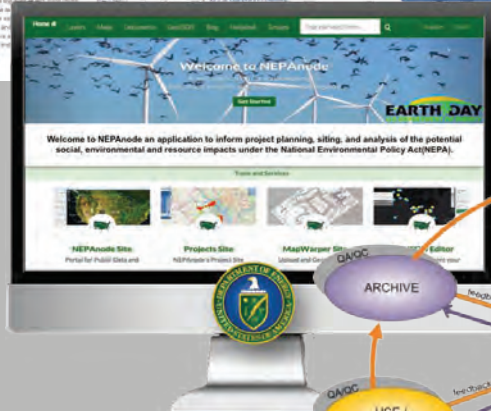
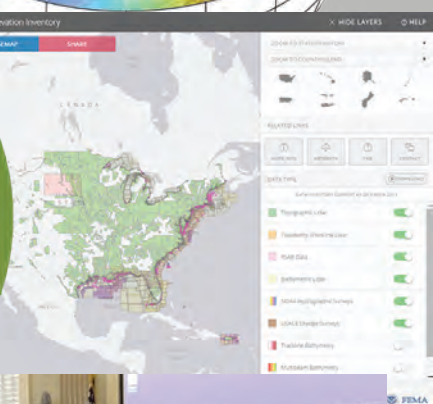
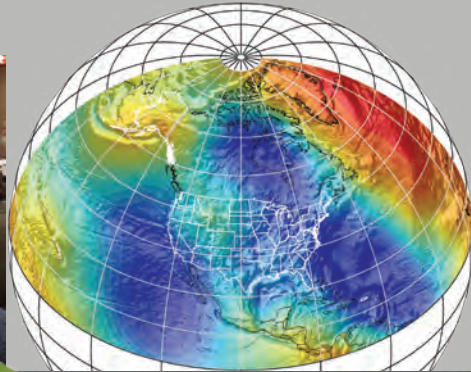


2015 Annual Report

Federal Geographic Data Committee



Federal Geographic Data Committee
IVAN DELOATCH, Executive Director

Federal Geographic Data Committee, Reston, Virginia: 2016

For more information on the Federal Geographic Data Committee
World Wide Web: <http://www.fgdc.gov/>
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Message from the FGDC Chair

I am pleased to present the Federal Geographic Data Committee's (FGDC's) annual report for fiscal year 2015. This report provides a summary of program, management, budget, and performance information and describes the FGDC's actions over the past year to facilitate sustainable development and dissemination of geospatial data and technology. These actions support important initiatives, such as the Digital Government Strategy, the Open Data Initiative, and Information Technology Shared Services.

Throughout 2015, the FGDC continued to have a primary focus on achieving the goals in the 2014–2016 National Spatial Data Infrastructure (NSDI) Strategic Plan. The strategic plan describes a shared national vision for the NSDI and includes a clear set of three goals with objectives for the Federal role in achieving this vision.

Goal 1 is to develop nationally shared services. The FGDC continued to make significant progress in developing the Geospatial Platform, which is a critical tool for providing shared services and capabilities. With new support available, the team made significant progress and enhancements to the Platform, which includes a redesigned Web site and a Web map viewer and gallery. The FGDC endorsed the Geospatial Interoperable Reference Architecture (GIRA), which provides a framework for the management, design, development, and alignment of new or existing geospatial system/solution investments. In addition, a new geospatial cloud-hosting contract awarded this year will provide access to cloud-hosting services to FGDC agencies.

Goal 2 is to ensure accountability and effective management of Federal geospatial resources. The primary emphasis is to continue to implement the National Geospatial Data Asset (NGDA) Management Plan. This process will provide a sustainable means for managing and monitoring Federal investments in geospatial assets. The focus in 2015 was developing a process to more effectively manage our investments and building the foundation for more effective portfolio management. I would like to thank the NGDA Theme Leads and Dataset Managers from all the FGDC Federal agencies who worked together to fulfill the responsibilities identified for them in the NSDI Plan.

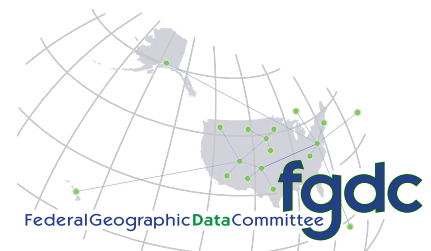
Goal 3 is to convene leadership of the national geospatial community. This goal is about promoting partnerships and collaboration with Federal agencies, as well as with external partners like the National Geospatial Advisory Committee (NGAC), which includes representation from multiple organizations across the country. The role and contributions of the NGAC are highlighted in this report. The FGDC also continued its leadership and participation in the development and coordination of standards and metadata applicable to the geospatial community. The FGDC endorsed five new standards in 2015, and the FGDC Geospatial Metadata Program engaged in several activities to support the Data.gov and Geospatial Platform initiatives and the implementation of ISO geospatial metadata.

We have made great progress in geospatial programs over the last year—from establishing the Geospatial Platform, to developing and implementing the goals of the NSDI Strategic Plan and the NGDA Management Plan, to developing initiatives, such as the Open Water Data Initiative and the 3D Elevation Plan. This Administration has until the end of 2016 to make a final push on key geospatial priorities, and I challenged the NGAC and the FGDC community to think strategically about what we can do together to make an impact over the coming year. Our community has accepted this challenge, and fiscal year 2016 will focus on our continued collaboration with partners to advance critical national geospatial initiatives and ensure a smooth transition into the next Administration.

We are looking forward to advancing progress and partnerships in the coming year.

Sincerely yours,

Jennifer Gimbel
FGDC Chair
Principal Deputy Assistant Secretary for Water and Science
Department of the Interior



Doug D. Nebert NSDI Champion of the Year Award



In 2014, the FGDC announced the establishment of the Doug D. Nebert National Spatial Data Infrastructure (NSDI) Champion of the Year Award in honor of a respected colleague, technical visionary, and recognized national and international leader in the establishment of spatial data infrastructures. Details of the nomination and award process will be made available toward the end of 2015 via the FGDC Web site with the first award anticipated to be announced in 2016.

The vision of the NSDI is to assure that spatial data from multiple sources—Federal, State, Tribal, regional, and local governments, academia, and the private sector—are available and easily integrated to enhance the understanding of our physical and cultural world. Each year, the award will be announced in the FGDC Annual Report and will be presented to an individual or team representing Federal, State, Tribal, regional, and (or) local governments, academia, or nonprofit and professional organizations for

development of an innovative and operational geospatial tool, application, or service capability used by multiple organizations.

This NSDI award will be based on the following foundational precepts:

- Innovation and vision
- Interoperability
- Use of standards
- Advancement of NSDI principles
- Service to communities of users
- Developed once, used by many
- Improved performance and service
- Real-world application

The FGDC's counterpart in Europe is the Infrastructure for Spatial Information in the European Community (INSPIRE) and it has established the INSPIRE Conference Excellence Award in memory of Doug Nebert and Christiner Giger to recognize excellence in geoinformation technologies. In June, the award went to Geosparc, lat/lon, and wetransform (ec.europa.eu/jrc/en/event/conference/inspire-gwf-2015).

Highlights for Fiscal Year 2015

Implementation of the **National Spatial Data Infrastructure (NSDI) Strategic Plan** continued into its second of 3 years. The FGDC community worked collaboratively to complete actions and tasks related to six of the nine objectives called out in the plan. For more information, see page 8 and Appendix E. Highlights for this year include:

Geospatial Interoperable Reference Architecture. The Geospatial Interoperable Reference Architecture (GIRA) defines governance and an oversight framework for executive leadership to manage geospatial program and acquisition decisions, and provides technical architecture guidance on the design and implementation of an interoperable geospatial solution. After an interagency review, the GIRA was endorsed this year by the FGDC. The geospatial stakeholder community also provided feedback. For more information, see page 8.

Geospatial Platform. The third iteration of the Geospatial Platform (Geoplatform.gov) Web site was released this year, and features a number of new capabilities and a greatly expanded collection of trusted geospatial data, services, and applications. The new Web site features advanced tools for allowing users to quickly view data, create interactive maps, and to share these products with users, either within the Communities and Map Gallery of the Geospatial Platform or on their own Web sites. Additionally, in support of the FGDC efforts to implement portfolio management for the collection of National Geospatial Data Assets, advanced user survey capabilities and the first version of an interactive reporting dashboard were

released this year as new functions of the Geospatial Platform. For more information, see page 10.

GeoCloud. The FGDC's GeoCloud initiative sponsored the operational deployment of key public-facing geospatial Web services and engaged several new projects as part of the shared services strategy to advance the Geospatial Platform. The GeoCloud served as an incubator for projects that provided data, information, applications, tools, and services related to national efforts in biodiversity, climate, public health, environmental health, housing affordability, water use and availability, social, economic, and environmental subject areas. For more information, see page 10.

NGDA Management Plan. The FGDC Federal agencies continued their efforts to accomplish the actions described in the National Geospatial Data Asset (NGDA) Management Plan, which support implementation of the Office of Management and Budget (OMB) Circular A-16 Supplemental Guidance. This year, an additional 5 of the 27 actions described in the plan were completed (for a total of 10 completed actions) and several activities are underway to support the remaining actions. The completed actions included registering metadata for baseline NGDA Datasets in the catalog that serves Data.gov and Geoplatform.gov, approving a process for the nomination and removal of NGDA Datasets within the A-16 NGDA Portfolio, establishing A-16 Theme collaboration communities on Geoplatform.gov, developing the NGDA Dataset maturity assessment survey, and developing a template for NGDA Theme strategic plans. In addition, an interagency completed

documenting the definitions of geospatial investment. For more information, see page 11.

NGDA Portfolio Management. National Geospatial Data Asset (NGDA) Theme Leads and Dataset Managers worked together to advance portfolio management and fulfill the responsibilities identified in the NGDA Management Plan, including the registration of all NGDA Datasets in the catalog used by Data.gov and the Geospatial Platform. Theme Leads reached out to groups with shared interests to increase communications and optimize resources for future efforts and Dataset Managers oversaw the improvement to several NGDA Datasets. The focus at the end of the fiscal year was completing the baseline NGDA Dataset Lifecycle Maturity Assessments that will form the foundation for informed portfolio reporting. For more information, see page 13.

Standards. The FGDC continued its leadership and participation in the development and coordination of national and international standards. The FGDC endorsed five standards in 2015: the Aeronautical Information Exchange Model (AIXM) 5.1; ISO/IEC 15444-1:2004 Technical Corrigenda 1:2007 and 2:2008 JPEG 2000; OGC GeoPackage 1.0; Geopolitical Entities, Names, and Codes (GENC) Standard Edition 2; and GeoRSS-Simple and GeoRSS-GML. February 2015 marked the fourth anniversary of the monthly standards update. For more information, see page 16.

Geospatial Metadata. The FGDC Geospatial Metadata Program activities focused on supporting the implementation of the International Organization for Standardization

(ISO) geospatial metadata standards and increasing access to geospatial metadata through the Data.gov and Geoplatform.gov shared catalog. The NSDI stakeholders shared implementation experiences each month through the FGDC-hosted ISO Geospatial Metadata Implementation Forum. An update to the online ISO Geospatial Metadata Editor Registry was developed and released with software developers and users providing information about tools that support creation of ISO metadata. Through the NGDA Metadata Focus Group, the Theme Leads and Dataset Managers were provided recommendations that enabled all NGDA Datasets to be registered and discovered in Data.gov and

Geoplatform.gov catalog. Activities have engaged the community and provided a mechanism where public and private sector members can share their metadata experiences, expertise, and resources. For more information, see page 17.

National Geospatial Advisory Committee (NGAC). This year, the NGAC and its subcommittees focused on providing feedback and recommendations to the FGDC in the areas of geospatial privacy, crowdsourced geospatial data, the Landsat Program, the 3D Elevation Program, and NSDI and Geospatial Platform outreach and communications. For more information, see the feature article on page 3.

International Activities. The FGDC actively supported international efforts through several groups. The FGDC Global Geospatial Information Management (GGIM) Working Group represented the United States at several international meetings held throughout the year and supported the passage of a proposal from the United Nations Committee of Experts on Global Geospatial Information Management (UN-GGIM) for common global geodetic reference framework. The FGDC Office of the Secretariat provided support to the Global Spatial Data Infrastructure (GSDI) Association's Small Grants Program. For more information, see page 19.

100% Registration of the National Geospatial Data Assets on Geoplatform.gov

As a part of the FGDC efforts to implement geospatial portfolio management processes as defined in the Supplemental Guidance to OMB Circular A-16, an enormous amount of work was done across the FGDC community this year to ensure the registration of all NGDAs in the catalog used by Data.gov and the Geospatial Platform. Through this work, Action 1B.2 of the NGDA Management Plan was completed, and users of Geoplatform.gov can now discover and access NGDA data from across the FGDC partner community. This represents a major step forward in the accomplishment of its goals for improved management of the shared geospatial data portfolio.



Geoplatform.gov NGDA query result.

National Geospatial Advisory Committee—Collaborating for Results

Federal geospatial programs are highly dependent on effective relationships with partners and stakeholders from multiple sectors, including the private sector, academia, nonprofits, and all levels of government. One of the primary ways that the FGDC collaborates with its broad network of partners is through the National Geospatial Advisory Committee (NGAC). An action in the NSDI Strategic Plan's Objective 3.2 specifically mentions engagement with the NGAC.

Establishment of the National Geospatial Advisory Committee

The Department of the Interior (DOI) established the NGAC in 2008 as a means to improve coordination and governance of national geospatial activities. The NGAC includes a balanced membership representing a cross section of organizations involved in geospatial issues. The committee provides advice and recommendations to the FGDC and provides a forum to convey views representative of partners in the geospatial community.

The NGAC was created under the Federal Advisory Committee Act, which was enacted by Congress to ensure that advice provided to the executive branch by advisory committees, task forces, boards, and commissions will be both objective and accessible to the public. The NGAC functions solely as an advisory body.



June 2015 NGAC meeting.

The NGAC has been highly effective in providing thoughtful, considered advice on the management of Federal and national geospatial programs, the development of the National Spatial Data Infrastructure, and the implementation of key policy documents, including Office of Management and Budget Circular A-16. The Federal geospatial community has benefitted richly from the talent, expertise, and constructive advice provided by the NGAC.

Membership

Since the committee's inception in 2008, over 65 individuals have served as members of the NGAC. The NGAC members have come from a broad range of backgrounds and perspectives and have brought diverse viewpoints, experiences, and expertise to the committee's deliberations. Members have included geographic information system (GIS) managers for cities, counties, and Tribal governments; State GIOs and CIOs; academic and technical experts; nonprofit leaders; CEOs and executives of large firms and small businesses; and many others. The diverse background of the membership has been a valuable asset for the NGAC and has led to creative discussions and approaches to new and emerging geospatial issues and topics.

Committee members are selected to provide a balanced representation of the various perspectives and organizations involved in geospatial issues. The Secretary of the Interior appoints members to the committee, and they serve staggered 3-year terms. The two next rounds of appointments will take place in 2015 and 2016. The FGDC announces and publicizes calls for nomination for appointment to the committee, and encourages all interested parties to apply. Members serve without compensation, but are reimbursed for expenses while attending committee meetings.

The Work of the National Geographic Advisory Committee

The NGAC holds three to four public meetings each year. The public is invited to attend and offer comments at all committee meetings, which are announced by publication in the Federal Register at least 15 days before the meeting date. The NGAC reports to the Chair of the FGDC (the Secretary of the Interior or the Secretary's designee). The FGDC Executive Director serves as the Designated Federal Officer for the NGAC,

NGAC Membership – September 2015

Dr. Robert Austin, NGAC Chair

City of Tampa, FL (retired)

Ms. Julie Sweetkind-Singer, Vice Chair

Stanford University

Mr. Talbot Brooks

Delta State University

Dr. Keith Clarke

University of California, Santa Barbara

Mr. Steve Coast

Telenav, Inc.

Mr. Dan Cotter

U.S. Department of Homeland Security

Ms. Patricia Cummins

Esri

Mr. David DiSera

RAMTeCH Corporation

Mr. Steve Emanuel

State of New Jersey

Prof. Joanne Irene Gabrynowicz

University of Mississippi Law School

Mr. Matthew Gentile

Deloitte Financial Advisory Services, LLP

Mr. Bert Granberg

State of Utah

Mr. Frank Harjo

Muscogee (Creek) Nation

Mr. Jack Hild

Hild Enterprises, LLC

Mr. Michael Jones

Wearality Corp.

Mr. Jeff Lovin

Woolpert, Inc.

Mr. Jack Maguire

Lexington County, SC (retired)

Mr. Keith Masback

U.S. Geospatial Intelligence Foundation

Mr. Roger Mitchell

MDA Information Systems, Inc.

Mr. Kevin Pomfret

Centre for Spatial Law and Policy

Major General William N. Reddel III

New Hampshire National Guard

Dr. Douglas Richardson

Association of American Geographers

Mr. Anthony Spicci

State of Missouri

Mr. Gary Thompson

State of North Carolina

Dr. Harvey Thorleifson

Minnesota Geological Survey

Ms. Molly Vogt

City of Gresham, OR

Mr. Jason Warzinik

Boone County, MO

Mr. David Wyatt

Eastern Band of Cherokee Indians



NGAC members, September 2015.

NGAC Chairs

The NGAC has benefited from outstanding leadership from its Chairs. The following leaders have served as the Chairs of the NGAC:



Ms. Anne Hale Miglarese

Currently President and CEO of PlanetIQ

Anne Hale Miglarese was the initial Chair of the NGAC, serving from 2008 to 2010. Ms. Miglarese developed the initial operating procedures and processes for the committee, including mission and vision statements, and a structure for meetings, subcommittees, and development of committee products. Ms. Miglarese provided the committee with an excellent foundation, organization, and collaborative spirit. During her term, the committee focused on developing clear goals and plans of action, and produced foundational products, including the NGAC Changing Landscape paper and Transition Recommendations paper.



Dr. David Cowen

Professor Emeritus, University of South Carolina

David Cowen was the second Chair of the NGAC, serving from 2011 to 2012. Dr. Cowen provided energetic and collaborative leadership for the committee, challenging the FGDC to make the best use of the NGAC members' time and talents. Under his leadership, the NGAC helped conceptualize the Geospatial Platform initiative, provided excellent feedback and recommendations on geospatial workforce development and parcel data, and produced best practices papers on intergovernmental data sharing and local government GIS programs.



Dr. Robert Austin

City of Tampa (retired)

Robert Austin is the third Chair of the NGAC, serving from 2013 to the present. Dr. Austin has brought a wealth of experience to his role, having served in academia, in the private sector, and in local government. Under his leadership, the NGAC provided extensive input into the development of a new strategic plan for the NSDI, helping to set a path forward for the FGDC and its partners. Dr. Austin has skillfully guided the committee in providing input into key initiatives, such as the National Address Database and the 3D Elevation Program. He has also organized spotlight sessions to explore emerging topics, such as crowdsourced geospatial data and geospatial privacy.

the FGDC Office of the Secretariat provides staff support for the operations of the NGAC.

Each year, the FGDC provides guidance to the NGAC describing issues and study topics for consideration by the committee. The NGAC also offers input on potential study topics, promoting two-way communication on issues of common interest to the national geospatial community. The NGAC establishes subcommittees each year to address the topics in the annual guidance. Much of the NGAC's work is done in the subcommittees. The subcommittees develop draft papers and recommendations for consideration by the full committee. All final decisions are made by the full committee during public meetings. Generally, each NGAC member will serve on one subcommittee. Currently, the NGAC has the following subcommittees:

- NSDI Outreach and Communications
- Crowdsourced Geospatial Data

- Geospatial Privacy
- Landsat Advisory Group
- 3D Elevation Program



NGAC Subcommittee meeting.



September 2015 NGAC meeting.

Impacts

The establishment of the NGAC has resulted in more effective collaboration with external partners and has resulted in useful and constructive advice and recommendations on critical national geospatial topics. Key NGAC impacts and contributions include the following:

NSDI Strategic Plan. The NGAC played a critical role in the development of the 2014–2016 NSDI Strategic Plan. The strategic plan describes a shared national vision for the NSDI and includes a clear set of goals and objectives for the Federal role in achieving this vision. The NGAC provided extensive input and comment during the development of the plan. The plan, which was developed through extensive outreach and collaboration, provides a clear roadmap for the FGDC’s activities over a 3-year period and provides guidance for Federal agencies and other stewards of geospatial information to maximize the plan’s utility. Since the adoption of the plan, the NGAC has continued to provide valuable input and feedback on the implementation of the plan.

Geospatial Platform. The NGAC has provided extensive input into the conceptualization, development, and implementation of the Geospatial Platform initiative since its inception. This has included providing input and comment into foundational documents for the Platform, including the Platform value proposition, development roadmap, and business case. More recently, the NGAC has reviewed and provided real-time feedback on the latest revisions and enhancements to the Platform Web site. The NGAC has been highly supportive of the Geospatial Platform as a means for more effective collaboration between the Federal Government and partners in State, Tribal, and local governments.

National Address Database. The NGAC has provided ongoing input into the conceptualization of the proposal to develop a National Address Database. In 2012, the NGAC developed a white paper describing the need and justification for an address database. The paper was based on input from multiple parties, and the NGAC also brought together an expert panel to explore the options for creation of a national database. More recently, the NGAC developed a set of use cases further documenting the value and utility of the development of a National Address Database. The NGAC worked closely with representatives of the United States Census Bureau, the U.S. Department of Transportation, and other agencies to provide continuing feedback on the development of a National Address Database.

Multiagency, Intergovernmental Geospatial Data Initiatives. The NGAC has provided effective and timely input into a series of interagency data initiatives, encouraging the Federal Government to work with other levels of government and the private sector to develop comprehensive national-scale geospatial data initiatives that will provide economies of scale and result in high-quality, consistent data that will enable more effective decision making. Examples include the following:

- 3-D Elevation Program
- Transportation for the Nation
- Landsat Program
- National Land Parcel Data
- Imagery for the Nation
- National Height Modernization System

The NGAC has been highly effective in contributing to the policy framework that supports the objectives of the NSDI, and fostering productive relationships across sectors. The FGDC looks forward to continuing collaboration with the NGAC in communicating the value of geospatial information and tools to enable informed analysis, decision making, and management.

Additional information about the committee, including membership, research reports, and best practice documents, is available at www.fgdc.gov/ngac.

Crowdsourced Geospatial Data

The NGAC has played a vital role in identifying and exploring new and emerging issues. The committee has organized a series of panel discussions bringing experts, researchers, and practitioners together to explore emerging topics, discuss potential impacts to Federal agencies and stakeholders, and develop recommendations for action. Panel discussions have covered a number of topics, including geospatial workforce development, data sharing, parcel data, address data, geospatial privacy, and a highlight this year—the NGAC exploration crowdsourced geospatial data.

Collaborating with FGDC agencies and other partners, the NGAC has examined and provided input on the emerging topic of crowdsourced geospatial data and citizen science. Crowdsourcing is a process of obtaining needed services, ideas, or content by soliciting contributions from a large group of people, and especially from an online community. Citizen science is a form of open science and innovation where members of the public participate in the scientific process to address real-world problems.

The NGAC held a series of panel discussions with experts in crowdsourcing and citizen science to examine critical issues to consider in the development, management, and use of crowd-sourced geospatial data, including maintenance, validity, metadata, and workforce impacts. Participants in these panel discussions included Presidential Innovation Fellows, practitioners from several agencies, and industry leaders from organizations, including OpenStreetMap, timbr.io, and MapBox.

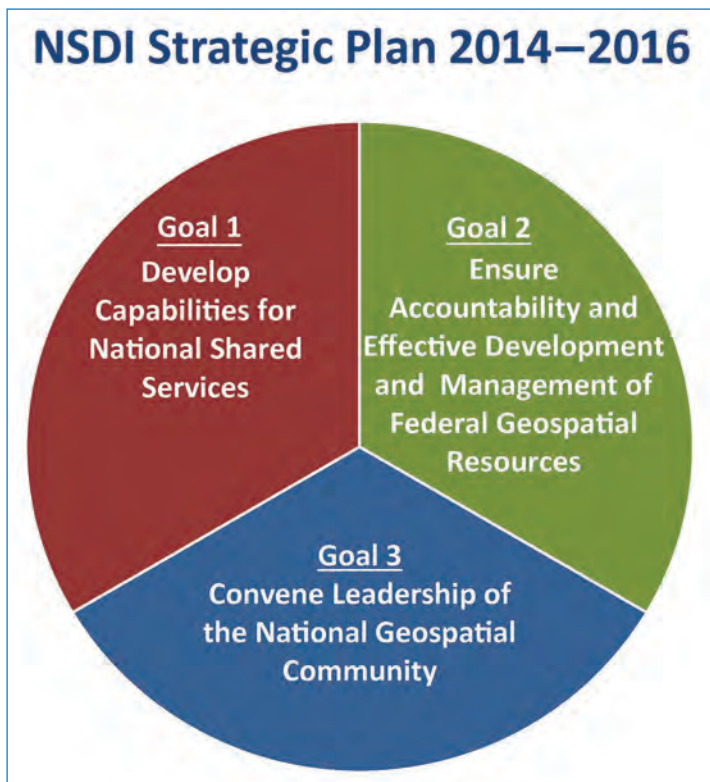
The NGAC also collaborated with the FGDC and the Federal Community of Practice on Crowdsourcing and Citizen Science to share lessons learned and to develop best practices for designing, implementing, and evaluating crowdsourcing and citizen-science initiatives. The Community of Practice has developed a Federal practitioner toolkit that includes best practices, training, policies, guidance, and tools. NGAC members provided feedback on the toolkit Web site and developed a set of geospatially focused use cases for inclusion in the toolkit. The toolkit was rolled out at a White House event on September 30, 2015.



Fiscal Year 2015 Accomplishments—Achieving the NSDI Strategic Plan

The FGDC community is working collaboratively to implement the 2014–2016 NSDI Strategic Plan. The FGDC Executive Committee has the lead responsibility for overseeing and monitoring the implementation of the plan and has appointed designated Federal officials to serve as champions for the plan's objectives. The champions are responsible for overseeing the implementation of each objective and its supporting actions. The NSDI Strategic Plan includes 3 strategic goals, 9 objectives, and 29 actions. The objectives and actions are further divided by an implementation plan that includes more detailed tasks and performance metrics. The table in Appendix E provides a summary of these elements and the fiscal year 2015 implementation status. In summary, there were 36 tasks scheduled for FY2015—24 were reported as complete and 12 are reported as in progress. The fiscal year 2016 tasks are reported as on schedule.

The implementation of the strategic plan has resulted in multiple accomplishments that have enhanced shared services, improved access to geospatial data and services, and increased participation of the NSDI stakeholder community. Accomplishments in the following areas are described within this section, except for the NGAC, which is discussed on page 3.



- Geospatial Interoperability Reference Architecture (Objective 1.1)
- Geospatial Platform (Objective 1.2)
- GeoCloud (Objective 1.3)
- National Geospatial Data Assets Management Plan and Portfolio Management (Objective 2.1)
- Standards, including metadata (Objective 3.1)
- National Geospatial Advisory Committee (Objective 3.2)
- Geospatial Privacy (Objective 3.2)
- NSDI Communication and Outreach Strategy (Object 3.3)
- International Activities (Objective 3.3)

GIRA providing a Roadmap for Information Sharing

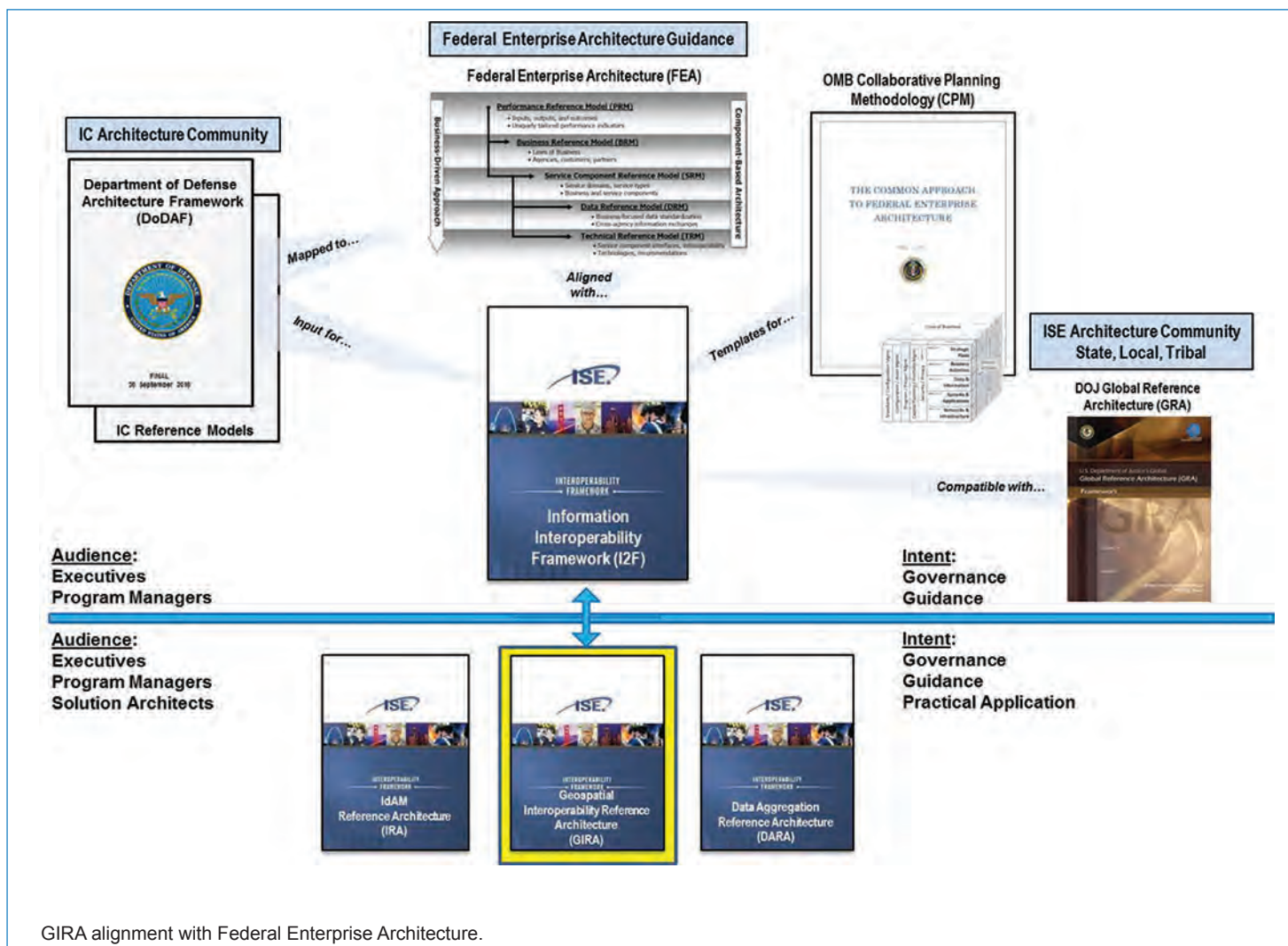
The Geospatial Interoperable Reference Architecture (GIRA) provides a framework for the management, design, and development of new or newly aligned existing geospatial system/solution investments. It recommends guidance considerations in the areas of governance, business, data, applications/services, infrastructure, standards and security, and performance measures for validating and reporting results. The GIRA is intended to support implementation of the NSDI by providing a practical roadmap to increase government geospatial information sharing through interoperable capabilities that result in reduced operational costs within and across an organization's mission systems. It documents geospatial and architecture policy alignment, references authoritative practices, and provides practical guidance, including templates, charters, exchange agreements, baseline requirements matrices, architecture artifacts, and tools. The GIRA is aligned with current Federal policy, principles, and practices for Enterprise Architecture and further adds to the authoritative body of knowledge of geospatial architecture documentation that supports the civil, defense, and intelligence communities. It is an unclassified document aimed at an audience consisting of executive leaders, program managers, and solution architects across Federal, State, Tribal, territorial and local governments, and private sector stakeholders.

The GIRA is a joint effort between the Program Manager-Information Sharing Environment (PM-ISE) and the FGDC and supports NSDI Strategic Plan Objective 1.1. The Department of Homeland Security (DHS) serves as the lead for an interagency interoperability working group. The DOI serves as the lead for the Geospatial Platform. The National Geospatial-Intelligence Agency (NGA) serves as the lead

for the National System for Geospatial Intelligence. The U.S. Department of Commerce and the National Oceanic and Atmospheric Administration (NOAA) contributed their requisite experience and authority.

Fiscal year 2015 accomplishments of the GIRA include:

- The PM-ISE issuance of the GIRA as a component of the Information and Interoperability (I2F) framework. (See below.)
- The FGDC endorsement of the GIRA, following an interagency review of the GIRA, and it received nearly 150 comments from the FGDC Office of the Secretariat, the Census Bureau, DOI, the National Geospatial–Intelligence Agency (NGA), NOAA, the U.S. Department of Energy (DOE), the U.S. Fish and Wildlife Service (FWS), the U.S. Geological Survey (USGS), and DHS. The comments were very positive, such as the following:
 - “It’s very well put together, Fed-focused, instructional in tone, and very thorough as well.”
- “It’s a how-to-do framework manual.”
- Other positive feedback for the GIRA, reinforcing its value to the geospatial community, came from the National States Geographic Information Council (NSGIC) and the American Council for Technology–Industry Advisory Council (ACT–IAC). Specific testimonial also comes from standards development organizations and geospatial associations, including the Open Geospatial Consortium (OGC) and the National Alliance for Public Safety (NAPSG) Foundation.
- The FGDC Steering Committee approved the establishment of an online, collaboration resource for the GIRA within the Geospatial Platform to provide ongoing enhancement and sustainment of the GIRA by the stakeholder community and to improve discovery, access, and contribution to the GIRA’s body of knowledge.



Sharing Information via the Geospatial Platform



The Geospatial Platform is a cornerstone initiative of the National Spatial Data Infrastructure as outlined in the NSDI Strategic Plan. The FGDC is making progress towards establishing the Geospatial Platform as the Federal geospatial data, services, and applications Web-based environment which supports meeting Objective 1.2 of the Plan. This effort is a component of the Administration's Information Technology (IT) Shared Services initiative and is designed to help agencies more effectively produce and share their geospatial data, services, and applications across the Government and with external partners.

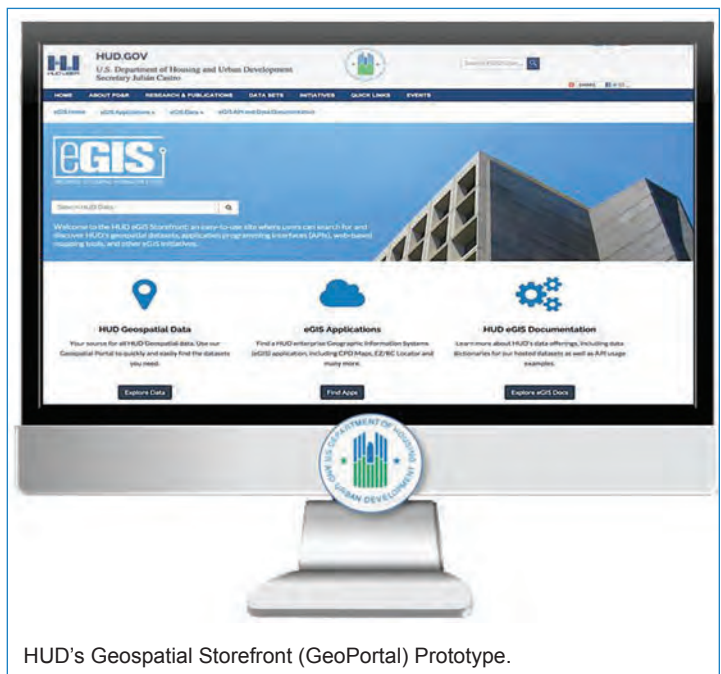
Fiscal Year 2015 represented the first full year of operations with the support of the new, primary technical development contractor team. This important milestone represents completion of Action 1.2.3 of the NSDI Strategic Plan, and the new team has worked very hard to deliver a number of new capabilities and benefits to the FGDC community. New features of the Geospatial Platform released in fiscal year 2015 included the following:

- **A completely redesigned Web site and user experience.** Taking advantage of feedback from the user community, the Geoplatform.gov Web site was redesigned to help users search data and to expand the use and understanding of national geospatial resources.
- **The release of the Geospatial Platform Web Map Viewer and Gallery.** Users of the Geospatial Platform can now interactively browse geospatial data assets to build custom maps, upload their own data to maps, and to share maps with others. The Web Map Viewer features indicators of Web service quality and availability for each of the layers made available through Geoplatform.gov, allowing users to get a visualization of the geospatial layers. Once saved, these maps can be published through an advanced Map Gallery capability and shared within Communities of Geoplatform.gov or embedded on other Web pages across the Internet.
- **The first version of the National Geospatial Data Asset Lifecycle Maturity Dashboard.** In support of the National Geospatial Data Asset Management Plan's objective to establish online planning and reporting tools, the Geospatial Platform team developed the NGDA Dataset Lifecycle Maturity Assessment Survey and dashboard. These tools will assist NGDA Dataset Managers in the evaluation of each dataset's maturity based on the Geospatial Data Lifecycle assessment process described in the Supplemental Guidance to OMB Circular A-16.

GeoCloud Advancing Cloud Services

In 2015, the FGDC's GeoCloud initiative sponsored the operational deployment of key public-facing geospatial Web services and engaged several new projects as part of the shared-services strategy to advance the Geospatial Platform, which supports expanding the use of cloud computing (NSDI Strategic Plan Objective 1.3). The GeoCloud served as an incubator for projects that provided data, information, applications, tools, and services related to national efforts in biodiversity, climate, public health, environmental health, housing affordability, water use and availability, social, economic, and environmental subject areas. These research and development projects tested local, regional, and national geospatial data collection, processing, distribution, Web mapping, map viewing, data catalog, and other geospatial services to support social, economic, and environmental understanding, and decision making. The successful launch of these new geospatial capabilities will provide the Nation with new geospatial knowledge and tools for understanding and decision making. For more information, see www.fgdc.gov/initiatives/geoplatform/geocloud. The GeoCloud highlights include the following:

- **Housing and Urban Development Geospatial Storefront (GeoPortal) Prototype.** The Housing and Urban Development (HUD) developed a cloud-based portal for search and discovery of HUD's geospatial applications, services, and datasets. The Storefront unifies public access to HUD's portfolio of applications and geospatial data resources, including HUD's NGDA Datasets. The initial build of the Storefront is focused



HUD's Geospatial Storefront (GeoPortal) Prototype.

on HUD's core geospatial datasets, but will include all of HUD's published geospatial data. Following iterations will also include expanded documentation, including developer guidance for the application programming interfaces (API), online training resources for HUD mapping applications, and tighter coordination with Data.gov and Geoplatform.gov.

- **Department of Energy NEPAnode Portal Prototype.**

The NEPAnode is a collection of services and tools made available to Federal staff and contractors working to implement the National Environmental Policy Act of 1969 (NEPA) and other related environmental reviews and permitting processes. NEPAnode's core mission is to enable nongeospatial professionals with advanced geospatial place-based tools for data gathering, sharing, monitoring, and reporting. NEPAnode provides a suite of geospatial-enriched shared Web services, software, and GIS tools in developing a place-based visual synthesis, analysis, and reporting capability that assists in reporting and understanding environmental assessments and permitting.



DOE's NEPAnode Portal Prototype.

Implementing the National Geospatial Data Asset Management Plan

The NGDA Management Plan, approved by the FGDC Steering Committee in March 2014, outlines a vision to develop an NSDI Portfolio consisting of a core set of NGDAs that is sufficiently complete, current, and accessible to support the critical business and mission requirements of the Federal Government and its partners and stakeholders. In order to realize this vision, the plan encompasses a

series of phased actions and milestones to implement a systematic and efficient A-16 NGDA Portfolio management process. The process aims to support and optimize investments in Federal geospatial assets for effective sharing, collaboration, and use of core geospatial data in an environment that supports efficient and effective decision making.

The A-16 NGDA Portfolio management process has been defined in the Office of Management and Budget (OMB) Circular A-16 Supplemental Guidance (November 2010). Portfolio management is described "as the coordination and management of Federal geospatial data assets and investments to most efficiently support national priorities and government missions. Portfolio management applies consistent management approaches that help increase the quality of data through use of best practices and documentation in a manner that reduces duplication and cost, provides greater accessibility, and supports shared services across the Federal Government." In addition, the NGDA Management Plan supports the outcomes noted in Objective 2.1 of the NSDI Strategic Plan, and advances Goal 2 to ensure accountability and effective development and management of Federal geospatial resources.

A total of 27 actions, implemented over 3 fiscal years (2014–2016), are described in the NGDA Management Plan. These actions are divided into two main phases: (1) preparing the management and reporting framework for inventorying and qualifying the contents of the Federal Geospatial Portfolio and (2) executing the portfolio management process. Five 2014 accomplishments should be noted briefly:

- Federal staff has been identified to fill the Theme Lead and Dataset Manager roles, and they continue to be a critical factor in plan implementation.
- 179 National Geospatial Data Assets have been officially identified.
- The NGDA Theme Lead collaboration community provides access to many resources that support Theme implementation through Geoplatform.gov.
- Each Theme has a public Web site on Geoplatform.gov with information about their associated NGDA Datasets, stakeholder communities, and other resources.
- Since early 2014, the Theme Leads and Dataset Managers have participated in regular conference calls and face-to-face meetings, when possible, to discuss ideas and collaborate on plan activities.

The 2014 accomplishments contributed to an additional five actions being completed in fiscal year 2015. So far, a total of 10 of the 27 actions listed in the NGDA Management Plan have been completed. The 2015 actions focused on preparing the management and reporting framework.

Fiscal Year 2015 NGDA Management Plan Actions Completed:

Action 1B.2: Register Baseline NGDA Datasets and Services Metadata on the Geoplatform.gov/Data.gov Catalog with Appropriate NGDA and Theme “tags”

Action 1B.3: Develop an Approval Process for Nomination/Removal of NGDA Datasets within the A–16 NGDA Portfolio

Action 1C.2: Develop A–16 Theme Collaboration Community for Templates and Tools on Geoplatform.gov

Action 1D.1: Develop NGDA Dataset Maturity Annual Assessment Survey and Tool

Action 1D.4: Develop Support Theme Strategic Plan Template

Action 1B.2: Register Baseline NGDA Datasets and Services Metadata on the Geoplatform.gov/Data.gov Catalog with Appropriate NGDA and Theme “tags”

In July 2015, the metadata for the 179 baseline NGDA Datasets were fully registered as NGDAs in the catalog that serves Data.gov and Geoplatform.gov. The NGDA metadata guidance released in early 2015 developed by the NGDA Metadata Focus Group contributed to the successful registration of many of these NGDA Datasets. Overall, the completion of this action supports the improved access to data that supports Federal agency, partner, and stakeholder missions, and the ability to identify data partnering opportunities through the Geoplatform.gov Marketplace. In addition, it meets goals in the Digital Government Strategy and the Open Data Policy. The list of NGDA Datasets is available via A–16 NGDA Theme Community (cms.geoplatform.gov/A-16-NGDA-Theme-Community). As part of the registration process, the original 189 NGDA Datasets identified in July 2014 were reduced to 179 official NGDA Datasets as of September 2015. The changes to the NGDA inventory were caused by combining related datasets into single collections, separating NGDAs that had been combined into single NGDAs, and removing datasets that were duplicates or that did not meet the definition of an NGDA.

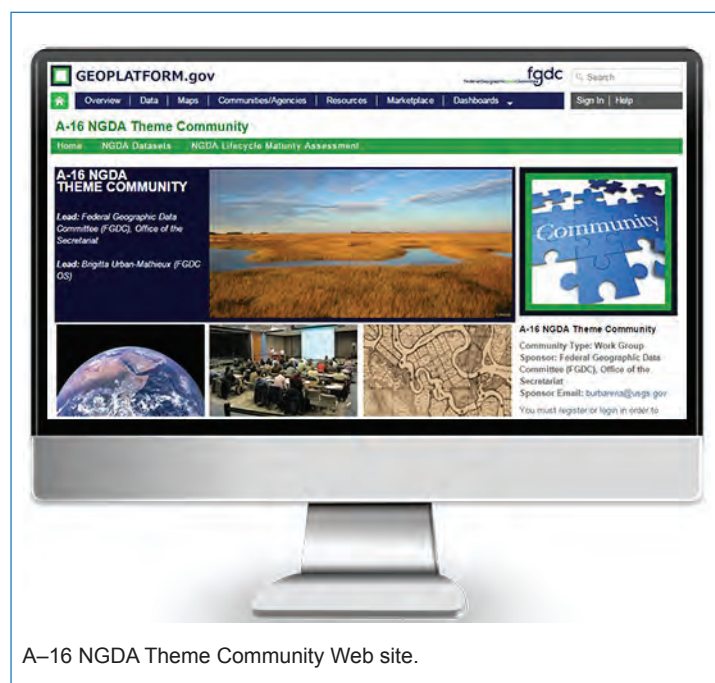
Changes to NGDA Dataset Inventory	
Number of NGDAs FY2014	189
Added	5
Removed	12
Combined	16 combined into 6
Separated	3 separated into 10
Number of NGDAs FY2015	179

Action 1B.3: Develop an Approval Process for Nomination/Removal of NGDA Datasets within the A–16 NGDA Portfolio

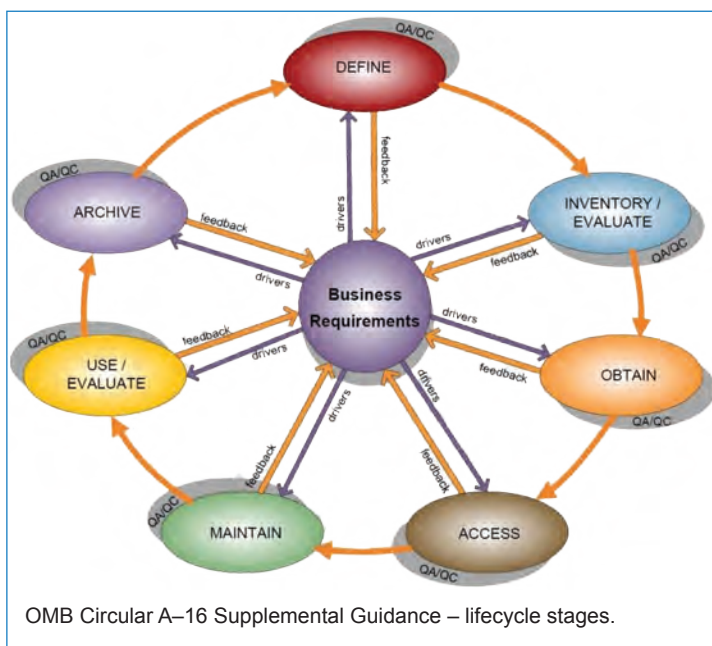
The process for the addition, change, or removal of datasets from the NGDA inventory was vetted and approved by the Dataset Managers, Theme Leads, and FGDC Coordination Group (CG). OMB Circular A–16 Supplemental Guidance requires that geospatial datasets be routinely inventoried and recommended for inclusion in or removal from the A–16 NGDA Portfolio. The inventory is a collaborative process that provides transparent A–16 NGDA Portfolio management that will promote targeted resources applied to geospatial datasets deemed critical for supporting Federal agency, partner, and stakeholder missions.

Action 1C.2: Develop A–16 Theme Collaboration Community for Templates and Tools on Geoplatform.gov

Each of the 16 NGDA Themes now have a Geoplatform.gov presence that can be managed by the Theme Leads. These managed A–16 NGDA Theme collaboration communities are designed to increase exposure of NGDA Datasets; increase collaboration, partnerships, and participation in NGDA Theme development and requirements; and increase use of the Theme’s datasets. The A–16 NGDA Theme communities are available at cms.geoplatform.gov/A-16-NGDA-Theme-Community.



A–16 NGDA Theme Community Web site.



NGDA Management Plan Actions in Progress

In fiscal year 2015, an interagency team was formed to support completion of Action 1E.1: Review/Revise the Definition of Geospatial Investment and Budget Reporting Codes. The team members from the Census Bureau, DHS, DOI, EPA, the General Services Agency (GSA), NGA, and the U.S. Department of Agriculture (USDA) met regularly and presented to the FGDC Executive Committee a revised geospatial investment definitions document and suggested an implementation process. The FGDC Executive Committee began the process of coming to consensus on geospatial budget reporting codes. The goal is to improve reporting on geospatial data investments that will enhance budget planning and execution.

At the July and August Theme Lead meetings, the Theme Maturity Assessment was discussed, and efforts to develop this reporting mechanism, which is the next step in building the framework for portfolio management, will be a focus in the coming year.

Action 1D.1: Develop NGDA Dataset Maturity Annual Assessment Survey and Tool

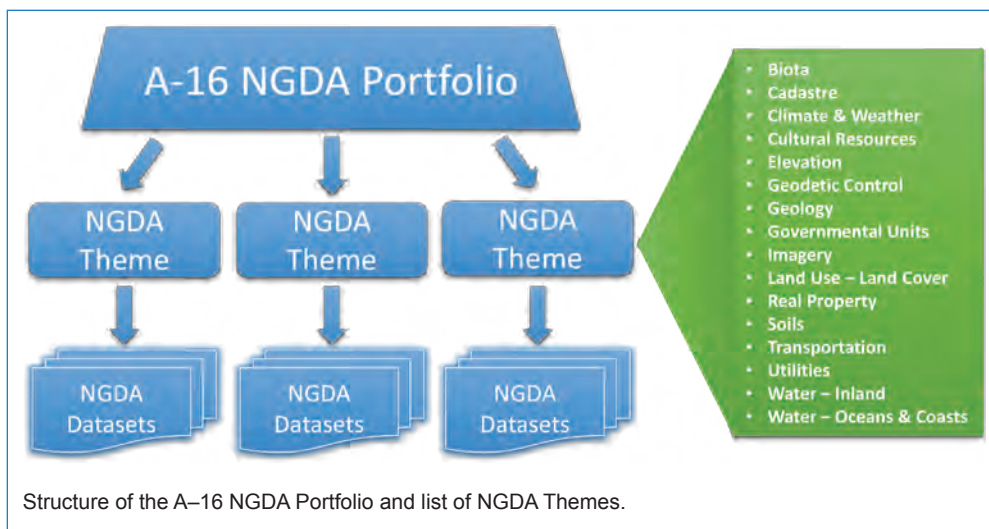
To support the geospatial data lifecycle assessment process, OMB Circular A-16 Supplemental Guidance requires that NGDA Dataset Managers regularly assess the maturity of their datasets. This year, the NGDA Dataset Lifecycle Maturity Assessment (LMA) survey was completed and approved. A tool for completing the initial baseline assessments was made available to NGDA Dataset Managers. The outcome of this action will provide inputs to other key actions within the A-16 NGDA Portfolio management process. For more information, see cms.geoplatform.gov/A-16-NGDA-Theme-Community/LMA. The result of this action feeds into Action 2A.1, which calls for the Dataset Managers to complete the baseline NGDA LMA. By the end of September 2015, 70% of the LMA assessments were completed.

Action 1D.4: Develop NGDA Strategic Theme Plan Template

The NGDA Theme Leads, along with input from the FGDC, developed the template for Theme strategic plans. The purpose of the template is to provide a consistent approach to measuring progress and to facilitate the FGDC Steering Committee's ability to manage the A-16 NGDA Portfolio. The template is available at cms.geoplatform.gov/A-16-NGDA-Theme-Community.

Advancing NGDA Portfolio Management

The A-16 NGDA Portfolio is organized by NGDA Themes made up of one or more associated NGDA Datasets. Datasets support the critical business and mission requirements of the Federal Government, as well as its partners and stakeholders. Currently, 16 NGDA Themes and 179 NGDA Datasets make up the portfolio; a list is available on the A-16 NGDA Theme Community Web site (cms.geoplatform.gov/A-16-NGDA-Theme-Community). The Themes are managed by Theme Leads who provide cross-agency leadership and coordination. The Datasets are managed by Dataset Managers who provide coordination for the NGDA Datasets at a national level.



In fiscal year 2015, the NGDA Theme Leads and Dataset Managers worked together to fulfill the responsibilities identified for them in the NGDA Management Plan. These included the following:

- Registering the baseline 179 NGDA Datasets in the catalog that serves both Data.gov and Geoplatform.gov.
- Developing (1) an approval process for nomination and removal of NGDA Datasets within the portfolio, (2) the NGDA Dataset Maturity Annual Assessment Survey, and (3) the Theme strategic plan template.
- Focusing at the end of the fiscal year to complete the baseline NGDA Dataset Lifecycle Maturity Assessments that will form the foundation for informed portfolio reporting.

In addition, there were numerous accomplishments within the Themes as well.

Biota Theme. The Theme Lead pursued discussions with colleagues from the U.S. Forest Service (USFS) and the U.S. Geological Survey (USGS) to include additional datasets in the NGDA inventory that are of national significance and meet the NGDA criteria.

Cadastre Theme. The Bureau of Land Management (BLM) facilitated and (or) completed the standardization of the Public Land Survey System (PLSS) Dataset for 29 of the 30 PLSS States, with Oklahoma still pending but scheduled for completion in fiscal year 2016. These are initial standardized datasets that are continuing to be updated with added control, partnership activities, and new surveys.

Cultural Resources Theme. The Theme Lead, who is from the National Park Service (NPS), managed the Lifecycle Maturity Assessments for the Theme's NGDAs and opened a discussion with DHS and the Homeland Infrastructure Foundation-Level (HIFLD) Subcommittee to explore replacing the National Monument/Icons NGDA, which is a proprietary dataset, with the National Register of Historic Places NGDA. The National Register dataset may contain more extensive, detailed, and up-to-date information, which would benefit the HIFLD data use.

To support the NGDA Datasets within the Theme, progress was made on creating a cultural resource spatial data transfer standard. The work included surveying State Historic Preservation Offices for their data exchange needs and practices, and

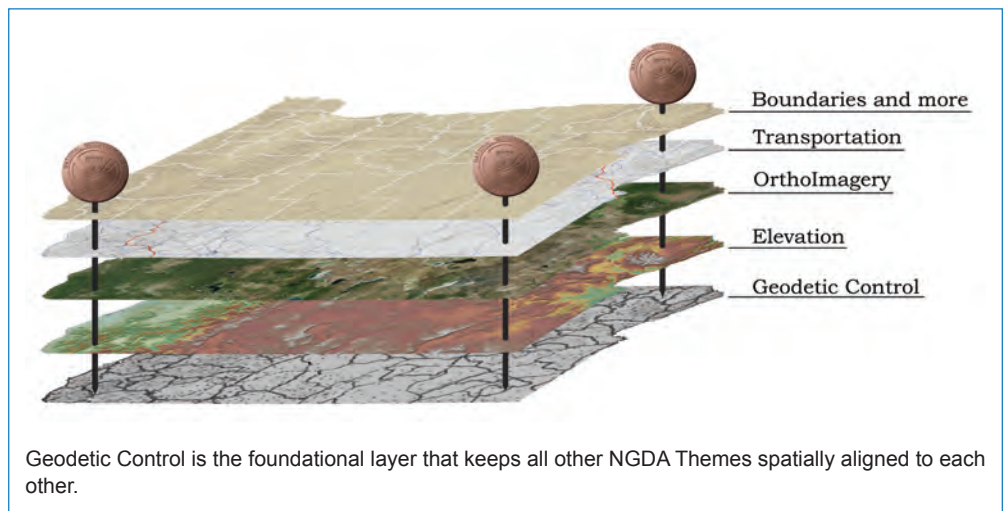
then incorporating their responses into the structure of the draft standard.

Elevation Theme. To further the integration of and coordination between the topographic and bathymetric interests of the NGDA Elevation Theme, the 3D Elevation Program and the Interagency Working Group on Ocean and Coastal Mapping formally proposed the creation of the 3D Nation Elevation Subcommittee, consisting of these two working groups as a recognized FGDC subcommittee. The goal of the 3D Nation Elevation Subcommittee is to continually improve the national elevation mapping foundation by coordinating the topographic, coastal, and bathymetric mapping activities across the Federal Government.

Geodetic Control Theme. The NGDA Dataset Managers for the Geodetic Control Theme completed the NGDA Lifecycle Maturity Assessments for the Theme's datasets.

At the Federal Geodetic Control Subcommittee semiannual meeting, the Theme Lead, who is from NOAA's National Geodetic Survey (NGS), discussed the Geodetic Control Theme in great detail so that the subcommittee members understand what steps are currently being taken. The Theme Lead also continued to highlight the importance of working with partners to enhance products, services, and common goals. Many of these talks highlight the benefits of placing common datasets under a "Theme" and how the efforts will reduce duplication, enhance accessibility, provide greater transparency, and broaden the knowledge base on themed data.

Governmental Units, and Administrative and Statistical Boundaries Theme. Ensuring the quality of boundaries is an essential element of the Census Bureau's role as the lead for the Governmental Units, and Administrative and Statistical Boundaries Theme. The FGDC National



Boundaries Group collaborated with the Cadastral Subcommittee to identify where boundaries could be improved using cadastral features. The Census Bureau built upon this multiagency effort to establish the Boundary Quality Assessment and Reconciliation Project (BQARP). The BQARP is a one-time operation to assess the boundaries with a goal to establish quality and set a quality flag on each boundary segment. The Census Bureau reconciles the legal documents (or descriptions) against the Census Bureau spatial boundaries data and cadastral data, such as Public Land Survey System (PLSS) and parcel data. This reconciliation is a joint effort between the State or county government and the Census Bureau, as well as other Federal agencies.

Imagery Theme. To enhance Imagery Theme stakeholder communications, a community for the National Digital Orthoimagery Program (NDOP) was created on the Geospatial Platform (cms.geoplatform.gov/a16imagery/NDOP). This is a valuable tool for coordination of efforts and resources.

The Imagery Theme Co-Leads from USDA and DOI organized a specialized training session on the Lifecycle Maturity Assessment survey to assist the Theme's Dataset Managers as they completed the survey.

Land Use Land Cover Theme. In February 2015, the Multi-Resolution Land Characteristics (MRLC) consortium released the latest edition of the NGDA Alaska National Land Cover Database (NLCD). It is the most comprehensive look at land-surface conditions of the State and shows the extent of land cover types from forests to urban areas. Derived from carefully calibrated observations of Landsat satellites in 2011, the dataset identifies current land cover and those areas that have changed since the year 2001. The consortium is a group of Federal agencies who coordinate and generate consistent and relevant land cover information at the national scale for a wide variety of environmental, land-management, and modeling applications. For more information, see www.mrlc.gov.

Real Property Theme. The Real Property Theme continued to improve standardizing geolocation data collection requirements for reporting to the Federal Real Property Profile (FRPP), the Federal Government-wide real property asset reporting system. The continued improvements to collect more accurate and standardized location data allows for complex analysis, modeling, planning, and asset management. The data-collection requirements for the fiscal year 2015 FRPP asset reporting cycle included improving address accuracy and requiring that latitude and longitude information be submitted using a common coordinate reference system. In addition, the codes for cities have

been linked to the Geographic Names Information System (GNIS) to allow new reporting codes to be based on this authoritative data source.

Soils Theme. The annual update of the NGDA Soil Survey Geographic Database (SSURGO) was completed and is available to land use decision makers, researchers, and modelers.

Every 10 years, the NGDA Major Land Resource Areas (MLRA) Dataset is updated through a significant effort involving input from numerous Federal and university partners. In 2015, the planning and coordinating work was ongoing to meet the scheduled 2016 completion. The MLRA Dataset contains groupings of physiography, geology, climate, water, soils, biological resources, and land use as described in USDA Agricultural Handbook 296 (2006).

Transportation Theme. The U.S. Department of Transportation (USDOT) completed the strategic plan for the Transportation Theme in August 2015. The plan was shared with the Federal Geographic Data Committee and is being used to guide other Themes. The Theme Lead worked with Dataset Managers from USDOT, U.S. Army Corps of Engineers (USACE), and the Census Bureau to ensure the timely completion of each Lifecycle Maturity Assessment. The Theme lead presented at the HIFLD Subcommittee in June on the Transportation NGDAs and status of the Rail Network.

Water – Inland Theme. The USGS and FWS Co-Leads for the Theme provided an assessment of the Water – Inland Theme at the June 2015 FGDC Steering Committee meeting.

The USGS has begun development of the High-Resolution National Hydrography Dataset Plus (NHD+HR), modeled after the highly successful 1:100,000-scale NHDPlus, which is an NGDA. The NHD+HR will provide a robust set of network attributes and routing capability for a much more detailed network, while adding scalability, to provide a unified geospatial framework of reference for water data.

The FWS has continued the development of the National Wetlands Inventory (NWI) Version 2 (Surface Waters and Wetlands Inventory) that includes the never-before served legacy NWI linear data with augmentation from the National Hydrography Dataset (NHD) to complete segmented connections. This newly derived NGDA depicts all surface-water and wetland features in a single polygonal feature class and applies the second edition of the FGDC classification of Wetlands and Deepwater Habitats of the United States (FGDC-STD-004-2013) to provide consistent ecological descriptors.

NOAA Support for Portfolio Management

The NOAA has fully engaged in their broad range of responsibilities within the NGDA portfolio management process, including leadership of four NGDA Themes and management of 25 NGDAs. To ensure NOAA meets all portfolio management requirements, an agency coordinator was designated who reports to the NOAA Geospatial Information Officer with support from NOAA's Chief Information Officer. The coordinator communicates regularly with NOAA Theme Leads and Dataset Managers and reports activities to NOAA management. In fiscal year 2015, some activities included creation of an internal Web site for the agencies and their A-16 activities, a series of conference calls to discuss the baseline NGDA Dataset LMA, creation of a document to support LMA responses, sending reminders to staff about upcoming deadlines, and technical assistance. The coordinator also reached out to the Dataset Managers from other agencies that are part of NOAA-led Themes. Coordination within NOAA has allowed the agency to provide consolidated feedback on portfolio management issues and has contributed to successful implementation of several key NGDA Management Plan actions.

National Water Information System (NWIS) drainage areas were included in an approved revision of the Watershed Boundary Dataset (WBD) data model. This included completing all eight-digit hydrologic unit boundaries and hydrography across the United States-Canadian border, including Alaska.

Water – Oceans and Coasts Theme. The Theme contains a wide variety of data types, such as boundaries, nautical charts, and sea levels, each with unique missions, requirements, and user bases. In fiscal year 2015, the Water – Oceans and Coasts Theme Lead continued to work closely with the Marine and Coastal Spatial Data Subcommittee and other related FGDC subcommittees and working groups. In addition, coordination was initiated with the Interagency Working Group on Ocean and Coastal Mapping. The outreach to groups with shared interests in the Theme will help agencies optimize resources for future efforts.

For further information, please see the A-16 NGDA Theme Community (cms.geoplatform.gov/A-16-NGDA-Theme-Community).

Maintaining and Endorsing Standards

The FGDC continued its leadership and participation in development and coordination of national and international standards applicable to the geospatial community that

help support Objective 3.1 of the NSDI Strategic Plan. Also noteworthy, February 2015 marked the fourth anniversary of the monthly standards update. Standards updates provide status of FGDC, OGC, the InterNational Committee for Information Technology Standards (INCITS) L1/ISO TC 211, Geospatial Intelligence Standards Working Group (GWG), and other standardization activities each month. There are over 300 standards tracked in the standards update log. The log has been maintained continuously since February 2011. In 2015, the FGDC endorsed the following five standards:

- Aeronautical Information Exchange Model (AIXM) 5.1
- ISO/IEC 15444-1:2004 Technical Corrigenda 1:2007 and 2:2008 JPEG 2000
- Open Geospatial Consortium (OGC) GeoPackage 1.0
- Geopolitical Entities, Names, and Codes (GENC) Standard Edition 2
- GeoRSS-Simple and GeoRSS-GML

In keeping with OMB Circular A-119 (www.whitehouse.gov/omb/circulars_a119), the FGDC adopted the following voluntary consensus standards in lieu of Government-unique standards:

Aeronautical Information Exchange Model (AIXM) 5.1 is a standard exchange format containing hundreds of entities, data types, and relationships used to represent aeronautical data. It is based on International Civil Aviation Organization (ICAO) standards and includes recommended practices and industry standards requirements for digital data exchange and GIS capability. It provides a mechanism to exchange information applicable to aerodromes (airports), heliports, routes, navigation aids, fixes, instrument approach procedures, instrument departures, standard terminal arrival routes, organizations, units, services, obstacles, and airspace. AIXM 5.1 was initially developed by the U.S. Federal Aviation Administration (FAA) and the European Organisation for the Safety of Air Navigation (EUROCONTROL) with support from the international community.

ISO/IEC 15444-1:2004 Technical Corrigenda 1:2007 and 2:2008 JPEG 2000 serve as errata for ISO/IEC 15444-1:2014, Information technology—JPEG 2000 image coding system: Core coding system. The FGDC previously endorsed ISO/IEC 15444-1:2014. ISO/IEC 15444-1:2004 defines a set of lossless (bit-preserving) and lossy compression methods for coding bilevel, continuous-tone gray-scale, palletized color, or continuous-tone color digital still images. It specifies decoding processes for converting compressed image data to reconstructed image data, a code-stream syntax containing information for interpreting the compressed image data, and a file format. It provides guidance on encoding processes for converting source image data to compressed image data and implementing

these processes. Technical Corrigendum 1:2007 is a change notice for Annex I of ISO/IEC 15444-1:2004, while Technical Corrigendum 2:2008 provides clarification on determining maximum file size in Table A.46 of ISO/IEC 15444-1:2004.

Open Geospatial Consortium (OGC) GeoPackage 1.0 defines GeoPackages for exchange and GeoPackage SQLite Extensions for direct use of vector geospatial features and (or) tile matrix sets of Earth images and raster maps at various scales. Direct use is the ability to access and update data in a “native” storage format without intermediate format translations. This environment guarantees data model and dataset integrity and identical access and update results in response to identical requests from different client applications. GeoPackages are interoperable across all enterprise and personal computing environments, and they are particularly useful on mobile devices like cell phones and tablets.

Geopolitical Entities, Names, and Codes (GENC) Standard, Edition 2.0 comprises the U.S. Government implementations of ISO 3166-1, Codes for the representation of names of countries and their subdivisions – Part 1: Country codes, and ISO 3166-2, Codes for the representation of names of countries and their subdivisions – Part 2: Country subdivision code. Direct use of ISO 3166 standard conflicts with U.S. Public Law 80-242 (1947), which requires the U.S. Federal Government to use geographic names that have been approved by the U.S. Board on Geographic Names (BGN). ISO 3166 contains country and subdivision names from the United Nations, which occasionally vary from those approved by the BGN. The GENC Standard Edition 2.0 addresses U.S. Government requirements for restrictions in recognition of the national sovereignty of a country and identification and recognition of geopolitical entities not included in ISO 3166.

The FGDC previously endorsed GENC Standard 1.0. GENC Standard 2.0 supersedes GENC Standard 1.0. The GENC Standard Edition 2 expands on Edition 1 with the formal establishment of administrative subdivision code content in the GENC Registry. The NGA hosts the GENC Registry (nsgreg.nga.mil/genc) as an online, dynamic information resource, in which content is structured in accordance with the GENC Standard information model. The GENC Registry is the single authoritative source for geopolitical entities (and administrative subdivisions), names, and codes.

GeoRSS-Simple and GeoRSS-GML are two encodings of GeoRSS. GeoRSS is a standardized way to encode location in RSS and Atom feeds. It allows users to perform geographic searches on feeds or to map information found in feeds. GeoRSS makes it possible to search with all sorts of geographic criteria. Its location content consists

of geometries (including geographic points, lines, and polygons of interest) and related feature descriptions. GeoRSS feeds are designed to be consumed by geographic software, such as map generators. GeoRSS promotes interoperability and “upward compatibility” across encodings through a common information model.

GeoRSS-Simple is a very lightweight format that developers and users can add to their existing feeds quickly and easily. It supports basic geometries (point, line, box, and polygon) and covers the typical use cases when encoding locations. GeoRSS GML is a formal GML Application Profile that supports a greater range of features, notably coordinate reference systems other than WGS-84 latitude/longitude.

The FGDC supports the Open Geospatial Consortium, Inc. (OGC) via the **Global Earth Observations System of System (GEOSS) Architecture Implementation Pilot (AIP)** that is developing and deploying new process and infrastructure components for the GEOSS Common Infrastructure (GCI) and the broader GEOSS architecture. This year Phase 8 of AIP builds upon the foundation laid down by Phase 7 which developed and deployed easy-to-use online (Web and Mobile) applications that demonstrate the value of standards-based access to Earth observation data and services registered with GEOSS. In order to achieve the AIP-8 goals weekly “deep-dives” were organized and recorded. These were one hour in-depth technological sessions on specific standards-based technology. For more information please see www.ogcnetwork.net/Aipilot.

Metadata Supports Geoplatform.gov and National Geospatial Data Asset Initiatives

As the foundation for data discovery and use, metadata continued to play a key role across FGDC-related initiatives.

The **NGDA Metadata Focus Group** published the NGDA Metadata Guidelines report that includes detailed information about metadata content that makes data discoverable as an NGDA Dataset on the Data.gov and Geoplatform.gov catalog. Using these guidelines, the NGDA Theme Leads and Dataset Managers were able to incorporate the content requirements into existing and new metadata records. This effort enabled all NGDA Datasets to be successfully registered this year and made available through the Geoplatform.gov Theme Community Web site (cms.geoplatform.gov/A-16-NGDA-Theme-Community) and the Data.gov system. The Focus Group was an interagency team that included the FGDC Office of the Secretariat and NGDA Theme Leads and staff from the Census Bureau, DOI, EPA, GSA, NOAA, USDOT, and USGS.

The NGDA metadata efforts led to additional coordination between the geospatial community and Data.gov to facilitate meeting Open Data Policy requirements and increase accessibility of geospatial metadata and enhance the data publication workflow. Given the variety of programs and standards supported by Data.gov, it is a challenge to process, validate, and present information in a consistent manner. The FGDC and Data.gov hosted a joint meeting in November 2014 with representatives from the FGDC Office of the Secretariat, the Census Bureau, DOI, EPA, GSA, the National Aeronautics and Space Administration (NASA), NOAA, OMB, USACE, and USGS. As a result, two interagency working groups were established.

The **Crosswalk Working Group** started with the metadata crosswalk previously developed to support A-16, Project Open Data (POD) v1.0, and Data.gov efforts. The crosswalk was refined to identify core content between existing geospatial metadata standards (Content Standard for Digital Geospatial Metadata (CSDGM) and ISO 19115) and the POD v1.1 schema. The updated crosswalk was published on the POD GitHub site in January 2015 as a resource for the geospatial community to continue meeting these policies and directives.

The **Harvesting and Validation Working Group** has identified challenges, determined metadata-related issues, and developed recommendations for improving the publication process and error reporting so that more geospatial metadata records can be included in the Data.gov and Geoplatform.gov catalog. The recommendations were based on simplifying the process and focusing on the core metadata content identified by the earlier crosswalk effort. Coordination on implementation continues.

Geospatial data technologies, concepts, and supporting standards constantly evolve. To support the community in navigating these changes, the Metadata Program continued education and outreach efforts.

The **ISO Geospatial Metadata Implementation Forum** continued in 2015. The purpose of the Forum is for the FGDC Metadata Working Group and other NSDI stakeholders to present and discuss ISO geospatial metadata standards and implementation efforts through shared experiences and resources. This year, the Forum included speakers from Federal, State, local, and provincial governments; academia; and the private sector. The presentations included “Building a State and Local Government Metadata Profile,” “Transforming CSDGM Metadata to ISO,” “Creating Geospatial Metadata for Project Open Data,” “ISO 19115-3 XML Schema, State and Provincial ISO Implementation Efforts,” and “Metadata Tools and Special Applications.” Sessions are held on a monthly

basis and all materials are available through the FGDC Web site.

The **ISO Geospatial Metadata Editors Registry** was released after piloting the online application with software developers and individuals providing software user reviews. Several ISO metadata editor developers have provided information to the Registry and have been able to easily update and modify their information. The Registry includes features of the editor, its functionality, supported standards, and points of contact. User reviews provided by FGDC Metadata Working Group members describe additional aspects of the tools from an implementation perspective. This resource is available on the FGDC Web site for the NSDI stakeholder community to identify and compare relevant ISO metadata editors that meet their requirements (www.fgdc.gov/metadata/iso-metadata-editor-review-v2).

FGDC Metadata Web site improvements continued and development focused on creating informative content that can serve as educational material. Coordination with the broader standards community continued with active participation in INCITS L1 Geographic Information Systems Technical Committee, Open Geospatial Consortium Technical Committee, and the FGDC Standards Working Group.

Collectively, the metadata efforts support the following NSDI Strategic Plan objectives to:

- Develop geospatial interoperability reference architecture.
- Establish the Geospatial Platform as the Federal geospatial data, services, and applications Web-based service environment.
- Advance the portfolio management process for National Geospatial Data Assets.
- Lead and participate in the development and coordination of national and international standards applicable to the geospatial community.

Raising Awareness of Geospatial Privacy

The FGDC collaborated with the NGAC and other partners to raise awareness and build relationships with important stakeholders on the emerging topic of geospatial privacy. This supports an action called out in Objective 3.2 of the NSDI Strategic Plan. The FGDC has also partnered with the Privacy Committee of Chief Information Officer (CIO) Council to jointly address geospatial privacy issues, informing the Federal Privacy Officers' community about the growing importance of geospatial privacy and the need to avoid unintended consequences for the geospatial community as new regulations and statutes addressing

Feature	GeoNetwork OpenSource	CatMDEdit V.6.0	Esri Geoportal Server
	View Full Record	View Full Record	View Full Record
Geospatial Metadata content Standards Supported			
ISO 19115:2003 - Metadata	full	full	full
ISO 19115-2 - Gridded Imagery Extension	full	none	full
ISO 19110 - Feature Catalog	full	full	full
ISO 19119 - Services	full	full	full
ISO 19115-1 - Metadata Fundamentals	full	none	full
Other Related Metadata Standards	View	View	View
User Interface			
GUI			
Edit XML Directly			
Other/Comments	View	View	View
Operating Platform			
Desktop			
Distributed/Enterprise			
Online Application			

Example of ISO Geospatial Metadata Editors Registry.

privacy issues are considered. The FGDC has also partnered with the NGAC to provide the perspectives of the geospatial community in the National Telecommunications and Information Administration's (NTIA) multistakeholder engagement process on privacy issues related to Unmanned Aircraft Systems (UAS). This process was outlined in the February 2015 Presidential Memorandum "Promoting Economic Competitiveness While Safeguarding Privacy, Civil Rights, and Civil Liberties in Domestic Use of Unmanned Aircraft Systems." The outcomes of these efforts will be a greater appreciation within the Federal privacy community of the unique aspects of geospatial programs as they relate to privacy protections and productive relationships with Government-wide leaders in the privacy field to enable effective collaboration on critical geospatial privacy issues.

NSDI Communication and Outreach Strategy

A new communication and outreach strategy for the NSDI was completed by the FGDC this year, which helps meet an action in Objective 3.3 of the NSDI Strategic Plan.

This strategy and implementation plan will engage current and new emerging partners, agencies, and stakeholders in clearly communicating the value of the NSDI and the opportunities for collaboration and partnership. The implementation of the strategy will result in better support for the various agency programs and initiatives supported by geospatial information, and will help build more effective and broader-based relationships with partners in all levels of government and in the private sector, nonprofit organizations, and academia.

Supporting International Activities

This year, the FGDC increased international efforts to advance geographic place-based understanding and decision making for societal benefit. The FGDC actively participates with the Intergovernmental Group on Earth Observations (GEO), the U.S. Group on Earth Observations (USGEO), the FGDC Global Geospatial Information Management (GGIM) Working Group, and the GSDI Association. These organizations have adopted common techniques and standards to promote interoperability worldwide and thereby facilitate access to geospatial data and services. These efforts help advance the NSDI Strategic Plan Objective 3.1 and 3.3 efforts to develop, coordinate, and promote international standards and the NSDI vision, and to raise awareness of the benefits of spatial data infrastructures.

The Group on Earth Observations (GEO) continued efforts to make Earth observation assets available through Global Earth Observations System of System (GEOSS). This year marked the fifth anniversary for the Global Earth Observation System of Systems Component Infrastructure (GCI). Over the past decade, the FGDC has been an active partner, component provider, and contributor to GEOSS. The FGDC Executive Director served as Co-Chair on the Infrastructure Implementation Board providing leadership and oversight of efforts to support implementation, operation, and evolution of GEOSS. Key accomplishments include the following:

- Development of "A Framework for Connecting Earth Observations for Decision Making," which is a guide to advance the architecture, development, operation, and evolution of GEOSS in support of the GEO 2016-2025 Strategic Plan.
- Continued efforts to provide the GCI Component Systems Registry (CSR) for registration of new partners and Earth observations assets and services. The CSR now contains more than 835 registered resources and continues to grow.
- Development and adoption of the "Data Management and Technical Principles" to improve the discoverability, accessibility, and usability of Earth observation assets.

- Improved the Discovery and Access Broker (DAB) and monitoring tools. The number of discoverable and accessible Earth observation resources increased from 71 million to 190 million assets, a 168% increase.

The FGDC actively participated in the **U.S. Group on Earth Observations (USGEO)**, a subcommittee of the Committee of the Environment, Natural Resources and Sustainability with representatives from 16 Federal agencies and the Executive Office of the President. The USGEO continued efforts to advance the use of Earth observations by agencies and their stakeholders. Key accomplishments include:

- The USGEO formulated U.S. positions and inputs to the GEO 2016-2025 Strategic Plan.
- The second National Earth Observation Assessment is underway and scheduled to be completed in the summer of 2016.
- Development of “A Common Framework for Earth Observation Data” is underway to improve discoverability, accessibility, and usability of Earth Observations.
- The USGEO is exploring how to further integrate citizen science and crowdsourcing into Federal Earth observing efforts, and will be seeking feedback from interested stakeholders on this topic.

The purpose of the FGDC **Global Geospatial Information Management Working Group** is to coordinate and align the U.S. position with the efforts of the UN-GGIM. Members of the group are from several Federal agencies, including the Census Bureau, DHS, DOI, EPA, the Federal Emergency Management Agency (FEMA), NGA, NOAA, USDOT, the U.S. Department of State, and USGS.

In support of the UN-GGIM, representatives from the FGDC GGIM Working Group attended the 5th Session of the UN-GGIM, held at the United Nations (UN) Headquarters in New York in August 2015. The U.S. delegation joined over 290 participants from over 86 countries, 10 UN bodies, and 30 private sector entities. One significant outcome from the meeting was the passage of a proposal for a common global geodetic reference framework. The fast approval of this proposal by the UN General Assembly was due to the exemplary effort put forth by NOAA's National Geodetic Survey. An additional outcome from the session included the selection of the United States as a Co-Chair of the UN-GGIM, along with China and Mexico.

The UN-GGIM originated various projects over the course of the year, including two major efforts—(1) the completion of a program review and (2) a focus on supporting sustainable development initiatives. The UN-GGIM prepared an initial report on the work that they have done from 2011 to 2015.

This report includes major accomplishments, challenges, and considerations for the future of the UN-GGIM. The report is available at ggim.un.org/ggim_committee.html.

While there is ongoing discussion regarding the new UN Sustainable Development Agenda, the UN-GGIM has been able to raise awareness about the importance of geospatial information to enable sustainable development. Additionally, the UN-GGIM agrees that Member States should ensure that the understanding and use of this geospatial information for sustainable development is enhanced at the policy and decision making levels and integrated into national frameworks.

Members of the FGDC GGIM Working Group were also active at several additional global events throughout the year, including the following:

- Third High Level Forum on Global Geospatial Information Management, Beijing, China
- Third UN World Conference on Disaster Risk Reduction, Sendai, Japan
- 7th European Forum for Geography and Statistics (EFGS) Conference, Krakow, Poland
- Second Meeting of the UN-GGIM Expert Group on the Integration of Statistical and Geospatial Information (UN EG-ISGI), Lisbon, Portugal
- INSPIRE-Geospatial World Forum 16, Lisbon, Portugal



Members of the Global Geospatial Information Management (GGIM) Working Group attending the 5th Session of the UN Committee of Experts on Global Geospatial Information Management.

The FGDC Office of the Secretariat provides support to the **Global Spatial Data Infrastructure (GSDI) Association** in order to increase international collaboration on spatial data infrastructure development. The GSDI Small Grant program uses resources from the FGDC, the Geoconnections Program of Natural Resources Canada, and the GSDI Association. The program supports national or subnational activities that foster partnerships, develop in-country technical capacity, improve data compatibility and

access, and (or) increase political support for spatial data infrastructure. The four 2014 projects from organizations in Armenia, Belize, Ghana, and Uganda were completed in March 2015. Four new projects in Ecuador, Indonesia,

Jamaica, and South Africa were awarded in July 2015. For more information, see gsdiassociation.org/index.php/projects/small-grants.html.

Cooperative Agreements Program Supports the NSDI

To encourage the development of the NSDI beyond the Federal level, the FGDC initiated the Cooperative Agreements Program (CAP) in 1994. Over the years, the CAP (1) fostered collaborations within all sectors of government, (2) helped develop an understanding of geospatial information in organizations new to the NSDI, (3) provided seed money to enable geospatial organizations to participate in the national effort to implement the NSDI, (4) promoted the importance of geospatial data standards, (5) promoted the development of standardized metadata by countless organizations, and (6) greatly expanded implementation of geospatial services on the Internet. The program was offered to local, regional, State, and academic geospatial data communities who not only benefited financially, but more importantly, validated an organization's geospatial initiatives and opened new opportunities and partnerships.

Five CAP projects were concluded this year. Iowa completed a Fifty States Initiative project that developed a business plan to create a cooperative program to build and maintain statewide parcels and orthoimagery that tries to maximize investments made by both local and State government agencies, and develop incentives for further cooperation. Metadata training and outreach continued to be a significant outcome of the CAP. Through Alaska's Department of Transportation and Public Facilities and Florida's Miami-Dade County, training was provided on the internationally accepted geospatial metadata standards (ISO 19115). In addition, their materials were made available to all via the Internet. In a separate project, Miami-Dade County increased participation of the NSGIC GIS Inventory (gisinventory.net), with over 250 metadata containing links to standards-compliant data or data services. This effort supports Federal Data.gov and Geoplatform.gov activities to expose available geospatial data. And finally, North Carolina initiated its return on investment study for State geospatial activities. For more information on projects, please see www.fgdc.gov/grants.



Miami-Dade GIS Users' Group Metadata training session.

U.S. Interagency Elevation Inventory

The USACE and USDA have recently joined the effort to update the U.S. Interagency Elevation Inventory, a collection of publicly available, high-accuracy elevation datasets for the United States and its territories. These groups join NOAA, FEMA, and USGS in maintaining the inventory, which provides an important central location for accessing information about high resolution topographic and bathymetric datasets. Additional agencies may also be joining in early 2016. The addition of these agencies helps to ensure that all federally held datasets are included in the inventory, which encourages accountability and effective development and management of Federal geospatial resources (NSDI Strategic Plan, Goal 2). The inventory provides awareness of and access to federally held data as well as collections from all other sources of publicly available data (State, Tribal, local).

The inventory also supports the 3D Elevation Program (nationalmap.gov/3DEP/) and the Integrated Working Group on Ocean and Coastal Mapping (www.seasketch.org/#projecthomepage/5272840f6ec5f42d210016e4). It is currently used for interagency planning of data collections, and work is underway to track datasets from initial interest in acquiring the dataset to its completion and inclusion in the inventory. In this way, the five-agency effort also supports an NSDI Strategic Plan objective to convene leadership to develop shared approaches to critical national issues through quarterly meetings to coordinate update efforts and build awareness of the Nation's elevation resources. Including datasets in the inventory increases awareness of and access to existing datasets, which reduces duplication of effort from unnecessary data collections and enhances use of existing federally purchased data.

Inventory users can see the extent of datasets on a map, as well as determine information, such as the date of collection and quality level. Also provided is either a point of contact or, when available, a link to download the data and metadata. The inventory is provided to the public via NOAA's Digital Coast (coast.noaa.gov/digitalcoast) and was last updated in March 2015. For additional information, please visit the newly redesigned viewer at www.coast.noaa.gov/inventory.



Goals for Fiscal Year 2016

Over the coming year, the **NSDI Strategic Plan** actions and tasks marked for fiscal year 2016 will be implemented and the summary tables (Appendix E) will be updated to track the status of the implementation process. Goals for the coming year include the following:

Geospatial Interoperability Reference Architecture.

The Program Manager-Information Sharing Environment is funding a joint initiative with the FGDC and technical support from DHS and DOI for implementation of the GIRA as a “Wiki-like” online collaboration resource on the Geoplatform.gov. The goal of this initiative is to further enable the timely discovery, access, use, and collaboration for the enhancement and sustainment of the GIRA.

Challenges/Opportunities: The GIRA is intended to address challenges across the geospatial information sharing community related to use of different vernaculars and vocabularies between stakeholders; use of different architectural frameworks and accepted practices across Federal, intelligence, private sector, and local organizations; and use of different technical services and standards that are critical for geospatial data sharing and interoperability. The GIRA provides an opportunity to increase government geospatial information sharing of interoperable capabilities, to promote reuse of existing information assets, and to minimize Federal operational costs.

GeoCloud. The GeoCloud Incubator will continue to advance FGDC efforts to leverage cloud services. Working with the FGDC community, GeoCloud efforts will include automation of GIS deployments, integrated geospatial data catalog and publishing capability, migration of production ready pilots to the Geoplatform.gov shared services, and development of a cloud security framework for spatial data infrastructures.

Challenges/Opportunities: Cloud-based technologies are evolving at a phenomenal rate, requiring continued analysis and observation for applicability, risk, and appropriate adoption and integration into geospatial services. Through the GeoCloud initiative, the FGDC can continue research and development of a prototypical geospatial interoperability platform in the cloud-based service environment to demonstrate its potential.

NGDA Management Plan. The coming year will see the continuation of activities to meet the objectives and actions outlined in the NGDA Management Plan (www.fgdc.gov/policyandplanning/a-16/ngda-management-plan) and will

support meeting Objective 2.1 in the NSDI Strategic Plan. The actions to be completed in fiscal year 2016 will further the implementation of portfolio management of geospatial data and will take the combined efforts of the FGDC Steering Committee, NGDA Executive Theme Champions, NGDA Theme Leads, NGDA Dataset Managers, FGDC Office of the Secretariat, and the Geoplatform.gov Team.

Challenges/Opportunities: There needs to be continuing engagement by Federal partner agencies for the many concurrent activities to develop meaningful and consistent reporting for NGDA Themes and Datasets, and to ensure adequate resources to implement the NGDA A-16 Portfolio and its supporting tools. If these challenges are overcome, core Federal geospatial assets will be available for effective sharing, collaboration, and use of core geospatial data to support efficient and effective decision making.

Standards. Continue to advance NSDI Strategic Plan Action 3.1.2, which calls for developing strategic partnerships with existing standards development organizations and NSDI Strategic Plan Action 3.1.3, which calls for providing technical and educational support to agencies implementing NSDI standards and engaging the standards community through workshops or online information-sharing tools, such as Web meetings or social media.

Challenges/Opportunities: The main challenge facing the FGDC standards program is obtaining necessary support from NGDA Dataset Managers, Theme Leads, Executive Theme Champions, Theme Lead Agencies, and the FGDC Subcommittees/Working Groups to fulfill actions and tasks called out in the NSDI Strategic Plan.

Geospatial Metadata. Continue involvement in NSDI Strategic Plan implementation, including Geoplatform.gov and A-16 Supplemental Guidance – National Geospatial Data Asset Management Plan. Provide practical guidance for ISO metadata transition/implementation via the FGDC Geospatial Metadata Web site, ISO Geospatial Metadata Implementation Forum, ISO Geospatial Metadata Editors Registry, and possible continuation of the Metadata Summit series (2011 and 2013). Coordinate an enhanced harvesting and validation process to increase geospatial metadata holdings in the Data.gov and Geoplatform.gov catalog. Promote and manage the ISO Geospatial Metadata Editors Registry. Identify metadata-related issues and actions in support of the GIRA. And finally, create and manage a Geoplatform.gov geospatial metadata community.

Challenges/Opportunities: The challenge of meeting the technical demands to stay current on actively evolving ISO 191 series of geospatial standards can be supported through identifying ISO metadata implementation activities that can serve as shared learning experiences, coordinating metadata activities at the national and international level, and compiling efforts of effective geospatial metadata education and outreach resources.

National Geospatial Advisory Committee. The NGAC will provide ongoing review, feedback, and recommendations regarding the development and implementation of key issues and initiatives, including the ongoing implementation and development of the NSDI Strategic Plan, the continued development of the Geospatial Platform, development of portfolio management approaches, geospatial standards coordination, and geospatial data initiatives, which may include elevation, address, and transportation data. The FGDC will review and respond to advice and recommendations from the NGAC and will complete the next cycle of NGAC nominations and appointments in fiscal year 2016.

Challenges/Opportunities: The NGAC will face continuing challenges in developing effective advice and recommendations that reflect a consensus view across multiple sectors and perspectives on key issues, such as the implementation of the NSDI Strategic Plan, geospatial portfolio management, and the Geospatial Platform, as well as emerging issues and data initiatives.

International. A goal for the UN-GGIM is to ensure that geospatial information is included in the preparation of the Sustainable Development Goals. The UN General Assembly has commended the UN-GGIM for their efforts to promote the importance of reliable geographic and geospatial information for both monitoring and measuring goals. Activities pertaining to this will be reflected in the post-2015 development agenda that is scheduled for adoption in September 2015.

Challenges/Opportunities: The emphasis on utilization of geospatial information to support UN efforts presents challenges. Success will depend on the availability of high-quality, timely, and reliable data in conjunction with managing issues related to data collection, such as use, privacy, provenance, and accessibility.

National Address Database (NAD) Summit

The USDOT and its partners from all levels of government recognize the need for a National Address Database (NAD). Accurate and up-to-date addresses are critical to transportation safety and a vital part of Next Generation 9-1-1. They are also essential for a broad range of government services, including mail delivery, permitting, election administration, and school siting. To date, there has been no national database of address points in the public domain, resulting in duplicative spending on address information across Federal, State, and local governments. The Government Accountability Office (GAO) reinforced this belief in its February 2015 report titled “GEOSPATIAL DATA: Progress Needed on Identifying Expenditures, Building and Utilizing a Data Infrastructure, and Reducing Duplicative Efforts.” One of the recommendations from this report specifically addresses the need for a NAD: *“To better facilitate the coordination of—and accountability for—the estimated billions of dollars in federal geospatial investments, and to reduce duplication, the Secretary of the Interior, as the FGDC Chair, should direct the FGDC Steering Committee to create an address data theme with associated subcommittees and working groups to assist in furthering a national address database.”*

The USDOT is committed to working with partners and stakeholders from all levels of government to fulfill this recommendation. As a first step, USDOT hosted the National Address Database Summit in April 2015. The Summit convened stakeholders from all levels of government and the private sector to identify the possible alternatives for developing a NAD with the pros and cons of each alternative based on real case examples that are currently in place. Federal partners from the Consumer Financial Protection Board, DHS, the Federal Communications Commission, FEMA, EPA, HUD, the U.S. Department of Commerce, the U.S. Department of Justice, and the United States Postal Service (USPS) participated in the Summit. In addition, there was participation from 16 State governments, 17 local governments, and 2 Tribal governments. Private sector and nonprofit stakeholders brought the total number of participants to 58.

A key component of the Summit was smaller group breakout sessions that capitalized on the address subject matter expertise represented by the diverse and experienced stakeholder participants. The breakout discussion revolved around four key topics for a National Address Database, including: business justification, appropriate leadership and organizational approach, local government outreach and assistance, and the data and technology issues that must be resolved. Following these discussions, Summit participants came to extremely broad agreement on four key points that can help guide the direction an NAD initiative may take:

1. Local governments are the authoritative source for address assignment and are dataset originators.
2. State governments should be statewide aggregators of county and local datasets.
3. Given the vast and complex nature of the United States, it is critical to recognize the role non-State governmental entities, such as Tribal Nations, U.S. Territories, and the District of Columbia, play in an NAD.
4. Federal leadership and support is needed for there to be a sustainable national approach.

The findings from the Summit, which can be found at www.transportation.gov/mission/open/national-address-database-summit-report, reinforce USDOT’s belief that a NAD can be compiled from State and local data. A small pilot project to determine the way forward was kicked off in August 2015.



National Address Database (NAD) Summit.



Active engagement during the National Address Database (NAD) Summit.

FGDC Subcommittees and Working Group Reports

The FGDC is supported by subcommittees and crosscutting working groups to address geospatial issues for the specific data types. The FGDC subcommittees and working groups are comprised of representatives from Federal agencies and FGDC-recognized stakeholder groups who share a common interest. Each subcommittee focuses on issues that pertain to coordination and standards associated with a geospatial data theme with regard to data collection, access, exchange, and applications using those data. Working groups address activities that crosscut or affect several subcommittees. Further information is available at www.fgdc.gov/participation/working-groups-subcommittees.

Many of the FGDC subcommittees actively assist in the implementation of the NGDA Management Plan and, in fact, many members of the subcommittees are designated as NGDA Theme Leads or NGDA Dataset Managers. Members of the subcommittees have updated and (or) registered NGDA Dataset metadata that is harvested for the Data.gov and Geoplatform.gov catalog. These actions increase opportunities for discovery, access, and shared use of the NGDA Datasets. The subcommittees' members are supporting the NGDA Theme and Dataset maturity assessments, which are critical to providing relevant and meaningful information for decision making by senior executives.

Cadastral Subcommittee

The Cadastral Subcommittee develops and implements plans to coordinate cadastral data-related activities among Federal, State, Tribal, and local governments, and the private sector. As examples, subcommittee members work with the wildland fire community to identify sources of land parcel data, standardize available data, and build sustainable operational procedures to provide land parcel data for wildland fire applications in coordination with States. The subcommittee works with public domain States—those States using the PLSS—to standardize the best available statewide data in the State, to identify the optimum maintenance work flow, and to publish a maintainable standardized dataset. The subcommittee's outreach Web site is at nationalcad.org.

The subcommittee also coordinates with other FGDC subcommittees on cadastral-related topics. Examples include coordination with the Boundary Working Group to identify, document, and locate cadastral data sources

for boundaries that are dependent on cadastral features, and the FGDC Geodetic Control Subcommittee to explore the option for integrating control collected for cadastral datasets with national control datasets. Highlights for the subcommittee include the following:

Land Buy-Back Program for Tribal Nations (Buy-Back). The Buy-Back Program is an outcome from the Cobell v. Salazar lawsuit and is a program to support the reconsolidation of the fractionated interests on Indian Lands. There are over 300 Indian reservations in the United States and of these, 153 were identified as candidates for the program. Since 2012, the Bureau of Land Management (BLM) has completed the construction of a geodatabase and validating land records data for over 500,000 Indian parcels on 80 of the 153 reservations. The remaining 73 of 153 reservations will be completed in 2016. Upon request from the Indian Buy-Back Program, the BLM is performing updates to the geodatabases for these reservations. The standard PLSS data combined with the land descriptions from the Bureau of Indian Affairs' (BIA) Trust Asset and Accounting Management System are the major sources of information used to construct the database. In addition to the buy-back reservations, BLM will complete geodatabases and data validation for 25 reservations in 2015 and 30 reservations in 2016. In 2016, much of the responsibility for this effort related to the Indian tract/parcel geodatabases will be transferred to the BIA. The BLM will retain responsibility for PLSS data. The BIA also is the lead agency for the reservation boundary updates. The BLM and the BIA continued working together to improve records and update reservation boundaries that are critical to supporting the program.

Federal Rights and Interests. The Cadastral Subcommittee completed a review of Federal rights databases and produced a final summary report.

Standardized PLSS – Nationwide Status. The PLSS dataset is a National Geospatial Data Asset. The BLM facilitated and (or) completed the standardization of 29 of the 30 PLSS States, with Oklahoma still pending but scheduled for completion in fiscal year 2016. These are initial standardized datasets that are continuing to be updated with added control, partnership activities, and new surveys. The Cadastral Subcommittee completed the dataset collection level metadata and registered it in the Data.gov and Geoplatform.gov catalog.

Supporting PLSS Cadastral National Spatial Data Infrastructure (CadNSDI) Data

The BLM is in the process of adopting a commercial off the shelf product for continued maintenance of the PLSS datasets and will complete the migration of the data for all States to a parcel fabric in 2016. The State of Montana, as a State data steward, is completely operational in the parcel fabric and is publishing quarterly updates through the Esri's Parcel fabric tools. The cooperative project was recognized with an Esri 2015 Special Achievement in GIS award (events.esri.com/conference/sagList/?fa=Detail&SID=2117). More information on the project can be found at medium.com/@Esri/bureau-of-land-management-cadastral-survey-adopts-esri-s-parcel-fabric-51ff44bb87af.

Cadastral Survey Control. Partners from Utah, Montana, Idaho, BLM's Eastern State Office, and private land surveyors developed a multi-State (multijurisdictional) cadastral control database that supports the online submission, review, and publication of collected survey control. The BLM continues its efforts to coordinate with NGS to find an appropriate national hosting site for a national cadastral control dataset.

Digital Parcel Map Data and State Stewardship. The BLM continued to support the advancement of State stewardship for the assembling, aggregation, standardization, and publishing of locally sourced parcel data. Through the wildland fire support and boundary quality improvement efforts, it is very apparent that State-hosted, standardized, accessible parcel data is essential to support many Federal, State, and local programs.

Cultural Resources Subcommittee

The purpose of the Cultural Resource Subcommittee is to identify, prioritize, implement, coordinate, and oversee the strategies and tasks required to support the national cultural resource geospatial data theme and to coordinate these activities across Federal, State, Tribal, local, and private sector geospatial programs to that end. Because each State/Tribal historic preservation office, certified local government, and Federal agency operates independently to collect, maintain, and utilize their portion of the repository of over four million cultural resources nationwide, coordination in data standards is a key aspect for the utility of the data, required for Federal regulatory needs, disaster response, and preparedness, as well as for climate change studies. The subcommittee provides the framework for developing cultural resource data standards to facilitate data sharing, in addition to fostering coordination of data collection efforts among stakeholders. Subcommittee members include

20 Federal agencies as well as 10 State and 10 Tribal participants. The subcommittee's accomplishments for 2015 include the following:

- Developed and approved a statement of goals and definition of the purpose of the subcommittee in July 2015.
- Continued development of an initial working draft of the proposed cultural resource data transfer standard throughout 2015. Partnered with the National Conference of State Historic Preservation Officers to survey States and Tribes to provide feedback and make suggestions on the format and elements to incorporate into the standard in February 2015. Responses to the survey incorporated into the development of a final set of feature-level metadata fields to be used in the proposed cultural resource spatial data transfer standard in July 2015.
- Supported the implementation of the NGDA Management Plan by reviewing and approving the template for the NGDA Theme Strategic Plans in May 2015. Reviewed and approved the process for the addition, change, or removal of NGDA Datasets from a Theme, and ensured that the Cultural Resource Theme NGDAs were registered in the Geoplatform.gov and Data.gov catalog.

Geodetic Control Subcommittee

The Federal Geodetic Control Subcommittee helps coordinate the planning and execution of geodetic surveys, developing standards and specifications for these surveys, and exchanging geodetic survey data and technical information among Federal agencies. To provide effective leadership in these activities, NGS participates in international meetings to collaborate on international reference frames, national meetings to educate the public on U.S. national reference frames, and smaller regional meetings to discuss the particular dynamics of local geographies. These efforts directly support the NGDA Strategic Plan's Goal 3 that calls for convening leadership of the national geospatial community. Some of the subcommittee's accomplishments for fiscal year 2015 are the following:

- The NGS hosted the 2015 Geospatial Summit to provide information on the replacement of the North American Datum of 1983 (NAD 83) and North American Vertical Datum of 1988 (NAVD 88) to improve the National Spatial Reference System (NSRS).
- The NGS developed Geodesy and Mapping educational videos and online lessons to highlight basic principles of Geodesy, the importance of the science within mapping applications, and how changes will impact their work.
- The NGS continued to coordinate with the International Earth Rotation and Reference Systems Service as lead

agency for providing Global Positioning System (GPS) orbits to the International Global Navigation Satellite Systems (GNSS) Service. The NGS also performed a site survey at the Mauna Kea Very Long Baseline Array Observatory. These efforts help determine the International Terrestrial Reference Frame, which is the basis for all GNSS positioning and is in support of the Global Geodetic Reference Frame that was included in a resolution adopted by United Nations General Assembly.

- The Arkansas Geodetic Advisor collaborated with the USACE, USGS, and the Arkansas Highway and Transportation Department to collect simultaneous GPS observations along the Mississippi River. In fiscal year 2015, GPS observations on 137 bench marks were shared, improving the accessibility of NAVD 88 heights in the regions.
- The NGS is working with the BLM and State partners to discuss options for maintaining the cadastral control database developed in Montana. Transitioning Cadastral and Geodetic Control databases and hosted services to the Geoplatform.gov would better serve the public providing Web services to connect to local, State, and Federal governments.
- The NOAA continued working with Canada to replace the International Great Lakes Datum of 1985 in 2025. This year, various partners completed a simultaneous GPS campaign at the U.S. and Canadian tide gages. This type of survey is repeated over time to monitor isostatic rebound in the Great Lakes region.
- The Pacific Geodetic Advisor continued working with USGS to accurately monitor water levels in Maui's Aquifers by increasing the density of Maui's vertical geodetic control network.

Geologic Subcommittee

The Geologic Data Subcommittee coordinates Federal and non-Federal interests in geologic data, including the facilitation of exchange of information and transfer of data; the establishment and implementation of standards for quality, content, and transferability; and the coordination of the identification of requirements and the collection of spatial data to minimize duplication of effort where practicable and economical. The Geologic Data Subcommittee Web site is at ngmdb.usgs.gov/fgdc_gds.

Through coordination provided by the National Geologic Map Database (NGMDB) project, the USGS, State Geological Surveys (represented by the Association of American State Geologists (AASG)), and the National Park Service completed the initial stage of evaluation and test implementation of a standard geologic map database design that is intended to be proposed as a FGDC Standard (see ngmdb.usgs.gov/Info/standards/NCGMP09). This design, temporarily named NCGMP09, was developed in

2009, under auspices of the USGS National Cooperative Geologic Mapping Program. The agencies noted above worked through each section of the documentation and GIS database design, and recommended a set of modifications. This work was accomplished through a few monthly teleconferences, several listserves for communicating technical challenges and conclusions, and an interagency working group. Upon completion of the recommended changes, NCGMP09 will be republished as a Version 2, and will then be brought before the FGDC Geologic Data Subcommittee for planning to propose as an FGDC standard; this is anticipated to be initiated in 2016. Having the FGDC approval on a standard has a noticeable effect, which is proved by the acceptance of the Cartographic Standard for Geologic Map Symbolization by the community.

Homeland Infrastructure Foundation-Level Data Subcommittee

The Homeland Infrastructure Foundation-Level (HIFLD) Subcommittee develops, promotes, and executes a coordinated strategy for acquisition or development of homeland infrastructure geospatial information for Federal agencies while creating and utilizing partnerships with State, Tribal, territorial, local, and private organizations. The subcommittee serves as a focal point to coordinate homeland infrastructure geospatial information requirements among Federal, State, Tribal, territorial, local, and private organizations and to ensure coverage of homeland infrastructure geospatial information for all States, territories, and possessions. It consists of Federal agencies that, as part of their mission, collect or finance the collection of infrastructure geospatial information.

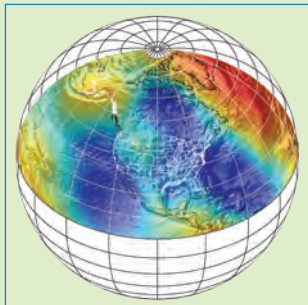
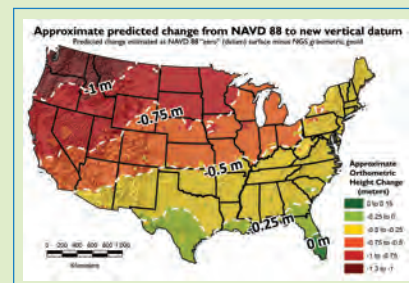
The subcommittee is supported by a HIFLD Program Management Group, which is composed of the following organizations: DHS Geospatial Management Office, DOI Office of the Geospatial Information Officer, FEMA, National Protection and Programs Directorate, NSA, and U.S. Department of Defense Office (DOD) of the Assistant Secretary of Defense for Homeland Defense and Americas' Security Affairs (OASD-HD&ASA).

The fiscal year 2015 accomplishments of the subcommittee include the following:

- The subcommittee coordinated the production and dissemination of the 2015 release of Homeland Security Infrastructure Program (HSIP) data products and Web services.
- The subcommittee extended new memberships to the NSGIC, National Capital Regional Planning Committee, and USPS to enable them to provide input on the strategic direction of HIFLD and ensure their feedback is incorporated in the Common Operating Data

North American Datum Modernization

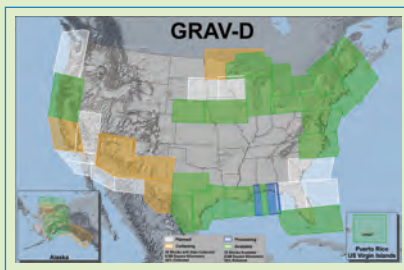
In 2022, NOAA's NGS will replace the North American Datum of 1983 (NAD 83) and the North American Vertical Datum of 1988 (NAVD 88) with new Reference Frames (Datums) to improve the NSRS. Determining positions relative to the new reference frames (geometric and geopotential) will rely primarily on GNSS, such as the GPS, as well as on a gravimetric geoid model resulting from NGS' Gravity for the Redefinition of the American Vertical Datum (GRAV-D) Project. For more information, visit (geodesy.noaa.gov/datums/newdatums).



Education

The NGS hosted the 2015 Geospatial Summit on April 13–14, 2015, to update constituents on progress towards the new reference frames, inform users how to prepare for the transition, and collect feedback from stakeholders. Twenty U.S. Federal agencies from eight departments attended the event, along with representatives from State and local governments, the private sector, and academia. For more information, visit geodesy.noaa.gov/2015GeospatialSummit.

Additionally, NGS continued partnering with The COMET® Program (www.comet.ucar.edu) to develop Educational Videos and online lessons.

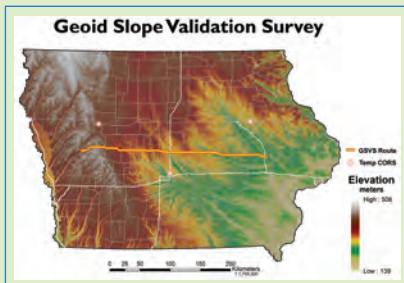


Data Collection and Analysis

The Gravity for the Redefinition of the American Vertical Datum (GRAV-D) Project includes an extensive aerial gravity data collection survey, which will cover all U.S. States and territories when completed. This multiyear effort remained on schedule, and aerial gravity collected from the country and territories has reached 45% in fiscal year 2015. For more information, visit geodesy.noaa.gov/GRAV-D.

This year, NGS also completed the second of three planned geoid slope validation surveys (GSVS). The most recent project was completed in Iowa to test the accuracy of the gravimetric geoid model, which includes GRAV-D airborne gravity data. Each GSVS compares the geoid slope of various surveying techniques, including GPS, geodetic leveling, deflection of the vertical, and terrestrial gravity data.

To date, the results of these surveys have confirmed that the accuracy of differential orthometric heights (heights relative to sea level) in the new geopotential reference frame will be 2 centimeters over any distance, where GNSS usage is possible. For more information, visit geodesy.noaa.gov/GEOID/GSVS14.



requirements management process.

- The Program Management Group launched a Data Licensing Tiger Team to examine the release of HSIP data layers to resolve access challenges faced by HSIP consumers. This ongoing effort will result in increased community access for select HSIP datasets via their hosting on the Federal Geospatial Platform.
- The legacy HIFLD Web site, which serves as a secure online community for over 6,000 users, was successfully transitioned to the DHS Geospatial Information

Infrastructure (GII) environment. The HIFLD user base can now access HSIP data alongside supporting GII resources. The subcommittee conducted a series of outreach events via live webinars to assist the user base in acquiring Homeland Security Information Network credentials.

- The Common Operational Data Management Plan was established to formalize the adjudication process for new datasets based on the A-16 Portfolio management. The subcommittee applied intake criteria from the Plan

to assess the Defense Industrial Base submitted by the Industrial Analysis Center.

- Subcommittee representatives participated in outreach events, including the Licensed Data Forum facilitated by MAPPS, United States Geospatial Intelligence Foundation conference, and the NAPSG Homeland Security Summit to address data needs and access challenges facing users from diverse stakeholder groups. The subcommittee briefed the HIFLD community regarding its 2015 roadmap at the Esri Federal Users Conference and participated in a series of meetings with fusion center representatives at the Esri National Security Summit and Users Conference. The subcommittee regularly performed HSIP demonstrations to working groups and stakeholders at multiple levels of government, including the Louisiana State Emergency Management Office.



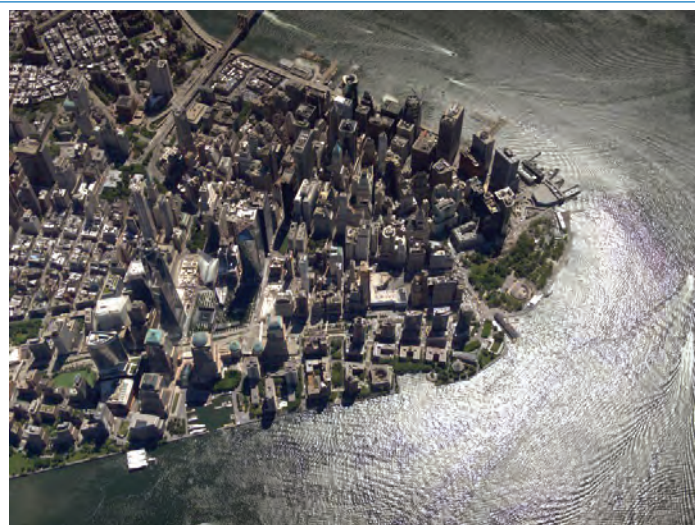
Marine and Coastal Spatial Data Subcommittee

The primary mission of the Marine and Coastal Spatial Data (MCSD) Subcommittee is to develop and promote the Marine and Coastal NSDI. The vision of the Marine and Coastal NSDI is that current and accurate geospatial coastal and ocean data will be readily available to contribute locally, nationally, and globally to economic growth, environmental quality and stability, and social progress. The subcommittee is chaired by the NOAA Geospatial Information Officer.

For the past 5 years, the subcommittee has worked in an integrated manner, seeking critical partnerships with other Federal, State, and local governments, as well as interagency and multisector activities in the marine and coastal environment focusing on spatial data. These

activities include the National Ocean Council and the ocean.data.gov data portal, the Integrated Working Group on Ocean and Coastal Mapping, and the Integrated Ocean Observing System, to name a few key initiatives. Since the marine and coastal geospatial community is broad and diverse, the FGDC's MCSD Subcommittee seeks leveraging ongoing activities in other sectors. For the year 2015, accomplishments of the subcommittee include the following:

- Supported the implementation of the NGDA Management Plan by reviewing and updating NGDA Dataset baseline inventory for the Water – Oceans and Coasts Theme and registering the Theme's NGDA Datasets in the Data.gov and Geoplatform.gov catalog, and updated the Water – Oceans and Coasts Theme pages on Geoplatform.gov.
- A Federal mandate under the Ocean and Coastal Mapping Integration Act of 2009 established the requirement to “coordinate and leverage ocean and coastal mapping efforts to improve access to existing data and efficiently collect future data.” The Interagency Working Group on Ocean and Coastal Mapping has developed a National Coastal Mapping Strategy to meet this mandate. This group helped the Geospatial Platform management team to expand the functionality of the Geospatial Marketplace to meet similar requirements for the coastal and ocean mapping community.
- Continued to support and grow the Marine Planning Portal Network (MPPN); through a combination of a listserv, webinar series, and informational resources, it serves as one of the main conduits for communication between State, regional, and national portals, applications, and planning efforts. The MPPN continues to grow and now has 110 listserv members.
- The NOAA's NGS is collecting aerial oblique imagery prior to natural disaster events (that is, hurricanes, tornadoes, oil spills, and so forth) to aid emergency and



NGS oblique imagery of Manhattan.

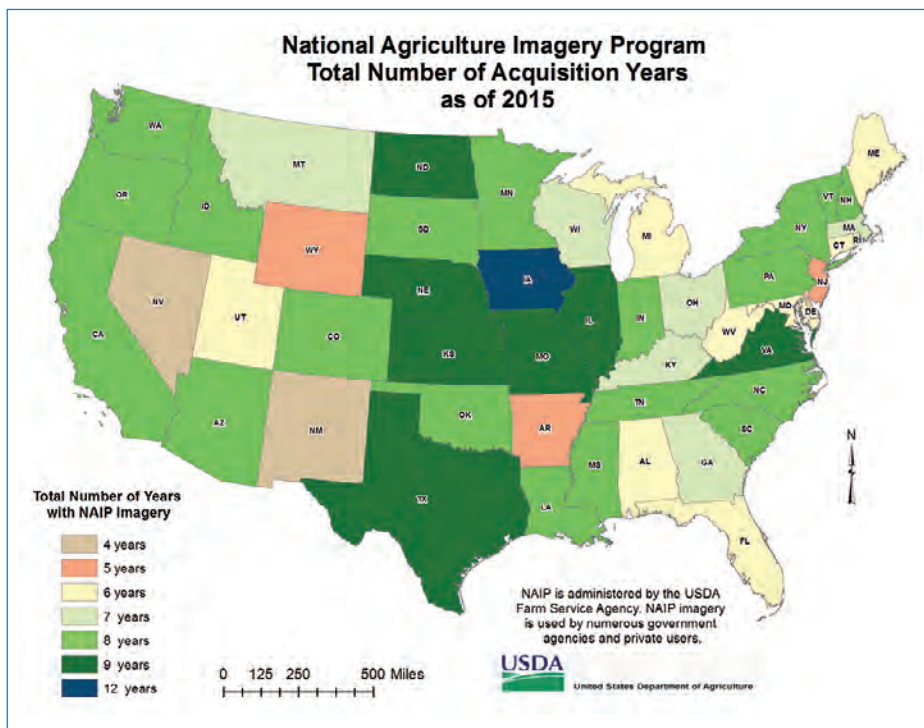
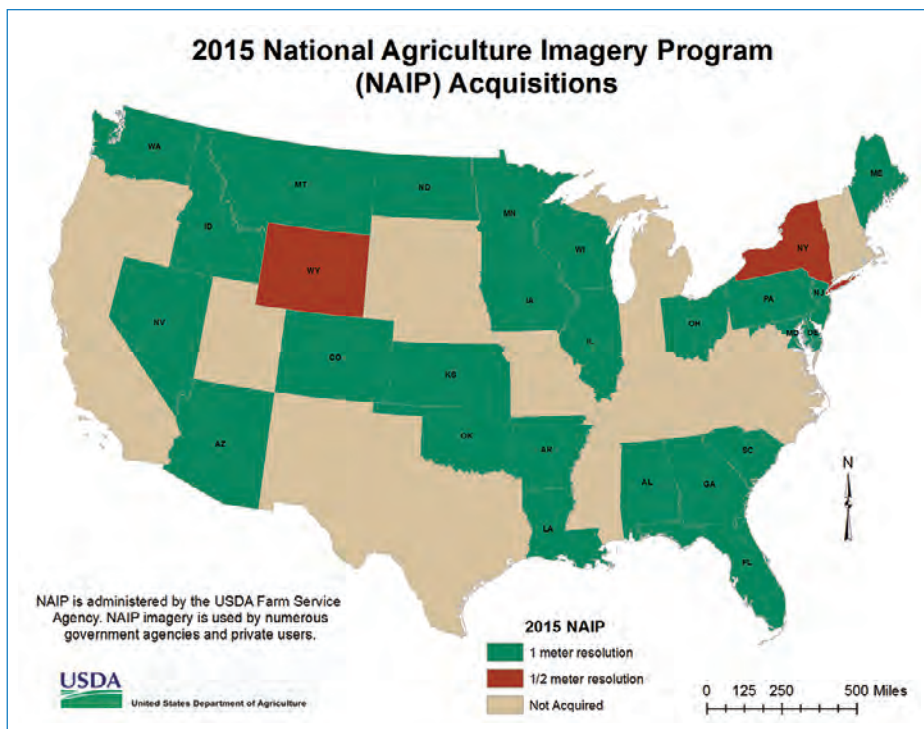
coastal managers with the information they need to develop recovery strategies, facilitate search-and-rescue efforts, identify hazards to navigation and hazardous materials spills, locate errant vessels, and provide documentation necessary for damage assessment through the comparison of before-and-after imagery. Additionally, oblique imagery allows determination of the extent of the damage inflicted by the storms and comparison of this storm's forecast models to actual damage to the ground. The NGS' oblique imagery is available online and employs a front-end Web page that quickly provides imagery with coordinate attributes for the public and allows downloadable imagery. The National Digital Orthoimagery Program Subcommittee also supports this effort.

- Updates to the MarineCadastre.gov Web site were released that includes a new National Viewer, updates to the Data Registry, and a refreshed look and feel to the entire Web site. The project developed or maintained 57 data layers over the course of the year. The project team from the Bureau of Ocean Energy Management (BOEM) and NOAA continued strong, tightly integrated relationships with regions that are actively engaged in marine planning, specifically the Northeast, Mid-Atlantic, and West Coast. The site also has an active social media component through Facebook and Twitter.

National Digital Orthoimagery Program Subcommittee

The National Digital Orthoimagery Program (NDOP) Subcommittee is responsible for developing, promoting, and executing a national strategy for acquisition or development of orthoimagery data for Federal agencies, while creating and utilizing partnerships with State, local, Tribal, and private organizations and supports NSDI Strategic Plan Objective 2.2. The NDOP Subcommittee is accountable to the FGDC Steering Committee and provides recommendations to the FGDC CG. These are the policy and operational authorities, respectively, responsible for providing

leadership and direction in the use and development of geospatial data and information across Federal geospatial programs and in conjunction with public, academic, and private sector partners and stakeholders. The subcommittee accomplished the following in 2015:



- At the recommendation of GAO and the direction of the FGDC Chair, the NDOP reassessed the feasibility of the “Imagery for the Nation” initiative, with the goal of identifying discrete steps that could be taken to further a national imagery program benefitting government at all levels. The NDOP met in person in May and again via teleconferences in June and prepared a report that assessed feasibility, offered options, and identified barriers that must be resolved before an initiative of this magnitude can succeed. The report was presented at the September FGDC Steering Committee Meeting.
- As the primary source of aerial imagery for USDA, the Farm Service Agency (FSA) administers the National Agriculture Imagery Program (NAIP), leveraging partnership funds from other Federal, State, and local entities to acquire imagery during the growing season over the continental United States. In 2015, FSA acquired nearly 1.8 million square miles of four-band (natural color and near color infrared) imagery in 27 States. Two States were collected at 0.5-meter resolution through a partnership “buy-up” option and all the remaining States are at 1-meter resolution. An innovative addition to NAIP, called the Early Access Web Services, provides minimally processed NAIP imagery via Web service protocols on average between 2 and 7 business days after acquisition. This allows FSA and partner agencies to perform time-sensitive work with the most current imagery available months in advance of receiving production-level NAIP imagery.
- High resolution imagery was collected through multiple funding partnerships with local, State, and Federal agencies. By combining the requirements and funding of these entities, 109,788 square miles of 3-inch, 6-inch, 1-foot, and 2-foot imagery was efficiently received for the benefit of all. The last High Resolution Orthoimagery program data, acquired through the multiple funding partnerships, was received in September 2015. With responsibility for management of the HSIP transferring from NGA to DHS, and with the USGS/National Geospatial Program’s elimination of the “in-kind” services provided to the HSIP 133 Cities Urban Areas imagery acquisitions, there does not currently appear to be a clear methodology to coordinate future high resolution acquisitions. Therefore, NDOP anticipates fiscal year 2015 to be the last year of coordinated acquisition in this area.
- The NOAA collected tide-controlled imagery in 54 coastal areas to support shoreline mapping efforts.
- The NDOP members (USDA–NRCS, USDA–FSA, NOAA, and DOD–NGA) have worked together to acquire new Orthoimagery in fiscal year 2015 for the following: Hawaii, Northwestern Hawaiian Islands, Commonwealth of the Northern Mariana Islands, Republic of Palau, and the Federated States of Micronesia.

- The NDOP Technical Subcommittee held numerous meetings throughout the year to discuss technical issues that affect our member agencies, with the principal goal to share information and save time and costs. In 2015, some key topics of discussion were unmanned aircraft systems (Technology and Agency Acquisition Policy), new digital camera systems, satellite imagery systems, scanning and archiving legacy aerial photography, and high resolution imagery services.

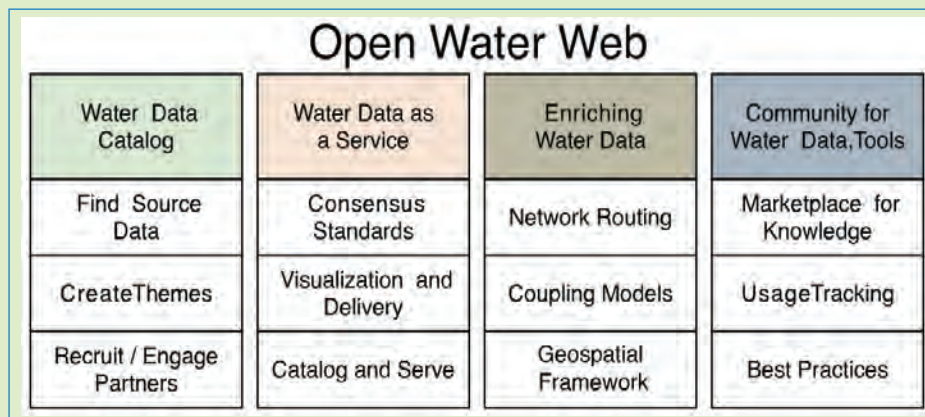
Spatial Water Data Subcommittee

The Advisory Committee on Water Information (ACWI) and FGDC created the Subcommittee on Spatial Water Data (SSWD) to assist coordination of Federal and non-Federal interests in spatial water data, including (1) facilitating the exchange of information and transfer of data; (2) establishing and implementing standards for quality, content, and transferability; and (3) coordinating the identification of requirements and the collection of spatial data to minimize duplication of effort where practicable and economical.

The SSWD has been leading efforts to engage the community and to design and scope the Open Water Data Initiative (OWDI). The OWDI was launched by the FGDC and the ACWI in the summer of 2014. The goal of the OWDI is to bring currently fragmented water information into a connected, national water data framework by leveraging existing systems, infrastructure, and tools to underpin innovation, modeling, data sharing, and solution development.

The subcommittee is exploring three initial use cases, which help to identify critical data needs, then facilitating and making the needed datasets openly available as Web services and downloads. The initial use cases were chosen to cover important societal needs and to address several diverse facets of the water information infrastructure. The three initial use cases are:

- **Flooding.** The National Flood Interoperability Experiment (NFIE) is a joint effort between FEMA, the National Weather Service (NWS), NOAA, USGS, USACE, the academic community, and commercial partners. The goal of NFIE is to demonstrate a transformational suite of science and services for the next generation of national flood hydrology and emergency response.
- **Drought.** The OWDI drought use case is aimed at providing an integrated picture of water supply and drought information sources, and emphasizes integration and visualization of information from disparate sources.
- **Spill Response.** The goal of the OWDI spill response use case is to identify datasets, tools, and environmental



The Open Water Data Initiative can be envisioned as four primary types of activities contributing to the development of an “Open Water Web,” a connected national water data framework by leveraging existing systems, infrastructure, and tools, as shown in the figure below: (1) development of a water data catalog; (2) serving water data via the Internet in machine-readable formats; (3) enriching water data through spatial analysis and modeling; and (4) fostering a community or “marketplace” through which tools, best practices, and data are shared.

parameters that would enable Web-based predictive modeling of the path and traveltime of contaminants as they travel downstream.

Much progress has been made in the past year. A few highlights follow:

- Outstanding engagement and participation in the SSWD, with over 90 people from more than 30 organizations indicating interest, and with half attending the meetings on a regular basis.
- Special OWDI tracks offered at the American Water Resources Association (AWRA) national conferences in 2014 and 2015.
- A featured collection of technical papers related to OWDI, hosted by the Journal of the AWRA.
- Based on user feedback, a “flattened” data model developed using National Hydrography Dataset Plus (NHDPlus).
- The linking of USGS streamgaging stations and NWS forecast points to NHDPlus.
- Development of OGC and Esri Web services for NHDPlus streamgaging stations.

Transportation Subcommittee

The Transportation Subcommittee works to coordinate and support the NSDI and other transportation data-related activities among stakeholders. The Subcommittee’s current areas of interest include all modes of transportation, transportation networks, terminals, and services (including intermodal freight and passenger), and the movements of people and commodities using them. The subcommittee

supports the efforts of NGDA Theme Lead for the Transportation Theme. The following are highlights for the year:

- The Transportation Subcommittee presented its activities to the FGDC CG in May 2015.
- In April, USDOT hosted the National Address Database Summit. See article on page 25.
- The NGDA Dataset Manager for the railroad network focused on a major update to this dataset, which is conflating the Federal Railroad Administration rail network with data that was developed by NGA. The final product, the North American Rail Network, is planned to be completed in October 2015, and will be the primary rail network for all of the Federal Government and the rail industry.
- The USDOT registered the Transportation Theme’s NGDA Datasets in the Data.gov and GeoPlatform.gov catalog. The Theme Lead supported the implementation of the NGDA Management Plan by working with Dataset Manager and coordinated baseline NGDA Dataset lifecycle maturity assessments.
- The USDOT implemented its policies for metadata, procedures, and guidelines for using the clearinghouse, developing transportation data standards, and creating a geospatial strategic plan for USDOT.
- The second annual submission of the All Roads Network of Linear Referenced Data (ARNOLD) was received. Of the 52 submissions (one from each State Department of Transportation, plus from the District of Columbia and Puerto Rico), 38 were able to meet the new “all roads” requirement, 10 were slightly lacking, and 4 are in need of assistance.

Vegetation Subcommittee

The Vegetation Subcommittee was established to coordinate terrestrial vegetative data-related activities that include promoting accurate and current standards, financed in whole or in part by Federal funds; exchanging information on technological improvements; encouraging the Federal and non-Federal communities to identify and adopt the standards and specifications; and collecting and processing the requirements of Federal and non-Federal organizations. Federal participants in the Subcommittee provide leadership to facilitate: (1) the revision and implementation of the FGDC Vegetation standard and the revision of the classification hierarchy according to the FGDC Vegetation standard, which are used in vegetation classification, mapping, and inventory; (2) the development of partnership programs with Federal agencies, States, Tribes, localities, academia, and the private sector; (3) addressing user and natural resource needs, (4) identifying needs for standards and metadata to support the NGDA Land Cover and Land Use and Biota Themes; and (5) the adoption of goals to support the NSDI strategy, A-16 portfolio management, Data.gov, and GeoPlatform.gov. The subcommittee meets monthly to facilitate partner communication and planning. In fiscal year 2015, the subcommittee completed the following activities:

- Formally released the National Vegetation Classification (NVC) for the conterminous United States in fall 2015 (usnvc.org). Also finalized the NVC charter and implementation plan. The NVC is a central organizing framework for how all vegetation in the United States is inventoried and studied, from broad-scale formations (biomes) to fine-scale plant communities. The purpose of the NVC is to produce uniform statistics about vegetation resources across the Nation, based on vegetation data gathered at local, regional, or national levels.
- Oversaw the ongoing vegetation hierarchy revisions, specifically the division level of the NVC standard, including hosting a workshop for the review of the macrogroups in Linthicum, Maryland, in fall 2014. Submitted for publication the report of the Hierarchy Revision Working Group, which introduces the upper formation levels of the vegetation classification, and provided a description for each type, following the FGDC Vegetation Classification standard format.
- Finalized the processes for the National Vegetation peer review. The results of the peer reviews and the policy decisions will be used to identify the new vegetation types and modifications to vegetation types currently described in the NVC.
- Initiated three projects focused on archiving and increasing access to high-quality vegetation plot data for the Atlantic Coastal Plain, the Mid-Atlantic States, and California.
- Initiated two regional vegetation classification projects that will improve our understanding of the NVC in the Arctic and Boreal Region of Alaska and the Chihuahuan Desert.
- Supported efforts to identify the range of options available for housing the components of the NVC and to identify options that would meet the FGDC needs for vegetation data.
- Continued to develop the cyber infrastructure to support the NVC, specifically the Hierarchy Browser search capability. Also, through support to the Ecological Society of America Vegetation Panel, continued to maintain a public archive for vegetation records in vegbank.org.
- Hosted a fieldtrip at the Society for Range Management Annual Meeting in San Jose, California, to sites illustrating important range management issues, and hosted a booth at the Ecological Society of America (ESA) Conference in August 2015.
- Endorsed the publication of “A Shared Vision for the California Survey of Vegetation” as a project consistent with the NVC standard and hierarchy. This project was funded with a NSDI Cooperative Agreements Program grant to the California Native Plant Society and the California Department of Fish and Game to establish linkages between the alliances recognized in the Manual of California Vegetation and alliances of the NVC, www.fgdc.gov/grants/2012CAP/projects/G12AC20142.
- The Forest Service Existing Vegetation Classification, Mapping, and Inventory Technical guide (Version 2.0) was published after substantial input from the FGDC Vegetation Committee and ESA Vegetation Panel members. The endorsement from the FGDC Vegetation Subcommittee showed that the project and publication was consistent with the FGDC Vegetation Standard. The guide is available at www.fs.fed.us/emc/rig/protocols/vegclassmapinv.shtml.
- Secured new funding through an interagency agreement (USFS/USGS) for the Ecological Society of America’s Vegetation Classification Panel to continue their work in vegetation classification and education.

Wetlands Subcommittee

The Wetlands Subcommittee promotes standards of accuracy and consistency in Federal geospatial wetlands data, exchanges information on technological improvements for collecting spatial wetlands data, encourages Federal and non-Federal communities to identify and adopt standards and specifications for spatial wetlands data, and collects and processes the requirements of Federal and non-Federal organizations for spatial wetlands data. This year, the subcommittee worked on the following:

- Facilitated the development of authoritative NGDAs by updating the Data Collection Requirements and Procedures for Mapping Wetland, Deepwater, and

Related Habitats of the United States. This document describes the technical procedures and requirements for wetlands map data and is intended to aid organizations or individuals mapping wetlands and applying the Cowardin classification system. The document also explains the appropriate application of the wetland classification and mapping process, and how to achieve the data quality requirements required by the FGDC. For more information, see www.fws.gov/wetlands/Documents/Data-Collection-Requirements-and-Procedures-for-Mapping-Wetland-Deepwater-and-Related-Habitats-of-the-United-States.pdf.

- To facilitate the development and updating of the NSDI wetlands layer, the EPA Wetland Program Development Grants request for proposals language was augmented by adding information on the requirement to comply with the FGDC Wetlands Mapping Standard if Federal funds are used to map wetlands. For more information, see www.fgdc.gov/standards/projects/FGDC-standards-projects/wetlands-mapping/2009-08%20FGDC%20Wetlands%20Mapping%20Standard_final.pdf.
- To ensure that spatial data from multiple sources (Federal, State, Tribal, regional, and local governments; academia; and the private sector) could be integrated into the NGDA Wetlands Layer, the Subcommittee worked with the Association of State Wetlands Managers to produce and present a webinar on the Wetlands Mapping Standards and Procedures. This webinar reviewed the Data Collection Requirements and Procedures, the FGDC Wetlands Mapping and Classification Standards, and contact information to assist wetland data creators in contributing their data to the NGDA Wetlands Spatial Data Layer. For more information, see www.fws.gov/wetlands/Data/Contributed-Data.html.
- Wetlands data for over 125 million acres of the United States was contributed from 12 contributing Federal, State, and local agencies in fiscal year 2015. All data submitted to the NSDI wetlands layer must comply with the National Wetlands Classification Standard and the FGDC Wetlands Mapping Standard. Rigorous quality-control and quality-assurance processes and tools are implemented at all parts of data creation and submission.
- The National Wetlands Inventory dataset was registered in the Data.gov and Geoplatform.gov catalog and includes access to all of the wetland data endpoints, including Web applications, data downloads, and Web mapping services. This ensures the wetlands data are available to a diverse set of devices operated by end users comprising a full range of roles and skills. This NGDA dataset is part of the Waters – Inland Theme Community. For more information, see cms.geoplatform.gov/a16waterinland-home.

Global Geospatial Information Management Working Group

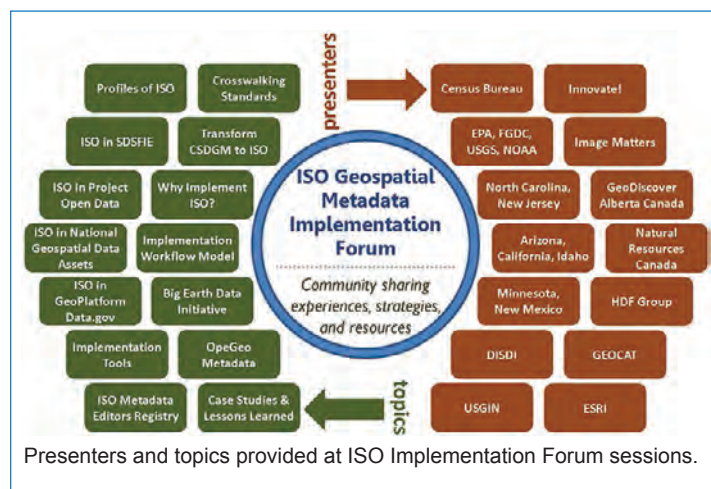
The purpose of the FGDC GGIM Working Group is to coordinate and align the U.S. position with the efforts of the UN-GGIM. The primary activity of the GGIM Working Group is participating in UN-GGIM meetings and related conferences. Members of the group are from several Federal agencies, including the Census Bureau, DHS, EPA, FEMA, NGA, NOAA, DOI, USDOT, USGS, and U.S. Department of State. The activities of the GGIM Working Group can be found on page 20 under Supporting International Activities.

Metadata Working Group

The Metadata Working Group promotes awareness and best practices among FGDC member agencies and NSDI stakeholders about the metadata component of geospatial data; facilitates the coordination, development, use, sharing, and dissemination of geospatial metadata; supports the implementation of geospatial metadata and other related semantic and structural (that is, nongeospatial) metadata standards established by Federal, national, and international standards organizations, such as the FGDC, OGC, American National Standards Institute, ISO, Dublin Core Metadata Initiative (DCMI), Open Source Metadata Framework (OMF), Ecological Metadata Language (EML), and the World Wide Web Consortium (W3C).

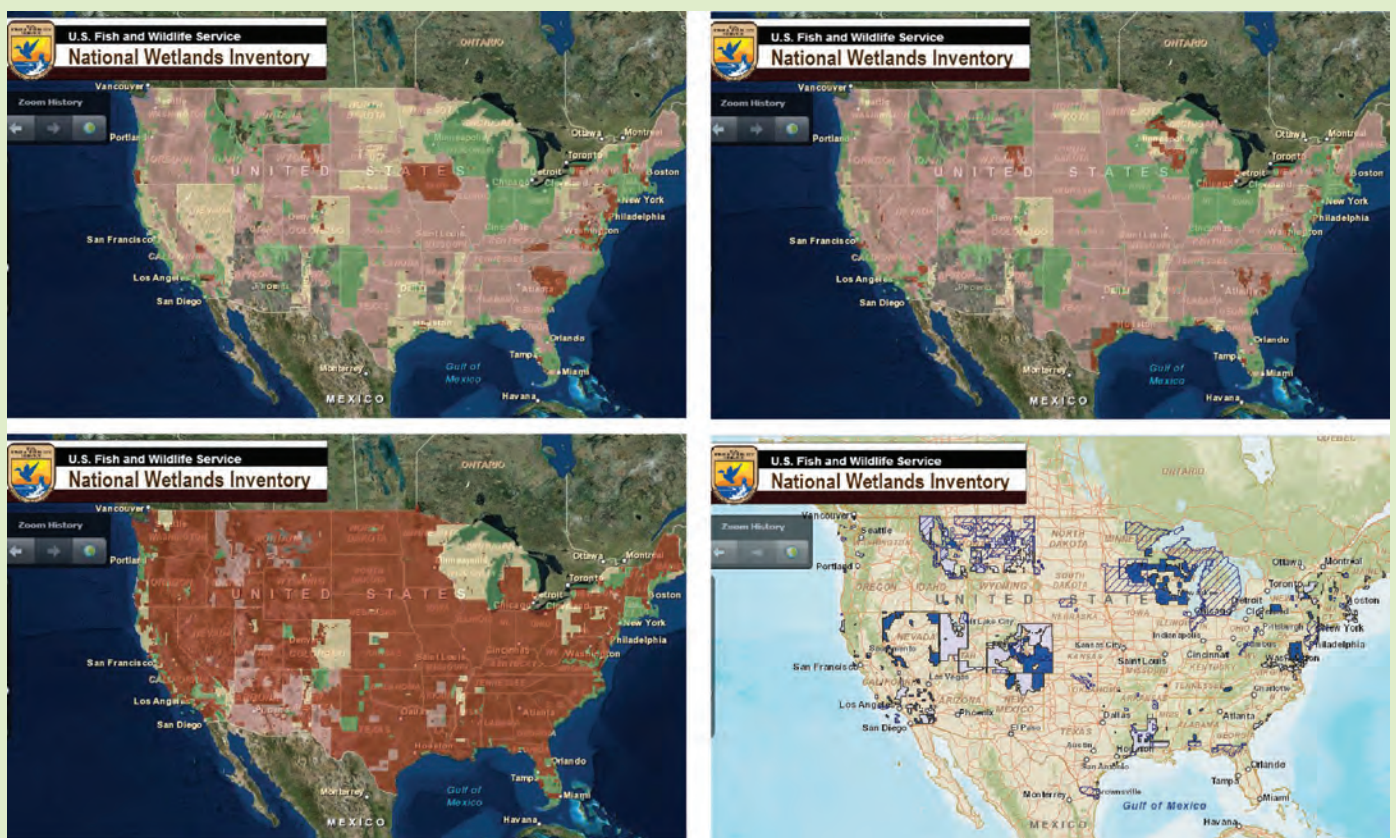
In fiscal year 2015, the Metadata Working Group (MWG) provided direct support to the FGDC Metadata Program and actively engaged in a range of NSDI initiatives, including the following:

- Participation and presentations within the MWG quarterly teleconferences, FGDC Standards Working Group, ISO



Providing Online Information on Status and Utility of Wetlands Digital Data

One of the guiding principles of the NSDI is development of authoritative National Geospatial Data Assets at the scale needed for shared uses by Federal, State, Tribal, regional, and local governments; academia; the private sector; and the public. The wetlands layer has been collected using a consistent classification standard and data collection procedures. The development of such a large and robust dataset, created by many different data contributors over many years, using imagery captured at different scales with different types of film or sensors, on different years, inherently creates a patchwork of data. The usability of wetlands data for various uses is driven by the type, scale, and date of the imagery used to collect the wetlands digital data. This information is available by clicking on the data source layer on the Wetlands Mapper, which provides status maps on the image scale, image year, and image source. Users can also find out where new and updated data have recently been added to the Wetlands layer and where current mapping projects are under way by referencing the “Wetland Mapping Projects Mapper” map. This data usability and status information is also available to the user by querying a wetland polygon in the Wetlands Mapper and is included in the data downloads.



Wetlands data usability maps available on the Wetlands Mapper showing the Image Scale (upper left), Image Year (upper right), Image Source (lower left), and new data additions and current projects (lower right).

Providing information on data creation and status, via maps that are a click away, allows the user of the wetlands data layer to make informed decisions about the usability of the data for their specific purpose. It also identifies specific areas where investments are needed to upgrade the wetlands layer of the NSDI to meet Federal agency missions and other national needs. Visit the Wetlands Mapper at www.fws.gov/wetlands/Data/Mapper.html.

Implementation Forum sessions, and Open Geospatial Consortium North American Forum (June 2015).

- Participation in metadata activities supporting the NGDA Management Plan, Project Open Data, Data.gov, and Geoplatform.gov.
- Assessment of the NSDI Strategic Plan and the role of metadata to support specific tasks.
- Published and provided user reviews to the FGDC ISO Geospatial Metadata Editors Registry.
- Served as the primary conduit for the communication about geospatial metadata and other related semantic and structural (nongeospatial) metadata standards, tools, training, and implementation.
- Coordinated with the INCITS-L1 group who provided regular ISO geospatial metadata updates for the MWG.

National Boundaries Group Working Group

The National Boundaries Group (NBG) was formally designated as a Federal Geographic Data Committee (FGDC) working group in 2014. The NBG develops nationally consistent boundaries that are integrated using the same geographic base. The goal is to make sure Federal boundary sources are current, consistent, and accurate. In 2015, the NBG accomplished the following:

- The NBG now has a public community page on the Geoplatform.gov at cms.geoplatform.gov/a16govunits/NBG and a page for the associated Federal Lands Workgroup at cms.geoplatform.gov/a16govunits/FederalLands. There is also a private community for internal communications.
- The Federal Lands Workgroup continued to test and refine existing data standards to develop an aggregated Federal lands geodatabase that meets common agency needs.
- A draft geodatabase, supported by the USGS Gap Analysis Program to update the Protected Areas Database (also known as PAD-US) and presented to the Federal Lands Workgroup in August 2015, is available for review. The geodatabase model separates Federal fee, easement, and management designation (for example, National Monument and Wilderness Area) boundaries to highlight topology overlap errors within and between agency datasets.
- The Federal Lands Working Group requested documentation to track source data files and field mapping used to translate Agency data. This spreadsheet is available for review and to assess the compatibility and completeness of core attributes. The working group already documented “Agency Name” for Federal land managers with a standard abbreviation to improve data compatibility.

- The NBG is continuing collaboration with the Cadastral Subcommittee to identify where boundaries are coincident with cadastral features. The Census Bureau has operationalized the results of this activity with the BQARP.
- The NBG introduced the Tribal Land Boundary Working Group as a platform for Federal agencies and Tribes to create a unified source of Tribal land boundary data. The working group is identifying the data and communication needs for agencies and governments using Tribal boundary data, including the Census Bureau, DOI, FEMA, EPA, USFS, and Tribal governments.
- The Census Bureau provided an overview describing Tribal boundaries, statistical boundaries, and how these geographical areas are defined solely for data collection, tabulation, and analysis.
- The FEMA’s Tribal Consultation Policy requires Tribes to be consulted whenever Federal action impacts the Tribes. The Stafford Act provides authority with the “Tribal Amendment” to provide federally recognized Tribal governments with “the authority to directly petition the President for a declaration of an emergency or major disaster.” The FEMA is currently working on a pilot project to create a single succinct database with Tribal contacts, grants, assistance, programs, and major disaster declarations, which ties seamlessly with multiple geospatial datasets, including BIA and the Census Bureau boundaries, as well as Tribal-designated areas of interest.
- The NBG continued its collaboration with the Census Bureau, the International Boundary Commission, and the International Boundary Working Group to complete the update of all international boundaries in the Census Bureau’s digital map of the United States, Puerto Rico, and island areas—TIGER (Topologically Integrated Geographic Encoding and Referencing system). Additionally, the Census Bureau and the USGS participated in a collaborative effort to update the international boundaries for Alaska to complete the USGS topographical quadrangles. This collaboration also resulted in updates to TIGER.
- A Tribal Lands and Boundaries meeting was held during the February 2015 Esri Federal Users conference, and the USGS sponsored an international webinar in May 2015.

Standards Working Group

The FGDC Standards Working Group (SWG) promotes the development and implementation of standards for the NSDI and supports Objective 3.1 of the NSDI Strategic Plan and the NGDA Management Plan. The revised charter has been updated for the NSDI Strategic Plan and the NGDA Management Plan and will be submitted to the working

group to recommend for FGDC endorsement. The SWG had the following accomplishments in fiscal year 2015:

- **Advanced standards for FGDC endorsement.**

This year, the FGDC CG approved and the FGDC Steering Committee endorsed the following standards: Aeronautical Information Exchange Model (AIXM) 5.1; ISO/IEC 15444-1:2004 Technical Corrigenda 1:2007 and 2:2008 JPEG 2000; OGC GeoPackage 1.0; GENC Standard Edition 2; and GeorSS-Simple and GeorSS-GML. In addition, final drafts of the National Shoreline Data Content Standard and Part 2, Digital orthoimagery (revised), of the Geographic Information Framework Data Standard are pending FGDC CG approval for endorsement. These standards support NGDA Themes.

- **Building relationships.** Action 3.1.1 of the NSDI Strategic Plan calls for consulting and collaborating with both existing and emerging geospatial communities to advance common standards and approaches. In 2015, there was strong outreach to geospatial communities to advance common standards and approaches. At the Federal level, The National Institute of Standards and Technology, Geoplatform.gov, NASA Earth Science Data and Information System Standards Office, and National Information Exchange Model (NIEM) Program Management Office briefed the FGDC SWG on their activities. Non-Federal organizations that briefed the SWG were the National Emergency Number Association (NENA) and the American Society for Photogrammetry and Remote Sensing. International subject matter experts from the Infrastructure for Spatial Information in the European Community (INSPIRE) and GeoConnections Canada briefed the SWG. Both INSPIRE and GeoConnections Canada expressed interest in working with the FGDC.

Users/Historical Data Working Group

The Users/Historical Data Working Group (UHDWG) promotes and coordinates activities among Federal agencies that are users of geospatial data. The UHDWG promotes awareness among Federal agencies of the

historical dimension to geospatial data; facilitates the long-term retention, storage, preservation, and accessibility of selected geospatial data; and works to establish mechanisms for the coordinated development, use, sharing, and dissemination of historically valuable geospatial data that have been financed in whole or in part by Federal funds.

In the past year, the UHDWG petitioned the FGDC CG to consider the “Guidance on the Selection and Appraisal of Geospatial Content of Enduring Value” document as an official FGDC publication. The UHDWG prepared this guidance document to help Federal agencies and data stewards define geospatial content of enduring value to the Nation. This guidance suggests possible priority approaches on how resources might be allocated to support long-term preservation and access through appropriate Selection and Appraisal processes in a challenging funding environment. While many Federal Government applications rely on the most current available content, there is increasing demand for older content to support historical and temporal analyses related to change in the Earth’s natural and human landscape, including physical infrastructures. Examples of applications that require historical content include the study of climate change, disaster planning, environmental impact analysis, industry site location planning, and the resolution of legal challenges. The document provides inputs to future FGDC lifecycle planning, including future iterations of the National Geospatial Data Asset management strategy. In addition, the UHDWG held monthly webinars for members to discuss issues and share topical information on geospatial use, preservation, and stewardship. Topics included UHDWG Subcommittee members’ continued work with the International Council for Science CODATA Task Group (www.codata.org) on data at risk; identifying resources at risk and exploring early warning and rescue efforts; exploring the impacts and costs of Government shutdowns on access to, and preservation of, historical data; and the USGS offline archive media-trade studies that are intended to inform those interested in market options and related factors to the archive.

Success Story

Economics: National Ocean Watch

Challenge: The oceans and Great Lakes support the lives, lifestyles, and livelihoods of all Americans. All Americans fish from their waters, vacation on their edges, ship cargo on their surface, and extract oil, gas, sand, and gravel from their seafloors. The oceans and Great Lakes also provide a wide range of benefits that, although real and fitting for economic consideration, do not lend themselves to traditional measures of jobs, wages, and gross domestic product. No nationally consistent economic statistics existed for the ocean-based economy data needed for informed government policy, research, and business decisions.

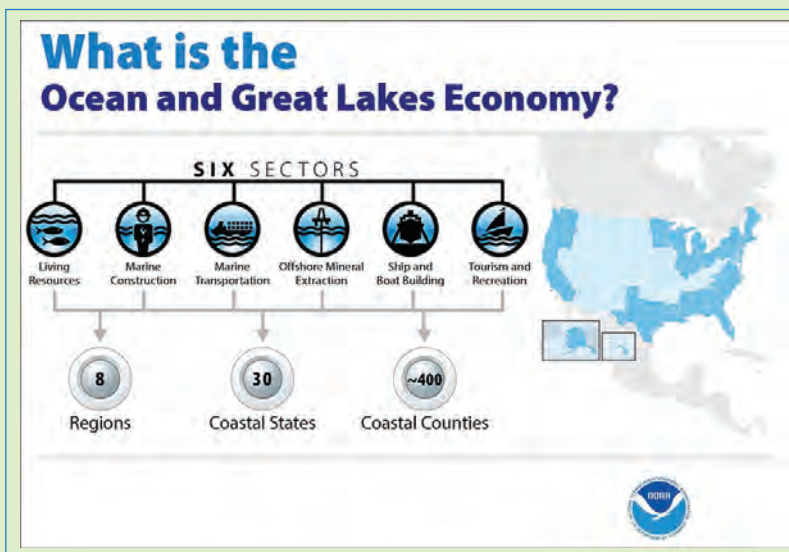
Action: The NOAA addressed this challenge through the creation of the Economics: National Ocean Watch (ENOW) dataset. The NOAA was a principal funder of a 10-year effort by the National Ocean Economics Program (NOEP) that brought the production of statistics on the U.S. ocean economy from its status as a topic of research to that of an operational data production program. Building on peer-reviewed work dating back to the early 1970s, NOEP engaged some of the world's best resource economists, including a Nobel laureate to ensure that the resulting statistical products would be on sound scientific footing, yielding time-series data for the years 1990 to 2004. Data for the years 2005 and beyond have been produced by NOAA in partnership with the Bureau of Economic Analysis (BEA), the Bureau of Labor Statistics, and the Census Bureau.

Results: The ENOW data are produced on an annual basis and have a user base that spans the spectrum of local, State, regional, and Federal governments, and nonprofit agencies, such as the National Working Waterfronts Network and Oceana. The ENOW data are being used by local planners in Alabama, Maine, Massachusetts, Washington, and Virginia to analyze and show the value of ocean resources and working waterfronts to their local economies.

The BOEM used the ENOW data as a decision-support tool to inform the development of offshore wind energy planning areas along the Atlantic Coast.

The data are being used in California as a pilot to demonstrate the dependency of inland areas on coastal ports. This pilot study will be applied to the Nation, and serve as a precursor to the development of an Ocean Economic Satellite account, in partnership with BEA, which will provide a better understanding of the economic interconnections between coastal areas and the rest of the Nation.

For more information, see www.coast.noaa.gov/digitalcoast/data/enow.



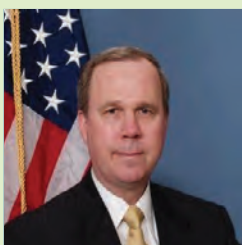
Appendix A

FGDC Leadership Profiles



Jennifer Gimbel
Principal Deputy Assistant Secretary for Water & Science
Chair, FGDC Steering Committee

Ms. Jennifer Gimbel was named Principal Deputy Assistant Secretary for Water and Science in October 2014 and is responsible for overseeing water and science policy for the U.S. Department of the Interior (DOI), specifically through oversight of the U.S. Bureau of Reclamation and the U.S. Geological Survey. In addition to her leadership on water issues, Ms. Gimbel administers the National Land Imaging Program. Ms. Gimbel previously worked at Reclamation on a variety of policy and program issues and served as the Director of the Colorado Water Conservation Board. She has a bachelor of science degree and Juris Doctorate from the University of Wyoming and a master of science from the University of Delaware.



Scott Bernard
Federal Chief Enterprise Architect, Office of E-Government and Information Technology
Office of Management and Budget
Vice Chair, FGDC Steering Committee

Prior to his 2010 appointment to the Office of Management and Budget (OMB), Dr. Scott Bernard was the Deputy Chief Information Officer and Chief Enterprise Architect for the Federal Railroad Administration. He received a doctorate in Public Administration and Policy from Virginia Polytechnic Institute and State University and a master of science degree from Syracuse University.



Ivan DeLoatch
Executive Director
Federal Geographic Data Committee

Mr. Ivan DeLoatch has served as the Executive Director of the FGDC for the past 12 years. Previously, he served as Chief of the Data Acquisition Branch in the U.S. Environmental Protection Agency's Office of Environmental Information. He earned a bachelor of science degree in biology from Bowie State University.

FGDC Executive Committee



David Alexander
Director, Geospatial Management Office
U.S. Department of Homeland Security

Mr. Alexander's career in the geospatial information field spans more than three decades. He assumed responsibility for the U.S. Department of Homeland Security (DHS) Geospatial Management Office in 2012 after having spent 4 years in senior leadership roles with the DHS Office of the Chief Information Officer. Mr. Alexander has led several national initiatives, including the Homeland Security Geospatial Concept of Operations (GeoCONOPS), the DHS Geospatial Information Infrastructure, the Homeland Infrastructure Foundation-Level Data (HIFLD) Working Group, and technical lead for response coordination in the Department of Health and Human Services, the Secretary's Operations Center. Mr. Alexander holds several advanced degrees encompassing history, geography, and business management.



Jeff Bell
Deputy Director, Geospatial Intelligence Standards and Enterprise
Architecture, Office of the Chief Information Officer, National Geospatial-
Intelligence Agency

Mr. Jeffrey Bell directly supports the National Geospatial-Intelligence Agency Chief Information Officer in fulfilling his functional management responsibilities for geospatial intelligence standards and architecture for the National Systems for Geospatial-Intelligence community. Mr. Bell has been active in geospatial standards development, governance, and implementation for the last 9 years, coordinating and harmonizing military requirements and standards development activities with civil, industry, and international standards organizations. He serves as the Chair of the Geospatial Intelligence Standards Working Group (GWG).



Jerry Johnston
Geographic Information Officer
U.S. Department of the Interior

Dr. Jerry Johnson has been with the U.S. Department of the Interior for the past 4 years. Prior to this, he served as the Geographic Information Officer for the U.S. Environmental Protection Agency (EPA) for several years. Before his time with EPA, Dr. Johnston conducted research on complex environmental systems modeling and served as the project manager for numerous geospatial projects in the private sector. He holds a master's degree and doctorate in environmental science from Indiana University, Bloomington, as well as a bachelor of science degree in environmental science from Michigan State University. Dr. Johnston currently serves as Vice Chair for the National Geospatial Advisory Committee.

FGDC Executive Committee (continued)



Stephen Lowe
Geospatial Information Officer
U.S. Department of Agriculture

Mr. Stephen Lowe has over 25 years of Federal Government business and technology transformation experience. He has also completed two term appointments supporting the White House Executive Office of the President and served as Senior Solutions Architect for Enterprise Innovation and Strategy with SRA International. Mr. Lowe holds graduate degrees in management of information technology from the University of Virginia and in public administration from Virginia Polytechnic Institute and State University. He also holds a bachelor of arts degree in political science from James Madison University.



Keith Keller, (Acting)
Associate Director for Innovation/Chief Technology Officer
National Aeronautics and Space Administration



Harvey Simon
Acting Geospatial Information Officer, Office of Environmental Information
Immediate Office
U.S. Environmental Protection Agency

Mr. Harvey Simon has been EPA's Geospatial Information Officer since July 2012 and is responsible for coordinating EPA's geospatial program. Prior to that, he was Chief of the Information Services Branch in the Office of Information Analysis and Access, which is responsible for the Envirofacts database, a number of national geospatial applications and services, and operational management of the EPA GeoPlatform. Previously, Mr. Simon held the role of Geographic Information System (GIS) Coordinator for Region 2 and Chair of the EPA GIS Workgroup, including its Emergency Response GIS subgroup. Mr. Simon brings 28 years of GIS and risk analysis experience to his current position. He has an undergraduate and a master's degree from the State University of New York.

FGDC Executive Committee (continued)



Timothy Trainor

**Chief, Geography Division, U.S. Census Bureau
U.S. Department of Commerce**

Mr. Timothy Trainor is Chief of the Geography Division at the U.S. Census Bureau and is responsible for managing the MAF/TIGER System, a national resource of addresses and geospatial information to support data collection, tabulation, and dissemination for censuses and surveys. As a Rotary Fellow, he holds a postgraduate diploma in cartography from Glasgow University, Scotland. He has a master's certificate in project management from George Washington University School of Business and Public Management and a bachelor of arts degree in history from Rutgers University. He leads the U.S. Delegation to the UN-Global Geospatial Information Management Committee. He serves as a vice president to the International Cartographic Association.

Appendix B

FGDC Structure and Membership

The Federal Geographic Data Committee (FGDC) operates under Office of Management and Budget (OMB) Circular A-16 (revised August 2002). The circular incorporates Executive Order 12906 and reaffirms the FGDC's role to provide leadership for the National Spatial Data Infrastructure (NSDI) and to coordinate the development, use, sharing, and dissemination of the Nation's geospatial data. Close coordination among the many agencies involved in Federal geospatial activities helps ensure the efficient and effective investment and use of geospatial resources.

The FGDC is an organized structure of Federal geospatial professionals and constituents that provide executive, managerial, and advisory direction and oversight for geospatial decisions and initiatives across the Federal Government. In accordance with OMB Circular A-16, the FGDC is chaired by the Secretary of the Interior or his/her designee, and the OMB Deputy Director for Management or his/her designee serves as Vice Chair.

FGDC Structure

The FGDC is governed by a Steering Committee that sets the FGDC's high-level strategic direction and is the Federal decision-making body. The Executive Committee, which is a subset of the Steering Committee, provides advice and guidance to the Chair and the Vice Chair.

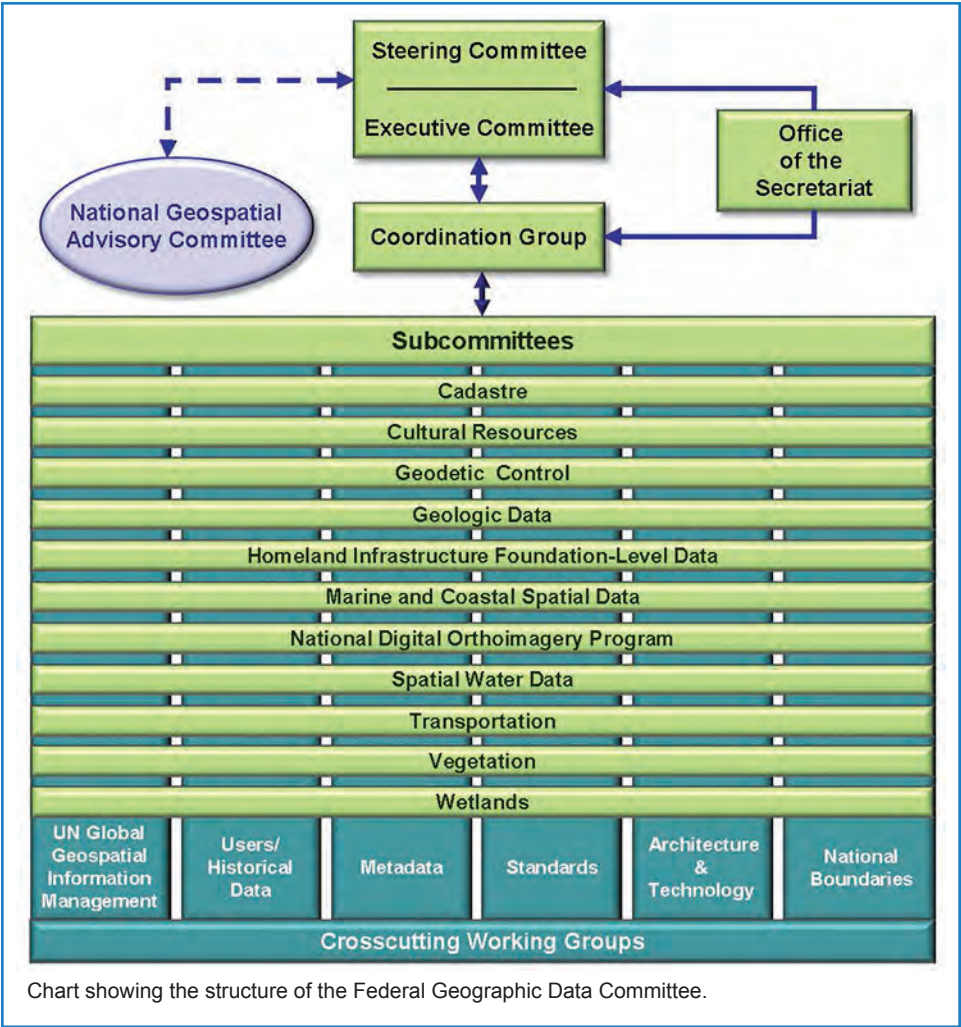
The National Geospatial Advisory Committee (NGAC) is a Federal advisory committee that provides advice and recommendations on Federal and national geospatial programs. The FGDC Coordination

Group consists primarily of geospatial program leads and technical experts and conducts the FGDC's day-to-day business. The FGDC Office of the Secretariat, which is located at the U.S. Geological Survey headquarters in Reston, Virginia, provides strategic support and management for FGDC committees, components, and initiatives.

The FGDC infrastructure also includes agency-led subcommittees and working groups, and collaborating

partners that represent State, Tribal, and local governments, as well as industry and academic and professional organizations. All participants initiate and (or) support the following activities that are crucial to expanding the NSDI and addressing national priorities:

- Providing advice and leadership in applying geospatial capabilities to address national priorities and Presidential initiatives.



- Developing and establishing the National Geospatial Data Clearinghouse on the Internet.
- Developing and implementing standards.
- Creating a national digital geospatial data framework.
- Promoting collaborative relationships for sharing geospatial data among and between Federal and non-Federal partners.
- Developing policies and processes to better harmonize collective action.

In addition, the Global Geospatial Management Working Group serves as the lead to develop and provide the United States' position on topics addressed by the United Nations Committee on Global Geospatial Information Management (GGIM). More information about the FGDC structure and specific membership can be found at www.fgdc.gov/participation.

Steering Committee

The FGDC is governed by the Steering Committee, which is the policy-level interagency group whose central focus is to provide executive leadership for the coordination of Federal geospatial activities between, among, and within agencies. The committee does this by establishing policy and providing guidance and direction to the member agencies, based on business best practices. The Steering Committee is responsible for overseeing activities related to OMB Circular A-16 and for the implementation of the National Spatial Data Infrastructure. The FGDC Chair and Vice Chair lead the committee, which is made up of senior agency officials for geospatial information (SAOGIs) and includes representatives from Federal organizations, including the Executive Office of the President, Federal Executive Departments, and independent Federal agencies.

A subset of the Steering Committee, the Executive Committee, provides advice and guidance to the FGDC Chair and the Vice Chair on major Federal geospatial priorities and initiatives. The FGDC Chair and Vice Chair lead this committee, which includes representatives from the OMB and the seven Federal agencies that have the largest investments in geospatial technologies. The Executive Committee makes recommendations to the Steering Committee and provides a focal point for coordination with the National Geospatial Advisory Committee.

2015 Steering Committee Agencies

Federal Communications Commission (nonvoting member)
General Services Administration
Library of Congress
National Aeronautics and Space Administration
National Archives and Records Administration
National Capital Planning Commission (nonvoting member)
National Science Foundation
Office of Management and Budget (tie-breaking vote only)
Office of Personnel Management
Small Business Administration
Smithsonian Institution
Social Security Administration
Tennessee Valley Authority
U.S. Agency for International Development
U.S. Army Corps of Engineers (nonvoting member)
U.S. Department of Agriculture
U.S. Department of Commerce
U.S. Department of Defense
U.S. Department of Education
U.S. Department of Energy
U.S. Department of Health and Human Services
U.S. Department of Homeland Security
U.S. Department of Housing and Urban Development
U.S. Department of the Interior
U.S. Department of Justice
U.S. Department of Labor
U.S. Department of State
U.S. Department of Transportation
U.S. Department of the Treasury
U.S. Department of Veterans Affairs
U.S. Environmental Protection Agency
U.S. Nuclear Regulatory Commission

Appendix C

National Geospatial Data Asset Themes

Geospatial data is described in the Office of Management and Budget (OMB) Circular A–16 Supplemental Guidance, released November 10, 2010, as a capital asset, and its importance to the success of Federal Government and partner programs is emphasized. This focus provides the foundation for a portfolio management approach for Federal geospatial datasets of National Significance—a National Geospatial Data Asset (NGDA) portfolio called for by OMB in fiscal year 2011 budget guidance. All NGDAs are associated with a National Geospatial Data Asset Theme. These Themes serve as the management units for collections of related NGDA Datasets that would benefit from coordinated development and management. In February 2013, the FGDC Steering Committee endorsed the revised version of the A–16 NGDA Themes and Theme Lead Agencies list. This endorsement revises the earlier list that was approved by the Steering Committee in 2011. The list of the NGDA Themes and Datasets and further information is available on the FGDC Web site (www.fgdc.gov/initiatives/portfolio-management).

Themes noted with an asterisk (*) are framework themes that are identified in OMB Circular A–16 Appendix E (www.whitehouse.gov/omb/circulars_a016_rev) and provide the core, most commonly used set of base data.

NGDA Themes	Number of NGDA Datasets	Theme Lead Agency
Biota	7	U.S. Department of the Interior, U.S. Geological Survey
*Cadastre	19	U.S. Department of the Interior, Bureau of Land Management
Climate and Weather	5	U.S. Department of Commerce, National Oceanic and Atmospheric Administration
Cultural Resources	2	U.S. Department of the Interior, National Park Service
*Elevation	10	Co-Leads: U.S. Department of the Interior, U.S. Geological Survey and U.S. Department of Commerce, National Oceanic and Atmospheric Administration
*Geodetic Control	4	U.S. Department of Commerce, National Oceanic and Atmospheric Administration
Geology	6	Co-Leads: U.S. Department of the Interior, U.S. Geological Survey and U.S. Department of the Interior, Bureau of Ocean Energy Management
*Governmental Units, and Administrative and Statistical Boundaries	41	U.S. Department of Commerce, U.S. Census Bureau
*Imagery	9	Co-Leads: U.S. Department of Agriculture, Farm Service Agency and U.S. Department of the Interior, U.S. Geological Survey
Land Use—Land Cover	14	Co-Leads: U.S. Department of Agriculture, U.S. Forest Service and U.S. Department of the Interior, U.S. Geological Survey
Real Property	16	General Services Administration
Soils	5	U.S. Department of Agriculture, Natural Resources Conservation Service
*Transportation	16	U.S. Department of Transportation
Utilities	2	Offshore Utilities: U.S. Department of the Interior, Bureau of Safety and Environmental Enforcement Terrestrial Utilities: Lead to be determined
*Water — Inland	5	Co-Leads: U.S. Department of the Interior, U.S. Fish and Wildlife Service and U.S. Department of the Interior, U.S. Geological Survey
*Water — Oceans and Coasts	16	U.S. Department of the Commerce, National Oceanic and Atmospheric Administration

Appendix D

Fiscal Year 2015 FGDC Office of the Secretariat Financial Summary

The Federal Geographic Data Committee (FGDC) is a 32-member interagency committee that promotes the coordinated development, use, sharing, and dissemination of geospatial data on a national basis. The FGDC Office of the Secretariat, administered in the U.S. Geological Survey in the Department of the Interior, provides program, management, coordination, administrative, and technical support for FGDC initiatives, activities, and priorities. The following table summarizes actual expenditures of appropriated funds for fiscal year 2015.

FGDC Office of the Secretariat Fiscal Year 2015 Expenditures

Activity	Function	Expenditure
Staff Operations and Projects	<ul style="list-style-type: none"> - Committee management/support - Contract execution/reporting - NSDI training and Web services - Special projects - Position, Navigation, and Timing - Conferences - NSDI Strategic Plan, National Geospatial Data Asset Management Plan 	\$2,130,250
Geospatial Platform Shared Service/Line of Business*	<ul style="list-style-type: none"> - DOI/USGS contribution - GeoCloud - Services registry 	\$1,066,320
National Geospatial Advisory Committee (NGAC)	<ul style="list-style-type: none"> - Committee management - Meetings and facilitation - Subcommittee activities 	\$134,000
International Activities	<ul style="list-style-type: none"> - Group on Earth Observations (GEO), GEOSS - Global Spatial Data Infrastructure - Arctic Spatial Data Infrastructure - United Nations Global Geospatial Information Management 	\$230,435
Geospatial Standards	<ul style="list-style-type: none"> - Interoperability - FGDC and Geospatial Standards Working Group standards - Open Geospatial Consortium 	\$126,310
Bureau Shared Costs		\$146,685
Total Expenditures		\$3,800,000

*Contributions from other agencies are not included.

Appendix E

NSDI Strategic Plan—Fiscal Year 2015

Performance Summary

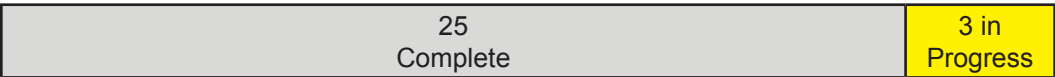
NSDI Plan Implementation Approach

The FGDC community is working collaboratively to implement the NSDI Strategic Plan. The FGDC Executive Committee has the lead responsibility for overseeing and monitoring the implementation of the plan. Designated Federal officials, appointed from the FGDC Executive Committee, are serving as executive champions for each of the objectives in the plan. Implementation plans have been developed for each of the objectives in the strategic plan, describing how the actions will be implemented and measured. This summary describes the FY 2015 implementation status of all of the actions and tasks included in the NSDI Strategic Plan and implementation plans.

Performance Summary

The NSDI Strategic Plan includes three strategic goals, nine objectives, and 29 actions. The NSDI implementation plans include more detailed tasks and performance metrics for each of the actions in the strategic plan. The following is a summary of the implementation status:

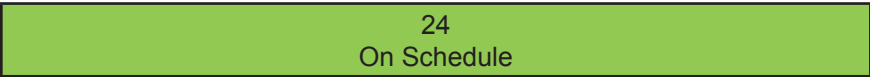
- FY 2014.** The status report includes 28 tasks for FY 2014. Of these tasks, 25 are reported as complete (shown in gray) and 3 are reported as not complete but in progress (shown in yellow).



- FY 2015.** The status report includes 36 tasks for FY 2015. Of these tasks, 24 are reported as complete (shown in gray) and 12 are reported as not complete but in progress (shown in yellow).



- FY 2016.** The status report includes 20 draft tasks for FY 2016. Currently, all of these draft tasks are reported as on schedule (shown in green).



The FGDC Executive Committee will continue to monitor the implementation of the goals and objectives in the NSDI Strategic Plan. The Executive Committee and FGDC Secretariat will continue to keep the FGDC community and key partners, such as the National Geospatial Advisory Committee, apprised of the status of implementation. The Executive Committee and Secretariat will also seek feedback on strategies to improve the implementation process and more effectively communicate results.

Additional information on the NSDI Strategic Plan, including the complete version of the FY 2015 Status Report, is available at www.fgdc.gov/nsdi-plan.

STRATEGIC GOAL 1 – DEVELOP CAPABILITIES FOR NATIONAL SHARED SERVICES

Objective 1.1: Develop geospatial interoperability reference architecture

Action 1.1.1. Establish reference architecture to assure interoperability utilizing published open-service standards to share data among unclassified, controlled unclassified information (CUI), and classified domains and missions.

Task	Performance Indicator	Task Status
1.1.1.1. Develop draft Geospatial Information Reference Architecture (GIRA)	Metric: Completion of draft GIRA FY 14 Target: Draft completed and prepared for distribution for comments	Complete
1.1.1.2. Review by participating agencies	Metric: Review of comments received from DHS, DOI, & NGA FY 14 Target: 100% comments adjudicated	Complete
1.1.1.3. Review by FGDC agencies	Metric: Review of comments received FY 14 Target: 100% of comments received adjudicated	Complete
1.1.1.4. Final approval of GIRA by FGDC and transmittal to the Federal Chief Information Officer (CIO) Council for inclusion as a Federal Enterprise Architecture reference document	Metric: Transmittal of GIRA to Federal CIO Council FY 15 Target: 100% complete	Complete

Action 1.1.2. Define the role of the Geospatial Platform as a technology and collaboration environment for unclassified geospatial information sharing.

Task	Performance Indicator	Task Status
1.1.2.1. Develop components of GIRA that describe the role of the Geospatial Platform for information sharing	Metric: Draft completed and prepared for distribution for comments FY 14 Target: 100% complete	Complete
1.1.2.2. Develop and present outreach and training materials to educate the community on the role of the Geospatial Platform for supporting information sharing	Metric: Presentation on Geospatial Platform role for information sharing environment at one national geospatial meeting FY 15 Target: 100% complete	Complete

Action 1.1.3. Identify Federal CIO Council requirements, shared services, and other infrastructure that can be reused and leveraged by the NSDI, including access control, search, and discovery.

Task	Performance Indicator	Task Status
1.1.3.1. Develop and deliver briefing to CIO Council/Shared Services Executive Steering Committee on Geospatial Platform and NSDI	Metric: Delivery of briefing FY 15 Target: 100% complete	Complete
1.1.3.2. Work with the Office of Management and Budget (OMB) Financial Management LoB (OMB MAX team) to identify collaboration and technology reuse opportunities	Metric: Completion of outline/brief white paper on opportunities for sharing between MAX and Platform FY 15 Target: 100% complete	Complete
1.1.3.3. Develop white paper on use/sharing of technology components existing within Departments and among the OMB shared services for the benefit of the NSDI	Metric: Completion of white paper FY15 Target: 100% complete	In Progress

Objective 1.2: Establish the Geospatial Platform as the Federal geospatial data, services, and applications Web-based service environment		
Action 1.2.1. Establish Service Level or Interagency Agreements between and among government agencies and the Geospatial Platform Managing Partner.		
Task	Performance Indicator	Task Status
1.2.1.1. Complete FY 14 Funding Agreements	Metric: Completion of FY 14 Funding Agreements FY 14 Target: 100% of Agreements completed	Complete
1.2.1.2. Develop model Service Level Agreement (SLA) for customers hosting data on Platform	Metric: Completion of model SLA FY 14 Target: 100% complete	In Progress
Action 1.2.2. Establish the Geospatial Platform Oversight Body and develop its operating procedures, scope, and roles for Federal and non-Federal members.		
Task	Performance Indicator	Task Status
1.2.2.1. Establish Charter for Geospatial Platform Oversight Body	Metric: Completion of Charter FY 15 Target: 100% complete	In Progress
1.2.2.2. Establish Geospatial Platform Oversight Body	Metric: Establishment of Oversight Body FY 15 Target: 100% complete	Complete
Action 1.2.3. Implement the primary contracting mechanism to continue Geospatial Platform development and operations and maintenance for FY 2014 and beyond.		
Task	Performance Indicator	Task Status
1.2.3.1. Award contract for Geospatial Platform support	Metric: Award of contract FY 14 Target: 100% complete	Complete
Action 1.2.4. Implement communities of interest on the Geospatial Platform for collaboration, including a shared investment planning “Marketplace” and data theme communities, as outlined in OMB Circular A–16.		
Task	Performance Indicator	Task Status
1.2.4.1. Establish Geospatial Platform Marketplace as operational capability	Metric: Establishment of Marketplace capability FY 14 Target: 100% complete	Complete
1.2.4.2. Establish initial capabilities for A–16 Theme communities on Geospatial Platform	Metric: Establishment of initial capabilities for A–16 communities FY 14 Target: 100% complete	Complete
1.2.4.3. Define workflow for creating new communities on Geospatial Platform	Metric: Completion of workflow document FY 15 Target: 100% complete	In Progress
Action 1.2.5. Develop guidance for Federal agencies and their partners that describes how to use the Geospatial Platform to store and publish data and metadata and how to use services in the Platform’s common hosting infrastructure.		
Task	Performance Indicator	Task Status
1.2.5.1. Develop draft guidance for use of the Geospatial Platform	Metric: Completion of draft guidance FY 14 Target: 100% complete	Complete
1.2.5.2. Finalize metadata publication guidance for use of the Geospatial Platform	Metric: Completion of final guidance FY 15 Target: 100% complete	Complete
Action 1.2.6. Solicit advice and recommendations from the National Geospatial Advisory Committee (NGAC) and community partners on ways to expand and enhance the Geospatial Platform for broader use and value by the non-Federal community.		
Task	Performance Indicator	Task Status
1.2.6.1. Include section on Geospatial Platform in 2014 FGDC Guidance to NGAC	Metric: Inclusion of Platform language in 2014 NGAC Guidance FY 14 Target: 100% complete	Complete
1.2.6.2. Provide briefings and seek feedback from NGAC on Geospatial Platform developments	Metric: Completion of NGAC briefings/ feedback FY 15 Target: 100% complete	Complete

Action 1.2.7. Define the concept and develop an implementation plan for a “Data as a Service” (DAAS) offering within the Geospatial Platform Marketplace.		
Task	Performance Indicator	Task Status
1.2.7.1. Develop concept paper for Platform Marketplace DAAS offering	Metric: Completion of concept paper FY 16 Target: 100% complete	On Schedule
1.2.7.2. Complete implementation plan for Platform Marketplace DAAS offering	Metric: Completion of implementation plan FY 16 Target: 100% complete	On Schedule

Objective 1.3: Expand the use of cloud computing

Action 1.3.1. Define the Department of the Interior (DOI) Foundation Cloud Services consumer requirements, scope of service levels, and repeatable workflows for Geospatial Platform users.

Task	Performance Indicator	Task Status
1.3.1.1. (1) Draft acquisition Task Order and government cost estimate for Cloud-IaaS using a DOI-sanctioned vehicle, and complete review by FGDC Executive Committee; (2) Develop draft performance work statement measures/metrics	Metric: Completion of draft Task Order FY 14 Target: 100% complete	Complete
1.3.1.2. Execute Cloud IaaS Task Order to initiate Geospatial Platform server hosting	Metric: Completion of final Task Order FY 15 Target: 100% complete	Complete
1.3.1.3. Complete memorandum announcing Shared Cloud hosting and managed services bundles	Metric: Completion and distribution of memorandum and guide FY 15 Target: 100% complete	In Progress

Action 1.3.2. Provide guidance, best practices, and case studies for agencies considering migration of agency stored content and services to commodity cloud providers.

Task	Performance Indicator	Task Status
1.3.2.1. Develop tools, resources, and informational materials to communicate with agencies and to assist with learning about geospatial cloud service options	Metric: Completion of resource materials FY 15 Target: 100% complete	In Progress
1.3.2.2. Provide briefing to FGDC Steering Committee to introduce Geospatial Platform cloud offerings before FY 2016 expenditures and FY 2017 planning take place	Metric: Completion of FGDC briefing FY 15 Target: 100% complete	In Progress

Action 1.3.3. Develop an options paper for expanding the currently defined common hosting environment with capabilities available in the commercial market.

Task	Performance Indicator	Task Status
1.3.3.1. Perform and document market review of existing geospatial service hosting options that support endorsed standards to enable Platform community publishers to host compatible data and services	Metric: Completion of market review FY 16 Target: 100% complete	On Schedule

Objective 1.4: Promote the use of geospatial multiagency acquisition vehicles for interagency and intergovernmental purchases

Action 1.4.1. Inventory available and planned geospatial acquisition vehicles open to Federal agencies and non-Federal partners.

Task	Performance Indicator	Task Status
1.4.1.1. Complete implementation Action Plan for Objective 1.4	Metric: Completion of Action Plan FY 15 Target: 100% complete	Complete

1.4.1.2. Create survey to be completed by FGDC Steering Committee members to identify inventory of geospatial acquisition solutions, to include cataloging any vehicles available for government-wide use	Metric: Development of survey FY 16 Target: 100% complete	On Schedule
1.4.1.3. Steering Committee members complete and return the survey	Metric: Completion of survey FY16 Target: 100% complete	On Schedule
1.4.1.4. Contact GSA Federal Acquisition Service, NASA, DOI, HHS, others with known Government-wide Acquisition Contracts (GWACs) to generate list of additional acquisition solutions	Metric: Completion of list of GWACs FY 16 Target: 100% complete	On Schedule
1.4.1.5. Collect surveys and analyze results, to include determining and validating geospatial acquisition vehicles available for government-wide use	Metric: Completion of analysis FY 16 Target: 100% complete	On Schedule
Action 1.4.2. Create a mechanism for sharing information on the availability and use of consolidated acquisition vehicles.		
Task	Performance Indicator	Task Status
1.4.2.1. Complete implementation Action Plan for Objective 1.4	Metric: Completion of Action Plan FY 16 Target: 100% complete	Completed
1.4.2.2. Identify point of contact with contact and online “link information” for each GWAC	Metric: Identification of GWAC contact information FY 16 Target: 100% complete	On Schedule
1.4.2.3. Provide links on GeoPlatform to these solutions and post list of common acquisition vehicles to include acquisition type, period of performance, Ceiling, terms and conditions of use to GeoPlatform	Metric: Posting of links on GeoPlatform Web site FY 16 Target: 100% complete	On Schedule
1.4.2.4. Review FGDC Steering Committee member responses to include their Statement of Work submissions, standardize as needed, and post to the GeoPlatform under a controlled access area of the Geoplatform	Metric: Posting of links on GeoPlatform Web site FY 16 Target: 100% complete	On Schedule

STRATEGIC GOAL 2 – ENSURE ACCOUNTABILITY AND EFFECTIVE DEVELOPMENT AND MANAGEMENT OF FEDERAL GEOSPATIAL RESOURCES

Objective 2.1: Advance the portfolio management process for National Geospatial Data Assets (NGDA)

Action 2.1.1. Identify foundational NGDAs and high-priority data themes and datasets to be included in NSDI portfolio management.

Task	Performance Indicator	Task Status
2.1.1.1. Identify initial baseline of NGDA Datasets (NGDA Management Plan: Action 1B.1)	Metric: Initial NGDA Datasets identified FY 14 Target: FY14 Q3, 100%	Complete
2.1.1.2. Complete and submit NGDA Dataset Maturity Baseline Assessment (NGDA Management Plan: Action 2A.1)	Metric: NGDA Dataset Maturity Assessment complete FY 15 Target: FY15 Q3, 30%; FY15 Q4, 100%	In Progress
2.1.1.3. Complete and submit NGDA Theme Administrative Maturity Baseline Assessment (NGDA Management Plan: Action 2A.2)	Metric: NGDA Theme Administrative Maturity complete FY 16 Target: FY16 Q2, 100%	On Schedule

Action 2.1.2. Define Federal roles and responsibilities in national data management, including metadata and data delivery, taking into account OMB Circular A–16 Supplemental Guidance portfolio management requirements, the Open Data Policy, Geospatial Platform, Data.gov, and other relevant requirements.		
Task	Performance Indicator	Task Status
2.1.2.1. Develop a process for selecting and maintaining Executive NGDA Theme Champions, NGDA Theme Leads, and NGDA Dataset Managers (NGDA Management Plan: Action 1A.1)	Metric: Process developed and roles filled FY 14 Target: FY14 Q4, 100%	Complete
Action 2.1.3. Finalize and implement the Circular A–16 Portfolio Implementation Plan to include reporting investments and defining investment requirements.		
Task	Performance Indicator	Task Status
2.1.3.1. Review/revise the definition of geospatial investment and budget reporting codes (NGDA Management Plan: Action 1E.1)	Metric: Geospatial Investment and Budget Reporting Codes defined FY 15 Target: FY15 Q4, 100%	In Progress
2.1.3.2. Apply the Geospatial Investment definition and budget reporting codes (NGDA Management Plan: Action 1E.2)	Metric: Agencies have instituted revised definition and coding FY 16 Target: FY16 Q4, 30%; FY17 and beyond, Ongoing	On Schedule
2.1.3.3. Develop the A–16 NGDA portfolio-level processes, reporting requirements, and roles and responsibility requirements for Federal geospatial portfolio management (NGDA Management Plan: Action 2E.1)	Metric: Developed the A–16 processes, reporting requirements, and roles and responsibility requirements FY 15 Target: FY15 Q4, 100%	In Progress
2.1.3.4. Develop a process for Federal agencies to identify resources required for managing geospatial data beyond their agency's mission (NGDA Management Plan: Action 2E.2)	Metric: Process developed FY 16 Target: FY16 Q4, 100%	On Schedule
Action 2.1.4. Develop a process for monitoring and reporting on the progress of Circular A–16 Data Theme and Geospatial Platform Community management responsibilities, including the use and proliferation of content and technology standards.		
Task	Performance Indicator	Task Status
2.1.4.1. Develop NGDA Dataset Maturity Baseline Assessment survey and tool (NGDA Management Plan: Action 1D.1)	Metric: Survey and tool complete FY 14 Target: FY14 Q4, 100%	Complete
2.1.4.2. Develop NGDA Dataset report template and tool (NGDA Management Plan: Action 1D.2)	Metric: Template and tool complete FY 15 Target: FY15 Q3, 100%	In Progress
2.1.4.3. Develop NGDA Theme Administrative Maturity Baseline Assessment survey and tool (NGDA Management Plan: Action 1D.3)	Metric: Survey and tool complete FY 14 Target: FY14 Q4, 100%	In Progress
2.1.4.4. Develop NGDA Strategic Theme Plan template and tool (NGDA Management Plan: Action 1D.4)	Metric: Template and tool complete FY 15 Target: FY15 Q2, 100%	Complete
2.1.4.5. Develop NGDA Theme Report template and tool (NGDA Management Plan: Action 1D.5)	Metric: Template and tool complete FY 15 Target: FY15 Q3, 100%	In Progress
2.1.4.6. Develop NGDA Services and (or) Applications Investment Report template, tool, and report (NGDA Management Plan: Action 1D.6)	Metric: NGDA Services and Applications Investment Report template complete; CPIC harvesting algorithms complete; NGDA Services and Applications Investment Report complete FY 16 Target: FY16 Q1, NGDA Services and Applications Investment Report template complete; CPIC harvesting algorithms complete; FY16 Q2, NGDA Services and (or) Applications Investment Report complete	On Schedule

2.1.4.7. Develop NGDA portfolio summary report template and tool (NGDA Management Plan: Action 1D.7)	Metric: Template and tool complete FY 16 Target: FY16 Q3, NGDA portfolio summary report template and tool complete	On Schedule
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Objective 2.2: Identify potentially duplicative investments and opportunities for collaborative investments

Action 2.2.1. Provide guidance and instructions to Federal agencies on use of the Geospatial Platform Marketplace.

Task	Performance Indicator	Task Status
2.2.1.1. Provide FGDC guidance for use of the Marketplace to FGDC member agencies	Metric: Submittal of guidance to FGDC agencies FY 14 Target: 100% complete	Complete
2.2.1.2. Provide draft guidance on use of the Marketplace that each FGDC member can customize for issuance of their own internal policies	Metric: Submittal of draft guidance for customization to FGDC agencies FY 14 Target: 100% complete	Complete

Action 2.2.2. Develop process and technology implementation to track use of the Geospatial Platform Marketplace and cost savings/avoidance through its application.

Task	Performance Indicator	Task Status
2.2.2.1. Prototype and (or) mockup of cost savings/avoidance report with ties to data sources and collection methodology	Metric: Prototype submitted to FGDC Coordination Group for review and feedback FY 15 Target: 100% complete	In Progress
2.2.2.2. Implementation of Marketplace performance metrics dashboard on geoplatform.gov	Metric: Dashboard available on geoplatform.gov Draft FY 16 Target: 100% complete	On Schedule

Action 2.2.3. Solicit feedback from the Geospatial Platform user community on future requirements for Marketplace functionality.

Task	Performance Indicator	Task Status
2.2.3.1. Solicit feedback on Marketplace from attendees at national geospatial meetings	Metric: National conference presentations on Geospatial Platform given with feedback sessions FY 14 Target: Presentations at two (2) national conferences	Complete

STRATEGIC GOAL 3 – CONVENE LEADERSHIP OF THE NATIONAL GEOSPATIAL COMMUNITY

Objective 3.1: Lead and participate in the development and coordination of national and international standards applicable to the geospatial community

Action 3.1.1. Consult and collaborate with both existing and emerging geospatial communities to advance common standards and approaches.

Task	Performance Indicator	Task Status
3.1.1.1. Identify, monitor, and participate in existing and emerging external geospatial communities (for example, volunteered geographic information, indoor navigation, mobile applications)	Metric: Periodic distribution of information about existing and potential opportunities for consultation and collaboration online FY 14 Target: At least one information outreach cycle	Complete

Action 3.1.2. Develop strategic partnerships with existing standards development organizations.

Task	Performance Indicator	Task Status
3.1.2.1. Identify gaps and opportunities for partnerships with existing standards development organizations	Metric: Register of FGDC participation in existing standards development organizations FY 14 Target: 50% complete	Complete

3.1.2.2. Encourage and maintain FGDC membership in existing standards organizations	Metric: Periodic synopsis of participation in existing standards organizations published online FY 14 Target: At least one publication cycle	Complete
Action 3.1.3. Provide technical and educational support to agencies implementing NSDI standards and engage the standards community through workshops or online information-sharing tools such as Web meetings or social media.		
Task	Performance Indicator	Task Status
3.1.3.1. Identify means to provide wanted/needed technical and educational support to agencies implementing NSDI standards	Metric: Register training opportunities FY 14 Target: Needs assessment; 40% complete	In Progress
3.1.3.2. Develop repeatable (yearly) process to provide information on technical and educational training opportunities	Metric: Development of updated register of existing and planned standards training opportunities FY 16 Target: 100% complete	On Schedule
3.1.3.3. Continually update content on standards on <i>www.fgdc.gov</i> , including dynamic information	Metric: Information content about standards is continually maintained and updated on the FGDC website FY 14 Target: Timely updates	Complete

Objective 3.2: Convene the leadership of the geospatial and nongeospatial communities to develop public/private partnerships and shared approaches for addressing critical national issues

Action 3.2.1. Engage with the NGAC, key geospatial organizations, and other stakeholders to inform policy decisions and collaboratively identify and address issues of common concern.

Task	Performance Indicator	Task Status
3.2.1.1. Complete 2014 FGDC Guidance to NGAC describing NGAC study topics and focus areas	Metric: Completion of guidance FY 14 Target: 100% complete	Complete
3.2.1.2. Hold three in-person meetings with NGAC in FY 2014	Metric: Completion of in-person meetings FY 14 Target: Three in-person NGAC meetings	Complete
3.2.1.3. Hold NSDI Leaders Forum meetings to seek input and dialogue on key NSDI issues	Metric: Completion of Leaders Forum meetings FY 14 Target: One Leaders Forum meeting (Q4 FY 14)	Complete
3.2.1.4. Collaborate with NGAC subcommittees to develop products addressing 2014 NGAC guidance	Metric: Completion of NGAC products/papers addressing 2014 NGAC guidance FY 15 Target: Adoption of all 2014 NGAC products/papers by December 2014	Complete
3.2.1.5. Complete 2015 FGDC Guidance to NGAC, describing NGAC study topics and focus areas	Metric: Completion of guidance FY 15 Target: 100% complete	Complete
3.2.1.6. Hold three in-person meetings with NGAC in FY 2015	Metric: Completion of in-person meetings FY 15 Target: Three in-person NGAC meetings	Complete
3.2.1.7. Collaborate with NGAC subcommittees to develop products addressing 2015 NGAC guidance	Metric: Completion of NGAC products/papers addressing 2015 NGAC guidance FY 15 Target: Adoption of all 2014 NGAC products/papers by December 2015	Complete
3.2.1.8. Complete 2016 FGDC Guidance to NGAC, describing NGAC study topics and focus areas	Metric: Completion of guidance FY16 Target: 100% complete	On Schedule
3.2.1.9. Hold three in-person meetings with NGAC in FY 2015	Metric: Completion of in-person meetings FY16 Target: Three in-person NGAC meetings	On Schedule
3.2.1.10. Collaborate with NGAC subcommittees to develop products addressing 2015 NGAC guidance	Metric: Completion of draft NGAC products/papers addressing 2015 NGAC guidance FY16 Target: Development of draft 2015 NGAC products/ papers by October 2016	On Schedule

Action 3.2.2. Collaborate with the NGAC and other partners to review and develop common approaches to the issue of geolocation privacy.		
Task	Performance Indicator	Task Status
3.2.2.1. Incorporate geolocation privacy into 2014 FGDC guidance to the NGAC	Metric: Inclusion of geolocation privacy into 2014 NGAC guidance FY 14 Target: 100% complete	Complete
3.2.2.2. Collaborate with NGAC privacy subcommittee to address 2014 NGAC guidance	Metric: Completion of NGAC products/papers addressing 2014 NGAC guidance on geolocation privacy FY 15 Target: Completion of 2014 NGAC products/papers by FY15 Q2	Complete
3.2.2.3. Hold joint FGDC–NGAC briefing for CIO Council Privacy Committee	Metric: Completion of joint FGDC–NGAC briefing for CIO Council Privacy Committee FY 15 Target: 100% complete	Complete
3.2.2.4. Collaborate with NGAC Geospatial Privacy Subcommittee to define deliverables for 2015	Metric: Agreement on subcommittee deliverables for 2015 FY 15 Target: 100% complete	Complete
3.2.2.5. Hold joint FGDC–NGAC panel presentation on geospatial privacy at CIO Council Privacy Summit	Metric: Completion of joint FGDC–NGAC panel presentation at CIO Council Privacy Summit FY 16 Target: 100% complete	On Schedule

Objective 3.3: Raise awareness of the NSDI and its impact on critical national and international issues

Action 3.3.1. Develop and implement a communication strategy and outreach plan to promote the benefits of NSDI data and the goals of the NSDI Strategic Plan.

Task	Performance Indicator	Task Status
3.3.1.1. Award Task Order under GeoPlatform support contract for communications/outreach support	Metric: Award of Task Order FY 15 Target: 100% complete	Complete
3.3.1.2. Complete draft outline of NSDI/GeoPlatform communications strategy/implementation plan	Metric: Completion of draft communications strategy/implementation plan outline FY 15 Target: 100% complete	Complete
3.3.1.3. Input from FGDC/NGAC on draft communications strategy/implementation plan	Metric: Collection of input from FGDC/NGAC on draft communications strategy/implementation plan FY 15 Target: 100% complete	Complete
3.3.1.4. Finalize NSDI/GeoPlatform communications strategy/implementation plan	Metric: Completion of NSDI/GeoPlatform communications strategy/ implementation plan FY 15 Target: 100% complete	Complete
3.3.1.5. Complete NSDI communications toolkit, including fact sheets, templates, Web content, key messages, and so forth	Metric: Completion of communications toolkit FY 16 Target: 100% complete	On Schedule

Action 3.3.2. Promote the vision of NSDI globally through active participation and support for activities, such as the Global Spatial Data Infrastructure (GSDI), the United Nations Initiative on Global Geospatial Information Management (UN-GGIM), and the U.S. Group on Earth Observations (USGEO).

Task	Performance Indicator	Task Status
3.3.2.1. Provide technical support for GSDI Small Grants Program	Metric: Completion of four GSDI Small Grant projects FY 15 Target: 100% complete	Complete
3.3.2.2. Organize and execute U.S. participation in 2015 Geospatial World Forum and the Infrastructure for Spatial Information in the European Community (INSPIRE) meeting	Metric: Completion of U.S. participation in Geospatial World Forum and INSPIRE meetings FY 15 Target: 100% complete	Complete

3.3.2.3. Complete NSDI/GeoPlatform communications strategy/implementation plan, including international activities	Metric: Completion of NSDI/GeoPlatform communications strategy/implementation plan FY 15 Target: 100% complete	Complete
3.3.2.4. Organize and execute U.S. participation in 12th Plenary Session of the Group on Earth Observations (GEO-XII), and the GEO 2015 Ministerial Summit (November 2015)	Metric: Completion of U.S. participation in GEO-XII Plenary Session and GEO 2015 Ministerial Summit FY 16 Target: 100% complete	On Schedule

Appendix F

Glossary of Abbreviations and Terms

ACWI	Advisory Committee on Water Information	INSPIRE	Infrastructure for Spatial Information in the
AIP	Architecture Implementation Pilot		European Community
AIXM	Aeronautical Information Exchange Model	ISO	International Organization for
BEA	Bureau of Economic Analysis		Standardization
BGN	Board on Geographic Names	LMA	Lifecycle Maturity Assessment
BIA	Bureau of Indian Affairs	MCSD	Marine and Coastal Spatial Data
BLM	Bureau of Land Management	MWG	Metadata Working Group
BOEM	Bureau of Ocean Energy Management	NAD	National Address Database
BQARP	Boundary Quality Assessment and Reconciliation Project	NAIP	National Agriculture Imagery Program
		NBG	National Boundaries Group
Census Bureau	U.S. Census Bureau	NDOP	National Digital Orthoimagery Program
CG	FGDC Coordination Group	NGA	National Geospatial-Intelligence Agency
CIO	Chief Information Officer	NGAC	National Geospatial Advisory Committee
CSDGM	Content Standard for Digital Geospatial Metadata	NGDA	National Geospatial Data Asset
		NGS	National Geodetic Survey
DHS	Department of Homeland Security	NHD	National Hydrography Dataset
DOD	U.S. Department of Defense	NOAA	National Oceanic and Atmospheric Administration
DOE	U.S. Department of Energy		
DOI	U.S. Department of the Interior	NPS	National Park Service
ENOW	Economics: National Ocean Watch	NRCS	Natural Resources Conservation Service
EPA	U.S. Environmental Protection Agency	NSDI	National Spatial Data Infrastructure
FEMA	Federal Emergency Management Agency	NSGIC	National States Geographic Information Council
FGDC	Federal Geographic Data Committee		
FSA	Farm Service Agency	NSRS	National Spatial Reference System
FWS	U.S. Fish and Wildlife Service	NVC	National Vegetation Classification
GAO	U.S. Government Accountability Office	NWI	National Wetlands Inventory
GCI	GEOSS Common Infrastructure	NWS	National Weather Service
GENC	Geopolitical Entities, Names, and Codes	OGC	Open Geospatial Consortium
GEO	Group on Earth Observations	OMB	Office of Management and Budget
GeoCloud	Geospatial Cloud	OWDI	Open Water Data Initiative
GEOSS	Global Earth Observation System of Systems	PLSS	Public Land Survey System
		PM-ISE	Program Manager- Information Sharing Environment
GGIM	Global Geospatial Information Management	POD	Project Open Data
GIO	Geographic Information Officer	SSWD	Subcommittee on Spatial Water Data
GIRA	Geospatial Interoperability Reference Architecture	SWG	Standards Working Group
		TIGER	Topologically Integrated Geographic Encoding and Reference system
GIS	Geographic Information System		
GML	Geography Markup Language	UHDWG	Users/Historical Data Working Group
GNSS	Global Navigation Satellite Systems	UN-GGIM	United Nations Global Geospatial Information Management Working Group
GPS	Global Positioning System		
GSA	General Services Agency	USACE	U.S. Army Corps of Engineers
GSDI	Global Spatial Data Infrastructure	USDA	U.S. Department of Agriculture
GSVS	Geoid Slope Validation Survey	USDOT	U.S. Department of Transportation
HIFLD	Homeland Infrastructure Foundation-Level Data	USFS	U.S. Forest Service
		USGEO	U.S. Group on Earth Observations
HSIP	Homeland Security Infrastructure Program	USGS	U.S. Geological Survey
HUD	U.S. Department of Housing and Urban Development	XML	Extensible Markup Language
INCITS	International Committee for Information Technology Standards		

