

## State Stewardship for Parcel Data September 2007

This paper describes the FGDC Cadastral Subcommittee's perspective on the role and levels of stewardship for a state level organization in hosting and providing parcel data from the many parcel producers in the state. The goal is to describe a path for states to provide a trusted source for parcel data in their state.

### **Overview**

In the Spring and Summer of 2007 the FGDC Cadastral Subcommittee worked in partnership with the wildland fire community to assemble as much parcel information as we could for the western 13 states to support the analysis of response to wildland fires. The parcel information was essential for identifying potential values at risk and for analyzing response priorities. This effort coupled with prior analysis the Subcommittee had done on hurricane and wildland fire data needs and the energy community's need for parcel information have been formative in identifying the needs and benefits for state hosted parcel data sets.

The most current and complete parcel data is typically collected and maintained by local governments to support local government business needs such as real estate taxation, land use controls and local emergency government planning and response. Because parcel data is a highly local data set assembling and integrating information across multiple counties takes significant time, effort and knowledge of parcel systems and the appropriate local contacts. After multiple data sets are assembled it takes further effort and knowledge to integrate this data into single data sets with forms and formats that can be applied to cross jurisdictional decision making.

The purpose of this paper is to describe some potential scenarios and roles for state agencies that would assist in the pre-deployment of parcel data to support the many uses and applications for a trusted source of parcel information.

### **Assumptions and Foundations**

The scenarios and roles have several basic ground rules or starting points.

- **Defined Inter Governmental Use and Business Needs:**  
The uses and applications for the parcel data are based on specific identified business functions provided by government agencies or their designees. In some states, depending on the culture and past history of GIS data use and distribution, parcel information may be readily provided to any requester or through public access portals. Montana and North Carolina are two of the most developed examples of this approach. However the assembling of parcel information at the state level to serve the response to emergency situations or other important government functions is the driving force behind the Subcommittee's perspective of

pre-deployed parcel information. There is no implication that the parcel data must be freely provided to all requesters. The data distribution described in this document can be limited by agreement to serve the needs of specific applications.

- **Focused on Parcel Data:**

Parcel data are the points or polygons that represent the surface landowner. Typically this data set is the real estate tax parcel data maintained by local governments but may also include state owned lands such as state parcels or state building sites, federally managed lands, Tribal lands or other public or real estate tax exempt lands. The Subcommittee recognizes that Cadastral Framework information, such as the Public Land Survey System, points of common control such as geodetic points or section corners and other boundaries such as municipal and subdivision boundaries are an important part of building an integrated and maintainable parcel data set. This document focuses on the parcel data. Other Subcommittee projects, standards and efforts address the components and needs for the cadastral framework information.
- **Core Parcel Data:**

The parcel data attributes needed to support emergency response is a subset of the larger data sets most parcel producers collect and maintain. This core data is a necessary data set to support defined business needs.
- **The State is an integrator of information:**

The primary role for the state described in this document is an assembling point, data integrator and distributor of information produced by other agencies and jurisdictions. The Subcommittee recognizes that some states also have a parcel collection and maintenance role and that it is the state's responsibility for public lands parcels. This document does not diminish those important activities. The goal of the activities in this document is to make the best available parcel information available for use in decision making.
- **County or locally managed data is the most current, complete and trusted source:**

Counties or other local units of governments (municipalities, Tribes, etc) are typically the closest to the land transactions that define parcel data. In some cases state agencies produce parcel data for the counties and in these cases the state agencies are working on behalf of local governments. The concepts in this document do not change or suggest a change in the parcel production stewards. This locally created and maintained data is the best available and the most trusted source. If additional detail about parcels that is not included in the core information is needed, requesters would be referred to the local parcel producers.

- Federal and State Parcel Producers would provide core data for the State to host:

On federally managed lands the federal agency assigned surface management authority provides the most trusted data for the land status. Likewise on state owned lands various state agencies have surface management authority. Locally managed data typically identifies these holds as tax exempt, but the most trusted information about the status for those public land areas are the respective federal and state agencies.
- Update Cycle is at least annually:

Most parcel data producers update their data sets continually. With daily land transactions and the nearly continuous assessment and valuation activities in local governments, most local governments conduct routine maintenance to keep up with the steady flow of transactions. Based on the analysis of the critical applications and business needs that depend on parcel data across jurisdictional lines the Subcommittee has determined that annually updated information meets a majority of the needs. In some states more frequent updates may be feasible and may enhance the number of uses for the parcel data.
- Provides data for downloading and distribution:

It is important that emergency response systems and other critical business needs have the ability to incorporate the parcel data into their solutions and systems. Web based viewing and browsing are appropriate and important for navigation and discovery of parcel data, but to be useable by the emergency response communities that we have examined, the parcel data sets need to be integrated into the systems and solutions used by these agencies. This means that a data set needs to be transmitted to the agency. If an agreement to distribute data will be needed, these should be signed and finalized prior to emergency conditions so data can be transmitted without delay.
- First Stop Data Source:

The Subcommittee vision for the Cadastral NSDI is that state integrated data sets will become the first stop to determine where parcel data are available and to gain access to the core data. It is the Subcommittee's vision that the state hosted and integrated data sets can evolve as a definitive first stop. The Subcommittee recognizes that this will need to evolve over time and will depend on local and state customs and practices.

### **Benefits**

The benefits of having a designated state source for integrated parcel information in the state will accrue to all participants.

For the counties and local parcel data providers:

- The number of data requests and hence interruptions and demands on staff time are reduced. Most data requests will be filled through the state integrated data sets.
- The detailed data managed by the data producer is still managed and controlled by the data producer. This process does not represent any loss of control over data management.
- The data producer only has to execute one data share agreement with the state.
- If the data producer charges a fee for its data or for creating customized or more detailed data views these can remain in force since the approach is for a subset of information on an annual update cycle.
- Increases the level of communication and cooperation with state level activities.
- Provides access to essential information about the local jurisdiction in a remote site. In times of emergency local sites may be damaged or local staff may be busy with other tasks.
- All emergency responders above the local level will use the same parcel data as the local emergency responders. They will make better more informed decisions based on the best parcel data.

For the State:

- The integrated parcel data can be placed in context with other state data sets providing solutions for many cross jurisdictional data needs.
- Provides an opportunity to establish partnerships and communication with local parcel producers.
- Provides communication and connection with intergovernmental applications.
- Provides an essential data set for State operations to build other statewide parcel based data sets.
- Facilitates opportunities for grants and funding that may support the completion or enhancement of NSDI data sets for the state.
- Increases the essential role of state coordination.

For emergency responders and other essential government users:

- Reduces the time required and level of effort to obtain parcel data.
- Reduces redundant efforts in the collecting, assembling and analysis of locally produced parcel data.
- Increases the credibility of the products from emergency response agencies because they know the currency and quality of their parcel information.
- Saves the time and expense of compiling locally produced parcel data sets each year.
- Allows for applications to be built around a consistent data source.

For citizens affected by emergencies:

- Assures that important information to service the needs of the citizens can be accessed in times of emergency.
- Increases the value of the local taxpayer investment by reducing duplicative collection.
- Allows local government staff to provide essential support other than data distribution during emergencies.
- Increases the likelihood that responding agencies will work in a coordinated effort reducing response times to citizens needs.

### **Parcel Data**

The Subcommittee has defined core data as the set of parcel data necessary to meet the needs of emergency responders. The definition of these attributes was completed through a series of workshops and studies on how parcel information is used in various applications and business areas. Table 1 identifies the core data elements from the large number of attributes that parcel producers carry about a property to support real estate taxation and land use controls.

Which attributes are essential depends on which business applications are to be addressed. The first column identifies the minimum needs for navigation, discovery and RAVAR (Rapid Assessment of Values at Risk), which is a wildland fire support application. As the number and depth of the needs increase the number of attributes likewise increases.

**Table 1**  
**Parcel Core Data for Business Processes**

	Navigation and Discovery and RAVAR	Econ. Devel. and Regional Integration	Emergency Event Planning	Emergency Event Preparation	Emergency Event Response <sup>2</sup>	Emergency Event Recovery	Emergency Event Mitigation	Energy Management
<b>Cadastral NSDI - Parcels</b>								
Metadata	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Parcel Outline (Polygon) <sup>1</sup>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Parcel Centroid (Point) <sup>1</sup>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Parcel ID	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Source Reference		<input checked="" type="checkbox"/>				<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Source Reference Date		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Surface Owner Type <sup>3</sup>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Improved (yes or no)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Owner Name (Surface Management Agency)				<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Assessment / Value for Land Information			<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Assessment / Value for Improvements Information			<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Assessment / Value Total			<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Primary Assessment / Parcel Use Classification			<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Secondary Assessment / Parcel Use Classification			<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Tax Bill Mailing Address						<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Parcel Street Address		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Parcel Area			<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Parcel Zoning			<input checked="" type="checkbox"/>					<input checked="" type="checkbox"/>
Public Parcel Name <sup>4</sup>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<p>NOTES</p> <p><sup>1</sup> The standard intends that either a centroid point or a polygon is available but both are not needed.</p> <p><sup>2</sup> Emergency Response uses maps and data developed during event planning.</p> <p><sup>3</sup> The Surface owner type applies to type of public land or an indication of privately owned land and may be inferred from the exempt status in real estate tax systems.</p> <p><sup>4</sup> The parcel name was only necessary for public lands or commonly known named areas such as parks.</p>								

## Levels of State Stewardship

The levels of State Stewardship define the degree to which the parcel data from the various producers in the state have been combined and reconciled into a singled data set. The core attributes, depending on the business needs supported, are listed in Table 1.

For the lower levels of state stewardship the data has been assembled into one place with a single point of contact eliminating the need for those who require parcel information to contact each county or parcel producer separately. The benefits of having disparately maintained data content converted to a standard set of attributes and combined are achieved in the higher levels of stewardship.

The Subcommittee recognizes that the state stewardship will evolve and develop over time as parcel data sets are completed, partnerships with local parcel producers are established and data management capabilities at state agencies develop. Some of the key characteristics of the spatial and attribute data at each level are summarized in Table 2.

**Table 2**  
**Levels of State Stewardship for Parcel Data**

Level	Inventory/Distribution/Access/Standardization
1	<p>Data inventory complete, county contacts established and the state has begun implementing its strategy to create a sustainable parcel stewardship program.</p> <ul style="list-style-type: none"> <li>• Counties have identified contacts for the parcel data.</li> <li>• State is maintaining county data and contact inventory.</li> <li>• Implementation in progress to compile and integrate parcel data.</li> </ul>
2	<p>Data producers provide data sets to a central location or contact at the state on a yearly basis.</p> <ul style="list-style-type: none"> <li>• Geometry is not spatially reconciled.</li> <li>• Attribute content is <b>not</b> reconciled to a standard set of field names and types.</li> <li>• Attribute content may be less than the complete core data set.</li> <li>• Data are available upon request from the state contact.</li> </ul>
3	<p>Data producers provide data sets to a central location or contact at the state with a standardized set of parcel attributes connected to the parcel geometry.</p> <ul style="list-style-type: none"> <li>• Geometry is not spatially reconciled.</li> <li>• Attribute content is reconciled to a standard set of field names and types.</li> <li>• Attribute content may be less than the complete core data set.</li> <li>• Data are available upon request from the state contact.</li> </ul>
4	<p>Data producers provide data sets to a central location or contact at the state with a standardized set of parcel attributes connected to the parcel geometry and the geometry is reconciled.</p>

	<ul style="list-style-type: none"> <li>• Geometry is spatially reconciled.</li> <li>• Attribute content is reconciled to a standard set of field names and types which may be done by the state integrator or may be provided by the county in standardized formats.</li> <li>• Attribute content may be less than the complete core data set.</li> <li>• Data are available upon request from the state contact <b>OR</b> is available through a web portal or FTP for download (may require login or may be freely available).</li> </ul>
5	<p>Data producers provide complete data sets to a central location or contact at the state with a standardized set of parcel attributes connected to the parcel geometry and the geometry is reconciled.</p> <ul style="list-style-type: none"> <li>• Geometry is spatially reconciled by the state integrator.</li> <li>• Attribute content is reconciled to a standard set of field names and types which may be done by the state integrator or may be provided by the county in standardized formats.</li> <li>• Attribute content includes the complete core data set.</li> <li>• Data are available upon request from the state contact <b>OR</b> data is available through a web portal or FTP for download (may require login or may be freely available).</li> </ul>
6	<p>Data producers provide complete data sets to a central location with a standardized set of parcel attributes connected to the parcel geometry and the geometry is reconciled.</p> <ul style="list-style-type: none"> <li>• Geometry is spatially reconciled by the state integrator.</li> <li>• Attribute content is reconciled to a standard set of field names and types which may be done by the state integrator or may be provided by the county in standardized formats.</li> <li>• Attribute content includes the complete core data set.</li> <li>• Data are a available through a web portal or FTP for download (may require login or may be freely available).</li> </ul>
7	<p>Data producers provide complete data sets to a central location with a standardized set of parcel attributes connected to the parcel geometry and the geometry is reconciled and tied to a common cadastral reference.</p> <ul style="list-style-type: none"> <li>• Geometry is spatially reconciled and registered to a commonly agreed upon cadastral reference reducing the effort to reconcile geometry.</li> <li>• Attribute content is reconciled to a standard set of field names and types which may be done by the state integrator or may be provided by the county in standardized formats.</li> <li>• Attribute content includes the complete core data set.</li> <li>• Data are a available through a web portal or FTP for download (may require login or may be freely available).</li> </ul>

*Attribute standardization* means that the attributes from the various data producers have been processed or converted to a single common state attribute standard including standardizing the attribute name, field length and type. The Subcommittee has guidelines for these standards if the state does not have an



existing standard. Parcel numbers from individual counties have processed to be unique for the state.

*Geometry reconciliation* means that individual counties have been combined into a single file rather than files separated into individual counties. Differences in geometry at county or other data producer boundaries are resolved sufficiently to support business needs

*Geometry tied to common spatial reference* means that the parcel geometry is registered to a common set of spatial reference data so that county boundaries and parcels are seamless and continuous. This reduces the effort in combining the data into a single data set and registering the parcel data to other important themes.

### **Benefits Increase as the Levels Increase**

The benefits to the counties, the state, emergency responders and citizens increase as the levels increase. As examples, at Level 1, a single state contact is identified and that state contact has a pulse on the status of parcel data in the state. This helps emergency responders and other essential government business functions to more quickly identify what data may be available in a state. At Level 2 the state contact has at least annual copies of the parcel data that can be provided through a single contact. Any agreements on use and methods of distribution will be harmonized for the state.

Montana is an example of a state that has reached Level 7 and is providing free access to regularly maintained state wide coverage of parcel data through a single portal. Related data sets can also be accessed and these data have been resolved to the parcel information. Other states, such as Florida, have achieved Level 5 and have begun to reap the benefits of an assembled parcel data set.

A summary of the functionality and characteristics of the parcel data are shown in Table 3.

**Table 3**  
**Summary of the levels and the functionality in each level**  
 The check mark indicates what is available at each level of stewardship

	Level						
	1	2	3	4	5	6	7
<b>Data Content</b>							
Data provided to a central location.		✓	✓	✓	✓	✓	✓
Data is updated annually.		✓	✓	✓	✓	✓	✓
Metadata included for data sets		✓	✓	✓	✓	✓	✓
Attribute content is reconciled to a standard set of field names and types.			✓	✓	✓	✓	✓
Attribute content may be less than the complete essential data set.		✓	✓	✓			
Attribute content includes the complete core data set.					✓	✓	✓
Geometry is spatially reconciled.				✓	✓	✓	✓
Geometry is spatially reconciled and registered to a commonly agreed upon cadastral reference.							✓
<b>Inventory and Data Access</b>							
State Maintaining County Data Status and Contact Inventory.	✓	✓	✓	✓	✓	✓	✓
Data is available upon request from the state contact.		✓	✓	✓	✓		
Data is available through a web portal or FTP for download (may require login or may be freely available).				✓	✓	✓	✓

**Reference Documents**

FGDC Cadastral Data Subcommittee, ***Cadastral NSDI Reference Document version 10***, July 2006, Internet, August 2007,  
[http://www.nationalcad.org/data/documents/Cadastral NSDI Reference Document v10.pdf](http://www.nationalcad.org/data/documents/Cadastral%20NSDI%20Reference%20Document%20v10.pdf)

Hyde, Kevin, ***Wildland Fires and Parcels (RAVAR)***, USDA Forest Service, December 2006, Internet, August 2007,  
<http://www.nationalcad.org/data/documents/Parcel%20Data%20in%20Wildland%20Fire%2007Feb12.pdf>

Stage, David and Nancy von Meyer, ***Parcel Data and Hurricane Isabel: A Case Study***, FGDC Cadastral Data Subcommittee, July 2004, Internet, August 2007,  
<http://www.nationalcad.org/data/documents/Hurricane%20Isabel%20Final.pdf>

Stage, David; Nancy von Meyer and Bob Ader; ; ***Parcel Data and Wildland Fire Management***, FGDC Cadastral Data Subcommittee, October 2005, Internet, Aug 2007, [http://www.nationalcad.org/data/documents/Parcel Data and Wildland Fire Management Final Oct 2005 c.pdf](http://www.nationalcad.org/data/documents/Parcel%20Data%20and%20Wildland%20Fire%20Management%20Final%20Oct%202005%20c.pdf)

Von Meyer, Nancy; ***Production, Analysis and Publication: A Concept for Geographic Information Environments***, July 2002, Internet, August 2007, <http://www.nationalcad.org/data/documents/pub-prod.pdf>