
# Department of Energy

# Geospatial Data Management Strategy 2021–2025

## Office of the Deputy CIO, Architecture Engineering Technology and Innovation and Senior Agency Official for Geospatial Information

## Record of Changes

| Version | Date | Author/Owner | Description of Change |
|---|---|---|---|
| V1.0 | October, 2020 | Jennifer Bauer, OCIO/AET&I; Geospatial Information Officer | Initial release |
| V2.0 | October, 2020 | Pam Isom | Add executive summary & comments |
| V3.0 | October, 2020 | Jennifer Bauer | Resolve comments from initial review |
| V4.0 | November,2020 | Jennifer Bauer | Resolve comments from GS-PMO and EAGB |
| V5.0 | January, 2021 | Jennifer Bauer | Incorporate and resolve comments from Gartner; circulate for final reviews and format changes |
| V6.0 | September, 2021 | Jennifer Bauer | Updated figure 1.3 of the appendix section to include NSDI Strategy completion and NSDI crosswalk |

# Contents

## Executive Summary

Evidenced-based policies and knowledge-driven decisions are vital to advance the mission of the Department of Energy (DOE). Geospatial or location-based information are integral to the greater policy development, evaluation, and decision making that underpins DOE's mission. Awareness of environmental conditions, energy resources, or the spatial trends of pandemic outbreaks, for instance, all benefit from carefully curated geospatial data. And in some cases, depending on the circumstances, geospatial insights can save lives. As with any organization, the need for strategic, evolutionary governance, standards and policies that facilitate efficient use and distribution of geospatial data are a necessity, particularly in today's era of data sources, including the internet of things, augmented reality, mobile devices, and many others. Storytelling with maps (web, 3D and 4D models) to communicate with stakeholders is great for conveying the impact of policy and decisions.

The Geospatial Data Act of 2018 (GDA) outlines requirements for federal geospatial data governance structures, encouraging organized use and collaboration within agencies, and promotes broader sharing of geospatial data across departments. This DOE Geospatial Data Management Strategy ensures effective execution of the DOE mission and concurrently satisfies the requirements of the GDA and the National Spatial Data Infrastructure (NSDI). The introduction highlights the purpose of geospatial data and their significance and relevance to DOE. The background section follows with insights on leading data management practices, including best practices to support the interconnectivity of geospatial with artificial intelligence (geoAI) as well as other emerging business models and cultures.

The DOE Geospatial Data Management Strategy rests on four overarching goals, which together aim to build credible, trusted geospatial data in support of the DOE mission:

1. Expand and mature DOE geospatial data sources to ensure they are robust, secure, easily accessible, and support a wide range of needs to meet DOE's mission.
2. Promote data sharing to facilitate data discovery, accessibility, use, integrity, and integration.
3. Govern and manage geospatial data strategically to ensure accountability, effective development, security, quality, and management of DOE geospatial data resources.
4. Expand DOE geospatial leadership, workforce development opportunities, and collaborative geospatial partnerships to meet DOE as well as national needs and priorities.

Central to this strategy is reducing barriers to innovation by making geospatial assets and services available, implementing creative change, and managing risks. To do so, we consider strategies for educating the DOE workforce to better understand geospatial analytics and continued use of core capabilities, such as the cross-cutting geospatial science program management office (GS-PMO) and Innovation Community Center (ICC), that will all help address the GDA covered agency responsibilities.

## Introduction

Across the world, the influence of data in people's lives has been growing. The increasingly critical role of data in human society has spurred efforts to recognize data as an asset, largely due to its ability to inform governmental, societal, and economic decisions, unlock new insights, and transform the way we operate and live. Geospatial data helps provide context, and as a result, this location-based information and related services support many of today's essential capabilities, such as navigational assistance, weather forecasting, emergency notifications and response, resource management, environmental monitoring, asset management, and much more.

Geospatial data is integral to the Department of Energy's mission; driving on-going efforts to reduce the threat of nuclear proliferation, overseeing the nation's energy supply, and spurring scientific and technology innovations to ensure America's security and prosperity by addressing its energy, environmental and nuclear challenges. To effectively execute this complex mission, this Department of Energy (DOE) Geospatial Data Management Strategy provides a roadmap for effective, collaborative, and structured use, sharing, production, and management of geospatial data across DOE. This Strategy offers prioritized goals and objectives to guide and inform current and future DOE geospatial data activities across the 107 Departmental Elements, located across the United States. Furthermore, this strategy satisfies requirements cited in the Geospatial Data Act (GDA) of 2018[1], Office of Management and Budget (OMB) Circular A-16[2], Federal Data Strategy[3], and the National Spatial Data Infrastructure (NSDI) Strategic Plan[4].

From GDA Sec. 759 (a)

### Geospatial Data

The Geospatial Data Act (GDA) of 2018 provides a definition of geospatial data (Section 752 (5)): *"(A) means information that is tied to a location on the Earth, including by identifying the geographic location and characteristics of natural or constructed features and boundaries on the Earth, and that is generally represented in vector datasets by points, lines, polygons, or other complex geographic features or phenomena; (B) may be derived from, among other things, remote sensing, mapping, and surveying technologies; (C) includes images and raster datasets, aerial photographs, and other forms of geospatial data or datasets in digitized or non-digitized form; and (D) does not include—*
*(i) geospatial data and activities of an Indian tribe not carried out, in whole or in part, using Federal funds, as determined by the tribal government;*
*(ii) classified national security-related geospatial data and activities of the Department of Defense, unless declassified;*
*(iii) classified national security-related geospatial data and activities of the Department of Energy, unless declassified;*
*(iv) geospatial data and activities under chapter 22 of title 10, United States Code, or section 110 of the National Security Act of 1947 (50 U.S.C. 3045);*
*(v) intelligence geospatial data and activities, as determined by the Director of National Intelligence; or*
*(vi) certain declassified national security-related geospatial data and activities of the intelligence community, as determined by the Secretary of Defense, the Secretary of Energy, or the Director of National Intelligence;"*

[1] https://www.fgdc.gov/gda/geospatial-data-act-of-2018.pdf
[2] https://www.whitehouse.gov/wp-content/uploads/2017/11/Circular-016.pdf
[3] https://strategy.data.gov/
[4] https://www.fgdc.gov/nsdi-plan

## Background

Geospatial data serves as the foundation of numerous projects and activities within the Department by delivering valuable information to decision-makers. At DOE, geospatial data is used to catalyze discovery and provide actionable intelligence to enhance and achieve the Nation's energy-related goals. Leveraging the potential of geospatial data will require DOE personnel at all levels to be held accountable for exercising data stewardship responsibilities in their programs.

Geospatial data management has predominantly occurred at the individual level; as analysts, developers, scientists, and other geospatial data consumers apply project and data management best practices throughout the course of the data lifecycle (Fig. 1). These practices included geospatial data creators defining and ensuring data quality and suitability by cataloguing metadata using established standards where they were available and publishing their data for broader use across DOE and with other stakeholders.


**Figure 1. DOE Data Lifecycle Model**

Boxes represent main model elements, and the shaded circle represents cross-cutting elements around data management and maintenance.

Some DOE Elements, which include offices, laboratories, field sites, and power administrations, have implemented geospatial data management programs that closely follow federal geospatial data management guidelines that deliver, control, protect, and enhance the value of geospatial data assets throughout their lifecycles. The resulting geospatial data infrastructure ensures that geospatial data created by these Elements are maintained and archived to facilitate access and sharing with current and future stakeholders through online platforms, like GeoPlatform[5].

In addition to the physical management of geospatial data, each Element's geospatial programs have been responsible for management of their geospatial data environment, including the people, processes, and technologies. Commonly, this includes efforts to empower personnel to use geospatial tools and the creation of geospatial data and other products that are recognized as strategic assets that yield organizational value. Geospatial technology awareness must be maintained to regularly assess their costs and benefits, whether originating from commercial-off-the-shelf (COTS) products or those developed internally. These individual geospatial data management strategies provide an opportunity to create, manage, and integrate geospatial data across DOE to enhance element missions and comply with federal directives, yielding heightened efficiencies and effectiveness across the Department.

The GS-PMO within the Office of the Chief Information Officer (OCIO) provides over-arching governance structure, strategic direction, mission alignment, and communication for implementing geospatial science and technology within DOE. The GS-PMO encompasses representatives from across the Elements including senior officials who can make decisions on behalf of their program offices. The DOE Geospatial Information Officer (GIO) coordinates the activities of the GS-PMO, including delivery of technical, operational, and administrative support, and coordinating work to meet the Department's geospatial science and technology requirements.

[5] https://www.geoplatform.gov

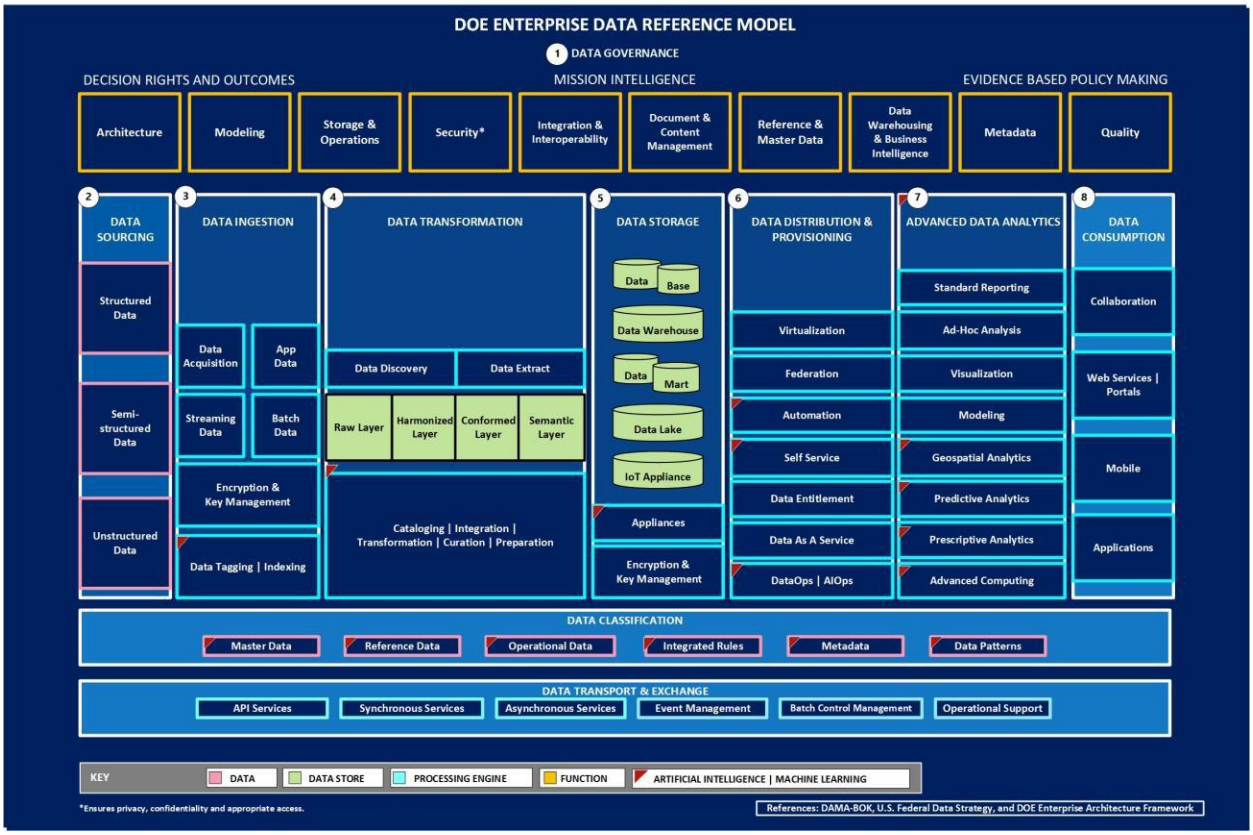


**Figure 2. DOE Enterprise Data Reference Model Architecture**

As part of these duties, the GS-PMO facilitates the federation of DOE's geospatial data through coordinated engagement with DOE's geospatial science community and is authorized to establish geospatial data management policies and procedures in alignment with DOE strategic goals and mission. For example, the GS-PMO has recommended using DOE's Enterprise Data Reference Model (EDRM) (Fig. 2) in project planning as a data architecture framework, ensuring the consideration of geospatial data modeling, system architecture and storage capacity, and business workflows through the geospatial data lifecycle. These activities help ensure geospatial data are managed as strategic assets at DOE and are made visible, accessible, understandable, linked, trusted, and secure (VAULTS) and align to FAIR (findable, accessible, interoperable, reusable) data principles.

Furthermore, the GS-PMO ensures DOE geospatial activities and data comply with federal regulations, including the 13 Covered Agency Responsibilities (CARs) from the GDA (Appendix 1), OMB Circular A-16, Federal Data Strategy, Federal Geographic Data Committee policies, and the NSDI Strategic Plan. In addition, external coordination activities by the GS-PMO entails staying aware of Executive and congressional directives that may impact DOE geospatial programs, coordinating participation with the FGDC (Appendix 2) in support of the NSDI and the maintenance of DOE's geospatial data on GeoPlatform.

## Vision, Mission, and Guiding Principles

### Vision

A collaborative, structured and empowered DOE geospatial community producing, using, and sharing quality, curated geospatial data to ensure advanced, innovative solutions in support of the nation's security, energy-independence, and environmental stewardship.

### Mission

The Geospatial Data Management Strategy will support geospatial activities, including the development and use of geospatial data, providing structure and leadership to ensure coordinated and effective curation, sharing, and innovation for the DOE mission.

### Guiding Principles

- Promote geospatial resource use across DOE to spark innovation, gain insights, and inform decision-making
- Foster an open, inclusive, and collaborative geospatial environment and learning culture across DOE
- Manage DOE geospatial data as strategic assets and ensure they are current, accurate, open, interoperable, of high quality, and shared through conscious design
- Safeguard privacy, confidentiality, and intellectual property of DOE geospatial data through ethical governance, management, transparency, and stewardship

## Geospatial Strategic Goals, Objectives, and Anticipated Outcomes

### Goal 1. Expand and mature DOE geospatial data sources to ensure they are robust, secure, easily accessible, and support a wide range of needs to meet DOE's mission

**Objective 1.1.** Identify, validate, and advance DOE best practices to ensure DOE geospatial data are robust, secure, easily accessible, and can be easily integrated

*Anticipated Outcome:* An open DOE geospatial data infrastructure using best practices and policies to provide robust, secure, accessible, and interoperable data

**Objective 1.2.** Develop a DOE geospatial data lifecycle management framework

*Anticipated Outcome:* A tailored framework for managing the geospatial data lifecycle with enabling policies, procedures, and best practices to aid in secure planning and the acquisition, processing, analysis, preservation, and sharing of geospatial data for authorized internal and external users

**Objective 1.3.** Develop and maintain a comprehensive data inventory that accounts for all geospatial data assets created, collected, controlled, directed, or maintained by DOE

*Anticipated Outcome:* Produce a unified source of DOE geospatial assets, making it easier to search, discover, and access data

**Objective 1.4.** As appropriate, implement an enterprise data architecture solution to ensure geospatial data are robust, secure, and easily accessible across DOE

*Anticipated Outcome:* Optimize collaboration, minimize costs, improve performance, integrity, and use of geospatial data

**Objective 1.5.** Expand the use of cloud and shared services for DOE geospatial data, systems, and data management activities

*Anticipated Outcome:* Identification of enterprise-wide applications for scalable and replicable geospatial data creation and maintenance and establish enterprise integration plans with incremental adoption

### Goal 2. Promote data sharing to facilitate data discovery, accessibility, use, integrity, and integration

**Objective 2.1.** Adopt and use geospatial data and metadata standards to enable the mission and improve usability and shareability of DOE geospatial data, as appropriate

*Anticipated Outcome:* DOE geospatial policies and practices aligned with FGDC geospatial data and metadata standards as well as improved ability of users to discover, qualify, access, and leverage DOE geospatial data assets for advanced analytics

**Objective 2.2.** Establish clear shared services[6] policies and practices to improve discoverability, accessibility and use of shared DOE geospatial data

*Anticipated Outcome:* New and/or revised DOE policies and practices to improve discoverability, accessibility, and use of DOE geospatial data for all authorized users

### Goal 3. Govern and manage geospatial data strategically to ensure accountability, effective development, security, quality, and management of DOE geospatial data resources

**Objective 3.1.** Develop and implement DOE guidance and policies to comply with federal statutes and policies for geospatial data handling and security

*Anticipated Outcomes:* DOE geospatial data complies with federal geospatial data handling statutes and policies, including adherence to record schedules, personal privacy and confidentiality, security, and classification; DOE policies and procedures that are consistent with federal statutes, policies, and best practices to promote a coordinated and integrated approach for building and maintaining a DOE geospatial data infrastructure

**Objective 3.2.** Develop and use metrics to ensure provided geospatial data are of high quality

*Anticipated Outcome:* Production of high-quality DOE geospatial data to improve usability, promote use, and support innovation and commercialization

**Objective 3.3.** Utilize geospatial multiagency acquisition vehicles for interagency and intergovernmental purchases of geospatial data and services as appropriate

*Anticipated Outcome:* Reduced DOE procurement costs for acquiring geospatial data and other geospatial resources

[6] Shared geospatial services refer to the use of web-accessible tools, applications, and platforms that facilitate the discovery, access, integration, analysis, and use of geospatial data

### Goal 4. Expand DOE geospatial leadership, workforce development opportunities, and collaborative geospatial partnerships to meet DOE as well as national needs and priorities

**Objective 4.1.** Promote geospatial innovation

*Anticipated Outcomes:* Outline innovation framework that ensures ease of development and access to innovative geospatial data solutions developed across DOE; identify and pursue opportunities to expand geospatial activities and interactions within DOE and across all government sectors, academia, private sector, and non-governmental organizations

**Objective 4.2.** Review and update reporting and coordination structure to steward DOE's geospatial data assets effectively and collectively

*Anticipated Outcome:* Sufficient authority, organizational structures, and resources in place to support DOE geospatial data management

**Objective 4.3.** Create workforce development and training opportunities

*Anticipated Outcome:* An educated and empowered DOE workforce with increased geospatial data literacy

**Objective 4.4.** Improve communication of DOE geospatial activities with internal and external stakeholders

*Anticipated Outcome:* A communication plan outlining modes of communication to identified audiences utilizing multiple communication pathways, including the ICC, and corresponding action items and execution timelines to ensure improved communication

**Objective 4.5.** Participate in FGDC coordination activities to raise awareness of DOE GS-PMO activities to develop and implement a robust geospatial data infrastructure in support of the NSDI

*Anticipated Outcome:* NSDI practices integrated throughout DOE and DOE influence on the global ecosystem through interoperability, data sharing, and collaboration

## Next Steps

This strategy provides a shared vision to ensure the effective, collaborative, and structured use, sharing, production, and management of geospatial data and information across DOE. The stated goals and objectives will be the foundation for an implementation plan. The implementation plan will offer a timeline for meeting goal objectives, as well as details on the responsible parties, performance metrics, required resources, and reporting requirements.

## Appendix

1. Geospatial Data Act of 2018 (GDA)

   The GDA was signed into law by the President on October 5, 2018. The GDA was included as a component of the FAA Reauthorization Act (H.R. 302, P.L. 115-254). It formalizes governance processes related to geospatial data, provides policy and guidance to empower the use of geospatial data and technology, and facilitates broad cooperation between the public and private sectors. The GDA defines the roles and responsibilities of each covered agency, including 13 covered agency responsibilities.

   1.1. 13 Covered Agency Responsibilities (CARs) as defined in GDA Sec. 759 (a)

| Responsibility | Description |
|---|---|
| **1** | Prepare, maintain, publish, and implement a strategy for advancing geographic information and related geospatial data and activities appropriate to the mission of the covered agency, in support of the strategic plan for the National Spatial Data Infrastructure prepared under section 755(c) |
| **2** | Collect, maintain, disseminate, and preserve geospatial data such that the resulting data, information, or products can be readily shared with other Federal agencies and non-Federal users |
| **3** | Promote the integration of geospatial data from all sources |
| **4** | Ensure that data information products and other records created in geospatial data and activities are included on agency record schedules that have been approved by the National Archives and Records Administration |
| **5** | Allocate resources to fulfill the responsibilities of effective geospatial data collection, production, and stewardship with regard to related activities of the covered agency, and as necessary to support the activities of the Committee |
| **6** | Use the geospatial data standards, including the standards for metadata for geospatial data, and other appropriate standards, including documenting geospatial data with the relevant metadata and making metadata available through the GeoPlatform |
| **7** | Coordinate and work in partnership with other Federal agencies, agencies of State, tribal, and local governments, institutions of higher education, and the private sector to efficiently and cost effectively collect, integrate, maintain, disseminate, and preserve geospatial data, building upon existing non-Federal geospatial data to the extent possible |
| **8** | Use geospatial information to— (A) make Federal geospatial information and services more useful to the public; (B) enhance operations; (C) support decision making; and (D) enhance reporting to the public and to Congress |
| **9** | Protect personal privacy and maintain confidentiality in accordance with Federal policy and law |
| **10** | Participate in determining, when applicable, whether declassified data can contribute to and become a part of the National Spatial Data Infrastructure |
| **11** | Search all sources, including the GeoPlatform, to determine if existing Federal, State, local, or private geospatial data meets the needs of the covered agency before expending funds for geospatial data collection |

| | |
|---|---|
| **12** | To the maximum extent practicable, ensure that a person receiving Federal funds for geospatial data collection provides high-quality data |
| **13** | Appoint a contact to coordinate with the lead covered agencies for collection, acquisition, maintenance, and dissemination of the National Geospatial Data Asset data themes used by the covered agency |

## 1.2. Crosswalk DOE Geospatial Data Management Strategic Goals and Objectives to GDA 13 CARs

| DOE Strategic Goal & Objective | 2018 Geospatial Data Act (GDA) Covered Agency Responsibilities (CARs) | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
| Goal 1 - Obj. 1.1 | S | A | A | | | S | | | S | | S | S | |
| Goal 1 - Obj. 1.2 | S | A | A | S | | S | | | S | S | S | S | |
| Goal 1 - Obj. 1.3 | S | A | S | S | | S | | S | S | | A | | |
| Goal 1 - Obj. 1.4 | S | A | A | | | S | | | S | S | S | | |
| Goal 1 - Obj. 1.5 | S | A | A | | | S | | | S | | S | | |
| Goal 2 - Obj. 2.1 | S | S | S | | | A | S | S | S | | S | | |
| Goal 2 - Obj. 2.2 | S | A | A | | | S | S | S | S | | S | | |
| Goal 3 - Obj. 3.1 | A | A | S | A | | S | S | S | A | A | S | S | |
| Goal 3 - Obj. 3.2 | S | A | S | | | S | S | S | S | S | S | A | |
| Goal 3 - Obj. 3.3 | S | S | S | | | S | S | S | S | | A | | |
| Goal 4 - Obj. 4.1 | A | | | | | | A | A | | | | | |
| Goal 4 - Obj. 4.2 | S | | | | A | | | | | | | | |
| Goal 4 - Obj. 4.3 | S | | | | A | | | | | | | | |
| Goal 4 - Obj. 4.4 | S | | | | | | A | A | | | | | |
| Goal 4 - Obj. 4.5 | S | | | | | | A | | | S | | | A |

A = Aligns with CAR  S = Supports CAR

## 1.3. Crosswalk DOE Geospatial Data Management Strategic Goals and Objectives to NSDI Strategic Plan

| DOE Geospatial Data Management Strategic Goal & Objectives | National Spatial Data Infrastructure (NSDI) Strategic Plan (2021-2024) Goals & Objectives | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1.1 | 1.2 | 1.3 | 1.4 | 2.1 | 2.2 | 2.3 | 2.4 | 3.1 | 3.2 | 3.3 | 3.4 | 4.1 | 4.2 | 4.3 | 4.4 | 4.5 |
| Goal 1 - Obj. 1.1 | ■ | ■ | | | ■ | | ■ | ■ | | | | | | | | | |
| Goal 1 - Obj. 1.2 | ■ | ■ | | | | ■ | | | | | | | | | | | |
| Goal 1 - Obj. 1.3 | ■ | ■ | ■ | | ■ | | ■ | ■ | | | | | | | | | |
| Goal 1 - Obj. 1.4 | ■ | ■ | ■ | | ■ | | ■ | | | | | | | | | | |
| Goal 1 - Obj. 1.5 | ■ | ■ | ■ | | ■ | | ■ | ■ | | | | | | | | | |
| Goal 2 - Obj. 2.1 | ■ | ■ | ■ | | | | | | | | ■ | ■ | | | | | |
| Goal 2 - Obj. 2.2 | ■ | ■ | | | | | | | ■ | ■ | ■ | ■ | | | | | |
| Goal 3 - Obj. 3.1 | ■ | ■ | | | | | | | ■ | | ■ | ■ | | | | | |
| Goal 3 - Obj. 3.2 | ■ | ■ | ■ | | ■ | | | ■ | ■ | ■ | ■ | ■ | | | | | |
| Goal 3 - Obj. 3.3 | ■ | ■ | | | | ■ | | | | | | | | | | | |
| Goal 4 - Obj. 4.1 | ■ | ■ | ■ | ■ | | | | | | | | | | ■ | ■ | | |
| Goal 4 - Obj. 4.2 | ■ | ■ | | ■ | | | | | | | | | ■ | | | | |
| Goal 4 - Obj. 4.3 | ■ | ■ | | ■ | | | | | | | | | | ■ | | | |
| Goal 4 - Obj. 4.4 | ■ | ■ | ■ | ■ | | | | | | | | | | ■ | | ■ | ■ |
| Goal 4 - Obj. 4.5 | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |

■ Corresponds with NSDI Strategic Plan Goals & Objectives

2. Federal Geographic Data Committee (FDGC)

The FGDC was established in 1990 based on OMB Circular A-16, it was codified in the 2018 Geospatial Data Act as the lead entity in the executive branch for the development, implementation, and review of policies, practices, and standards relating to geospatial data. The FGDC is responsible for the development and management of the NSDI strategic plan and geospatial data policy; establishing and maintaining geospatial data standards; and designating and managing National Geospatial Data Asset (NGDA) data themes. The FGDC also communicates and coordinates with federal, state, local, tribal, and international agencies and institutions on geospatial topics including roles and responsibilities and collection, production, sharing, and use of geospatial information. And finally, the FGDC submits summaries and evaluations to Congress and the National Geospatial Advisory Committee (NGAC) on the progress and achievements of covered agencies. Provided below is a more comprehensive breakdown of the FGDC's structure, and further details of committees and memberships.

**FGDC Steering Committee**

The FGDC is governed by a steering committee which is the policy-level interagency group whose central focus is to provide executive leadership for the coordination of federal geospatial activities between, among, and within agencies by establishing policy and providing guidance and direction to the member agencies. The steering committee is responsible for overseeing OMB Circular A-16 related activities and the implementation of the NSDI. The FGDC chair and vice-chair lead this committee which is made up of senior agency officials for geospatial information (SAOGIs) and has representatives from Federal organizations, including the executive office of the president and cabinet-level and independent federal agencies.

**FGDC Executive Committee**

The FGDC executive committee is a subset of the steering committee members and provides advice and guidance to the FGDC chair and the vice chair on major federal geospatial priorities and initiatives. The FGDC chair and vice-chair lead this committee which has representation from OMB and the seven federal agencies with the largest investments in geospatial technologies.

**FGDC Coordination Group**

The FGDC coordination group provides advice on the day-to-day business of the FGDC to facilitate interagency coordination and implementation of the NSDI at the operational level. The coordination group oversees and provides the functional leadership for the FGDC subcommittees and working groups, as well as the geospatial line of business work groups. The coordination group is co-chaired by the executive director of the FGDC Office of the Secretariat (FGDC OS), and an elected member of the federal coordination group members. Non-federal collaborating partners participate in most of the coordination group meetings and work on subcommittees and working groups.

**FGDC Subcommittees & Working Groups**

The FGDC structure includes agency-led working groups and subcommittees.

> ***FGDC Thematic Subcommittees*** - OMB Circular A–16 enumerates 34 data themes of national significance and assigns responsibility for each of the themes to one or more federal agencies. FGDC thematic subcommittees are established for nine of the data themes. Federal agencies have responsibility for, and lead, the thematic subcommittees.

***FGDC Working Groups*** - FGDC working groups crosscut the subcommittees and focus on infrastructure issues common to many of the NSDI data themes, such as standards and common services.

**National Geospatial Advisory Committee (NGAC)**

The NGAC was established under the Federal Advisory Committee Act and is sponsored by the U.S. Department of the Interior. It is an advisory body that provides advice and recommendations on federal geospatial policy and management issues and a forum to convey views representative of partners in the geospatial community. NGAC membership includes representatives from 28 government and nongovernmental organizations. The committee holds public forums to discuss geospatial activities and solicits input from state, tribal, regional, and local governments, academic institutions, and the private sector.

**FGDC Office of the Secretariat (FGDC OS) Staff**

The FGDC OS staff provides support for all components of the FGDC and performs the following tasks:

- Acts as managing partner for the geospatial line of business, E-government initiative
- Designated Federal Official for the FGDC NGAC Federal Advisory Committee Act (FACA) committee
- Provides staff support for the FGDC chair, vice-chair, and their designees
- Initiates, participates, and or leads FGDC committees, subcommittees and working groups
- Draft's policies and procedures for consideration and approval by the coordination group, thesteering committee, and the executive committee
- Provides support to the NGAC
- Provides project management support for FGDC initiatives
- Administers the FGDC standards program
- Administers the NSDI Cooperative Agreements Program
- Administers the FGDC International Spatial Data Infrastructure program
- Manages the NSDI training and outreach program
- Maintains the FGDC website
- Manages all administrative requirements associated with scheduling and conducting meetings
- Undertakes staff analysis, technical development, and other activities on behalf of the coordination group

**Collaborating Partners**

The FGDC solicits the involvement of public interest groups who participate within the committee structure to ensure that their needs are included in the developing NSDI. These collaborating partners include state, tribal, and local governments; academic institutions; and a broad array of private sector geographic, statistical, demographic, and other business information providers and users. The NSDI strives to build upon local data wherever possible.

Collaborating partnerships are open to public, private, and nonprofit organizations whose missions are complementary to the mission of the FGDC. Organizations interested in becoming partners are invited to send a written request to the FGDC Chair.

3. Glossary

| | Definition |
|---|---|
| GeoAI | The use of artificial intelligence methods, including machine learning and deep learning, to produce knowledge through the analysis of spatial data and imagery. GeoAI enables |
| | GIS systems to analyze larger and more complex datasets and imagery to gain insights on a scale and with speed, not previously possible. |
| 3D and 4D GIS Maps | 3D GIS maps present a three-dimensional view of the map's features, often using data from computer models or lidar.<br>4D maps add the element of time, often through a slider bar that adjusts the map feature to represent a point in time. |

Source: Gartner

4. List of Acronyms

| Acronym | Description |
|---|---|
| CARs | Covered Agency Responsibilities |
| COTS | Commercial-off-the-shelf |
| DOE | Department of Energy |
| EDRM | Enterprise Data Reference Model |
| FAA | Federal Aviation Administration |
| FACA | Federal Advisory Committee Act |
| FAIR | Findable, accessible, interoperable, reusable |
| FGDC | Federal Geographic Data Committee |
| FGDC OS | FGDC Office of the Secretariat |
| GDA | Geospatial Data Act of 2018 |
| GIO | Geospatial Information Officer |
| GIS | Geographic information system |
| GS-PMO | Geospatial science program management office |
| ICC | Innovation Community Center |

| | |
|---|---|
| NGAC | National Geospatial Advisory Committee |
| NGDA | National Geospatial Data Asset |
| NSDI | National Spatial Data Infrastructure |
| OCIO | Office of the Chief Information Officer |
| OMB | Office of Management and Budget |
| SAOGI | Senior agency official for geospatial information |
| VAULTS | Visible, accessible, understandable, linked, trusted, and secure |

**EFFECTIVE DATE**

This DOE Data Management Strategy is effective February 26, 2021.

**Pamela K. Isom, Senior Agency Official for Geospatial Information**

**Tania Smith Taylor, Deputy Director Business Operations for Legacy Management**