



**2021 Lead Covered Agency
NGDA Theme Annual Performance Report
and Self-Assessment**
for
Elevation Theme

**Geospatial Data Act of 2018
Section USC 43 Sec 2805(b)(3) Requirements**

February 4, 2022



Table of Contents

Table of Contents	i
Introduction.....	1
Executive Summary.....	2
Official Theme Related Information	3
NGDA Theme Points of Contact	3
NGDA Theme Portfolio Datasets	3
Meeting General Responsibilities – USC 43 Sec 2805(b)(2).....	4
Managing Theme-Related Content on GeoPlatform.....	5
A. Geospatial Data Standards.....	6
Meeting Requirements for Geospatial Data Standards.....	6
FY2020 Report Follow up.....	7
Highlighting FGDC Agency Efforts to Support NGDA Data Standards	8
B. Nationwide Population of the Data Theme.....	11
Meeting Requirements for Nationwide Population of NGDA Datasets.....	11
FY2020 Report Follow up.....	12
Highlighting Key Examples of FGDC Agency Efforts to Support Plans for Nationwide Population of NGDA Datasets	12
C. Establish Goals That Support the NSDI Strategic Plan.....	20
Establishing Common Goals and Priorities Supporting the NSDI and Its Strategic Plan	20
Highlighting FGDC Agency Strategies that Support the NSDI and Geospatial Data	21
D. Addressing User Needs	23
Highlighting FGDC and FGDC Agency Efforts to Meet User Needs	23
FY2020 Report Follow up.....	24
Highlighting FGDC and FGDC Agency Efforts to Meet User Needs	24
Appendix A: Survey Picklists	26
Endnotes.....	28

Introduction

The Geospatial Data Act of 2018 (GDA) was signed into law on October 5, 2018. The GDA was included as a component of the FAA Reauthorization Act (H.R. 302, P.L. 115-254). The GDA is now in [U.S. Code, Title 43 – Public Lands, Chapter 46: GEOSPATIAL DATA](#).

The GDA Section 2805(b)(3)(E)(I) requires performance reports to be submitted to the Federal Geographic Data Committee (FGDC) that document “the activities relating to and implementation of the National Geospatial Data Asset [NGDA] data theme, including progress in achieving the requirements under subparagraphs (A), (B), (C), and (D)” of Section 2805(b)(3).

This 2021 Lead Covered Agency NGDA Theme Annual Performance Report (LCA NGDA Theme Report) covers the period of October 1, 2020 through Fiscal Year (FY) 2021, September 30, 2021 and uses agency self-assessments for this report to the FGDC. Reports will be developed annually and will span one fiscal year period. Lead covered agencies will ensure that one consolidated report per NGDA theme is submitted to FGDC. This report will include a rating for each responsibility of "meets expectations," "made progress toward expectations," or "fails to meet expectations," as required by the GDA. A report template and survey were developed to facilitate consistent self-assessments and consolidated reports. As per the GDA, a summary and evaluation of the progress to achieve the requirements will be generated by FGDC and will be provided to the National Geospatial Advisory Committee (NGAC) for comment. Summary reports with NGAC comments and other required reports and information will be available online via the [FGDC GDA pages](#).¹

The revised Circular A-16 is currently in development for release by the Office of Management and Budget (OMB) and is intended to provide guidance and direction for the FGDC on management of the GDA requirements. Following the release of the updated OMB Circular A-16, the FGDC anticipates conducting a review of its governance structure, including its working groups and subcommittees, to ensure that they support the needs of FGDC agencies and have the proper resources and structure to meet the requirements for facilitating agencies' work to meet requirements of the GDA.

This 2021 NGDA Theme LCA annual performance report template uses the GDA definition for NGDA data theme as the foundation for reporting compliance *for the data within the theme*. From the GDA definitions, NGDA data theme “means the NGDA core geospatial datasets (including electronic records and coordinates) relating to a topic or subject designated under Section 2805.” FGDC anticipates that future enhancements to the reporting process will include a mechanism to gather information at the dataset level which can then be reported at the theme and agency level to provide a greater level of granularity for annual reporting and better management of the NGDA Portfolio.

The focus of this report will be to document both the ongoing processes, procedures, and actions within agencies that manage the NGDA datasets, and the FGDC activities underway for identifying common definitions and approaches for meeting the requirements for plans and actions identified in the GDA.

Executive Summary

This report is the result of continued efforts across the FGDC and the NGDA theme community to evaluate the requirements of the GDA in the context of the goals and objectives of the [National Spatial Data Infrastructure \(NSDI\) Strategic Plan 2021-2024](#).² The report is meant to highlight an emerging understanding of these requirements, communicate the steps that FGDC is undertaking to ensure governance processes are in place that build on the accomplishments to date, and lay out an approach for collaboratively moving forward. Communication of the necessary actions and next steps across the FGDC is the cornerstone of this report.

This annual performance report documents progress made in meeting GDA requirements since the initial, baseline, report was submitted in 2020. This second annual report for the Elevation Theme provides insights into both ongoing, cross-cutting FGDC portfolio management, and agency and theme-specific activities that align with GDA requirements.

FGDC agencies, in coordination with the FGDC Office of the Secretariat (OS), provided leadership and input for GDA requirements analysis as part of ongoing theme strategic planning and implementation activities. Progress made by all NGDA themes for this reporting cycle centers on two key GDA requirements – geospatial data standards and establishing a plan for nationwide population of the NGDA data themes (or core datasets). The collaborative efforts included development of two briefing papers outlining the issues, benefits, challenges, and recommended actions for advancing each requirement. The anticipated outcomes, with FGDC Steering Committee approval, will include formation of two task teams to further evaluate the respective GDA requirements, establish a collaborative approach with government and nongovernment leaders, partners, and stakeholders, and develop recommendations for FGDC on required governance, technical guidance, and actions.

Theme-related information gathered during the 2020 LCA reporting process will also be used to support GDA requirements for geospatial data standards and nationwide population of the data theme. The reported information included participation in FGDC Subcommittees and Working Groups, National and International voluntary consensus standards bodies, International geospatial Working Groups supporting standards, other activities undertaken by agencies to support standards, and theme partners and partnership programs. FGDC will analyze the information collected and the existing GeoPlatform [Theme Community](#)³ content to determine how best to redesign the theme pages to host the relevant information.

Prior to the enactment of the GDA, the FGDC conducted Lifecycle Maturity Assessments (LMA) based on the A-16 Supplemental Guidance [Stages of the Geospatial Lifecycle](#).⁴ As described in the FY2020 LCA NGDA Theme Reports, these assessments were conducted in 2015 and 2017 and resultant [Theme LMA Summary Reports](#)⁵ and Dashboards were made available online through GeoPlatform.gov. While the LMA process was put on hold following the enactment of the GDA, it is seen as a key component moving forward. Following the release of the updated OMB Circular A-16, the FGDC will analyze that guidance and evaluate the LMA process for adoption and use to capture the lifecycle information from agencies and dataset managers. The LMA process could be used to dynamically augment these GDA annual reports and will also be analyzed as part of developing and implementing the plan for nationwide population of the NGDA data themes (core datasets).

This report has been developed using an NGDA Theme Lead consensus-driven report template that provides consistent reporting across all NGDA Themes.

Official Theme Related Information

As per the OMB Circular A-16 Supplemental Guidance, official theme related information includes designated points of contact for NGDA Portfolio management, including Theme Leads and Executive Champions, and the official list of NGDA datasets. As further described in the sections below, this information is maintained on the GeoPlatform [NGDA Portfolio Community](#)⁶ site.

NGDA Theme Points of Contact

Reference: [USC 43 Sec 2805\(b\)\(3\)\(E\)\(i\)](#)

Section 2805(b)(3)(E)(i) requires lead covered agencies to “designate a point of contact within the lead covered agency who shall be responsible for developing, maintaining, coordination relating to, and disseminating data using the GeoPlatform” as part of administering the NGDA theme.

In accordance with the current OMB Circular A-16 Supplemental Guidance, NGDA theme personnel play an ongoing, vital role in the operation and maintenance of a theme. They are individuals who provide interdepartmental leadership and coordination at the NGDA theme level and work with NGDA dataset managers to facilitate, among other things, portfolio development including activities associated with standards and guidance.

Traditionally, these roles have been coordinated through lead covered agencies with the FGDC Office of the Secretariat and the NGDA theme lead assuming a majority of NGDA theme responsibilities. Transitioning to meet specific GDA responsibilities provides opportunities for lead covered agencies to designate specific points of contact to coordinate an expanding portfolio of datasets across the NGDA theme and for greater dissemination of data through the GeoPlatform.

Theme and agency points of contact provided in Table 1 below are maintained to meet requirements from the [A-16 Supplemental Guidance Roles and Responsibilities](#).⁷ This information is kept up-to-date in the NGDA Portfolio Community on [NGDA Theme Leads](#)⁸ and [NGDA Executive Theme Champions](#)⁹ pages.

Elevation Theme Contacts	
Theme Lead(s):	Ashley Chappell, U.S. Department of Commerce, National Oceanic and Atmospheric Administration Susan Buto, U.S. Department of the Interior, U.S. Geological Survey
Executive Theme Champion(s):	Dr. Michael Tischler, U.S. Department of the Interior, U.S. Geological Survey Rear Admiral Benjamin K. Evans, U.S. Department of Commerce, National Oceanic and Atmospheric Administration

Table 1. Theme and Lead Covered Agency Points of Contact Involved in Theme Management.

NGDA Theme Portfolio Datasets

The NGDA datasets and the agencies listed in Table 2 are provided as the official list of NGDA that currently populate the Elevation Theme. If the theme includes NGDA datasets managed by non-covered

agencies, they are shown in bold. Support for GDA requirements by these non-covered agencies is very important to the success of the themes. The official list of [NGDA Portfolio Datasets](#)¹⁰ is maintained on the GeoPlatform and is provided here [filtered by the Elevation Theme](#). Each NGDA dataset also has a unique value assigned, called an NGDAID, that allows the dataset to be tracked throughout its lifecycle.

NGDAID	Elevation Theme NGDA Datasets	Agency
37	U.S. Coastal Lidar Elevation Data - Including The Great Lakes And Territories, 1996 - Present	U.S. Department of Commerce, National Oceanic and Atmospheric Administration
38	Coastal Digital Elevation Models (DEMs)	U.S. Department of Commerce, National Oceanic and Atmospheric Administration
39	Global Multi-Resolution Terrain Elevation Data - National Geospatial Data Asset (NGDA)	U.S. Department of the Interior, U.S. Geological Survey
40	Lidar Point Cloud - USGS National Map 3DEP Downloadable Data Collection	U.S. Department of the Interior, U.S. Geological Survey
41	MultiBeam Bathymetry Database (MBBDB)	U.S. Department of Commerce, National Oceanic and Atmospheric Administration
42	1/3rd arc-second Digital Elevation Models (DEMs) - USGS National Map 3DEP Downloadable Data Collection	U.S. Department of the Interior, U.S. Geological Survey
43	National Flood Hazard Layer (NFHL)	U.S. Department of Homeland Security, Federal Emergency Management Agency
44	Marine Trackline Geophysics Database	U.S. Department of Commerce, National Oceanic and Atmospheric Administration
45	NOS Hydrographic Surveys Collection	U.S. Department of Commerce, National Oceanic and Atmospheric Administration
46	Shuttle Radar Topography Mission 1 Arc-Second Digital Terrain Elevation Data - Global - National Geospatial Data Asset (NGDA)	U.S. Department of the Interior, U.S. Geological Survey
184	1 meter Digital Elevation Models (DEMs) - USGS National Map 3DEP Downloadable Data Collection	U.S. Department of the Interior, U.S. Geological Survey
185	5 Meter Alaska Digital Elevation Models (DEMs) - USGS National Map 3DEP Downloadable Data Collection	U.S. Department of the Interior, U.S. Geological Survey

Table 2. Theme NGDA Datasets.

Meeting General Responsibilities – USC 43 Sec 2805(b)(2)

Reference: [USC 43 Sec 2805\(b\)\(2\)](#)

Q1. How is the Lead Covered Agency(ies) participating in ensuring the coordinated management of the Theme? (Select all that apply - see Appendix A for complete list of optional responses)

- Lead Agency, or Co-Lead Agencies, have published a geospatial strategy as required by the GDA
- Theme Executive Champion(s) attend NGDA Theme Community Meetings
- Theme Lead(s) attend NGDA Theme Community Meetings

- Theme Lead(s) participate in GDA Working Group meetings
- Theme Lead(s) review the outcomes from GDA Working Group meetings and provide feedback on approaches for GDA compliance
- Theme Lead(s) coordinate GDA compliance activities with Theme personnel
- Theme Lead(s) communicate new and ongoing Portfolio Management activities and priorities with Dataset Managers in the Theme
- Steering Committee members coordinate with the
- **Other:** Theme leads coordinate with other existing geospatial data working groups and initiatives

Managing Theme-Related Content on GeoPlatform

The baseline 2020 LCA NGDA Theme Report gathered theme specific information in a series of tables to reflect compliance with the GDA requirements. This content was captured to describe agency efforts that can be used moving forward to support development of the plans required by the GDA. As continued progress towards meeting requirements of the GDA, the NGDA theme community will evaluate redesign of theme community sites to allow agencies to provide current information to the public and stakeholders related to theme management.

A. Geospatial Data Standards

GDA Requirement	<p>USC 43 Sec 2805(b)(3)(A) – Provide leadership and facilitate the development and implementation of geospatial data standards for the National Geospatial Data Asset data theme, with a particular emphasis on a data content standard for the National Geospatial Data Asset data theme, including by—</p> <ul style="list-style-type: none"> i. assessing existing standards; ii. identifying anticipated or needed data standards; and iii. developing a plan to originate and implement needed standards with relevant community and international practices — <ul style="list-style-type: none"> I. in accordance with Office of Management and Budget Circular A– 119, or any successor thereto; and II. consistent with or as a part of the plan described in subparagraph (B);
Lead Covered Agency Self-Assessment	Made Progress Toward Expectations
Key to Self-Assessment	<p>FGDC agencies continue work to evaluate options for establishing a common understanding and approach to meeting GDA requirements. The FGDC Steering Committee has the <i>Briefing Paper – Reestablishing the FGDC Standards Process 8-4-21</i> under consideration. The paper outlines a path forward for reestablishing a resourced and sustainable standards process that will be compliant with the GDA and responsibilities for managing standards. This work provides a foundation for designating “Made progress toward expectations” for all themes the FY2021 reporting year. Response options included:</p> <ul style="list-style-type: none"> • Fails to Meet Expectations • Made Progress Toward Expectations • Meets Expectations

Reference: [USC 43 Sec 2805\(b\)\(3\)\(A\)](#)

Meeting Requirements for Geospatial Data Standards

This section of the GDA calls on the FGDC agencies to provide leadership and facilitate the development and implementation of geospatial data standards and outlines activities that include development of a plan to originate and implement needed standards with relevant community and international practices in accordance with OMB Circular A-119 and consistent with, or as part of the plan that will be established to meet subparagraph (B) requirements.

On August 11, 2021, the FGDC Steering Committee was presented for their consideration and approval the *Briefing Paper – Reestablishing the FGDC Standards Process 8-4-21* which outlined the need for reestablishing an FGDC standards process and included a Draft Position Statement (provided below). The paper states that an updated standards process will guide the FGDC agencies in their assessment, development, vetting, and approval of draft standards through the FGDC governance and endorsement steps (for both FGDC developed internal and FGDC endorsed external standards), and follow-on

maintenance and update steps. The standards process should also address FGDC representation and participation in other standards bodies and the administrative support required to manage and maintain the FGDC's standards inventory, web pages, and process documentation.

The briefing paper provided a set of short-term actions that include approval of the position statement and for FGDC to establish a task team to evaluate and recommend a path forward for reestablishing a resourced and sustainable standards process.

The FGDC Draft Position Statement:

The Geospatial Data Act of 2018 (GDA) establishes the Federal Geographic Data Committee (FGDC) as the lead entity in the executive branch of government for the development, implementation, and review of policies, practices, and standards relating to geospatial data. The GDA describes responsibilities related to geospatial standards for the FGDC and the agencies covered by the law (covered agencies). These responsibilities are reinforced by Office of Management and Budget Circular A-16. The covered agencies are responsible for geospatial related standards development, coordination, approval, implementation, and use. The FGDC is determining how to reestablish and resource a sustainable standards process, implement supporting governance requirements, update and improve legacy processes, and begin establishing standards as required under the GDA. Agencies should continue, to the extent possible in lieu of an active standards process, to develop, review, update, and implement existing and pending standards, and become members of the appropriate FGDC standards body when it becomes active.

A document providing the longer-term tasks and outcomes expected of the team is now under development as requested by the Steering Committee and includes:

- Evaluate FGDC and agency geospatial standards requirements in associated laws and policies
- Review legacy FGDC standards policies and procedures and recommend establishing, updating, or retiring them
- Evaluate and recommend a process for FGDC to establish standards as per the GDA and for evaluation of the NGDA baseline standards inventory, which includes currently endorsed FGDC standards, that will result in the list of standards in use across FGDC
- Evaluate opportunities to leverage work or recommendations from other existing standards bodies
- Evaluate governance requirements for managing standards and recommend necessary changes to the FGDC governance structure.
- Develop recommendations for resourcing a sustainable FGDC standards governance process

[FY2020 Report Follow up](#)

The FY2020 reports provided information on the FGDC subcommittees and working groups, national and international voluntary consensus standards bodies, the international geospatial organizations supporting standards and other activities that support standards for the data within the theme. This information will be evaluated for inclusion in the redesign of the FGDC theme community sites.

Highlighting FGDC Agency Efforts to Support NGDA Data Standards

The FGDC agencies with responsibilities for managing NGDA themes and datasets have developed the following questions to highlight on-going agency efforts to support standards for the NGDA portfolio datasets.

QA.1. Are there activities ongoing that you would like to highlight regarding development, modification, or establishment of standards for any of the data within the Theme?

Clarifying Text: This question provides agencies and dataset managers an opportunity to highlight significant efforts which are ongoing and may facilitate the work of any standards task team established as described above. Please consider agency work to evaluate or develop standards or work that has been completed and has resulted in standards that are ready to be endorsed, or established, under Section 2806. (Ongoing agency work would include a review or assessment of existing national and international standards, assessment for meeting user needs, and other work that meets the requirements of the GDA.)

- Yes

Please identify all the NGDA datasets for which you would like to provide information on work to support standards.

- U.S. Coastal Lidar Elevation Data - Including The Great Lakes And Territories, 1996 - Present
- Coastal Digital Elevation Models (DEMs)
- Global Multi-Resolution Terrain Elevation Data - National Geospatial Data Asset (NGDA)
- Lidar Point Cloud - USGS National Map 3DEP Downloadable Data Collection
- MultiBeam Bathymetry Database (MBBDB)
- 1/3rd arc-second Digital Elevation Models (DEMs) - USGS National Map 3DEP Downloadable Data Collection
- National Flood Hazard Layer (NFHL)
- Marine Trackline Geophysics Database
- NOS Hydrographic Surveys Collection
- Shuttle Radar Topography Mission 1 Arc-Second Digital Terrain Elevation Data - Global - National Geospatial Data Asset (NGDA)
- 1 meter Digital Elevation Models (DEMs) - USGS National Map 3DEP Downloadable Data Collection
- 5 Meter Alaska Digital Elevation Models (DEMs) - USGS National Map 3DEP Downloadable Data Collection

Next, please provide a brief description of work you would like to highlight that supports standards, including citations and resource links as necessary.

A variety of standards, including FGDC-STD-014.3-2008 and Content Standard for Digital Geospatial Metadata (version 2.0), FGDC-STD-001-1998 apply to the theme datasets. Theme datasets are collections searchable through the Data.gov Open Government Initiative and products are provided in formats that are fully compliant with Executive Order 12906, OMB Circular A-16, OMB Circular A130, and OMB Circular A-119.

Training and user information on dataset acquisition and product standards and specifications are available through USGS National Geospatial Program 3DEP Standards and Specifications Website (<https://usgs.gov/3DEP/standards>). Although not an official Standard, DOI-USGS maintains and regularly updates the USGS Lidar Base Specification (<https://www.usgs.gov/3dep/lidarspec>) which ensures terrestrial lidar data collected for the 3DEP meet a known and consistent specification. The USGS 1-meter and 5-meter Alaska digital elevation models are covered, in part, by the 1-Meter Digital Elevation Model Specification (<https://pubs.er.usgs.gov/publication/tm11B4>). In collaboration with the Joint Airborne Lidar Bathymetry Technical Center of Expertise (JALBTCX), a community-driven bathymetric lidar specification is being developed between US Army Corps of Engineers, USGS, NOAA, and Navy.

Although not one of the lead covered agencies preparing this report, FEMA does have an NGDA in the Elevation Theme. Under FEMA's policy on policies, FEMA has a process to establish, modify, and retire Standards and Guidance for the Risk MAP Program, many of which pertain to the data displayed in the National Flood Hazard Layer and the associated metadata. Standards, Guidelines, Technical References, and archived materials can be found at <https://www.fema.gov/flood-maps/guidance-reports/guidelines-standards>. This is published every year and made available on this website.

USGS and NOAA are also at the beginning stages of exploring the options for a compressed lidar data standard. We have a de facto standard now (LAZ) and are looking into the steps necessary for an approved standard with FDGC staff and OGC.

QA.2. Please check all the activities that have been taken to establish, develop, or modify standards for data within the theme (select all that apply and use the “other” textbox to briefly describe additional activities):

- Reviewed ISO metadata collection tools
- Reviewed conformance assessment procedures with assistance from existing standards bodies
- Agency established processes for standards management
- Agency examined comparable international standards for suitability with NGDA data set
- Agency examined comparable FGDC endorsed standards for suitability with NGDA data set
- Agency examined comparable open-source standards for applicability to NGDA data set
- Agency developed comparable agency-specific standards to apply to NGDA data set
- Theme analyzed related international/FGDC/open-source/agency-specific standards to identify components to modify or adapt into specific NGDA data set standard
- Theme established an appropriate subject-matter expert committee to develop a new standard to meet agency-specific/FGDC/international needs for the NGDA data set

QA.3. Brief Summary (Limit 5,000 characters, or approximately 1.5 pages): Please provide a brief description of FY2021 actions and accomplishments in addressing Section 2805(b)(3)(A).

Clarifying Text: Please ensure that the Brief Summary comments you submit this year highlight efforts that agencies are engaged in at the dataset or agency level that relate to GDA requirements, including involvement in and accomplishments of groups in support of NGDA data, such as:

- ✓ FGDC subcommittees and working groups
- ✓ Agency working groups and partner efforts
- ✓ National and international voluntary consensus standards bodies

- ✓ International geospatial organizations supporting standards
- ✓ Other activities that support standards

FGDC Subcommittees and other governance groups that promote standards that are associated with the Elevation Theme include the FGDC 3D Nation Elevation Subcommittee, the 3D Elevation Program (3DEP) Working Group, the Interagency Working Group on Ocean and Coastal Mapping (IWG-OCM), the 3D Elevation Program Executive Forum, the Subcommittee on Ocean Science and Technology Policy, the Alaska Mapping Executive Committee (AMEC), the National Ocean Mapping, Exploration and Characterization Council (NOMECC), and the USGS Elevation Specifications Review Board. Both DOI-USGS and DOC-NOAA are members of the Open Geospatial Consortium and UN-GGIM to promote the development and use of international geospatial standards. DOC-NOAA participates in the International Standards Organization (ISO) and ISO/Technical Committee 211 Geographic information/Geomatics (ISO/TC 211). DOI-USGS participated in OGC meetings related to appropriate data and services formats.

NGDA Baseline Standards Inventories were completed in FY 2020 for the datasets in the Elevation Theme. The inventory confirmed that Elevation Theme datasets are all documented using the Federal Geographic Data Committee (FGDC) content standard for geospatial metadata. Information from the baseline surveys, as well as other information, will be used to identify further actions that can be taken towards fully meeting GDA expectations.

In FY2021, DOI-USGS and DOC-NOAA began investigations into sponsoring the adoption of LAZ as an official standard. LAZ is an open source, directly accessible, ready-to-use format that also provides significant compression and allows processing directly in the cloud.

Also, in FY2021, the IWG-OCM, in support of the NOMECC Strategy and goal objectives for consistent approaches to data acquisition, crafted a Standard Ocean Mapping Protocol (SOMP) to gather standards and best practices for bathymetry (elevation), as well as related remote sensing of acoustic backscatter, water column data, side scan and sub-bottom profiling, and magnetometer data. The standards associated with these datasets are primarily derived from internationally accepted standards, including International Hydrographic Organization hydrographic survey specifications and deliverables available at https://nauticalcharts.noaa.gov/publications/docs/standards-and-requirements/specs/HSSD_2021.pdf. Cutting across all components of the SOMP is data stewardship and steps for effective data management. The draft SOMP is in review and anticipated to go final in late 2022 as a living document for continuous improvement. DOC staff actively participated in international and national organizations to ensure that the relevant NGDA datasets remain compliant with internationally accepted standards.

Although not one of the lead covered agencies preparing this report, FEMA has an NGDA in the Elevation Theme. Under FEMA's policy on policies, FEMA has a process to establish, modify, and retire Standards and Guidance for the Risk MAP Program, many of which pertain to the data displayed in the NFHL and the associated metadata. Standards, Guidelines, Technical References, and archived materials can be found here: (<https://www.fema.gov/flood-maps/guidance-reports/guidelines-standards>). This is published every year and made available on this website.

Additionally, in FY2021, Elevation Theme Co-Leads attended NGDA Community Meetings and received communications from the NGDA coordinator to stay current on GDA requirements related to specifications, metadata, and the Geoplatform.

B. Nationwide Population of the Data Theme

GDA Requirement	<p>USC 43 Sec 2805(b)(3)(B) – provide leadership and facilitate the development and implementation of a plan for nationwide population of the National Geospatial Data Asset data theme, which shall—</p> <p>(i) include developing partnership programs with States, Indian tribes, institutions of higher education, private sector entities, other Federal agencies, and local governments;</p> <p>(ii) meet the needs of users of geospatial data;</p> <p>(iii) address human and financial resource needs;</p> <p>(iv) identify needs relating to standards, metadata for geospatial data within the National Geospatial Data Asset data theme, and the GeoPlatform; and</p> <p>(v) expedite the development of necessary National Geospatial Data Asset data themes;</p>
Lead Covered Agency Self-Assessment	Made Progress Toward Expectations
Key to Self-Assessment	<p>FGDC agencies continue work to evaluate options for establishing a common understanding and approach to meeting GDA requirements. A briefing paper, described in this section, is being developed for FGDC Steering Committee consideration. It outlines a path forward for engaging partners and stakeholders regarding nationwide population of data and establishing common practices that can be used to advance the NSDI, the goals and objectives of the NSDI Strategic Plan, and meet requirements of the GDA and other legislation. This work provides a foundation for designating “Made progress toward expectations” for all themes the FY2021 reporting year. Response options included:</p> <ul style="list-style-type: none"> • Fails to Meet Expectations • Made Progress Toward Expectations • Meets Expectations

Reference: [USC 43 Sec 2805\(b\)\(3\)\(B\)](#)

Meeting Requirements for Nationwide Population of NGDA Datasets

This section of the GDA calls on the FGDC agencies to, “provide leadership and facilitate the development and implementation of a plan for nationwide population of the National Geospatial Data Asset data theme.” Using the GDA definition of NGDA data theme, the required plans would focus on nationwide population of the core datasets within the theme and include the work to expedite development of necessary core datasets.

FGDC agencies manage NGDA core datasets and other geospatial data to meet mission requirements and to address priority needs of the agency and the nation. There are multiple examples of ongoing agency efforts to establish partnerships, conduct requirements and user needs analysis, identify options

for appropriate human and financial resourcing, and identify needs relating to standards for NGDA datasets in support of nationwide population of priority geospatial datasets.

To support development of a common approach for meeting GDA and other legislative requirements and address the goals and objectives of the [NSDI Strategic Plan 2021-2024](#), a briefing paper has been developed for consideration by the FGDC Steering Committee. The briefing paper proposes that FGDC engage the NGAC to provide advice and recommendations for federal and non-federal partners and stakeholders regarding nationwide population of data and establishing common practices that can be used to advance the NSDI.

The briefing paper documents the need for establishing common approaches and a common understanding of what constitutes “nationwide population of datasets;” a methodology for identifying datasets that should be considered for nationwide population and a means to prioritize those efforts; and a process for identifying data that requires integration with government and nongovernment data or those that only require national coverage of federal data.

As FGDC agencies continue to develop common approaches for meeting requirements for geospatial data management, they will be incorporated into the reporting process. This FY2021 report highlights ongoing efforts that support these requirements. The information gathered here will be available for further evaluation of processes and activities across FGDC agencies that can be used as best practices and established in guidance and governance documents.

[FY2020 Report Follow up](#)

The information on theme partners and partnership programs supporting data within the theme reported as part of the FY2020 Reports will be evaluated for inclusion in the redesign of the FGDC theme community sites.

[Highlighting Key Examples of FGDC Agency Efforts to Support Plans for Nationwide Population of NGDA Datasets](#)

The following suite of questions was established to highlight ongoing agency efforts to support nationwide population of the NGDA portfolio datasets. FGDC anticipates using this information moving forward as work continues to identify and establish best practices to develop common approaches.

QB.1. Are there activities ongoing that you would like to highlight that support nationwide population of NGDA datasets within the Theme, or efforts that support any of the elements included in this requirement?

- Yes

QB.1a. Are there existing or planned partnership programs with a wide range of stakeholders supporting NGDA datasets within the Theme that you would like to highlight?

- Yes

Please identify all the NGDA datasets for which you would like to provide information related to partnership activities.

- U.S. Coastal Lidar Elevation Data - Including The Great Lakes And Territories, 1996 - Present
- Coastal Digital Elevation Models (DEMs)
- Lidar Point Cloud - USGS National Map 3DEP Downloadable Data Collection
- MultiBeam Bathymetry Database (MBBDB)
- 1/3rd arc-second Digital Elevation Models (DEMs) - USGS National Map 3DEP Downloadable Data Collection
- National Flood Hazard Layer (NFHL)
- Marine Trackline Geophysics Database
- NOS Hydrographic Surveys Collection
- 1 meter Digital Elevation Models (DEMs) - USGS National Map 3DEP Downloadable Data Collection
- 5 Meter Alaska Digital Elevation Models (DEMs) - USGS National Map 3DEP Downloadable Data Collection

Next, please provide a brief description of partnership with citations and resource links as necessary.

The goal of DOI-USGS 3D Elevation Program (3DEP) is to complete acquisition of nationwide lidar (IfSAR in AK) to provide the first-ever national baseline of consistent high-resolution topographic elevation data – both bare earth and 3D point clouds - which are represented by the Lidar Point Cloud and 1-meter Digital Elevation Models (DEMs) NGDA datasets. Successful implementation of the 3DEP depends on the development and adoption of a unified Federal approach to acquiring data. Toward that end, DOI-USGS chairs both the 3DEP Executive Forum and operational 3DEP Working Group to facilitate dialog and collaboration on strategies to implement and sustain 3DEP for the benefit of Federal stakeholders and the broader community. To further facilitate partnerships, DOI-USGS releases an annual Broad Agency Announcement (BAA, <https://usgs.gov/3DEP/BAA>) which provides a fair and equitable mechanism for partnering with the USGS and other Federal agencies to acquire high-quality 3D Elevation data to advance the program's goal of nationwide coverage. Federal agencies, State and local governments, Tribes, academic institutions, and the private sector are eligible to submit BAA proposals. In FY2021 the BAA funded 17 proposals in 11 states. These proposals, in addition to direct partnerships between Federal agencies resulted in the acquisition of over 231,000 square miles of lidar data that increased nationwide coverage of 3DEP data from 78% to 84%.

On the ocean and coastal mapping side, the Interagency Working Group on Ocean and Coastal Mapping (IWG-OCM) serves a role similar to 3DEP to encourage coordination across the federal government, with states, tribes, academia, and private/non-profit sectors. The IWG-OCM reaches out to stakeholders to share information on elevation data acquisition via online coordination and collaboration tools such as the U.S. Federal Mapping Coordination site (<http://fedmap.seasketch.org/>), Hub and other websites (iocm.noaa.gov), and through regional in-person and virtual summits where stakeholders discuss mapping opportunities, standards and specifications, and data acquisition technology research and development. The Alaska Mapping Executive Committee's (AMEC) Coastal Subcommittee serves this role specifically for Alaska coastal mapping (currently at <https://alaska-coastal-mapping-strategy-dewberry.hub.arcgis.com/>, to be moved to a federal site in 2022). Regional mapping campaigns in which

IWG-OCM agencies participate (in particular DOI-USGS and DOC-NOAA) also provide opportunities for elevation data acquisition and management partnerships. These include Lakebed 2030 (<https://glos.org/priorities/lakebed-2030/>), the Florida Coastal Mapping Program (<https://fcmap-myfwc.hub.arcgis.com/>), EXPRESS (<https://www.usgs.gov/centers/pcmssc/science/express-expanding-pacific-research-and-exploration-submerged-systems>), and Seascape Alaska (https://iocm.noaa.gov/documents/Seascape%20Alaska%20Factsheet_September%202021.pdf).

Finally, borrowing from the DOI-USGS BAA concept, DOC-NOAA developed the Brennan Matching Fund to acquire more ocean and coastal mapping data for mutual benefit, including for safe navigation, integrated ocean and coastal mapping, coastal zone management, coastal and ocean science, climate preparedness, infrastructure investments, and other activities. The program relies on NOAA's mapping, charting, and geodesy expertise, appropriated funds, and its authority to receive and expend matching funds contributed by partners to conduct surveying and mapping activities. Subject to funding availability, NOAA will match funds contributed by selected entities for ocean and coastal surveys using the authority granted to NOAA under the Coast and Geodetic Survey Act of 1947 to receive and expend funds for collaborative hydrographic surveys (33 U.S.C. 883e, <https://www.federalregister.gov/documents/2021/07/27/2021-15970/notice-of-matching-fund-opportunity-for-ocean-and-coastal-mapping-and-request-for-partnership>).

QB.1b. Are processes, or plans for processes, in place to meet the needs of users? Note that Section 2805(b)(3)(D) of this report covers efforts to collect and analyze user needs and incorporation of those needs into agency strategies. However, you may include the information on those efforts in your response for this question.

Clarifying Text: If no formal process exists, but information on summits, training events, or other activities that supported the collection or understanding of user needs may be included.

- Yes

Please identify all the NGDA datasets for which you would like to provide information on efforts to meet user needs.

- U.S. Coastal Lidar Elevation Data - Including The Great Lakes And Territories, 1996 - Present
- Coastal Digital Elevation Models (DEMs)
- Global Multi-Resolution Terrain Elevation Data - National Geospatial Data Asset (NGDA)
- Lidar Point Cloud - USGS National Map 3DEP Downloadable Data Collection
- MultiBeam Bathymetry Database (MBBDB)
- 1/3rd arc-second Digital Elevation Models (DEMs) - USGS National Map 3DEP Downloadable Data Collection
- National Flood Hazard Layer (NFHL)
- Marine Trackline Geophysics Database
- NOS Hydrographic Surveys Collection
- Shuttle Radar Topography Mission 1 Arc-Second Digital Terrain Elevation Data - Global - National Geospatial Data Asset (NGDA)

- 1 meter Digital Elevation Models (DEMs) - USGS National Map 3DEP Downloadable Data Collection
- 5 Meter Alaska Digital Elevation Models (DEMs) - USGS National Map 3DEP Downloadable Data Collection

Next, please provide a brief description of efforts to meet user needs, including citations and resource links as necessary.

The goal of the 3D Nation Elevation Subcommittee is to continually improve the national elevation mapping foundation by coordinating topographic, coastal, and bathymetric mapping activities across the Federal government and in coordination with state, local, tribal, private, and academic partners. This goal is achieved through coordinating bodies like the IWG-OCM, 3DEP Working Group, AMEC, and 3DEP Executive Forum.

National, state, and regional needs for elevation-related geospatial data and the Elevation Theme NGDAs are being evaluated through the 3D Nation Elevation Requirements and Benefits Study completed in 2021 and now in final review for publication as of January 2022. The study comprehensively documents topographic and bathymetric 3D elevation data requirements and benefits across a multitude of geographies and users. The 3D Nation Study includes input from approximately 45 Federal agencies and commissions; ten not-for-profit entities; 14 members of academia; 56 state, regional, county, local, and territorial governments; and eight tribal governments. The 3D Elevation Program design was based on the precursor to the 3D Nation study – the 2012 National Enhanced Elevation Assessment (NEEA, <https://usgs.gov/3DEP/NEEA>). The current study will be used to inform the next generation of 3DEP.

In addition, DOI-USGS works with the National States Geographic Information Council (NSGIC) on the 3DEP for the Nation project which engages the NSGIC network of state geospatial information representatives to explore options and share information about 3DEP data planning, acquisition, management, distribution, and applications. DOI-USGS also coordinates with stakeholders and users through the USGS-NGP User Engagement office. The goal of this office is to coordinate with users and stakeholders at the local scale and work to ensure NGP products and services provide the greatest value and impact for the Nation. DOC-NOAA and the IWG-OCM work with stakeholders through NSGIC and other bodies to gather user needs for ocean and coastal elevation data, including the Association of State Floodplain Managers, the American Shore and Beach Preservation Association, the Coastal States Organization and at annual events such as Coastal GeoTools (<https://coastalgeotools.org/>) and the JALBTCX Workshop where topobathymetric lidar needs, standards and projects are shared and discussed. IWG-OCM-hosted coastal summits are also venues to share and explore opportunities to meet user needs. Online GIS-based collaboration sites and tools are also key, such as the U.S. Federal Mapping Coordination site (<http://fedmap.seasketch.org/>).

QB.1c. Are there existing or planned program and data management plans in place that address human and financial resource needs?

- Yes

Please identify all the NGDA datasets for which you would like to provide information on efforts to address human and financial resource needs.

- U.S. Coastal Lidar Elevation Data - Including The Great Lakes And Territories, 1996 - Present
- Coastal Digital Elevation Models (DEMs)
- Lidar Point Cloud - USGS National Map 3DEP Downloadable Data Collection
- MultiBeam Bathymetry Database (MBBDB)
- 1/3rd arc-second Digital Elevation Models (DEMs) - USGS National Map 3DEP Downloadable Data Collection
- National Flood Hazard Layer (NFHL)
- Marine Trackline Geophysics Database
- NOS Hydrographic Surveys Collection
- 1 meter Digital Elevation Models (DEMs) - USGS National Map 3DEP Downloadable Data Collection
- 5 Meter Alaska Digital Elevation Models (DEMs) - USGS National Map 3DEP Downloadable Data Collection

Next, please provide a brief description of efforts to meet financial and human resource needs, including citations and resource links as necessary (Limit 5,000 characters, approximately 800 words).

DOC-NOAA and DOI-USGS are working to improve the technology, systems, data, and services that provide information about 3D elevation data and related applications within the United States. By learning more about business uses and associated benefits that would be realized from improved 3D elevation data, the agencies will be able to prioritize and direct investments that will best serve user needs. National, state, and regional needs for elevation-related geospatial data and the Elevation Theme NGDAs are being evaluated through the 3D Nation Elevation Requirements and Benefits Study, a comprehensive study of requirements and benefits for improved elevation data that covers the geographic scope as defined by the 3D Nation vision. Completed in 2021, the study is now in final review for publication as of January 2022. The study comprehensively documents topographic and bathymetric 3D elevation data requirements and benefits across a multitude of geographies and users. The 3D Nation Study includes input from approximately 45 federal agencies and commissions; ten not-for-profit entities; 14 members of academia; 56 state, regional, county, local, and territorial governments; and eight tribal governments. The program 3DEP was designed on the precursor to the 3D Nation study – the 2012 National Enhanced Elevation Assessment (NEEA, <https://usgs.gov/3DEP/NEEA>). The current study will be used to inform the next generation of 3DEP.

DOI-USGS also meets user financial needs by partnering for lidar collection through the annual BAA (<https://usgs.gov/3DEP/BAA>) and through direct federal partnerships. Partnering for data collection over large areas through the USGS Geospatial Products and Services Contract (GPSC, <https://usgs.gov/3DEP/GPSC>) helps to reduce acquisition costs for all partners. Increased coordination with federal land management agencies through the 3DEP Executive Forum and Working Group will be required as efforts to complete 3DEP coverage in western states advance. DOC-NOAA aims for a similar result with the Brennan Matching fund, described above and at <https://www.federalregister.gov/documents/2021/07/27/2021-15970/notice-of-matching-fund-opportunity-for-ocean-and-coastal-mapping-and-request-for-partnership>.

QB.1d. Are processes, or plans for processes, in place to identify needs related to standards?

- Yes

Please identify all the NGDA datasets for which you would like to provide information on needs related to standards.

- U.S. Coastal Lidar Elevation Data - Including The Great Lakes And Territories, 1996 - Present
- Coastal Digital Elevation Models (DEMs)
- Global Multi-Resolution Terrain Elevation Data - National Geospatial Data Asset (NGDA)
- Lidar Point Cloud - USGS National Map 3DEP Downloadable Data Collection
- MultiBeam Bathymetry Database (MBBDB)
- 1/3rd arc-second Digital Elevation Models (DEMs) - USGS National Map 3DEP Downloadable Data Collection
- National Flood Hazard Layer (NFHL)
- Marine Trackline Geophysics Database
- NOS Hydrographic Surveys Collection
- Shuttle Radar Topography Mission 1 Arc-Second Digital Terrain Elevation Data - Global - National Geospatial Data Asset (NGDA)
- 1 meter Digital Elevation Models (DEMs) - USGS National Map 3DEP Downloadable Data Collection
- 5 Meter Alaska Digital Elevation Models (DEMs) - USGS National Map 3DEP Downloadable Data Collection

Next, please provide a brief description of efforts to identify needs related to standards, including citations and resource links as necessary.

Needs relating to standards and metadata for geospatial data within the Elevation Theme are identified through coordination with partners and users across multiple venues including the 3DEP Working Group, the IWG-OCM, USGS Elevation Specifications Review Board, and FGDC 3D Nation Subcommittee. Additionally, both DOI-USGS and DOC-NOAA are members of the Open Geospatial Consortium (OGC) and of the American Society for Photogrammetry and Remote Sensing (ASPRS), which allows the Theme to participate directly in the crafting of data standards. Both DOI-USGS and DOC-NOAA also value the contributions of Federal Advisory Committees that study user needs related to standards, including the NOAA Hydrographic Services Review Panel (<https://nauticalcharts.noaa.gov/hsrp/hsrp.html>) and the FGDC National Geospatial Advisory Committee (<https://www.fgdc.gov/ngac>).

QB.1e. Are there any other processes in place that support nationwide population of data sets (e.g., data quality control processes that cover data collected by external stakeholders)?

- Yes

Please identify all the NGDA datasets for which you would like to provide additional information related to nationwide population of data.

- U.S. Coastal Lidar Elevation Data - Including The Great Lakes And Territories, 1996 - Present
- Coastal Digital Elevation Models (DEMs)
- Global Multi-Resolution Terrain Elevation Data - National Geospatial Data Asset (NGDA)

- Lidar Point Cloud - USGS National Map 3DEP Downloadable Data Collection
- MultiBeam Bathymetry Database (MBBDB)
- 1/3rd arc-second Digital Elevation Models (DEMs) - USGS National Map 3DEP Downloadable Data Collection
- National Flood Hazard Layer (NFHL)
- Marine Trackline Geophysics Database
- NOS Hydrographic Surveys Collection
- Shuttle Radar Topography Mission 1 Arc-Second Digital Terrain Elevation Data - Global - National Geospatial Data Asset (NGDA)
- 1 meter Digital Elevation Models (DEMs) - USGS National Map 3DEP Downloadable Data Collection
- 5 Meter Alaska Digital Elevation Models (DEMs) - USGS National Map 3DEP Downloadable Data Collection

Next, please provide a brief description of other efforts that support nationwide population of data, including citations and resource links as necessary.

Priority areas for elevation collection are managed through the U.S. Federal Mapping Coordination site (<http://fedmap.seasketch.org/>). For example, in advance of the annual 3DEP BAA (<https://usgs.gov/3DEP/BAA>), USGS collects federal agency priorities and encourages other users to update planned acquisition areas in SeaSketch to allow users to identify and connect with partnership opportunities.

DOI-USGS and DOC-NOAA are partners in the U.S. Interagency Elevation Inventory (USIEI, <https://coast.noaa.gov/inventory>) which provides a listing of known publicly available high-accuracy topographic and bathymetric source elevation data for the United States and its territories. The inventory provides a single resource for information about all known completed and in-progress broad-area public domain elevation data. The USIEI raises awareness of and increases access to existing elevation data, thereby reducing data duplication efforts. It helps to identify data gaps and informs and encourages collaboration on future data collection efforts. The inventory displays data set boundaries and provides information about the elevation data but does not host the data itself. If available, links to access the data, metadata, and reports are included. Terrestrial elevation data identified in the USIEI but collected outside of 3DEP may be contributed to 3DEP to increase nationwide coverage of terrestrial lidar data.

The DOI-USGS managed “Global Multi-Resolution Terrain Elevation Data”, “Shuttle Radar Topography Mission 1 Arc-Second Data”, and “5-meter Alaska Digital Elevation Models” have achieved full coverage for their defined extents.

DOC-NOAA maintains the Bathymetric Data Viewer (<https://www.ncei.noaa.gov/maps/bathymetry/>) to enable access to and encourage population and sharing of bathymetric data. The data-sharing page at NOAA’s Integrated Ocean and Coastal Mapping site (iocm.noaa.gov) includes best practices for and ways to contribute data (<https://iocm.noaa.gov/data-sharing/data-sharing.html>).

QB.2. Brief Summary (Limit 5,000 characters, approximately 800 words): Please provide a brief description of FY2021 actions and accomplishments in addressing Section 2805(b)(3)(B).

Clarifying Text: Summary comments provide an opportunity to further highlight and expand on significant efforts agencies are engaged in at the dataset or agency level that relate to GDA requirements.

The Elevation Theme continued to make progress toward GDA requirements in FY2021, particularly related to partnerships, nationwide population of data, defining user needs, and data standards. The goal of the 3D Nation Elevation Subcommittee is to continually improve the national elevation mapping foundation by coordinating the topographic, coastal, and bathymetric mapping activities across the Federal government and in coordination with state, local, tribal, private, and academic partners. This goal is achieved through coordinating bodies like the IWG-OCM, NOME Council, AMEC, 3DEP Working Group, and 3DEP Executive Forum. Jointly, the Elevation Theme coordinated with numerous Federal agencies and national organizations through monthly 3DEP Working Group meetings, bimonthly IWG-OCM meetings, and quarterly 3DEP Executive Forum meetings. In addition, the 3DEP Working group held a joint coordination meeting with the National Hydrography Infrastructure Working Group which is affiliated with the Inland-Waters NGDA theme.

In FY2021, DOI-USGS, in partnership with federal, state, local, and tribal partners, contracted for acquisition of over 231,000 square miles of lidar data that increased nationwide coverage of 3DEP from 77.6% to 84%. The DOI-USGS Global Multi-Resolution Terrain Elevation Data, Shuttle Radar Topography Mission 1 Arc-Second Data, and 5 meter Alaska Digital Elevation Models have achieved full coverage for their defined extents.

National, state, and regional needs for elevation-related geospatial data and the Elevation Theme NGDAs are being evaluated through the 3D Nation Elevation Requirements and Benefits Study. The study documents topographic and bathymetric 3D elevation data requirements and benefits across a multitude of geographies and users. In addition, DOI-USGS works with the National States Geographic Information Council (NSGIC) on the 3DEP for the Nation project which engages the NSGIC network of state geospatial information representatives to explore options and share information about 3DEP data planning, acquisition, management, distribution, and applications. DOC-NOAA works with NSGIC and other bodies on requirements for ocean and coastal elevation data.

C. Establish Goals That Support the NSDI Strategic Plan

GDA Requirement	USC 43 Sec 2805(b)(3)(C) – establish goals that support the strategic plan for the National Spatial Data Infrastructure prepared under section 2804(c);
Lead Covered Agency Self-Assessment	Made Progress Toward Expectations
Key to Self-Assessment	<p>FGDC agencies continue work to evaluate options for establishing a common understanding and approach to meeting GDA requirements and the goals and objectives of the NSDI Strategic Plan. The briefing paper being developed for consideration by the FGDC Steering Committee, and described in Section B, outlines a path forward to establish common practices that can be used to advance the NSDI, and meet requirements of the GDA and other legislation. This work provides a foundation for designating “Made progress toward expectations” for all themes for the FY2021 reporting year. Response options included:</p> <ul style="list-style-type: none"> • Fails to Meet Expectations • Made Progress Toward Expectations • Meets Expectations

References: [USC 43 Sec 2805\(b\)\(3\)\(C\)](#) and [NSDI Strategic Plan 2021-2024](#)

Establishing Common Goals and Priorities Supporting the NSDI and Its Strategic Plan

The FGDC and the geospatial community have partnered for decades in building the National Spatial Data Infrastructure. Much has been accomplished and exploitation of the internet, combined with advances in technology and availability of mobile devices, have increased public awareness that everything happens somewhere. Having Geospatial data and information available at people’s fingertips has become an expectation for most users. The vision of the NSDI Strategic Plan 2021-2024 of a “geo-enabled Nation and world for place-based decision making” provides a platform for partnerships that help ensure required data is the best possible data. FGDC has adopted as its mission to enable a “national network of geospatial resources that seamlessly integrate location-based information to serve the needs of the Nation and wider global interests.”

FGDC agencies are focused on meeting mission requirements for national geospatial data assets they manage while working collaboratively with partners to implement the NSDI strategic plan and meet its goals and objectives. For the NGDA portfolio, these objectives include efforts to: 1) streamline portfolio management practices and establish standards for NGDA themes and associated datasets, 2) develop common approaches to implement data acquisition and lifecycle management strategies, 3) advance the practice of integrating government and nongovernment data into national datasets, as necessary and 4) ensure that geospatial and other meaningful data can be easily integrated and used.

As described previously in this report, the FGDC intends to continue work across agencies and with the NGAC to understand the priorities of government and nongovernment stakeholders and gather their advice and recommendations for further prioritizing collaborative efforts. Establishing the team of federal and non-federal stakeholders and representatives of the NGDA data theme community will allow

for establishing common understanding of opportunities and constraints and will allow agencies to identify “goals that support the strategic plan for the National Spatial Data Infrastructure.” This work would build on the upcoming release of the OMB Circular A-16, the GDA, and other legal and policy requirements in order to establish practical guidance about how agencies can achieve what is being described in the generic, high level, language used in the NSDI Strategic Plan.

Highlighting FGDC Agency Strategies that Support the NSDI and Geospatial Data

QC.1. Do geospatial strategic plan(s) exist for the agencies that manage and support the NGDA datasets within the Theme?

- Yes

If yes, please provide a short description and examples of where these strategies are documented.

In conformance with the GDA and FGDC guidance given in the NSDI Strategic Plan, both the DOI and DOC have developed Geospatial Services Strategic Plans. The DOI 2021 – 2024 plan is available at <https://www.doi.gov/data> or by request to the DOI Geospatial Information Officer. The plan outlines the DOI vision to enhance collaboration and sharing of geospatial information and resources among data centers, programs, and partners to promote a Department-wide management approach. The DOC developed the Commerce Geospatial Strategy (FY21-24) (<https://www.commerce.gov/sites/default/files/2021-07/US-Dept-of-Commerce-Geospatial-Strategy-FY21-24.pdf>) and the Commerce Geospatial Strategic Action Plan (<https://www.commerce.gov/sites/default/files/2021-10/US-Dept-of-Commerce-Geospatial-Strategic-Action-Plan.pdf>). These plans outline the DOC vision to enhance collaboration and sharing of geospatial information and resources among data centers, programs, and partners to promote a Department-wide management approach. The Theme Lead has reviewed these and ensured that the Theme Strategic Plan (https://geodesy.noaa.gov/web/about_ngs/info/mission-strategic-planning.shtml) is consistent. The DOC also established and reinvigorated a Geospatial Working Group and a Standards Users Group to ensure that all aspects of the NGDA datasets comply. The Theme Lead and Dataset Managers are active participants in these DOC working groups to ensure vertical integration and compliance with standards. As an example, a requirement for Digital Object Identifiers (DOI's) for various geospatial datasets (including the four for this theme) was established as an accepted international standard. The DOC is working to develop a mechanism for creating and attaching DOI's to geospatial datasets. The Theme Lead and other DOC staff have been active in seeking the establishment of these DOI's and pursuing a successful strategy for this being led by the NOAA EDMC DOI Task Team. DOC and DOI staff are active in assisting the FGDC in development and refinement of the GDA reporting requirements including development of this form. This better ensures that the Theme is actively involved and integrated into standards efforts across the federal government.

QC.2. Have goals or actions been identified that support the goals and objectives of the National Spatial Data Infrastructure (NSDI) Strategic Plan for the NGDA datasets within the Theme?

Clarifying text: Identified actions can be part of the geospatial strategies for the agencies that manage data within the theme, and/or other documents that specifically relate to the data within the theme.

- Yes

If yes, please provide a short description and examples of where these goals or actions are documented.

The Elevation Theme is working to meet the goals of the National Spatial Data Infrastructure Strategic Plan 2021–2024. For DOI-USGS, activities supporting NSDI goals are documented in National Geospatial Program annual programmatic and operational plans and the DOI 2021 – 2024 Geospatial Services Strategic Plan. For DOC-NOAA, activities supporting NSDI goals are documented in Line Office annual operating plans, the Commerce Geospatial Strategy (FY21-24) (<https://www.commerce.gov/sites/default/files/2021-07/US-Dept-of-Commerce-Geospatial-Strategy-FY21-24.pdf>) and the Commerce Geospatial Strategic Action Plan (<https://www.commerce.gov/sites/default/files/2021-10/US-Dept-of-Commerce-Geospatial-Strategic-Action-Plan.pdf>).

QC.3. Brief Summary (Limit 5,000 characters, approximately 800 words): Please provide a brief description of FY2021 actions and accomplishments in addressing Section 2805(b)(3)(C).

Clarifying Text: Summary comments provide an opportunity to highlight significant efforts agencies are engaged in at the dataset or agency level that relate to GDA requirements.

NSDI strategic goals focus on four critical components to accelerate the development of the NSDI— policy and governance, data, shared services, and partnerships. Toward these goals, Elevation Theme products are searchable collections through the Data.gov Open Government Initiative and products are provided in formats that are fully compliant with Executive Order 12906, OMB Circular A-16, OMB Circular A130, and OMB Circular A-119. DOI-USGS and DOC-NOAA lead the 3D Nation subcommittee and promote programs built on a foundation of collaborative governance and partnerships to meet national needs and priorities in support of NSDI Strategic Goals.

D. Addressing User Needs

GDA Requirement	USC 43 Sec 2805(b)(3)(D) – as necessary, collect and analyze information from users of geospatial data within the National Geospatial Data Asset data theme regarding the needs of the users for geospatial data and incorporate the needs of users in strategies relating to the National Geospatial Data Asset data theme;
Lead Covered Agency Self-Assessment	Made Progress Toward Expectations
Key to Self-Assessment	<p>FGDC agencies continue work to evaluate options for establishing a common understanding and approach to meeting GDA requirements. The briefing paper being developed for consideration by the FGDC Steering Committee, and described in Section B, outlines a path forward to engage partners and stakeholders and work towards establishing common practices that can be used to address the needs of users, advance the NSDI, and meet requirements of the GDA and other legislation. This work provides a foundation for designating “Made progress toward expectations” for all themes the FY2021 reporting year. Response options included:</p> <ul style="list-style-type: none"> • Fails to Meet Expectations • Made Progress Toward Expectations • Meets Expectations

Reference: [USC 43 Sec 2805\(b\)\(3\)\(D\)](#)

Highlighting FGDC and FGDC Agency Efforts to Meet User Needs

This section of the GDA calls on the FGDC agencies to understand the needs of users through collection and analysis of user needs information from the users of NGDA datasets and to incorporate those needs into strategies relating to the NGDA datasets and themes. In addition to agencies efforts to collect and analyze user needs there are many use cases and needs assessments being developed by stakeholders and users of geospatial data, some of which were highlighted and are available in the FY2020 GDA reports.

The desired outcome of efforts to develop the NSDI and advance nationwide population of geospatial data is to meet the needs of geospatial data users and the nation. The result will be for users and stakeholders to be empowered to accomplish tasks that are important to them, to increase the likelihood they will benefit from the decisions that are made, and to provide them access to use geospatial data that improves their day-to-day lives.

As previously highlighted in this report, the efforts to develop a common understanding of the objectives and goals in the NSDI Strategic Plan 2021-2024 will be key to incorporating relevant strategies and approaches to meeting the needs of users for NGDA data.

FY2020 Report Follow up

The FY2020 reports gathered on theme use cases, user needs User Needs Assessments, Workshops, and Summits that support the data within the theme. Additionally, a suite of use cases developed by partners and stakeholders was provided in Appendix A: NGDA Use Cases including those from the Federal Data Strategy, NGAC, HIFLD, the FGDC GDA Communications Working Group, the Joint HIFLD/GeoPlatform Feedback Sessions, and other types of user feedback and use cases. This information will be evaluated for inclusion in the redesign of the FGDC theme community sites.

Highlighting FGDC and FGDC Agency Efforts to Meet User Needs

The FGDC agencies with responsibilities for managing NGDA themes and datasets have developed the following questions to highlight on-going agency efforts to support understanding user needs and incorporating those needs into strategies relating to the NGDA portfolio datasets.

QD.1. Do the agencies, sub-agencies, or bureaus that manage NGDA within the Theme have processes to collect and analyze the needs of users and incorporate those needs of users into strategies relating to the NGDA datasets?

- Yes

QD.2. Did you provide information in response to QB.1b. on any of the NGDA datasets for which user needs information is collected, analyzed, or incorporated into strategies?

- Yes

QD.3. Brief Summary (Limit 5,000 characters, approximately 800 words): Please provide a brief description of FY2021 actions and accomplishments in addressing Section 2805(b)(3)(D).

Clarifying Text: Summary comments provide an opportunity to highlight significant efforts agencies are engaged in at the dataset or agency level that relate to GDA requirements.

Past and current efforts to collect and analyze information from users of Elevation Theme geospatial data include the National Enhanced Elevation Assessment (NEEA, 2012), Research Study to Understand Use of USGS-NGP Geospatial Data and Products by Private Mapping Companies (2019), USGS 3DEP Technology Assessment (2020). and the 3D Nation Requirements and Benefits Study (ongoing).

DOI-USGS engages with state, local, tribal, academic, and private entities to gather user requirements and information directly and through the USGS-NGP User Engagement Office which coordinates with users and stakeholders at the local scale and work to ensure NGP products and services provide the greatest value and impact for the Nation. In addition, the USGS Elevation Specifications Review Board technical committee engages state representatives to ensure state user requirements are defined and considered in proposed changes to the Lidar Base Specification. DOI-USGS also holds regular meetings with participants in the 3DEP for the Nation project managed in cooperation with NSGIC. These meetings are focused on gathering state perspectives and requirements for elevation data and to assist state stakeholders in finding solutions to elevation coverage gaps in their states.

DOC-NOAA and the IWG-OCM work with stakeholders through NSGIC and other bodies to gather user

needs for ocean and coastal elevation data, including the Association of State Floodplain Managers, the American Shore and Beach Preservation Association, the Coastal States Organization and at annual events such as Coastal GeoTools (<https://coastalgeotools.org>) and the JALBTCX Workshop where topobathymetric lidar needs, standards and projects are shared and discussed. IWG-OCM-hosted coastal summits are also venues to share and explore opportunities to meet user needs. Online GIS-based collaboration sites and tools are also key, such as the U.S. Federal Mapping Coordination site (<http://fedmap.seasketch.org/>). Elevation Theme-relevant stakeholder input is also gathered and shared by the NOAA Hydrographic Services Review Panel, a Federal Advisory Committee.

Appendix A: Survey Picklists

This appendix provides the full set of choices presented in the self-assessment survey for questions that have multiple response options, including those that are “select all that apply.”

Q1. How is the Lead Covered Agency(ies) participating in ensuring the coordinated management of the Theme? (Select all that apply)

- Agency has published a geospatial strategy as required by the GDA
- No participation in ensuring coordinated management of the Theme
- Theme Executive Champion(s) attend NGDA Theme Community Meetings
- Theme Lead(s) attend NGDA Theme Community Meetings
- Theme Lead(s) participate in GDA Working Group meetings
- Theme Leads(s) review the outcomes from GDA Working Group meetings and provide feedback on approaches for GDA compliance
- Theme Lead(s) coordinate GDA compliance activities with Theme personnel
- Theme Lead(s) communicate new and ongoing Portfolio Management activities and priorities with Dataset Managers in the Theme
- Steering Committee members coordinate with the Theme
- Other [Textbox provided]

QA.2. Please check all the activities that have been taken to establish, develop, or modify standards for data within the Theme (select all that apply):

- Agency reviewed ISO metadata collection tools
- Agency reviewed conformance assessment procedures with assistance from existing standards bodies
- Agency maintains active licenses for all standards (where applicable)
- Agency generates Requests for Information (RFI) to develop new standards and tools
- Agency established processes for standards management
- Agency examined comparable international standards for suitability with NGDA dataset
- Agency examined comparable national standards for suitability with NGDA dataset
- Agency examined comparable FGDC endorsed standards for suitability with NGDA dataset
- Agency examined comparable open-source standards for applicability to NGDA dataset
- Agency developed comparable agency-specific standards to apply to NGDA dataset
- Agency analyzed related international, national, FGDC, open-source, or agency-specific standards to identify components to modify or adapt into specific NGDA dataset standard
- Agency analyzed related international, national, FGDC, open-source, or agency-specific standards to identify components to incorporate into a new specific NGDA dataset standard
- Agency established an appropriate subject-matter expert committee to develop a new standard to meet agency-specific, FGDC, national, international, user, or stakeholder needs for the NGDA dataset
- Appropriate committee created a draft agency-specific, FGDC, national, or international standard for the NGDA dataset
- Agency initiated the agency-specific FGDC, national, or international standard creation process for the NGDA dataset

- An agency-specific, FGDC, national, or international standard creation process in progress for the NGDA dataset
- A draft agency-specific, FGDC, national, or international standard for the NGDA dataset is in public review
- A draft agency-specific, FGDC, national, or international standard for the NGDA dataset is waiting for final approval by the appropriate standards governing body
- Other [Textbox provided]

Endnotes

- ¹ FGDC GDA Information:
<https://fgdc.gov/gda>
- ² NSDI Strategic Plan:
<https://www.fgdc.gov/nsdi-plan>
- ³ GeoPlatform Theme Communities:
<https://www.geoplatform.gov/communities>
- ⁴ Stages of the Geospatial Lifecycle:
<https://www.fgdc.gov/policyandplanning/a-16/stages-of-geospatial-data-lifecycle-a16.pdf>
- ⁵ Theme LMA Summary Reports:
https://communities.geoplatform.gov/ngda-portfolio/national-geospatial-data-asset-ngda-reports/?wdt_column_filter%5bYear%5d=2015&wdt_column_filter%5bReport%20Type%5d=Theme%20Summary%20Report
- ⁶ NGDA Portfolio Community Site:
<https://communities.geoplatform.gov/ngda-portfolio/>
- ⁷ OMB A-16 Supplemental Guidance Roles and Responsibilities:
<https://fgdc.gov/policyandplanning/a-16/key-roles-and-responsibilities-a16-supplemental.pdf>
- ⁸ NGDA Theme Leads:
<https://communities.geoplatform.gov/ngda-portfolio/ngda-theme-leads/>
- ⁹ NGDA Executive Theme Champions:
<https://communities.geoplatform.gov/ngda-portfolio/ngda-theme-executive-champions/>
- ¹⁰ NGDA Portfolio Datasets:
<https://communities.geoplatform.gov/ngda-portfolio/ngda-portfolio/>