



**2021 Lead Covered Agency
NGDA Theme Annual Performance Report
and Self-Assessment**
for
Land Use – Land Cover 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 Land Use – Land Cover 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.

Land Use - Land Cover Theme Contacts	
Theme Lead(s):	Jim Ellenwood, U.S. Department of Agriculture, U.S. Forest Service Terry Sohl, U.S. Department of the Interior, U.S. Geological Survey
Executive Theme Champion(s):	Ron Sequeira, U.S. Department of Agriculture David Carter, U.S. Department of the Interior

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 Land Use – Land Cover 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 Land Use – Land Cover Theme](#). Each

NGDA dataset also has a unique value assigned, called an NGDAID, that allows the dataset to be tracked throughout its lifecycle.

NGDAID	Land Use - Land Cover Theme NGDA Datasets	Agency
107	Coastal Change Analysis Program (C-CAP) High Resolution Land Cover and Change Data	U.S. Department of Commerce, National Oceanic and Atmospheric Administration
108	Coastal Change Analysis Program (C-CAP) Regional Land Cover Data and Change Data	U.S. Department of Commerce, National Oceanic and Atmospheric Administration
109	CropScape - Cropland Data Layer	U.S. Department of Agriculture, National Agricultural Statistics Service
110	Forest Inventory and Analysis Database	U.S. Department of Agriculture, U.S. Forest Service
111	Landfire Environmental Site Potential	U.S. Department of Agriculture, U.S. Forest Service
112	Landfire Existing Vegetation Cover	U.S. Department of Agriculture, U.S. Forest Service
113	Landfire Fire Regime Groups	U.S. Department of Agriculture, U.S. Forest Service
116	Monitoring Trends in Burn Severity Conterminous United States (Map Service)	U.S. Department of Agriculture, U.S. Forest Service
117	National Land Cover Dataset (NLCD) 2016 Land Cover Products	U.S. Department of the Interior, U.S. Geological Survey
118	National Land Cover Dataset (NLCD) 2016 Impervious Products	U.S. Department of the Interior, U.S. Geological Survey
119	NLCD 2011-2016 Tree Canopy Cover Change CONUS (Image Service)	U.S. Department of the Interior, U.S. Geological Survey
120	North American Land Change Monitoring System (NALCMS) Collection	U.S. Department of the Interior, U.S. Geological Survey
192	LANDFIRE Forest Canopy Cover	U.S. Department of Agriculture, U.S. Forest 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
- Theme Lead(s) communicate new and ongoing Portfolio Management activities and priorities with Dataset Managers in the Theme

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.

- CropScape - Cropland Data Layer
- Forest Inventory and Analysis Database
- Landfire Environmental Site Potential
- Landfire Existing Vegetation Cover
- Landfire Fire Regime Groups
- Monitoring Trends in Burn Severity Conterminous United States (Map Service)
- National Land Cover Dataset (NLCD) 2016 Land Cover Products
- National Land Cover Dataset (NLCD) 2016 Impervious Products
- NLCD 2011-2016 Tree Canopy Cover Change CONUS (Image Service)
- North American Land Change Monitoring System (NALCMS) Collection
- LANDFIRE Forest Canopy Cover

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

For FIA, no work was done on this particular dataset supporting new GDA standards in 2021. In August, 2021 USDA-FS published a Quick Start Guide for Adopting ISO 19115-1 and 19115-3: (<http://fsweb.datamgt.fs.fed.us/documents/metadata/ISO-Metadata-Adoption-Quick-Start.pdf>). USDA-FS also published a report on errors in ArcGIS Pro ISO 19115-1/3. While ArcGIS Pro is compatible with these standards, support is limited and tools to convert and validate metadata translations are missing from ArcGIS Pro. Additionally, an ISO metadata toolbox was published in August 2021: (T:\FS\Reference\GeoTool\agency\Toolbox\MetadataToolboxes\ISO_MetadataToolbox - Internal website).

For MTBS - The MTBS Program uses calibrated remote sensing data as inputs and fire occurrence data

from official systems of record to produce a suite of standard fire geospatial products ("MTBS Product Descriptions"). Derived products are based on burn severity mapping protocols and methods and documented in scientific literature and government publications ("MTBS Mapping Methods"; Eidenshink et al. 2007; Key and Benson, 2006). Adaptations and streamlining measures have been applied over the duration of the MTBS Program to ensure consistently derived data for this large spatial and temporal extent (Picotte et al. 2020). The program is continuing to work with the academic community to integrate regression models based on current and historical field plot data to produce modeled estimates of geospatial burn severity products (Picotte et al. 2021) for regions/biomes.

For NLCD - NLCD metadata is available and discoverable through data.gov. All NLCD metadata is available for viewing/download @ <https://www.mrlc.gov/data>. The metadata is compliant with FGDC-STD-001-1998 (NLCD data themselves are also available through <https://www.mrlc.gov/data>).

For Landfire - LANDFIRE is working products toward the NVC standard (USNVC Standard - FGDC 2008). More information on this work can be accessed at (<https://landfire.gov/nvc.php>). LANDFIRE metadata for the 5 NGDA is available and discoverable through data.gov. Remainder of Landfire data (circa 15 to 20 geospatial datasets) is missing. All LANDFIRE data is available at <https://www.landfire.gov> and <https://www.landfire.gov/getdata.php>. LANDFIRE products meet NWCG standards and metadata is compliant with FGDC-STD-001-1998. LANDFIRE meets content Standard for Digital Geospatial Metadata (CSDGM) or its extensions for biological data (Biological Data Profile) and International Organization for Standardization (ISO) series of standards (19115, 19115-2, 19139, etc.).

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 established an appropriate subject-matter expert committee to develop a new standard to meet agency-specific/FGDC/international needs for the NGDA data set
- Theme initiated the agency-specific/FGDC/international standard creation process for the NGDA data set
- **Other:** MTBS data production is based on published scientific standards/processes and recommendations from program science advisors. Metadata provided for each MTBS layer/theme are in accordance with ISO-19139 and ISO-19115 standards.

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

CDL - Per FGDC Linda Wayne - NGDAID 109: CropScope - Cropland Data Layer is available in Data.gov. However, my understanding is that because the metadata is published as DCAT-US (JSON) and the metadata record does not include a link to an available ISO 19115 metadata record, the Geospatial Platform is unable to include it in their data catalog. They are, however, able to implement services and other resources documented in the JSON record. I do see that there is a link to a website that distributes geospatial metadata (CSDGM) by state. I am available to work with the dataset manager to create an ISO 19115 collection-level metadata record that could be included in the JSON record. There are over 800 metadata records that need converting from FGDC-STD-001-1998 to latest ISO standard. Conversion assistance is needed.

FIA - USFS has a metadata working group and are moving to incorporate FGDC standards via ESRI platforms. <https://usdagcc.sharepoint.com/sites/fs-gmo-gisbp/SitePages/Metadata.aspx>

MTBS - MTBS Program efforts in FY21 included:

- Coordination between MTBS business and science leads from USFS, USGS and NPS to assess, refine and improve existing MTBS mapping and data product standards (unpublished).
- Coordination between MTBS and other USFS and DOI post-fire burn severity mapping programs that provide products using specific methods and assessment strategies to generate products to meet the needs of designated user communities. Efforts focused on further refinement of respective program mapping and data product standards and processes, where needed, to ensure necessary consistencies and distinctions between respective program product deliverables.

GAP/Landfire - USGS has worked with the USFS, the Chair of FGDC Vegetation Subcommittee to implement the U.S. National Vegetation Classification Standard. Those efforts include coordinating meetings, supporting the Ecological Society of America's – Panel on Vegetation Classification and the Peer Review Process. USGS also maintains the website USNVC.org content which describes the Standard and partnership that supports it. That website also makes the content of the U.S. National Vegetation Classification available to the public.

NLCD - NLCD has worked with science base to provide a common platform and standardized publication across government sites. One major problem is publication of modified datasets that have the NLCD name that tend to number well into the hundreds. These other modified products clutter and confuse users. NLCD spent a year working through and purging duplicative products and metadata. Removing these unofficial products is important future concern.

Landfire - LANDFIRE as part of USDA Forest Service and DOI as implemented in USGS supports the FGDC and NWCG to meet/align with implemented standards.

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.

- Coastal Change Analysis Program (C-CAP) High Resolution Land Cover and Change Data
- Coastal Change Analysis Program (C-CAP) Regional Land Cover Data and Change Data
- CropScape - Cropland Data Layer
- Forest Inventory and Analysis Database
- Landfire Environmental Site Potential
- Landfire Existing Vegetation Cover
- Landfire Fire Regime Groups
- Monitoring Trends in Burn Severity Conterminous United States (Map Service)
- National Land Cover Dataset (NLCD) 2016 Land Cover Products
- National Land Cover Dataset (NLCD) 2016 Impervious Products
- NLCD 2011-2016 Tree Canopy Cover Change CONUS (Image Service)
- North American Land Change Monitoring System (NALCMS) Collection
- LANDFIRE Forest Canopy Cover

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

CDL - USDA/ARS and USDA/NASS have partnered to release a new CDL dissemination portal called CroplandCROS. NASS published a press release on Oct 28, 2021 @

<https://www.nass.usda.gov/Newsroom/2021/10-28-2021.php>

NASS uses the following sources as inputs to CDL production - FEDERAL: USDA, Foreign Agricultural Service, Satellite Image Archive – Cost-sharing of satellite imagery inputs; USDA, Farm Service Agency – Access to their Common Land Unit (CLU) Program data for agricultural training and validation; USDA, Forest Service, Tree Canopy Layer; United States Department of Interior, Bureau of Reclamation – Use of their Lower Colorado River Water Accounting System (LCRAS) GIS data layer; United States Geological Survey, Earth Resources Observation and Science Data Center – Sharing of technical expertise, use of their National Land Cover Database (NLCD) for non-agricultural training and validation, use of their National Elevation Dataset (NED), and use of their Imperviousness Layer Dataset; STATE - Florida Department of Agriculture and Consumer Services – Use of their Florida Statewide Agricultural Irrigation Demand (FSAID) Geodatabase; Washington State Department of Agriculture – Use of their Crop Geodatabase

Utah Division of Water Resources – Use of their Agriculture Check Polygons Program data; UNIVERSITY - Oregon State University and Jackson County, Oregon GIS Office – Use of their Orchards And Vineyard GIS Database; PRIVATE - LandIQ (private company) – Use of their California Statewide Land Use product.

CCAP - is a major participant in the MRLC program and produces products in conjunction with the NLCD program.

NLCD - NLCD has released an information portal called the Enhanced visualization and Analysis (EVA) tool that makes landcover data more accessible and understandable to non-gis users. This provides change analysis and other landcover comparisons and examinations. This tool was created in collaboration with NOAA. NLCD represents a broad collaboration of federal users called the MRLC consortium. These partners represent hundreds of FGDC datasets.

Landfire - LANDFIRE partnerships consist of both major and supporting partners. More information on these partnerships can be found at (https://landfire.gov/lf_partners.php) LANDFIRE leverages data were applicable from these partners (many part of the MRLC) to build amazing products from massive and complex data sets.

GAP/Landfire - Work is ongoing to develop a data workflow to enhance the attribution in the species range maps (U.S. Geological Survey - Gap Analysis Project Species Range Maps CONUS_2001). Software is in review that queries occurrence databases (e.g. Global Biodiversity Information Facility) to indicate the last observation of the species in a range map unit. / USGS is working with university collaborators to update the species habitat distribution dataset (U.S. Geological Survey - Gap Analysis Project Species Habitat Maps CONUS_2001). That involves updating each of the ancillary datasets (e.g. land cover, hydrography, forest interior) and reviewing the taxonomic standing of each of the species being modeled. For this update, the 2016 LANDFIRE Existing Vegetation Dataset will be the basis for the land cover. Model evaluations are being conducted and they will help determine which models require revision. / In 2022 USGS in collaboration with Michigan State University will be adding 271 species distribution models of freshwater fishes of the conterminous U.S. to the GAP Species Habitat Distribution Dataset. The spatial framework for these models is based on several of National Geospatial Data Assets (e.g. National Hydrography Dataset, National Land Cover Dataset, Tiger Roads).

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.

- CropScape - Cropland Data Layer
- Landfire Environmental Site Potential
- Landfire Existing Vegetation Cover
- Landfire Fire Regime Groups
- Monitoring Trends in Burn Severity Conterminous United States (Map Service)

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

CDL - The CDL is now published annually on the CroplandCROS website. CDL also published on CropScape and NRCS Data Gateway portals. The CroplandCROS website has a user feedback function @ <https://survey123.arcgis.com/share/890753266d2f4e99863276c7a513fc3c> There are user resource help guides available at <https://pdenterprise.azurecloudgov.us/portal/apps/sites/#/cropcros>

MTBS - MTBS is in the early stages of initiating a user/customer satisfaction survey in accordance with the Paperwork Reduction Act and OMB. Survey is anticipated to be made available to all interested

respondents via the MTBS.gov website. Coordination is ongoing with USFS Information Collections Officer to review and approve the draft survey in preparation for an initial Federal Register Notice. Results of this survey will inform decisions on refinements of existing MTBS products and services or generation of new products and services to better meet customer needs. MTBS also engages with the interagency science/R&D community to receive feedback on current methods/processes and derived products and services.

GAP/Landfire - The ESA Panel on Vegetation Classification has a Peer Review Board and a 5-year plan for conducting those reviews through a series of regional meetings. Those meetings engage local experts to guide proposed revision to the U.S. National Vegetation Classification. / With regards to the GAP LANDFIRE National Terrestrial Ecosystems dataset, the Ecological Society of America – Panel on Vegetation Classification has a proposal for a comprehensive review of the application of the classification in mapping. The results would be to increase the linkages between the USNVC content and the map legend.

Landfire - List of LANDFIRE products and descriptions is available at (https://landfire.gov/documents/LF_Product_Descriptions_Table_2019.pdf).

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.

- CropScape - Cropland Data Layer
- Landfire Existing Vegetation Cover

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).

GAP/Landfire - Yes, there are program plans in place for all three of the USGS datasets. The species ranges and habitat distribution datasets are supported through agreements with university partners (NCSU, BSU, NMSU, and MSU). In addition, USGS provides two parttime (~0.75 FTE) positions to support for the species modeling. / Support for the USNVC Standard is provided through a cooperative agreement with the Ecological Society – Panel on Vegetation Classification. Most recently USFS has funded NatureServe to support the data management and Editor in Chief Role for managing the Panel's Peer Review Board process. In addition, USGS provides a part time implementation manager (0.25%) for USNVC and National Terrestrial Ecosystem efforts. USFS supports two parttime positions to serve as co-leads on the FGDC Vegetation Subcommittee.

CDL - The CDL product is freely available and accessible on all previously mentioned portals. End users can interact, visualize, and query the entire CDL data archive. Additionally, USDA published its Geospatial Strategic Plan in FY21 that elaborates upon each of the goals with specific objectives, including expanding use of geospatial data and access to it, promotes adoption of policies and standardized software, securing funding and staff for geospatial initiatives, and otherwise developing partnerships and encouraging geospatial innovation and professional competency.

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.

- Forest Inventory and Analysis Database
- Landfire Existing Vegetation Cover

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

FIA - FIA, cannot fully meet standards until ESRI makes systemic changes to USFS contracted platforms (AGOL, ArcPro)

GAP/Landfire - The USNVC Standard was the first dynamic content standard adopted by the FGDC. That means the Standard sets the process for the development of the content (the Classification). The FGDC Vegetation Subcommittee provides the guidance for implementing the standard and the ESA Veg Panel provides the scientific review of the content. There is a 5-year plan for regional reviews and for 2023 edition of the Classification based on those reviews. In 2023 changes to the higher levels of the classification hierarchy will be considered by the Peer Board and proposed for the Vegetation Subcommittee for consideration.

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.

- National Land Cover Dataset (NLCD) 2016 Land Cover Products
- National Land Cover Dataset (NLCD) 2016 Impervious Products
- North American Land Change Monitoring System (NALCMS) Collection

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

NLCD - NLCD works with science base as a platform to bridge publication across all platforms

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.

Made progress toward expectations

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.

USDA -

(https://www.ocio.usda.gov/sites/default/files/Enterprise%20Geospatial%20Strategic%20Plan_Final_20201222.pdf) USDA/DOI - Both USDA and DOI have developed geospatial strategies that are available here (https://www.fgdc.gov/gda/gda-plans/index_html)

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.

Enterprise Geospatial Management Office (EGMO)

— USDA (<https://www.usda.gov/ocio/centers/egmo>).

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.

Made progress toward expectations

Landfire - LANDFIRE products meet some but not all of the National Geospatial Data Asset data themes [USC 43 Sec 2805(b)(3)(B)]

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.

CDL - User comments/feedback are collected via Agency email and telephone from both CropScape and CroplandCROS portals and NASS Public Affairs Office for agency review and response. Also please refer to E57 regarding FY21 actions.

CCAP - collects feedback and needs from constituents. This is mostly done through regional staff and through direct contact with states and other regional/local groups.

FIA - FIA hosts user group meetings throughout the year, meeting with major stakeholders and making strategic decisions to better meet stakeholder needs.

MTBS - MTBS is in the early stages of initiating a user/customer satisfaction survey in accordance with the Paperwork Reduction Act and OMB. Survey is anticipated to be made available to all interested respondents via the MTBS.gov website. Coordination is ongoing with USFS Information Collections Officer to review and approve the draft survey in preparation for an initial Federal Register Notice. Results of this survey will inform decisions on refinements of existing MTBS products and services or generation of new products and services to better meet customer needs. MTBS also engages with the

interagency science/R&D community to receive feedback on current methods/processes and derived products and services.

NLCD - User comments and feedback are incorporated through science base and customer service and pushed forward for review to the appropriate reporting officials.

Landfire - 1). LANDFIRE Business Leads from USDA FS and DOI work with the agencies to assess user acceptance of the products and identify areas for improvement. 2). Periodic user surveys are conducted to collect information to help strategize on program improvements. 3). The LANDFIRE help desk can also provide some suggestions on improvement opportunities.

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/>