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Our Uncertain Future

It was during one of my first visits to a professional society meeting, when I was sitting in on a seminar about the intricacies of the geodesy behind State Plane Coordinates when sometime around our introduction to the variable “e” I began to notice some differences between myself and most of the attendees; namely I had all my hair, I knew most of the lyrics to the newest Pearl Jam album, and I had never owned (or loved) an HP-41. While my music tastes may not be for everyone, it did appear that I was in the distinct minority in the room being that most of the other folks in attendance had more in common with my dad or grandfather than they did with me!

Please don't get me wrong, we need older surveyors – what will we do when there's no one left to tell us how rough they had it “Back when I started surveying...”? I, for one, have benefitted greatly from the wisdom of my mentors, and never in my life hope to encounter this “Leroy” that I hear so much about – he must have been one bad dude.

By now I'm sure the “PC” cops are pulling my file and inking up the “age-ist” stamp, but despite the permanent mark on my record I'm going to go ahead and attempt to illuminate the scope of this nation's aging population of surveyors issue, which I mentioned in my first article [“Tomorrow's Surveyors,” July/Aug 2006].

My first goal was to get a handle on the age breakdown as it presently exists. In order to do that, I contacted all 50 licensing boards via e-mail and

follow-up phone calls if necessary and asked for birth date data on registrants. Unfortunately, most states either did not have this information or they did not have it available in a database that could be easily queried. I was only able to obtain data from 11 states, but those data sets correlated so closely to each other that I feel that 11 is a fair sampling of the whole. I should caveat my findings by acknowledging that they are in no way statistically “bomb proof”, but that said, the data that I used has not in any way been exaggerated or manipulated, and I will

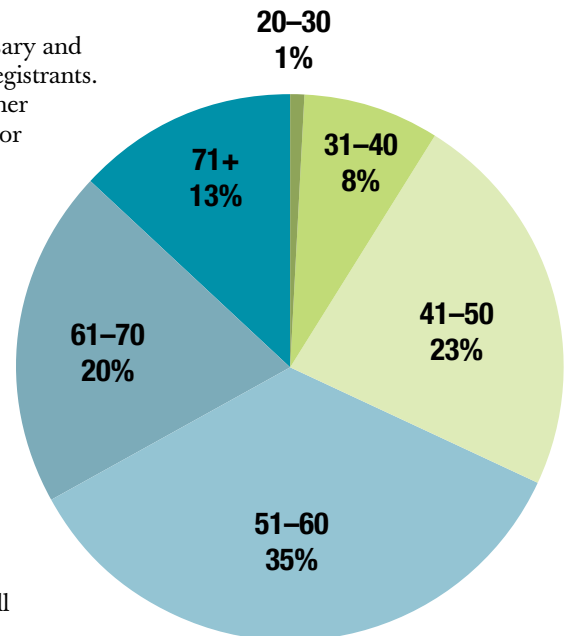


Figure 1

Average nationwide surveyor age ranges

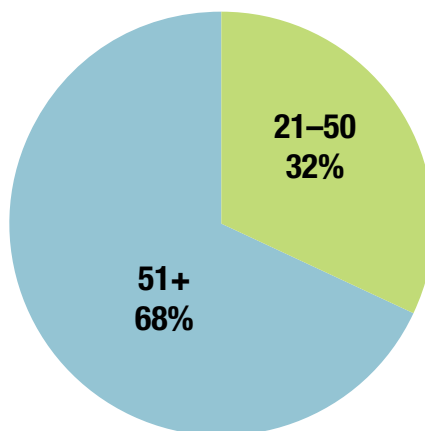


Figure 2

Average surveyor percentages above/below age 50

provide the spreadsheet to anyone who would like it.

It turns out that the average age of a land surveyor in the United States is 54. Not bad, there are still a few years of work left in you guys. The problem emerges when we examine the number of 54-year-olds compared to the number of 34-year-olds. Compare the pie charts. **Figure 1** looks like my Uncle John cut it up... why do I always get the little piece? Seriously though, right now it's not that bad, there's a fairly even

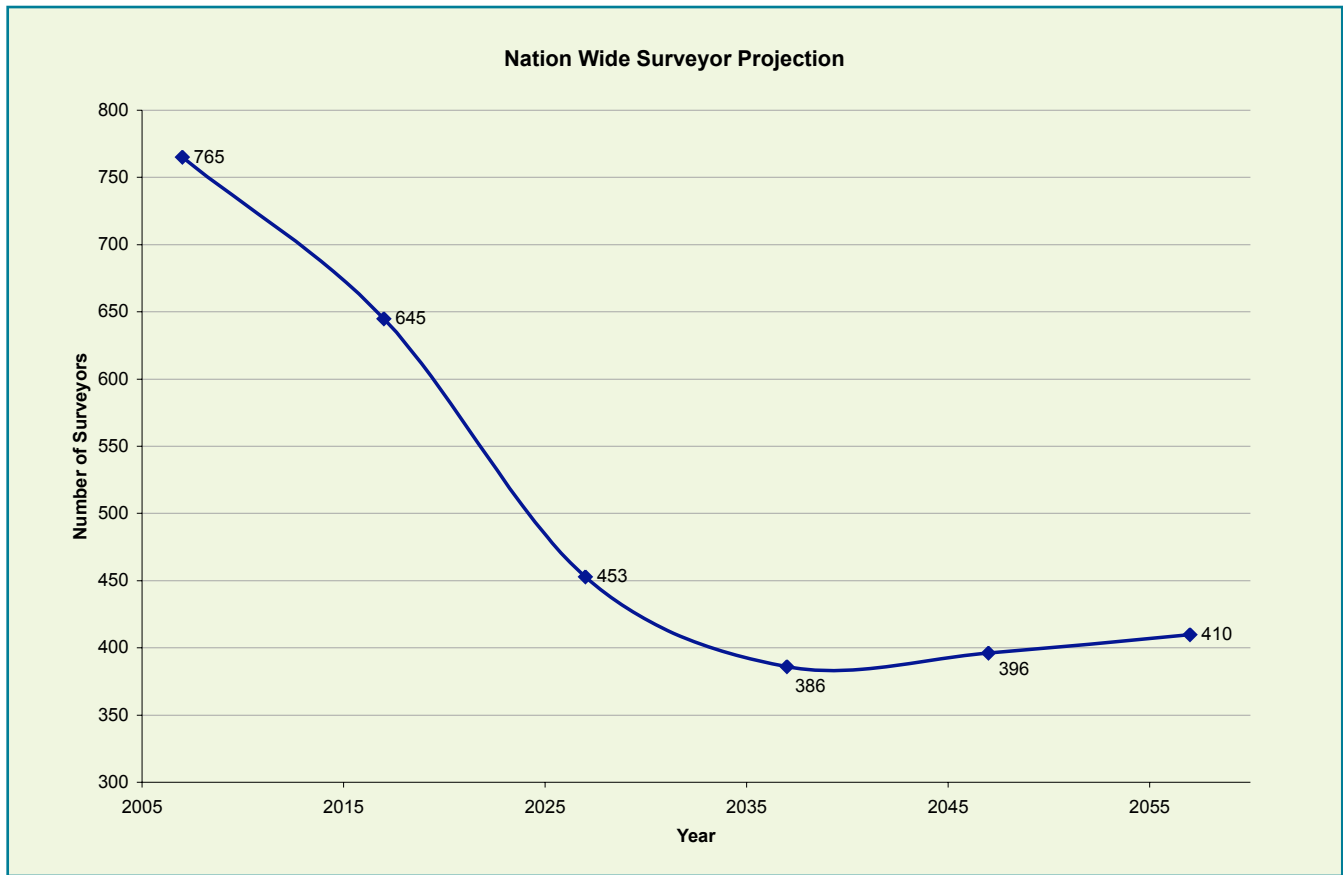


Figure 5 50-year nationwide surveyor population projection

Age Range	Number of Surveyors
21-30	13
31-40	86
41-50	228
51-60	336
61-64	102
Total	765

Figure 3 Current "State of Geriatrica" surveyor age breakdown

Age Range	Number of Surveyors
21-30	45
31-40	88
41-50	116
51-60	228
61-64	168
Total	645

Figure 4 "State of Geriatrica" surveyor age breakdown projected 10 years

distribution past age 40 (we don't need too many of those whippersnapper GPSers anyway).

Figure 2 helps put the situation in more perspective. I think we're starting to see the issue now. But let's take a few leaps here and apply these numbers to a fictitious state that we'll call Geriatrica. Let's say Geriatrica has 1,000 registered land surveyors today, and we use the average national age breakdown from **Figure 2** and assume that surveyors over the age of 65 are not actively practicing or are not doing enough work to make a significant difference; then we have a breakdown of ages as in **Figure 3**.

Let's assume now that the average retirement age is 65, and that there are 15 new registrants per year. (Incidentally, I came up with 15 by taking the average number of new registrants over the past five years for six of the states that I was able to get data for and came up with 12.4, so I decided to play it safe and call it 15). I've divided these new registrants up with 30% being between 21-30, 50% between 31-40, and 20% between

41-50. These are estimates on my part, but the exact breakdown of new registrants is of little importance for this analysis. At any rate, the numbers in 10 years will look something like **Figure 4**.

Note a modest 16% reduction from the current number of surveyors. Unfortunately, we need to look quite a bit further down the road to get a real sense of the situation. If we continue these numbers and assumptions for 50 years, we would see a trend that looks like **Figure 5**. The trend bottoms out in 2040 at about 380 surveyors, which constitutes an almost exactly 50% reduction from the current number of practicing surveyors. Can you imagine the public's reaction if forecasts predicted 50% fewer doctors or teachers in 33 years?

It would appear that the good people of Geriatrica are in for a bit of a shock. If we assume that surveyors there, like in most of the rest of the country, have at least enough work to keep them busy most of the time, and we also assume that the demand for surveys does not diminish, then the logical conclusion will

be that there will be twice as much work for surveyors in 33 years, which will, in turn, allow us to charge twice as much for our services. This is, of course, a shortsighted view of a long-term and wide-ranging problem.

Here's an analogy most of you "experienced adults" (the PC cops let me go with a warning) should be able to relate to; the gas shortage of the early 70s was essentially a supply and demand issue, gas supplies became very low, but demand remained consistent. One solution for Americans was to purchase a more efficient vehicle. Another was to find a substitute for gasoline – diesel, for instance. Survey work will undoubtedly become more efficient. Technological advances in the last 30 years have reduced our field crew size from three or four per crew to a lonely one in many cases. There is little reason to think that laser scanning, increasingly more robust GPS signals, machine control, and yet unimagined inventions won't also continue this trend. However, there is as of yet no magic brain accelerator that will allow a land surveyor to make professional decisions more quickly, which makes me think that increased efficiency will probably not make up much of the void. So, barring breakthroughs in surveyor cloning, we may need to consider the second option of the gas shortage analogy. If in 33 years we have 50% of the capacity to fill a consistent 100% demand, one starts to wonder, who will be our diesel: engineers, GIS professionals, lawyers? I shudder to think. The issue is compounded when you consider that as the number of surveyors drops, so does the cadre of experienced individuals qualified to serve as mentors and teachers for the next generation of surveyors. I guess we can take solace, at least, in the fact that it's a pretty small amount of people to train.

These are the kinds of things I think about when my mind begins to wander. Of course, pointing out problems is easy; finding a solution is hard. In the absence of an absolute solution, I suppose we should ask: what are our options and what is our alternative to diesel?... public transportation perhaps.

I guess that will have to wait. I should go... here comes my old crew chief, and he's got that "Back in my day..." "You're going to be here for awhile..." look in his eye!

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