Idaho Technology Authority (ITA)

ENTERPRISE STANDARDS – S4000 – INFORMATION AND DATA

Category: S4269 – Public Land Survey System Data Exchange

CONTENTS:

I. DEFINITION

See ITA Guideline G105 (ITA Glossary of Terms) for definitions.

II. RATIONALE

A statewide Public Land Survey System (PLSS) data layer and data standard, which is part of the Cadastral Reference data theme, is a critical source of information for control points. The PLSS representation based on those control points are a foundational dataset on which most other datasets (parcels, boundaries, roads, etc.) are built on, or referenced to. Accurate control and subsequent accurate PLSS data ensures that all other datasets based on this foundation are spatially accurate and line up with each other. This dataset and the standards describing this dataset benefit all users of spatial data including, but not limited to, agencies dealing with real estate, agriculture, government, boundaries, and transportation. Standardized PLSS data supports those groups by providing an authoritative understanding of the dataset and access to PLSS data in an Idaho specific view.

III. APPROVED STANDARD(S)

See Attachment

IV. APPROVED PRODUCT(S)

Any GIS software, either desktop or online, capable of processing and displaying Open Geospatial Consortium (OGC) Web Map Standard (WMS) services.

V. JUSTIFICATION

A statewide PLSS Data Layer dataset is a critical source of information as stated under Part II in this standard. A data exchange standard supports the use of the PLSS Data Layer to facilitate a predictable format, improve collaboration and encourage use of this dataset.

VI. TECHNICAL AND IMPLEMENTATION CONSIDERATIONS

Any GIS Software, either desktop or online, capable of processing and displaying Open Geospatial Consortium (OGC) Web Map Standard (WMS) services.

VII. EMERGING TRENDS AND ARCHITECTURAL DIRECTIONS

Data will be shared in accordance with ITA Standard S4250 – Geographic Information System (GIS) Data Sharing Standards.

VIII. PROCEDURE REFERENCE

The format, content and development of this standard adhere to ITA Policy P5030 - Framework Standards, ITA Standard S4250 - Data Sharing Standards and ITA Standard S4220 - Geospatial Metadata.

IX. REVIEW CYCLE

Review will occur at least annually.

X. CONTACT INFORMATION

For more information, contact the ITA Staff at (208) 605-4000.

REVISION HISTORY

03/20/2025 – Standard Presented to the IGC-EC

STATE OF IDAHO

Idaho Public Land Survey System Data Exchange

Part of the Cadastral Reference Theme

Version 1
Effective March 3, 2025

Developed by the Cadastral Reference Technical Working Group

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CONTENTS

1. Introduction to the Public Land Survey System Data Exchange

A statewide Public Land Survey System (PLSS) data layer and data standard, which is part of the Cadastral Reference data theme, is a critical source of information for control points. The PLSS representation based on those control points are a foundational dataset on which most other datasets (parcels, boundaries, roads, etc.) are built on, or referenced to. Accurate control and subsequent accurate PLSS data ensures that all other datasets based on this foundation are spatially accurate and line up with each other. This dataset and the standards describing this dataset benefit all users of spatial data including, but not limited to, agencies dealing with real estate, agriculture, government, boundaries, and transportation. Standardized PLSS Data supports those groups by providing an authoritative understanding of the dataset and access to PLSS data in an Idaho specific view.

A PLSS Data Layer Standard is intended to facilitate integration and sharing of up-to-date PLSS Layer data and enhance the dissemination and use of PLSS Data Layer information. This standard does not instruct on how PLSS Data Layer databases are designed for internal use.

This standard was developed by the Cadastral Reference Technical Working Group, a subgroup of the Idaho Geospatial Council – Executive Committee (IGC-EC). This standard will be reviewed on an annual basis and updated as needed.

1.1. Mission and Goals of the Standard

The PLSS Data Layer Standard supports a statewide dataset that is consistent with applicable state and national standards. It establishes the minimum attributes and geospatial database schema for the PLSS Data Layer Framework. This standard will communicate with and may have similar attributes to other Idaho Framework data standards. It encourages all Idaho-based agencies with geospatial PLSS Layer data to contribute to PLSS Data Layer Framework.

The PLSS Data Layer Framework will be appropriately shared and beneficial to all. The fields in the PLSS Layer Data Exchange Standard will be general enough to incorporate basic information without requiring major changes in internal data models. This standard allows for expansion to a more complex data structure and schema.

1.2. Relationship to Existing Standards

This PLSS Data Layer Exchange Standard relates to existing standards as follows: Metadata is provided in accordance with ITA Standard S4220 - Geospatial Metadata, and this standard is created and approved in accordance with ITA Policy P5030 - Framework Standards

Development Policy. PLSS data needs to follow BLM regulations for cadastral surveys including the Manual for Surveying Instructions (2009), and Specifications for Descriptions of Land (2017). This PLSS standard is related to any dataset based on PLSS data including ITA Standard S4235 - Legislative and Congressional Boundaries, ITA Standard S4232 - Parcel Exchange Standard. The standard is related to the National States Data Infrastructure Standard for Cadastral Reference. The data is also related to the Multi-State Control Point (MCPD) Standard.

1.3. **Description of the Standard**

This standard describes the vision and geospatial data structure of a PLSS Data Layer Framework in the state of Idaho. This standard is devised to be:

- Simple, easy to understand, and logical
- Uniformly applicable, whenever possible
- Flexible and capable of accommodating future expansions
- Dynamic in terms of continuous review

1.4. **Applicability and Intended Uses**

This standard applies to the PLSS Layer element of the Cadastral Reference theme of The Idaho Map (TIM).

When implemented this standard will enable access to the data. A predictable standard will support and improve data collaboration, help identify and report errors and allow agencies to incorporate this data into their own data products.

This standard does not consider data sharing agreements, contracts, transactions, privacy concerns, or any other issues relating to the acquisition and dissemination of PLSS Layer data.

1.5. **Standard Development Process**

The Cadastral Reference Technical Working Group is a voluntary group of private, city, county, tribal, state, and federal representatives. In 2024 the PLSS Data Layer lead began developing the standard for the PLSS Layer Framework. This standard was then reviewed and edited by the members of the Cadastral Reference Technical Working Group.

After initial development the draft standard document was shared with the Idaho Geospatial Council Executive Committee (IGC-EC) and the Idaho Geospatial Council (IGC) in accordance with the review and approval process described in ITA Policy P5030 - Framework Standards Development.

The standard was presented to the IGC-EC in March 2025.

1.6. **Maintenance of the Standard**

This standard will be reviewed annually and in accordance with the ITA Policy P5030 - Framework Standards Development.

2. **Body of the Standard**

2.1. **Scope and Content**

The scope of the PLSS Layer Data Exchange Standard is to describe a statewide layer which identifies the physical locations and attributes of PLSS Data Layers in Idaho.

2.2. **Need**

PLSS Data Layers are a key dataset needed for control points, and the PLSS (PLSS) representation based on those control points are the most foundational dataset on which most other datasets (parcels, boundaries, roads, etc.) are built on, or referenced to. Accurate control and subsequent accurate PLSS ensure that all data based on this foundation are spatially accurate and line up with each other. This standard provides the foundation to aggregate the PLSS Layer data for centralized access and stewardship information.

Accurate PLSS data is needed to ensure spatial accuracy and alignment of spatial datasets in Idaho.

2.3. **Participation in the Standard Development**

The development of the PLSS Layer Data Exchange Standard adheres to the ITA Policy P5030 - Framework Standards Development. The Cadastral Reference Standard Team tasked with developing this standard invite input and comments from private, county, state, and federal organizations. In accordance with ITS Policy P5030 requirements, there will be opportunity for broad participation and input by stakeholders in the development of this standard. The process will be equally broad for input on updates and enhancements to the standard. As with all Idaho Framework standards, public review, and comments on the PLSS Layer Data Exchange Standard is encouraged.

2.4. **Integration with Other Standards**

The PLSS Layer Data Exchange Standard follows the same format as other Idaho geospatial framework data standards. The PLSS Layer standard may contain some of the same attributes

as other framework standards and may adopt the field name, definition, and domain from the other standards to promote consistency.

2.5. **Technical and Operation Context**

2.5.1. **Data Environment**

The data environment is a digital vector polygon with a specific, standardized set of attributes pertinent to the PLSS Data Layer Framework. PLSS Layer data shared under this standard must be in a format supporting vector polygons.

2.5.2. **Reference Systems**

The PLSS Data Layer Framework will be published in the Idaho Transverse Mercator (IDTM) NAD83 coordinate system, which is the State of Idaho's single-zone coordinate system. Data is not required to be submitted in the Idaho Transverse Mercator (IDTM) NAD83 coordinate system but must have a defined coordinate system clearly described in the metadata.

2.5.3. **Global Positioning Systems (GPS)**

Some data provided might contain data collected using GNSS methods such as GPS, and the metadata provided should describe this, if applicable. Geometry from GPS sources is not required to meet this standard.

2.5.4. **Interdependence of Themes**

The PLSS Layer has geometry data that should be coincident with other framework data, for example, data in the PLSS should be coincident with many Idaho boundary datasets (counties, legislative boundaries, roads, parcels, water right PODs and POUs, etc.).

Attributes found in the PLSS Data Layer are related to the attributes found in some legal descriptions in the statewide Parcel Layer, but not all Parcel Layer records rely on PLSS data.

2.5.5. **Encoding**

When data is imported into and exported from the PLSS Data Layer Framework, encoding will take place to convert data formats and attributes.

2.5.6. **Resolution**

No specific requirements for resolution are specified in this standard. Resolution will be documented in the metadata.

2.5.7. **Accuracy**

Per the United States Geological Survey, “PLSS was created to divide parcels of public land; it is not useful for the accurate location of points and should not be confused with coordinate systems like latitude/longitude, UTM, or the State Plane Coordinate System”. Every effort will be made to ensure the most accurate representation of the PLSS grid and polygons, but there is no definite accuracy standard required.

2.5.8. **Edge Matching**

Section boundaries need to be edge-matched with aliquot parts or government lots. Township boundaries need to be edge-matched with section boundaries. Aliquot parts and government lots need to be edge-matched to each other. Sections need to be edge-matched with other sections and townships need to be edge-matched with other townships.

2.5.9. **Unique Identifier**

The field for Unique Identifier is different for each part of the PLSS Layer as follows:
Townships – PLSSID field
Sections – FIRSTDIVID field
Secondary Division – SECDIVID field
Special Surveys – SURVID field

2.5.10. **Attributes**

Attributes for public and intergovernmental distribution are described in Section 3 of this standard.

2.5.11. **Stewardship**

Perpetual maintenance and other aspects of lifecycle management are essential to PLSS Data Layer Framework. Details of stewards, their roles and responsibilities, and processes are set forth, or are being planned to set forth in a PLSS Data Layer Framework Stewardship Plan and related documents.

2.5.12. **Records Management and Archiving**

The source data for the PLSS is provided by the Bureau of Land Management, and state specific edits for accuracy are performed by the State of Idaho Data and Spatial Services team. These PLSS updates are done in part using the Multi State Control Point Dataset hosted by Idaho State University. The dataset will be hosted on ArcGIS Online by the State of Idaho.

2.5.13. **Metadata**

The PLSS Data Layer Framework metadata will describe the methods used to update and aggregate the individual PLSS Data Layer data contributions, processes or crosswalks performed, definition of attributes, and other required information. This metadata will conform to the metadata standards as set out in ITA Standard S4220 - Geospatial Metadata.

3. **Data Characteristics**

3.1. **Minimum Graphic Data Elements**

The geometry of the features in PLSS Data Layer Framework is vector polygon

3.2. **Optional Graphic Data Elements**

Not applicable.

3.3. **Standard Attribute Schema**

The PLSS dataset consists of 5 different layers:

1. Townships
2. Sections
3. Secondary Divisions
4. Special Surveys
5. Meanders

3.3.1. Townships

Field Name	Data Type	Length	Description	Examples
OBJECTID	OID		Object ID	1
PLSSID	String	16	Township Label	ID080010N0250E0
STATEABBR	String	2	State Abbreviation	ID
PRINMERCD	String	2	Principal Meridian Code	08

PRINMER	String	40	Principal Meridian Text	Boise Meridian
TWNSHPNO	String	3	Township Number	01
TWNSHPFRAC	String	1	Township Fraction	0
TWNSHPDIR	String	1	Township Direction	N
RANGENO	String	3	Range Number	25
RANGEFRAC	String	1	Range Fraction	0
RANGEDIR	String	1	Range Direction	E
TWNSHPDPCD	String	1	Township Duplicate	0
TWNSHPLAB	String	20	Township Label	01N 25E
SOURCEDATE	Date	8	Source Date (short)	01/01/2024
SOURCEREF	String	100	Source Doc Link or Reference	Source

3.3.2. Sections

Field Name	Data Type	Length	Description	Examples
OBJECTID	OID		Object ID	1
FRSTDIVID	String	22	First Division ID	ID080040N0030W0SN010
PRINMERIDIAN	String	08	Prime Meridian	08
TOWNSHIP	String	10	Township	04N
RANGE	String	10	Range	03W
SECTION	String	4	Township Range Section	01
SECTIONLAB	String	12	Township Range Section	04N 03W 01
FRSTDIVTXT	String	50	Section Type	Section
LAST_UPDATED	Date		Record Last Edited Date	7/1/2024

3.3.3. Secondary Divisions

Field Name	Data Type	Length	Description	Examples
OBJECTID	OID		Object ID	1
SECDIVID	String	26	Second Division ID	ID080040N0020E0SN300L6
PRINMERIDIAN	String	2	Prime Meridian	08
TOWNSHIP	String	10	Township	04N
RANGE	String	10	Range	02E
SECTION	String	4	Township Range Section	30
RNGPARTIAL	String	5	Range Partial	2W
QSEC	String	4	Quarter Section	NW
QQSEC	String	4	Quarter Quarter Section	NE
SECDIVLAB	String	50	Second Division Label	L6 or NENW

SECDIVTYP	String	2	Secondary Division Type Code	A , L, or T
SURVEYNUMBER	String	5	ID Number of all surveys of type	05
LEGALACRES	Double		Legal Acres	40.2
GISACRES	Double		Calculated	38.7
LAST_UPDATED	Date		Record Last Edited Date	7/1/2024

3.3.4. Special Surveys

Field Name	Data Type	Length	Description	Examples
OBJECTID	OID		Object ID	1
SURVID	String	26	Special Survey ID	ID080460N0040W0SN180N11
SURVTYP	String	2	Survey Type	N
SURVTYPTXT	String	50	Survey Type Text	Townsite Survey
SURVDIVNO	String	50	Survey Number	11
SURVLAB	String	50	Survey Label	N 11
RECRDACRES	String	20	Record Area Text	2671
GISACRES	Double		Record Area Number	2501.5
LAST_UPDATED	Date		Record Last Edited Date	7/1/2024

3.3.5. Meanders

Field Name	Data Type	Length	Description	Examples
OBJECTID	OID		Object ID	1
SURVTYP	String	1		W
SURVTYPTXT	String	20	Survey Type Text	Meander

3.4. **Data Quality**

Data quality considerations for PLSS Data Layers include:

a) All PLSS Data Layers should have PLSS Data Layer IDs.

Appendix A: References

Idaho Technology Authority (ITA). *Information and Data Policy P5000, Category: P5030 Framework Standards Development Policy.* https://ita.idaho.gov/psg/P5030.pdf

Idaho Technology Authority (ITA). *Enterprise Standards S4000 Geographic Information Systems (GIS) Data, Category: S4220 Geospatial Metadata.* https://ita.idaho.gov/psg/S4220.pdf

Appendix B: Glossary

See ITA Guideline G105 - (ITA Glossary of Terms) for definitions.