

# **NITC 3-201**

## **Geospatial Metadata Standard**

---

**Review Version 2.0  
(Date 9.3.2014)**

Category: Data and Information Architecture

Applicability: See Each Section of Standards

History: Adopted on June 23, 2005, URL links updated on June 27, 2013



---

**NEBRASKA INFORMATION TECHNOLOGY COMMISSION GIS COUNCIL**

## TABLE OF CONTENTS

---

<b>1.0 Standard .....</b>	<b>1</b>
1.1 Steps/Timeline for Implementation .....	1
<b><u>1.2 Maintenance.....</u></b>	<b><u>1</u></b>
<b>2.0 Purpose and Objectives .....</b>	<b>1</b>
2.1 Background .....	<u>14</u>
2.2 Objectives .....	<u>22</u>
<b>4.0 Applicability .....</b>	<b><u>43</u></b>
4.1 State Government Agencies .....	<u>43</u>
4.2 State Funded Entities .....	<u>43</u>
4.3 Other.....	<u>43</u>
<b>5.0 Responsibility .....</b>	<b><u>54</u></b>
5.1 NITC.....	<u>54</u>
5.2 State Agencies.....	<u>54</u>
5.3 Granting Agencies and Entities .....	<u>54</u>
5.4 Other.....	<u>54</u>
<b>6.0 Authority .....</b>	<b><u>54</u></b>
6.1 NITC GIS Council.....	<u>54</u>
<b>7.0 Related Documents .....</b>	<b><u>55</u></b>

## **1.0 Standard**

All state agencies and entities that receive state funding used, directly or indirectly, for geospatial data development or maintenance shall ensure that geospatial data it collects, produces, maintains, or purchases and which is used for policy development, implementation, or compliance review is documented with metadata compliant with the latest version of the [ISO 19115:2003 group of metadata standards for geographic information](#). [Metadata created for datasets using Federal Geographic Data Committee \(FGDC\) Content Standards for Digital Geospatial Metadata](#) [or other standards will need to be translated, updated, or recreated using the ISO 19115 standards.](#)

### **1.1 Steps/Timeline for Implementation**

- a. State agencies and other applicable state funded entities shall institute procedures for complying with standard for new geospatial data development or acquisition upon adoption of standard by NITC.
- b. State agencies shall complete initial listing of existing, applicable geospatial data holdings within three months of the adoption of standard by NITC.
- c. State agencies shall complete meta[data](#)-lite documentation of existing, applicable geospatial data holdings within six months of the adoption of standard by NITC. [More information about metadata-lite is identified in section 3.0 Definitions.](#)
- d. State agencies shall complete [FGDC ISO 19115](#)-compliant metadata documentation of existing and applicable geospatial data holdings within 12 months of the adoption of standard by NITC.

### **1.2 Maintenance**

[The reporting of maintained metadata is important to assure correct documentation and support for intended uses of the data. Entities responsible for creating geospatial data will need to assure metadata is updated and maintained on an ongoing basis and in a timely manner. When modifications to the spatial or attribute data is completed the metadata information will also need to be updated. If necessary, these changes will need to be provided to the appropriate entity\(s\) responsible for performing quality control and maintenance of the metadata.](#)

#### **1.2.1 Reporting Errors and Handling Updates**

[The reporting of errors need to be directed to the primary contact identified in the metadata in a timely manner. Updated spatial and attribute information in the data will also need to be redistributed. The date field in the metadata when the last record was modified will also need to be updated to ensure proper records management and communication with others in the workflow.](#)

## **2.0 Purpose and Objectives**

The purposes of this standard is to preserve the public's investment in geospatial data, to save public resources by avoiding unnecessary duplication of expensive geospatial data acquisition, to minimize errors through inappropriate application of geospatial data, and to facilitate harmonious trans-agency public policy decision-making and implementation through the use of shared geospatial data.

### **2.1 Background**

Broadly defined, geospatial data is any data that includes locational or positional information about features in the dataset. Geospatial data provides the data foundation for applications of Geographic Information System (GIS) technology.

The development and maintenance of geospatial data is usually the most expensive component in the implementation of GIS technology. In most cases, this high initial investment is justifiable because of the powerful capabilities of the technology and the fact that, if appropriately maintained, the data will be useful for a very long period, and in many cases, for a wide range of applications.

Most geospatial datasets include numerous attributes and parameters that relate to data variables, methodologies and assumptions. Knowledge and understanding of the implications of these variables is a key to the appropriate utilization of that data. Without appropriate documentation, this specialized knowledge usually resides only in the memory of the GIS specialist(s) who developed the original data. Because of the power of the GIS technology, geospatial analysis is increasingly being used to develop and implement a wide range of public policy. In many cases, these public policy applications endure long past the availability of the GIS-specialist(s) who developed one or more of the original geospatial datasets upon which the public policy and its subsequent implementation are based. Without appropriate documentation of attributes and parameters of a geospatial dataset assumptions and variables, it may be difficult for an agency to determine the appropriate use of a dataset after the GIS specialist who originally created the data is no longer available. Without this documentation, it may also be difficult to appropriately maintain the dataset and therefore maintain the value of the original public investment in the data. In the case of a legal challenge to a public policy or its implementation, for which geospatial data application is integral, it may be difficult to defend that application if the original data developer is no longer available and the dataset was not appropriately documented.

Due to the relatively high costs of developing and maintaining many geospatial datasets, it is important that public investments in this data are undertaken in a manner to maximize the long-term return on these public investments. Appropriately documenting a dataset is one way to ensure a dataset's long-term usability. It is also a key to enabling the use of that dataset for multiple applications by multiple users. Without documentation, it is difficult for other users within the same agency, in other state agencies, or other public entities at various levels of government to be confident they are appropriately utilizing a geospatial dataset.

One of the great strengths of GIS technology is the ability to integrate and analyze disparate data based on its common or adjacent location. GIS has evolved to be a mainstream technology, used for a very wide range of applications, highly integrated with other information technology, and employed by users with a wide range of technical expertise and knowledge. As GIS has evolved, users now routinely access geospatial data, via the Internet, from multiple sources and integrate that data with other geospatial data and make public policy decisions based on analysis of the interaction of those datasets. Only when a geospatial dataset is adequately documented is it prudent to incorporate that data into a GIS analysis.

To address this wide range of concerns and needs for geospatial data documentation, the Federal Geographic Data Committee (FGDC) has worked with a wide spectrum of geospatial data users to develop a national standard for documenting geospatial data. ~~This standard is The FGDC has endorsed and are transitioning users from the known as the Content Standard for Digital Geospatial Metadata (CSDGM) to the ISO Metadata Standards. This standard has gone through a couple revisions and will be reviewed and updated as necessary.~~

## 2.2 Objectives

This standard requiring the documentation of geospatial data with standardized metadata has the following objectives:

- 2.2.1 Preserve public investment in data collection/development beyond the tenure or availability of the original data developer.
- 2.2.2 Preserve the background geospatial information used to justify and make public policy decisions and preserve the information needed to guide appropriate implementation of those decisions beyond the tenure of a particular data developer.
- 2.2.3 Save public resources by facilitating the sharing of expensive geospatial data among public agencies or sub-divisions of agencies and avoid the costly duplication of developing similar geospatial datasets.
- 2.2.4 Minimize problems and potential liability ~~the that~~ might be caused by the inappropriate use of undocumented geospatial data.
- 2.2.5 Facilitate harmonious, trans-agency public policy decision-making and implementation by enabling multiple agencies and levels of government to access and appropriately use common geospatial datasets and thereby make it more likely that intersecting public policy decisions, across levels of government, will be based on the same information.

### 3.0 Definitions

Content Standard for Digital Geospatial Metadata - A comprehensive national metadata standard developed and adopted by the Federal Geographic Data Committee (FGDC) under the authority of Executive Order 12906, "Coordinating Geographic Data Acquisition and Access: The National Spatial Data Infrastructure," which was signed on April 11, 1994, by President William Clinton. Section 3, Development of a National Geospatial Data Clearinghouse, paragraph (b) states: "Standardized Documentation of Data, ... each agency shall document all new geospatial data it collects or produces, either directly or indirectly, using the standard under development by the FGDC, and make that standardized documentation electronically accessible to the Clearinghouse network." This standard is the data documentation standard referenced in the executive order. Since its initial development, this metadata content standard has undergone revision as deemed necessary by the FGDC, and will like undergo further revisions in the future.

Geospatial Data - A term used to describe a class of data that has a geographic or spatial nature. The data will usually include locational information (latitude/longitude or other mapping coordinates) for at least some of the features within the database/dataset.

ISO 19115:2003 – International Standards Organization (ISO) defines the schema required for describing geographic information and services. It provides information about the identification, the extent, the quality, the spatial and temporal schema, spatial reference, and distribution of digital geographic data. It is applicable to: the cataloguing of datasets, clearinghouse activities, and the full description of datasets; and geographic datasets, dataset series, and individual geographic features and feature properties. It defines: mandatory and conditional metadata sections, metadata entities, and metadata elements; the minimum set of metadata required to serve the full range of metadata applications (data discovery, determining data fitness for use, data access, data transfer, and use of digital data); optional metadata elements - to allow for a more extensive standard description of geographic data, if required; and a method for extending metadata to fit specialized needs. It is applicable to digital data, its principles can be extended to many other forms of geographic data such as maps, charts, and textual documents as well as non-geographic data.

Metadata - Data describing a GIS database or data set including, but not limited to, a description of a data transfer mediums, format, and contents, source lineage data, and any other applicable data processing algorithms or procedures.

Metadata-lite - A subset of the full FGDC-compliant metadata (data title, data subject matter, map projection, geographic extent, data owner and access information, etc.) used primarily for the purposes of cataloging and enabling the use of automated search tools to find and access available geospatial data. Does not fully document the dataset's variables, assumptions or development process that is commonly needed to guide appropriate use. ~~An online metadata-lite development tool is available through the Nebraska Department of Natural Resources website.~~

~~Content Standard for Digital Geospatial Metadata~~ - A comprehensive national metadata standard developed and adopted by the Federal Geographic Data Committee (FGDC) under the authority of Executive Order 12906, "Coordinating Geographic Data Acquisition and Access: The National Spatial Data Infrastructure," which was signed on April 11, 1994, by President William Clinton. Section 3, Development of a National Geospatial Data Clearinghouse, paragraph (b) states: "Standardized Documentation of Data, ... each agency shall document all new geospatial data it collects or produces, either directly or indirectly, using the standard under development by the FGDC, and make that standardized documentation electronically accessible to the Clearinghouse network." This standard is the data documentation standard referenced in the executive order. Since its initial development, this metadata content standard has undergone revision as deemed necessary by the FGDC, and will likely undergo further revisions in the future.

## 4.0 Applicability

### 4.1 State Government Agencies

~~All State agencies are required to comply with this standard. State agencies that have the primary responsibility for geospatial data development, maintenance, or purchasing data which is used for policy development, implementation, or compliance review for a particular jurisdiction(s) or geographic area (e.g. for counties for which it has assumed the primary role) are required to comply with the standards as described in this standard. Those state agencies with oversight responsibilities in this area are required to ensure that their oversight guidelines, rules, and regulations are consistent with these standards.~~

### 4.2 State Funded Entities

Entities that are not State agencies but receive State funding, directly or indirectly, for geospatial data development (i.e. Legislative appropriations, Enhanced Wireless 911 Fund, Infrastructure Fund, etc.) are required to comply with this standard.

### 4.3 ~~Exemption Other~~

~~Other entities, such as city and local government agencies that receive state funds for geospatial data development, maintenance, or purchasing geospatial data which is used for policy development, implementation, or compliance review are required to comply with this standard.~~

~~Exemptions may be granted by the NITC Technical Panel upon request by an agency.~~

#### ~~4.3.1 Exemption Process~~

~~Any agency may request an exemption from this standard by submitting a "Request for Exemption" to the NITC Technical Panel. Requests should state the reason for the exemption. Reasons for an exemption include, but are not limited to: statutory exclusion; federal government requirements; or financial hardship. Requests may be submitted to the Office of the NITC via e-mail or letter (Office of the NITC, 521 S 14th Street, Suite 301, Lincoln, NE 68508). The NITC Technical Panel will consider, in consultation with representatives of the Nebraska GIS Steering Committee, the request and grant or deny the exemption. A denial of an exemption by the NITC Technical Panel may be appealed to the NITC.~~

## **5.0 Responsibility**

### **5.1 NITC**

The NITC shall be responsible for adopting minimum technical standards, guidelines, and architectures upon recommendation by the technical panel. Neb. Rev. Stat. § 86-516(6)

### **5.2 State Agencies**

Each state agency will be responsible for ensuring that geospatial data developed, maintained, or purchased and which is used for policy development, implementation, or compliance review ~~with will be documented consistent with this standard. The State of Nebraska, Office of the CIO (OCIO) GIS Shared Services will be responsible for assuring that metadata is completed and the data is registered and available for distribution through NebraskaMAP.~~

### **5.3 Granting Agencies and Entities**

State granting or fund disbursement entities or agencies will be responsible for ensuring geospatial metadata documentation requirements are included in requirements and regulations related to fund disbursements.

### **5.4 Other**

~~Local government agencies that have the primary responsibility and authority for developing geospatial datasets with state appropriated funds will be responsible for ensuring that those subsections defined in Section 1 will be incorporated in the overall data development efforts and publishing of metadata prior to distribution.~~

## **6.0 Authority**

### **6.1 NITC GIS Council**

~~According to Neb. Rev. Stat. § 86-572(2), the GIS Council shall: Establish guidelines and policies for statewide Geographic Information Systems operations and management (a) The acquisition, development, maintenance, quality assurance such as standards, access, ownership, cost recovery, and priorities of data bases; (b) The compatibility, acquisition, and communications of hardware and software; (c) The assessment of needs, identification of scope, setting of standards, and determination of an appropriate enforcement mechanism; (d) The fostering of training programs and promoting education and information about the Geographic Information Systems; and (e) The promoting of the Geographic Information Systems development in the State of Nebraska and providing or coordinating additional support to address Geographic Information Systems issues as such issues arise.~~

## **67.0 Related Documents**

- 7.1 Federal Geographic Data Committee (FGDC) Content Standards for Digital Geospatial Metadata (FGDC-STD-001-1998). [http://www.fgdc.gov/standards/projects/FGDC-standards-projects/metadata/base-metadata/index\\_html](http://www.fgdc.gov/standards/projects/FGDC-standards-projects/metadata/base-metadata/index_html)
- 7.2 Federal Geographic Data Committee (FGDC) Geospatial ISO Metadata Standards Transition. <http://www.fgdc.gov/metadata/geospatial-metadata-standards>
- 7.3 ISO 19115:2003(E) North American Profile (NAP) Metadata Standards. National Oceanic and Atmospheric Administration (NOAA). January 2012.
- 7.4 International Standards Organization (ISO). ISO 19115:2003. <http://www.iso.org>
- 7.5 Technical Support Guides at NebraskaMAP.gov. Guides to translate existing metadata to the new standard, required core elements, and workbook for ISO standards.