

2009 SDSPLS QUESTIONNAIRE
SURVEYING EDUCATION REQUIREMENTS
SURVEY RESULTS

Background Information:

The 2009 Questionnaire was handed out at the 2009 SDSPLS Convention with 100 surveys being returned. The original survey was done in 1996 and the results were accumulated in a Design Paper by Kristi Goehring titled “A Feasibility Study Of A Four-Year Degree As The Educational Requirement For Registration As A Professional Land Surveyor In South Dakota.” Ninety-eight people responded to the 1996 Survey.

The questions in the 2009 survey are not set up to reference each other. Each question should be looked at on its own accord.

2009 Survey and Comparisons:

1. EDUCATION BACKGROUND (Check all that apply)

44	44	2	30	25
High School	2-yr Tech School	4-yr Survey Degree	4-yr related degree (ex CE)	Other List

The High School background was answered steadily by the younger people answering the questionnaire. People with a higher education tended to only mark the highest degree they had obtained. From looking at the answers it is safe to assume that people answering the questionnaire have a High School education.

Other degrees listed:

- 2-yr technical plus 2-yr non-related college
- Natural Resources
- 2-yr at a 4-yr not offering 2-yr degree
- Unrelated 4-yr
- 3.5 years no degree
- BSCE plus MSCE
- BS History
- Some college courses
- SDSU 3 years and 1 year military technical school
- 4-yr plus graduate work plus post baccalaureate courses
- MS Civil
- PHD Civil
- BS Industrial Management and Economics
- CE and Ag Engineering
- Military Experience
- 4-yr BS Forest Management
- MS Education
- Over 100 plus credit hours in surveying and math and legal – last 2 as related to surveying

Two replied that they have a 4-yr surveying degree. About 30% of the people replying had a 4-yr CE degree. This coincides with the high number of people registered as PE/LS (dual registrants) in SD. This is lower than the 1996 survey which showed 51%.

Question 1 continued:

Several people had a 2-yr degree and had gone on to a 4-yr degree in some field. About 40% of the respondents had 2-yr technical school degrees. This is higher than the 1996 survey. There were 7 people who were Land Surveyors that only had a High School education. A lot of the 2-yr technical school people were in the 40 to 59 age group.

2. YOUR AGE IS BETWEEN...

<u>6 %</u>	<u>20 %</u>	<u>25 %</u>	<u>28 %</u>	<u>21 %</u>
20-29 yrs	30-39 yrs	40-49 yrs	50-59 yrs	60+ yrs

This was not a question on the 1996 Survey.

This shows the trend that the Land Surveyors in SD are getting older and that there are not a high number of younger people coming into the profession.

3. NUMBER OF YEARS IN THE SURVEYING FIELD ...

2009 Survey

<u>4 %</u>	<u>10 %</u>	<u>16 %</u>	<u>17 %</u>	<u>53 %</u>
0-5 yrs	6-10 yrs	11-15 yrs	16-20 yrs	21+ yrs

1996 Survey

<u>16.3 %</u>	<u>12.2 %</u>	<u>16.3 %</u>	<u>13.3 %</u>	<u>41.8 %</u>
0-5 yrs	6-10 yrs	11-15 yrs	16-20 yrs	21+ yrs

This shows a majority of those in the surveying field in SD have 21 plus years of experience. We have many surveyors approaching the retirement age. This was the same as the 1996 Survey. The 2009 survey also shows the smallest numbers in the 0-5 and the 6-10 year experience categories. These are smaller percentages than in the 1996 Survey. This reinforces that we need to attract younger people into the surveying field.

4. REGISTRATIONS OBTAINED (Check all that apply)

All combinations of certificates were looked at and the percentages were calculated on one respondent per category.

2009 Survey

<u>4 %</u>	<u>55 %</u>	<u>1 %</u>	<u>2 %</u>
LSIT	LS	PE or EIT	Other (List)
<u>24 %</u>	<u>6 %</u>	<u>2 %</u>	<u>6 %</u>
PE/LS	LS-EIT	LSIT-EIT	None

Others listed were CST, CFM, and CFeds.

Question 4 Continued:
1996 Survey

<u>4.1 %</u>	<u>27.6 %</u>	<u>3.1 %</u>	<u>42.9 %</u>	<u>21.4 %</u>
LSIT	LS	EIT or PE	PE/LS	Other or None

The PE/LS group dropped by almost 50 % of the 1996 Survey. The LS group almost doubled from the 1996 Survey. This trend is showing that the dual registrant is not as prevalent as it has been in the past.

5. DO YOU BELIEVE A FOUR-YEAR SURVEYING DEGREE SHOULD BE REQUIRED IN THE NEXT ...

2009 Survey

<u>5 %</u>	<u>24 %</u>	<u>20 %</u>	<u>7 %</u>	<u>37 %</u>	<u>7 %</u>
0-5 yrs	6-10 yrs	11-15 yrs	21+ yrs	Not at all	No Answer

1996 Survey

<u>19.4 %</u>	<u>39.8 %</u>	<u>19.4 %</u>	<u>1 %</u>	<u>13.3 %</u>	<u>2 %</u>
0-5 yrs	6-10 yrs	11-15 yrs	21+ yrs	Not at all	No Answer

Some other comments to this question were:

- Only if wages and survey rates would be increased
- Don't require. Continue to monitor and upgrade current standard
- Not until 2 year available at SD school and then 2 years elsewhere

78 % of those surveyed on the 1996 Survey saw a 4-yr degree within the next 15 years. It is now 14 years after the original survey and a 4-yr degree is not in place or required. Forty-nine percent of those currently surveyed see a degree requirement in the next 15 years. The "Not At All" category has increased considerably since the 1996 survey.

The comments continue to say to look at the surveying field economics and the capability of the institutions to offer a degree.

6. IF A 4-YR DEGREE WAS REQUIRED WHERE WOULD YOU PREFER SEEING THIS DEGREE TAUGHT? (Rank preferences from 1-6, 1 being the best and 6 being last choice)

2009 Results Ranking

<u>2</u>	Two-year technical degree and two years at a different university or technical institute
<u>1</u>	Four-year surveying degree
<u>3</u>	Four-year Civil Engineering Degree with emphasis in surveying

- 5 Four-year Construction Management degree with emphasis in surveying
- 4 Four-year related degree with emphasis in surveying
- Others _____

Question 6 continued:

Some Other options listed were:

- Minimum credits plus experience
- Certified LS program
- 4-yr BS including 22 credits surveying – Civil surveying, cadastral surveying, geodetic surveying, Boundary Law, GIS, GPS surveys, aerial photography, and remote sensing.
- Minimum credits in survey – No degree required
- Two or Four year degree supplemented by 20 hrs of surveying courses that could be obtained by distance learning
- 4-yr degree in Liberal Arts plus credits in surveying (Land Surveying is a legal profession – dealing with people and their rights – a Social Science)
- If we got to a four year requirement, we need to have it broad for both students and educational institutions. Requirements should focus on credit hours in applicable surveying coursework.
- Other online outsourcing
- Work with surrounding states
- Engineering degree with 32 credit hours in surveying

The top choices on the 1996 Survey were: 1) The 4-year surveying degree; 2) The 4-year Civil Engineering Degree with emphasis in surveying; and 3) The 2-year technical degree and two years at a different university or technical institute.

The top 2 choices from the 2009 survey were closer together than the 1996 survey. The top 2 choices on the 2009 survey were separated farther from the last 3 choices than in the 1996 Survey.

The 4-yr Surveying degree or the 2-yr technical degree and two years at a different university or technical institute appear to be the direction for a degree requirement. The two-year option is available now and a 4-year surveying degree is available at St Cloud State University in Minnesota.

7. DO YOU THINK THE “11 YEARS OF EXPERIENCE ONLY” SHOULD BE LEFT AS AN OPTION TO BECOME A LAND SURVEYOR IN SD?

51 % YES 49 % NO

This question was not part of the 1996 Survey.

The overall comments from this are that experience is still a very important part of the surveying education and experience needs to stay part of the requirement process. There are many valid comments for both the YES and NO answer.

Comments from question 7 were:

- Look at surrounding states
- Need transition time for current people
- Need minimum of 60 credit hours in surveying for any degree option
- Lower to 8 years
- This has to be pertaining to Land Surveying (85%) and Construction Surveying (15%) on the job hands on training experience
- With technological advances the basics of surveying (Math and Walking in the footsteps etc) will be passed along
- Experience can not be taught at school. I do think that education can not be replaced
- Some form of education is needed to help an individual sharpen their thinking
- If it ain't broke, don't fix it
- Experience for individuals to be grandfathered in
- Experience only during a "grandfather" period
- You will learn more by the experience than you will in a 4-yr degree
- We have good examples of how this does work
- Because of the lack of marketing to the youth, people have to stumble into this profession
- Need education requirement plus field/office experience. We want to be a profession – Not a trade!
- Require some minimum number of hours in surveying
- It needs to include education of some type. Maybe 11 years experience and 10-20 education credit
- You can't replace experience with education. While education is very important, book smarts can only take you so far.
- Education is directly related to what someone can afford.
- Their experience maybe too specific and not well rounded in all areas where a licensed person should be
- Education, experience and examination must be minimum requirements. Experience only is not preparing people for the intellectual realities of modern surveying. Critical thinking skills come from education.
- I do not think that an education can equal field experience. Surveying is one of a few remaining career paths that have not bought in to the idea that a school can prepare someone for a job.
- "Subject to the BOTP discretion"- This option is absolutely necessary to allow the flexibility to evaluate candidates with unusual backgrounds
- If keeping experience it should involve more experience and a board interview
- I believe experience only may be sufficient for traditional surveying field experience and maybe the math stuff, but need some schooling for GPS, CAD and legal matters.
- As long as there is good supervision by an RLS
- People on the panel are presenting education vs. no education. This is a mistake. Experience is education and probably the best kind. If a person can't pass the LS Exam without taking some college courses that means to me it is a good exam. Keep studying as there is always something new, but college is not a good substitute for experience.
- Aren't the LSIT tests and the LS test supposed to determine who is capable of becoming a RLS?
- Don't shut doors on people. But increase experience year; oral interview; etc.
- Present experience levels are inconsistent among candidates. Those least experienced (amount of time aside) can still teach another generation
- If individual is willing and dedicated to commit 11 years toward becoming a LS, in field experience under a registered LS, I feel they would have good grasp on the profession.
- If a degree is the aim then experience alone can not be recognized
- I think the next step should be to require some formal education
- Some extra education should be required otherwise why have it at all
- Everyone in every occupation starts as an apprentice regardless of education. Those who are good enough become LSIT's (Journeymen). The best become LS's (master craftsmen)
- Eleven years is as much time as it takes to become a doctor

Question 7 continued:

- I believe that experience only should be left in place. Several techs' that start "ground up" have the ability to acquire licensure. Perhaps an out sourcing in credit hours would be a consideration towards licensure – online courses etc.
- Are you gonna pay a survey graduate the same as an engineering graduate? I doubt it. Why would a kid go to school for 4 years and make \$10,000 less/year than an engineer?
- I believe we are not doing the young surveyor want-a-be or the state a favor by not requiring some education to prepare him/her for a professional career.
- If someone is willing to put 11 years or more into the surveying field and gain experience and knowledge, in my experience school only teaches so much and experience in the field and on the job is just as important.
- Some state boards interviewed applicants to insure that the applicant has the minimum knowledge
- I believe some formal education prepares a person for a more formal way of thinking and dealing with the public and clients
- Experience is very valuable and especially when governed by examinations to prove that it was quality experience
- This is just too deep of a hole to read the knowledge requirements needed to be a qualified surveyor/professional
- I think some formal education is an essential element for licensure
- Experience is a great teacher, if non-education I believe there may be a lack of communication skills

8. DO YOU THINK THAT REQUIRING A 2-YEAR DEGREE IN SURVEYING OR EQUIVALENT EDUCATION WOULD BE AN APPROPRIATE REQUIREMENT FOR LICENSURE (Versus going straight to a 4-year requirement)?

72 % YES 26 % NO 2 % MAYBE

This question was not part of the 1996 Survey.

In general from the comments made, most feel that the 2-yr degree listed above is accomplishing the education part of requirement for licensure. Most also favor this option because there are schools in SD that have this type of curriculum in place or would just need to be modified to fit this type of education requirement.

Comments made on Question 8 were:

- Yes, while experience is transitioned out
- 2-yr program will give sufficient education with 4 years hands on continuous on-the-job training
- Four years of survey education for a BS in LS is more tech training and education that would be available in state and lead to a decrease in registration
- Good option but shouldn't be required
- I think the knowledge gain in a 4-yr degree will be a much better benefit
- Yes with 4 years experience
- Education makes the "professional" and a 4-yr degree gives a much broader base of education
- With a 2-yr degree in surveying, but not with an "Equivalent" education
- We have this available in SD
- Go straight to a 4 year requirement when possible to move forward. Don't slow up process by implementing a 2 year program

Question 8 continued:

- This would be a good first step. Define or quantify the equivalent hours and state the additional hours that a BSCE or BSGIS etc could do in surveying go sit for the FS or LS tests
- I think that this is a better fit for SD. We have a 2 year program possibility in place and it allows people more opportunities
- Possibly as part of a transitional period, or a grandfather clause
- Retain but phase out gradually or modify to best encourage new blood to join the profession
- But eventually go to a 4 year survey degree
- I'm in favor of 2 years in surveying but not an equivalent education
- 4-yr degree does not give you as many credits in surveying right now as a 2 year – not even close
- Only with an experience requirement
- Additional land surveying credits should be gained before licensure
- Along with experience and a minimum education credit
- I think the current structure is appropriate. If anything I would ask for more experience required for people with a 4-yr degree
- This would be a compromise. I feel experience is most important for the welfare of the public
- Need to grandfather over time
- This should be the current requirement. It is a step in the correct direction. We need this as a minimum requirement in 0-3 years.
- An AAS in Drafting is less useful than the experience route
- Yes for now, maybe more in 10 years. The key needs to be applicable credit hours in s surveying courses.
- Not without several years experience
- What is "EQUIVALENT" Education?
- I would think it would be sad to look a person in the eyes and tell them there are only 10 or 11 places in the United States you can go to come back and tell someone where they can build a garage
- Viable option for surveying. But with that being said I would like to see online and continuing education courses one could take to promote toward a 4-yr degree
- With a minimum of 8 years of experience
- It appears that we are headed toward having a 4 year degree. If this is the case, there should be no intermediate steps along the way
- Existing SD schools have this capacity
- 2 year program could beef up the survey credits and so should the civil engineering and BS degrees
- Certification tests exist in more than just our profession. The problem is if they were high profile and definitive, they could bring on board major employers, professional groups and colleges to make these tests the gold standard.
- I feel we have many excellent surveyors that have such education
- If you go to a degree requirement, you must "grandfather" those who currently have no degree but are going for the LS
- I believe this to be the best option for SD
- I only think the 2 year option could be used as our intermediate step to the 4-yr degree
- With enough experience
- This should be minimum for the education requirement
- I believe in 2 years you can cover enough class time on surveying and the rest could be a good variety of surveying experience (Boundary, construction, etc)
- This is where we should be now and expanding requirements to broaden base knowledge

Question 8 continued:

- I believe we need to establish the 4 year education opportunities within our own state before we make it a requirement. Otherwise we risk exporting all our young talent to another state where they will likely stay after graduation

9. DO YOU THINK THAT REQUIRING A SPECIFIED AMOUNT OF CREDITS IN SURVEYING COURSES WOULD BE AN ACCEPTABLE OPTION OR EQUIVALENCY FOR FULFILLING THE EDUCATION REQUIREMENT INSTEAD OF A FORMAL 2-YR OR 4-YR DEGREE? (This would allow different options such as night classes or internet classes for the individual working full time and not looking at being a "full time student". The number of credits and type of courses would be approved by the BOTP.)

80 % YES 16 % NO 4 % NO ANSWER

IF YES – WHAT NUMBER OF CREDIT HOURS DO YOU SEE AS APPROPRIATE

This question was not part of the 1996 Survey.

The answers varied from 6 credits up to 60 credit hours. The most popular range was to have between 20 and 30 credit hours of surveying.

Some comments that were made on this question were:

- One elective over core – need to have classes available
- Need the 4-yr degree with all required social sciences, humanities, and other math and science requirements
- If just do the credit hours, it does not meet the national trends
- There are many resources for degrees and those will only increase in the next 10 years
- No engineering courses allowed for surveying classes
- Same as what is required by BS civil degree
- A set number just as with our PDH requirements
- 4-yr in related field and minimum 24 credits
- Equal to a 4-yr survey degree
- But if you get the credits why not go for the degree
- I think it would be better to have a 2-yr AAS degree supplemented by 20 plus hours of surveying courses
- Several said equal to a 2-yr degree

10. PLEASE RANK THE FOLLOWING OPTIONS OF EDUCATIONAL REQUIREMENTS TO BE A LAND SURVEYOR. (Rank from 1 to 6, 1 being the best, and 6 being the last choice)

2009 Results Ranking

<u>2</u>	4-YR Surveying Degree
<u>4</u>	4-YR Degree (related field)
<u>1</u>	2-YR Technical Surveying Degree
<u>6</u>	2-YR Technical Degree (related field)
<u>3</u>	Option of a Specified Number of Surveying Credits
<u>5</u>	Leave requirements as they are.

Question 10 continued:

This question was not part of the 1996 Survey.

There were 4 people that had no answer to this question.

The ranking of these education options matches the results of other questions in this survey. The trend from this survey is that a 2-yr technical surveying degree or a 4-yr surveying degree are the highest ranked by the respondents for what SD would like to see as the educational requirements to be a Land Surveyor.

Some comments for Question 10 were:

- I would like to see more semester credit hours for every option
- Civils need more surveying hours – set a minimum number of hours for surveying for either the 2-yr or 4-yr related degrees
- I feel we need the option of a 2-yr degree plus online classes. We need the 2-yr to get the students interested
- I feel a 2-yr technical degree with a minimum number of credit hours should be the minimum requirement
- My opinions could change based on courses that are not available as of today. I also think that there are not enough survey classes for civil engineer students to take the LSIT out of school.
- Leaving the requirements as they are is not an option
- The option of a specified number of surveying credits and to leave the requirements as they are; I don't see these as options.
- Team with other states and distance education

Overall Summary:

The survey is showing that there is a trend that shows that SDSPLS members can see a need for a formal education requirement but they do not want to force a formal education setting. Eighty percent of those responding said they agreed with going to a specified number of credits in surveying courses to meet the education requirement. This seems to be a good avenue to pursue.

End of Survey Results
Thank you for your participation.