

Cadastral Data Publication Guideline

May 2009

Final Corrections – October 2009

FGDC Subcommittee for Cadastral Data

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Note on this version: The Cadastral Core Data elements were developed over several years of analysis of business requirements for parcel information by the FGDC Cadastral Subcommittee. The data elements in the core data were defined in 2008 and have remained stable through several additional tests and analysis. The updates in this version are grammatical and syntactical.

Cadastral Data Publication Guideline

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1. Purpose

The Cadastral Data Publication Guideline describes the minimum set of attributes about land parcels and associated reference data that are used for publication and distribution of cadastral information by cadastral data producers. The templates that accompany the guideline provide physical implement formats and data structures for the publication data sets.

The Federal Geographic Data Committee (FGDC) Cadastral Subcommittee completed the Cadastral Data Content Standard¹ in 1995. In the years that followed this standard was subjected to numerous reviews and validation tests resulting in a series of updates that clarified the content and refined the definitions. Because the Content Standard is presented as a logical it does not provide specific implement direction.

In 2000 the Subcommittee began a series of studies on the uses and applications for cadastral data. Many business profiles were studied starting with two forums in partnership with the Western Governors' Association (WGA) and followed with studies of hurricane and wildland fire response, energy management needs, uses of parcel data by federal agencies and most recently mortgage and real estate analysis. From this body of work the Subcommittee defined a limited set of attributes that provide a platform supporting these business needs.

The cadastral publication data is data provided by cadastral data producers in a standard form on a regular basis. Cadastral publication data has two primary components, land parcel data and cadastral reference data. It is important to recognize that the publication data are not the same as the operation and maintenance or production data. The production data is structured to optimize maintenance processes, is integrated with internal agency operations and contains much more detail than the publication data. The publication data is a subset of the more complete production data and is reformatted to meet a national standard so data can be integrated across jurisdictional boundaries and be presented in a consistent and standard form nationally.

The minimum set of attributes about land parcels and the cadastral reference provide a platform upon which applications can be built and business needs can be met. The concept of a data platform recognizes that cadastral data is a basis upon which many other themes and data sets are referenced. For example land parcel data could be used to spatially enable business license, voter registration or health statistic information. The use of the cadastral data as a platform for other applications is the primary driver

¹ Cadastral Subcommittee, *FGDC Cadastral Data Content Standard version 1.3*, May 2003, <http://www.nationalcad.org/data/documents/CADSTAND.v.1.3.pdf>

for the need for standardized attributes. In order for applications to rely on and use the land cadastral information it must be standardized across jurisdictional boundaries.

This also emphasizes the importance of the standardization of the small set of attributes. Jurisdictions may expand upon the minimum set and some applications may need additional attributes, but having a short list of standardized attributes should make linkage or other data sets possible and allow for the expansion and individualization of published data.

There are two other important notes about the cadastral data platform. Parcel data changes frequently and needs to be updated regularly. Many of the initial needs of the business applications studied can be met with annual parcel updates, but in the end all business applications need current data. Therefore unlike many other spatial framework data sets, cadastral information is continually updated. The second note is that all spatial data should have accompanying metadata describing the production agency, contact information, spatial referencing and accuracy and currency.

The templates for implementation are by necessity based on the specific needs of software and database systems. The templates are provided as implementation guidance and define a minimum set of attributes that can be expected to be present, if they exist, for any published data set. The templates are “flattened” or “denormalized” to minimize related tables and domains of values and to minimize database or software manipulation that may be needed to use the data. The field types are also specific to implementation for example non-numeric fields may be termed string, nvarchar, character or text. Similar issues surround numeric and date fields. Therefore it is expected that every software will have a slightly different implementation but if the resulting data are as similar as possible it should be possible to reach a national standard.

This document describes the Cadastral Data Publication Guideline and its components. A more thorough discussion of the business processes that drove the definition of these elements can be found at the Subcommittee’s web site ².

This guideline and many other documents related to the Cadastral NSDI and the Cadastral Subcommittee can be found at <http://www.nationalcad.org>.

² Cadastral NSDI Reference Document, 2007)
<http://www.nationalcad.org/showdocs.asp?docid=158&navsrc=Report&navsrc2=>

2. Business Applications

The goal of the FGDC Cadastral Data Subcommittee is to provide a uniform coverage of parcel data that provides a multi-jurisdictional view of private, state and federal lands, their ownership, use, structures and the value of private property. Figure 1 shows an example of the characteristics of a single parcel and the type of information that would be available for an entire region. GIS analysis of a regional data set allows users to identify the location of properties with specific characteristics within a region. A recent study of the utility of parcel data by emergency responders after a hurricane found that local parcel information was uniquely capable of answering questions that ranged from the identification of vacant lands that could be used for debris removal to the location of organic farms to avoid spraying them with insecticides. A similar study of wildland fires where interdiction can save life and properties found that knowledge of the location of structures and their value was critical in the planning and deployment of limited resources.

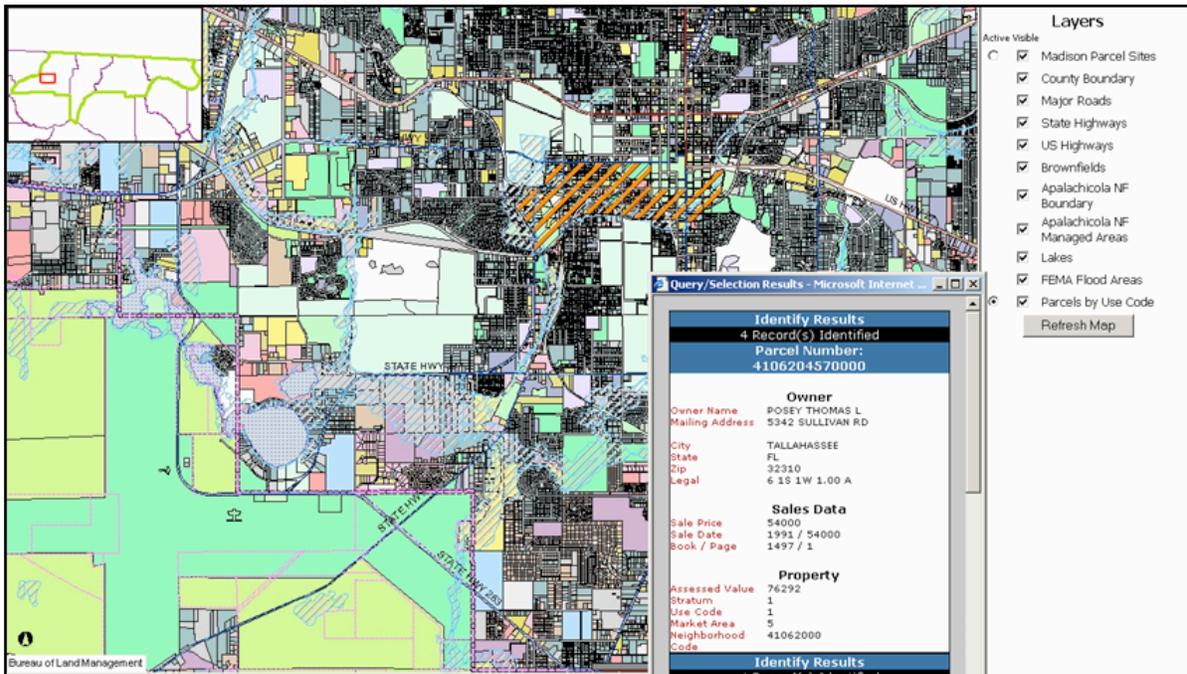


Figure 1 - A Parcel within FEMA flood zone. An illustration of how parcel data would be incorporated into a business application.

Having parcel level of detail when making decisions as to where to best allocate resources is essential. The issue that must be faced is how to ensure all communities have this data in a digital format and that the emergency management (fire, hurricane, etc) community has access to it when they need it.

3. Terminology and Key Concepts

3.1 Cadastral Data and The Cadastral NSDI

Cadastral data is the information about rights and interest in land. Cadastral data may also be known as real estate data or parcel information or tax parcel information. There are many legal and historical nuances and subtleties surrounding the management of cadastral information.³ In prior documents the publication of the cadastral data was often referred to as the Cadastral National Spatial Data Infrastructure (NSDI) or CADNSDI.

The NSDI has been defined by the Federal Geographic Data Committee (FGDC).

Executive Order 12906 calls for the establishment of the National Spatial Data Infrastructure defined as the technologies, policies, and people necessary to promote sharing of geospatial data throughout all levels of government, the private and non-profit sectors, and the academic community.

The goal of this Infrastructure is to reduce duplication of effort among agencies, improve quality and reduce costs related to geographic information, to make geographic data more accessible to the public, to increase the benefits of using available data, and to establish key partnerships with states, counties, cities, tribal nations, academia and the private sector to increase data availability.

The NSDI has come to be seen as the technology, policies, criteria, standards and people necessary to promote geospatial data sharing throughout all levels of government, the private and non-profit sectors, and academia.⁴

The CADNSDI or the Cadastral Data Publication Guideline is the cadastral data component of the NSDI.

The Cadastral NSDI attempts to simplify some of complexities of cadastral data in two ways, first by providing the cadastral information in two components, cadastral reference and parcels, and second by providing a limited set of parcel level information to support identified business process needs. This means that some of the more complex land tenure arrangements such as condominiums, fractional interests similar to those found in Indian Country or time share ownership may not be fully represented in the limited publication data set. For Project Level requests where more detail is needed about a particular area, the authoritative source can provide these more complex elements. source of the Cadastral NSDI data is derived from the databases of the data stewards.

³ Cadastral NSDI Reference Document, (2007) page 3

⁴ <http://www.fgdc.gov/nsdi/nsdi.html> (last accessed September 1, 2008)

3.2 Production, Publication and Project Data

Production and Publication Data were first defined and described by the Cadastral Subcommittee in 2002.⁵ It was most recently documented for the International Association of Assessment Officers (IAAO) and Cadastral Subcommittee joint parcel needs workshop in New Orleans in February 2008⁶.

A common misunderstanding between the sources of parcel data and the users of the data are the differences and requirements for production, publication and project data. The Cadastral Subcommittee has developed a more extensive discussion of these concepts.

Production Data: Local government's assessment or production data contains a wealth of information that is used by assessors to conduct their daily business operations. These are complicated databases that include complete descriptions of taxable and assessment attributes and an analysis of their value for taxation purposes that may or may not include the parcel geometry in a geographic information system. Likewise in State agencies there will be production data to support the collection and maintenance of state owned lands, business license and sales tax data that includes public and non-public information.

Publication Data: The FGDC Cadastral Data Subcommittee has found that a small subset of the production data, known as publication or core data, meets over 95% of the users needs for planning and emergency response. This was determined from a series of in-depth workshops held over a three-year period.⁷

Project Data: More detailed information for properties can be identified through a geographic selection of an area of interest that may be an overlay of a storm path, a wildland fire predicted path, a mortgage crisis hot spot or any other event footprint. Parcels of interest in the affected area can be identified from the publication data and more current and detailed information on this subset of parcels can be requested from the source(s) to verify ownership and other information about a parcel. This is known as *project data* and would be provided by the authoritative source after an event to ensure that the most current data is used for post event processing.

Figure 2 illustrates these three concepts.

⁵ Production and Publication A Concept for Geographic Information Environments, (2002)

⁶ IAAO and FGDC Cadastral Subcommittee Workshop: Sharing Parcel Data to Protect and Rebuild Communities, (2008)

⁷ Cadastral NSDI Reference Document, (2007) Summarizes the business practice workshops

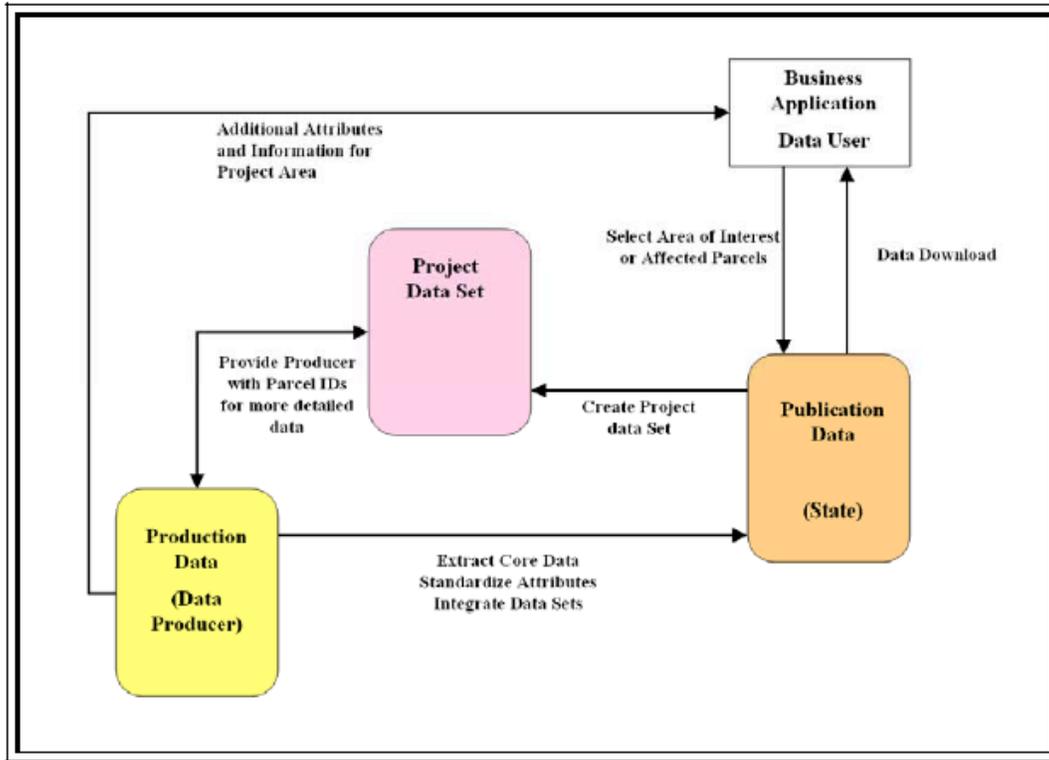


Figure 2 – Production, Publication and Project Data

3.3 Data Stewards

Data stewards are the providers of cadastral data. The Subcommittee estimates there are nearly 4,000 primary parcel producers in federal and state land management agencies and in county agencies where local government tax assessment offices are the stewards of cadastral data for private properties. Tribal lands are managed by individual tribes and are not considered public land. A data steward may provide cadastral reference information or parcel information or both. The cadastral publication data will have defined data stewards based on geographic extent and the data component. For example in the figure below (Figure 3) the cadastral reference is shown as one layer of information and the parcel geometry with related land parcel information as another layer. These two components may have different stewards, for example a federal agency, a state organization or a surveying department in a county may maintain the cadastral reference. The tax assessor or some other county department may maintain the land parcels. In this case the geometry is integrated because the parcels are tied to and dependent on the cadastral reference, but there are two cadastral data stewards for the same area. However, data stewards for a given data component do not overlap. That is, in any given geographic area there will only be one data steward for the cadastral reference and one data steward for the land parcels. The stewardship boundaries and any changes along those boundaries will need to be agreed to by the data stewards.

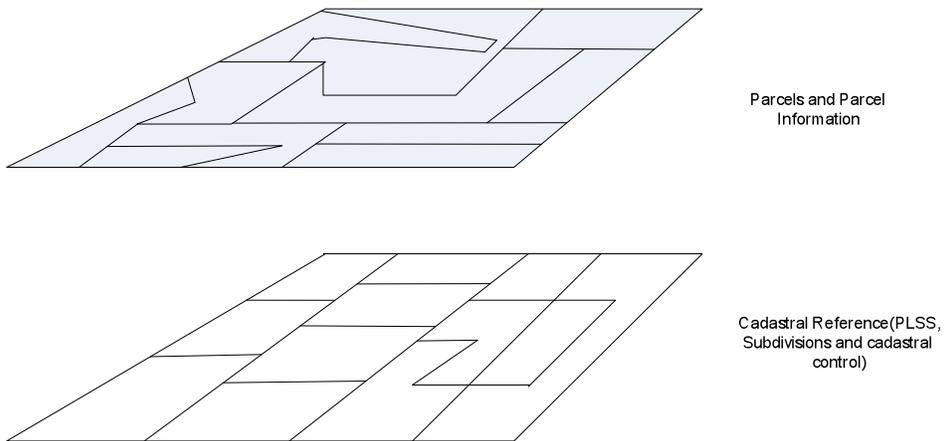


Figure 3 – Two cadastral components in the same geographic extent.

A data integrator combines information from producers to generate regional or statewide views. The data integrators will publish at least the core set of information and provide linkages to more detailed source information from the data producers.

3.4 Organizations

Authoritative Source is an entity authorized by a legal authority to develop or manage data for a specific business purpose. The data this entity creates are authoritative data. The data stewards are the authoritative source and these are considered the primary source for cadastral data. One of the principles of the Cadastral Publication Guidelines is that the authoritative source approves and provides the publication data.⁸

Trusted Source This is a service provider or agency that publishes data from a number of authoritative sources. These publications are often compilations and subsets of the data from more than one authoritative source. These data are trusted because there is an official process for compiling the data from authoritative sources and the limitations, currency, and attributes are known and documented.⁹

Cadastral Reference is the set of information that allows parcel level information to be registered to other data themes and to be tied to features on the ground. Cadastral reference is composed of the spatial reference data (geodetic control and orthophotography) and survey frameworks such as the Public Land Survey System (PLSS), parcel map grids, subdivision boundaries or municipal boundaries. Land parcels are nested into and tied to the reference data and the cadastral reference.

⁸ For more information on this see the Subcommittee Report of Authoritative and Trusted Sources <http://www.nationalcad.org/showdocs.asp?docid=1045&navsrc=Report&navsrc2=>

⁹ IBID

One example of an eastern cadastral framework is in North Carolina where the cadastral reference is provided through the state. In this case the State has developed orthophotography standards to meet a wide range of uses, including cadastral information and other reference data such as county boundaries, municipal boundaries, subdivision boundaries and map grids. The parcels are tied to this framework.

3.5 Geographic Coordinate Database

The Geographic Coordinate Database (GCDB) is a program in the Bureau of Land Management (BLM) that supports the management of public lands, principally in the western states by managing coordinate values on Public Land Survey System (PLSS) corners and special survey areas. In contrast to the east the GCDB is a key data source for cadastral reference in the west. The GCDB often serves as the foundation for state and local parcel automation efforts as well as support for the BLM and other federal land agencies such as the U.S. Forest Service and the Park Service. On federal lands BLM Cadastral Survey is the data steward for the cadastral data and in some parts of the west they are also the data stewards for the cadastral reference beyond federal boundaries.

More information about these concepts (data stewardship, GCDB, cadastral data and ongoing activities) can be found at <http://www.nationalcad.org>.

4. The Cadastral Publication Data Components

The National Spatial Data Infrastructure (NSDI) is defined by the Federal Geographic Data Committee (FGDC)¹⁰ as the technologies, policies and people necessary to promote sharing of geospatial data throughout all levels of government, the private and non-profit sectors and the academic community.

The cadastral publication data (sometimes referred to as the Cadastral NSDI) has been defined by the FGDC Cadastral Subcommittee as *a minimum set of attributes about land parcels that is used for publication and distribution of cadastral information by cadastral data producers*. The cadastral publication data is intended to provide sufficient information to support integrating basic land parcel information across jurisdictional boundaries providing a regional view of property ownership and rights. This regional view is designed to answer fundamental questions regarding land ownership and property characteristics (structures, land use, and parcel geometry) in support of end user business land ownership information.

The publication data is extracted (published) from data producers at all levels of government, but primarily from local governments, federal land management agencies, state land management agencies or state departments of revenue. There are other data producers that contribute to the cadastral data including county land survey programs, private surveyors, Tribes, local land management agencies and state GIS programs.

The cadastral publication data is standardized so it can be integrated across jurisdictional boundaries, from county-to-county and from state-to-state forming a seamless, non-overlapping representation of land parcels and cadastral reference data.

The cadastral publication data has two components: Cadastral Reference and Land Parcels. Supplemental information such as orthophotography and geodetic control are essential to building and integrating parcel geometry. The supplemental information also provides context for the cadastral information and databases such as hydrography, transportation and even contours in some cases that may be essential for vertical integration of parcel mapping. The standards for supplemental information are defined by non-cadastral groups but are essential for establishing an accurate geographic reference for the Cadastral NSDI so that published data can be integrated with other information. The standards for the cadastral reference and parcel components are defined by the Cadastral Subcommittee and are in the Cadastral Data Content Standard¹¹.

The cadastral reference elements are needed to support query, mapping and navigation and are part of legal descriptions. This includes information about survey systems, such

¹⁰ Federal Geographic Data Committee, *National Spatial Data Infrastructure*, Internet, December 2005, <http://www.fgdc.gov/nsdi/nsdi.html>

¹¹ Cadastral Subcommittee, *FGDC Cadastral Data Content Standard version 1.3*, May 2003, <http://www.nationalcad.org/data/documents/CADSTAND.v.1.3.pdf>

as subdivisions, geopolitical areas, land grants and the public land survey system. Figure 4 illustrates the cadastral reference concepts

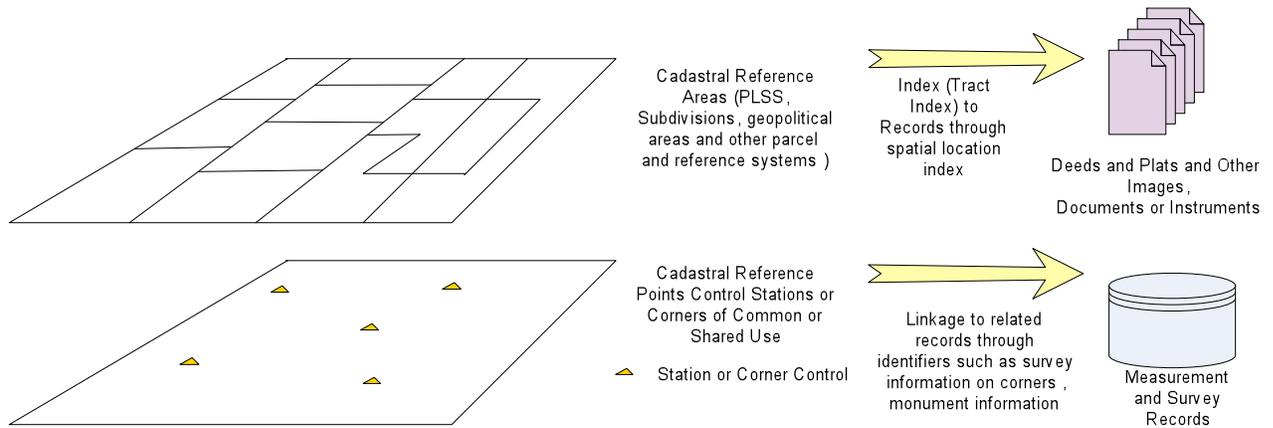


Figure 4 – Cadastral NSDI – Cadastral Reference

Figure 4 illustrates that the cadastral reference provides linkages to more detailed information while meeting the basic business needs for many applications.

Land parcels are the detailed information about property and its characteristics that are needed to meet the business needs of the user community. Spatially the parcels are tied to the earth through the cadastral reference information. Figure 5 illustrates the land parcel component.

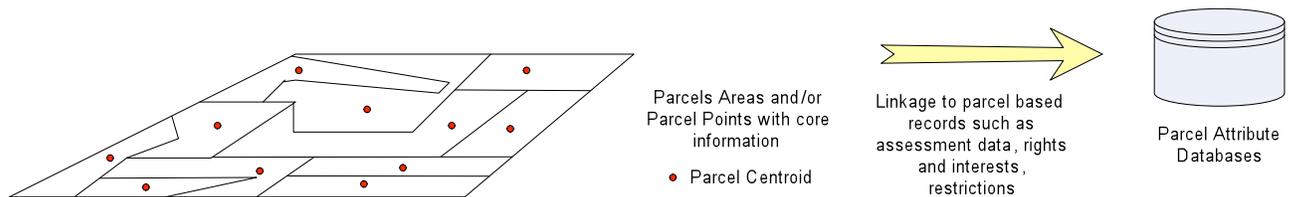


Figure 5 - Cadastral NSDI – Parcel Information

The parcel information may be polygons or parcel points. The attributes in the parcel component of the Cadastral NSDI contain sufficient information to link to the rich attribute databases from the data producer. On federally managed public lands the parcels represent transactions or decisions such as grazing leases, mineral surveys or use authorizations. On private lands the parcels are typically tax parcels but may include use restrictions such as easements or rights of ways.

Metadata is a requirement for all NSDI themes. Metadata conforms to the FGDC Metadata standard and should include the contact information in Part 1 of the Metadata standard as a minimum. The Cadastral data Content Standard can be cited as

the thesaurus and attribute definition source for cadastral publication data sets in the metadata. Figure 6 illustrates how the metadata and the identification of the authoritative and trusted sources are spatially tied to the parcel and cadastral reference information.

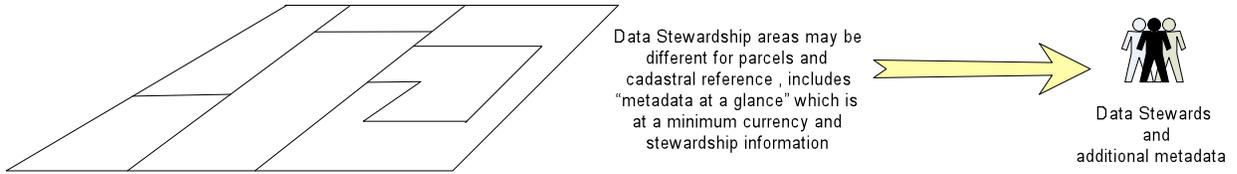


Figure 6 –Metadata and Data Stewards

4.1 Sample Implementation

Figure 7 illustrates the opening page of a demonstration of the cadastral reference data for the State of Arizona. The data on this site was generated from the BLM’s Public Land Survey System spatial data sets (GCDB) for the state as enhanced with locally generated control. The local control was integrated into the GCDB had held fixed in adjustments and computations.

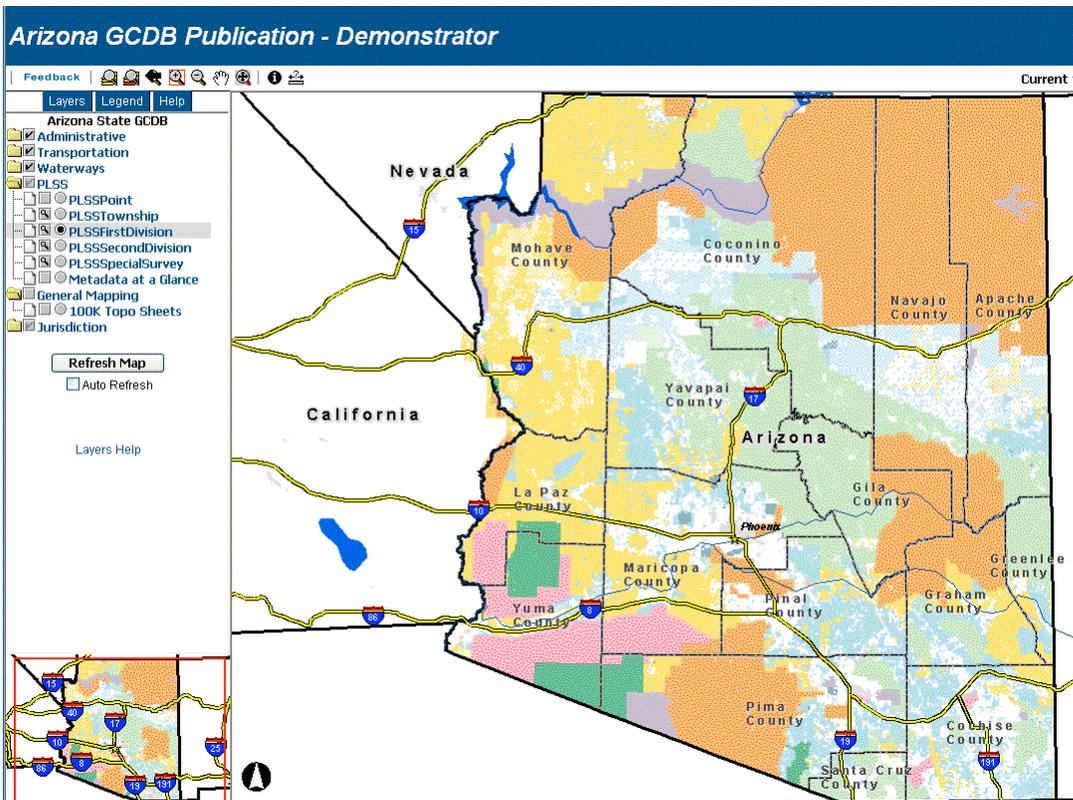


Figure 7 – State of Arizona Demonstration Cadastral NSDI Site

Zooming in on a portion of the state, the Cadastral Reference information becomes visible and in Figure 8 the PLSS Townships and sections that form the basis of the cadastral reference are visible.

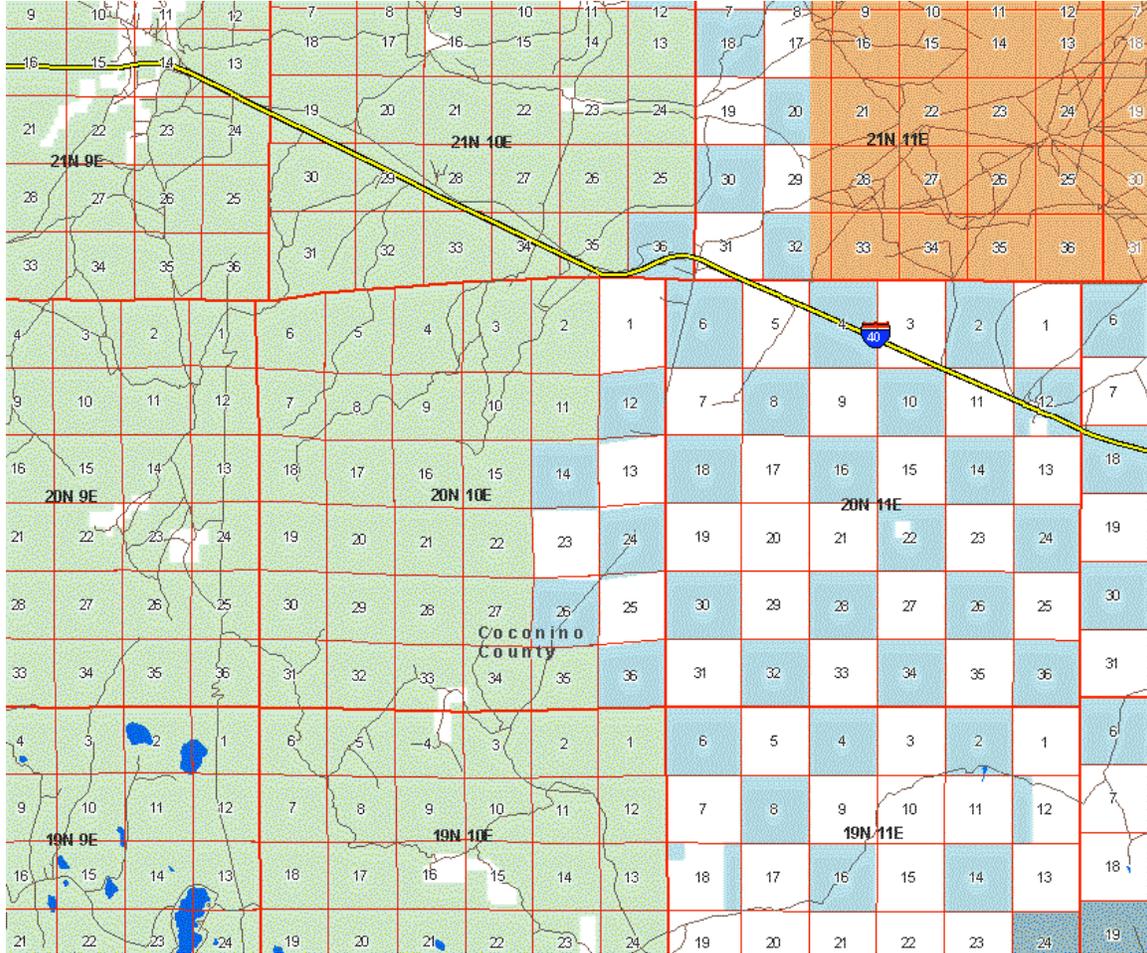


Figure 8 – Cadastral Reference Information with jurisdictional and data stewardship information from the Arizona Cadastral NSDI

5. Characteristics of the Cadastral Publication Data

The FGDC Cadastral Subcommittee has reviewed the concept documents for the NSDI and the content and distribution of other themes as well as the needs and requirements from the business processes that drive the need for published cadastral data. Based on these findings the following are the common and essential characteristics of published cadastral data.

Published cadastral data will have a single source of authoritative land parcel data and a single authoritative source of cadastral reference data within a single geographic extent. The updates and content of this data must be controlled and managed by designated data stewards (authoritative sources). Access to this data is facilitated by compiling and integrating the authoritative data into trusted data sources at state or regional levels. This reduces duplication of effort and assures that the best available information is used in decision making.

Attributes are as important as spatial information for decision support.

The land parcel data must be updated at least annually.

The published cadastral data must be standardized so that information can be integrated across jurisdictional boundaries.

The published cadastral data must provide linkages to more detailed information that can be obtained from data producers.

6. Policies for the Cadastral Publication Data

The Cadastral NSDI follows the general policies and guidelines established for all themes in the NSDI. The FGDC Subcommittee for Cadastral Data articulated the policies that were needed for the Cadastral NSDI at the Cadastral Subcommittee October 2003 meeting in Portland Oregon¹².

Goal is to establish policies that lead to shared cooperative decision making and priority setting.

Whereas

1. Cadastral data is collected at the local (localized) level – published, standardized and integrated at the state level and indexed for nationwide access at national level.
2. Many federal land agencies and tribes collect local parcel information (i.e. local doesn't mean just local governments)

¹² Cadastral Subcommittee Meeting Notes, (2003)

3. We need to be able to complete a “merge on demand” for cadastral data which means data are assembled from producers or integrators when needed, not stored or managed centrally.
4. North Carolina federal agency and local cooperative groups, Montana Mapping Liaison Office, and Oregon federal agency, regional and local government cooperation are all good examples of how localized data collection can be coordinated.
5. NGS State Advisor and the USGS Mapping Partnership Office (MPO) programs can serve as models for increasing communication and cooperation among federal agencies and state and local governments. These are examples of federal agencies designating points of contact for data collection, data distribution, and related technical assistance.
6. Legacy data and non-automated data impedes our goal and we need to get this information automated and standardized to achieve our goal.
7. We recognize the importance of “the data threshold” to help people understand how local data and cadastral data can be relied upon for programs. This is the threshold of information you must have to make people aware of the benefits.
8. We need to continue to identify existing federal programs that could benefit from cooperation with cadastral data collection. For example, many federal programs are vertically focused and don’t realize the potential for partnerships.
9. The rich data source of cadastral information at the local level means that some state and federal agencies that formerly needed to collect data can now rely on data from the local level rather than engage in a separate data collection effort.

Therefore we need to:

- Establish policy to first use appropriate local information, before starting new collection in all geospatial programs.
- Establish policy to complement local or localized data and not complete with it – use emergency response and planning as examples of benefits to identify core values.
- Encourage building these policies into all data collection contracts and projects as a condition.
- Encourage Federal A-16 processes to achieve cross program benefits. This means encouraging federal agencies to step away from stovepipe funding programs and work cooperatively across agencies.
- Encourage data collectors and integrators to explore the best in class and other examples and existing standards before striking out on their own with a program for data collection. We termed this a “Look up rather than heads down” approach.

As a result of the discussion of these policy needs and the research needed at the time to fully develop a cadastral component for the NSDI the Subcommittee agreed to and adopted the following policies for cadastral data that would be published for the NSDI.

Data Publication

- Freely available.*

Data Standardization

- Reflects the Cadastral Core Data Standard.
- Provides linkages to additional source information.
- Can be integrated across jurisdictional boundaries.

Data Documentation

- Metadata documentation is current.

Data Integrity (quality and currency)

- Maintained and kept current by the data provider** (at least annually).
- Data is as complete and accurate as the data steward can provide.
- Allow for “merge on demand” which is the ability to combine information on an as needed basis from multiple sources across jurisdictional boundaries.

* In deference to the 50 States initiative the policy requiring that the data be freely available has been subsequently updated to be freely available for government –to-government sharing to support decision making. Each state will need adopt an appropriate policy for the data distribution.

** This concept was further developed to be the authoritative source as described earlier in this document.

7. Business Processes and the Cadastral NSDI

The Cadastral Subcommittee’s strategy for determining the requirements for the cadastral data is to assess the business needs of user communities. Through this analysis it was determined that the published cadastral data has two components Cadastral Reference and Land Parcels. (See Section 4 of this document) Supplemental information was critical to cadastral maintenance and to put the published cadastral information in context. The cadastral community is responsible for the two cadastral components and is reliant on the activities of other groups for the standards and stewardship of the supplemental information.

The cadastral reference is the information necessary to fit the parcel information into a continuous fabric. In the public domain states, the Public land Survey System (PLSS) is a key component of the cadastral reference. In non-public domain states and in the PLSS states there are other cadastral reference systems that form a hierarchy for parcel information and define a cadastral reference. This includes municipal boundaries, hydrography (although this treated as supplemental information), map grids, subdivision plat boundaries and blocks and lots. The land parcel data describe the characteristics of parcels including the polygon or centroid and attributes that describe ownership, land use, presence of structures and type and value.

8. Cadastral Publication Guideline – Implementation Templates

The following sections describe the Cadastral NSDI with the details of the attributes needed to support business applications.

8.1 Supplemental Information

The Supplemental Information includes geodetic and geographic control necessary to reference cadastral information to a real world coordinate system. Every application and business process that was examined in the development of the Cadastral NSDI implied or explicitly stated the need for this underlying reference. Spatial reference begins with a geodetic network system that can be densified with a High Accuracy Reference Network (HARN) and further extended to base maps and orthophotography. One key point is that orthophotography for cadastral information in most urban area must be at one foot pixel or smaller resolution with the associated vertical information to support the generation of the orthophotography. In areas of the country with severe terrain changes or more rural areas the digital ortho quarter quadrangle standards may be sufficient.

The National Geodetic Reference System (NGRS)

This is coordinated and managed by the National Geodetic Survey and provides a consistent and uniform definition of coordinate system, datums and monumented points across a jurisdiction. The attribute content of the NGRS points will be consistent with the standards supported by the National Geodetic Survey.

Orthophotography and Contours

This is orthophotography that is tied to the NGRS and is current. Ideally, the orthophotography includes the underlying terrain model to support the generation of the orthophotography and basic terrain information such as break lines. The resolution of orthophotography ranges from six inches in the urban areas to as much as 10 meters in steep sloped wilderness areas.

Hydrography – For the purposes of cadastral reference hydrography is included to the extent needed to support the definition of cadastral features. These are generally meanderable water bodies or water that may form the extent of riparian boundaries. In Coastal areas this may include tidal limit definitions as possible.

Roads

Many parcel legal description call for the edge of roads or the edge of right of right of ways. The standards for road right of way are a part of the Cadastral Subcommittee’s missions but the road surface or traveled way is not. In particular the transportation or road information is often necessary to support and provide integrity to parcel address information.

8.2 Cadastral NSDI – Cadastral Reference

The Cadastral NSDI Cadastral Reference components have been defined in the FGDC Cadastral National Spatial Data Infrastructure (NSDI) Standard as the elements needed to support query, mapping and navigation. Cadastral Reference items are a part of legal descriptions and are contained in the Cadastral Data Content Standard.

Cadastral Reference - This is the information necessary to fit the parcel information into a continuous and related fabric. In the public domain states, the Public Land Survey System (PLSS) is a key component of the cadastral reference. In non-public domain states and in the PLSS states there are other cadastral reference systems that form a hierarchy for parcel information and define a cadastral reference. This includes municipal boundaries, map grids, subdivision plat boundaries and blocks and lots.

A more detailed description of the elements of the Cadastral NSDI Cadastral Reference is as follows.

Metadata - The metadata will contain information about the entire data set such the jurisdiction name, the jurisdiction contact, a description of coordinate systems, units of measure, horizontal and vertical datum if this information is the same for all coordinates reported in the data set. If there are varying reference systems provided in the data set then these items are captured at the feature level. Other metadata includes the date of the file coded domain of values and accuracy reports.

Corners of Common Usage – These are corners or reference points that are used extensively by land surveyors and others to generate legal descriptions and surveys. These might be points of commencing, corners common to several land divisions, or corners of the Public Land Survey System. There may be road intersections, control monuments or corners of municipal boundaries that are used commonly as a starting point for land descriptions. Each jurisdiction that collects and maintains cadastral information (cadastral stewards) will identify what they would consider to be Corners of Common Usage. Generally these corners would be at one to two mile spacing in rural areas and block-by-block to one half mile to spacing in urban areas. Corners of Common Usage are also often used in other themes to control those themes such as political boundaries.

The suggested attributes for the corners of common usage are as follows.

Control ID - Primary key for the corner of common usage that the provider assigns to the point. This may be a name or a number, such as the National Geodetic Survey's point identifier (PID) or the Bureau of Land Management's GCDB standard corner identifier.

X Coordinate - This is the easting, the X coordinate or the longitude of the corner of common usage reported as an attribute.

Y Coordinate - This is northing, the Y coordinate or the latitude of the corner of common usage reported as an attribute.

Z Coordinate – This is the height or elevation of the corner of common usage.

Coordinate Surveyor - The surveyor who established the coordinate positions, which may be different than the monument surveyor. This may also be an agency or firm.

Coordinate Date - The date of the coordinate values.

Coordinate System - The coordinate system for the coordinate value such as latitude longitude, state plane coordinate or UTM. This should include the units of measure. This is only needed if the coordinate system for the corner of common usage varies

from that described in the metadata.

Elevation Units - The units of measure for the reported elevation. This is only needed if the elevation unit for the corner of common usage varies from that described in the metadata.

Horizontal Datum - The horizontal datum for the reported coordinate value. This is only needed if the horizontal datum for the corner record varies from that described in the metadata.

Elevation Datum - The vertical datum is the reference datum for the reported elevation value. This is only needed if the elevation datum for the corner of common usage varies from that described in the metadata.

Horizontal Accuracy - The accuracy or reliability for the reported horizontal coordinate position for the corner of common usage.

Elevation Accuracy - The accuracy or reliability for the reported elevation for the corner of common usage.

Methods and Procedures – an indication on the collection methods or procedures such as digitized or GPS.

Grid or Cell Reference System – This is a reference system that is used to support parcel mapping and may be a regular grid cell or an irregular set of polygons. Grid or cell reference systems are most commonly found in non-public domain areas and are often used to support tax mapping or the assignment of tax parcel identifiers. As examples, the State Plane Coordinate System or a land lot grid cell system or a tax map sheet system may be used to define a set of grids or cells. In the public domain states the divisions of the Public Land Survey System (township, section and section divisions) typically form the grid or cell reference system for mapping and be called a nominal division since the use of the PLSS in this manner is to provide an index rather than to support legal descriptions. The grid or cell reference system description should be included in the metadata.

Significant Cadastral Reference Features – These are areas and features that define or are used to reference legal descriptions. As examples this might be the Public Land Survey System components, the exterior boundaries of subdivisions or the boundaries of large public land holdings. Typically these are features that are important for understanding and using parcel information. Some examples are as follows.

Survey System Area – A survey system area is generally a simultaneous conveyance that defines an area of land within which there is a consistent method of land description. The most commonly known example is a subdivision or a condominium. Survey system areas typically have a name or number.

Public Land Survey System Township - In the Public Land Survey System a Township refers to a unit of land, that are nominally six miles on a side, usually containing 36 sections.

Public Land Survey System Township First Division - Public Land Survey System Townships first divisions are normally sections or tracts. But there can be exceptions.

Survey Name - Public Land survey areas in Ohio are identified by a name. The named areas have an origin of Public Land Survey System value and then are further identified by Survey Name. These would be areas in Ohio only.

Secondary Survey Name - Secondary Survey Name further identifies named areas within the Ohio surveys. These would be areas in Ohio only.

8.3 Cadastral NSDI Core Data for Parcels

The attributes for the Cadastral NSDI Parcels have been developed through a series of studies of business processes with the parcel level information being the detailed information needed by those business processes. The elements in the Cadastral NSDI Parcel are defined in the Cadastral Data Content Standard.

The business processes that have been examined to identify the parcel elements to date include navigation and discovery of parcel information, emergency planning, emergency response, recovery, mitigation, economic development and regional integration and community planning. All of these business processes indicated a need find additional detail about parcels through linkages to data producers. The Cadastral NSDI Parcel also known as the Parcel Core Data has been developed to support initial or first pass needs of these business processes. In some cases this is all the data these business needs have and in others this data identifies which parcels will need to have more detailed information to support case by case processing.

A more detailed description of the elements of the Cadastral NSDI Parcel is as follows.

Metadata - The metadata will contain information about the entire data set such as the data steward, the parcel contact, a description of the basis for the assessment system (sale price, use, market value etc), the date of the file, information on interpretation of the assessment classifications and any other metadata that would support the use and application of the information.

Parcel Outline (Polygon) - This is geographic extent of the parcel, the parcel boundaries forming a closed polygon. The parcel geometry may be a polygon or a point. The Parcel centroid and the polygon are not both required.

Parcel Centroid (Point) - This is a point within the parcel that can be used to attach related information. This may be a visual centroid or a point within the parcel. It may not be the mathematical centroid as this point needs to be contained within the parcel polygon.

Parcel ID - A unique identifier for the parcel as defined by the data steward or data producer. The parcel identifier should provide a link to additional information about the parcel and should be unique across the data steward's geographic extent.

Source Reference – This field is often called the Volume/Page or Liber/Page in local records. This is a pointer to, or an attribute describing, the source reference for the parcel. This could be a deed, plat, or other document reference.

Source Reference Date - The date of the Source Reference, which is essentially the last update date for this parcel. The entire data set may have a last updated date or an “unloaded for

publication” date that is different than the specific currency or update date for each individual parcel.

Owner Type - The type of ownership is the classification of owner. In some local governments tax parcels are tagged as either taxable or exempt and the owner classification is not known.

Improved - This is an attribute to indicate whether or not there is an improvement on the parcel.

Owner Name - An indication of the primary owner name, recognizing that there may be multiple owner names or that some owner names may be blocked for security reasons or that some jurisdictions may not allow the distribution of owner names. For publicly held lands the owner name is the surface managing agency, such a Bureau of Land Management, Department of Transportation, etc

Assessment / Value for Land Information - This is the total value of the land only. The basis of the value, such as market value, resale value, sale price or use value should be described in the metadata.

Assessment / Value for Improvements Information - This is the total value of improvements on the parcel. The basis of the value, such as market value, resale value, sale price or use value should be described in the metadata.

Assessment / Value Total - This information is the total value of the land and improvements. The basis of the value, such as market value, resale value, sale price or use value should be described in the metadata.

Basis of the Values – An indication of the type of values that are provided (taxable, market, assessed or other)

Assessment Parcel Use Code - This is the parcel use classification for the tax parcel.

Tax Bill Mailing Address - This is the US Postal Service address for the tax bill mailing.

Site Address – This is the street address (site address) for the parcel. If there is more than one, select the first or primary site address.

Parcel Area - The area of the parcel expressed in acres.

Appendix A – Database Implementation Template Details

The following documentation is a template for implementation using the format ESRI's geodatabase.

In the list of the attributes there are:

field name which is shortened to accommodate 8.3 standard which is 11 characters in length.

field type which is text or string, integer (a number without a decimal place, or double, a number with a decimal place). In some cases there are fields that are numbers but they are listed as a text attribute type. This is to preserve leading zeros.

Length which is the expected length but this is typically a minimum. Field lengths may be longer

Alias name which is a longer and more easily understand name for the field

Description which is a short definition of the attribute

Attribute names in **RED** are considered essential, or bare minimum. These are the attributes that are expected in all data sets. However even within the essential or bare minimum it is recognized that if the data does not exist the jurisdiction cannot provide it. The essential attributes should be provided if possible. The less essential attributes have been identified as needed for an application but are not common to all the business needs. If a table or feature class has no red marked attributes the feature is not part of the essential data set.

There are three types of features or data table elements listed.

A feature dataset is a collection of related feature classes that share a common coordinate system. Feature datasets are used to spatially or thematically integrate related feature classes. Their primary purpose is for organizing related feature classes into a common dataset for building a topology, a network dataset, a terrain dataset, or a geometric network.

A feature class is a database table about a geospatial feature. In the case of the parcel information the features may be points or polygons.

A table is an attribute listing. The tables in this list are all look up tables that are provided for the convenience of data migration from local systems to the standards. Because this is a publication data set and editing should not be occurring against the data set, there are no domains of values.

Geodatabase Documentation

Feature Datasets

[CadastralReference - Feature Dataset](#)

[MeanderedWater - Simple](#)

[MetadataGlance - Simple](#)

[PLSSFirstDivision - Simple](#)

[PLSSIntersected - Simple](#)

[PLSSPoint - Simple](#)

[PLSSQuarterReference - Simple](#)

[PLSSReferenceGrid - Simple](#)

[PLSSSecondDivision - Simple](#)

[PLSSSpecialSurvey - Simple](#)

[PLSSTownship - Simple](#)

[SurveySystem - Simple](#)

[Parcels - Feature Dataset](#)

[NSDICoreParcel - Simple](#)

Tables and Feature Classes

[LU_Direction - Table](#)

[LU_OwnerType - Table](#)

[LU_ParcelValueType - Table](#)

[LU_PLSSFirstDiv - Table](#)

[LU_PLSSSecDiv - Table](#)

[LU_PrincipalMeridian - Table](#)

[LU_State - Table](#)

[LU_SurSysDivision - Table](#)

[LU_SurveyNameOhio - Table](#)

[LU_SurveySystem - Table](#)

[LU_SurveyType - Table](#)

CadastralReference - FeatureDataset

Name CadastralReference

Description These are the cadastral reference features that provide the basis and framework for parcel mapping.

DataTheme cadastral

MeanderedWater - FeatureClass

Name MeanderedWater

ShapeType Polygon

FeatureType Simple

AliasName MeanderedWater

Description These are areas of water that are defined from meander lines of the PLSS and GLO surveys. These are not the official representations of coast or water lines and are representations of the lines marked by the survey along the boundaries of meandered water at the time of survey

Purpose To provide the polygons of the originally meandered water areas

DataTheme Cadastral

Field	DataType	Length	AliasName	Description
SURVTYP	String	2	Survey Type Code for Meandered Water	Survey type code. These are the survey types from the BLM GCDB and for this data set these should be W for Water
SURVTYPTXT	String	50	Survey Type Description	The survey type as a text string

MetadataGlance - FeatureClass

Name MetadataGlance

ShapeType Polygon

FeatureType Simple

AliasName MetadataGlance

Description This is a graphic representation of the data stewards for the PLSS Data. The minimum resolution of the PLSS Data Steward is the Township. For western states the identification of the data stewards at the township level is a general indication of the agency that will be responsible for updates within the township. In other implementations this may have been termed the alternative source, meaning alternative to the BLM. But in the shared environment of the NSDI the steward for an area is the primary coordinator or agency responsible for making updates or causing updates to be made. Over time it is expected that the data stewards will be more finely described than at the Township level.

Purpose To provide a visual reference for the metadata about stewards and revision dates

DataTheme Cadastral

Field	DataType	Length	AliasName	Description
PLSSID	String	16	PLSS Identifier	Concatenation of the principal meridian, township, range, and duplication code that form a unique id.
TWNSHPLAB	String	25	Label for PLSS Township	Township label that is used for cartographic output or web display.
STEWARD	String	50	Data Steward	Data steward for the township.
REVISEDDATE	Date	8	Last Revised Date	The last date of any revision in the Township

PLSSFirstDivision - FeatureClass

Name PLSSFirstDivision

ShapeType Polygon

FeatureType Simple

AliasName PLSSFirstDivision

Description The PLSS First Division is commonly the section. This is the first set of divisions for a PLSS Township.

Purpose to provide the polygons for the first divisions of the PLSS Township

DataTheme Cadastral

Field	DataType	Length	AliasName	Description
FRSTDIVID	String	22	First Division	This is a unique identifier for the first

			Identifier	division that is built by appending the first division elements on the Township identifier.
FRSTDIVNO	String	3	First Division Number	This is the number, letter or designator for the first division of the PLSS Township
FRSTDIVDUP	String	1	First Division Duplicate	This is a code to indicate whether the first division is a duplicated area or identifier
FRSTDIVTYP	String	2	First Division Type Code	This is the type of first division and is commonly the section but may be a lot, parcel, tract or other division.
FRSTDIVTXT	String	50	First Division Type Description	This is the first division type as a text field
PLSSID	String	16	PLSS Identifier	This is the unique identifier for the PLSS Township in which the first division is located. Concatenation of the principal meridian, township, range, and duplication code that form a unique identifier for the township.
FRSTDIVLAB	String	5	First Division Label	This is the label for the first division that is used for cartographic of web display purposes.
SURVTYP	String	2	Survey Type Code	Code of the type of survey. This indicates if the township first division has been surveyed, protracted or unprotracted (extended)
SURVTYPTXT	String	50	Survey Type Text	Survey type text description.

PLSSIntersected - FeatureClass

Name PLSSIntersected

ShapeType Polygon

FeatureType Simple

AliasName PLSSIntersected

Description The fully intersect data is the atomic level of the PLSS that is similar to the coverage or the smallest pieces used to build the PLSS. Polygons may overlap in this feature class.

Purpose The fully intersected polygons are used for conversion and for maintenance. This contains the atomic and fully attributed components of the other PLSS features.

This is a useful data set for maintenance and may be needed by consumers who rely on the NSDI data for production.

DataTheme Cadastral

Field	DataType	Length	AliasName	Description
STATEABBR	String	2	State Abbreviation	State abbreviation code two letter postal code
PRINMERC	String	2	Prime Meridian Code	Principal meridian code from the BLM PM Code list
PRINMER	String	40	Primer Meridian Discussion	Principal meridian name as a text
TWNSHPNO	String	3	PLSS Township Number	Township number. The Township Number indicates the number of rows of townships, north or south from a Public Land Survey System Origin.
TWNSHPFRAC	String	1	PLSS Township Fraction	Township fraction. Township Fractions are created when there are gaps between surveyed Township boundaries or due to excess size in Townships that arose from executing original surveys.
TWNSHPDIR	String	1	PLSS Township Direction	Township direction. The direction of a row of Townships from a Public Land Survey System Origin. These are typically North and South in the West but may be East and West in Ohio
RANGENO	String	3	PLSS Range Number	Range number. The Range Number indicates the number of columns of townships, east or west from a Public Land Survey System Origin.
RANGEFRAC	String	1	PLSS Range Fraction	Range fraction. Range Fractions are created when there are gaps between surveyed Township boundaries or due to excess size in Townships that arose from executing original surveys.
RANGEDIR	String	1	PLSS Range Direction	Range direction. The direction of a column of townships from a Public Land Survey System Origin. These are typically East or West in the west but may be north or south in Ohio
TWNSHPDPCD	String	1	PLSS Township Duplicate	If there are multiple townships in a Public Land Survey System Origin, State and

				Survey Name, the Township Duplicate Status is used to establish uniqueness. When more than one Public Land Survey System Township has the same Township and Range numbers and directions and fractions, and are in the same State, this attribute is used to distinguish among duplicate values.
PLSSID	String	16	PLSS Identifier	Concatenation of the principal meridian, township, range, and duplication code that form a unique id.
STEWARD	String	50	PLSS Data Steward	Data steward for a particular township.
TWNSHPLAB	String	20	PLSS Township Label	Township label that is used for cartographic output or web display
FRSTDIVID	String	22	PLSS First Division Identifier	This is a unique identifier for the first division that is built by appending the first division elements on the Township identifier.
FRSTDIVNO	String	3	PLSS First Division Number	This is the number, letter or designator for the first division of the PLSS Township
FRSTDIVDUP	String	1	PLSS First Division Duplicate	This is a code to indicate whether the first division is a duplicated area or identifier
FRSTDIVTYP	String	2	PLSS First Division Type Code	This is the type of first division and is commonly the section but may be a lot, parcel, tract or other division.
FRSTDIVTXT	String	50	PLSS First Division Type Text	This is the first division type as a text field
FRSTDIVLAB	String	5	PLSS First Division Type Label	This is the label for the first division that is used for cartographic of web display purposes.
SECDIVID	String	25	PLSS Second Division Identifier	Unique identifier for the second division.
SECDIVNO	String	50	PLSS Second Division Number	Second division number or aliquot part reference.
SECDIVSUF	String	10	PLSS Second Division Suffix	Second division suffix.
SECDIVTYP	String	1	PLSS Second Division Type	Code of the type of second division.

SECDIVNOTE	String	50	PLSS Second Division Note	Code for the survey note of the second division
SECDIVTEXT	String	50	PLSS Second Division Type Text	Second division type text description
SECDIVLAB	String	50	PLSS Second Division Label	PLSS Second Division label for cartographic output or web display.
SURVTYP	String	1	PLSS Special Survey Type Code	Code of the type of special survey.
SURVTYPTEXT	String	50	PLSS Special Survey Type Text	Special survey type text description.
SURVNO	String	10	PLSS Special Survey Number	Special survey number.
SURVSUF	String	5	PLSS Special Survey Suffix	Special survey suffix designation that makes the identification of the area unique.
SURVNOTE	String	50	PLSS Special Survey Type Note	Notes about the polygon feature that are important for using or understanding the feature. From the BLM SurvNotes are A = Approximate Acreage, C = Conflict or Questionable, D = Non-added Acreage
SURVLAB	String	50	PLSS Special Survey Note	Label that is used for cartographic output or web display.
ACRES	Double	8	PLSS Special Survey Area in Acres	Area of the second division in official acres.
QSEC	String	4	Quarter Section	Quarter section reference
GOVLOT	String	4	Government Lot Number	These are the Government Lots
QQSEC	String	4	Quarter Quarter Section	This is the quarter quarter PLSS reference

PLSSPoint - FeatureClass

Name PLSSPoint

ShapeType Point

FeatureType Simple

AliasName PLSSPoint

Description These are the corners of the PLSS. This data set contains summary information about the coordinate location and reliability of corner coordinate information.

Purpose To provide the essential observed coordinate information for PLSS corners. This is not the complete data set for corners. These are the most current coordinates. The National PLSS point identifier documentation is provided in Appendix B.

DataTheme Cadastral

Field	DataType	Length	AliasName	Description
POINTLAB	String	6	Corner Point Label	PLSS Point label for cartographic output or web display.
POINTID	String	24	Corner Point Identifier	Unique point identifier for the corner that follows the national point identification standard
PLSSID	String	16	PLSS Area Identification	Concatenation of the principal meridian, township, range, and duplication code that form a unique identifier for the township. If a corner is in multiple townships, on a border, this is the PLSS ID for the lowest GCDB number.
XCOORD	Double	8	X or East Coordinate	X, longitude or east coordinate value for the corner.
YCOORD	Double	8	Y or North Coordinate	Y, latitude or north coordinate value for the corner
ZCOORD	Double	8	Z or Height Coordinate	Z, Height, Observed Elevation for the corner
ELEV	Double	8	Average Township Elevation	This is an average elevation for the entire PLSS Township
ERRORX	SmallInteger	2	Error in X	The error in the X direction
ERRORY	SmallInteger	2	Error in Y	The error in the y direction
ERRORZ	SmallInteger	2	Error in Z	The error in the Z direction
HDATUM	String	20	Horizontal Datum	the horizontal datum for the coordinate value, this is the datum the reported coordinate value is reported in and may be different than the GIS horizontal datum
VDATUM	String	20	Vertical Datum	The vertical datum for an observed Z or height
STEWARD1	String	50	Steward for	the primary data steward for the plss

			the PLSS Point	point
STEWARD2	String	50	Second Steward for PLSS Point	the second data steward for the PLSS point if there is a second steward, such as on a county boundary or a federal ownership boundary
LOCAL1	String	25	First PLSS Point Alternate Name	the first alias for the control point, most common on PLSS Township boundaries
LOCAL2	String	25	Second PLSS Point Alternate Name	the second local identifier or alias. Most common on corners on PLSS township boundaries
LOCAL3	String	25	Third PLSS Point Alternate Name	the third alias for the control point most common on PLSS Township boundaries
LOCAL4	String	25	Fourth PLSS Point Alternate Name	the fourth alias for the control point most common when a PLSS corner is common to a special survey
RELY	String	15	PLSS Point Reliability	The reliability or accuracy of coordinate value as a single entry, may be a coded value
COORDPROC	String	20	Coordinate Computation Procedure	The coordinate computation procedure which typically reflects the adjustment method or a standard followed to compute the coordinate from the field observation
COORDSYS	String	20	Coordinate System	the coordinate system for the coordinate value, this may be different than the GIS coordinate system if the reported x,y values are different than the GIS coordinate system.
COORDMETH	String	25	Coordinate Collection Method	the method of observation or measurement for the coordinate value. This typically indicates a technology such as GPS, digitized, line of sight
REVISEDDATE	Date	8	Last Revised Date	The last revision date for the coordinate value for the PLSS Corner

PLSSQuarterReference - FeatureClass

Name PLSSQuarterReference

ShapeType Polygon

FeatureType Simple

AliasName PLSSFirstDivision

Description The PLSS Quarter Section Reference is a companion feature class for the PLSS Reference Grid that provides a quarter section division of the sections for reference only.

Purpose This is a mapped reference grid used to support some web and rapid query applications

DataTheme Cadastral

Field	Data Type	Length	AliasName	Description
PLSSID	String	16	PLSS Identifier	This is the unique identifier for the PLSS Township in which the first division is located. Concatenation of the principal meridian, township, range, and duplication code that form a unique identifier for the township.
REFGRIDNO	String	20	Reference Grid Number	The number for the reference grid. Some jurisdictions assign a letter or number divisions of the PLSS
REFGRIDNOM	String	4	Reference Grid Nominal Location	The nominal location of the reference grid cell or feature
REFGRIDDUP	String	2	Reference grid Duplication	A duplicate code to indicate if the cell or feature of the reference grid is a duplicate
QSECTION	String	16	Quarter Section	the quarter section label
REFSOURCE	String	16	Source Reference	The reference to the source document could be a reference to a map or plat or a data set such as GCDB
SURVTYP	String	2	Survey Type Code	Code of the type of survey. This indicates if the township quarter reference has been surveyed, protracted or unprotracted (extended)
SURVTYPTXT	String	50	Survey Type Text	Survey type text description.

PLSSReferenceGrid - FeatureClass**Name** PLSSReferenceGrid**ShapeType** Polygon**FeatureType** Simple**AliasName** PLSSReferenceGrid

Description The reference Grid is a generalized data set providing the Township and First Divisions of the PLSS as a separate feature class to support data requests, mapping and indexing. The spatial location and position and attributes of this feature class are the same as those in the primary data sets from which this data is built. These data are often used for map sheet layouts and general location reference

Purpose This feature class supports indexing and rapid reference and query generally for web applications as well as map book and map sheet layouts

DataTheme Cadastral

Field	DataType	Length	AliasName	Description
PLSSID	String	16	PLSS Identifier	Concatenation of the principal meridian, township, range, and duplication code that form a unique id.
REFGRIDNO	String	20	Reference Grid Number	Number, letter or designator for the first division of the PLSS Township.
REFGRIDNOM	String	4	Reference Grid Nominal Location	Number, letter or designator for the nominal first division of the PLSS Township.
REFGRIDDUP	String	2	Reference Grid Duplicate Indicator	Code to indicate whether the first division is a duplicated.
EXPIRDATE	String	16	Expiration Date	Expiration date for the dataset. This is the date the data set is expected to be updated.
SOURCEREF	String	25	Reference to Source or Steward	The reference to the source document could be a reference to a map or plat or a data set such as GCDB

PLSSSecondDivision - FeatureClass**Name** PLSSSecondDivision**ShapeType** Polygon**FeatureType** Simple**AliasName** PLSSSecondDivision

Description The second division of the PLSS is quarter, quarter-quarter, sixteenth or government lot division of the PLSS. The second and third divisions are combined into this feature class as an intentional de-normalization of the PLSS hierarchical data. The polygons in this feature class represent the smallest division to the sixteenth that has been defined for the first division. For example In some cases sections have only been divided to the quarter. Divisions below the sixteenth are in the Special Survey or Parcel Feature Class.

Purpose This feature class provides the graphic of the aliquot or government lot divisions of the PLSS township

DataTheme Cadastral

Field	DataType	Length	AliasName	Description
SECDIVID	String	25	Second Division Identifier	Unique identifier for the second division.
FRSTDIVID	String	25	First Division Identifier	Unique identifier for the first division.
SECDIVNO	String	50	Second Division Number or Designator	Second division number or aliquot part reference.
SECDIVSUF	String	10	Second Division Suffix	Second division suffix
SECDIVTYP	String	1	Second Division Type Code	Code of the type of second division.
SECDIVTXT	String	50	Second Division Type Text	Second division type text description
ACRES	Double	8	Area in Acres	Area of the second division in official acres.
PLSSID	String	16	PLSS Township Identifier	Concatenation of the principal meridian, township, range, and duplication code that form a unique identifier for the township.
SECDIVLAB	String	50	Second Division Label	PLSS Second Division label for cartographic output or web display.

PLSSSpecialSurvey - FeatureClass

Name PLSSSpecialSurvey

ShapeType Polygon

FeatureType Simple

AliasName PLSSSpecialSurvey

Description Special Surveys are non-PLSS survey areas from BLM survey records which represent federal parcels

Purpose These are the graphic representation of land transactions in the federal government and may be thought of as the federal parcels

DataTheme Cadastral

Field	DataType	Length	AliasName	Description
SURVTYP	String	1	Survey Type Code	Code of the type of special survey.
SURVTYPTXT	String	50	Survey Type Text	Special survey type text description.
SURVNO	String	10	Special Survey Number	Special survey number.
SURVSUF	String	5	Special Survey Number Suffix	Special survey suffix designation that makes the identification of the area unique.
SURVNOTE	String	50	Special Survey Note	Notes about the polygon feature that are important for using or understanding the feature. From the BLM SurvNotes are A = Approximate Acreage, C = Conflict or Questionable, D = Non-added Acreage
ACRES	Double	8	Area in Acres	Official area of the survey in acres as a number.
SURVLAB	String	50	Special Survey Label	Label that is used for cartographic output or web display.
REVISEDDATE	Date	8	Revised Date	The last date of revision for the special survey, because special surveys represent federal land transactions they may have distinct revision dates.

PLSSTownship - FeatureClass

Name PLSSTownship
ShapeType Polygon
FeatureType Simple
AliasName PLSSTownship

Description In the Public Land Survey System a Township refers to a unit of land that is nominally six miles on a side, usually containing 36 sections.

Purpose These are the graphic displays of the PLSS Townships.

DataTheme Cadastral

Field	DataType	Length	AliasName	Description
STATEABBR	String	2	State Abbreviation	State abbreviation code two letter postal code
PRINMERCD	String	2	Prime Meridian Code	Principal meridian code from the BLM PM Code list
PRINMER	String	40	Prime Meridian Text	Principal meridian name as a text
TWNSHPNO	String	3	PLSS Township Number	Township number. The Township Number indicates the number of rows of townships, north or south from a Public Land Survey System Origin.
TWNSHPFRAC	String	1	PLSS Township Fraction	Township fraction. Township Fractions are created when there are gaps between surveyed Township boundaries or due to excess size in Townships that arose from executing original surveys.
TWNSHPDIR	String	1	PLSS Township Direction	Township direction. The direction of a row of Townships from a Public Land Survey System Origin. These are typically North and South in the West but may be East and West in Ohio
RANGENO	String	3	PLSS Range Number	Range number. The Range Number indicates the number of columns of townships, east or west from a Public Land Survey System Origin.
RANGEFRAC	String	1	PLSS Range Fraction	Range fraction. Range Fractions are created when there are gaps between surveyed Township boundaries or due to excess size in Townships that arose from executing original surveys.
RANGEDIR	String	1	PLSS Range Direction	Range direction. The direction of a column of townships from a Public Land Survey System Origin. These are typically East or West in the west but may be north or south in Ohio

TWNSHPDPCD	String	1	PLSS Township Duplicate Code	If there are multiple townships in a Public Land Survey System Origin, State and Survey Name, the Township Duplicate Status is used to establish uniqueness. When more than one Public Land Survey System Township has the same Township and Range numbers and directions and fractions, and are in the same State, this attribute is used to distinguish among duplicate values.
PLSSID	String	16	PLSS Township Identifier	Concatenation of the principal meridian, township, range, and duplication code that form a unique id.
STEWARD	String	50	Data Steward for PLSS Township Data	Data steward for a township.
TWNSHPLAB	String	20	PLSS Township Label	Township label that is used for cartographic output or web display
SRVNAME	String	60	Survey Name for Ohio PLSS Surveys	The Ohio Named survey area, PLSS original survey areas
SECSRVNAME	String	60	Secondary Survey Name for Ohio Surveys	The secondary name for Ohio survey area, PLSS original survey areas
SURVTYP	String	2	Survey Type Code	Code of the type of survey. This indicates if the township has been surveyed, protracted or unprotracted (extended)
SURVTYPTXT	String	50	Survey Type Text	Survey type text description.

SurveySystem - FeatureClass

Name SurveySystem

ShapeType Polygon

FeatureType Simple

AliasName SurveySystem

DataTheme Cadastral

Field	DataType	Length	AliasName	Description
SURVSYSTYPE	String	50	Survey	Survey System Type indicates the

			System Type	category or major class of the description.
SURVSYSNAME	String	200	Survey System Name	The Survey System Name is an identifying name or number for a specific type of Survey System area.
SURSYSCODE	String	50	Survey System Code or Index	any codes or indices for tracking or managing the survey system areas
SURSYSNOTE	String	50	Survey System Note	any notes on the use, name or application of the survey system area
FIRSTDIVTYPE	String	50	Survey System First Division	The First Division Type describes the classification of the First Survey System Division
FIRSTDIVNAME	String	50	Survey System First Division Name	The Survey System First Division Name is an alpha, numeric, or alpha-numeric designator used to identify the First Division of the Survey System
SECDIVTYPE	String	50	Survey System Second Division Type	The Second Division Type describes the classification of the Survey System Second Division.
SECDIVNAME	String	50	Survey System Second Division Name	The Survey System Second Division Name is an alpha, numeric, or alpha-numeric designator used to identify the Second Division of the Survey System.

Parcels - FeatureDataset

Name Parcels

Description This feature data set contains information about the rights and interests in land including real estate assets. For the publication this feature data set contains the parcel data only

DataTheme Cadastral

NSDICoreParcel - FeatureClass

Name NSDICoreParcel

ShapeType Polygon

FeatureType Simple

AliasName NSDICoreParcel

Description This is the parcel publication Cadastral NSDI or core data set that supports emergency response and other business applications

Purpose This data set is intended to provide the initial information needed to respond to and serve business applications. This data set has been developed by the FGDC Cadastral Subcommittee.

DataTheme Cadastral

Field	DataType	Length	AliasName	Description
STNAME	String	2	State Name	The state name
STFIPS	String	2	State FIPS Code	The state FIPS code
CNTYNAME	String	50	County Name	The county name
CNTYFIPS	String	2	County FIPS Code	the county FIPS code 3 digit code
SOURCEAGENT	String	50	Data Source Agency	The agency that provided the data, the data steward
PARNO	String	30	Local Parcel Number	The local parcel number for the parcel record
NPARNO	String	40	National Parcel Number	The local parcel number with the state and county FIPS Code added to the beginning of the number
STRUCT	String	1	Structure	Is there a structure or improvement on

			Indicator	the parcel (yes or no)
IMPROVVAL	Integer	4	Improved Value	The value of the improvements on the parcels
LANDVAL	Integer	4	Land Value	The value of the land on the parcel
PARVAL	Integer	4	Total Parcel Value	The total value of the parcel
PARVALTYPE	String	15	Type of Value Reported	The type of value reported in the parcel value fields
PARUSECODE	String	10	Tax Parcel Use Code	The local assessment parcel use code
PARUSEDESC	String	50	Tax Parcel Use Code Description	The local assessment parcel use description
OWNTYPE	String	20	Owner Classification or Type	The owner type based on the types listed in the LU_OWNTYPE table
AREATXT	String	20	Area of Parcel as Text	The area of the parcel in acres as a text
AREANO	Single	4	Area of Parcel as Number	The area of the parcel in acres as a number
OWNNAME	String	100	Full Owner Name	The primary surface owner name, the full name may be populated or the components of the name (first and last)
OWNFRST	String	50	Owner First Name	The primary surface owner first name
OWNLAST	String	50	Owner Last Name	The primary surface owner last name
SUBSURFOWN	String	60	Subsurface Owner Name	The name of the subsurface rights landowner
SUBOWNTYPE	String	20	Subsurface Owner Type	The sub surface owner type based on the types listed in the LU_OWNTYPE table
MAILADD	String	65	Full Mailing Address	The full mailing address as a single field, the mailing address may also be broken into its component parts
MADDRNO	String	10	Mailing Address Number	The mail address number
MADDSTNAME	String	55	Mailing Address Street Full Name	The full name of the mailing street including the prefix, the name, the suffix the type and directions

MADDPREF	String	5	Mailing Address Prefix	The mailing street prefix
MADDSTR	String	40	Mailing Address Street Name	the mailing street name, the name without the type and directions
MADDSTTYP	String	5	Mailing Address Street Type	The mailing street type, such as ST, AVE, BLVD
MADDSTSUF	String	5	Mailing Address Street Suffix	The mailing street suffix, typically a direction
MUNIT	String	10	Mailing Address Unit Number	The mailing address unit, suite or apartment number and may also be the half number
MCITY	String	40	Mailing Address City	The mailing city name
MSTATE	String	2	Mailing Address State	The mailing state name, two letter abbreviation
MZIP	String	15	Mailing Address Zip	The mailing zip code
SITEADD	String	65	Full Site Address	The full site address as a single field, the mailing address may also be broken into its component parts
SADDNO	String	10	Site Address Number	The site address number
SADDSTNAME	String	55	Site Address Street Full Name	The full name of the site street including the prefix, the name, the suffix the type and directions
SADDPREF	String	5	Site Address Prefix	The site street prefix
SADDSTR	String	40	Site Address Street Name	the site street name, the name without the type and directions
SADDSTTYP	String	5	Site Address Street Type	The site street type, such as ST, AVE, BLVD
SADDSTSUF	String	5	Site Address Street Suffix	The site street suffix, typically a direction
SUNIT	String	10	Site Address Unit Number	The site address unit, suite or apartment number and may also be the half number
SCITY	String	40	Site Address City	The site address city name
LEGDECFULL	String	255	Full Legal Description	The full tax legal description - this is generally needed when the parcel data

				does not include a map of the parcel
SOURCEDATE	Date	8	Source Document Date	The date of the source document that was used to generate the parcel information
SOURCEREF	String	25	Source Document Link or Reference	The reference to the source document could be a reference to a map or plat or a deed
REVISEDDATE	Date	8	Last Revised Date	The date of the last revision of the parcel record, this may be the initial create date if that is the last revision

LU_Direction - Table

Name LU_Direction

AliasName LU_Direction

Description Look up table for direction codes N, E, S, W

Purpose To provide a domain for referencing source information or translating incoming data sets

DataTheme Cadastral

Field **DataType** **Length** **AliasName** **Description**

Field	DataType	Length	AliasName	Description
DirCode	String	1	Direction Code	the one letter direction code (N, S, E, W)
Name	String	5	Direction	The full text for the direction

LU_OwnerType - Table

Name LU_OwnerType

AliasName LU_OwnerType

Description The type of ownership is the classification of owner. In some local governments tax parcels are tagged as either taxable or exempt and the owner classification is not known. In these cases an owner types of taxable and exempt may be added to this list.

Purpose To provide a domain for referencing source information or translating incoming data sets

DataTheme Cadastral

Field **DataType** **Length** **AliasName** **Description**

OwnerTypeCD	String	1	Owner Type	a code for the owner type
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			Code	
OwnerTypeDesc	String	50	Owner Type Description	the full description of the owner type

LU_ParcelValueType - Table

Name LU_ParcelValueType

AliasName LU_ParcelValueType

Description This is a list of the types of values for the parcel value types in the core parcel attributes. Local governments and other data stewards for parcel data may maintain a variety of values such as sales values, current market value taxable value or assessed value. This field indicates what type of value is reported in the core attributes

Purpose To provide a domain for referencing source information or translating incoming data sets

DataTheme Cadastral

Field	DataType	Length	AliasName	Description
PARVALTYPE	String	15	Parcel Value Type	List of values for the parcel values for incoming data

LU_PLSSFirstDiv - Table

Name LU_PLSSFirstDiv

AliasName LU_PLSSFirstDiv

Description The First Division Type of a Public Land Survey System Township is the primary or first subdivision category. If the first division type is fractional section, then the metadata for this data set will need to document how fractional sections are labeled.

Purpose To provide a domain for referencing source information or translating incoming data sets

DataTheme Cadastral

Field	DataType	Length	AliasName	Description
PLSSFirstDiv	String	25	PLSS First Division Type Code	The values for the first division types
PLSSFirstDivDesc	String	250	PLSS First Division Type	a description of the division types

			Description	
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LU_PLSSSecDiv - Table

Name LU_PLSSSecDiv

AliasName LU_PLSSSecDiv

Description The Second Division Type of a Public Land Survey System Township is the second subdivision category. The second division has been de-normalized slightly to include a complete non-overlapping representation of the divisions of the PLSS

Purpose To provide a domain for referencing source information or translating incoming data sets

DataTheme Cadastral

Field	DataType	Length	AliasName	Description
PLSSSecDiv	String	25	PLSS Second Division Type Code	The value for the second division types
PLSSSecDivDesc	String	250	PLSS Second Division Type Description	A description of the second division types

LU_PrincipalMeridian - Table

Name LU_PrincipalMeridian

AliasName LU_PrincipalMeridian

Description the codes and names of the principal meridians

Purpose To provide a domain for referencing source information or translating incoming data sets

DataTheme Cadastral

Field	DataType	Length	AliasName	Description
PrincipalMeridian	String	50	Principal Meridian Full Name	the name of the principal meridian
PMCode	String	2	Principal Meridian Code	the blm two digit code for the principal meridian
PMShortName	String	25	Principal	the short name for the principal meridian

			Meridian Short Name	
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LU_State - Table

Name LU_State

AliasName LU_State

Description state names and fips codes and abbreviations

Purpose To provide a domain for referencing source information or translating incoming data sets

DataTheme Cadastral

Field	DataType	Length	AliasName	Description
StateName	String	30	State Name	the state name
StateCD	String	2	State Postal Abbreviation	the state 2 letter abbreviation
StateFIPSCD	SmallInteger	2	State FIPS Code	the two digit state fips code

LU_SurSysDivision - Table

Name LU_SurSysDivision

AliasName LU_SurSysDivision

Description This table provides the domain of values for the first and second divisions of survey systems. These were combined because the division types can be combined and may vary from state to state.

Purpose To provide a domain for referencing source information or translating incoming data sets

DataTheme Cadastral

Field	DataType	Length	AliasName	Description
SurSystDivCode	String	5	Survey System Division Code	codes for the survey system divisions
SurSysDivName	String	50	Survey System Division Name	the name of the survey division
SurSysDivDesc	String	200	Survey	a description of the survey division

			System Division Description	
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LU_SurveyNameOhio - Table

Name LU_SurveyNameOhio

AliasName LU_SurveyNameOhio

Description Public Land survey areas in Ohio are identified by a name. The named areas do not an origin of Public Land Survey System value.

Purpose To provide a domain for referencing source information or translating incoming data sets

DataTheme Cadastral

Field	DataType	Length	AliasName	Description
SRVNAME	String	60	Ohio Survey System Name	The named survey areas within Ohio
SECSRVNAME	String	60	Ohio Secondary Survey System Name	the secondary names within the named areas. There are only two named areas with a secondary survey named area within them

LU_SurveySystem - Table

Name LU_SurveySystem

AliasName LU_SurveySystem

Description This is a list of survey system types

Purpose To provide a domain for referencing source information or translating incoming data sets

DataTheme Cadastral

Field	DataType	Length	AliasName	Description
SurvSysTypeCode	String	5	Survey System Type Code	codes for the survey system types
SurvSysType	String	50	Survey System Type Text	the name of the survey system type

SurvSysDescription	String	250	Survey System Type Description	the description of the survey system type
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LU_SurveyType - Table

Name LU_SurveyType

AliasName LU_SurveyType

Description Values for the federal survey types. This includes the special survey, first and second survey division types.

Purpose To provide a domain for referencing source information or translating incoming data sets

DataTheme Cadastral

Field	DataType	Length	AliasName	Description
SurveyTypeCD	String	2	Special Survey Type Code	the survey type code
SurveyTypeName	String	50	Special Survey Type Text	the name of the survey type
Description	String	200	Special Survey Type Description	the description of the survey type

Appendix B – PLSS Corner Standard Identifier

Introduction

This paper describes a standard point identifier for Public Land Survey System (PLSS) corners. This standard point identifier conforms to the requirements of the Federal Geographic Data Committee (FGDC) Cadastral Data Content Standard requirements for a unique identifier for cadastral corners. The standard system presented here allows published coordinate information to be related to source data and to perpetuate corner identifiers as coordinate values for corners are improved over time.

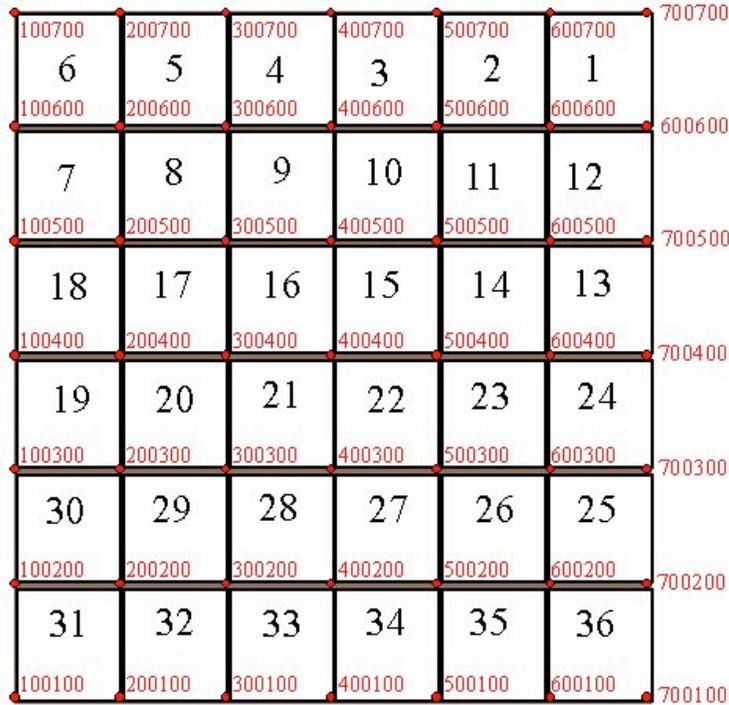
The uniqueness of the survey point ids will help facilitate data maintenance and data sharing within the Bureau of land management (BLM) and other Cadastral Reference data stewards. This paper describes the format and structure of the corner point identifiers for the publication of corner information that conforms to the national cadastral data standards.

PLSS Points

The Geographic Coordinate Data Base (GCDB) uses a six-digit numbering system to name PLSS points in a township. This six-digit corner number is only unique within a PLSS township. This number is repeated in each township, to make it easier to determine the location of a corner within a Township by its number.

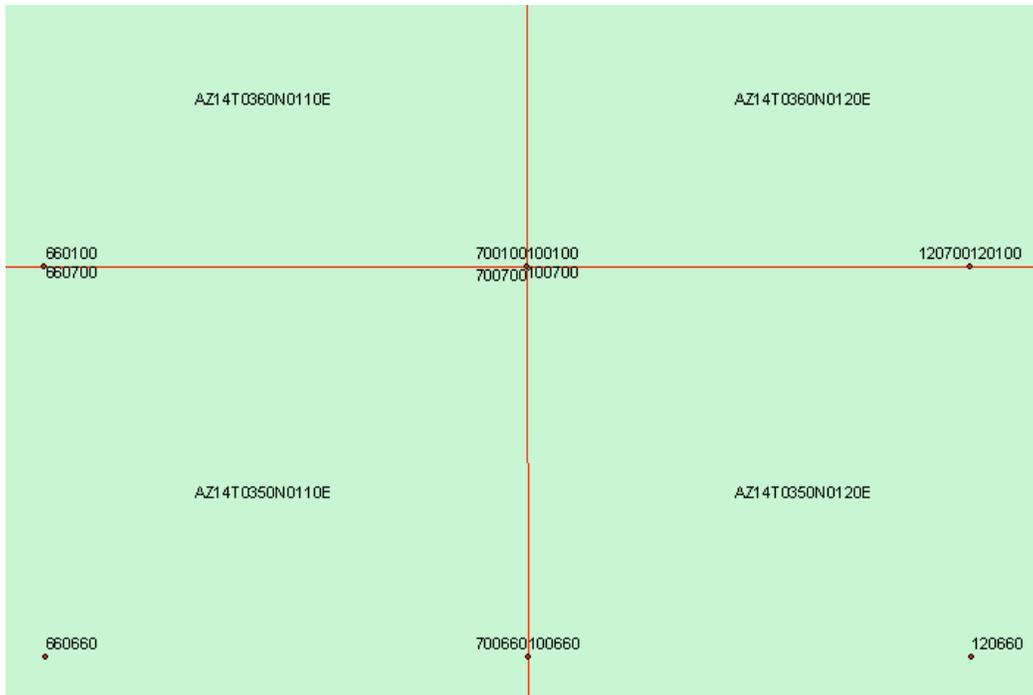
The first three digits of this number refer to the east-west position in the township. The second three digits indicate the north-south position in a township.

The following picture shows the corner numbering convention for a single township subdivided down to sections. This numbering scheme is repeated in each township.



Due to this naming convention, four adjacent townships will name the same corner four different ways (100100, 100700, 700700, 700100). Each corner number should have the exact same coordinate values because this is in fact the same corner.

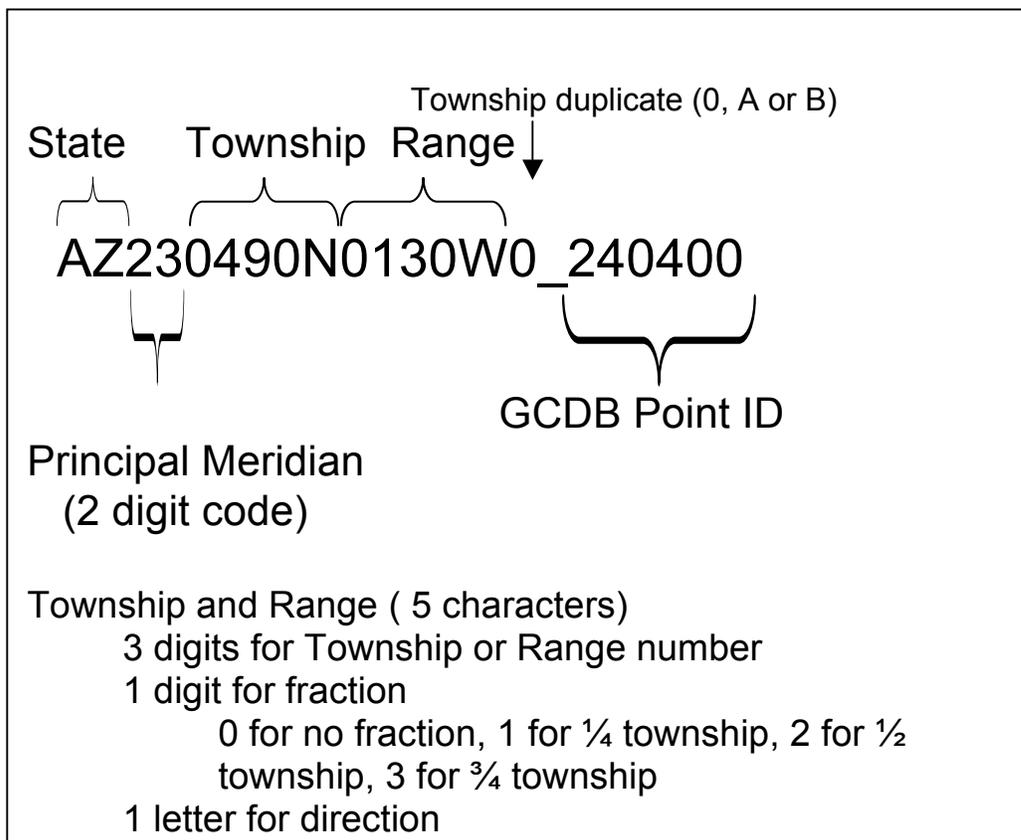
The following picture shows an example of the point duplication at township corners and township lines where sections subdivisions are coincident.



Unique PLSS Corner Numbers

To make the corner numbers unique, the proposal is to add a point prefix to the PLSS corner number. This prefix is a concatenation of the State, Principal Meridian, Township and Range in which the point resides. This point prefix can be derived from the directory structure of the output directory from the BLM’s Data Preparation Software (DCCS V 1.04) or from the attributes in the standard PLSS Township Feature classes and is a standard 15 characters long. This identifier has been termed the township identifier or TWIP in other systems.

The uniqueness is established by making a business rule that the lowest six digit corner number will become the primary number and all other numbers will become aliases or other corner numbers for the same corner. The following diagram shows the proposed corner numbering convention.



References

Authority and Authoritative Sources: Clarification of Terms and Concepts for Cadastral Data (2008),

<http://www.nationalcad.org/showdocs.asp?docid=1045&navsrc=Report&navsrc2=>

Because of legal issues related to ownership and rights in land the use of the terms authority and authoritative for cadastral data need to be clearly articulated. This document defines and discusses the terms authoritative data, authoritative data source, authoritative source, authority, authorization, data stewards, trusted source and trusted data in terms that can be applied to any data source with examples that apply specifically to cadastral data.

Cadastral NSDI Reference Document, (2007)

<http://www.nationalcad.org/showdocs.asp?docid=158&navsrc=Report&navsrc2=>

This document replaces the core data standard. This document describes the data and organizational relationships for the maintenance of the data that is the Cadastral NSDI. This document serves as a standard for the Cadastral NSDI content.

IAAO and FGDC Cadastral Subcommittee Workshop: Sharing Parcel Data to Protect and Rebuild Communities (2008),

<http://www.nationalcad.org/showdocs.asp?docid=1030&navsrc=Report&navsrc2=>

IAAO and FGDC Cadastral Data Subcommittee sponsored a workshop on Feb 25, 2008 at the 2008 GIS/CAMA Technology Conference. The purpose of the workshop was to explore the advantages, opportunities and issues of sharing parcel data from government to government.

National Spatial Data Infrastructure (2008) <http://www.fgdc.gov/nsdi/nsdi.html>

This web page defines the history and principles of the national Spatial Data Infrastructure.

Production and Publication A Concept for Geographic Information Environments, (2002), <http://www.nationalcad.org/showdocs.asp?docid=22&navsrc=Report&navsrc2=>

The production environment is the production and maintenance component for geographic information. The publication environment is the consumptive environment. This document describes these concepts and environments

Cadastral Subcommittee Meeting Notes, (2003) Portland Oregon, hosted by the Forest Service,

<http://www.nationalcad.org/showdocs.asp?docid=1048&navsrc=Organization&navsrc2=MeetingDoc>

These meeting notes summarize some of the early discussions on the policies and needs for establishing a robust Cadastral Publication Data Standard for the NSDI.