

Process for Adjusting OMB Circular A-16 (Appendix E): NSDI Geospatial Data Theme Principles

Reference Document: A-16 Supplemental Guidance **NSDI Geospatial Data Theme Principles** are maintained on the FGDC Website under “Supplemental Guidance Reference Materials.” These reference materials are considered part of the guidance but may be updated as a result of Work Group efforts, FGDC Coordination Group and should be revised and approved by either the FGDC Coordination Group or the FGDC Steering Committee.

Purpose of the NSDI Geospatial Data Theme Principles

The purpose of this Appendix is to create a method for identifying geospatial themes that fall under the purview of OMB Circular A-16. Appendix E of OMB Circular A-16 contains a list of A-16 Themes (i.e. National Geospatial Data Asset Themes or NGDA Themes). Using a portfolio management approach the list presented in OMB Circular A-16 Appendix E will be subject to revision based on annual recommendations from the Steering Committee and acceptance by OMB. OMB Circular A-16 authorizes the FGDC to adjust the existing list of NGDA Themes in Appendix E after notifying the OMB and receiving approval. Accordingly, this section does the following:

- Describes the National Spatial Data Infrastructure (NSDI) geospatial data theme principles, which are to be used collaboratively to identify how a specific topic¹ aligns to NGDA Themes;
- Defines the process for evaluating the topic against the guidelines; and
- Provides a method for the FGDC to exercise its responsibility for adjusting Appendix E of OMB Circular A-16.

The principles outlined in the following subsections are intended for use by the FGDC to establish, modify and maintain the list of NGDA Themes that contribute to the NSDI. The principles articulate the priorities by which the FGDC should continue to seek common solutions for geospatial information

¹ The definition of “topic” can be found in the Lexicon of Geospatial Terminology located on the FGDC web site (www.fgdc.gov)

and services to implement the vision for the NSDI. Thus, any NGDA Theme and associated NGDA Dataset added to OMB Circular A-16 Appendix E is also considered part of the NSDI.

Geospatial Data Theme Principles

This section contains a brief definition and explanation of each NSDI geospatial data theme principle. To the extent possible, the definition of each principle is consistent with or contains language from official Federal Government documents. These documents include Architecture Principles for the U.S. Government (2007), OMB Circular A-16 (revised 2002), OMB Circular A-130 (revised 2000) and Geospatial LoB documents.

Principle 1

Themes are logical groupings of national capital assets serving the needs of citizens, readily discoverable and accessible to anyone.

- Themes ensure the needs of citizens are served through the effective and efficient development, provision, and interoperability of geospatial data and services.
- Themes support the development of the National Spatial Data Infrastructure (NSDI), facilitate the efficient collection, sharing, and dissemination of spatial data with public and private sectors, and help address issues that affect the Nation's physical, economic, and social well-being.

Principle 1 correlates directly with principle 1 of the FEA,² the vision of the Geospatial Line of Business (LoB), and the vision of the NSDI. Under this principle, NGDA Datasets associated with each NGDA Theme enable governments to serve the needs of citizens. This is achieved through theme management that promotes the effective and efficient collection, sharing and disseminations of spatial data. Coordinated collection and use of geospatial data and services allow decision-makers to meet the diverse needs of the nation.

² For more information about the FEA and its principles refer to: <http://www.whitehouse.gov/omb/egov/a-1-fea.html>

Principle 2

Themes are national in scope and are created and managed in response to well-defined spatial data requirements that are common across multiple Federal agencies and other organizations.

- Themes are derived from specified or implied requirements for spatial data and services, as articulated in the agencies' federal enterprise architecture (FEA) reference models, data reference models, or related products.
- Themes are mission driven; spatial data are national capital assets.
For more information about the FEA and its principles refer to: <http://whitehouse.gov/omb/egov/a-1-fea.html>
- Datasets associated with themes are managed as close to the source as practical.

Principle 2 correlates with principle 2 of the FEA, which states that the “Federal architecture is mission-driven.” The FEA supports program mission needs and enables technology. When choosing process and technology solutions, agencies seek to optimize business processes, integrate technologies, and then use performance standards to define automation requirements. The business reference models,³ which are products of the FEA, categorize the functions of the Federal Government. Thus, federal agencies, which create and maintain geospatial data, must align their investments with those broad functional categories.

Principle 3

Themes reflect legislated mandates, clearly defined directives, or core spatial reference datasets.

- Efficient and effective development, provision, and interoperability of geospatial data and services enable core missions of Federal agencies and their partners.
- Themes support foundational or program specific needs that are consistent with the business reference model as well as cross-agency line of business initiatives, E-government initiatives, and other initiatives that span multiple government agencies.

The main purpose of principle 3 is to weigh the need for spatially referenced datasets described under the NSDI, as well as the need for cross-functional spatial data and services. The Federal Government creates vast amounts of geospatial data. Some data form the foundation for geo-referencing other data, while some data are common to any cartographic, navigational, or analytic project, are critical to national defense or law enforcement, or are useful for the proper administration of public policy. This principle conveys that datasets may have overarching national significance because they are legislatively required, or

³ The FEA Business Reference Model is a function-driven framework for describing the business operations of the Federal Government independent of the agencies that perform them (<http://whitehouse.gov/omb/egov/a-3-brm.html>)

are necessary for geo-referencing business data. These priorities must be consistent with the business reference models and the other NSDI geospatial data theme principles.

Principle 4

Themes promote cohesive and collaborative development, maintenance, and evolution of multiple datasets across Federal, state, tribal, and local governments and the private or nonprofit sectors.

- National spatial data themes collectively enable services that are reliable, effective, and efficient.
- Portfolio management of geospatial resources is essential to help eliminate duplication, avoid redundant expenditures, reduce resources spent on unfunded mandates, accelerate the development of E-government to meet the needs and expectations of citizens and agency programmatic mandates, and improve the efficiency and effectiveness of public management.

Principle 4 correlates with the stages of the Geospatial Data Lifecycle (Appendix B) as well as FEA principles 4 and 5. NGDA Themes should promote cohesive and collaborative development, maintenance and evolution of multiple datasets across federal, state, tribal, and local governments and the private sector. NGDA Themes and associated NGDA Datasets are of high value for a single integrated enterprise, which improves the implementation of government-wide strategies and the coordination of the services to citizens.

Principle 5

Themes focus on the spatial representation of natural and manmade assets that are important to the nation, including boundaries (jurisdictional, legal, and analytical).

- Natural and manmade assets are inherently spatial phenomena.
- Geospatial data are a means to describe the physical location, attributes, and relationships of these phenomena to other business or statistical data and to each other.

Principle 5 loosely correlates with principle 7 of the FEA and, more importantly, it is fundamental to ensuring the integrity of geospatial data and services, given their unique structure. Geospatial data are distinctly different from non-geospatial data. Processes and systems used for geospatial data must be integrated correctly with business data and systems to effectively and accurately leverage the additional levels of business intelligence gained by adding the ability to influence decisions through the examination, analysis, and context of spatial characteristics. NGDA Themes and associated NGDA Datasets are integral parts of unified common operating database (COD), (an interoperable national view and background). Under this COD, the physical, natural, and manmade geographic features, as well as

administrative boundaries (which provide a statistical reference) are digitally referenced to each other and to the Earth's surface (i.e., they share the same horizontal and vertical coordinate reference systems). Thus, NGDA Datasets under each NGDA Theme provide positional control and referential context, which users can attach to or use to produce their own spatial datasets for a specific subject of interest.

Application of the NSDI Geospatial Data Theme Principles

In developing the NSDI geospatial data theme principles, members of the Geospatial LoB explored several processes to adjust themes found in OMB Circular A-16. This assessment included evaluating quantitative and qualitative criteria for modifying NGDA Themes and the appropriate communication channels to validate recommendations. The following is a summary of the method agreed upon by the work group:

- Any federal agency wishing to propose a new theme should present a proposal in writing to the chair of the FGDC Coordination Group. Requests to adjust an existing theme should originate from that theme's current lead agency and be presented in writing to the chair of the FGDC Coordination Group. Any non-federal stakeholder wishing to propose a new theme or adjust an existing theme should partner with a Theme Lead or in the event of a new theme a relevant federal agency and present a proposal in writing to the chair of the FGDC Coordination Group. Proposals should explain how the theme or adjustments to an existing theme satisfy principles and objectives of OMB Circular A-16 and its Supplemental Guidance.
- The FGDC Coordination Group reviews the proposal and makes recommendations to the FGDC Steering Committee on requests to add, delete, or modify a theme.
- The FGDC Steering Committee votes to approve or disapprove the recommendation of the FGDC Coordination Group.
- The FGDC Steering Committee should annually submit recommended changes to OMB Circular A-16, Appendix E to the OMB⁴ for concurrence.

⁴ Currently the OMB Office of Electronic Government and Information Technology