Idaho Technology Authority (ITA)

INFORMATION AND DATA POLICY – P5000

Category: P5030 – Framework Standards Development Policy

CONTENTS:

I. AUTHORITY

Authority: Idaho Code § 67-833

Idaho statute states, in part, "the Idaho Technology Authority shall:

> Within the context of its strategic plans, establish statewide information technology and telecommunications policies, standards, guidelines, conventions and comprehensive risk assessment criteria that will assure uniformity and compatibility of such systems within state agencies;"

II. ABSTRACT

This policy sets forth the process for development standards for Framework and a template for those standards developed under this policy. This policy builds on ITA Policy P1070, "Geographic Information Systems," section IV(2).

III. DEFINITIONS

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

~~1. Spatial Data Infrastructure – The technology, policies, standards, human resources, and related activities necessary to acquire, process, distribute, use, maintain, and preserve spatial data.~~

~~2. Framework – Statewide base map datasets identified and described in the Strategic and Business Plans for Development and Deployment of Idaho's Spatial Data Infrastructure (http://gis.idaho.gov/IGO/stratplan.htm) and depicted in the Framework Diagram (http://gis.idaho.gov/Framework.htm).~~

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IV. POLICY

1. Introduction

Idaho must develop and share commonly needed spatial information about geographic features in our state. This base map information is called Framework. A national program encourages the development of Framework by each state, along with the ability to maintain and share it. Together, this capability is referred to as a spatial data infrastructure (SDI). Idaho has developed strategic and business plans for its SDI, and one of the initiatives is to establish a policy for developing Framework standards. This policy provides a process and a template for Framework standards. This process and the resulting standards will make the development, sharing and use of Framework more efficient and less expensive.

Framework in Idaho will be a consistent, *standardized* set of digital spatial data that:

- provides a general mapping platform to which additional attribute information can be attached,
- provides a stable mapping platform on which business processes can depend,
- provides a base map on which an organization can accurately register and compile other themes of data, such as zoning, delivery routes, business types, noxious weeds, and
- links the results of an application to the landscape.

Benefits from the development of Framework include reduced expenditures for data, increased ease of obtaining and using data collected by others, accelerated development of critical applications, more customers for data products linked to Framework, and improved decision-making. Expected benefits are detailed in the GIS Strategic Plan posted at https://gis.idaho.gov.

This policy is intended to direct the creation of standards for Framework that closely parallels Framework development in the rest of the country. The national effort is guided by the National Geospatial Program Office, which includes the Federal Geographic Data Committee, The National Map and ~~Geospatial One-Stop~~ data.gov at https://www.data.gov/geospatial/ working together to deliver the National Spatial Data Infrastructure.

2. Framework Standards Goals

Framework standards increase interoperability among automated geographic information systems. A major objective of these standards is the development of a statewide digital spatial information resource (Idaho's SDI) with the involvement of all data users, including but not limited to, utilities, academia, private sector, federal, state, tribal, regional, and local governments. Idaho's Framework, integrated by policies and standards, will enable sharing and efficient transfer of Framework between producers and users. Enhanced coordination will build information partnerships among government institutions and the public and private sectors, avoiding wasteful duplication of effort and ensuring effective and economical management of information resources in meeting essential user requirements.

3. Standards Development and Approval Process

To begin, each Framework Technical Working Group will conduct research to determine if a national standard or other state standard exists that will serve as a model for Idaho. Drafting and reviewing are iterative. A key element is the presentation of each proposed standard to the GIS community at a semiannual Idaho Geospatial Council Meeting~~Forum~~.

The standards process will be inclusive, and the standards will be driven by the needs of the business purposes they support. When the GIS community has developed a standard using the process, and after it is established by the Idaho Technology Authority (ITA), it will be mandated for state agencies and academic institutions and strongly recommended for adoption and use by other levels of government and the private sector.

The Idaho Geospatial Committee (IGC) is mandated by a Governor's Executive Order 2006-05 to develop geographic information guidelines and standards to be approved by the ITA. This mandate is reiterated in ITA Enterprise Policy P1070 "Geographic Information Systems" and echoed in ITA Enterprise Guideline G420 "Roles of GIS Participants." The following standards development and approval process has been agreed upon by the IGC:

Formulation and Refinement

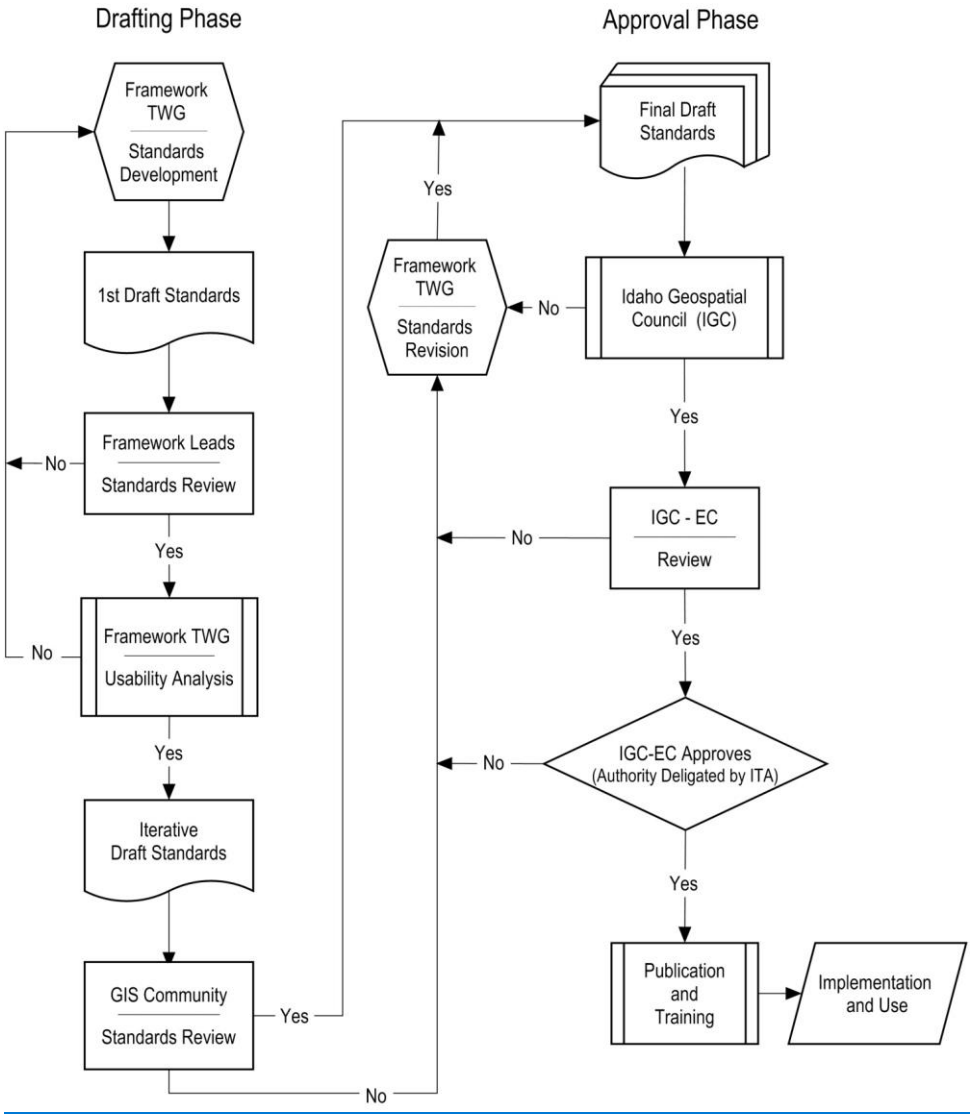
1. The Framework Technical Working Groups (Framework TWGs) will identify standards for each Framework theme.
2. Each Framework TWG will identify existing standard(s) appropriate to its theme, then test the model against the guidelines presented here, and draft a proposed ~~strawman~~ standard. Framework leadership and other interested parties will review proposed draft standards and provide input.
3. Each Framework TWG will revise standards as appropriate, based on input and usability ~~tests~~ analysis by the GIS community. All proposed standards will be submitted to the GIS community for review.
4. The Framework TWGs will revise standards as appropriate based on these reviews, and the Framework leadership will move each standard to the approval phase.

Approval

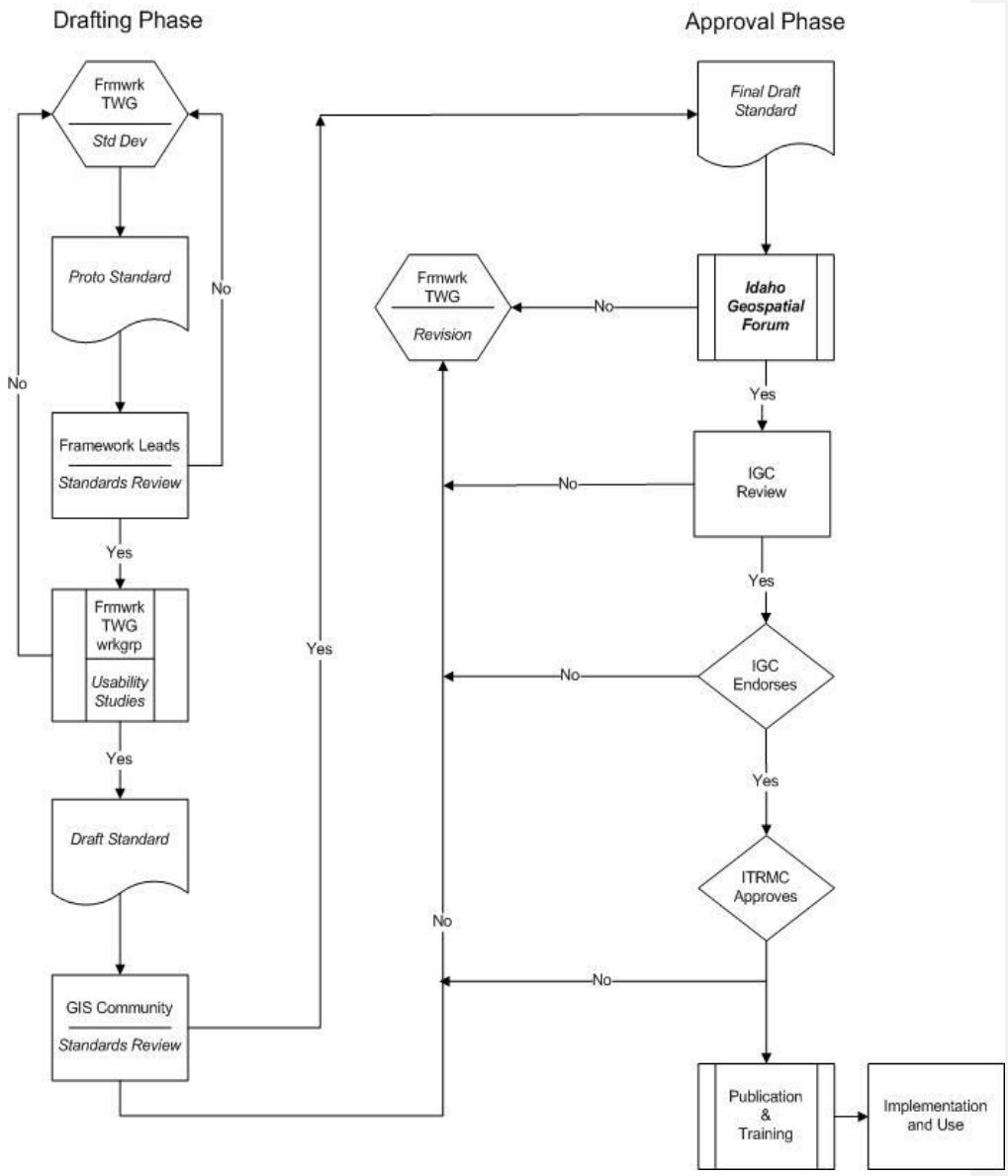
5. Each draft standard will be presented to the ~~GIS community at the~~ Idaho Geospatial Council – Executive Committee (IGC-EC). ~~an Idaho Geospatial Forum.~~ The Framework TWGs will revise standards based on input from the ~~Forum~~ committee, if necessary.
6. If standards are approved at the ~~Forum~~ IGC-EC Meeting, IGC-EC will review and recommend standards to the ITA. If ~~revisions are~~ needed, the appropriate Framework TWG will make revisions and the reviews will be done again.
7. The ITA will be asked to establish the proposed standards and authorize them for state agencies and academic institutions, while sending a recommendation for adoption to the IGC for distribution to the GIS community at large. Any required revisions during the approval phase will be done by the Framework TWGs.

The flowchart below *(Figure 1)* depicts the drafting and approval phases.

PROPOSED - FIGURE 1



~~**FIGURE 1**~~


Drafting Phase
Approval Phase
Frmwrk TWG
Std Dev
Proto Standard
Framework Leads
Standards Review
Frmwrk TWG wrkgrp
Usability Studies
Draft Standard
GIS Community
Standards Review
Final Draft Standard
Idaho Geospatial Forum
Frmwrk TWG
Revision
IGC Review
IGC Endorses
ITRMC Approves
Publication & Training
Implementation and Use
No
Yes

4. Standards Classification

The following table identifies the standards necessary for optimal Framework development. A few have been established; the balance will be developed.

Table of Standards Classification

Data Usability and Transfer Standards

Content Standard for Geospatial Metadata	Documents data sets, describing content, history, accuracy, quality, and other characteristics of data
Projection and Datum Standard	Defines a particular means for representing the three dimensional Earth on a two dimensional map surface
Archival Standard	Defines a particular methodology and protocol for archiving data as updates are made incrementally

Data Content or Exchange Standards

Geodetic Control	Basic reference for all spatial data
Cadastral (property ownership)	Positional reference and land ownership information fundamental to a modern land records system
Governmental Units	Widely used district, service, and government boundaries
Public Safety	Situs addresses, emergency service zones, critical infrastructur
Transportation	Statewide road centerline network and related features, trails, airports, railroads and intermodal transfer facilities
Digital Orthoimagery	Georeferenced images from photography or remote sensing on a recurring schedule
Elevation	Digital elevation model of referenced vertical positions
Hydrography	Surface water network and other surface ~~waster~~water features, watersheds
Geoscience	Geology and soils
Bioscience	Wetlands, wildlife habitat, ecoregions, fish distribution
Land Use / Land Cover	Generalized land cover, local land use, surface management
Hazards	Floods, earthquakes, avalanches, wildfires
Climate	Historic precipitation, snowfall, temperature ranges
Utilities	Major facilitates and transmission lines for natural gas, electricity, fuel, broadband, service areas

5. Standards Development Format and Context

The objectives of this section of the Framework Standards Development Policy are threefold:

- to guide the overall process for creating and adopting Framework standards
- to further the Idaho Spatial Data Infrastructure vision for Framework development
- to provide a template for the development of Framework standards.

The remainder of this document offers specific guidance on the formulation of Framework standards. Each data standard may contain recommended data characteristics that vary from these Guidelines based on the theme expertise within the group tasked with developing a particular standard. Data content standards and data exchange standards are permissible. Appendix A contains evaluation criteria, Appendix B sets forth a standards taxonomy modified from the FGDC Standards Reference Model, Appendix C specifies an outline for standards documents, and Appendix D lists and briefly describes the entities referenced in this policy.

A. Expectations

Statewide standards support the Idaho Framework and the Idaho SDI vision. There are several expectations for Framework standards:

Within SDI Scope – Framework standards will be within the scope of the vision and goals of the Idaho Spatial Data Infrastructure Strategic Plan and the goals and objectives of the IGC. The standards must relate to Framework, cover appropriate topical areas, and standardize either data or processes to advance data sharing and minimize duplication of effort.

Future Focused – Future focused means that data standards are intended to remove impedances to sharing information rather than changing existing successful data sharing arrangements. Framework standards should be developed to promote new and enhanced interaction with existing coordinating mechanisms, such as IGC, that have interest in the generation, collection, use, and transfer of spatial data.

Structured – Framework standards need to be developed and presented in a structured manner that will lead to understandability and usability. This guideline provides minimal guidance for development and documentation of standards. There are many structured methodologies that can be employed by standards developers that will lead to complete and understandable standards. This guideline does not specify a development methodology.

Technology Independent – Framework standards will not be developed or implemented in a way that limits the use of new and emerging technologies. To maximize use of the standard, they also will not be written or implemented in a way that limits any vendor or technology.

Integrated – Framework standards will be integrated with one another and with related standards. This means there will not be overlapping definitions, authorities or procedures. Standards development will be coordinated to eliminate duplicate efforts and to maximize the efforts of the volunteers contributing to and implementing standards. Framework standards will lead to an integrated Framework for Idaho.

Evolving – Framework standards will be written to allow for evolution and will accommodate backward compatibility for information gathered under previously known standards. Update and maintenance procedures will be timely and responsive to changes. The procedures will be documented as a part of the standards development process.

Supportable – Framework standards must be supportable by the spatial vendor community. They will be developed in a manner that is supportable by known or emerging technology.

Publicly Available – Framework standards will not be developed from copyrighted or proprietary standards that would limit the ability of the final standard to be publicly available. They will not contain any copyrights or other limitations on their use or reproduction. Framework standards will be available digitally and via the Internet.

Complete and Consistent – Framework standards will be complete in terms of the standards components and methodology described in this guideline. They will have a consistent form and format.

B. Framework Standards Format

The following guidelines with regard to format will apply to all data standards developed and promulgated through the activities of the Idaho Framework Team (IFT) and the Idaho Geospatial Committee or its successor:

- Framework standards will have a title page that includes the title of the standard, the responsible Framework TWG or other subcommittee, and contact information including postal and e-mail addresses.
- Framework standards will have a table of contents. Pages will be numbered and dated.
- Framework standards will contain an introduction that describes the following:
    - Mission and Goals of Standard
    - Relationship to Existing Standards
    - Description of Standard
    - Applicability and Intended Uses of Standard
    - Standard Development Procedures
        - ⇨ Participants
        - ⇨ Comments and Reviews
    - Maintenance of the Standard
- The body of the standard will follow the introduction.
    - The body of the standard will address all topics in the technical/operational subsection of this guideline.
    - If specific topics are not applicable to an individual data theme, describe why that topic does not apply.
    - Individual standards may necessitate additional technical/operational topics not articulated in this guideline.
    - The data characteristics of any individual standard may vary from those indicated in the data characteristics subsection of this guideline.
    - Every standard should contain a minimum set of graphic and attribute data elements.
    - Each standard may include an optional set of graphic and attribute data elements.

- References will be listed in a separate section.
- The Idaho Framework Team will receive digital copies of the standard from the working group in Microsoft Word format. Digital versions shall be made available at the webpage maintained by the Idaho Geospatial Office in PDF format at http://gis.idaho.gov.

Standards will also address the following topics:

- Content

  Identify what is being standardized and the scope of the standard.

- Need

  Identify why this standard is being proposed, describing as much as possible the benefits of developing the standard and the consequences of not developing the standard.

- Participation

  Identify participating agencies or organizations and methods that were used to assure a collaborative development process.

- Integration

  Describe the relationship of this standards proposal to ongoing data standards efforts and existing data standards. If there are relationships with other existing standards, identify both the standard and the relationship.

C. Framework Standards Technical and Operational Context

The following discussion establishes the context within which Framework standards for Idaho will be developed. Each of the issues below plays an important role in the direction of standards development and will be addressed as appropriate within the content of individual standards. At a minimum, each standard should be checked against all of the following issues to ensure that each issue has been addressed.

Data Environment
Access to a published version of data sets (current and past versions) by information networks and digital media should be supported. Users will be able to find Framework data through Idaho's spatial data clearinghouse, INSIDE Idaho, where all Framework metadata will be accessible. It may be appropriate for some data sets to be stored and maintained in a distributed environment. In that case, appropriate arrangements must be made to provide real-time data access.

Reference Systems
Use of a common means of referencing coordinate positions on the Earth is essential to allow data from various sources and different geographic locations to be integrated. In addition, to be used as the locational framework for other thematic data, the reference system must be well established, clearly specified, and consistent with national and world use. Framework will be available in Idaho's standard reference system, IDTM. Idaho Framework should support the use of a single consistent datum for referencing horizontal coordinate information and a single consistent datum for referencing vertical coordinate information. In addition, support should be given to efforts toward converting existing data to the most current realization of horizontal and vertical datum where such conversion is feasible and of value. As of this writing, the most current realization for horizontal

coordinates is the North American Datum of 1983 (NSRS 2007); for vertical coordinates it is the North American Vertical Datum of 1988.

Interdependence of Themes
Framework themes are often interdependent, and all Framework themes should spatially register vertically and be able to be used together without additional processing. Making sure interdependencies are identified and adequately treated in the standard will greatly assist vertical integration and ultimate use.

Encoding
Framework should be encoded using vector or raster data models as appropriate to theme and feature content. Raster data models are appropriate for image data; vector data models for geodetic control, transportation, hydrography, governmental units, parcels, soils, geology, etc. Vector-based spatial objects must conform to topological rules.

Resolution
To meet the different needs of users, Framework in Idaho should support data at varying resolutions. Multiple resolutions of the same data theme (for example, land use data at different levels of generalization and having positional accuracies of 50, 10, and 1 meter) may exist for any given location. Where practical, and where suitable higher resolution data exist, the lower resolution data may be generalized from the higher resolution data. The data should be generalized according to a standardized set of rules for each theme. Alternate rule sets may be needed for a broad range of generalization.

Accuracy
Accuracy considerations are critical for data interoperability. The accuracy of any particular dataset should be appropriate for the applications for which it is used. The accuracy, at whatever level, must be documented in the metadata according to the Geospatial Metadata Standard.

Edge Matching
As a general principle, metric seamlessness is highly desirable. However, the accuracy of metric positions of data to be integrated from various sources should not be compromised to achieve metric seamlessness. For example, if a road crosses the boundary of two (otherwise equivalent) data sets from two different sources, the positions of the road at the common edge should be metrically joined only if it can be achieved within the positional accuracy of the dataset and according to the stewardship plan and standard operating procedures.

If it is not possible to achieve metric seamlessness within the positional accuracy of the datasets, the disjoint lines that represent the location of the road should instead be associated through a common attribute feature, resulting in "logical seamlessness." The coding schemas necessary for such logical seamlessness should follow the schemas currently under development at the national level. Data producers should be encouraged to work with those in adjoining jurisdictions to align their data, such as agreement points for road networks.

Unique Identifier
To allow maintenance of users' existing data investments, to minimize the effort required to integrate data from various sources, and to link data represented at different resolutions, a consistent method of identifying units of data is needed. To achieve these advantages, Idaho

Framework will employ a model of geographic reality that utilizes the concept of a 'feature,' which is a geographic entity (for example, a road) at or near the Earth's surface. Each occurrence of a feature will be assigned a unique, permanent feature identifier. A feature will be linked to spatial objects (such as points, lines, and polygons) to identify its location.

The unique feature identifier:

- provides users a "key" through which they can associate geographic data from various sources to their own attribute data
- serves as a tracking mechanism for performing transactional updates
- provides a link among representations of a feature at different resolutions and across different areal extents.

Once assigned, the permanent code will change only in extraordinary circumstances and following a standardized, documented process.

Attributes

When a feature is captured in digital form, it may be further described by a set of attributes and relationships. Attributes define the feature's characteristics; examples include name and function. Relationships may be defined to express interactions that occur between features, such as flow in a river system or connectivity in a transportation network.

Stewardship

Keeping Framework managed throughout its lifecycle is an essential component to Framework. Include a summary of the stewardship approach. Reference a stewardship plan or include an estimated timeline for plan completion.

Records Management and Archiving

Past versions of Framework datasets will be retained and made accessible so that information is available for historical or process studies. Provide an approach for versioning or time-stamping past versions and specify the entity responsible for storage and access. Details will be provided in the stewardship plan.

Metadata

Metadata detailing the characteristics and quality of Framework must be provided with each dataset. Metadata will conform to the Geospatial Metadata Standard, which follows the Federal Metadata Content Standard, version 2. A user will be able to access metadata for all Framework datasets easily and reliably.

D. Framework Standards Maintenance

As standards are endorsed and implemented, they become living documents needing periodic review by the community of data sources and consumers. Each aspect must remain fully relevant, workable and serving the intended purpose. Depending on the nature or number of changes identified, two approaches are available.

Minor Amendments

What is a minor amendment? Here are some examples:

1. Clerical changes providing clarity, correction, or consistency.
2. One or two details of process or data model designed to improve existing product or result.
3. Changes in organization, paragraph headings, terminology or legal or bibliographic reference.

The process for a minor amendment is set forth below:

1. Discuss issues and proposed changes with the appropriate FTWG group.
2. Incorporate recommended changes into existing standard, indexing the version number (minor update would index the number after the dot, e.g., v1.3 to v1.4), with a notation in the revision history. Preserve changes or describe them with sufficient specificity.
3. The revised standard will then be published on IGO's standards Web page. IGO and the relevant FTWG will announce the publication by posting messages to all the relevant listservs for a period of at least 30 days. During this period, comments and suggestions will be collected by the contact listed on the standard, usually the FTWG Chair. If none are submitted, the standard will be posted without further process.
4. If comments or suggestions are received, they will be brought to the relevant FTWG for consideration and possible incorporation. Any changes trigger another publication and comment period. Repeat as necessary until consensus is reached. At this time, the updated standard will be posted without further process.

Major Amendments

A substantive update encompasses all updates that cannot be categorized as minor. Examples include changing exchange formats, making significant changes to a data model, adding to the list of minimum attributes or changing optional items to required items.

When making substantive changes to a standard, follow the process set forth below:

1. Discuss issues and proposed changes with the appropriate FTWG. Make an effort to include additional participants from under-represented groups. This step will result in recommended changes.
2. Incorporate changes into existing standard, indexing the version number (major update would index the number before the dot, e.g., v1.3 to v2.0), with a notation in the revision history. Preserve changes for ease of review.
3. Publish the revised standard on the GIS community standards Web page (http://gis.idaho.gov).
4. IGO and the appropriate FTWG will announce the publication by posting messages to all the relevant listservs for a period of at least 45 days. During this period, comments and suggestions will be collected by the contact listed on the standard, usually the FTWG chair.
5. Any comments or suggestions will be brought to the relevant FTWG for consideration and possible incorporation. If further changes are made, this triggers another publication and comment period. Repeat as necessary.
6. When consensus is reached, the updated standard will be presented to the GIS community for consensus approval. Thereafter, it will be placed on the IGC agenda for approval and recommended adoption at the next ITA meeting.

Revision History

The practices below will assist the preservation of revision history and clarify the implementation details.

Pre-approval Revision History

When developing a standard for the first time, track revisions to the draft on the title page. Begin with version 0.1. Preface the revision history items with "Pre-approval Revision History" on the title page. Whenever practicable, the list of revisions will coincide with the version number of the draft standard document (0.2, 0.3, etc.). Use the pre-approval revision history to describe the development of the standard in the appropriate paragraph of the document (usually section 1.5).

Post-approval Revision History

After ITA approves a standard for the first time, the version becomes 1.0. A statement reflecting that fact replaces the pre-approval revision history on the title page: "Established by the Idaho Technology Authority on [date]."

Subsequent amendments (minor or major) will index the version number as set forth in the Framework Standards Maintenance section above. Capture the revision history for major updates on the title page. Revision history for minor amendments may be captured on the title page but should be identified as such. Add additional date(s) of establishment to the title page when appropriate. Describe the process for major amendments in the standard development paragraph to keep it current.

It may be necessary to sweep or consolidate revision history as histories lengthen. Alternatively, revision history may be preserved in an appendix to the standard.

V. EXEMPTION PROCESS

There is no exemption process. Other governments and stakeholder groups are strongly encouraged to adhere to this policy.

VI. PROCEDURE REFRENCE

Standards for GIS are contained in the ITA Enterprise Standards section 4000 – GIS Data. ITA Guideline G420 outlines the roles of the various participants involved in statewide GIS activities.

VII. CONTACT INFORMATION

For more information, contact the Geospatial Information Officer at (208) 605-4052.

REVISION HISTORY

09/19/19 – Updated Section IV. Policy, Item 3 'Standards Development and Approval Process' with current terminology and the related flow chart named Figure 1.
Updated Appendix D; removed obsolete groups (Idaho Framework Team and Framework Leadership Team).
Updated Group Names and Descriptions; NGP, IGC, and IGC-EC.

05/16/19 – Removed individual definitions and replaced with reference to ITA Guideline G105 (ITA Glossary of Terms)

07/01/18 – Updated Idaho statute references; changed “OCIO” to “ITS”.

07/22/14 – Updated Section I. Authority to be consistent with Idaho statute.

The effective date is September 1, 2009.

Appendix A – Framework Technical Working Groups (TWG) Evaluation Criteria

The appropriate Framework TWG will test draft standards against the Step 2 of the standards formulation and refinement process, prior to release of the standards to the GIS community for the first time. The following describes the review criteria to be used at this stage.

Within Framework TWG Scope

The standard topic is included in the Idaho Framework Standards Development Policy.

The type of standard proposed is a data usability standard or a content/exchange standard.

The proposed standard advances data sharing or minimizes duplication.

The proposed standard has a statewide scope.

Future Focused

The proposed standard removes an impedance to data sharing.

The proposed standard promotes new or enhances existing coordination.

The standard does not re-formalize an existing standard or procedure.

Structured

The proposed standard is easily understandable and useable.

The proposed standard follows the format in this policy.

The proposed standard contains all necessary documentation.

Technology Independent

The proposed standard is independent of a specific technology solution.

The proposed standard does not limit any appropriate vendor from access.

Integrated

The proposed standard does not already exist.

The standards development process does not duplicate a similar effort.

The proposed standard does not overlap with an existing standard.

The proposed standard coordinates with related standards.

Evolving

The proposed standard specifies review and update of the standard.

Supportable

The proposed standard can be implemented with known technology.

There is a constituency for the proposed standard.

The financial impact is minimal or acceptable to the stakeholders.

Publicly Available

The proposed standard is not developed from proprietary information.

The proposed standard does not carry any copyright or licensing limitation on use.

The proposed standard provides for making the standard available electronically.

Complete and Consistent

The proposed standard has all the necessary components.

The proposed standard is achievable, although it may take multiple iterations.

The proposed standard is in a consistent and readable format and presentation.

Appendix B – Standards Taxonomy

[NOTE: There are many different types of standards. To assist the GIS community in better understanding standards issues and to provide some context within which the work of the Idaho Framework Implementation Team can be placed, the following information was modified from the Federal Geographic Data Committee's Standards Reference Model document.]

The taxonomy of standards is derived from the principles of information engineering as modified by the FGDC Standards Working Group's Technical Advisory Group. Information engineering is a design and standards development technique developed by IBM in the late 1970's and early 1980's. It is often applied to systems development and has been used for standards development and maintenance. An information engineering approach was selected because it provides minimal guidance on structure, yet allows for standards to achieve coordination and interoperability status. This approach does not dictate step-by-step processes.

One way that information engineering provides a structured approach to standards development is by providing a method to describe different standards types. It also provides a means to describe the relationships among various standards of the same type. For example, two data standards can be related to one another, eliminating duplicate definitions and domains of values. In this manner it is well adapted to the diversity of the National Spatial Data Infrastructure and the FGDC.

The four basic categories of information engineering standards are:

- data
- processes
- organizations
- technology

One data standard may contain several categories of standards.

Data Standards

Data are the most widely recognized and documented component of standards and information technology. Data modeling describes how the bits of information are defined and structured so they can be applied in a meaningful way. Most data standards will be of this type.

Data standards describe objects, features or items that are collected, automated, or affected by activities or functions of agencies. Data are organized and managed by institutions. Data standards are semantic definitions that are structured in a model.

Data Classification - Data classification standards provide groups or categories of data that serve an application. Data classification standards are the attributes common to elements of a group. Examples are wetland and soil classifications. See process standards for standards on how to apply a data classification standard.

Data Content - Data content standards provide semantic definitions of a set of objects. Data content standards may be organized and presented in a data model such as an entity-relationship model or an IDEF1X model.

Data Symbology or Presentation - Data symbology or presentation standards define graphic symbols. They standardize the language for describing those symbols. See process standards for methods for applying symbols and the rules for displaying them.

Data Transfer - Data transfer standards are independent of technology and applications and facilitate moving data among systems, without prior specification of the intended end use of the data. The Spatial Data Transfer Standard (SDTS) is an example of a data transfer standard, which is endorsed by FGDC. SDTS is FIPSPUB 173. Profiles or domains of values for SDTS will be defined by FGDC Subcommittees and working groups. Transfer standards that are specific to a technology, such as the FTP (File Transfer Protocol) on the Internet, are outside the scope of the FGDC.

Data Usability - Data usability standards describe how to express the applicability or essence of a data set or data element and include data quality, assessment, accuracy, and reporting or documentation standards. The FGDC Content Standard for Geospatial Metadata is an example of a data usability standard.

Process Standards

Processes or functions describe tasks and how information and technology are used to accomplish organizational goals. They describe how to do something, procedures to follow, methodologies to apply, procedures to present information, or business process rules to follow to implement other standards. A smaller portion of data standards will be process standards.

The intents of data-related process standards are:

- to establish a threshold for minimally acceptable data,
- to determine the best data for an application, or
- to promote interoperability and broad-based use of data.

General Data Transfer Procedures - General data transfer procedure standards are the activities required to convert data to a general data format, such as SDTS, for general access.

Specific Data Transfer Procedures - Specific data transfer procedure standards are the activities or requirements to fulfill a specific data request for a known activity in a known data structure.

Existing Data Access Procedures - Existing data access procedure standards are the procedures required to gain access to an existing data set in a known data format, such as the methods and procedures required to access an existing data posting on the World Wide Web or a bulletin board.

Classification Methodology - Classification methodology standards are the procedures to follow to implement a data classification standard. They describe how data are analyzed to produce a classification. The processes that are followed to achieve data precision are examples of classification methodologies.

Data Collection - Data collection procedure standards are the methods and processes for the collection of new or conversion of existing data.

Storage Procedures - Storage procedure standards address the mechanisms and schedules for archiving or backing up data. If appropriate, the storage procedures also address the storage media.

Presentation Standards - Presentation standards are the methods for displaying or formatting information from a data set or data standard.

Data Analyzing Procedures - Analytical procedures include the methods for computing, comparing, contrasting, assembling, or evaluating a data set for an application or specified product.

Data Integration - Data integration procedures are the methods for combining various data sets into a unified, geographically harmonious data set. Data generalization standards are a data integration process standard.

Quality Control and Quality Assurance - Quality control and quality assurance processes are respectively the methods followed to achieve a specified quality and the methods to check the quality of an existing data set. Precision for measurements or other activities are included in these standards.

Organizational Standards

The organizational component of information engineering consists of the rules for assigning responsibilities and authorities for the people who perform tasks and use technology. These include things like who does which tasks, what data they need, and what attendant skills are required.

Organizational or institutional standards are the specifications for communication among communities. These are the human and institutional interactions necessary to carry out data, activity, and technology standards. Ways to organize, communicate, identify responsible parties, and coordinate roles are examples of organizational standards.

Technology Standards

Technology includes things like software, hardware, and system protocols. In system design, the technology may be specifically described in terms of known application solutions such as computer-aided mass appraisal, topologic processing, or coordinate geometry computations.

Technology standards relate to the tools, environment, and interfaces among systems and are often called information technology specifications. They are the tools to produce, manipulate, manage, organize, disseminate, or otherwise implement activity or data standards.

Appendix C – Standards Outline

The following outline will be followed by all Framework Technical Working Groups in developing Framework-related standards.

Title Page
Introduction
- Mission and Goals of Standard
- Relationship to Existing Standards
- Description of Standard
- Applicability and Intended Use of Standard
- Standard Development Procedures
  - Participants
  - Comment Opportunities and Reviews
- Maintenance of the Standard

Body of the Standard
- Scope and Content of the Standard
- Need for the Standard
- Participation in Standards Development
- Integration with Other Standards
- Technical and Operational Context (elements included as appropriate)
  - Data Environment
  - Reference Systems
  - Global Positioning Systems
  - Interdependence of Themes
  - Encoding
  - Resolution
  - Accuracy
  - Edge Matching
  - Unique Identifier
  - Attributes
  - Stewardship
  - Records Management and Archiving
  - Metadata
  - Other Topics (optional)
- Data Characteristics
  - Minimum Graphic Data Elements
  - Minimum Attribute or Non-Graphic Data Elements
  - Optional Graphic Data Elements
  - Optional Attribute or Non-Graphic Data Elements

References
Appendices

Appendix D – Coordinating Groups Referenced and Defined

Federal Geographic Data Committee (FGDC)

The Federal Geographic Data Committee coordinates the development of the National Spatial Data Infrastructure (NSDI). The NSDI encompasses policies, standards, and procedures for organizations to cooperatively produce and share geographic data. The 17 federal agencies that make up the FGDC are developing the NSDI in cooperation with organizations from state, local and tribal governments, the academic community, and the private sector. www.fgdc.gov

National Geospatial Program ~~Office~~ (NGP~~O~~)

~~This~~ The National Geospatial Program of the USGS office provides leadership for geospatial coordination, production and services~~.~~ (https://www.usgs.gov/core-science-systems/national-geospatial-program). The NGP provides a foundation of digital geospatial data representing the topography, natural landscape, and manmade environment of the United States. NGP data and derived products and services can be accessed through The National Map Data Download. Components of NGP ~~Partners~~ include The National Map (nationalmap.gov), Geospatial One-Stop (geodata.gov), FGDC Secretariat, and The National Atlas working together to deliver the NSDI. http://www.usgs.gov/ngpo/

~~**Idaho Framework Team (IFT)**~~

~~Idaho's Framework Team is the collection of Framework TWGs (see below) comprised of representatives of federal, state, local, and tribal authorities, academia, and the private sector to develop, maintain and provide access to Framework in accordance with applicable Idaho and national standards. The team is a voluntary, open, flexible and adaptive collaboration for shared capital planning, building, using and financing spatial data.~~

~~**Framework Leadership Team (FLT)**~~

~~Leaders of each Framework TWG and workgroup collectively act as a Framework management body to support and facilitate the day-to-day realization of Framework in Idaho. They are responsible for guiding and implementing standards and stewardship, and for addressing vertical data issues between and among Framework themes.~~

Framework Technical Working Group (~~F~~TWG)

A technical working group established to focus on a particular Framework theme. Each ~~F~~TWG is a subcommittee of the IGC-EC and is tasked with developing a data standard and a plan for their Framework theme prior to developing the dataset itself and providing for its stewardship. Day-to-day management is provided by the Idaho Geospatial Office.

Idaho Geospatial Office (IGO)

The organizational home of the Geospatial Information Officer, within the Office of IT Services (ITS), Executive Office of the Governor, in Idaho state government. The GIO is responsible for coordinating geospatial activities for state agencies and provides leadership and continuity to statewide initiatives.

Idaho Technology Authority (ITA)

~~The Idaho Legislature's~~Created by statute (I.C. § 67-830 through 67-833), the Idaho Technology Authority (ITA) is the policy and planning body responsible for coordinating an approach to the design, procurement and implementation of information technology and telecommunications systems for both state government and the public. The ITA membership is broad-based and includes members of the legislature. More specifically, ITA is empowered to:

- Establish Strategic Plans, Policies, Standards, and Guidelines
- Review and approve large-scale projects
- Review state agency compliance with statewide plans
- Recommend cost-efficient procedures for state agency acquisition and procurement
- Encourage and promote cooperative efforts, public private partnerships and education and training opportunities.

Idaho Geospatial Council ~~Committee~~ (IGC)

The Idaho Geospatial Council ~~Committee~~ develops policies, standards and guidelines for spatial data and provides coordination and leadership for the management and use of geographic information and geographic information systems (GIS) technology. It is a committee of the ITA. The IGC is comprised of members from all major stakeholder groups and includes the Geospatial Information Officer and the US Geological Survey's liaison for Idaho. USGS acts as the "operating arm" of the NSDI.

~~In the near future IGC will be succeeded by the Idaho Geospatial Council.~~

Idaho Geospatial Council – Executive Committee (IGC-EC)

The Idaho Geospatial Council – Executive Committee provides policy-level direction and promotes efficient and effective use of resources for matters related to geographic information. The Executive Committee members consists of four standing members and twelve elected seats. The standing members include Idaho's current Geospatial Information Officer (GIO) and representatives from INSIDE Geospatial Clearinghouse, USGS, and ISU's GIS Training and Research Center. The elected seats include representatives from both government agencies and private industry – including: State, Federal, and Local Government, Tribal, Utility, Private Sector, two additional seats that are open to any agency or industry.

Idaho GIS Community

The Idaho GIS community includes everyone who works with GIS software, uses geographic information, or manages or coordinates a program or project that uses GIS software or geographic information.

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