

NATIONAL LAND PARCEL DATABASE AND SURVEYORS

By Brent Jones, PE, PLS

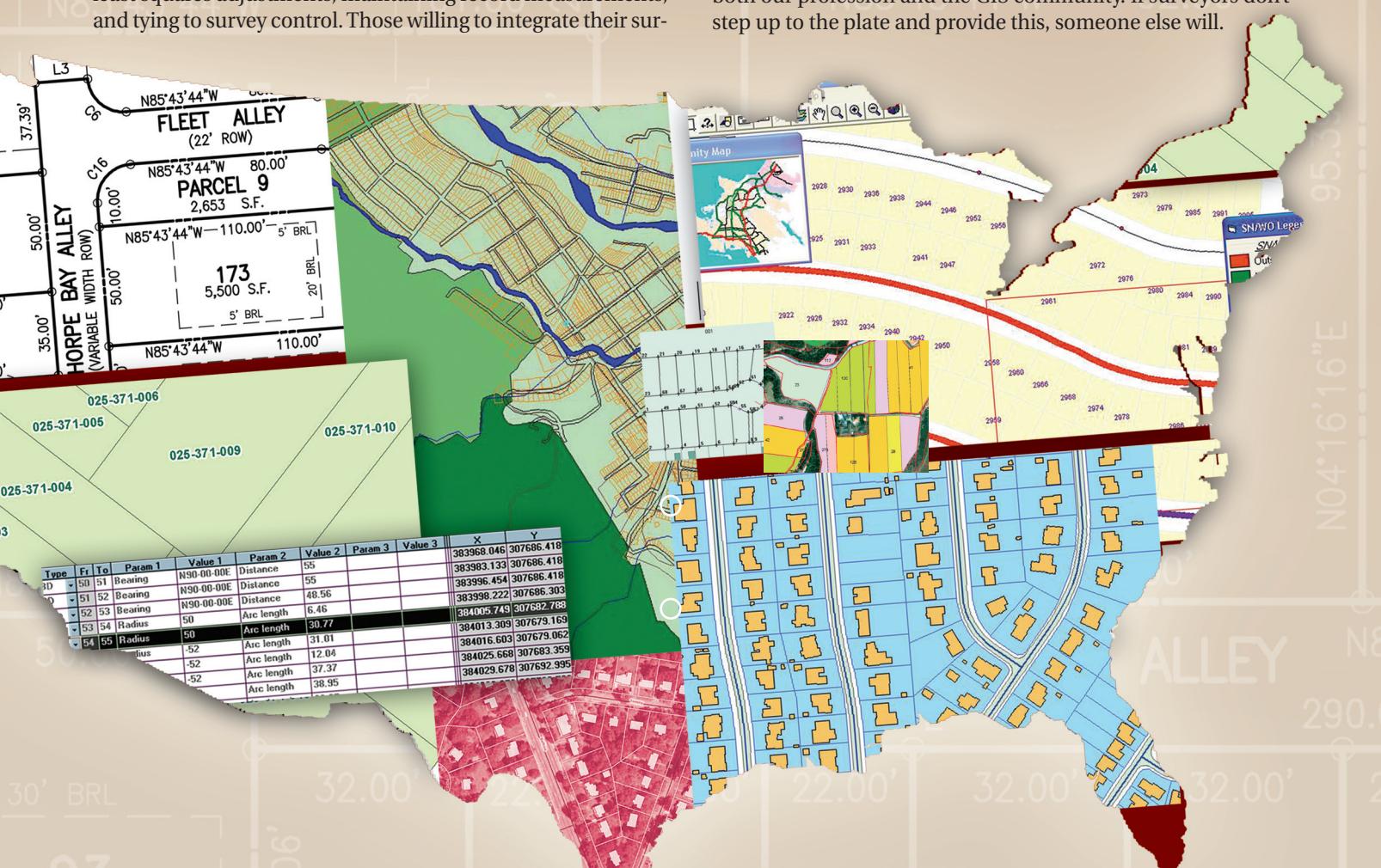
I recently finished reading the book, *National Land Parcel Data: A Vision for the Future*, and I think it serves as a call to action for all surveyors. The book articulates the demand for a good national parcel database, including some excellent policy discussion on how to get started and how to make progress. Every surveyor who plans to work for the next 10 years should read this book.

National Land Parcel Data: A Vision for the Future is a reminder that, with new technology, surveyors have the ability to manage parcels in a GIS using survey methodologies such as least squares adjustments, maintaining record measurements, and tying to survey control. Those willing to integrate their sur-

Will surveyors heed the call?

vey knowledge and know-how with GIS will have the capability to enter the GIS market by helping to improve the accuracy of a parcel network, consequently improving all the data in GIS.

What I hear from a lot of surveyors is that they understand the value of a national parcel database but they don't necessarily see where they fit in with its development. I view this as a personal and professional challenge. For those of us surveyors who have integrated survey procedures and methodologies with GIS, we need to guide and convince our colleagues that adding these GIS services into their offerings is beneficial to both our profession and the GIS community. If surveyors don't step up to the plate and provide this, someone else will.



Are surveyors prepared to engage in the opportunities that a national parcel database presents?

I shared my opinion and asked this same question recently on an online forum where geospatial industry leaders shared their own perspectives. The response I received from fellow surveyors and GIS professionals was overwhelming. Here is what some of my peers had to say ↗

John Matonich, PS, President and CEO, ROWE Professional Services

There have been a number of papers written extolling the virtues of a national parcel database, and it makes great sense from a number of perspectives. The troubling issue to me is the continued pushing aside of members of the surveying profession when the formulating discussions are taking place. The latest evidence of this is in the National Geospatial Advisory Committee. This is the advisory group to the Federal Geographic Data Committee (FGDC). In a recent action of re-appointment of the committee by the Department of Interior, no members of the surveying community's private sector were included. To me, this was a serious mistake, as it is the private-sector surveyor who truly understands the framework of parcel boundaries and their differences across our country.

One of the reasons members of the surveying profession don't understand where they fit in is that they have had no input as to how a national parcel database should be established to meet the needs of the broad user of land boundaries. From private- to public-sector owners and users, this database has distinct advantages, but only if it is properly established with everyone's needs in mind. If this doesn't happen, the parcel database effectiveness can clearly be compromised or, in an even worse situation, misused.

Stevenson Sheppard, PLS, President and Co-Owner, Shyka, Sheppard & Garster Land Surveyors

Few technical obstacles exist for surveyors to participate in a national parcel database. For years, surveyors have had ready access to GPS and CAD technologies, enabling them to produce georeferenced data using robust methodologies and techniques including electronic data collection and least-squares adjustments. Surveyors have long provided their clients with products in a variety of formats, from shapefiles to drawing files to three-dimensional surface data. However, a surveyor's

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most important product, from a parcel standpoint, is his or her professional opinion about the location of a parcel's boundary. The boundary is not just a collection of observations and data but rather a synthesis of this data together with information gleaned from existing records and the application of case and statute law. It is the incorporation of this opinion into the national parcel database that will be most valuable. Most surveyors already participate, at least occasionally, in populating a parcel database by recording their surveys at the community or county level. Taking the next technical steps to participate in a national system should be readily accomplished.

Many surveyors work as sole proprietors, in partnerships, or in microbusinesses. Without a financial carrot swinging in front of them, there is little incentive to expend resources participating in a national parcel database—resources that are typically needed to make next week's payroll. These small surveying firms face constant financial struggles ranging from cash flow problems, to being too small to realize group-rate health insurance savings, to always facing unfavorable rates for capital equipment financing or credit. Many microbusinesses would cringe at the thought but would have to acknowledge their virtual hand-to-mouth existences. This is not conducive to participating in a national parcel database without an adequate compensation mechanism.

Another typical business setting for surveyors is as a division of an engineering and/or architecture firm. In these situations, surveying is treated as a support service for other disciplines, and these surveyors often have little or no autonomy to grow into other areas or pursue other opportunities. There is apt to be little support in these firms for the expenditure of resources to participate in a national parcel database without a measurable return.

Additionally, surveying parcel boundaries is often practiced within a small geographic area where local knowledge is important. Accordingly, many surveyors have strong, propri-



etary perceptions of their work. Right or wrong, most surveyors feel that their existing body of work provides them with a competitive advantage, and many are loathe to share it. Again, adequate financial incentives might go a long way toward overcoming this.

Are surveyors prepared to engage in the opportunities presented by a national parcel database? Yes, they are prepared. Will they participate? Yes, but only if the opportunities include a reasonable, tangible return.

Jan Van Sickle, PLS

I have also read *National Land Parcel Data: A Vision for the Future*. I would like to second Brent's suggestion that we all read it carefully. There is a lot for us to talk about and not just in general terms. I believe we should get down in the weeds and really discuss the details. I suggest this because there is a history here. *National Land Parcel Data: A Vision for the Future* is in a long line of papers, books, and documents on essentially the same subject. For me, and perhaps for you, this discussion began in 1980 with the National Research Council's Need for a Multipurpose Cadastre. It looks to me like the issues involved have changed remarkably little in the intervening 30 years, but other things have changed. The technology has certainly advanced, and the attendant commercial and governmental pressures to proceed have increased a lot. At this point, action is inevitable. The question is what action? It has been my experience that large undertakings of data management can do much good, and they can do much harm. I believe that the prevailing outcome depends on the nature of the decisions made at the foundation.

A. Wayne Harrison, PLS, Chief Surveyor and Branch Manager, Cullian Engineering Co.

It has been three decades since the idea of a national parcel database was first proposed, and yes, I think there are a lot of surveyors who are prepared to engage in the opportunities that a national parcel database presents. I encounter more and

more surveyors and surveying firms every day that are utilizing GIS in their daily operations as well as finding new opportunities in providing GIS parcel and utility data. I am also seeing more geomatic/surveying programs that have incorporated or are considering incorporating GIS courses into their programs to help create GIS-savvy surveyors. However, I believe the real question is what do we have to do to convince the surveyors—especially those that are sitting on the fence—that we need to do everything possible to continually engage and work with other GIS stakeholders, at all levels, during all stages of the development of a more accurate national parcel database? This continual interaction by surveyors with the other stakeholders can only lead to the creation of a parcel database that will be highly beneficial to all.

Dr. Frank Derby, Professor of Surveying and GIS, Pennsylvania State University

There are valid reasons for including a national parcel database in the National Spatial Data Infrastructure (NSDI). In a presentation before the Congressional Subcommittee on Energy and Resources, representatives from the cadastral subcommittee of the FGDC argued, among other things, that a national parcel database as a component in the current NSDI could have helped elucidate the high incidence of subprime lending practices within selected socioeconomic groups in targeted communities. The lack of such a database, according to the group, resulted in the mortgage crisis, engendering extensive foreclosures and bank failures that drove the country to the brink of economic collapse. A national parcel database could improve the ability to monitor trends in mortgage and property values in the United States.

Oftentimes, surveyors, including myself, tend to focus on the legal applications of parcel data and are quick to emphasize positional accuracy, thereby losing sight of non-legal aspects. An essential consideration, therefore, is positional accuracy in a national parcel database. I must emphasize here that I am not advocating that surveyors forsake accuracy. Ideally, an accurately surveyed national parcel database would serve greater purposes, but what will be the acceptable level of accuracy and at what expense? It is my belief that local and state governments will be required to compile the parcel data layers, which means that local surveyors' involvement will be required at those levels. If so, then there will be opportunities for surveyors to assist their counties in the development of the parcel layer. I hope that the National Geospatial Advisory Committee will request input from ACSM regarding minimum accuracy standards for the national parcel database.

Creating and maintaining the national parcel database would be another opening for surveyors to reclaim the leadership role in geospatial technology. They can do so by looking at their data as a societal resource rather than a proprietary asset for creating and interpreting boundary information. The

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ability to submit additional information to the parcel record for the betterment of the community or society as a whole is where the potential benefit really exists. Surveyors who study the technology beyond the concept of creating graphic layers are the ones who can benefit the most. Those surveyors can advise municipalities and counties about the potential that exists within the data that they already have. Business opportunities will come to surveyors who are willing to think outside the box and go out and market their services. They can start by getting involved in the GIS initiatives within their communities. Above all, surveyors must be willing to invest the time and resources to educate themselves about the technology and its potential benefits.

Curt Sumner, PLS, Chair, Coalition of Geospatial Organizations

I think the answer to the question of whether or not surveyors will heed the call to participate in the development of land parcel databases, national or otherwise, is dependent on how and why those systems are developed and their intended uses. Since the creation of GIS, there has been a headlong rush to get as much information into databases as possible for what is assumed or portrayed to be the lowest cost. I would venture to say that, in the majority of instances, decisions regarding how this should be accomplished were made with little or no consultation with a professional surveyor.

We often hear that surveyors are not needed for the development of particular sets of data that are to be inserted into a GIS because survey-grade accuracy isn't required to properly use the data. While there is truth to this, unfortunately, the data is sometimes utilized to make decisions for which surveyor-provided information is critical. Among these would be the development of a cadastral layer that is intended to be more than just a picture of what land parcels might look like, were they all surveyed and properly placed into a uniform geodetic framework. When local tax maps contain digital information about property boundaries that is in conflict with surveyor-generated data about that property, surveyors get very interested. They attempt to clarify the ramifications of simply ignoring the surveyor's data or, perhaps worse, trying to adjust the digital tax map to accommodate the surveyor-generated data, thus introducing the possibility of creating phantom parcels that do not actually exist. Too often, property owners are misinformed about the validity of data provided from the local tax map or GIS regarding the actual location of property boundaries, structures, easements, rights-of-way, flood zone limits, wetlands limits, etc.

I think the level at which surveyors can participate in a national parcel database depends on how well they have prepared themselves. Some may only be able to assist in

the understanding of the intent of land descriptions to be incorporated into a tax map. Others may be able to provide a wide range of services related to a database, from gathering and processing raw field data to creating the digital files, and assist in the interpretation and dissemination of the data.

Brent Jones, PE, PLS, is the survey, land administration, and engineering industry manager at ESRI.

National Land Parcel Data: A Vision for the Future is available from the National Academies Press (http://www.nap.edu/catalog.php?record_id=11978#toc)



380 New York Street
Redlands, California
92373-8100 USA

1-800-GIS-Xprt (1-800-447-9778)

Phone: 909-793-2853

Fax: 909-793-5953

info@esri.com

www.esri.com

Offices worldwide

www.esri.com/locations

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