



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

for
Soils Theme

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

February 4, 2022



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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 Soils 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.

Soils Theme Contacts	
Theme Lead(s):	Stephen Roecker, U.S. Department of Agriculture, Natural Resources Conservation Service
Executive Theme Champion(s):	Ron Sequeira, U.S. Department of Agriculture

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 Soils 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 Soils Theme](#). Each NGDA dataset also has a unique value assigned, called an NGDAID, that allows the dataset to be tracked throughout its lifecycle.

NGDAID	Soils Theme NGDA Datasets	Agency
137	Major Land Resource Areas (MLRA)	U.S. Department of Agriculture, Natural Resources Conservation Service
138	Soil Survey Geographic Database (SSURGO)	U.S. Department of Agriculture, Natural Resources Conservation Service
139	U.S. General Soil Map (STATSGO2)	U.S. Department of Agriculture, Natural Resources Conservation Service
140	NCSS Soil Characterization Database	U.S. Department of Agriculture, Natural Resources Conservation Service
193	Gridded Soil Survey Geographic (gSSURGO-30) Database for the Conterminous United States - 30 meter	U.S. Department of Agriculture, Natural Resources Conservation Service

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

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	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— <ol style="list-style-type: none">i. assessing existing standards;ii. identifying anticipated or needed data standards; andiii. developing a plan to originate and implement needed standards with relevant community and international practices—<ol style="list-style-type: none">I. in accordance with Office of Management and Budget Circular A– 119, or any successor thereto; andII. 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	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: <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.

- Major Land Resource Areas (MLRA)
- Soil Survey Geographic Database (SSURGO)
- U.S. General Soil Map (STATSGO2)
- NCSS Soil Characterization Database
- Gridded Soil Survey Geographic (gSSURGO-30) Database for the Conterminous United States - 30 meter

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

Below is a list of the relevant datasets and standards that have been recently updated or newly developed. SPSD standards undergo continuous development and refinement, that coincides with major projects and scientific advances. However, many datasets and standards are mature, thus major changes are rare. The newest addition to SPSD standards and guidance are for digital soil mapping (DSM) techniques. DSM has now become a mature subdiscipline within soil science but has only recently resulted in the creation of raster soil surveys (RSS). RSS methodology builds upon conventional soil mapping (CSM). Therefore, new guidance and minimum standards have been developed. Additional DSM standards are expected as more is learned from completed projects.

MLRA

- National Instructions (NI) Part 307 - Update to USDA Handbook 296 (2018)
(<https://directives.sc.egov.usda.gov/42161.wba>)
- National Soil Survey Handbook (NSSH) Part 649 – Land Resource Areas (2017)
(<https://directives.sc.egov.usda.gov/42011.wba>)

SSURGO/gSSURGO

- NI Part 309 - Soils2026 - Mapping Every Acre (2021)
(<https://directives.sc.egov.usda.gov/viewerFS.aspx?hid=47251>)
- NI Part 308 – Soil Quality (2021) (<https://directives.sc.egov.usda.gov/viewerFS.aspx?hid=44887>) - NSSH Part 618.2 – Minimum and Full Data Population (2021)
- NSSH Part 648 – Digital Soil Mapping (2018)
(<https://directives.sc.egov.usda.gov/viewerFS.aspx?hid=44250>)
- NASIS Training Manual
(https://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/survey/tools/?cid=nrcs142p2_053545)
- Chapter 25 – Populating Vegetation Plot Object (2021)
- Chapter 26 – Forms Module (2020)
- GovDelivery FY20 SSURGO update – Reduction in horizontal precision to 0.1 meters (2019)
- Soil Survey Manual (2017)
(https://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/ref/?cid=nrcs142p2_054262)

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):

- Agency established processes for standards management
- Agency examined comparable international standards for suitability with NGDA data set
- Agency developed comparable agency-specific standards to apply to NGDA data set
- 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
- The agency-specific/FGDC/international standard creation process in progress 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

International bodies

This past year the PSD has participated in several workshops facilitated by the FAO Global Soil Partnership (GSP), during which standards were discussed. In addition, the PSD developed several new datasets according to GSP standards. These new datasets have only recently come online and are currently only publicly available via the Global Soil Information System (GLOSIS), which is managed by the GSP. The GSP, of whom the PSD is a member and participant, is the most active international organization currently developing new datasets and standards.

Nationally

During FY2021 the NRCS hosted (virtually) the National Cooperative Soil Survey (NCSS) Conference and numerous State Planning Conferences. Discussions included changes to data definitions, but the proposals have yet to be implemented (see below).

Working Groups

The SPSD and NCSS have several focus teams/committees. These teams are responsible for developing and reviewing new standards that fall within scope of activities. A backlog of proposed changes to the tabular data model for SSURGO is currently under development and is expected to be released soon. This change will add several new data elements.

Working Group Accomplishments

- SPSD Digital Soil Mapping Focus Team (see dataset accomplishments listed above)
- SPSD Soil Survey Database Focus Team (see dataset accomplishments listed above)
- NCSS Standards and Taxonomy Committee
- Reviewed 31 Proposals to changes in Soil Taxonomy
(<https://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/survey/partnership/ncss/?cid=nrcseprd1522014#2021>)

SPSD Soil Business Systems Staff

- Selected EPSG Coordinate Reference Systems for the publishing datasets to address compatibility issues with open source software.
- Continental United States = 5070 (NAD83 / CONUS Albers)
- Alaska = 3338 (NAD83 / Alaska Albers)
- American Samoa & Federated States of Micronesia & Guam & Hawaii & Marshall Islands & Northern Mariana Islands & Palau = 4326 (WGS 84)
- Puerto Rico & US Virgin Islands = 32161 (NAD83 / Puerto Rico & Virgin Is.)

2021 Meetings (National and International)

- National Academy of Sciences, Engineering, and Medicine Workshop: Exploring a Dynamic Soil Information System (Mar. 2-4th)
- National Cooperative Soil Survey National Conference (June 8-10th)
- Global Symposium on Salt Affected Soils (Oct. 20-22nd)
- 7th Workshop of the International Network of Soil Information Institutions (INSII) (Nov. 9-11th)
- 3rd Workshop of the International Network of Black Soils (INBS) (Dec. 13-15th)

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> <ul style="list-style-type: none"> (i) include developing partnership programs with States, Indian tribes, institutions of higher education, private sector entities, other Federal agencies, and local governments; (ii) meet the needs of users of geospatial data; (iii) address human and financial resource needs; (iv) identify needs relating to standards, metadata for geospatial data within the National Geospatial Data Asset data theme, and the GeoPlatform; and (v) expedite the development of necessary National Geospatial Data Asset data themes;
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.

- Major Land Resource Areas (MLRA)
- Soil Survey Geographic Database (SSURGO)
- NCSS Soil Characterization Database
- Gridded Soil Survey Geographic (gSSURGO-30) Database for the Conterminous United States - 30 meter

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

To develop standards and set priorities for the Soil Theme, the SPSD partners with the numerous groups, including: BIA, BLM, BOR, DoD, Land Grant Universities, USFS, NPS, and State Agencies. All partners are members of the National Cooperative Soil Survey (NCSS), which meets annually via National, Regional (West, North-Central, Northeast, and Southeast), State Conferences. Input is also sought annually from local partners by Soil Survey Offices. At the international level, the SPSD collaborates with organizations such as the Food and Agriculture Organization (FAO) of the United Nations, to develop standards and share information. International collaborations occur on an as needed basis. No FDGC Soil Theme working groups currently exist. All standards (including geospatial) are developed in collaboration with the NCSS and FAO.

NCSS partners typically contribute expertise on shaping SPSD priorities and standards. Cost sharing is rare and typically limited to other federal agencies supporting new mapping for areas they manage. Most work is carried out and managed by the SPSD. Overtime contributions from partners has diminished as their funding has been reduced or their priorities have shifted. However, the SPSD does still actively receive data from research grants, which it awards annually. Data from research grants is captured in Ag Data Commons, GitHub (more recently), and incorporated into other datasets as needed or used to develop new standards. Some of these grants have resulted in popular 3rd party derivatives of soil theme datasets that partners host, such as SoilWeb and Soil Explorer. Other potential partners have also shifted to developing derivative products from SPSD data.

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.

- Major Land Resource Areas (MLRA)
- Soil Survey Geographic Database (SSURGO)
- U.S. General Soil Map (STATSGO2)
- NCSS Soil Characterization Database
- Gridded Soil Survey Geographic (gSSURGO-30) Database for the Conterminous United States - 30 meter

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

The SPSD has systems in place to distribute soil data on multiple platforms, in multiple formats, and at multiple levels of aggregation. See below for a list of interfaces, programming languages, platforms, and educational resources. Additional work is underway to make the data available in open-source formats and software, such as SQLite and QGIS. Considerable effort has gone into making the soil data as accessible as possible.

- Interfaces: Web Soil Survey (WSS), SoilWeb, Soil Explorer, Soil Data Development - Toolbox, Soil Data Viewer, Soil Data Access (SDA), soilDB, pysda
- Programming languages: SQL, R, Python, JavaScript
- Platforms: Web Browser, Desktop GIS, Application Programming Interface (API), Google Earth Engine
- Education: Help menus, Tutorials, YouTube videos

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.

- Major Land Resource Areas (MLRA)
- Soil Survey Geographic Database (SSURGO)
- U.S. General Soil Map (STATSGO2)
- NCSS Soil Characterization Database
- Gridded Soil Survey Geographic (gSSURGO-30) Database for the Conterminous United States - 30 meter

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).

SPSD funding is tied to supporting USDA-NRCS conservation programs. Updates and new mapping are continually underway throughout the US, as funding permits. In the case of mapping federal land, the responsible federal partner typically provides reimbursable funds averaging approximately 3 dollars an acre and ranging from 0.5 to 7. The SPSD currently has a staff of 436 employees (up from 373 last FY), but also receives limited support from approximately 200 NRCS Soil Scientists. Overall, the SPSD staff

has decreased from a high of 936 employees in 2005. The maintenance and development of the SPSD's data infrastructure is currently supported by approximately 11 contractors (up from 1.5 last FY). The number of contractors has varied considerably as NRCS IT investment priorities have shifted.

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.

- Major Land Resource Areas (MLRA)
- Soil Survey Geographic Database (SSURGO)
- U.S. General Soil Map (STATSGO2)
- NCSS Soil Characterization Database
- Gridded Soil Survey Geographic (gSSURGO-30) Database for the Conterminous United States - 30 meter

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

The SPSD maintains a wealth of guidelines and standards (e.g. National Soil Survey Handbook, Soil Survey Manual, Soil Taxonomy, National Bulletins, Technical Notes, User Guides, and Training Material). Additions to this material is proposed by either NCSS committees or internal SPSD Focus Teams. Proposals undergo a review process, after which the SPSD Standards Staff incorporates them into the appropriate reference material. The process to revise the NSSH are outlined in Parts 600 and 6144 (<https://directives.sc.egov.usda.gov/viewerFS.aspx?hid=44198>).

QB.1e. Are there any other processes in place that support nationwide population of datasets (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.

- Soil Survey Geographic Database (SSURGO)
- NCSS Soil Characterization Database
- Gridded Soil Survey Geographic (gSSURGO-30) Database for the Conterminous United States - 30 meter

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

The SPSD is currently exploring ways to incorporate data from external partners to accelerate the completion of SSSURGO by 2026. Partner submissions follow the same protocols as internal staff and are reviewed by internal quality assurance staff. The SPSD has also incorporated data from partners in the past. Historically incorporating data from partners has been difficult due to the following issues: different nomenclature, less detail, and different data structures. The most successful contributions

have been point data acquired from University Soil Laboratories.

Overtime the contributions from partners have diminished as their funding has been reduced or their priorities have shifted. However, the SPSD does still actively receive data from research grants, which it awards annually. Data from research grants is captured in Ag Data Commons and incorporated into other datasets as needed or used to develop new standards.

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 SPSD continues to provide national leadership on the development of the Soils Theme, by engaging with its partners, collecting new soil data, developing new interfaces to soil data, evaluating user needs, and continually enhancing standards. Below is a summary of accomplishments.

Accomplishments

Partnerships

- Hosted the National Cooperative Soil Survey Conference (<https://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/survey/partnership/ncss/?cid=nrcseprd1722240>)
- Participated in the National Academy of Sciences, Engineering, and Medicine Workshop: Exploring a Dynamic Soil Information System (Mar. 2-4th)
- Participated in the Global Symposium on Salt Affected Soils (Oct. 20-22th)
- Participated in the 7th Workshop of the International Network of Soil Information Institutions (INSII) (Nov. 9-11th)
- Participated in the 3rd Workshop of the International Network of Black Soils (INBS) (Dec. 13-15th)

Users

- Continued development of the soilDB R package (<https://github.com/ncss-tech/soilDB>)
- Under development a new R package to generate soil interpretations (<https://github.com/ncss-tech/interpretation-engine>)
- Developed a new R package to estimate soil hydraulic conductivity (<https://github.com/ncss-tech/rosettaPTF>)
- Developed a new R package to estimate soil moisture (<https://github.com/ncss-tech/rNewhall>)

Financial

- The SPSD added 63 new staff, and 9.5 new contractors.

Standards

- Published the “National Initiative Part 309 - Soils2026 - Mapping Every Acre” which outlines a strategy to expedite mapping (<https://directives.sc.egov.usda.gov/viewerFS.aspx?hid=47251>)
- Published NSSH Part 618.2 – Minimum and Full Data Population

Development

- Published the annual update to SSURGO (gSSURGO Updated 2021 (govdelivery.com)
- Added ~ 24 million new acres, and updated another ~ 27 million existing acres
- Completed minimum data population of SSURGO to support the FSA land rental rate calculation and conservation programs such as the Conservation Assessment and Ranking Tool.

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	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: <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.

USDA Geospatial Strategic Plan (https://www.usda.gov/sites/default/files/2021-12/Enterprise%20Geospatial%20Strategic%20Plan_Final.pdf) This plan outlines the geospatial goals of the USDA, under which the SPSD resides. NGDA Soils Theme Strategic Plan (https://communities.geoplatform.gov/ngda-portfolio/wp-content/uploads/2016/2016_Reports/Soils_Theme_Strategic_Plan_2016_2026.pdf) This is a 10-year plan that outlines the goals for the NGDA Soils Theme. It largely mirrors the goals outlined in the NCSS Strategic Plan NCSS Strategic Plan (https://www.nrcs.usda.gov/wps/PA_NRCSConsumption/download/?cid=nrcseprd1134606&ext=pdf) This is a 10-year plan that outlines the goals identified by the Soil Theme’s NCSS partners.

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 goals and actions for the Soils Theme are captured in the Soils Theme and NCSS Strategic Plans listed above. Below is list of the objectives identified in the NCSS Strategic Plan.

- Create a culture of continual relevancy and improvement.
- Focus research, data collection, and development pursuits on existing data voids.
- Generate additional characterization data with emphasis on benchmark soils and soil series that are currently unsupported by laboratory data.
- Define and describe ecological sites.
- Continue to work on SSURGO.
- Incorporate biological, temporal, and dynamic soil properties into our data structure.
- Work toward common standards.
- Collaborate on standards for data collection and analysis.
- Collaborate on standards for raster products.
- Conduct an open and transparent process to propose fundamental changes to Soil Taxonomy leading to a more user-friendly product.
- Ensure broad participation in the revision of the Soil Survey Manual.
- Develop new data and knowledge delivery systems that take advantage of changing technology.
- Develop and deliver soils information for all lands in the United States.
- Develop new soils information products to

address changing user requirements. Many of these objectives are intended to be address by the SPSD's Soils 2026 Initiative and Dynamic Soil Property Projects, which are discussed in the National Instructions Part 309 (<https://directives.sc.egov.usda.gov>) and Part 308 (<https://directives.sc.egov.usda.gov/viewerFS.aspx?hid=44887>).

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.

The SPSD is continuing to make progress addressing the goals and action items outlined in the NCSS Strategic Plan. For a detailed list please refer to the previous responses to questions QA.1 and QB.2.

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	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: <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.

In FY21 the NCSS and NRCS hosted the NCSS National Conference (virtually), and numerous State and Local meetings to solicit user needs. These events are an opportunity for partners and users to provide feedback and help the SPSD prioritize updates. Given the wide variety of partners and users, there is an equally wide range of competing interests. One of the primary requests, is to make the existing soil data more detailed, both spatially and temporally. Therefore, efforts are underway to provide more detailed soil information by leveraging digital soil mapping techniques and structuring projects to systematically collect temporal (i.e. dynamic) data. If daily users have specific questions, they can also contact the SPSD hotline/email. In addition, many users often seek out support from local NRCS Soil Scientists. Other more process-based questions maybe posted on the Soil Taxonomy Forum, which is a 3rd party site hosted by a NCSS University partner.

To collect more passive input of user needs, the NRCS also analyzes the web usage of its soil data products. The metrics show that the usage of web application programming interfaces (API) to NRCS soil data are increasing in popularity, while other forms of data distribution remain steady. Typical topics of interest include hydrologic soil group, hydric rating, prime farmland, depth to water table, and an interpretation for basements.

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 Life cycle:

<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/>