0.00	0.39	13.73	58.82	23.53	2.75	1.18	9.80	29.41	48.63	9.80
2.	historic preservation principles	1.96	0.39	60.78	23.53	3.14	3.53	5.10	4.31	39.61	38.43	15.29	1.18	3.14	21.96	27.06	38.04	8.63
	II. Natural and Cultural Systems																	
3.	land information sources	0.00	0.78	92.94	1.18	4.31	0.78	0.00	0.39	8.63	33.33	49.02	7.06	0.00	3.92	4.71	45.10	45.49
4.	patterns of land use and built form	0.00	2.35	89.02	4.71	1.96	1.96	0.00	0.39	9.02	42.75	40.39	5.88	0.00	3.92	14.51	51.37	29.02
5.	natural site conditions and ecosystems	0.00	6.27	89.41	0.78	2.75	0.39	0.00	0.00	2.35	28.63	57.65	9.80	0.00	1.57	6.27	46.67	43.14
6.	social and cultural influences on design	0.00	5.49	73.73	15.29	1.96	1.18	0.78	0.39	20.39	40.78	33.33	3.14	0.00	9.02	21.18	49.41	18.04
7.	regional hazard design considerations	0.00	3.14	61.96	13.73	15.69	2.75	1.57	0.78	26.67	35.69	31.76	3.14	0.00	6.27	17.65	44.31	30.20
	III. Design and Planning Theories and Methodologies																	
8.	creativity and process including design theory and problem-solving strategies	0.00	10.20	86.27	1.18	0.78	0.78	0.00	0.39	2.75	20.00	67.06	9.41	0.00	0.39	5.88	36.86	55.69
9.	aesthetic principles of design	0.00	11.76	83.53	1.18	1.18	1.18	0.00	0.39	3.53	25.10	58.43	11.76	0.00	1.18	7.84	42.35	47.45

		Time of Acquisition When should this knowledge be primarily learned or attained? 0. Not required at all 1. Before entrance to a university program 2. In a first professional degree university program 3. In a post-professional degree university program 4. In an entry-level employment position 5. In a mid-level employment position 6. In a continuing education program							**Command of Knowledge at Time of Degree** To what level should the knowledge be acquired at completion of a first professional degree? 0. Unnecessary – not required at all 1. Exposure – sufficiently aware of the knowledge to be able to look it up 2. Comprehension – able to discuss the concepts involved 3. Application – able to use the knowledge to solve problems 4. Mastery – able to apply the knowledge to new problems, to integrate information and to create, synthesize and evaluate solutions						**Command of Knowledge at Time of Professional Responsibility** To what level should this knowledge be attained before an individual takes professional responsibility for his or her landscape architectural work? 0. Unnecessary – not required at all 1. Exposure – sufficiently aware of the knowledge to be able to look it up 2. Comprehension – able to discuss the concepts involved 3. Application – able to use the knowledge to solve problems 4. Mastery – able to apply the knowledge to new problems, to integrate information and to create, synthesize and evaluate solutions					
		Not Req	**Before Univ**	**1st deg**	**Post-deg**	**Entry-lev emp**	**Mid-lev emp**	**Cont. Ed.**		**Not req**	**Expos.**	**Comp.**	**Appl.**	**Mas-tery**		**Not req**	**Expos.**	**Comp.**	**Appl.**	**Mas-tery**
10.	human factors such as behavior, perception, psychological and sensory response	0.00	5.88	75.69	9.80	3.53	0.78	1.96		0.39	12.16	45.49	36.47	4.31		0.00	5.10	19.61	51.76	21.57
11.	natural factors such as ecological relationships	0.39	8.63	82.35	3.53	3.14	0.00	0.39		0.78	7.06	36.08	49.02	6.27		0.78	2.75	10.59	51.76	32.55
12.	relationship between human and natural systems such as resource conservation, habitat restoration and creation, and urban ecology	0.39	3.53	68.24	18.04	3.53	2.35	1.57		0.78	12.94	39.61	42.35	3.92		0.78	3.14	16.08	50.20	28.24
13.	influence of context on design, planning, and m anagement decisions	0.00	0.39	72.16	10.20	7.45	6.67	1.18		0.78	9.41	38.04	46.67	4.71		0.39	2.75	9.80	45.10	40.00
14.	research methods including data collection, interpretation, and application of results	0.39	7.84	51.76	29.80	4.31	2.75	1.18		1.96	17.65	29.02	42.75	7.45		3.14	5.88	17.65	43.14	29.41
15.	therapeutic aspects of design	4.31	0.78	42.35	32.94	3.53	4.71	10.20		8.24	36.08	36.47	18.04	0.39		7.06	15.69	31.76	36.47	7.84
16.	communication and education methods, including sharing knowledge and evaluating outcomes	2.35	8.63	43.14	26.27	6.67	6.67	4.71		5.49	20.78	30.59	37.25	4.71		3.14	9.02	18.82	43.14	24.71
	IV. Public Policy and Regulation																			
17.	governmental policies and laws that affect the use and development of land	0.39	1.18	49.02	10.59	22.75	14.12	0.39		2.75	37.65	38.82	18.04	2.35		1.18	2.75	17.25	49.41	28.24
18.	political and regulatory approval processes	0.00	0.39	34.51	8.63	35.29	18.04	2.35		7.06	40.78	31.37	18.82	1.57		0.78	4.71	16.47	51.37	26.27

		Time of Acquisition When should this knowledge be primarily learned or attained? 0. Not required at all 1. Before entrance to a university program 2. In a first professional degree university program 3. In a post-professional degree university program 4. In an entry-level employment position 5. In a mid-level employment position 6. In a continuing education program							**Command of Knowledge at Time of Degree** To what level should the knowledge be acquired at completion of a first professional degree? 0. Unnecessary – not required at all 1. Exposure – sufficiently aware of the knowledge to be able to look it up 2. Comprehension – able to discuss the concepts involved 3. Application – able to use the knowledge to solve problems 4. Mastery – able to apply the knowledge to new problems, to integrate information and to create, synthesize and evaluate solutions						**Command of Knowledge at Time of Professional Responsibility** To what level should this knowledge be attained before an individual takes professional responsibility for his or her landscape architectural work? 0. Unnecessary – not required at all 1. Exposure – sufficiently aware of the knowledge to be able to look it up 2. Comprehension – able to discuss the concepts involved 3. Application – able to use the knowledge to solve problems 4. Mastery – able to apply the knowledge to new problems, to integrate information and to create, synthesize and evaluate solutions					
		Not Req	**Before Univ**	**1st deg**	**Post-deg**	**Entry-lev emp**	**Mid-lev emp**	**Cont. Ed.**	**Not req**	**Expos.**	**Comp.**	**Appl.**	**Mas-tery**	**Not req**	**Expos.**	**Comp.**	**Appl.**	**Mas-tery**
19.	land and development economics	1.18	0.78	29.80	20.39	13.33	21.96	9.80	8.63	47.45	30.98	10.98	0.78	1.96	12.16	34.90	40.78	8.63
20.	emerging trends and issues	0.78	2.35	43.92	9.80	10.59	9.80	20.39	5.88	38.82	40.00	13.33	1.18	2.75	9.80	38.82	41.18	6.27
	V. Design, Planning and Management at Various Scales and Applications																	
21.	photogrammetry and remote sensing	6.27	0.00	56.08	16.86	7.06	3.53	7.45	9.80	45.49	32.16	12.55	0.00	9.02	20.78	34.90	29.41	5.49
22.	visual resource assessment	1.96	0.00	74.51	11.76	5.10	2.75	2.35	4.71	27.45	41.57	24.71	1.57	3.53	14.51	22.75	41.96	16.86
23.	agricultural and rural landscape analysis	3.53	0.39	59.22	23.14	3.92	4.31	4.71	6.67	36.86	38.82	17.25	0.39	4.31	20.39	31.37	34.51	9.02
24.	urban landscape	0.78	0.39	83.14	8.24	2.75	1.96	1.57	0.39	15.29	52.16	30.98	1.18	1.18	5.10	23.14	51.37	18.43
25.	planning principles including regional community and neighborhood planning	0.78	0.00	72.55	16.86	2.75	3.92	1.96	1.18	18.82	48.63	29.80	1.57	1.96	2.75	27.45	48.24	19.22
26.	conservation of natural resources	0.78	11.76	73.33	6.67	3.14	1.18	1.57	0.78	12.55	44.71	36.47	5.49	1.18	4.31	16.47	49.80	27.84
27.	historic preservation	0.78	1.57	60.39	23.53	3.92	0.78	7.06	1.96	38.43	45.10	12.55	1.57	3.14	16.08	31.37	41.57	6.67
28.	ecological planning principles	1.18	2.35	80.39	7.45	3.53	1.18	1.96	0.78	16.86	43.92	33.73	3.92	0.78	6.27	21.18	45.49	24.71
29.	water resource management	1.96	1.57	58.82	17.65	7.45	3.14	7.84	3.14	29.02	43.53	22.75	1.57	1.57	9.80	30.98	43.53	13.33
30.	wetland management	1.57	0.78	52.16	23.92	7.06	3.53	9.02	3.53	35.69	41.57	17.65	1.57	2.35	11.76	31.76	41.57	11.37
31.	floodplain management	1.57	0.78	52.55	21.18	7.06	4.71	9.80	4.71	33.33	40.39	20.00	1.18	3.14	11.37	31.76	43.14	9.41
32.	land and water reclamation procedures including quarry, mine and landfill reclamation	3.14	0.00	38.82	28.24	5.49	8.63	13.73	10.59	46.67	31.76	9.80	0.78	5.88	23.53	37.65	25.49	6.27

		Time of Acquisition When should this knowledge be primarily learned or attained? 0. Not required at all 1. Before entrance to a university program 2. In a first professional degree university program 3. In a post-professional degree university program 4. In an entry-level employment position 5. In a mid-level employment position 6. In a continuing education program							**Command of Knowledge at Time of Degree** To what level should the knowledge be acquired at completion of a first professional degree? 0. Unnecessary – not required at all 1. Exposure – sufficiently aware of the knowledge to be able to look it up 2. Comprehension – able to discuss the concepts involved 3. Application – able to use the knowledge to solve problems 4. Mastery – able to apply the knowledge to new problems, to integrate information and to create, synthesize and evaluate solutions						**Command of Knowledge at Time of Professional Responsibility** To what level should this knowledge be attained before an individual takes professional responsibility for his or her landscape architectural work? 0. Unnecessary – not required at all 1. Exposure – sufficiently aware of the knowledge to be able to look it up 2. Comprehension – able to discuss the concepts involved 3. Application – able to use the knowledge to solve problems 4. Mastery – able to apply the knowledge to new problems, to integrate information and to create, synthesize and evaluate solutions					
		Not Req	**Before Univ**	**1st deg**	**Post-deg**	**Entry-lev emp**	**Mid-lev emp**	**Cont. Ed.**	**Not req**	**Expos.**	**Comp.**	**Appl.**	**Mas-tery**	**Not req**	**Expos.**	**Comp.**	**Appl.**	**Mas-tery**
33.	treatment of toxic materials	13.33	1.57	20.78	20.39	5.88	12.16	23.14	28.24	45.49	19.61	6.67	0.00	16.47	28.24	31.37	17.65	5.49
	VI. Site Design and Engineering: Materials, Methods, Technologies and Applications																	
34.	design needs for special populations	0.39	1.18	68.63	11.37	7.84	3.14	5.88	2.35	27.45	47.06	22.35	0.39	1.18	6.27	21.57	51.76	18.43
35.	accessibility regulations	0.00	1.96	77.25	4.31	11.76	1.96	2.35	1.57	18.43	34.51	40.78	4.31	0.78	2.75	11.76	42.75	41.18
36.	roadway design principles	0.39	0.39	84.71	5.10	4.31	3.92	0.39	1.57	21.18	39.22	35.29	1.96	1.57	6.27	23.14	47.84	20.78
37.	elements of vehicular and pedestrian circulation systems and their design requirements	0.00	0.78	92.55	0.78	3.53	0.39	1.57	0.39	7.45	31.37	55.69	4.71	0.00	2.35	6.27	43.53	47.45
38.	landscape maintenance techniques, materials, equipment, and practices	1.57	2.35	69.02	5.10	13.73	5.10	2.75	3.14	30.59	37.25	27.84	1.18	0.39	8.24	25.88	44.31	20.78
39.	noise attenuation and mitigation techniques	3.14	0.78	48.24	10.59	13.33	9.41	14.51	4.71	41.96	35.69	16.47	0.39	3.14	14.12	33.33	41.57	6.27
40.	sustainable construction practices	1.96	1.57	58.43	7.06	7.84	7.45	14.12	4.31	31.37	41.96	20.78	0.78	2.75	7.84	29.80	43.92	14.51
41.	construction equipment and technologies	0.78	1.96	58.82	6.27	18.82	6.67	5.10	5.88	34.12	36.86	21.18	0.39	1.57	9.02	32.16	40.39	15.29
42.	grading, drainage and stormwater treatment	0.00	1.18	89.41	2.35	2.35	0.78	0.00	0.00	1.57	23.92	65.88	5.88	0.00	1.57	7.84	33.73	54.51
43.	biofiltration and other alternative drainage methods	1.57	0.78	60.39	10.98	10.20	5.88	9.02	3.14	29.41	40.00	25.10	0.78	2.35	9.02	29.02	43.53	14.51
44.	erosion and sedimentation control	0.00	0.39	78.43	3.14	10.59	3.14	2.35	1.96	13.73	40.78	39.22	3.14	1.18	2.75	16.08	49.41	29.41
45.	utility systems	1.96	1.18	60.78	3.92	16.86	9.02	4.31	3.14	32.94	45.88	16.08	0.39	1.18	9.02	37.65	39.22	11.37
46.	Irrigation systems	5.10	0.00	66.67	3.53	14.12	4.71	4.31	6.67	32.94	39.61	19.61	0.78	3.14	13.73	25.49	43.53	12.94

		Time of Acquisition When should this knowledge be primarily learned or attained? 0. Not required at all 1. Before entrance to a university program 2. In a first professional degree university program 3. In a post-professional degree university program 4. In an entry-level employment position 5. In a mid-level employment position 6. In a continuing education program							**Command of Knowledge at Time of Degree** To what level should the knowledge be acquired at completion of a first professional degree? 0. Unnecessary – not required at all 1. Exposure – sufficiently aware of the knowledge to be able to look it up 2. Comprehension – able to discuss the concepts involved 3. Application – able to use the knowledge to solve problems 4. Mastery – able to apply the knowledge to new problems, to integrate information and to create, synthesize and evaluate solutions						**Command of Knowledge at Time of Professional Responsibility** To what level should this knowledge be attained before an individual takes professional responsibility for his or her landscape architectural work? 0. Unnecessary – not required at all 1. Exposure – sufficiently aware of the knowledge to be able to look it up 2. Comprehension – able to discuss the concepts involved 3. Application – able to use the knowledge to solve problems 4. Mastery – able to apply the knowledge to new problems, to integrate information and to create, synthesize and evaluate solutions				
		Not Req	**Before Univ**	**1st deg**	**Post-deg**	**Entry-lev emp**	**Mid-lev emp**	**Cont. Ed.**	**Not req**	**Expos.**	**Comp.**	**Appl.**	**Mas-tery**		**Not req**	**Expos.**	**Comp.**	**Appl.**	**Mas-tery**
47.	lighting systems	1.96	0.00	63.53	5.10	17.65	6.27	3.92	3.53	39.22	40.78	15.69	0.39		1.18	11.37	30.98	46.67	8.63
48.	structural considerations	0.78	0.00	81.96	3.14	6.67	5.88	1.18	1.96	23.53	42.75	30.20	1.57		0.78	7.84	21.18	45.10	24.71
	VII. Construction Documentation and Administration																		
49.	quality control procedures for construction, such as delivery, storage, testing, etc.	3.92	0.00	25.10	5.88	32.55	24.71	4.71	18.04	43.92	27.06	8.24	0.39		2.35	9.80	28.63	45.10	10.20
50.	sequencing of design, approval, permitting, and construction activities	0.00	0.00	38.04	3.53	36.08	18.43	1.57	7.84	36.47	35.29	16.47	1.96		0.39	3.53	18.43	47.06	27.45
51.	the life-cycle cost-analysis process	3.92	0.39	27.84	7.84	18.04	27.84	11.76	16.08	43.14	30.20	7.84	0.39		5.10	14.90	34.90	35.29	7.06
52.	geographic coordinate systems and layout techniques and conventions	1.57	0.78	62.35	7.84	16.86	5.49	1.96	5.49	26.67	38.43	25.49	1.18		3.92	7.06	25.10	43.53	17.25
53.	specification types and components for a project	0.00	0.39	64.31	1.57	21.18	8.24	1.18	2.75	31.37	38.82	25.10	0.39		0.00	2.75	16.08	49.80	29.02
54.	general and supplemental conditions, special provisions, and technical specifications and their organizations	0.00	0.39	43.92	4.71	26.67	18.04	3.53	7.45	38.82	35.29	15.69	1.18		0.00	5.49	20.00	50.20	21.96
55.	construction administration and details	0.39	0.00	41.96	1.57	26.67	25.10	1.18	8.24	32.55	34.90	20.78	0.78		0.39	3.92	15.69	50.20	27.06
56.	basic construction law	2.35	0.00	47.45	3.53	17.25	15.29	10.20	7.84	48.24	30.20	10.59	1.18		1.96	11.76	22.35	43.53	17.65
57.	construction contracts	0.78	0.39	44.71	3.92	17.65	25.10	4.31	10.20	38.04	36.86	10.98	1.57		0.78	6.67	21.18	42.75	26.27

	Time of Acquisition When should this knowledge be primarily learned or attained? 0. Not required at all 1. Before entrance to a university program 2. In a first professional degree university program 3. In a post-professional degree university program 4. In an entry-level employment position 5. In a mid-level employment position 6. In a continuing education program							**Command of Knowledge at Time of Degree** To what level should the knowledge be acquired at completion of a first professional degree? 0. Unnecessary – not required at all 1. Exposure – sufficiently aware of the knowledge to be able to look it up 2. Comprehension – able to discuss the concepts involved 3. Application – able to use the knowledge to solve problems 4. Mastery – able to apply the knowledge to new problems, to integrate information and to create, synthesize and evaluate solutions					**Command of Knowledge at Time of Professional Responsibility** To what level should this knowledge be attained before an individual takes professional responsibility for his or her landscape architectural work? 0. Unnecessary – not required at all 1. Exposure – sufficiently aware of the knowledge to be able to look it up 2. Comprehension – able to discuss the concepts involved 3. Application – able to use the knowledge to solve problems 4. Mastery – able to apply the knowledge to new problems, to integrate information and to create, synthesize and evaluate solutions					
	Not Req	**Before Univ**	**1st deg**	**Post-deg**	**Entry-lev emp**	**Mid-lev emp**	**Cont. Ed.**	**Not req**	**Expos.**	**Comp.**	**Appl.**	**Mas-tery**	**Not req**	**Expos.**	**Comp.**	**Appl.**	**Mas-tery**
VIII. Communication																	
58. determination of user values such as focus groups and surveys	3.92	1.57	39.22	18.82	13.73	13.33	6.27	8.24	44.71	32.94	12.55	0.39	4.71	12.94	30.20	42.35	7.84
59. consensus and team building	1.96	5.10	44.31	9.02	14.90	16.86	5.49	5.88	37.65	32.55	21.57	1.18	3.14	10.59	18.82	47.06	18.43
60. techniques for conducting meetings	0.78	1.18	33.73	6.27	25.10	22.35	6.27	12.94	33.73	30.59	18.43	0.78	4.71	6.27	17.25	50.20	17.65
61. the roles of visual communication, including photographic and video documentation	0.00	2.35	73.33	5.49	9.02	4.71	2.35	0.78	21.96	29.02	44.71	1.96	1.57	6.27	17.65	52.16	20.39
62. graphic presentation techniques, systems and symbols	0.00	1.96	89.41	0.39	3.53	0.78	0.39	0.00	7.06	23.14	58.82	9.02	0.39	1.96	10.59	37.25	47.06
63. interpretive methods and techniques such as information displays and brochures	3.14	0.00	49.41	5.88	21.57	9.41	8.24	8.63	30.20	29.80	28.24	0.78	6.27	9.80	23.53	45.49	11.76
64. public relations, outreach, and image development	3.14	1.18	29.02	11.76	17.65	22.75	11.37	16.47	33.73	32.55	14.90	0.78	7.45	9.80	26.67	38.43	14.90
IX. Values and Ethics in Practice																	
65. environmental ethics	0.78	11.37	67.06	7.84	4.31	3.14	1.18	1.57	20.00	48.24	22.35	4.31	1.57	5.88	18.82	46.27	23.92
66. social responsibility in design	0.39	5.88	72.55	5.88	5.49	3.14	1.96	0.78	19.22	48.24	23.92	3.14	1.57	4.31	17.25	45.49	27.06
67. organizational management principles such as leadership principles and landscape architect career cycle	2.75	1.57	43.14	9.41	10.98	18.82	9.41	9.41	37.25	32.16	15.29	1.57	4.31	8.63	24.71	44.31	14.51
68. resolving moral and ethical dilemmas	0.39	14.51	43.53	8.63	10.59	12.55	5.10	4.71	30.20	35.29	23.53	2.75	1.57	6.67	20.39	46.67	21.18

APPENDIX H

TABLE A—MEAN IMPORTANCE RATINGS FOR COMPETENCIES

TABLE B—DISTRIBUTION OF RESPONSES BY PERCENT FOR COMPETENCY STATEMENTS

TABLE A—MEAN IMPORTANCE RATINGS FOR COMPETENCIES

	Competencies	How important is this competency at completion of a first professional degree? 0 No importance 1 Moderately important 2 Important 3 Very Important		How important is this competency before an individual takes professional responsibility for his/her landscape architecture work? 0 No importance 1 Moderately important 2 Important 3 Very Important	
		Mean Rating	**Standard Deviation**	**Mean Rating**	**Standard Deviation**
	I. Landscape Architecture History and Criticism				
69	Develop an understanding of design as exemplified by historically significant works of landscape architecture, urban planning, civic design, and architecture	2.02	0.73	2.05	0.77
70	Examine economic, political, social, ecological and esthetic relationships and their influence on the development of the profession of landscape architecture	1.65	0.78	1.93	0.80
71	Demonstrate an understanding of the evolution of landscape architecture as an art and a profession through knowledge of its terminology, literature, personalities, and concepts	1.85	0.76	1.90	0.87
72	Demonstrate the ability to critique prior work and understand the relevance in addressing current issues and problems	1.89	0.74	2.33	0.75
73	Develop an ability to synthesize and make connections between aspects of landscape architecture and disciplines outside of landscape architecture	1.98	0.73	2.58	0.65
	II. Natural and Cultural Systems				
74	Conduct field investigations to identify significant natural and cultural features, characteristics, and systems	2.06	0.74	2.56	0.64
75	Perform quantitative analyses to evaluate the interactions of natural and cultural features, characteristics, and systems	1.64	0.78	2.09	0.84
76	Perform qualitative analyses to evaluate the relationship between the natural and cultural features, characteristics, and systems	1.79	0.78	2.24	0.78
77	Predict implications of design, planning, and management proposals on natural cultural systems both within the site and in the larger context	1.88	0.76	2.52	0.68

	Competencies	How important is this competency at completion of a first professional degree? 0 No importance 1 Moderately important 2 Important 3 Very Important		How important is this competency before an individual takes professional responsibility for his/her landscape architecture work? 0 No importance 1 Moderately important 2 Important 3 Very Important	
		Mean Rating	**Standard Deviation**	**Mean Rating**	**Standard Deviation**
	III. Public Policy and Regulation				
78	Identify and collect regulatory information, applicable data and required approvals governing a project (e.g., relevant laws, codes, and regulations)	1.31	0.74	2.62	0.58
79	Confirm code compliance (e.g. zoning, environment, and accessibility)	1.37	0.81	2.70	0.58
80	Assist in the preparation of ordinances, regulations, covenants, standards, and guidelines	0.77	0.69	1.81	0.89
81	Influence public policies on areas such as growth and land and water management by testifying, lobbying, or preparing written documents for public distribution	0.73	0.75	1.84	0.88
	IV. Design, Planning, and Management at Various Scales and Applications				
82	Develop a design program based on users' needs and clients' goals and resources	2.13	0.75	2.83	0.43
83	Analyze relationships among design elements by determining opportunities and constraints	2.33	0.62	2.80	0.43
84	Develop conceptual design, planning, and management solutions	2.39	0.61	2.86	0.38
85	Evaluate design alternatives to determine the appropriate solution	2.45	0.59	2.85	0.38
	V. Site Design and Engineering: Materials, Methods, Technologies and Applications				
86	Design for protection and management of land resources (e.g. land forms, vegetation, habitat, erosion and sedimentation control)	2.13	0.64	2.72	0.51
87	Design for protection and management of water resources (e.g. storm water, water supply, ground water)	2.05	0.66	2.69	0.50
88	Design pedestrian, vehicular, and non-motorized circulation systems	2.28	0.62	2.76	0.46
89	Design elements for construction considering materials, structural issues, and construction technologies	1.94	0.69	2.69	0.53

	Competencies	How important is this competency at completion of a first professional degree? 0 No importance 1 Moderately important 2 Important 3 Very Important		How important is this competency before an individual takes professional responsibility for his/her landscape architecture work? 0 No importance 1 Moderately important 2 Important 3 Very Important	
		Mean Rating	**Standard Deviation**	**Mean Rating**	**Standard Deviation**
	VI. Construction Documentation and Administration				
90	Prepare construction documents including plans, working drawings, and technical specifications	1.87	0.77	2.82	0.40
91	Prepare contract documents including agreements, general conditions, and bid documents	1.24	0.82	2.60	0.57
92	Manage the bidding/tendering process	0.72	0.70	2.22	0.81
93	Provide construction administration and observation throughout the project	0.83	0.78	2.44	0.69
94	Conduct project closure including review and distribution of close-out documents	0.67	0.73	2.27	0.79
95	Perform post construction evaluation	0.91	0.79	2.21	0.78
96	Perform construction services including design-build	0.67	0.70	1.51	0.95
97	Prepare management and maintenance manuals and documents	0.81	0.70	1.80	0.85
	VII. Communication				
98	Maintain clear communication among collaborators through correspondence and project coordination	1.51	0.90	2.69	0.57
99	Develop written documentation, such as projects reports, grant proposals, and promotional materials	1.43	0.84	2.41	0.73
100	Create graphic materials in a variety of media	2.19	0.76	2.41	0.68
101	Prepare and deliver oral presentations such as meetings, demonstrations, and outreach	2.18	0.72	2.64	0.57
102	Conduct project and public meetings including preparing of meeting agendas and notes, and facilitation of the meeting	1.34	0.89	2.43	0.68
103	Review and critique peer work	1.79	0.88	2.08	0.90
	VIII. Values and Ethics in Practice				
104	Manage business practices and organizations	0.81	0.74	2.24	0.78
105	Manage risk and liability	0.86	0.81	2.43	0.76
106	Negotiate and prepare client and consultant agreements	0.74	0.79	2.41	0.77

		How important is this competency at completion of a first professional degree? 0 No importance 1 Moderately important 2 Important 3 Very Important		How important is this competency before an individual takes professional responsibility for his/her landscape architecture work? 0 No importance 1 Moderately important 2 Important 3 Very Important	
	Competencies	**Mean Rating**	**Standard Deviation**	**Mean Rating**	**Standard Deviation**
107	Participate in life-long learning (e.g., a professional organization, continuing education activities)	1.56	1.03	2.52	0.68
108	Participate in professional and public service activities	1.58	0.83	2.22	0.78
109	Train, educate and mentor other professionals	0.96	0.91	2.20	0.79
110	Maintain and promote professional and ethical standards	2.12	0.86	2.78	0.48

TABLE B—DISTRIBUTION OF RESPONSES BY PERCENT FOR COMPETENCY STATEMENTS

	Competencies	How important is this competency at completion of a first professional degree? 0 Of no importance 1 Moderately important 2 Important 3 Very Important — Percent Responding					How important is this competency before an individual takes professional responsibility for his/her landscape architecture work? 0 Of no importance 1 Moderately important 2 Important 3 Very Important — Percent Responding				
		0	1	2	3	Missing	0	1	2	3	Missing
	I. Landscape Architecture History and Criticism										
69	Develop an understanding of design as exemplified by historically significant works of landscape architecture, urban planning, civic design, and architecture	0.00%	25.49%	45.88%	27.84%	0.78%	0.78%	24.31%	42.35%	30.98%	1.57%
70	Examine economic, political, social, ecological and esthetic relationships and their influence on the development of the profession of landscape architecture	2.75%	45.88%	34.90%	16.08%	0.39%	2.35%	27.45%	42.75%	25.49%	1.96%
71	Demonstrate an understanding of the evolution of landscape architecture as an art and a profession through knowledge of its terminology, literature, personalities, and concepts	1.18%	33.33%	43.14%	21.18%	1.18%	3.92%	30.98%	34.90%	28.63%	1.57%
72	Demonstrate the ability to critique prior work and understand the relevance in addressing current issues and problems	2.35%	26.27%	50.20%	20.00%	1.18%	1.96%	10.98%	38.43%	47.06%	1.57%
73	Develop an ability to synthesize and make connections between aspects of landscape architecture and disciplines outside of landscape architecture	1.18%	23.92%	50.98%	23.92%	0.00%	0.78%	6.67%	26.27%	65.49%	0.78%
	II. Natural and Cultural Systems										
74	Conduct field investigations to identify significant natural and cultural features, characteristics, and systems	1.18%	20.78%	48.24%	29.02%	0.78%	0.00%	7.84%	28.24%	63.14%	0.78%
75	Perform quantitative analyses to evaluate the interactions of natural and cultural features, characteristics, and systems	5.49%	38.04%	42.35%	13.33%	0.78%	2.35%	23.53%	36.08%	36.86%	1.18%
76	Perform qualitative analyses to evaluate the relationship between the natural and cultural features, characteristics, and systems	4.31%	29.41%	47.84%	17.65%	0.78%	1.18%	17.25%	37.25%	43.14%	1.18%
77	Predict implications of design, planning, and management proposals on natural cultural systems both within the site and in the larger context	2.35%	28.24%	47.06%	20.78%	1.57%	0.39%	9.02%	28.63%	60.78%	1.18%

	Competencies	How important is this competency at completion of a first professional degree? 0 Of no importance 1 Moderately important 2 Important 3 Very Important — Percent Responding					How important is this competency before an individual takes professional responsibility for his/her landscape architecture work? 0 Of no importance 1 Moderately important 2 Important 3 Very Important — Percent Responding				
		0	1	2	3	Missing	0	1	2	3	Missing
	III. Public Policy and Regulation										
78	Identify and collect regulatory information, applicable data and required approvals governing a project (e.g., relevant laws, codes, and regulations)	9.80%	54.90%	27.45%	6.67%	1.18%	0.00%	4.71%	27.84%	66.27%	1.18%
79	Confirm code compliance (e.g. zoning, environment, and accessibility)	12.55%	45.49%	32.16%	8.24%	1.57%	0.00%	6.27%	17.25%	74.90%	1.57%
80	Assist in the preparation of ordinances, regulations, covenants, standards, and guidelines	35.69%	50.98%	10.20%	1.57%	1.57%	7.06%	29.02%	38.43%	24.31%	1.18%
81	Influence public policies on areas such as growth and land and water management by testifying, lobbying, or preparing written documents for public distribution	41.96%	42.35%	11.76%	1.96%	1.96%	6.67%	27.45%	39.61%	24.71%	1.57%
	IV. Design, Planning, and Management at Various Scales and Applications										
82	Develop a design program based on users' needs and clients' goals and resources	1.96%	16.08%	48.24%	32.55%	1.18%	0.00%	1.96%	13.33%	83.53%	1.18%
83	Analyze relationships among design elements by determining opportunities and constraints	0.00%	7.84%	50.59%	40.00%	1.57%	0.00%	1.18%	17.65%	79.61%	1.57%
84	Develop conceptual design, planning, and management solutions	0.00%	6.27%	47.45%	45.10%	1.18%	0.00%	1.18%	11.76%	85.49%	1.57%
85	Evaluate design alternatives to determine the appropriate solution	0.00%	5.10%	43.92%	49.80%	1.18%	0.00%	0.78%	13.33%	84.71%	1.18%
	V. Site Design and Engineering: Materials, Methods, Technologies and Applications										
86	Design for protection and management of land resources (e.g. land forms, vegetation, habitat, erosion and sedimentation control)	0.00%	14.90%	56.08%	27.45%	1.57%	0.00%	2.75%	22.35%	73.33%	1.57%
87	Design for protection and management of water resources (e.g. storm water, water supply, ground water)	0.00%	18.82%	55.69%	23.53%	1.96%	0.00%	1.96%	26.27%	70.20%	1.57%
88	Design pedestrian, vehicular, and non-motorized circulation systems	0.00%	9.02%	52.94%	36.08%	1.96%	0.00%	1.57%	20.39%	76.47%	1.57%

	Competencies	How important is this competency at completion of a first professional degree? 0 Of no importance 1 Moderately important 2 Important 3 Very Important — Percent Responding					How important is this competency before an individual takes professional responsibility for his/her landscape architecture work? 0 Of no importance 1 Moderately important 2 Important 3 Very Important — Percent Responding				
		0	1	2	3	Missing	0	1	2	3	Missing
89	Design elements for construction considering materials, structural issues, and construction technologies	1.57%	21.57%	56.08%	19.22%	1.57%	0.00%	3.14%	24.31%	70.59%	1.96%
	VI. Construction Documentation and Administration										
90	Prepare construction documents including plans, working drawings, and technical specifications	3.92%	24.71%	50.98%	20.00%	0.39%	0.00%	0.78%	16.08%	82.75%	0.39%
91	Prepare contract documents including agreements, general conditions, and bid documents	17.25%	48.24%	26.67%	7.06%	0.78%	0.00%	4.31%	31.37%	63.92%	0.39%
92	Manage the bidding/tendering process	41.57%	44.71%	12.94%	0.39%	0.39%	1.96%	18.43%	34.90%	44.31%	0.39%
93	Provide construction administration and observation throughout the project	38.04%	43.14%	16.08%	2.35%	0.39%	0.78%	8.63%	35.69%	54.51%	0.39%
94	Conduct project closure including review and distribution of close-out documents	47.06%	39.22%	11.76%	1.18%	0.78%	2.75%	12.55%	38.82%	44.71%	1.18%
95	Perform post construction evaluation	32.94%	44.71%	18.82%	2.75%	0.78%	1.96%	16.08%	40.78%	40.39%	0.78%
96	Perform construction services including design-build	45.88%	40.39%	12.16%	0.39%	1.18%	15.29%	34.51%	32.16%	16.47%	1.57%
97	Prepare management and maintenance manuals and documents	33.73%	50.98%	12.16%	1.57%	1.57%	4.71%	33.73%	36.86%	23.14%	1.57%
	VII. Communication										
98	Maintain clear communication among collaborators through correspondence and project coordination	14.12%	34.51%	37.25%	13.73%	0.39%	0.78%	3.14%	22.75%	72.94%	0.39%
99	Develop written documentation, such as projects reports, grant proposals, and promotional materials	12.16%	42.75%	33.33%	10.59%	1.18%	1.57%	9.80%	34.12%	52.94%	1.57%
100	Create graphic materials in a variety of media	1.96%	14.90%	44.71%	38.04%	0.39%	0.39%	9.41%	38.04%	50.98%	1.18%
101	Prepare and deliver oral presentations such as meetings, demonstrations, and outreach	1.57%	13.73%	49.02%	34.90%	0.78%	0.39%	3.53%	27.06%	68.24%	0.78%
102	Conduct project and public meetings including preparing of meeting agendas and notes, and facilitation of the meeting	17.65%	40.78%	30.98%	10.20%	0.39%	0.78%	8.63%	37.25%	52.94%	0.39%
103	Review and critique peer work	6.67%	31.37%	38.04%	23.53%	0.39%	5.49%	19.61%	35.69%	38.82%	0.39%

		How important is this competency at completion of a first professional degree? 0 Of no importance 1 Moderately important 2 Important 3 Very Important					How important is this competency before an individual takes professional responsibility for his/her landscape architecture work? 0 Of no importance 1 Moderately important 2 Important 3 Very Important				
		Percent Responding					Percent Responding				
	Competencies	0	1	2	3	Missing	0	1	2	3	Missing
	VIII. Values and Ethics in Practice										
104	Manage business practices and organizations	36.47%	47.84%	13.33%	1.96%	0.39%	2.35%	14.12%	40.00%	41.96%	1.57%
105	Manage risk and liability	36.86%	42.75%	16.08%	3.53%	0.78%	1.96%	10.20%	30.20%	56.47%	1.18%
106	Negotiate and prepare client and consultant agreements	43.92%	39.22%	12.94%	2.75%	1.18%	2.35%	9.80%	31.76%	54.51%	1.57%
107	Participate in life-long learning (e.g., a professional organization, continuing education activities)	18.82%	27.06%	31.37%	21.57%	1.18%	0.39%	9.41%	28.24%	61.57%	0.39%
108	Participate in professional and public service activities	8.63%	38.04%	39.61%	13.33%	0.39%	1.96%	16.08%	39.61%	41.96%	0.39%
109	Train, educate and mentor other professionals	36.47%	36.47%	20.00%	6.27%	0.78%	2.75%	14.90%	41.57%	40.39%	0.39%
110	Maintain and promote professional and ethical standards	3.53%	20.78%	35.29%	40.00%	0.39%	0.00%	2.75%	16.86%	80.00%	0.39%

APPENDIX I

SUBGROUP ANALYSES

LICENSE INFORMATION

TYPE OF ORGANIZATION IN WHICH LANDSCAPE ARCHITECT WORKS

YEARS OF EXPERIENCE SINCE GRADUATION

Appendix I--License Information
Knowledge Statements--Time of Acquisition

	Q8. In how many states, provinces or territories are you currently licensed as a landscape architect?	Total Group Mean	None	One	More than 1
	N	**255**	**55**	**104**	**96**
	I. Landscape Architecture History and Criticism				
1	history of landscape architecture and allied professions	2.00	1.98	2.02	2.00
2	historic preservation principles	2.57	2.52	2.41	2.79
	II. Natural and Cultural Systems				
3	land information sources	2.11	2.07	2.10	2.16
4	patterns of land use and built form	2.12	2.16	2.07	2.16
5	natural site conditions and ecosystems	2.01	2.02	1.96	2.06
6	social and cultural influences on design	2.21	2.02	2.22	2.31
7	regional hazard design considerations	2.57	2.49	2.52	2.67
	III. Design and Planning Theories and Methodologies				
8	creativity and process including design theory and problem-solving strategies	1.95	1.85	1.97	1.98
9	aesthetic principles of design	1.95	1.78	1.98	2.02
10	human factors such as behavior, perception, psychological and sensory response	2.22	1.98	2.16	2.42
11	natural factors such as ecological relationships	2.02	1.85	2.02	2.11
12	relationship between human and natural systems such as resource conservation, habitat restoration and creation, and urban ecology	2.35	2.24	2.30	2.46
13	influence of context on design, planning, and management decisions	2.50	2.35	2.35	2.76
14	research methods including data collection, interpretation, and application of results	2.44	2.35	2.50	2.41
15	therapeutic aspects of design	2.87	2.73	2.83	2.99
16	communication and education methods, including sharing knowledge and evaluating outcomes	2.66	2.29	2.64	2.90
	IV. Public Policy and Regulation				
17	governmental policies and laws that affect the use and development of land	3.00	2.84	2.88	3.21
18	political and regulatory approval processes	3.43	3.22	3.36	3.64
19	land and development economics	3.53	3.02	3.59	3.76
20	emerging trends and issues	3.41	2.91	3.41	3.71

Appendix I--License Information
Knowledge Statements--Time of Acquisition

	Q8. In how many states, provinces or territories are you currently licensed as a landscape architect?	Total Group Mean	None	One	More than 1
	N	**255**	**55**	**104**	**96**
	V. Design, Planning and Management at Various Scales and Applications				
21	photogrammetry and remote sensing	2.60	2.69	2.79	2.34
22	visual resource assessment	2.36	2.40	2.23	2.48
23	agricultural and rural landscape analysis	2.56	2.35	2.58	2.65
24	urvan landscape	2.24	2.15	2.22	2.32
25	Planning principles including regional community and neighborhood planning	2.41	2.22	2.38	2.55
26	conservation of natural resources	2.10	1.96	2.09	2.18
27	historic preservation	2.60	2.47	2.62	2.66
28	ecological planning principles	2.22	2.15	2.25	2.22
29	water resource management	2.69	2.62	2.59	2.84
30	wetland management	2.82	2.80	2.73	2.95
31	floodplain management	2.87	2.75	2.80	3.01
32	land and water reclamation procedures including quarry, mine and landfill reclamation	3.16	2.85	3.12	3.39
33	treatment of toxic materials	3.37	3.20	3.40	3.42
	VI. Site Design and Engineering: Materials, Methods, Technologies and Applications				
34	design needs for special populations	2.59	2.40	2.47	2.84
35	accessibility regulations	2.41	2.25	2.43	2.49
36	roadway design principles	2.26	2.13	2.28	2.32
37	elements of vehicular and pedestrian circulation systems and their design requirements	2.15	2.09	2.10	2.23
38	landscape maintenance techniques, materials, equipment, and practices	2.54	2.53	2.54	2.54
39	noise attenuation and mitigation techniques	3.16	2.87	3.22	3.27
40	sustainable construction practices	2.98	2.78	2.84	3.24
41	construction equipment and technologies	2.82	2.64	2.88	2.86
42	grading, drainage and stormwater treatment	2.09	2.07	2.06	2.12
43	biofiltration and other alternative drainage methods	2.82	2.67	2.72	3.01
44	erosion and sedimentation control	2.44	2.40	2.36	2.54
45	utility systems	2.78	2.50	2.77	2.96
46	irrigation systems	2.54	2.56	2.49	2.57
47	lighting systems	2.72	2.45	2.68	2.92

Appendix I--License Information
Knowledge Statements--Time of Acquisition

	Q8. In how many states, provinces or territories are you currently licensed as a landscape architect?	Total Group Mean	None	One	More than 1
	N	**255**	**55**	**104**	**96**
	VII. Construction Documentation and Administration				
49	quality control procedures for construction, such as delivery, storage, testing, etc.	3.61	3.60	3.63	3.60
50	sequencing of design, approval, permitting, and construction activities	3.41	3.18	3.42	3.53
51	the life-cycle cost-analysis process	3.70	3.40	3.65	3.95
52	geographic coordinate systems and layout techniques and conventions	2.64	2.40	2.59	2.84
53	specification types and components for a project	2.75	2.53	2.68	2.97
54	general and supplemental conditions, special provisions, and technical specifications and their organizations	3.29	3.16	3.25	3.42
55	construction administration and details	3.38	3.15	3.30	3.63
56	basic construction law	3.25	3.20	2.98	3.58
57	construction contracts	3.34	3.31	3.20	3.52
	VIII. Communication				
58	determination of user values such as focus groups and surveys	3.05	2.98	3.06	3.09
59	consensus and team building	3.05	2.93	2.89	3.29
60	techniques for conducting meetings	3.52	3.37	3.48	3.67
61	the roles of visual communication, including photographic and video documentation	2.46	2.27	2.46	2.57
62	graphic presentation techniques, systems and symbols	2.10	1.96	2.11	2.17
63	interpretive methods and techniques such as information displays and brochures	3.06	2.89	2.94	3.30
64	public relations, outreach, and image development	3.58	3.36	3.57	3.73
	IX. Values and Ethics in Practice				
65	environmental ethics	2.18	1.82	2.29	2.29
66	social responsibility in design	2.29	1.95	2.38	2.40
67	organizational management principles such as leadership principles and landscape architect career cycle	3.23	2.78	3.19	3.56
68	resolving moral and ethical dilemmas	2.76	2.44	2.68	3.06

Appendix I--License Information
Knowledge Statements--Command of Knowledge at Time of Degree

	Q8. In how many states, provinces or territories are you currently licensed as a landscape architect?	Total Group Mean	None	One	More than 1
	N	**255**	**55**	**104**	**96**
	I. Landscape Architecture History and Criticism				
1	history of landscape architecture and allied professions	2.15	2.27	2.15	2.07
2	historic preservation principles	1.69	1.78	1.71	1.62
	II. Natural and Cultural Systems				
3	land information sources	2.55	2.71	2.60	2.39
4	patterns of land use and built form	2.43	2.51	2.45	2.37
5	natural site conditions and ecosystems	2.76	2.85	2.76	2.71
6	social and cultural influences on design	2.19	2.36	2.29	1.98
7	regional hazard design considerations	2.10	2.09	2.17	2.03
	III. Design and Planning Theories and Methodologies				
8	creativity and process including design theory and problem-solving strategies	2.83	2.94	2.88	2.70
9	aesthetic principles of design	2.78	2.77	2.94	2.61
10	human factors such as behavior, perception, psychological and sensory response	2.33	2.44	2.45	2.13
11	natural factors such as ecological relationships	2.53	2.59	2.60	2.43
12	relationship between human and natural systems such as resource conservation, habitat restoration and creation, and urban ecology	2.36	2.49	2.44	2.20
13	influence of context on design, planning, and management decisions	2.45	2.45	2.54	2.35
14	research methods including data collection, interpretation, and application of results	2.37	2.52	2.38	2.26
15	therapeutic aspects of design	1.66	1.76	1.75	1.51
16	communication and education methods, including sharing knowledge and evaluating outcomes	2.15	2.29	2.19	2.03
	IV. Public Policy and Regulation				
17	governmental policies and laws that affect the use and development of land	1.80	1.78	1.79	1.81
18	political and regulatory approval processes	1.67	1.72	1.65	1.66
19	land and development economics	1.47	1.39	1.50	1.49
20	emerging trends and issues	1.65	1.62	1.72	1.59

Appendix I--License Information
Knowledge Statements--Command of Knowledge at Time of Degree

	Q8. In how many states, provinces or territories are you currently licensed as a landscape architect?	Total Group Mean	None	One	More than 1
	N	255	55	104	96
	V. Design, Planning and Management at Various Scales and Applications				
21	photogrammetry and remote sensing	1.47	1.35	1.55	1.47
22	visual resource assessment	1.91	1.95	1.87	1.94
23	agricultural and rural landscape analysis	1.68	1.73	1.77	1.55
24	urvan landscape	2.17	2.31	2.25	2.01
25	Planning principles including regional community and neighborhood planning	2.12	2.31	2.20	1.92
26	conservation of natural resources	2.33	2.53	2.35	2.21
27	historic preservation	1.73	1.87	1.76	1.63
28	ecological planning principles	2.23	2.25	2.32	2.13
29	water resource management	1.91	1.91	1.96	1.84
30	wetland management	1.78	1.69	1.91	1.69
31	floodplain management	1.80	1.78	1.89	1.70
32	land and water reclamation procedures including quarry, mine and landfill reclamation	1.43	1.43	1.55	1.31
33	treatment of toxic materials	1.05	1.02	1.12	0.99
	VI. Site Design and Engineering: Materials, Methods, Technologies and Applications				
34	design needs for special populations	1.91	2.00	2.03	1.73
35	accessibility regulations	2.28	2.31	2.32	2.22
36	roadway design principles	2.15	2.24	2.11	2.15
37	elements of vehicular and pedestrian circulation systems and their design requirements	2.57	2.60	2.61	2.52
38	landscape maintenance techniques, materials, equipment, and practices	1.93	2.00	1.95	1.88
39	noise attenuation and mitigation techniques	1.66	1.69	1.68	1.61
40	sustainable construction practices	1.82	1.87	1.87	1.74
41	construction equipment and technologies	1.76	1.75	1.80	1.72
42	grading, drainage and stormwater treatment	2.78	2.67	2.87	2.76
43	biofiltration and other alternative drainage methods	1.91	1.93	1.92	1.89
44	erosion and sedimentation control	2.28	2.24	2.29	2.30
45	utility systems	1.77	1.87	1.81	1.67
46	irrigation systems	1.75	1.75	1.72	1.78
47	lighting systems	1.70	1.71	1.71	1.69
48	structural considerations	2.06	2.05	2.10	2.02

Appendix I--License Information
Knowledge Statements--Command of Knowledge at Time of Degree

	Q8. In how many states, provinces or territories are you currently licensed as a landscape architect?	Total Group Mean	None	One	More than 1
	N	255	55	104	96
	VII. Construction Documentation and Administration				
49	quality control procedures for construction, such as delivery, storage, testing, etc.	1.27	1.24	1.25	1.32
50	sequencing of design, approval, permitting, and construction activities	1.68	1.73	1.64	1.69
51	the life-cycle cost-analysis process	1.32	1.41	1.38	1.20
52	geographic coordinate systems and layout techniques and conventions	1.90	1.87	1.85	1.97
53	specification types and components for a project	1.89	1.73	1.89	1.98
54	general and supplemental conditions, special provisions, and technical specifications and their organizations	1.64	1.47	1.66	1.71
55	construction administration and details	1.73	1.62	1.67	1.85
56	basic construction law	1.48	1.37	1.46	1.56
57	construction contracts	1.55	1.44	1.55	1.60
	VIII. Communication				
58	determination of user values such as focus groups and surveys	1.52	1.42	1.58	1.50
59	consensus and team building	1.74	1.65	1.83	1.69
60	techniques for conducting meetings	1.59	1.42	1.62	1.66
61	the roles of visual communication, including photographic and video documentation	2.25	2.25	2.33	2.17
62	graphic presentation techniques, systems and symbols	2.71	2.75	2.80	2.60
63	interpretive methods and techniques such as information displays and brochures	1.82	1.85	1.93	1.67
64	public relations, outreach, and image development	1.49	1.46	1.56	1.43
	IX. Values and Ethics in Practice				
65	environmental ethics	2.08	2.33	2.11	1.90
66	social responsibility in design	2.10	2.31	2.08	1.99
67	organizational management principles such as leadership principles and landscape architect career cycle	1.61	1.55	1.64	1.60
68	resolving moral and ethical dilemmas	1.89	2.00	1.97	1.73

Appendix I--License Information

Knowledge Statements--Command of Knowledge at Time of Professional Responsibility

	Q8. In how many states, provinces or territories are you currently licensed as a landscape architect?	Total Group Mean	None	One	More than 1
	N	**255**	**55**	**104**	**96**
	I. Landscape Architecture History and Criticism				
1	history of landscape architecture and allied professions	2.57	2.67	2.51	2.57
2	historic preservation principles	2.27	2.38	2.25	2.23
	II. Natural and Cultural Systems				
3	land information sources	3.33	3.45	3.29	3.30
4	patterns of land use and built form	3.07	3.07	3.10	3.03
5	natural site conditions and ecosystems	3.35	3.40	3.38	3.28
6	social and cultural influences on design	2.78	2.89	2.91	2.59
7	regional hazard design considerations	3.00	3.02	3.08	2.91
	III. Design and Planning Theories and Methodologies				
8	creativity and process including design theory and problem-solving strategies	3.50	3.45	3.56	3.45
9	aesthetic principles of design	3.38	3.33	3.44	3.34
10	human factors such as behavior, perception, psychological and sensory response	2.92	3.09	3.02	2.70
11	natural factors such as ecological relationships	3.14	3.20	3.30	2.95
12	relationship between human and natural systems such as resource conservation, habitat restoration and creation, and urban ecology	3.04	3.23	3.10	2.86
13	influence of context on design, planning, and management decisions	3.24	3.26	3.32	3.15
14	research methods including data collection, interpretation, and application of results	2.91	3.06	2.89	2.83
15	therapeutic aspects of design	2.23	2.35	2.31	2.06
16	communication and education methods, including sharing knowledge and evaluating outcomes	2.78	2.80	2.91	2.63
	IV. Public Policy and Regulation				
17	governmental policies and laws that affect the use and development of land	3.02	3.00	3.08	2.97
18	political and regulatory approval processes	2.98	2.98	2.99	2.97
19	land and development economics	2.43	2.44	2.41	2.43
20	emerging trends and issues	2.39	2.35	2.53	2.26

Appendix I--License Information
Knowledge Statements--Command of Knowledge at Time of Professional Responsibility

	Q8. In how many states, provinces or territories are you currently licensed as a landscape architect?	Total Group Mean	None	One	More than 1
	N	255	55	104	96
	V. Design, Planning and Management at Various Scales and Applications				
21	photogrammetry and remote sensing	2.02	2.16	1.92	2.03
22	visual resource assessment	2.54	2.73	2.47	2.52
23	agricultural and rural landscape analysis	2.24	2.42	2.29	2.07
24	urvan landscape	2.81	2.96	2.87	2.67
25	Planning principles including regional community and neighborhood planning	2.80	3.05	2.89	2.56
26	conservation of natural resources	2.99	3.15	3.05	2.84
27	historic preservation	2.33	2.47	2.30	2.27
28	ecological planning principles	2.88	2.96	2.96	2.76
29	water resource management	2.58	2.60	2.64	2.49
30	wetland management	2.48	2.56	2.56	2.35
31	floodplain management	2.45	2.60	2.49	2.32
32	land and water reclamation procedures including quarry, mine and landfill reclamation	2.03	2.17	2.13	1.84
33	treatment of toxic materials	1.67	1.75	1.79	1.50
	VI. Site Design and Engineering: Materials, Methods, Technologies and Applications				
34	design needs for special populations	2.81	2.89	2.88	2.69
35	accessibility regulations	3.22	3.28	3.27	3.13
36	roadway design principles	2.80	2.93	2.74	2.80
37	elements of vehicular and pedestrian circulation systems and their design requirements	3.37	3.39	3.42	3.29
38	landscape maintenance techniques, materials, equipment, and practices	2.77	2.91	2.79	2.68
39	noise attenuation and mitigation techniques	2.34	2.61	2.34	2.19
40	sustainable construction practices	2.60	2.65	2.65	2.53
41	construction equipment and technologies	2.60	2.72	2.59	2.54
42	grading, drainage and stormwater treatment	3.45	3.41	3.56	3.34
43	biofiltration and other alternative drainage methods	2.60	2.72	2.63	2.50
44	erosion and sedimentation control	3.04	3.04	3.09	3.00
45	utility systems	2.51	2.70	2.54	2.38
46	irrigation systems	2.50	2.65	2.45	2.46
47	lighting systems	2.51	2.69	2.49	2.43
48	structural considerations	2.85	2.84	2.98	2.73

Appendix I--License Information

Knowledge Statements--Command of Knowledge at Time of Professional Responsibility

	Q8. In how many states, provinces or territories are you currently licensed as a landscape architect?	Total Group Mean	None	One	More than 1
	N	**255**	**55**	**104**	**96**
	VII. Construction Documentation and Administration				
49	quality control procedures for construction, such as delivery, storage, testing, etc.	2.53	2.57	2.46	2.59
50	sequencing of design, approval, permitting, and construction activities	3.01	3.00	3.04	2.98
51	the life-cycle cost-analysis process	2.25	2.38	2.32	2.10
52	geographic coordinate systems and layout techniques and conventions	2.65	2.69	2.60	2.69
53	specification types and components for a project	3.08	2.91	3.11	3.14
54	general and supplemental conditions, special provisions, and technical specifications and their organizations	2.91	2.73	2.94	2.98
55	construction administration and details	3.02	2.98	3.03	3.04
56	basic construction law	2.65	2.74	2.72	2.52
57	construction contracts	2.89	2.89	2.98	2.80
	VIII. Communication				
58	determination of user values such as focus groups and surveys	2.36	2.31	2.40	2.35
59	consensus and team building	2.68	2.69	2.75	2.61
60	techniques for conducting meetings	2.73	2.73	2.75	2.70
61	the roles of visual communication, including photographic and video documentation	2.85	2.87	2.94	2.74
62	graphic presentation techniques, systems and symbols	3.32	3.42	3.37	3.21
63	interpretive methods and techniques such as information displays and brochures	2.48	2.58	2.56	2.33
64	public relations, outreach, and image development	2.45	2.45	2.48	2.40
	IX. Values and Ethics in Practice				
65	environmental ethics	2.88	3.13	2.88	2.73
66	social responsibility in design	2.96	3.25	2.99	2.77
67	organizational management principles such as leadership principles and landscape architect career cycle	2.58	2.72	2.60	2.47
68	resolving moral and ethical dilemmas	2.82	2.95	2.88	2.67

Appendix I--License Information
Competency Statements--Importance at Time of Degree

	Q8. In how many states, provinces or territories are you currently licensed as a landscape architect?	Total Group Mean	None	One	More than 1
	N	255	55	104	96
	I. Landscape Architecture History and Criticism				
69	Develop an understanding of design as exemplified by historically significant works of landscape architecture, urban planning, civic design, and architecture	2.02	2.11	2.02	1.98
70	Examine economic, political, social, ecological and esthetic relationships and their influence on the development of the profession of landscape architecture	1.65	1.75	1.70	1.53
71	Demonstrate an understanding of the evolution of landscape architecture as an art and a profession through knowledge of its terminology, literature, personalities, and concepts	1.85	2.07	1.95	1.62
72	Demonstrate the ability to critique prior work and understand the relevance in addressing curent issues and problems	1.89	2.07	1.95	1.71
73	Develop an ability to synthesize and make connections between aspects of landscape architecture and disciplines outside of landscape architecture	1.98	2.02	2.02	1.91
	II. Natural and Cultural Systems				
74	Conduct field investigations to identify significant natural and cultural features, characteristics, and systems	2.06	2.07	2.03	2.08
75	Perform quantitative analyses to evaluate the interactions of natural and cultural features, characteristics, and systems	1.64	1.73	1.58	1.65
76	Perform qualitative analyses to evaluate the relationship between the natural and cultural features, characteristics, and systems	1.79	1.95	1.71	1.80
77	Predict implications of design, planning, and management proposals on natural cultural systems both within the site and in the larger context	1.88	1.91	1.90	1.83
	III. Public Policy and Regulation				
78	Identify and collect regulatory information, applicable data and required approvals governing a project (e.g., relevant laws, codes, and regulations)	1.31	1.42	1.29	1.28
79	Confirm code compliance (e.g. zoning, environment, and accessibility)	1.37	1.53	1.30	1.34
80	Assist in the preparation of ordinances, regulations, covenants, standards, and guidelines	0.77	0.87	0.75	0.73
81	Influence public policies on areas such as growth and land and water management by testifying, lobbying, or preparing written documents for public distribution	0.73	0.76	0.74	0.70
	IV. Design, Planning, and Management at Various Scales and Applications				
82	Develop a design program based on users' needs and clients' goals and resources	2.13	2.20	2.23	1.97
83	Analyze relationships among design elements by determining opportunities and constraints	2.33	2.42	2.42	2.17
84	Develop conceptual design, planning, and management solutions	2.39	2.42	2.48	2.28
85	Evaluate design alternatives to determine the appropriate solution	2.45	2.44	2.52	2.39

Appendix I--License Information
Competency Statements--Importance at Time of Degree

	Q8. In how many states, provinces or territories are you currently licensed as a landscape architect?	Total Group Mean	None	One	More than 1
	N	255	55	104	96
	V. Site Design and Engineering: Materials, Methods, Technologies and Applications				
86	Design for protection and management of land resources (e.g. land forms, vegetation, habitat, erosion and sedimentation control)	2.13	2.29	2.13	2.02
87	Design for protection and management of water resources (e.g. stormwater, water supply, ground water)	2.05	2.16	2.03	2.00
88	Design pedestrian, vehicular, and non-motorized circulation systems	2.28	2.24	2.34	2.23
89	Design elements for construction considering materials, structural issues, and construction technologies	1.94	1.85	1.97	1.97
	VI. Construction Documentation and Administration				
90	Prepare construction documents including plans, working drawings, and technical specifications	1.87	1.75	1.97	1.84
91	Prepare contract documents including agreements, general conditions, and bid documents	1.24	1.22	1.20	1.28
92	Manage the bidding/tendering process	0.72	0.78	0.65	0.76
93	Provide construction administration and observation throughout the project	0.83	0.85	0.77	0.87
94	Conduct project closure including review and distribution of close-out documents	0.67	0.71	0.61	0.71
95	Perform post construction evaluation	0.91	0.84	0.97	0.89
96	Perform construction services including design-build	0.67	0.73	0.66	0.64
97	Prepare management and maintenance manuals and documents	0.81	0.78	0.84	0.80
	VII. Communication				
98	Maintain clear communication among collaborators through correspondence and project coordination	1.51	1.55	1.54	1.45
99	Develop written documentation, such as projects reports, grant proposals, and promotional materials	1.43	1.52	1.50	1.29
100	Create graphic materials in a variety of media	2.19	2.33	2.27	2.03
101	Prepare and deliver oral presentations such as meetings, demonstrations, and outreach	2.18	2.31	2.23	2.05
102	Conduct project and public meetings including preparing of meeting agendas and notes, and facilitation of the meeting	1.34	1.42	1.33	1.31
103	Review and critique peer work	1.79	2.09	1.87	1.53
	VIII. Values and Ethics in Practice				
104	Manage business practices and organizations	0.81	0.89	0.83	0.74
105	Manage risk and liability	0.86	0.96	0.80	0.87
106	Negotiate and prepare client and consultant agreements	0.74	0.89	0.63	0.78
107	Participate in life-long learning (e.g., a professional organization, continuing education activities)	1.56	1.67	1.60	1.46
108	Participate in professional and public service activities	1.58	1.71	1.56	1.53
109	Train, educate and mentor other professionals	0.96	0.96	1.01	0.91
110	Maintain and promote professional and ethical standards	2.12	2.04	2.13	2.16

Appendix I--License Information
Competency Statements--Importance at Time of Professional Responsibility

	Q8. In how many states, provinces or territories are you currently licensed as a landscape architect?	Total Group Mean	None	One	More than 1
	N	**255**	**55**	**104**	**96**
	I. Landscape Architecture History and Criticism				
69	Develop an understanding of design as exemplified by historically significant works of landscape architecture, urban planning, civic design, and architecture	2.05	2.13	2.07	1.99
70	Examine economic, political, social, ecological and esthetic relationships and their influence on the development of the profession of landscape architecture	1.93	1.95	2.07	1.77
71	Demonstrate an understanding of the evolution of landscape architecture as an art and a profession through knowledge of its terminology, literature, personalities, and concepts	1.90	1.98	1.99	1.74
72	Demonstrate the ability to critique prior work and understand the relevance in addressing curent issues and problems	2.33	2.31	2.39	2.27
73	Develop an ability to synthesize and make connections between aspects of landscape architecture and disciplines outside of landscape architecture	2.58	2.55	2.65	2.52
	II. Natural and Cultural Systems				
74	Conduct field investigations to identify significant natural and cultural features, characteristics, and systems	2.56	2.49	2.56	2.59
75	Perform quantitative analyses to evaluate the interactions of natural and cultural features, characteristics, and systems	2.09	2.11	2.07	2.10
76	Perform qualitative analyses to evaluate the relationship between the natural and cultural features, characteristics, and systems	2.24	2.24	2.26	2.21
77	Predict implications of design, planning, and management proposals on natural cultural systems both within the site and in the larger context	2.52	2.54	2.57	2.44
	III. Public Policy and Regulation				
78	Identify and collect regulatory information, applicable data and required approvals governing a project (e.g., relevant laws, codes, and regulations)	2.62	2.64	2.61	2.63
79	Confirm code compliance (e.g. zoning, environment, and accessibility)	2.70	2.73	2.70	2.68
80	Assist in the preparation of ordinances, regulations, covenants, standards, and guidelines	1.81	1.95	1.89	1.64
81	Influence public policies on areas such as growth and land and water management by testifying, lobbying, or preparing written documents for public distribution	1.84	1.96	1.91	1.68
	IV. Design, Planning, and Management at Various Scales and Applications				
82	Develop a design program based on users' needs and clients' goals and resources	2.83	2.71	2.88	2.84
83	Analyze relationships among design elements by determining opportunities and constraints	2.80	2.69	2.84	2.82
84	Develop conceptual design, planning, and management solutions	2.86	2.74	2.90	2.87
85	Evaluate design alternatives to determine the appropriate solution	2.85	2.75	2.88	2.87

Appendix I--License Information
Competency Statements--Importance at Time of Professional Responsibility

	Q8. In how many states, provinces or territories are you currently licensed as a landscape architect?	Total Group Mean	None	One	More than 1
	N	**255**	**55**	**104**	**96**
	V. Site Design and Engineering: Materials, Methods, Technologies and Applications				
86	Design for protection and management of land resources (e.g. land forms, vegetation, habitat, erosion and sedimentation control)	2.72	2.71	2.77	2.66
87	Design for protection and management of water resources (e.g. stormwater, water supply, ground water)	2.69	2.65	2.74	2.66
88	Design pedestrian, vehicular, and non-motorized circulation systems	2.76	2.71	2.81	2.74
89	Design elements for construction considering materials, structural issues, and construction technologies	2.69	2.71	2.64	2.73
	VI. Construction Documentation and Administration				
90	Prepare construction documents including plans, working drawings, and technical specifications	2.82	2.75	2.79	2.91
91	Prepare contract documents including agreements, general conditions, and bid documents	2.60	2.64	2.55	2.63
92	Manage the bidding/tendering process	2.22	2.18	2.27	2.19
93	Provide construction administration and observation throughout the project	2.44	2.45	2.41	2.47
94	Conduct project closure including review and distribution of close-out documents	2.27	2.25	2.26	2.28
95	Perform post construction evaluation	2.21	2.36	2.21	2.11
96	Perform construction services including design-build	1.51	1.81	1.46	1.38
97	Prepare management and maintenance manuals and documents	1.80	1.91	1.88	1.63
	VII. Communication				
98	Maintain clear communication among collaborators through correspondence and project coordination	2.69	2.69	2.67	2.69
99	Develop written documentation, such as projects reports, grant proposals, and promotional materials	2.41	2.50	2.46	2.30
100	Create graphic materials in a variety of media	2.41	2.44	2.49	2.32
101	Prepare and deliver oral presentations such as meetings, demonstrations, and outreach	2.64	2.62	2.64	2.66
102	Conduct project and public meetings including preparing of meeting agendas and notes, and facilitation of the meeting	2.43	2.40	2.44	2.43
103	Review and critique peer work	2.08	2.22	2.14	1.94
	VIII. Values and Ethics in Practice				
104	Manage business practices and organizations	2.24	2.27	2.21	2.24
105	Manage risk and liability	2.43	2.45	2.40	2.44
106	Negotiate and prepare client and consultant agreements	2.41	2.42	2.39	2.42
107	Participate in life-long learning (e.g., a professional organization, continuing education activities)	2.52	2.51	2.61	2.42
108	Participate in professional and public service activities	2.22	2.27	2.23	2.18
109	Train, educate and mentor other professionals	2.20	2.33	2.24	2.08
110	Maintain and promote professional and ethical standards	2.78	2.78	2.78	2.77

Appendix I--Organization In Which Landscape Architect Works
Knowledge Statements--Time of Acquisition

	Q10. Which of the following best describes the type of organization in which you are currently working?	Total Group Mean	Exclusively LA firm	Multi- disciplinary firm	Educators	Others
	N	255	65	75	45	56
	I. Landscape Architecture History and Criticism					
1	history of landscape architecture and allied professions	2.00	1.98	2.00	2.00	2.00
2	historic preservation principles	2.57	2.67	2.38	2.64	2.60
	II. Natural and Cultural Systems					
3	land information sources	2.11	2.02	2.29	2.04	2.04
4	patterns of land use and built form	2.12	2.05	2.19	2.04	2.07
5	natural site conditions and ecosystems	2.01	2.03	2.01	2.00	1.95
6	social and cultural influences on design	2.21	2.29	2.20	2.07	2.22
7	regional hazard design considerations	2.57	2.55	2.66	2.31	2.66
	III. Design and Planning Theories and Methodologies					
8	creativity and process including design theory and problem-solving strategies	1.95	1.91	1.97	1.96	1.93
9	aesthetic principles of design	1.95	1.94	1.95	1.89	2.00
10	human factors such as behavior, perception, psychological and sensory response	2.22	2.27	2.23	2.04	2.24
11	natural factors such as ecological relationships	2.02	2.09	2.11	1.95	1.95
12	relationship between human and natural systems such as resource conservation, habitat restoration and creation, and urban ecology	2.35	2.36	2.47	2.16	2.31
13	influence of context on design, planning, and management decisions	2.50	2.53	2.61	2.24	2.52
14	research methods including data collection, interpretation, and application of results	2.44	2.53	2.39	2.59	2.27
15	therapeutic aspects of design	2.87	2.83	3.17	2.69	2.64
16	communication and education methods, including sharing knowledge and evaluating outcomes	2.66	2.63	2.83	2.40	2.64
	IV. Public Policy and Regulation					
17	governmental policies and laws that affect the use and development of land	3.00	3.11	3.05	2.62	3.02
18	political and regulatory approval processes	3.43	3.43	3.52	3.07	3.51
19	land and development economics	3.53	3.47	3.61	3.47	3.48
20	emerging trends and issues	3.41	3.22	3.53	3.16	3.50
	V. Design, Planning and Management at Various Scales and Applications					
21	photogrammetry and remote sensing	2.60	2.54	2.54	2.89	2.63

Appendix I--Organization In Which Landscape Architect Works
Knowledge Statements--Time of Acquisition

Q10. Which of the following best describes the type of organization in which you are currently working?	Total Group Mean	Exclusively LA firm	Multi- disciplinary firm	Educators	Others
N	255	65	75	45	56
22 visual resource assessment	2.36	2.31	2.38	2.31	2.41
23 agricultural and rural landscape analysis	2.56	2.63	2.41	2.42	2.66
24 urvan landscape	2.24	2.26	2.31	2.24	2.18
25 Planning principles including regional community and neighborhood planning	2.41	2.37	2.54	2.16	2.41
26 conservation of natural resources	2.10	2.15	2.03	2.04	2.11
27 historic preservation	2.60	2.44	2.72	2.56	2.62
28 ecological planning principles	2.22	2.27	2.34	2.18	2.09
29 water resource management	2.69	2.75	2.76	2.58	2.58
30 wetland management	2.82	2.75	2.95	2.78	2.85
31 floodplain management	2.87	2.81	2.97	2.73	2.96
32 land and water reclamation procedures including quarry, mine and landfill reclamation	3.16	3.25	3.32	2.73	3.20
33 treatment of toxic materials	3.37	3.33	3.55	3.23	3.33
VI. Site Design and Engineering: Materials, Methods, Technologies and Applications					
34 design needs for special populations	2.59	2.66	2.68	2.29	2.57
35 accessibility regulations	2.41	2.55	2.43	2.13	2.36
36 roadway design principles	2.26	2.08	2.50	2.04	2.34
37 elements of vehicular and pedestrian circulation systems and their design requirements	2.15	2.08	2.24	2.02	2.20
38 landscape maintenance techniques, materials, equipment, and practices	2.54	2.77	2.31	2.60	2.50
39 noise attenuation and mitigation techniques	3.16	3.28	2.97	3.22	3.27
40 sustainable construction practices	2.98	3.16	3.22	2.58	2.77
41 construction equipment and technologies	2.82	2.89	2.88	2.78	2.65
42 grading, drainage and stormwater treatment	2.09	2.05	2.17	2.07	2.06
43 biofiltration and other alternative drainage methods	2.82	2.91	2.87	2.33	3.06
44 erosion and sedimentation control	2.44	2.36	2.59	2.29	2.37
45 utility systems	2.78	2.91	2.99	2.56	2.47
46 irrigation systems	2.54	2.65	2.61	2.29	2.45
47 lighting systems	2.72	2.83	2.78	2.38	2.75
48 structural considerations	2.37	2.49	2.51	2.09	2.25
VII. Construction Documentation and Administration					
49 quality control procedures for construction, such as delivery, storage, testing, etc.	3.61	3.83	3.69	3.32	3.53

Appendix I--Organization In Which Landscape Architect Works
Knowledge Statements--Time of Acquisition

Q10. Which of the following best describes the type of organization in which you are currently working?	Total Group Mean	Exclusively LA firm	Multi- disciplinary firm	Educators	Others
N	255	65	75	45	56
50 sequencing of design, approval, permitting, and construction activities	3.41	3.50	3.36	3.39	3.30
51 the life-cycle cost-analysis process	3.70	3.89	3.77	3.52	3.50
52 geographic coordinate systems and layout techniques and conventions	2.64	2.70	2.83	2.39	2.60
53 specification types and components for a project	2.75	2.81	3.07	2.45	2.57
54 general and supplemental conditions, special provisions, and technical specifications and their organizations	3.29	3.28	3.45	3.19	3.25
55 construction administration and details	3.38	3.39	3.41	3.39	3.38
56 basic construction law	3.25	3.39	3.54	3.00	2.95
57 construction contracts	3.34	3.52	3.50	3.02	3.34
VIII. Communication					
58 determination of user values such as focus groups and surveys	3.05	3.21	2.88	3.00	3.13
59 consensus and team building	3.05	3.28	3.03	3.00	2.86
60 techniques for conducting meetings	3.52	3.70	3.45	3.34	3.54
61 the roles of visual communication, including photographic and video documentation	2.46	2.65	2.49	2.25	2.48
62 graphic presentation techniques, systems and symbols	2.10	2.16	2.10	2.00	2.14
63 interpretive methods and techniques such as information displays and brochures	3.06	3.39	3.01	2.89	2.96
64 public relations, outreach, and image development	3.58	3.64	3.55	3.52	3.45
IX. Values and Ethics in Practice					
65 environmental ethics	2.18	2.39	2.08	2.02	2.31
66 social responsibility in design	2.29	2.56	2.21	2.07	2.29
67 organizational management principles such as leadership principles and landscape architect career cycle	3.23	3.31	3.38	2.95	2.98
68 resolving moral and ethical dilemmas	2.76	2.92	2.95	2.21	2.71

Appendix I--Organization In Which Landscape Architect Works
Knowledge Statements--Command of Knowledge at Time of Degree

	Q10. Which of the following best describes the type of organization in which you are currently working?	Total Group Mean	Exclusively LA firm	Multi-disciplinary firm	Educators	Others
	N	255	65	75	45	56
	I. Landscape Architecture History and Criticism					
1	history of landscape architecture and allied professions	2.15	2.02	2.12	2.49	2.02
2	historic preservation principles	1.69	1.65	1.76	1.73	1.64
	II. Natural and Cultural Systems					
3	land information sources	2.55	2.55	2.47	2.82	2.40
4	patterns of land use and built form	2.43	2.33	2.43	2.73	2.44
5	natural site conditions and ecosystems	2.76	2.69	2.73	3.07	2.69
6	social and cultural influences on design	2.19	2.15	2.04	2.80	2.07
7	regional hazard design considerations	2.10	2.23	2.03	2.20	2.02
	III. Design and Planning Theories and Methodologies					
8	creativity and process including design theory and problem-solving strategies	2.83	2.83	2.73	2.96	2.86
9	aesthetic principles of design	2.78	2.78	2.70	2.93	2.80
10	human factors such as behavior, perception, psychological and sensory response	2.33	2.32	2.18	2.53	2.38
11	natural factors such as ecological relationships	2.53	2.51	2.45	2.78	2.50
12	relationship between human and natural systems such as resource conservation, habitat restoration and creation, and urban ecology	2.36	2.25	2.27	2.64	2.38
13	influence of context on design, planning, and management decisions	2.45	2.32	2.47	2.60	2.49
14	research methods including data collection, interpretation, and application of results	2.37	2.18	2.51	2.40	2.30
15	therapeutic aspects of design	1.66	1.88	1.49	1.75	1.63
16	communication and education methods, including sharing knowledge and evaluating outcomes	2.15	2.05	2.11	2.13	2.32
	IV. Public Policy and Regulation					
17	governmental policies and laws that affect the use and development of land	1.80	1.80	1.85	1.84	1.71
18	political and regulatory approval processes	1.67	1.65	1.85	1.73	1.43
19	land and development economics	1.47	1.55	1.54	1.43	1.40
20	emerging trends and issues	1.65	1.63	1.67	1.71	1.64
	V. Design, Planning and Management at Various Scales and Applications					
21	photogrammetry and remote sensing	1.47	1.57	1.39	1.36	1.50

Appendix I--Organization In Which Landscape Architect Works
Knowledge Statements--Command of Knowledge at Time of Degree

	Q10. Which of the following best describes the type of organization in which you are currently working?	Total Group Mean	Exclusively LA firm	Multi-disciplinary firm	Educators	Others
	N	255	65	75	45	56
22	visual resource assessment	1.91	2.02	1.92	1.73	1.95
23	agricultural and rural landscape analysis	1.68	1.71	1.60	1.73	1.70
24	urvan landscape	2.17	2.05	2.19	2.36	2.14
25	Planning principles including regional community and neighborhood planning	2.12	2.08	2.08	2.33	2.07
26	conservation of natural resources	2.33	2.26	2.33	2.51	2.34
27	historic preservation	1.73	1.75	1.76	1.75	1.73
28	ecological planning principles	2.23	2.16	2.04	2.62	2.23
29	water resource management	1.91	1.80	1.80	2.20	1.93
30	wetland management	1.78	1.80	1.67	1.98	1.73
31	floodplain management	1.80	1.82	1.68	2.00	1.73
32	land and water reclamation procedures including quarry, mine and landfill reclamation	1.43	1.45	1.31	1.62	1.38
33	treatment of toxic materials	1.05	1.05	0.96	1.18	0.96
	VI. Site Design and Engineering: Materials, Methods, Technologies and Applications					
34	design needs for special populations	1.91	1.89	1.91	2.18	1.82
35	accessibility regulations	2.28	2.26	2.31	2.47	2.16
36	roadway design principles	2.15	2.17	2.00	2.44	2.09
37	elements of vehicular and pedestrian circulation systems and their design requirements	2.57	2.55	2.49	2.76	2.55
38	landscape maintenance techniques, materials, equipment, and practices	1.93	1.92	1.73	1.93	2.20
39	noise attenuation and mitigation techniques	1.66	1.78	1.59	1.42	1.76
40	sustainable construction practices	1.82	1.74	1.72	2.04	1.95
41	construction equipment and technologies	1.76	1.80	1.59	1.67	1.91
42	grading, drainage and stormwater treatment	2.78	2.78	2.69	2.89	2.80
43	biofiltration and other alternative drainage methods	1.91	1.83	1.89	2.16	1.81
44	erosion and sedimentation control	2.28	2.17	2.28	2.40	2.30
45	utility systems	1.77	1.77	1.76	1.76	1.79
46	irrigation systems	1.75	1.72	1.59	1.78	1.95
47	lighting systems	1.70	1.77	1.57	1.71	1.75
48	structural considerations	2.06	1.95	1.96	2.18	2.21
	VII. Construction Documentation and Administration					
49	quality control procedures for construction, such as delivery, storage, testing, etc.	1.27	1.23	1.26	1.20	1.22

Appendix I--Organization In Which Landscape Architect Works
Knowledge Statements--Command of Knowledge at Time of Degree

	Q10. Which of the following best describes the type of organization in which you are currently working?	Total Group Mean	Exclusively LA firm	Multi-disciplinary firm	Educators	Others
	N	255	65	75	45	56
50	sequencing of design, approval, permitting, and construction activities	1.68	1.64	1.69	1.55	1.70
51	the life-cycle cost-analysis process	1.32	1.19	1.26	1.23	1.48
52	geographic coordinate systems and layout techniques and conventions	1.90	1.95	1.63	2.09	1.98
53	specification types and components for a project	1.89	1.84	1.73	2.05	2.00
54	general and supplemental conditions, special provisions, and technical specifications and their organizations	1.64	1.77	1.50	1.58	1.75
55	construction administration and details	1.73	1.89	1.70	1.50	1.75
56	basic construction law	1.48	1.57	1.49	1.21	1.61
57	construction contracts	1.55	1.59	1.53	1.35	1.63
	VIII. Communication					
58	determination of user values such as focus groups and surveys	1.52	1.52	1.45	1.38	1.64
59	consensus and team building	1.74	1.72	1.60	1.62	1.98
60	techniques for conducting meetings	1.59	1.53	1.54	1.42	1.80
61	the roles of visual communication, including photographic and video documentation	2.25	2.16	2.10	2.44	2.32
62	graphic presentation techniques, systems and symbols	2.71	2.72	2.59	3.00	2.59
63	interpretive methods and techniques such as information displays and brochures	1.82	1.70	1.81	1.80	1.86
64	public relations, outreach, and image development	1.49	1.48	1.53	1.24	1.46
	IX. Values and Ethics in Practice					
65	environmental ethics	2.08	2.06	1.95	2.12	2.20
66	social responsibility in design	2.10	2.13	1.97	2.14	2.20
67	organizational management principles such as leadership principles and landscape architect career cycle	1.61	1.65	1.57	1.45	1.65
68	resolving moral and ethical dilemmas	1.89	1.84	1.79	1.79	2.06

Appendix I--Organization In Which Landscape Architect Works
Knowledge Statements--Command of Knowledge at Time of Professional Responsibility

	Q10. Which of the following best describes the type of organization in which you are currently working?	Total Group Mean	Exclusively LA firm	Multi-disciplinary firm	Educators	Others
	N	255	65	75	45	56
	I. Landscape Architecture History and Criticism					
1	history of landscape architecture and allied professions	2.57	2.45	2.49	2.89	2.55
2	historic preservation principles	2.27	2.22	2.27	2.38	2.31
	II. Natural and Cultural Systems					
3	land information sources	3.33	3.32	3.36	3.52	3.21
4	patterns of land use and built form	3.07	3.00	3.07	3.34	3.04
5	natural site conditions and ecosystems	3.35	3.31	3.28	3.57	3.32
6	social and cultural influences on design	2.78	2.78	2.56	3.30	2.80
7	regional hazard design considerations	3.00	3.05	3.04	3.07	2.93
	III. Design and Planning Theories and Methodologies					
8	creativity and process including design theory and problem-solving strategies	3.50	3.58	3.39	3.58	3.56
9	aesthetic principles of design	3.38	3.45	3.34	3.44	3.38
10	human factors such as behavior, perception, psychological and sensory response	2.92	2.97	2.68	3.18	3.06
11	natural factors such as ecological relationships	3.14	3.12	3.05	3.49	3.05
12	relationship between human and natural systems such as resource conservation, habitat restoration and creation, and urban ecology	3.04	3.03	2.97	3.29	2.98
13	influence of context on design, planning, and management decisions	3.24	3.18	3.28	3.34	3.22
14	research methods including data collection, interpretation, and application of results	2.91	2.95	2.92	2.87	2.84
15	therapeutic aspects of design	2.23	2.49	2.16	2.23	2.13
16	communication and education methods, including sharing knowledge and evaluating outcomes	2.78	2.82	2.72	2.67	2.89
	IV. Public Policy and Regulation					
17	governmental policies and laws that affect the use and development of land	3.02	3.06	3.08	3.00	3.00
18	political and regulatory approval processes	2.98	2.92	3.13	3.09	2.86
19	land and development economics	2.43	2.65	2.46	2.20	2.40
20	emerging trends and issues	2.39	2.38	2.37	2.38	2.46
	V. Design, Planning and Management at Various Scales and Applications					
21	photogrammetry and remote sensing	2.02	1.98	1.95	2.11	2.00

Appendix I--Organization In Which Landscape Architect Works
Knowledge Statements--Command of Knowledge at Time of Professional Responsibility

	Q10. Which of the following best describes the type of organization in which you are currently working?	Total Group Mean	Exclusively LA firm	Multi-disciplinary firm	Educators	Others
	N	255	65	75	45	56
22	visual resource assessment	2.54	2.60	2.55	2.62	2.41
23	agricultural and rural landscape analysis	2.24	2.26	2.16	2.44	2.16
24	urvan landscape	2.81	2.77	2.79	3.07	2.71
25	Planning principles including regional community and neighborhood planning	2.80	2.69	2.85	2.96	2.82
26	conservation of natural resources	2.99	2.94	2.91	3.24	3.07
27	historic preservation	2.33	2.40	2.27	2.45	2.31
28	ecological planning principles	2.88	2.77	2.72	3.27	2.93
29	water resource management	2.58	2.52	2.44	2.82	2.64
30	wetland management	2.48	2.51	2.38	2.71	2.42
31	floodplain management	2.45	2.42	2.29	2.73	2.50
32	land and water reclamation procedures including quarry, mine and landfill reclamation	2.03	2.11	1.78	2.38	1.93
33	treatment of toxic materials	1.67	1.62	1.55	1.93	1.63
	VI. Site Design and Engineering: Materials, Methods, Technologies and Applications					
34	design needs for special populations	2.81	2.85	2.81	3.02	2.71
35	accessibility regulations	3.22	3.22	3.27	3.36	3.18
36	roadway design principles	2.80	2.75	2.82	3.16	2.57
37	elements of vehicular and pedestrian circulation systems and their design requirements	3.37	3.45	3.34	3.44	3.25
38	landscape maintenance techniques, materials, equipment, and practices	2.77	2.78	2.59	2.93	2.88
39	noise attenuation and mitigation techniques	2.34	2.43	2.22	2.31	2.42
40	sustainable construction practices	2.60	2.58	2.51	2.87	2.55
41	construction equipment and technologies	2.60	2.60	2.44	2.71	2.67
42	grading, drainage and stormwater treatment	3.45	3.42	3.46	3.64	3.31
43	biofiltration and other alternative drainage methods	2.60	2.55	2.46	3.00	2.51
44	erosion and sedimentation control	3.04	2.95	3.01	3.33	2.96
45	utility systems	2.51	2.46	2.47	2.64	2.57
46	irrigation systems	2.50	2.44	2.38	2.71	2.57
47	lighting systems	2.51	2.57	2.41	2.56	2.48
48	structural considerations	2.85	2.83	2.72	3.11	2.88
	VII. Construction Documentation and Administration					
49	quality control procedures for construction, such as delivery, storage, testing, etc.	2.53	2.45	2.50	2.48	2.68

Appendix I--Organization In Which Landscape Architect Works
Knowledge Statements--Command of Knowledge at Time of Professional Responsibility

	Q10. Which of the following best describes the type of organization in which you are currently working?	Total Group Mean	Exclusively LA firm	Multi-disciplinary firm	Educators	Others
	N	**255**	**65**	**75**	**45**	**56**
50	sequencing of design, approval, permitting, and construction activities	3.01	3.00	3.04	2.95	3.02
51	the life-cycle cost-analysis process	2.25	2.16	2.08	2.36	2.48
52	geographic coordinate systems and layout techniques and conventions	2.65	2.64	2.54	2.82	2.67
53	specification types and components for a project	3.08	3.09	3.04	3.14	3.07
54	general and supplemental conditions, special provisions, and technical specifications and their organizations	2.91	2.97	2.95	2.84	2.93
55	construction administration and details	3.02	3.03	3.08	2.86	3.07
56	basic construction law	2.65	2.63	2.58	2.53	2.88
57	construction contracts	2.89	2.97	2.85	2.77	2.96
	VIII. Communication					
58	determination of user values such as focus groups and surveys	2.36	2.30	2.26	2.29	2.59
59	consensus and team building	2.68	2.64	2.59	2.64	2.85
60	techniques for conducting meetings	2.73	2.62	2.81	2.60	2.83
61	the roles of visual communication, including photographic and video documentation	2.85	2.67	2.81	2.98	2.93
62	graphic presentation techniques, systems and symbols	3.32	3.36	3.31	3.47	3.17
63	interpretive methods and techniques such as information displays and brochures	2.48	2.52	2.46	2.39	2.41
64	public relations, outreach, and image development	2.45	2.50	2.53	2.27	2.26
	IX. Values and Ethics in Practice					
65	environmental ethics	2.88	2.90	2.73	2.95	2.96
66	social responsibility in design	2.96	2.95	2.86	3.02	3.00
67	organizational management principles such as leadership principles and landscape architect career cycle	2.58	2.63	2.58	2.49	2.50
68	resolving moral and ethical dilemmas	2.82	2.71	2.68	2.86	3.04

Appendix I--Organization In Which Landscape Architect Works
Competency Statements--Importance at Time of Degree

	Q10. Which of the following best describes the type of organization in which you are currently working?	Total Group Mean	Exclusively LA firm	Multi-disciplinary Firm	Educators	Others
	N	255	65	75	45	56
	I. Landscape Architecture History and Criticism					
69	Develop an understanding of design as exemplified by historically significant works of landscape architecture, urban planning, civic design, and architecture	2.02	1.88	1.92	2.36	2.02
70	Examine economic, political, social, ecological and esthetic relationships and their influence on the development of the profession of landscape architecture	1.65	1.51	1.46	2.11	1.70
71	Demonstrate an understanding of the evolution of landscape architecture as an art and a profession through knowledge of its terminology, literature, personalities, and concepts	1.85	1.80	1.74	2.28	1.77
72	Demonstrate the ability to critique prior work and understand the relevance in addressing curent issues and problems	1.89	1.89	1.75	2.11	1.88
73	Develop an ability to synthesize and make connections between aspects of landscape architecture and disciplines outside of landscape architecture	1.98	1.94	1.84	2.11	2.05
	II. Natural and Cultural Systems					
74	Conduct field investigations to identify significant natural and cultural features, characteristics, and systems	2.06	2.02	1.92	2.45	1.91
75	Perform quantitative analyses to evaluate the interactions of natural and cultural features, characteristics, and systems	1.64	1.71	1.51	1.64	1.68
76	Perform qualitative analyses to evaluate the relationship between the natural and cultural features, characteristics, and systems	1.79	1.82	1.65	1.93	1.77
77	Predict implications of design, planning, and management proposals on natural cultural systems both within the site and in the larger context	1.88	1.80	1.72	2.07	1.93
	III. Public Policy and Regulation					
78	Identify and collect regulatory information, applicable data and required approvals governing a project (e.g., relevant laws, codes, and regulations)	1.31	1.28	1.22	1.40	1.34
79	Confirm code compliance (e.g. zoning, environment, and accessibility)	1.37	1.34	1.34	1.37	1.39
80	Assist in the preparation of ordinances, regulations, covenants, standards, and guidelines	0.77	0.80	0.66	0.79	0.86
81	Influence public policies on areas such as growth and land and water management by testifying, lobbying, or preparing written documents for public distribution	0.73	0.72	0.64	0.81	0.78
	IV. Design, Planning, and Management at Various Scales and Applications					
82	Develop a design program based on users' needs and clients' goals and resources	2.13	2.13	1.88	2.50	2.18
83	Analyze relationships among design elements by determining opportunities and constraints	2.33	2.23	2.18	2.66	2.39
84	Develop conceptual design, planning, and management solutions	2.39	2.36	2.24	2.70	2.41
85	Evaluate design alternatives to determine the appropriate solution	2.45	2.38	2.39	2.64	2.48
	V. Site Design and Engineering: Materials, Methods, Technologies and Applications					
86	Design for protection and management of land resources (e.g. land forms, vegetation, habitat, erosion and sedimentation control)	2.13	2.08	2.00	2.43	2.13

Appendix I--Organization In Which Landscape Architect Works
Competency Statements--Importance at Time of Degree

	Q10. Which of the following best describes the type of organization in which you are currently working?	Total Group Mean	Exclusively LA firm	Multi-disciplinary Firm	Educators	Others
	N	255	65	75	45	56
87	Design for protection and management of water resources (e.g. stormwater, water supply, ground water)	2.05	2.05	1.93	2.28	2.00
88	Design pedestrian, vehicular, and non-motorized circulation systems	2.28	2.32	2.15	2.44	2.29
89	Design elements for construction considering materials, structural issues, and construction technologies	1.94	1.97	1.72	2.14	1.98
	VI. Construction Documentation and Administration					
90	Prepare construction documents including plans, working drawings, and technical specifications	1.87	1.94	1.63	2.00	2.02
91	Prepare contract documents including agreements, general conditions, and bid documents	1.24	1.26	1.12	1.18	1.35
92	Manage the bidding/tendering process	0.72	0.83	0.69	0.68	0.70
93	Provide construction administration and observation throughout the project	0.83	0.95	0.72	0.70	0.95
94	Conduct project closure including review and distribution of close-out documents	0.67	0.80	0.63	0.52	0.71
95	Perform post construction evaluation	0.91	0.91	0.83	0.93	0.98
96	Perform construction services including design-build	0.67	0.67	0.52	0.66	0.82
97	Prepare management and maintenance manuals and documents	0.81	0.89	0.68	0.82	0.93
	VII. Communication					
98	Maintain clear communication among collaborators through correspondence and project coordination	1.51	1.48	1.44	1.50	1.63
99	Develop written documentation, such as projects reports, grant proposals, and promotional materials	1.43	1.25	1.32	1.55	1.66
100	Create graphic materials in a variety of media	2.19	2.09	2.12	2.43	2.23
101	Prepare and deliver oral presentations such as meetings, demonstrations, and outreach	2.18	2.12	2.13	2.44	2.13
102	Conduct project and public meetings including preparing of meeting agendas and notes, and facilitation of the meeting	1.34	1.32	1.37	1.32	1.39
103	Review and critique peer work	1.79	1.58	1.80	1.89	1.96
	VIII. Values and Ethics in Practice					
104	Manage business practices and organizations	0.81	0.95	0.65	0.70	0.91
105	Manage risk and liability	0.86	1.06	0.77	0.70	0.89
106	Negotiate and prepare client and consultant agreements	0.74	0.86	0.71	0.73	0.64
107	Participate in life-long learning (e.g., a professional organization, continuing education activities)	1.56	1.63	1.41	1.67	1.55
108	Participate in professional and public service activities	1.58	1.62	1.49	1.75	1.48
109	Train, educate and mentor other professionals	0.96	0.98	0.89	0.95	0.98
110	Maintain and promote professional and ethical standards	2.12	1.98	2.04	2.32	2.18

Appendix I--Organization In Which Landscape Architect Works
Competency Statements--Importance at Time of Professional Responsibility

	Q10. Which of the following best describes the type of organization in which you are currently working?	Total Group Mean	Exclusively LA firm	Multi-disciplinary firm	Educators	Others
	N	255	65	75	45	56
	Section 2: Competencies: Professional Responsibilities					
	I. Landscape Architecture History and Criticism					
69	Develop an understanding of design as exemplified by historically significant works of landscape architecture, urban planning, civic design, and architecture	2.05	2.00	1.95	2.29	2.04
70	Examine economic, political, social, ecological and esthetic relationships and their influence on the development of the profession of landscape architecture	1.93	1.88	1.77	2.27	1.98
71	Demonstrate an understanding of the evolution of landscape architecture as an art and a profession through knowledge of its terminology, literature, personalities, and concepts	1.90	1.86	1.80	2.23	1.84
72	Demonstrate the ability to critique prior work and understand the relevance in addressing curent issues and problems	2.33	2.39	2.23	2.49	2.27
73	Develop an ability to synthesize and make connections between aspects of landscape architecture and disciplines outside of landscape architecture	2.58	2.56	2.55	2.58	2.62
	II. Natural and Cultural Systems					
74	Conduct field investigations to identify significant natural and cultural features, characteristics, and systems	2.56	2.52	2.50	2.75	2.43
75	Perform quantitative analyses to evaluate the interactions of natural and cultural features, characteristics, and systems	2.09	2.11	1.95	2.05	2.21
76	Perform qualitative analyses to evaluate the relationship between the natural and cultural features, characteristics, and systems	2.24	2.15	2.09	2.36	2.32
77	Predict implications of design, planning, and management proposals on natural cultural systems both within the site and in the larger context	2.52	2.42	2.46	2.56	2.55
	III. Public Policy and Regulation					
78	Identify and collect regulatory information, applicable data and required approvals governing a project (e.g., relevant laws, codes, and regulations)	2.62	2.52	2.77	2.63	2.55
79	Confirm code compliance (e.g. zoning, environment, and accessibility)	2.70	2.63	2.80	2.60	2.71
80	Assist in the preparation of ordinances, regulations, covenants, standards, and guidelines	1.81	1.78	1.77	1.86	1.77
81	Influence public policies on areas such as growth and land and water management by testifying, lobbying, or preparing written documents for public distribution	1.84	1.82	1.76	1.84	1.89
	IV. Design, Planning, and Management at Various Scales and Applications					
82	Develop a design program based on users' needs and clients' goals and resources	2.83	2.81	2.73	2.93	2.88
83	Analyze relationships among design elements by determining opportunities and constraints	2.80	2.77	2.74	2.88	2.82
84	Develop conceptual design, planning, and management solutions	2.86	2.81	2.81	2.95	2.88
85	Evaluate design alternatives to determine the appropriate solution	2.85	2.86	2.85	2.86	2.79
	V. Site Design and Engineering: Materials, Methods, Technologies and Applications					
86	Design for protection and management of land resources (e.g. land forms, vegetation, habitat, erosion and sedimentation control)	2.72	2.65	2.68	2.84	2.73

Appendix I--Organization In Which Landscape Architect Works
Competency Statements--Importance at Time of Professional Responsibility

	Q10. Which of the following best describes the type of organization in which you are currently working?	Total Group Mean	Exclusively LA firm	Multi-disciplinary firm	Educators	Others
	N	255	65	75	45	56
87	Design for protection and management of water resources (e.g. stormwater, water supply, ground water)	2.69	2.70	2.66	2.77	2.64
88	Design pedestrian, vehicular, and non-motorized circulation systems	2.76	2.86	2.72	2.84	2.66
89	Design elements for construction considering materials, structural issues, and construction technologies	2.69	2.68	2.73	2.68	2.63
	VI. Construction Documentation and Administration					
90	Prepare construction documents including plans, working drawings, and technical specifications	2.82	2.95	2.83	2.77	2.73
91	Prepare contract documents including agreements, general conditions, and bid documents	2.60	2.65	2.63	2.48	2.59
92	Manage the bidding/tendering process	2.22	2.28	2.32	2.02	2.13
93	Provide construction administration and observation throughout the project	2.44	2.51	2.43	2.30	2.48
94	Conduct project closure including review and distribution of close-out documents	2.27	2.31	2.36	2.00	2.24
95	Perform post construction evaluation	2.21	2.09	2.28	2.11	2.20
96	Perform construction services including design-build	1.51	1.47	1.39	1.55	1.53
97	Prepare management and maintenance manuals and documents	1.80	1.83	1.68	1.89	1.80
	VII. Communication					
98	Maintain clear communication among collaborators through correspondence and project coordination	2.69	2.71	2.72	2.57	2.68
99	Develop written documentation, such as projects reports, grant proposals, and promotional materials	2.41	2.27	2.45	2.49	2.43
100	Create graphic materials in a variety of media	2.41	2.37	2.36	2.61	2.33
101	Prepare and deliver oral presentations such as meetings, demonstrations, and outreach	2.64	2.54	2.72	2.81	2.54
102	Conduct project and public meetings including preparing of meeting agendas and notes, and facilitation of the meeting	2.43	2.29	2.52	2.48	2.39
103	Review and critique peer work	2.08	1.92	2.11	2.23	2.07
	VIII. Values and Ethics in Practice					
104	Manage business practices and organizations	2.24	2.32	2.19	2.05	2.29
105	Manage risk and liability	2.43	2.47	2.55	2.07	2.46
106	Negotiate and prepare client and consultant agreements	2.41	2.39	2.55	2.27	2.31
107	Participate in life-long learning (e.g., a professional organization, continuing education activities)	2.52	2.49	2.49	2.57	2.50
108	Participate in professional and public service activities	2.22	2.22	2.15	2.41	2.14
109	Train, educate and mentor other professionals	2.20	2.15	2.19	2.25	2.23
110	Maintain and promote professional and ethical standards	2.78	2.68	2.80	2.84	2.77

Appendix I--Years of Experience Since Graduation
Knowledge Statements--Command of Knowledge at Time of Acquisition

	Q13. For how many years since graduation have you been in landscape architecture?	Total Group Mean	1 to 5 Years	6 to 20 years	21 or more years
	N	**255**	**39**	**62**	**138**
	I. Landscape Architecture History and Criticism				
1	history of landscape architecture and allied professions	2.00	1.97	2.00	2.01
2	historic preservation principles	2.57	2.36	2.57	2.67
	II. Natural and Cultural Systems				
3	land information sources	2.11	2.05	2.08	2.14
4	patterns of land use and built form	2.12	2.15	2.06	2.14
5	natural site conditions and ecosystems	2.01	1.92	1.97	2.04
6	social and cultural influences on design	2.21	2.03	2.25	2.27
7	regional hazard design considerations	2.57	2.54	2.45	2.64
	III. Design and Planning Theories and Methodologies				
8	creativity and process including design theory and problem-solving strategies	1.95	1.90	1.93	1.96
9	aesthetic principles of design	1.95	1.85	1.94	2.00
10	human factors such as behavior, perception, psychological and sensory response	2.22	1.87	2.18	2.37
11	natural factors such as ecological relationships	2.02	1.82	2.07	2.07
12	relationship between human and natural systems such as resource conservation, habitat restoration and creation, and urban ecology	2.35	2.18	2.36	2.43
13	influence of context on design, planning, and management decisions	2.50	2.53	2.48	2.53
14	research methods including data collection, interpretation, and application of results	2.44	2.36	2.52	2.42
15	therapeutic aspects of design	2.87	2.72	2.90	2.92
16	communication and education methods, including sharing knowledge and evaluating outcomes	2.66	2.28	2.97	2.69
	IV. Public Policy and Regulation				
17	governmental policies and laws that affect the use and development of land	3.00	2.79	3.02	3.07
18	political and regulatory approval processes	3.43	3.26	3.45	3.49
19	land and development economics	3.53	3.29	3.64	3.59
20	emerging trends and issues	3.41	3.28	3.48	3.44

Appendix I--Years of Experience Since Graduation
Knowledge Statements--Command of Knowledge at Time of Acquisition

	Q13. For how many years since graduation have you been in landscape architecture?	Total Group Mean	1 to 5 Years	6 to 20 years	21 or more years
	N	**255**	**39**	**62**	**138**
	V. Design, Planning and Management at Various Scales and Applications				
21	photogrammetry and remote sensing	2.60	3.15	2.72	2.46
22	visual resource assessment	2.36	2.51	2.40	2.37
23	agricultural and rural landscape analysis	2.56	2.26	2.97	2.46
24	urvan landscape	2.24	2.13	2.60	2.13
25	Planning principles including regional community and neighborhood planning	2.41	2.31	2.56	2.39
26	conservation of natural resources	2.10	1.90	2.21	2.09
27	historic preservation	2.60	2.54	2.56	2.64
28	ecological planning principles	2.22	2.18	2.33	2.18
29	water resource management	2.69	2.72	2.85	2.62
30	wetland management	2.82	2.79	3.00	2.72
31	floodplain management	2.87	2.67	3.20	2.77
32	land and water reclamation procedures including quarry, mine and landfill reclamation	3.16	3.00	3.27	3.17
33	treatment of toxic materials	3.37	3.62	3.28	3.37
	VI. Site Design and Engineering: Materials, Methods, Technologies and Applications				
34	design needs for special populations	2.59	2.46	2.56	2.63
35	accessibility regulations	2.41	2.23	2.42	2.50
36	roadway design principles	2.26	2.33	2.35	2.22
37	elements of vehicular and pedestrian circulation systems and their design requirements	2.15	2.10	2.16	2.17
38	landscape maintenance techniques, materials, equipment, and practices	2.54	2.31	2.50	2.64
39	noise attenuation and mitigation techniques	3.16	2.64	3.52	3.20
40	sustainable construction practices	2.98	3.03	2.95	3.06
41	construction equipment and technologies	2.82	2.56	2.80	2.92
42	grading, drainage and stormwater treatment	2.09	2.10	2.14	2.06
43	biofiltration and other alternative drainage methods	2.82	2.67	2.85	2.88
44	erosion and sedimentation control	2.44	2.46	2.45	2.45
45	utility systems	2.78	2.53	2.78	2.85
46	irrigation systems	2.54	2.72	2.71	2.43
47	lighting systems	2.72	2.69	2.77	2.75
48	structural considerations	2.37	2.46	2.34	2.37

Appendix I--Years of Experience Since Graduation
Knowledge Statements--Command of Knowledge at Time of Acquisition

	Q13. For how many years since graduation have you been in landscape architecture?	Total Group Mean	1 to 5 Years	6 to 20 years	21 or more years
	N	**255**	**39**	**62**	**138**
	VII. Construction Documentation and Administration				
49	quality control procedures for construction, such as delivery, storage, testing, etc.	3.61	3.56	3.67	3.61
50	sequencing of design, approval, permitting, and construction activities	3.41	3.18	3.51	3.46
51	the life-cycle cost-analysis process	3.70	3.28	3.90	3.80
52	geographic coordinate systems and layout techniques and conventions	2.64	2.74	2.79	2.55
53	specification types and components for a project	2.75	2.79	2.84	2.78
54	general and supplemental conditions, special provisions, and technical specifications and their organizations	3.29	3.21	3.36	3.32
55	construction administration and details	3.38	3.18	3.50	3.40
56	basic construction law	3.25	3.28	3.40	3.17
57	construction contracts	3.34	3.33	3.65	3.22
	VIII. Communication				
58	determination of user values such as focus groups and surveys	3.05	3.05	3.18	3.05
59	consensus and team building	3.05	2.90	3.13	3.14
60	techniques for conducting meetings	3.52	3.46	3.87	3.42
61	the roles of visual communication, including photographic and video documentation	2.46	2.41	2.50	2.47
62	graphic presentation techniques, systems and symbols	2.10	2.08	2.18	2.06
63	interpretive methods and techniques such as information displays and brochures	3.06	2.95	2.95	3.14
64	public relations, outreach, and image development	3.58	3.44	3.77	3.57
	IX. Values and Ethics in Practice				
65	environmental ethics	2.18	2.13	2.35	2.12
66	social responsibility in design	2.29	2.13	2.39	2.30
67	organizational management principles such as leadership principles and landscape architect career cycle	3.23	2.82	3.11	3.49
68	resolving moral and ethical dilemmas	2.76	2.72	2.50	2.88

Appendix I--Years of Experience Since Graduation
Knowledge Statements--Command of Knowledge at Time of Degree

	Q13. For how many years since graduation have you been in landscape architecture?	Total Group Mean	1 to 5 years	6 to 20 years	21 or more years
	N	**255**	**39**	**62**	**138**
	I. Landscape Architecture History and Criticism				
1	history of landscape architecture and allied professions	2.15	2.21	2.19	2.11
2	historic preservation principles	1.69	1.79	1.73	1.67
	II. Natural and Cultural Systems				
3	land information sources	2.55	2.77	2.57	2.46
4	patterns of land use and built form	2.43	2.49	2.60	2.34
5	natural site conditions and ecosystems	2.76	2.82	2.75	2.74
6	social and cultural influences on design	2.19	2.33	2.22	2.16
7	regional hazard design considerations	2.10	2.08	2.00	2.14
	III. Design and Planning Theories and Methodologies				
8	creativity and process including design theory and problem-solving strategies	2.83	3.03	2.81	2.78
9	aesthetic principles of design	2.78	2.87	2.82	2.72
10	human factors such as behavior, perception, psychological and sensory response	2.33	2.47	2.42	2.24
11	natural factors such as ecological relationships	2.53	2.50	2.63	2.51
12	relationship between human and natural systems such as resource conservation, habitat restoration and creation, and urban ecology	2.36	2.36	2.40	2.31
13	influence of context on design, planning, and management decisions	2.45	2.44	2.52	2.41
14	research methods including data collection, interpretation, and application of results	2.37	2.41	2.55	2.23
15	therapeutic aspects of design	1.66	1.55	1.63	1.69
16	communication and education methods, including sharing knowledge and evaluating outcomes	2.15	2.28	2.13	2.13
	IV. Public Policy and Regulation				
17	governmental policies and laws that affect the use and development of land	1.80	1.77	1.68	1.87
18	political and regulatory approval processes	1.67	1.64	1.40	1.75
19	land and development economics	1.47	1.32	1.29	1.58
20	emerging trends and issues	1.65	1.67	1.47	1.74

Appendix I--Years of Experience Since Graduation
Knowledge Statements--Command of Knowledge at Time of Degree

	Q13. For how many years since graduation have you been in landscape architecture?	Total Group Mean	1 to 5 years	6 to 20 years	21 or more years
	N	255	39	62	138
	V. Design, Planning and Management at Various Scales and Applications				
21	photogrammetry and remote sensing	1.47	1.36	1.21	1.62
22	visual resource assessment	1.91	2.18	1.69	1.96
23	agricultural and rural landscape analysis	1.68	1.79	1.52	1.76
24	urvan landscape	2.17	2.41	2.11	2.17
25	Planning principles including regional community and neighborhood planning	2.12	2.46	2.02	2.09
26	conservation of natural resources	2.33	2.64	2.27	2.33
27	historic preservation	1.73	1.79	1.77	1.73
28	ecological planning principles	2.23	2.18	2.32	2.24
29	water resource management	1.91	1.95	1.92	1.93
30	wetland management	1.78	1.77	1.73	1.83
31	floodplain management	1.80	1.82	1.66	1.88
32	land and water reclamation procedures including quarry, mine and landfill reclamation	1.43	1.46	1.34	1.50
33	treatment of toxic materials	1.05	0.97	0.92	1.14
	VI. Site Design and Engineering: Materials, Methods, Technologies and Applications				
34	design needs for special populations	1.91	2.21	1.85	1.89
35	accessibility regulations	2.28	2.59	2.26	2.22
36	roadway design principles	2.15	2.13	2.00	2.20
37	elements of vehicular and pedestrian circulation systems and their design requirements	2.57	2.72	2.52	2.56
38	landscape maintenance techniques, materials, equipment, and practices	1.93	2.08	1.89	1.93
39	noise attenuation and mitigation techniques	1.66	1.72	1.48	1.74
40	sustainable construction practices	1.82	1.72	1.84	1.86
41	construction equipment and technologies	1.76	1.74	1.83	1.74
42	grading, drainage and stormwater treatment	2.78	2.67	2.83	2.81
43	biofiltration and other alternative drainage methods	1.91	1.84	1.75	2.00
44	erosion and sedimentation control	2.28	2.21	2.25	2.33
45	utility systems	1.77	1.87	1.73	1.75
46	irrigation systems	1.75	1.74	1.66	1.77
47	lighting systems	1.70	1.72	1.61	1.73
48	structural considerations	2.06	2.03	2.11	2.05

Appendix I--Years of Experience Since Graduation
Knowledge Statements--Command of Knowledge at Time of Degree

	Q13. For how many years since graduation have you been in landscape architecture?	Total Group Mean	1 to 5 years	6 to 20 years	21 or more years
	N	255	39	62	138
	VII. Construction Documentation and Administration				
49	quality control procedures for construction, such as delivery, storage, testing, etc.	1.27	1.31	1.05	1.38
50	sequencing of design, approval, permitting, and construction activities	1.68	1.85	1.43	1.77
51	the life-cycle cost-analysis process	1.32	1.39	1.21	1.35
52	geographic coordinate systems and layout techniques and conventions	1.90	1.82	1.73	2.02
53	specification types and components for a project	1.89	1.62	1.77	2.01
54	general and supplemental conditions, special provisions, and technical specifications and their organizations	1.64	1.49	1.52	1.76
55	construction administration and details	1.73	1.64	1.73	1.81
56	basic construction law	1.48	1.46	1.44	1.52
57	construction contracts	1.55	1.44	1.41	1.64
	VIII. Communication				
58	determination of user values such as focus groups and surveys	1.52	1.56	1.47	1.54
59	consensus and team building	1.74	1.74	1.76	1.74
60	techniques for conducting meetings	1.59	1.57	1.51	1.67
61	the roles of visual communication, including photographic and video documentation	2.25	2.26	2.32	2.25
62	graphic presentation techniques, systems and symbols	2.71	2.77	2.68	2.74
63	interpretive methods and techniques such as information displays and brochures	1.82	2.08	1.56	1.89
64	public relations, outreach, and image development	1.49	1.66	1.31	1.56
	IX. Values and Ethics in Practice				
65	environmental ethics	2.08	2.51	2.18	1.96
66	social responsibility in design	2.10	2.44	2.13	2.02
67	organizational management principles such as leadership principles and landscape architect career cycle	1.61	1.74	1.61	1.60
68	resolving moral and ethical dilemmas	1.89	2.15	2.06	1.78

Appendix I--Years of Experience Since Graduation
Knowledge Statements--Command of Knowledge at Time of Professional Responsibility

	Q13. For how many years since graduation have you been in landscape architecture?	Total Group Mean	1 to 5 years	6 to 20 years	21 or more years
	N	**255**	**39**	**62**	**138**
	I. Landscape Architecture History and Criticism				
1	history of landscape architecture and allied professions	2.57	2.67	2.63	2.52
2	historic preservation principles	2.27	2.33	2.34	2.26
	II. Natural and Cultural Systems				
3	land information sources	3.33	3.54	3.40	3.24
4	patterns of land use and built form	3.07	3.05	3.29	2.98
5	natural site conditions and ecosystems	3.35	3.44	3.38	3.31
6	social and cultural influences on design	2.78	2.79	2.93	2.74
7	regional hazard design considerations	3.00	3.08	3.10	2.97
	III. Design and Planning Theories and Methodologies				
8	creativity and process including design theory and problem-solving strategies	3.50	3.56	3.60	3.44
9	aesthetic principles of design	3.38	3.38	3.40	3.35
10	human factors such as behavior, perception, psychological and sensory response	2.92	3.18	3.03	2.77
11	natural factors such as ecological relationships	3.14	3.18	3.24	3.10
12	relationship between human and natural systems such as resource conservation, habitat restoration and creation, and urban ecology	3.04	3.18	3.08	2.96
13	influence of context on design, planning, and management decisions	3.24	3.31	3.39	3.14
14	research methods including data collection, interpretation, and application of results	2.91	2.97	3.02	2.79
15	therapeutic aspects of design	2.23	2.29	2.32	2.17
16	communication and education methods, including sharing knowledge and evaluating outcomes	2.78	3.03	2.81	2.74
	IV. Public Policy and Regulation				
17	governmental policies and laws that affect the use and development of land	3.02	3.21	3.05	2.98
18	political and regulatory approval processes	2.98	3.15	3.02	2.90
19	land and development economics	2.43	2.61	2.32	2.43
20	emerging trends and issues	2.39	2.49	2.37	2.40

Appendix I--Years of Experience Since Graduation
Knowledge Statements--Command of Knowledge at Time of Professional Responsibility

	Q13. For how many years since graduation have you been in landscape architecture?	Total Group Mean	1 to 5 years	6 to 20 years	21 or more years
	N	255	39	62	138
	V. Design, Planning and Management at Various Scales and Applications				
21	photogrammetry and remote sensing	2.02	2.08	1.74	2.11
22	visual resource assessment	2.54	2.85	2.42	2.53
23	agricultural and rural landscape analysis	2.24	2.49	2.18	2.23
24	urvan landscape	2.81	3.08	2.82	2.78
25	Planning principles including regional community and neighborhood planning	2.80	3.23	2.71	2.72
26	conservation of natural resources	2.99	3.15	2.94	3.02
27	historic preservation	2.33	2.28	2.37	2.35
28	ecological planning principles	2.88	2.89	3.02	2.86
29	water resource management	2.58	2.59	2.66	2.57
30	wetland management	2.48	2.56	2.38	2.53
31	floodplain management	2.45	2.62	2.29	2.49
32	land and water reclamation procedures including quarry, mine and landfill reclamation	2.03	2.10	1.93	2.09
33	treatment of toxic materials	1.67	1.79	1.61	1.68
	VI. Site Design and Engineering: Materials, Methods, Technologies and Applications				
34	design needs for special populations	2.81	3.00	2.82	2.77
35	accessibility regulations	3.22	3.46	3.35	3.11
36	roadway design principles	2.80	2.85	2.76	2.79
37	elements of vehicular and pedestrian circulation systems and their design requirements	3.37	3.51	3.48	3.28
38	landscape maintenance techniques, materials, equipment, and practices	2.77	2.95	2.85	2.68
39	noise attenuation and mitigation techniques	2.34	2.59	2.31	2.31
40	sustainable construction practices	2.60	2.54	2.62	2.64
41	construction equipment and technologies	2.60	2.72	2.74	2.49
42	grading, drainage and stormwater treatment	3.45	3.49	3.46	3.45
43	biofiltration and other alternative drainage methods	2.60	2.58	2.59	2.60
44	erosion and sedimentation control	3.04	3.05	3.08	3.03
45	utility systems	2.51	2.72	2.51	2.46
46	irrigation systems	2.50	2.56	2.47	2.46
47	lighting systems	2.51	2.59	2.45	2.48
48	structural considerations	2.85	2.87	3.03	2.74

Appendix I--Years of Experience Since Graduation
Knowledge Statements--Command of Knowledge at Time of Professional Responsibility

	Q13. For how many years since graduation have you been in landscape architecture?	Total Group Mean	1 to 5 years	6 to 20 years	21 or more years
	N	**255**	**39**	**62**	**138**
	VII. Construction Documentation and Administration				
49	quality control procedures for construction, such as delivery, storage, testing, etc.	2.53	2.62	2.64	2.49
50	sequencing of design, approval, permitting, and construction activities	3.01	3.13	3.07	2.97
51	the life-cycle cost-analysis process	2.25	2.21	2.38	2.21
52	geographic coordinate systems and layout techniques and conventions	2.65	2.71	2.74	2.60
53	specification types and components for a project	3.08	2.95	3.08	3.13
54	general and supplemental conditions, special provisions, and technical specifications and their organizations	2.91	2.82	2.95	2.95
55	construction administration and details	3.02	3.08	3.15	2.99
56	basic construction law	2.65	2.95	2.75	2.56
57	construction contracts	2.89	3.00	2.98	2.82
	VIII. Communication				
58	determination of user values such as focus groups and surveys	2.36	2.37	2.56	2.29
59	consensus and team building	2.68	2.71	2.82	2.63
60	techniques for conducting meetings	2.73	2.83	2.77	2.68
61	the roles of visual communication, including photographic and video documentation	2.85	3.03	2.85	2.83
62	graphic presentation techniques, systems and symbols	3.32	3.59	3.27	3.31
63	interpretive methods and techniques such as information displays and brochures	2.48	2.77	2.30	2.51
64	public relations, outreach, and image development	2.45	2.64	2.33	2.47
	IX. Values and Ethics in Practice				
65	environmental ethics	2.88	3.28	3.08	2.75
66	social responsibility in design	2.96	3.46	3.05	2.84
67	organizational management principles such as leadership principles and landscape architect career cycle	2.58	2.92	2.53	2.54
68	resolving moral and ethical dilemmas	2.82	3.13	2.98	2.72

Appendix I--Years of Experience Since Graduation
Competency Statements--Importance at Time of Degree

	Q13. For how many years since graduation have you been in LA?	Total Group Mean	1 to 5 Years	6 to 20 Years	21 or more Years
	N	255	39	62	138
	I. Landscape Architecture History and Criticism				
69	Develop an understanding of design as exemplified by historically significant works of landscape architecture, urban planning, civic design, and architecture	2.02	1.87	2.21	2.00
70	Examine economic, political, social, ecological and esthetic relationships and their influence on the development of the profession of landscape architecture	1.65	1.62	1.76	1.62
71	Demonstrate an understanding of the evolution of landscape architecture as an art and a profession through knowledge of its terminology, literature, personalities, and concepts	1.85	1.97	1.93	1.78
72	Demonstrate the ability to critique prior work and understand the relevance in addressing curent issues and problems	1.89	2.11	2.00	1.79
73	Develop an ability to synthesize and make connections between aspects of landscape architecture and disciplines outside of landscape architecture	1.98	2.05	1.95	1.96
	II. Natural and Cultural Systems				
74	Conduct field investigations to identify significant natural and cultural features, characteristics, and systems	2.06	1.97	2.05	2.08
75	Perform quantitative analyses to evaluate the interactions of natural and cultural features, characteristics, and systems	1.64	1.79	1.52	1.65
76	Perform qualitative analyses to evaluate the relationship between the natural and cultural features, characteristics, and systems	1.79	1.97	1.63	1.83
77	Predict implications of design, planning, and management proposals on natural cultural systems both within the site and in the larger context	1.88	1.92	1.85	1.86
	III. Public Policy and Regulation				
78	Identify and collect regulatory information, applicable data and required approvals governing a project (e.g., relevant laws, codes, and regulations)	1.31	1.44	1.30	1.28
79	Confirm code compliance (e.g. zoning, environment, and accessibility)	1.37	1.49	1.28	1.34
80	Assist in the preparation of ordinances, regulations, covenants, standards, and guidelines	0.77	0.90	0.66	0.79
81	Influence public policies on areas such as growth and land and water management by testifying, lobbying, or preparing written documents for public distribution	0.73	0.77	0.69	0.75
	IV. Design, Planning, and Management at Various Scales and Applications				
82	Develop a design program based on users' needs and clients' goals and resources	2.13	2.18	2.15	2.11
83	Analyze relationships among design elements by determining opportunities and constraints	2.33	2.38	2.38	2.30
84	Develop conceptual design, planning, and management solutions	2.39	2.41	2.40	2.39
85	Evaluate design alternatives to determine the appropriate solution	2.45	2.49	2.43	2.44

Appendix I--Years of Experience Since Graduation
Competency Statements--Importance at Time of Degree

	Q13. For how many years since graduation have you been in LA?	Total Group Mean	1 to 5 Years	6 to 20 Years	21 or more Years
	N	255	39	62	138
	V. Site Design and Engineering: Materials, Methods, Technologies and Applications				
86	Design for protection and management of land resources (e.g. land forms, vegetation, habitat, erosion and sedimentation control)	2.13	2.08	2.10	2.14
87	Design for protection and management of water resources (e.g. stormwater, water supply, ground water)	2.05	1.97	2.03	2.06
88	Design pedestrian, vehicular, and non-motorized circulation systems	2.28	2.33	2.27	2.27
89	Design elements for construction considering materials, structural issues, and construction technologies	1.94	1.79	1.95	1.99
	VI. Construction Documentation and Administration				
90	Prepare construction documents including plans, working drawings, and technical specifications	1.87	1.64	2.00	1.86
91	Prepare contract documents including agreements, general conditions, and bid documents	1.24	1.18	1.05	1.29
92	Manage the bidding/tendering process	0.72	0.77	0.56	0.77
93	Provide construction administration and observation throughout the project	0.83	0.79	0.79	0.83
94	Conduct project closure including review and distribution of close-out documents	0.67	0.74	0.54	0.67
95	Perform post construction evaluation	0.91	0.82	0.89	0.96
96	Perform construction services including design-build	0.67	0.67	0.67	0.64
97	Prepare management and maintenance manuals and documents	0.81	0.82	0.80	0.81
	VII. Communication				
98	Maintain clear communication among collaborators through correspondence and project coordination	1.51	1.54	1.51	1.49
99	Develop written documentation, such as projects reports, grant proposals, and promotional materials	1.43	1.41	1.40	1.45
100	Create graphic materials in a variety of media	2.19	2.44	2.21	2.14
101	Prepare and deliver oral presentations such as meetings, demonstrations, and outreach	2.18	2.31	2.20	2.13
102	Conduct project and public meetings including preparing of meeting agendas and notes, and facilitation of the meeting	1.34	1.46	1.41	1.30
103	Review and critique peer work	1.79	2.23	1.97	1.59
	VIII. Values and Ethics in Practice				
104	Manage business practices and organizations	0.81	0.87	0.79	0.79
105	Manage risk and liability	0.86	0.95	0.87	0.83
106	Negotiate and prepare client and consultant agreements	0.74	0.85	0.57	0.79
107	Participate in life-long learning (e.g., a professional organization, continuing education activities)	1.56	1.56	1.78	1.49
108	Participate in professional and public service activities	1.58	1.74	1.64	1.50
109	Train, educate and mentor other professionals	0.96	1.15	1.10	0.88
110	Maintain and promote professional and ethical standards	2.12	1.95	2.23	2.13

Appendix I--Years of Experience Since Graduation
Competency Statements--Importance at Time of Professional Responsibility

	Q13. For how many years since graduation have you been in LA?	Total Group Mean	1 to 5 years	6 to 20 years	21 or more years
	N	255	39	62	138
	I. Landscape Architecture History and Criticism				
69	Develop an understanding of design as exemplified by historically significant works of landscape architecture, urban planning, civic design, and architecture	2.05	1.95	2.13	2.06
70	Examine economic, political, social, ecological and esthetic relationships and their influence on the development of the profession of landscape architecture	1.93	2.03	2.00	1.90
71	Demonstrate an understanding of the evolution of landscape architecture as an art and a profession through knowledge of its terminology, literature, personalities, and concepts	1.90	1.92	1.95	1.88
72	Demonstrate the ability to critique prior work and understand the relevance in addressing curent issues and problems	2.33	2.37	2.45	2.30
73	Develop an ability to synthesize and make connections between aspects of landscape architecture and disciplines outside of landscape architecture	2.58	2.59	2.63	2.55
	II. Natural and Cultural Systems				
74	Conduct field investigations to identify significant natural and cultural features, characteristics, and systems	2.56	2.49	2.60	2.57
75	Perform quantitative analyses to evaluate the interactions of natural and cultural features, characteristics, and systems	2.09	2.15	2.10	2.07
76	Perform qualitative analyses to evaluate the relationship between the natural and cultural features, characteristics, and systems	2.24	2.31	2.26	2.24
77	Predict implications of design, planning, and management proposals on natural cultural systems both within the site and in the larger context	2.52	2.53	2.58	2.46
	III. Public Policy and Regulation				
78	Identify and collect regulatory information, applicable data and required approvals governing a project (e.g., relevant laws, codes, and regulations)	2.62	2.74	2.59	2.60
79	Confirm code compliance (e.g. zoning, environment, and accessibility)	2.70	2.79	2.67	2.67
80	Assist in the preparation of ordinances, regulations, covenants, standards, and guidelines	1.81	1.87	1.82	1.80
81	Influence public policies on areas such as growth and land and water management by testifying, lobbying, or preparing written documents for public distribution	1.84	1.92	1.89	1.81
	IV. Design, Planning, and Management at Various Scales and Applications				
82	Develop a design program based on users' needs and clients' goals and resources	2.83	2.72	2.85	2.85
83	Analyze relationships among design elements by determining opportunities and constraints	2.80	2.69	2.80	2.83
84	Develop conceptual design, planning, and management solutions	2.86	2.79	2.80	2.92
85	Evaluate design alternatives to determine the appropriate solution	2.85	2.77	2.82	2.88

Appendix I--Years of Experience Since Graduation
Competency Statements--Importance at Time of Professional Responsibility

	Q13. For how many years since graduation have you been in LA?	Total Group Mean	1 to 5 years	6 to 20 years	21 or more years
	N	255	39	62	138
	V. Site Design and Engineering: Materials, Methods, Technologies and Applications				
86	Design for protection and management of land resources (e.g. land forms, vegetation, habitat, erosion and sedimentation control)	2.72	2.69	2.73	2.74
87	Design for protection and management of water resources (e.g. stormwater, water supply, ground water)	2.69	2.62	2.73	2.69
88	Design pedestrian, vehicular, and non-motorized circulation systems	2.76	2.74	2.83	2.74
89	Design elements for construction considering materials, structural issues, and construction technologies	2.69	2.72	2.68	2.65
	VI. Construction Documentation and Administration				
90	Prepare construction documents including plans, working drawings, and technical specifications	2.82	2.77	2.79	2.84
91	Prepare contract documents including agreements, general conditions, and bid documents	2.60	2.72	2.54	2.58
92	Manage the bidding/tendering process	2.22	2.15	2.16	2.26
93	Provide construction administration and observation throughout the project	2.44	2.38	2.56	2.41
94	Conduct project closure including review and distribution of close-out documents	2.27	2.26	2.30	2.27
95	Perform post construction evaluation	2.21	2.28	2.33	2.12
96	Perform construction services including design-build	1.51	1.68	1.50	1.45
97	Prepare management and maintenance manuals and documents	1.80	1.92	1.87	1.74
	VII. Communication				
98	Maintain clear communication among collaborators through correspondence and project coordination	2.69	2.69	2.74	2.67
99	Develop written documentation, such as projects reports, grant proposals, and promotional materials	2.41	2.49	2.41	2.36
100	Create graphic materials in a variety of media	2.41	2.51	2.34	2.42
101	Prepare and deliver oral presentations such as meetings, demonstrations, and outreach	2.64	2.56	2.65	2.66
102	Conduct project and public meetings including preparing of meeting agendas and notes, and facilitation of the meeting	2.43	2.38	2.48	2.44
103	Review and critique peer work	2.08	2.36	2.07	2.04
	VIII. Values and Ethics in Practice				
104	Manage business practices and organizations	2.24	2.36	2.18	2.24
105	Manage risk and liability	2.43	2.54	2.43	2.40
106	Negotiate and prepare client and consultant agreements	2.41	2.47	2.36	2.43
107	Participate in life-long learning (e.g., a professional organization, continuing education activities)	2.52	2.59	2.56	2.51
108	Participate in professional and public service activities	2.22	2.31	2.20	2.22
109	Train, educate and mentor other professionals	2.20	2.31	2.33	2.15
110	Maintain and promote professional and ethical standards	2.78	2.79	2.72	2.79

APPENDIX J

KNOWLEDGE STATEMENTS APPROVED FOR INCLUSION IN THE BODY OF KNOWLEDGE

COMPETENCIES APPROVED FOR INCLUSION IN THE BODY OF KNOWLEDGE

ADDITIONAL COMMENTS

KNOWLEDGE STATEMENTS APPROVED FOR INCLUSION IN THE BODY OF KNOWLEDGE

I. LANDSCAPE ARCHITECTURE HISTORY AND CRITICISM

- Relevance of history to current practice and social value of same
- Criticism of historical and contemporary work
- Urban and regional planning environmental planning;
- Critical evaluation of historic periods and events
- Criticism is an essential design skill not necessarily derived from history, although partially informed by history.
- Design evaluation, review, and comprehension
- Visual literacy comprehensive of basic design principles as a basis for criticism
- History of art
- Regional/national landscape architecture history
- History of settlement and urbanization
- People, places, and time frames.
- Descriptive theory, analytical versus evaluative aspects of history

II. NATURAL AND CULTURAL SYSTEMS

- Geographic information systems climate
- Fundamental understanding in physical geography and natural and cultural systems
- Ecosystems are statistical relationships between species. Mastery of ecosystems is better left to true ecologists.
- Vegetation and vegetation dynamics of at least one bioregion (e.g., plant communities' botanic and aesthetic characteristics)
- Social and cultural influence should include the ways in which other cultures construct, physically & mentally, their landscapes, e.g. need to go beyond "influences."
- Preservation of existing watersheds; best management practice uses for water conservation.
- Impacts of human use on natural systems

- Techniques to research, define cultural influence and the "cultural values" of the non-majority, reflecting designs for more than one section of society

III. DESIGN AND PLANNING THEORIES AND METHODOLOGIES

- Theories in and about planning
- Security design
- How to work with budget or monetary constraints
- Design as a continual process
- Planning theories and methods
- Community planning and sustainable practices
- Design should be measured separately from planning - the theories and research or creative methods are completely different between these 2 aspects of the discipline; design as a method of inquiry and qualitative approaches
- Contemporary theory; cultural theory; landscape in a broader cultural/intellectual context
- Decision making methodologies in the design professions
- Landscape structure, function, and change; emerging concepts that will be influential

IV. PUBLIC POLICY AND REGULATION

- Relationship to public health, safety, welfare
- Political processes for preservation, conservation, and human use and enjoyment
- Theories of governance
- Legal and administrating frameworks that regulate practice rather than the policies and laws themselves

V. DESIGN, PLANNING AND MANAGEMENT AT VARIOUS SCALES AND APPLICATIONS

- Horticulture
- Therapeutic design
- Sustainable design
- Relationship between landscape design and landscape planning
- Ecological design principles

- Effect of time on design, e.g. visual and rural in 1960's and 1970's; ecology and water in 1980's and 1990's; reclamation and treatment in the future
- What should get built
- Community design, urban design, site design
- Regional planning and design

VI. SITE DESIGN AND ENGINEERING: MATERIALS, METHODS, TECHNOLOGIES, AND APPLICATIONS

- Architectural amenities e.g. architectural interface; art in the landscape; signage and site graphics; site furnishings; agronomy; soil science; hydrology; hydroponics; geotechnical engineering science; concrete and asphalt
- Planting design and theory
- Plant material and planting design, e.g. identification, cultural requirements and associations
- Photogrammetry in design application
- Conceptualization and design in 3 dimensions
- Basic soil science and soils engineering, e.g. compaction, soils triangle, soils comprehension, materials, application on the senses
- Integrated pest management
- Construction materials and site details e.g. wood, stone, concrete
- Watershed management
- Ecosystem management
- Geology, soils and computer applications
- Aesthetics
- Design needs for safety and security.
- Horticulture
- Slope stability related to soils and geotechnical assessments
- Paving materials and systems
- Intrinsic qualities of construction materials and the forces that can compromise them
- Geotechnical and hydrotechnical
- Irrigation measures of environmental factors, e.g. snow deposition, wind, noise

- Building design/construction
- Vegetation, e.g. native plant communities, plant nomendative and horticultural availability
- Planting design principles, e.g. appropriate material for light, soil, moisture and maintenance variables
- Site furnishings
- Types of landscape management, e.g. forest, farm

VII. CONSTRUCTION DOCUMENTATION AND ADMINISTRATION

- Bedding, addenda, change orders value engineering, submittals
- Design contracts, consultants' contracts (full AIA document exposure)
- Evaluation of costs
- Market factors, material availability, e.g. purchasing options for material; accounting, marketing, collections and billings
- Preparation of construction
- Documents site observation - construction related
- Planting plan construction

VIII. COMMUNICATION

- Proposal development and technical writing including goals, objectives, concepts, and prioritizing issues
- Public speaking, oral presentations, persuasion, and valuing constructive critiques of one's work by others
- Plan graphics
- Conflict resolution and management
- Presentations to the press, marketing, and other media
- Visual simulation techniques
- Inter-office communication, client, consultant, and contractor communication skills
- Notes at professional/consultant meetings
- Report and summary communication techniques
- Delegation of tasks, follow up on assignments, team relationships
- Publication production and the relationship of text to images
- Internet communications and web site construction

- Preparation of and response to RFPs
- Design programming
- Computer-aided communication tools such as: electronic presentations, multi-media, web-based, and network based communications
- Hand graphic skills that include color, texture, line weights, hand-writing skills
- Methods of research

IX. VALUES AND ETHICS IN PRACTICE

- Emerging value systems such as theories responding to new cultural paradigms e.g. diversity, hyper-patriotism, paranoia of terrorism, surveillance
- Client and staff ethical relationships, fees, meeting contract obligations, and proper compensation for services
- Ethical professional practice within the scope of licensure for landscape architecture and understanding the limitations of other professions such as: engineering and architecture
- Management and leadership
- Role, responsibilities, and privileges of licensure
- Soil/plant/water/air ethical issues; individual vs. social, economic, educational, and communication responsibilities
- Economic and family values

COMPETENCIES APPROVED FOR INCLUSION IN BODY OF KNOWLEDGE

I. LANDSCAPE ARCHITECTURE HISTORY AND CRITICISM

- Accept criticism while overcoming objections with logical explanations
- Maintain cognizance of recent works as well as historical ones

II. NATURAL AND CULTURAL SYSTEMS

- Work with biologists, archaeologists and other professionals in conducting and analyzing field data and natural/cultural features
- Contextualize landscape architecture interventions within larger cultural systems

III. PUBLIC POLICY AND REGULATION

- Engage the basics of the political systems
- Manage multiple, overlapping, or conflicting regulations and resulting impacts
- Distinguish between legal requirements and operational methodology

IV. DESIGN, PLANNING, AND MANAGEMENT AT VARIOUS SCALES AND APPLICATIONS

- Work with community planning, zoning, and private utilities
- Design to scale, recognizing scale and context during design process
- Evaluate consequences of design solution, e.g. user, economics, maintenance, ecological
- Develop evaluative criteria, including programmatic, site and personal design goals to use to evaluate alternative designs
- Use of computers and application of design software, e.g. AutoCAD and land cad in solutions
- Analyze, synthesize, and evaluate critical path

V. SITE DESIGN AND ENGINEERING: MATERIALS, METHODS, TECHNOLOGIES AND APPLICATIONS

- Work with architects and civil engineers
- Design for energy conservation and resource recovery

- Create the most inexpensive design that still meets the client's needs/cost assessment e.g. cost/economics initial construction and maintenance
- Use computer-aided design programs to assist in the development of site plans and construction details and specifications
- View shed planning
- Design for aesthetic enhancement
- Design using living materials in keeping with management goals, climate and microclimatic

VI. Construction Documentation and Administration

- Coordinate between design disciplines
- Prepare cost breakdowns, itemized budgets, sequenced schedules
- Use computer-aided software programs to assist in the documentation process

VII. Communication

- Handle ambiguous situations
- Guide public participation in resolving design and program direction are important abilities to possess.
- Develop program visioning techniques
- Communicate the results of work experiences such as; case studies and design research, publication of results of work in professional literature
- Develop excellent language skills, especially being bilingual
- Consider the legal implications of different types of communication
- Possess the competency to use various communication approaches and the media to present professional approaches that are pro and con on projects

VIII. Values in Ethics in Practice

- Use skills to train, educate and mentor other professionals at the time of degree.
- Participate in publishing and research efforts of the profession, and participate in educating students and apprentices.
- Apply the principles of social justice and social ethics
- Act responsibly toward the public, profession, environment
- Challenge normative regulations and standards that no longer should be best practices

SURVEY SECTION IV: ADDITIONAL COMMENTS

(PROVIDED DIRECTLY FROM SURVEY RESPONDENTS' COMMENTS)

1. DO YOU HAVE ANY COMMENTS ABOUT SECTION I: KNOWLEDGE? FOR EXAMPLE, WERE ANY IMPORTANT TOPICS OMITTED FROM THE SURVEY? WERE ANY KNOWLEDGE STATEMENTS UNCLEAR? IF YES, PLEASE WRITE YOUR COMMENTS BELOW.

Since there are different types of practice, there are different levels of appropriate knowledge (e.g. for a garden designer and land planner). This is particularly true at the point where a person has his or her own practice. In general there is a poor recognition of what theory is versus a principle, framework or model. This survey has little about theory.

Planting design or knowledge of plants and how to use them was not included.

Also exposure to other related disciplines should be part of basic knowledge—soil science - horticulture - landscape maintenance

Resources would work as a general term, or biology is more specific. Ecosystems implies a larger than site context in most cases. It would be appropriate to say "...and their relationship to ecosystem maintenance".

Storm water design is currently out-of-date in regards to the methods taught by most la programs.

Overall - computer assisted training in planning, design, marketing & presentations -use of web-based techniques in marketing, presentation, sales and administration -business management principles

Generally ok - plants & planting design intentionally omitted?

Construction documents and plans-layout, grading, storm water, details, keying in details, erosion control

The focus of this survey seemed to concentrate upon undergraduate student education and professional practice -- which is fine. The profession is rapidly expanding in areas of specialization and for academics trained to conduct research, thus the knowledge base and competencies go way beyond the scope of this survey. It may be interesting to study the extent and expectations related to academics, and practicing landscape architectural professionals beyond this base.

I felt topics were too "main stay". What about importance of travel; knowledge of world politics/culture; professional practice finances management; personal financial management

Should have questions on "sustainability" and "sustainable design" as core knowledge areas; "green infrastructure" is key area in the profession.

It was pretty complete.

Commonalities with other design professions -new/emerging fields of practice

2. DO YOU HAVE ANY COMMENTS ABOUT SECTION II: COMPETENCIES? FOR EXAMPLE, WERE ANY IMPORTANT COMPETENCIES OMITTED FROM THE SURVEY? WERE ANY COMPETENCY STATEMENTS UNCLEAR? IF YES, PLEASE WRITE YOUR COMMENTS BELOW.

In summary, few practitioners are competent in the use of plant materials. This means that form, color, texture, growth rates, soils, planting space, and water requirements are not considered adequately. Dead plants have no form or function other than wildlife habitat.

(1) Where do most landscape architects work? Planning & designing the built environment! (2) Who else does this? Architects and engineers! (3) What is required for protection of the public health, safety and welfare? Licensure? (4) Are most state registration laws comparable to architects' and engineers' laws? No! (5) Practitioners and educators must work to insure that l.a. curricula provides the knowledge, skills & abilities to warrant l.a. registration and strengthen registration laws to insure public health, safety and welfare.

There was no apparent recognition of the vital importance of working with interdisciplinary teams on complex problems, and knowing when to call in other professionals (lawyers, engineers, graphic designers, risk assessors, etc.) When needed.

I think the issues of better situations for la within their family contexts (diversity defined) is the only way to ethically address sustaining the future of women in la, and to improve men's roles as well. I would like the survey to respond to this.

This was much clearer than the knowledge section. Well written and easier to decide which category to select. In a few cases "na" would have been more appropriate than not important.

I thought this section was ok except it did not deal with planning work very well.

Some of us have worked in master planning & conceptual work for an entire career - the detail design tasks would follow after the "big picture" had been established - this is when policy, key decisions, budgets & political backing is achieved - la's must be stronger players at this stage!

Section on design planning & management is very good and cleverly covers all components. In contrast, the next (site design) section leaves out aesthetics and use of plant materials

3. ADDITIONAL COMMENTS:

It seemed that the questionnaire did not reflect the "degree" of knowledge or competency that should be expected at degree, mid-level and senior level. This made it difficult to assess the question and respond.

I was not sure of what was actually being covered in some of the categories, but concerned that the subjects/ education might be too general. I really appreciated this long overdue evaluation - would be happy to discuss more at length, if needed.

I have noticed a decline over the past 40 years in the ability of a recent graduate to function at the practice level. Advanced degrees are almost useless, unless the b.a. or b.s. is landscape architecture or a related field. Architects and engineers are more trainable, a graduate long on environmental theory and lacking the basic science behind it is a failure of the educational system. When a college graduate cannot write, does not understand the principles or art as applied, especially in

Nice effort! Long overdue!

This survey is a great idea. I look forward to learning of its results.

Beyond the specific comments on each section, it is especially important for landscape architects to know & be able to periodically assess: 1). Their personal strengths + weaknesses 2). Their contribution to the profession. 3). When + how to involve other specialists.

Role of knowing human behavior should be emphasized. I review plans for a city, & see lots of "good design" - & lots of incomprehension of how people actually behave.

This survey does not appear to recognize the importance of doing and disseminating results of professional research; nor does it acknowledge the vital importance of reading and writing about landscape architecture at all levels of development; on the whole it 'measures' a complex discipline from a naive and one-dimensional (i.e. private practice) position.

Universities need to better prepare students practical/technical knowledge. Theory is great, but most states don't regulate good/bad design theory, they regulate health safety & welfare issues.

Great to see this information being updated.

I am very happy to see that this survey is being conducted. It is very important to keep current records of how our profession is being practiced. I feel this survey was broken down into the correct areas of practice. And I am pleased to see that the core of what it is that landscape architect do has not changed that much. This re-affirms to me the important role landscape architects have in our society.

Thank you!

We landscape architects have always been too verbose & not enough action-oriented. Has always seemed like too much discussion. If we applied the design process more rapidly we would produce more, do more good things for the health, safety of natural resources

I am extremely impressed that these 5 organizations have reached consensus on the content of this survey. Congratulations! I look forward to the results. This exercise should be repeated every 5-7 years.

I'm concerned that this survey omits or under represents much of what landscape architecture is, by focusing on technical (occasionally measurable) aspects of practice. Therefore, I'm left to wonder if the questions don't reflect the body of knowledge, how can the answers? I hope - if not expect- that the final report includes a thorough explanation of the weaknesses of this survey and the natural limits of its conclusions.

All educational programs should require work/study for-credit classes. The exposure to an office will help future designers determine if la is really what they want to do. The employers (la's) learn about new advances/trends in land architecture as well as opportunity to provide insight & share wisdom to pass on to the next generation.

After q#11 of section 3 (The Background Questions) the survey is particularly bias toward the traditional design segment of the profession. I do not sell used cars and I do not do traditional design, but I do consider myself an la. Unfortunately, the survey cannot capture or represent my role within or the contribution of those in my segment of the profession.

Education-reduce emphasis on courses which have absolutely no relevance to the practice of landscape architecture. Example: English literature, analytic geometry and similar requisite courses should be replaced with bus. Mgt. And computer assisted courses (not-core or raw programming).

Good survey, now what?

I'm extremely concerned about the dilution of design & the art of l.a. by the disciplines over reliance on allied disciplines. This survey is meant to guide every aspect of l.a- from pedagogical structure to licensing measures - as such the pure art of l.a. is very

poorly represented. If we want l.a. to participate in shaping the landscape in a meaningful way, we need to nurture our incoming students creative potential. This survey is more focused of l.a.'s as managers.

Thank you for the opportunity.

This form is too academic! I believe that the real world practice of landscape architecture involves a team of professionals (some times all within the same firm, some times a collaboration of professionals, some times a collaboration of professionals and contractors, ...prof & politicians, prof & individuals... The degree programs should focus on general exposure, design and process and integrity! Continuing ed/prof. Responsibility should focus on insuring that "teams" have mastery

Survey is very private-practice oriented, missing many aspects of public practice and treating too many fringe aspects. I doubt this will really establish core practice

I feel too much emphasis is put on graphic ability in general. Curricular need to include more courses in ecology, natural resource management and policy, and social sciences. The attitude of "I'm the professional and know what's best" needs replaced with one of tolerance, attentiveness, and modesty when interacting with the public and various cultural groups.

Thank you for conducting this survey

"Design" is used only in a limited beaux arts context. The language gives no sense of any understanding of "design" as a discipline. This is a very superficial view of "design" and of the profession.

Tools seem not to have been addressed - including capabilities related to cad, using spreadsheets, PowerPoint, etc. Most job ads require some of these competencies in landscape architects

Looks too much at elements of status quo & does not seem to do enough to be predictive of emerging/future areas of professional activity for LAs

There is a tendency to believe that landscape architects must be competent in all aspects covered in this survey - it is my experience that we are but one of a number of professions that are relevant to problem solving. Best to build on our strengths & know when to collaborate with other specialists.

I never saw the word frost? Why? It governs more about terrain installation in Canada than anything else.

The questions in this survey address the traditional scope of the profession quite well but do not focus -- on peripheral areas of the profession.