



# Issues Regarding a National Land Parcel Database

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## Summary

The federal government's efforts to coordinate its geospatial activities, through the Federal Geographic Data Committee (FGDC) and the development of the National Spatial Data Infrastructure (NSDI), include a strong emphasis on land parcel data. Land parcel databases (or cadastres) describe the rights, interests, and value of property. Ownership of land parcels is an important part of the legal, financial, and real estate system of a society. The Department of the Interior's Bureau of Land Management (BLM) is assigned the role of lead agency coordinating land parcel data for federal lands, and is responsible for performing cadastral surveys on all federal and Indian lands. According to BLM, "Cadastral surveys are the foundation for all land title records in the United States and provide federal and tribal land managers with information necessary for the management of their lands."

Although BLM is steward of federal land parcel data and coordinator for cadastral data under the FGDC, a 2007 National Research Council (NRC) report found that a coordinated approach to federally managed parcel data did not exist. Legislation that would address some of the issues for creating a national cadastre (H.R. 1620, the Federal Land Asset Inventory Reform Act of 2011) was introduced in the 112<sup>th</sup> Congress. Similar legislation was introduced in the 111<sup>th</sup> Congress but was not enacted. Coordinating all land parcel data, including that produced for local and regional needs on non-federal lands, remains a challenge.

Why a national land parcel database? The National Geospatial Advisory Committee (NGAC) observed that the federal government's land parcel data is missing an arrangement for acquiring the detailed property-related data necessary to make decisions during times of emergency, such as a natural disaster. In addition to emergency response to disasters, other possible needs for a national land parcel database include responding to the home mortgage foreclosure crisis, dealing with wildfires, managing energy resources on federal lands, and dealing with the effects of climate change. Some individual federal programs could benefit from improved estimates of the number of acres of federal land, such as the Payments in Lieu of Taxes (PILT) program, which requires a precise tally of federal acres within counties in order to calculate federal payments to local governments.

Administrative options have also been proposed to achieve the vision for a land parcel database described in the 2007 NRC report: a distributed system of land parcel data housed with the appropriate data stewards but accessible through a web-based interface. Some recommend that the Office of Management and Budget (OMB) and the Department of the Interior take a stronger hand in enforcing the requirements of OMB Circular A-16 and Executive Order 12906, which created the FGDC and instigated efforts to create the NSDI. NGAC also recommended a Geographic Information Officer within each federal department or agency, and a geospatial leadership and coordination function in the Executive Office of the President. The Obama Administration issued supplementary guidance to Circular A-16 on November 10, 2010, that could address some of the same of the issues raised in the NRC report, particularly regarding data sharing, coordination, and funding.

The NRC recommended both a federal land parcel coordinator and a national land parcel coordinator. The first would be responsible for federal lands and property; the second would coordinate parcel data from all sources, both public and private lands. A truly national land parcel cadastre would likely require strong partnerships between the federal government and state and local governments.

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## Introduction

This report provides a summary of some of the issues regarding the creation of a national land parcel database, or cadastre.<sup>1</sup> The report identifies some of the perceived needs for a national cadastre, legislative and administrative options that could lead to a national land parcel database, and some of the challenges and concerns. It also summarizes and briefly discusses recommendations in a 2007 National Research Council (NRC) report, which concluded that “a national approach is necessary to provide a rational and accountable system of property records.”<sup>2</sup> The NRC report described why a national approach is needed, identified challenges to creating a national cadastre, and offered specific recommendations for achieving its vision: a distributed system of land parcel data housed with the appropriate data stewards but accessible through a web-based interface.<sup>3</sup>

The federal government has direct and indirect responsibilities for coordinating and managing land parcel data on federal land. An example of a direct responsibility is that of the Department of the Interior’s (DOI’s) Bureau of Land Management (BLM), which is steward of federal land parcel data. An example of an indirect role is that of the Federal Geographic Data Committee (FGDC), which serves to coordinate federal geospatial activities. Both are discussed further below.

Legislative proposals spanning several congresses have attempted to address some of the issues involved in creating a national cadastre. Most recently, the Federal Land Asset Inventory Reform Act of 2011 (H.R. 1620), introduced on April 15, 2011, would require the Secretary of the Interior to develop a multipurpose cadastre of federal “real property.” H.R. 1620 was referred to the Subcommittee on Energy and Mineral Resources of the House Committee on Natural Resources, but there has been no action on the bill. Similar bills were introduced in the 111<sup>th</sup>, 110<sup>th</sup>, and 109<sup>th</sup> Congresses but were not enacted.

The 112<sup>th</sup> Congress faces the same issues regarding management and coordination of federal land parcel data as previous congresses. One legislative option is to enact H.R. 1620. Another option would be to investigate more deeply the findings from the 2007 NRC report and examine whether its recommendations should be implemented legislatively or administratively, or whether they should be implemented at all. In addition, the 112<sup>th</sup> Congress may want to consider the potential costs of implementing the recommendations from the NRC report.

For more information on geospatial information generally, see CRS Report R40625, *Geospatial Information and Geographic Information Systems (GIS): Current Issues and Future Challenges*.

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<sup>1</sup> Cadastre is the map of ownership and boundaries of land parcels.

<sup>2</sup> National Research Council, *National Land Parcel Data: A Vision for the Future*, Washington, DC, 2007, p. 113. Hereafter referred to as NRC, *National Land Parcel Data*.

<sup>3</sup> *Ibid.*

## Why a National Land Parcel Database?

Geospatial information, including land parcel data,<sup>4</sup> is increasingly produced by private sector and other non-federal government sources. Consequently, the federal government's role has shifted from producing geospatial data to coordinating efforts, facilitating partnerships, and managing the vast amounts of geospatial information.<sup>5</sup> According to the National Geospatial Advisory Committee (NGAC),<sup>6</sup> the shift in geospatial data production from the federal government to the private sector and state and local governments has created an "... urgent need to reexamine the relationships between data providers and users to establish a fair and equitable geospatial data marketplace that serves the full range of applications."<sup>7</sup> As an example, NGAC noted that the Census Bureau had to develop a duplicate version of street centerlines in preparation for the 2010 Census because it could not take advantage of the existing commercial data. This duplication in effort was a result, in part, of prohibitions on disclosing or publishing private information that identifies an individual or business, per Title 13 of the *U.S. Code*. Further, "critical information about the use, value and ownership of property is needed by FEMA, the Forest Service, and HUD, for emergency preparedness or response in times of hurricanes or wildfires—or even to monitor the current foreclosure problems."<sup>8</sup>

### Current Status

The federal government's efforts to coordinate its geospatial activities, through the Federal Geographic Data Committee (FGDC) and the development of the National Spatial Data Infrastructure (NSDI), include a strong emphasis on land parcel data. For example, the cadastral data theme is one of the seven fundamental data themes of the NSDI framework.<sup>9</sup> Within the FGDC, BLM is assigned the role of lead agency coordinating land parcel data for federal lands. According to BLM, it is responsible for performing cadastral surveys on all federal and Indian lands: "Cadastral surveys are the foundation for all land title records in the United States and provide federal and tribal land managers with information necessary for the management of their lands."<sup>10</sup>

Despite the BLM role as steward of federal land parcel data and coordinator for cadastral data under FGDC, NRC found that a coordinated approach to federally managed parcel data did not

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<sup>4</sup> Land parcel databases describe the rights, interests, and value of property. The legal boundaries of land parcels are defined in the deed to a property, and are confirmed by survey measurements. Ownership of land parcels is an important part of the legal, financial, and real estate system of a society. See NRC, *National Land Parcel Data*, Introduction.

<sup>5</sup> The National Geospatial Advisory Committee, *The Changing Geospatial Landscape*, January 2009, p. 12. Hereafter referred to as NGAC, 2009.

<sup>6</sup> NGAC members include federal, state, and local government representatives, private sector representatives, and academics.

<sup>7</sup> NGAC, 2009, p. 12.

<sup>8</sup> NGAC, 2009, p. 12.

<sup>9</sup> The other six themes are geodetic control, orthoimagery, elevation, hydrography, administrative units, and transportation. See <http://www.fgdc.gov/framework>.

<sup>10</sup> U.S. Department of the Interior, Bureau of Land Management, Cadastral Survey Program, [http://www.blm.gov/wo/st/en/prog/more/cadastralsurvey/program\\_description.html](http://www.blm.gov/wo/st/en/prog/more/cadastralsurvey/program_description.html).

exist. The National Integrated Land System (NILS)<sup>11</sup>—a joint project between BLM and the U.S. Forest Service (USFS, in the Department of Agriculture)—is the closest thing to a coordinated program “... but it remains much more of a set of technologies than a source of parcel data.”<sup>12</sup> Coordinating all land parcel data, the bulk of which is produced for local and regional needs, remains even more of a challenge.

## **Identified Need**

The National Geospatial Advisory Committee (NGAC) was formed in early 2008 to provide advice and recommendations to the FGDC on management of federal geospatial programs. NGAC observed that the federal government’s need for land parcel data is missing an arrangement for acquiring the detailed property-related data necessary to make decisions during times of emergency. In addition to emergency response related to natural disasters, other perceived or identified needs for a national land parcel database at the federal level include responding to the home mortgage foreclosure crisis, dealing with wildland fires, and managing extractive energy resources on federal lands.<sup>13</sup> Other aspects of managing the federal lands could be included as well, such as compensating local governments for tax revenue losses due to the presence of federally owned land; or monitoring the effects of climate change and the efficacy of measures taken to mitigate or adapt to such effects.

## **Natural Disasters**

Disasters are often cited as a compelling reason to establish a national land parcel database: “Land-parcel data, one of the framework themes, are essential in managing disasters and in assessing damage, along with building footprints and the locations of infrastructure (power, telecommunications, water, sewage, and steam-heating networks).”<sup>14</sup> The attacks of September 11, 2001, and the destruction caused by hurricanes Katrina and Rita in 2005, underscored for many the need for rapid access to land ownership data to help guide emergency response, especially when a disaster crosses multiple jurisdictions or extends beyond the boundaries of a community and the immediate knowledge of local responders. The land parcel data useful to emergency responders may exist, but may also be difficult to access:

Data on the ownership of land parcels, or cadastral data, provide a particular and in some ways extreme example of the problems that currently pervade the use of geospatial data in emergency management. Vast amounts of such data exist, but they are distributed among tens of thousands of local governments, many of which have not invested in digital systems and instead maintain their land-parcel data in paper form. As with many other data types, it is not so much the existence of data that is the problem, as it is the issues associated with rapid access.<sup>15</sup>

Several NRC reports noted that a national partnership for assembling land parcel data would provide major benefits for managing federal assistance to local programs, many of which are

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<sup>11</sup> See <http://www.blm.gov/wo/st/en/prog/more/nils.html>.

<sup>12</sup> NRC, *National Land Parcel Data*, p. 3.

<sup>13</sup> Telephone conversation with Nancy von Meyer, vice president, Fairview Industries, Pendleton, SC, July 20, 2009.

<sup>14</sup> National Research Council, *Successful Response Starts With a Map*, Washington, DC, 2005, p. 38.

<sup>15</sup> NRC, *Successful Response Starts With a Map*, p. 90.

associated with the U.S. Department of Housing and Urban Development (HUD).<sup>16</sup> According to the NRC, parcel-level data would help HUD meet its strategic goals, such as increasing home ownership opportunities, promoting affordable housing, and ensuring equal opportunities in housing. NRC further contended that “the existence of national land parcel data would provide HUD with data it needs for effective management of grants and would have avoided the critical time wasted gathering parcel data piecemeal in the wake of these recent hurricanes.”<sup>17</sup>

## **Home Mortgage Foreclosure Crisis**

In addition to natural disasters, land parcel data are being used for responding to the housing market collapse that began in 2008. The FGDC Cadastral Subcommittee noted that parcel data provide added value to the mortgage and property information collected by the federal government under the Home Mortgage Disclosure Act (HMDA).<sup>18</sup> HMDA was enacted in 1975 to assist government regulators and the private sector with the monitoring of anti-discriminatory practices.<sup>19</sup> According to the FGDC Cadastral Subcommittee

While HMDA data provide a snapshot in time of a mortgage transaction, local government parcel data provide current information at the individual parcel level that allows other information such as utility shutoffs, code violations and undelivered mail to be tied to a common unit, the parcel. Parcel data make it possible to relate disparate data together to get a complete picture of individual mortgage and housing conditions. Parcel data also provide the connection to local governments, which can provide community context and engage those most affected by mortgage crisis events.<sup>20</sup>

The Cadastral Subcommittee likened the distressed housing market to a contagious disease, tending to affect some communities while leaving others intact. By adding parcel data to existing information available under the authority of HMDA, data analyses could identify “hot spots” in a pending foreclosure crisis, and possibly even provide sufficient information for a national early warning system for financially distressed housing and mortgage markets.<sup>21</sup> On July 21, 2010, Congress added such a provision in P.L. 111-203 for including parcel data with other information available under HMDA. The provision amended HMDA to include “the parcel number that corresponds to the real property pledged or proposed to be pledged as collateral.”<sup>22</sup>

In one case, GIS and land parcel data were used to identify and analyze the extent of home foreclosures, and to use the results of that analysis to apply for Community Development Block Grants (CDBG) to convert foreclosed properties into low-income housing.<sup>23</sup> It could be asserted

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<sup>16</sup> Relevant reports include National Research Council, *GIS for Housing and Urban Development*, Washington, DC, 2003; and National Research Council, *Procedures and Standards for a Multipurpose Cadastre*, Washington, DC, 1983.

<sup>17</sup> NRC, *National Land Parcel Data*, p. 47.

<sup>18</sup> P.L. 94-200, 12 U.S.C. §§ 2801-2809.

<sup>19</sup> For more information, see CRS Report RL34720, *Reporting Issues Under the Home Mortgage Disclosure Act*, by (name redacted).

<sup>20</sup> Federal Geographic Data Committee, Cadastral Subcommittee Mortgage Study Team, “Land Parcel Data for the Mortgage Crisis: Results of the Stakeholders Meeting,” June 30, 2009, p. 4, [http://www.nationalcad.org/data/documents/Land\\_parcel\\_data\\_for\\_the\\_mortgage\\_crisis\\_-\\_stakeholders\\_meeting\\_findings.pdf](http://www.nationalcad.org/data/documents/Land_parcel_data_for_the_mortgage_crisis_-_stakeholders_meeting_findings.pdf).

<sup>21</sup> *Ibid.*, p. 6.

<sup>22</sup> P.L. 111-203, the Dodd-Frank Wall Street Reform and Consumer Protection Act, Title X, Subtitle H, § 1094, Amendments to the Home Mortgage Disclosure Act of 1975.

<sup>23</sup> Government Technology, *GIS Maps Track Foreclosures in California and Kansas*, April 29, 2009, (continued...)

that these types of land parcel data, made available to federal agencies such as HUD, could also be used to track the effects of programs like CDBG to ameliorate the foreclosure crisis. This type of use of land parcel data arguably underscores a need for a national land parcel database to track the effectiveness of federal agency programs in national efforts, such as coping with the home foreclosure crisis.

## **Wildfires<sup>24</sup>**

The FGDC Cadastral Subcommittee formed a Wildland Fire Project Team, at the request of the National Interagency Fire Center, together with representatives from BLM, USFS, and the U.S. Geological Survey, state representatives, and others to prepare for the 2007 fire season.<sup>25</sup> The goal was to identify contacts for parcel data in priority counties throughout the West, and acquire as much parcel data as possible to support analyses of and responses to wildfires. The project was also intended to foster coordination between the cadastral community and the wildland fire community to identify the cadastral data needs to support planning for, response to, and mitigation of wildfires.

According to a 2007 report by the Cadastral Subcommittee, "... structures located within the wildland-urban interface comprise a very substantial portion of values commonly threatened by wildland fires. GIS parcel data from local and state government provide effective and accurate means to identify and map general structure locations with associated values."<sup>26</sup> These data are used to provide rapid analyses and wildfire suppression strategies by quantifying the significant resource values most threatened by a fire.

Following the very active 2007 fire season, the Cadastral Subcommittee observed that to increase the efficiency and sustainability of the effort, several changes were needed:

- increasing state-level participation and involvement to help build a single state contact for parcel information;
- merging the point-of-contact information with the 50-States Initiative<sup>27</sup> into a single data and point-of-contact resource;
- expanding the use of pre-deployed parcel data to support other aspects of emergency response and reduce duplicative parcel inventory efforts; and
- obtaining federal assistance to work with states that work with counties to complete and standardize parcel data systems.<sup>28</sup>

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<http://www.govtech.com/gt/649520>.

<sup>24</sup> For general information on the federal role in wildfires, see CRS Report RL33990, *Federal Funding for Wildfire Control and Management*, by (name redacted).

<sup>25</sup> FGDC Cadastral Subcommittee, "Briefing Paper: Pre-Deploying Parcel Data for Managing Wildland Fires," December 18, 2007, <http://www.nationalcad.org/data/documents/RavarBrief.pdf>.

<sup>26</sup> FGDC Cadastral Subcommittee, "Parcels and Wildland Fire, 2007 Report," January 2008, Preface, <http://www.nationalcad.org/data/documents/Parcels%20and%20Wildland%20Fire%202007%20final%20report.pdf>.

<sup>27</sup> For more information about the 50-States Initiative, see NSGIC, [http://www.nsgic.org/hottopics/fifty\\_states.cfm](http://www.nsgic.org/hottopics/fifty_states.cfm).

<sup>28</sup> FGDC Cadastral Subcommittee, "Parcels and Wildland Fire," p. 3.



The wildland fire project may represent an example of how making land parcel data available, from the local and state level through the federal level, could serve multiple stakeholders who benefit from access to the data. Whether this example can be expanded to all states susceptible to wildfires, or to the entire country in a multihazard approach, remains an open question.

### **Example: Washington State Parcel Database for Fire Management**

An example of how GIS and geospatial data are employed to help respond to fires in Washington state is the Fire Management Database. The Fire Management Database is a tool developed to provide land use information, assessed property values, and property boundaries in a GIS format. Its primary use is to help Fire Incident Commanders identify land ownership patterns and prioritize how their crews respond to fires in the state of Washington. For example, the tool can be used to quickly identify public land versus privately owned land, whether the property is developed or not, and what type of development exists—residential, manufacturing, transportation, and others. The database allows Fire Incident Commanders to focus on high-priority parcels, those that are developed, have people present, and may be at particularly high risk, such as those with chemical or petroleum manufacturing facilities, or parcels with hospitals or schools that have particularly vulnerable populations.

The Washington State Parcel Database was developed in cooperation with the Rural Technology Initiative in Washington state, established in 2000 by a federal grant via the Forest Service Cooperative Programs as a pilot project to accelerate the implementation of new technologies in rural forest resource-based communities. The FGDC supported the development of the Fire Management Database.

**Sources:** The Rural Technology Initiative, <http://www.ruraltech.org/>; Washington State Parcel Database for Fire Management, [http://www.ruraltech.org/projects/wrl/fldb/fgdc\\_fire\\_database.asp](http://www.ruraltech.org/projects/wrl/fldb/fgdc_fire_database.asp).

## **Energy Resources<sup>29</sup>**

The FGDC Cadastral Subcommittee identified a need for accurate survey boundaries and land ownership information (i.e., land parcel information) for management of the life cycle of energy development from prospect to production to remediation.<sup>30</sup> For western states, where much of the nation’s onshore energy production from federal lands occurs, the Public Land Survey System (PLSS) is the primary cadastral framework, supported by BLM’s Cadastral Survey Program and represented in a digital format by the Geographic Coordinate Data Base (GCDB).<sup>31</sup> The Cadastral Subcommittee proposed a set of elements comprising an “energy core” set of information that could be provided by land parcel data producers in energy production areas—referenced to the cadastral framework of the GCDB—and could lend efficiency and accuracy at each stage of energy production activities: application, permit, monitoring, and reclamation activities. As with other applications, such as wildfire support, the Cadastral Subcommittee underscored the need to embrace and apply consistent cadastral framework standards to parcel data.<sup>32</sup>

In western states, energy resources are commonly exploited on a variety of lands: federally managed surface and subsurface lands; state, county, tribal, or privately owned lands; and split estates where the surface lands may be privately owned but the minerals are federally managed (or vice-versa). The Cadastral Subcommittee observed that “in all of these cases it is essential to

<sup>29</sup> For general information on the federal role in energy resources, see CRS Report R40806, *Energy Projects on Federal Lands: Leasing and Authorization*, by (name redacted).

<sup>30</sup> FGDC Cadastral Subcommittee—Energy Workgroup, “The Energy Community and Cadastral Data,” May 2006, [http://www.nationalcad.org/data/documents/The\\_Cadastral\\_NSDI\\_and\\_the\\_Energy\\_Community.pdf](http://www.nationalcad.org/data/documents/The_Cadastral_NSDI_and_the_Energy_Community.pdf).

<sup>31</sup> For more information on the BLM program, see <http://www.blm.gov/wo/st/en/prog/more/gcdb.html>.

<sup>32</sup> FGDC Cadastral Subcommittee—Energy Workgroup, “The Energy Community and Cadastral Data,” May 2006, p. 14.

build a seamless presentation of surface and subsurface ownership to correctly manage and exploit energy resources.”<sup>33</sup> It might be argued that similar needs arise for other parts of the country, such as parts of Pennsylvania, New York, and West Virginia, where exploration and development of potentially huge natural gas deposits in black shales (shale gas) is occurring.

Also, if a system for limiting greenhouse gas emissions were to be imposed nationally or on a state-by-state basis, such as cap-and-trade or a carbon tax, then deployment of capture, transportation, and underground storage of carbon dioxide (CO<sub>2</sub>) from industrial facilities could rapidly expand across states and across the nation. It may become important to employ geospatial techniques and GIS to efficiently manage all of the potential CO<sub>2</sub> reservoirs, and the land overlying the reservoirs, as well as the transportation routes from sources to injection sites. Efficient management of surface and subsurface lands and resources for CO<sub>2</sub> capture and storage may also benefit from the type of seamless presentation of land parcel data recommended by the Cadastral Subcommittee.

### **Climate Change<sup>34</sup>**

In addition to its potential application to CO<sub>2</sub> capture, transportation, and storage mentioned above, a national land parcel system could have other benefits related to mitigating climate change. If a scheme for reducing greenhouse gas emissions were imposed, legislatively or administratively at the national level, it could have far-reaching effects on the U.S. energy and economic infrastructure. It could be argued that measuring the effectiveness of an emissions-reduction program such as cap-and-trade or a carbon tax would depend, in part, on a precise understanding of the ecosystem, agricultural, forest, coastline, and other boundaries that are anticipated to change in response to climate change. Land parcel data potentially could be useful for evaluating changes to the boundaries of these systems, and for measuring the effectiveness of greenhouse gas reduction measures. In addition, some specific components of various cap-and-trade schemes, such as forestry offsets, would likely require a precise accounting of acreage used for offsets.<sup>35</sup>

### **Payments in Lieu of Taxes<sup>36</sup>**

The Department of the Interior administers the Payments in Lieu of Taxes program (PILT), which compensates local governments for losses to their property tax bases due to the presence of federally owned land. Rather than authorize taxes on federal lands within a county, Congress has usually chosen to create various payment programs to compensate for lost tax revenue; PILT is one such program and it affects most acreage under federal ownership. One of the five steps required to calculate a payment under PILT is a tally of the number of eligible acres within a county, which could be one or more of nine different categories of federal lands.<sup>37</sup> Because the

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<sup>33</sup> Ibid., p. 9.

<sup>34</sup> For general information on climate change, see CRS Report RL34513, *Climate Change: Current Issues and Policy Tools*, by (name redacted).

<sup>35</sup> For more information, see *IPCC Special Report on Land Use, Land-Use Change and Forestry* (2000), [http://www.ipcc.ch/ipccreports/sres/land\\_use/index.php?idp=1](http://www.ipcc.ch/ipccreports/sres/land_use/index.php?idp=1).

<sup>36</sup> For general information on PILT, see CRS Report RL31392, *PILT (Payments in Lieu of Taxes): Somewhat Simplified*, by (name redacted).

<sup>37</sup> These are lands in the National Park System; lands in the National Forest System; BLM lands; lands in the National Wildlife Refuge System; lands dedicated to use of federal water resources development projects under jurisdiction of (continued...)

amount of compensation is directly correlated to the number of eligible acres, an inaccurate tally of eligible acres could result in an inaccurate amount of compensation. Given that the eligible lands span multiple agencies within the federal government, some inconsistencies may exist among and between agencies in calculating eligible acreage. Resolving some of the issues raised by the NRC regarding a national land cadastre could help refine the calculation of acres eligible for inclusion in the PILT program.

## **Administrative and Legislative Options**

Executive Order 12906 and Office of Management and Budget (OMB) Circular A-16 created the FGDC and instigated efforts to create the NSDI, which includes cadastral data as one of the seven fundamental themes. The FGDC designated BLM as the steward for the federal land parcel data and the coordinator of cadastral data generally, and BLM sponsors the FGDC Subcommittee for Cadastral Data. The Cadastral Subcommittee has made significant progress in establishing standards and coordinating cadastral data, according to the NRC.<sup>38</sup> Some contend that data standards and specifications are no longer an issue or a barrier to implementation of a national land parcel database.<sup>39</sup> In addition to administrative imperatives contained within EO 12906 and Circular A-16, legislation such as the E-Government Act of 2002 (P.L. 107-347) contained provisions that specifically addressed reducing data redundancy and promoting collaboration and use of standards for government geographic information.<sup>40</sup> Despite nearly 20 years of effort at coordinating geospatial information and land parcel data, however, the NRC observed:

one could conclude that the United States has a comprehensive approach to parcel data. However, a detailed analysis of the situation suggests the opposite.... It is difficult to ascertain the status of parcel data within the various federal agencies, and it appears that none of the federal land management agencies have a comprehensive and complete parcel data set for the lands they manage.... There is also evidence that many federal agencies that do not manage lands are acknowledging that they need parcel data to fulfill their missions and, in the absence of a national means to access the data nationwide, are creating data sets to meet their particular needs, often without coordination with other federal agencies that may have needs for the same or similar data.<sup>41</sup>

### **Administrative Options**

OMB revised Circular A-16 in 2002 and added the OMB Deputy Director of Management as vice-chair of the FGDC to serve with the Secretary of the Interior. The revised leadership structure was seen, in part, as an attempt to improve the coordination and oversight of the participating agencies by giving OMB a defined role. Some argue, however, that OMB could take a stronger role in FGDC through more active enforcement. Thus, an administrative option for

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the Bureau of Reclamation; dredge disposal areas under jurisdiction of the U.S. Army Corps of Engineers; some lands under jurisdiction of the Department of Defense; certain lands acquired by DOI under the Southern Nevada Public Land Management Act (P.L. 105-263); or certain lands acquired by the Department of Agriculture under the same law.

<sup>38</sup> NRC, *National Land Parcel Data*, p. 69.

<sup>39</sup> Telephone conversation with Nancy von Meyer, vice president, Fairview Industries, Pendleton, SC, July 20, 2009.

<sup>40</sup> 44 C.F.R. § 3501 note.

<sup>41</sup> NRC, *National Land Parcel Data*, p. 69.

enforcing a national land parcel database, at least for the federal lands, is to enforce Circular A-16 more rigorously. This would likely mean that OMB would take a true oversight and coordination role and enforce compliance with A-16 through its power to affect the budgets of the participating departments and agencies. The National Geospatial Advisory Committee (NGAC) recommended this action, and further recommended a Geographic Information Officer within each department or agency with responsibility under FGDC.<sup>42</sup> NGAC also recommended a geospatial leadership and coordination function in the Executive Office of the President, which would elevate the profile of the geospatial enterprise within the Administration and presumably signal a higher priority for coordinating geospatial activities in the federal government.

The Obama Administration issued a memorandum on November 10, 2010, that was intended to provide supplemental guidance to the implementation of OMB Circular A-16.<sup>43</sup> The supplemental guidance, if followed, could address some of the some of the issues raised in the NRC report about a national land parcel database, particularly regarding data sharing, coordination, and funding. The supplemental guidance labels geospatial data as a capital asset, and refers to its acquisition and management in terms analogous to financial assets to be managed as a National Geospatial Data Asset (NGDA) Portfolio. The supplemental guidance does not address the cadastral theme directly (nor does it address other themes directly), but sets forth its goal of a portfolio-centric model that “cures the single agency, stovepipe model by applying consistent policy, improved organization, better governance, and understanding of the public to deliver outstanding results.”<sup>44</sup> Moreover, the supplemental guidance recognizes that federal investments in geospatial data, which would include land parcel data, “were largely uncoordinated and often lacked transparency, and sometimes resulted in data deficiencies, lack of standardization, inefficient use of resources, lack of interoperability, or inability to share data.”<sup>45</sup>

In addition to describing federal geospatial data in terms of an investment portfolio, the supplemental guidance also amplifies the roles and responsibilities for acquiring and managing geospatial data, such as land parcel data, within and among agencies, and between agencies and the FGDC and OMB. The supplemental guidance also lays out a process for managing geospatial assets within the annual budget cycle, calling it an annual investment review process that could give the agencies with geospatial assets a potentially more visible role in obtaining funding to acquire and manage geospatial data. The supplemental guidance notes that this process could increase the geospatial community’s effectiveness by addressing a “disconnect” between agency chief financial officers and managers responsible for an agency’s geospatial assets:

The players traditionally active in the Federal agency budget formation process, most notably the agency CFO community, rarely have expertise in geospatial management or issues. At the same time, those with significant geospatial expertise rarely have a distinct role in the budget process. The fact that so much Federal geospatial spending is subsumed unidentifiably within other budget program budgets, and therefore opaque to the CFO community, is one reason for the disconnect.<sup>46</sup>

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<sup>42</sup> The National Geospatial Advisory Committee, *A National Geospatial Strategy: Recommendations for the 2008-2009 Presidential Transition Team*, <http://www.fgdc.gov/ngac/ngac-transition-recommendations-10-16-08.pdf>.

<sup>43</sup> Vivek Kundra, Federal Chief Information Officer, *Geospatial Line of Business OMB Circular A-16 Supplemental Guidance*, Office of Management and Budget, November 10, 2010, <http://www.whitehouse.gov/sites/default/files/omb/memoranda/2011/m11-03.pdf>.

<sup>44</sup> *Ibid.*, pp. 3-4.

<sup>45</sup> *Ibid.*, p. 5.

<sup>46</sup> *Ibid.*, p.28.

Whether and how the new guidance will affect how land parcel data is acquired, managed, and coordinated at a national level is not known yet.

## **Legislative Options**

### **Legislation in the 112<sup>th</sup> Congress**

On April 15, 2011, Representative Kind introduced the Federal Land Asset Inventory Reform Act of 2011 (H.R. 1620) to require the Secretary of the Interior to develop a multipurpose cadastre of federal “real property.” The legislation defines cadastre as an inventory of “real property”, and defines federal “real property” as land, buildings, crops, forests, or other resources still attached to or within the land; improvements or fixtures permanently attached to the land; or structures on it. The bill would require the Secretary to coordinate with the FGDC pursuant to OMB Circular A-16, integrate the activities under the legislation with similar cadastral activities of state and local governments, and participate in establishing standards and protocols that are necessary to ensure interoperability of the geospatial information of the cadastre for all users. Similar legislation was introduced in the House in the 111<sup>th</sup> Congress and in previous Congresses. H.R. 1620 was referred to the House Natural Resources Committee, Subcommittee on Energy and Mineral Resources, but has not yet been acted upon by the subcommittee.

### **Sensitive Information**

The National Geospatial Advisory Committee recommends revising “restrictive statutory language as it pertains to non-sensitive address data in Title 13 U.S. Code and to ‘geospatial’ data in Section 1619 of the 2008 Farm Bill.”<sup>47</sup> In Title 13, Congress delegates responsibility for conducting the decennial Census to the Secretary of Commerce. The law contains provisions for not disclosing or publishing private information that identifies an individual or business (Sections 9 and 214 of Title 13). The Census Bureau is forbidden to publish any private information—such as names, addresses, or telephone numbers—that identifies an individual or business.<sup>48</sup> If a legislative proposal to amend portions of Title 13 was introduced to make geospatial data collected by the Census Bureau more accessible (e.g., for use in a national land parcel database), it could raise issues about the privacy of personal data collected by the federal government. The NRC recommended that Congress and the Bureau of the Census explore various policy options that would allow digital data on building addresses and geographical coordinates to be placed in the public domain while maintaining important privacy protections. (See NRC recommendation 6, below.)

Section 1619 of the 2008 farm bill<sup>49</sup> prohibits disclosure of geospatial information about agricultural land or operations when the information is provided by an agricultural producer or owner of agricultural land and maintained by the Secretary of Agriculture. Certain exceptions contained in that section apply to the prohibition. NGAC has taken the position that the statutory language could be revised to enhance the value of the geospatial data, which could then be

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<sup>47</sup> NGAC, 2009.

<sup>48</sup> 13 U.S.C. § 9 and §13. See also U.S. Census Bureau, [http://www.census.gov/privacy/data\\_protection/federal\\_law.html](http://www.census.gov/privacy/data_protection/federal_law.html).

<sup>49</sup> P.L. 110-246.

included in a national land parcel database, while not compromising privacy.<sup>50</sup> For example, the boundaries of fields could be separable elements of a database, not tied to proprietary information about program participation and payments. Boundary information, by itself, might be used for land use planning, conservation, resource management, or possibly other types of applications.

### **Amending the E-Government Act**

Section 216 of P.L. 107-347, the E-Government Act of 2002, calls for facilitating the development of common protocols for geographic information to promote collaboration and use of standards and to reduce redundancy among federal agencies. Authorization for appropriations under the act expired at the end of FY2007. If the E-Government Act were amended, Section 216 could be expanded to include language for a national cadastre, as proposed in H.R. 1520, for designating Executive Office of the President level leadership for all federal geospatial activities, as recommended by NGAC, or for amending Title 13 of the U.S. Code to enable broader sharing of address data and its inclusion in a national land parcel database.

## **NRC Recommendations for Integrated National Land Parcel Data**

As discussed above, the NRC found that a coordinated approach to a national land parcel database did not exist. In its report, the NRC made nine recommendations that it asserted could lead to a coordinated and integrated national approach to land parcel data. These nine recommendations are summarized and discussed briefly below:<sup>51</sup>

1. Two new positions should be established: a federal land parcel coordinator and a national land parcel coordinator. The first would be responsible for federal lands and property; the second would coordinate parcel data from all sources, both public and private. NRC recognizes that BLM is one organizational choice to coordinate the federal land parcel data, and it could serve both roles, but other agencies are also candidates. The Department of Homeland Security (DHS), for example, could establish a national land parcel database as a homeland security issue. The General Services Administration (GSA) already provides services for all federal agencies. Likewise, the Census Bureau and HUD deal with property issues and need land parcel data to fulfill their missions. NRC recommended that a panel be established to recommend agency leadership. To date, no such panel has been established.<sup>52</sup>
2. FGDC should identify the role of parcel data for the collection and maintenance of other data themes in the overall geospatial infrastructure: buildings and facilities, cultural resources, governmental units, and housing. NRC

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<sup>50</sup> Telephone conversation with Anne Miglarese, Chair, National Geospatial Advisory Committee, May 26, 2009.

<sup>51</sup> NRC, *National Land Parcel Data*, chapter 7.

<sup>52</sup> It should be noted NGAC recommended that immediate action be taken on this recommendation. See National Geospatial Advisory Committee, Summary of Key Decisions/Recommendations from NGAC Meetings, April 2009, <http://www.fgdc.gov/ngac/ngac-summary-key-recommendations-apr-09.pdf>.

- recommended a systematic review of how these themes would be managed if an integrated national parcel database existed.
3. The federal land parcel coordinator should develop a single database for land parcels managed by the federal government. This recommendation appears to call for the federal government to house and maintain a single database of federal property, as different from the national land parcel coordinator who would coordinate land parcel data from all sources, which may be housed and maintained in a variety of state, county, local, private, and other databases.
  4. The national land parcel coordinator should develop and oversee a land parcel data business plan for the nation. NRC pointed to the lack of a coordinated federal program for parcel data.
  5. The Office of the Special Trustee for Tribal lands should establish an Indian Lands Parcel Coordinator to develop a land parcel database for Indian trust parcels. NRC indicated that this could reduce redundancies and duplication of effort in mapping Indian lands, among other issues related to trust lands.
  6. Congress and the Bureau of the Census should explore policy options, including amending Title 13 of the U.S. Code, to allow its digital data on building addresses and their geographic coordinates to be placed in the public domain while maintaining privacy protections.
  7. The national land parcel coordinator should adopt the 50-States Initiative<sup>53</sup> and require that each state formally establish a state parcel data coordinator. The 50-States Initiative was proposed by the National States Geographic Information Council to develop Statewide Spatial Data Infrastructures (SSDI) for each state. The 50-States Initiative would potentially enable coordination between geospatial data producers and consumers at all levels within the state, and allow the state to share geospatial data with the national geospatial structure envisioned as the NSDI.
  8. The national land parcel coordinator should develop a plan for an intergovernmental funding program for the development and maintenance of parcel data. NRC recognized that the plan must provide financial incentives to local governments that produce and maintain the majority of the parcel data. Additionally, NRC stated that the program would require new funding in addition to existing funding for current federal programs that require parcel data.
  9. Local and state governments should be required to make certain aspects of their parcel data available in the public domain, as a prerequisite for participating in federal geospatial programs.

## Challenges and Concerns

Several challenges to a coordinated and integrated national approach to land parcel data have been identified, such as confidentiality, cost, collaboration and data sharing, and incentives for

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<sup>53</sup> For more information about the 50-States Initiative, see NSGIC, [http://www.nsgic.org/hottopics/fifty\\_states.cfm](http://www.nsgic.org/hottopics/fifty_states.cfm).

state and local governments to participate in a national cadastre. Of the range of potential challenges and concerns, the NRC concluded,

the financial and technical issues are minor compared to the organizational and political ones. With thousands of counties or other governmental entities as potential producers of parcel data, the organizational issues are complex. It is not a simple task to assemble parcel data that span several counties or states. Overcoming organizational boundaries even among federal agencies has been difficult, as evidenced by the fact that there is no single inventory of federal lands.<sup>54</sup>

Several of the legislative and administrative options discussed above address organizational challenges, as do several of the nine NRC recommendations. The NRC also identified political challenges confronting a coordinated and integrated national approach to parcel data: “... the lack of political will may be the most difficult hurdle of all.”<sup>55</sup> NRC lists a range of political challenges:

- Return on investment. Determining how to calculate the benefits and costs of creating a national approach to parcel data is difficult. NRC stated that the real benefits of a nationally integrated system accrue to groups larger than local government agencies seeking improved tax compliance or improved local government efficiency. NRC contended that a national system would result in reduced fraud, fairer tax assessments, more effective emergency management and response, improved economic development, and other benefits.
- Motivation at the local level. What does and could motivate local governments, which manage land parcel systems for local needs, to participate in a national program? According to the NRC, some local governments assume that a national system could never be as accurate as their own data, and that they also fear releasing information to the public domain that the local government paid for.
- Unfunded mandates. The NRC noted that local governments face many budget restrictions, and some distrust the forced sharing of data with nothing tangible in return.
- Private sector benefits. The NRC reported a widespread perception that many private firms are harvesting data collected by local governments for commercial gain, without any perceived benefits flowing back to the local government.
- Other local political realities. The NRC acknowledged that local political leaders may struggle with approving budget requests for large technical projects, such as county participation in a national effort to create an integrated land parcel database, especially when the benefits to the local government are not clear.

Lastly, the NRC concluded that “With more than 3,000 counties, tribes, and other local government entities as potential producers of parcel data, the organizational issues are complex.”<sup>56</sup>

Some of these concerns have been echoed by the National States Geographic Information Council (NSGIC); however, NSGIC also embraces the need for better coordination and for a national

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<sup>54</sup> NRC, *National Land Parcel Data*, p. 3.

<sup>55</sup> *Ibid.*, p. 108.

<sup>56</sup> NRC, *National Land Parcel Data*, p. 112.



spatial data infrastructure, which would include a national land parcel component. The states are sensitive to being imposed upon by a federal program, however, and are more likely to work in partnership with the federal government. NSGIC recommends its 50-States Initiative to meet the needs of the states while also sharing land parcel data with the national program. The NRC also recommended that a national land parcel coordinator adopt the 50-States Initiative.

The Western Governors' Association (WGA) has also supported federal, state, tribal, and local coordination of GIS activities and encouraged regional, state, and interstate data sharing.<sup>57</sup> Further, WGA recognized that BLM is working with state and local governments to develop current and standardized digital representations of the Public Land Survey System and parcel data, and has referred to this collaboration as the Cadastral National Spatial Data Infrastructure (Cadastral NSDI). The Western Governors called on Congress to provide the funding necessary for BLM to complete, enhance, and maintain the Cadastral NSDI in coordination and partnership with state, tribal, and local governments.<sup>58</sup> One estimate of funding to implement the WGA recommendation is \$350 million over three years, followed by a smaller amount in each succeeding year to maintain and enhance a Cadastral NSDI.<sup>59</sup>

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<sup>57</sup> Western Governors' Association, Policy Resolution 09-8, "Collaborative Geographic Data is Part of the Nation's Critical Infrastructure," <http://www.westgov.org/policies>.

<sup>58</sup> Ibid.

<sup>59</sup> Telephone conversation with Nancy von Meyer, vice president, Fairview Industries, Pendleton, SC, July 20, 2009.

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