

FGDC Standards White Paper

Contents

A brief history of FGDC standardization activities	1
FGDC standards highlights	2
Metadata.....	2
Geographic information Framework Data Standards.....	2
FGDC-endorsed standards	2
Engagement with other standard bodies	3
Works Cited.....	3

A brief history of FGDC standardization activities

Executive Order 12906¹ (Clinton, 1994) established executive branch leadership through the Federal Geographic Data Committee (FGDC) for development of the National Spatial Data Infrastructure and called for development of the National Geospatial Data Clearinghouse, spatial data standards, a National Digital Geospatial Data Framework and partnerships for data acquisition. Office of Management and Budget (OMB) Circular A-16 (Office of Management and Budget, 2002) incorporated Executive Order 12906.

The FGDC Standards Working Group was established in the 1990s. The former FGDC standards program manager (Richard Hogan) developed the FGDC standards review and approval process. The FGDC standards review and approval process is based on ISO and ANSI standards processes. It is rigorous, iterative, and well-documented through the FGDC Standards Reference Model (Federal Geographic Data Committee, 1996) and FGDC standards directives (Federal Geographic Data Committee, 2010). FGDC standards follow a 5-stage, 12-step development, review, and endorsement process to ensure that they are created in an open and consensus-driven manner, with the widest possible community participation, and integrated with existing standards.

¹ Executive Order 12906 was amended by Executive Order 13286, <https://www.gpo.gov/fdsys/pkg/FR-2003-03-05/pdf/03-5343.pdf>, in connection with the transfer of certain functions to the Secretary of Homeland Security.

FGDC standards highlights

Metadata

From Executive Order 12906 (Clinton, 1994) :

Beginning 9 months from the date of this order, 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.

The FGDC endorsed and published the Content Standard for Digital Geospatial Metadata (CSDGM) Version 1 in 1994, and subsequently revised the CSDGM (FGDC Metadata Ad Hoc Working Group, 1998) . The CSDGM provided significant input into development of ISO geospatial metadata standards.

The CSDGM might be considered as the FGDC's flagship standard, as it was called out in Executive Order 12906. It is the only FGDC-endorsed standard that the FGDC Office of the Secretariat (OS) maintains, and the OS has a dedicated metadata coordinator.

Geographic information Framework Data Standards

One of the activities of the Geospatial One-Stop initiative (circa 2002) was to develop standards for seven framework data themes that are considered critical for many geospatial applications: Cadastre; Elevation; Geodetic Control; Governmental Units, and Administrative and Statistical Boundaries; Imagery; Hydrology²; and Transportation. Development of framework data standards was later spun off from the Geospatial One-Stop initiative.

The FGDC endorsed the Framework Data Standard and its constituent parts in 2008. As the Federal government provided most of the funds, the former FGDC Coordination Group co-chair (Randy Fusaro) proposed that the FGDC endorse the standards so that they could be made freely available, with no copyright restrictions.

FGDC-endorsed standards

The FGDC has endorsed 20 standards that were developed under its auspices - not counting constituent parts of particular standards such as the Geographic Information Framework Data Standard (Federal Geographic Data Committee, 2015).

OMB Circular A-119 (Office of Management and Budget, Executive Office of the President, 2016) directs Federal agencies to use voluntary consensus standards in lieu of government-unique standards in their procurement and regulatory activities, except where inconsistent with law or otherwise impractical.³ The FGDC Policy on Recognition of Non-Federally Authored Geographic Information Standards and Specifications (Federal Geographic Data Committee, 2005) established a mechanism for FGDC

² Hydrology is now covered by the National Geospatial Data Asset (NGDA) data themes Water – Inland and Water – Oceans and Coasts (Federal Geographic Data Committee, 2015).

³ A voluntary consensus standards body plans, develops, establishes, or coordinates voluntary consensus standards through a standards development process characterized by openness; balance of interest; due process; an appeals process, and consensus, which OMB Circular A-119 defines as general agreement, but not necessarily unanimity.

recognition of “non-Federally authored standards or specifications that are relevant to the missions and spatial data responsibilities of Federal agencies as set forth in Office of Management and Budget (OMB) Circular A-16.”

To that end, the FGDC Steering Committee endorsed 63 standards developed outside the FGDC (Federal Geographic Data Committee, 2015). These standards play an important role in enabling interoperability. Included are standards from the Open Geospatial Consortium; ISO Technical Committee 211, Geographic information/Geomatics; and the InterNational Committee for Information Technology Standards (INCITS) Technical Committee L1, Geographic information systems and *de facto* standards.

Engagement with other standard bodies

OMB Circular A-119 also directs Federal agencies to participate in voluntary consensus standards bodies. The global voluntary consensus standards bodies for geospatial standardization bodies are ISO Technical Committee 211, Geographic information/Geomatics (www.isotc211.org) and the Open Geospatial Consortium (www.opengeospatial.org).

The former standards program manager (Hogan) was instrumental in forming what is now INCITS Technical Committee L1, Geographic Information Systems, <https://standards.incits.org/a/public/group/l1>, which serves as U.S. Technical Advisory Group to ISO Technical Committee 211.

The FGDC and its member agencies have played leadership roles in INCITS Technical Committee L1, ISO Technical Committee 211 and the Open Geospatial Consortium: for example, the current FGDC standards coordinator has served as Vice-Chair (for which she received the INCITS Merit Award), INCITS Technical Committee L1, and International Representative.

In 2014, the FGDC Standards Coordinator began engagement with other organizations with interests in geospatial standardization through the FGDC Standards Working Group. These organizations are NASA EOSDIS Standards Office (ESO), NIST, National Information Exchange Model (NIEM) Project Management Office, National Emergency Number Association (NENA), Natural Resources Canada, GEO Standards & Interoperability Forum, and Infrastructure for Spatial Information in Europe (INSPIRE). The FGDC also serves as the representative of the civilian community on the Geospatial-Intelligence Standards Working Group.

Works Cited

Clinton, W. J. (1994, April 11). *Executive Order 12906 Coordinating Geographic Data Acquisition and Access: The National Spatial Data Infrastructure*. Retrieved June 3, 2016, from National Archives and Records Administration: <http://www.archives.gov/federal-register/executive-orders/pdf/12906.pdf>

Federal Geographic Data Committee. (1996, March). *FGDC Standards Reference Model*. Retrieved June 3, 2016, from FGDC Geographic Data Committee: <http://www.fgdc.gov/standards/process/FGDC-standards-reference-model>

- Federal Geographic Data Committee. (2005, November). *FGDC Policy on Recognition of Non-Federally Authored Geographic Information Standards and Specifications*. Retrieved June 3, 2016, from Federal Geographic Data Committee:
https://www.fgdc.gov/standards/standards/standards_publications/Non-FGDC_StandardsSpecs_Policy.pdf
- Federal Geographic Data Committee. (2010, May 5). *FGDC Standards Process - Federal Geographic Data Committee*. Retrieved June 3, 2016, from Federal Geographic Data Committee:
<http://www.fgdc.gov/standards/process>
- Federal Geographic Data Committee. (2015, September 8). *FGDC Endorsed External Standards - Federal Geographic Data Committee*. Retrieved June 3, 2016, from Federal Geographic Data Committee:
http://www.fgdc.gov/standards/fgdc-endorsed-external-standards/index_html
- Federal Geographic Data Committee. (2015, February 12). *FGDC-endorsed standards - Federal Geographic Data Committee*. Retrieved June 3 2016, from Federal Geographic Data Committee:
<http://www.fgdc.gov/standards/projects/FGDC-standards-projects/fgdc-endorsed-standards>
- Federal Geographic Data Committee. (2015, June 29). *National Geospatial Data Asset (NGDA) Data Themes list with theme descriptions and theme leads agencies*. Retrieved June 3, 2016, from Federal Geographic Data Committee: <http://www.fgdc.gov/initiatives/resources/2013-2-1-ngda-data-themes-fgdc-sc-revised-Framework.pdf/>
- FGDC Metadata Ad Hoc Working Group. (1998). *Content Standard for Digital Geospatial Metadata, FGDC-STD-001-1998*. Retrieved June 3, 2016, from Federal Geographic Data Committee:
http://www.fgdc.gov/standards/projects/FGDC-standards-projects/metadata/base-metadata/v2_0698.pdf
- Office of Management and Budget. (2002, August 19). *Circular No. A-16 Revised*. Retrieved June 3 2016, from The White House: http://www.whitehouse.gov/omb/circulars_a016_rev
- Office of Management and Budget, Executive Office of the President. (2016, January 22). *OMB Circular A-119: Federal Participation in the Development and Use of Voluntary Consensus Standards and in Conformity Assessment Activities*. Retrieved June 1, 2016, from The White House:
https://www.whitehouse.gov/sites/default/files/omb/inforeg/revised_circular_a-119_as_of_1_22.pdf