U.S. DEPARTMENT OF AGRICULTURE
WASHINGTON, D.C. 20250

| **DEPARTMENTAL REGULATION** | Number:<br>DR 3465-001 |
|---|---|
| SUBJECT:<br>Enterprise Geospatial Data Management | DATE:<br>August 5, 2016 |
| | OPI:<br>Office of the Chief Information Office – Enterprise Geospatial Management Office |


| Section | | Page |
|---|---|---|
| 1. | Purpose | 1 |
| 2. | Scope | 2 |
| 3. | Special Instructions/Cancellations | 2 |
| 4. | Background | 2 |
| 5. | Policy | 3 |
| 6. | Procedures | 9 |
| 7. | Roles and Responsibilities | 9 |
| 8. | Departmental Review Plan | 13 |
| 9. | Policy Exceptions | 13 |
| 10. | Inquiries | 14 |
| APPENDIX A – Acronyms and Abbreviations | | A-1 |
| APPENDIX B – Authorities and References | | B-1 |
| APPENDIX C – Definitions | | C-1 |


## 1. PURPOSE

This Departmental Regulation (DR) establishes the policy for Enterprise Geospatial Data Management (EGDM) in the United States Department of Agriculture (USDA). Facilitated by the Office of the Chief Information Officer (OCIO), this DR defines the strategic direction necessary to optimize the management of the USDA geospatial data as departmental enterprise assets. The USDA EGDM policy presents elements of an enterprise geospatial data management framework, which will help to achieve the USDA public service goals as identified by a Government Accountability Office (GAO) report, GAO-15-193, and to begin the process of internal geospatial data sharing in the USDA.

Also, in partial fulfillment of GAO external audit recommendations, OCIO is acting to improve geospatial data management practices. The EGDM DR provides a required and

tangible step forward to increase data asset visibility, quality, and optimization. Many of the policy elements also reflect mission and staff office executive concerns and geospatial program management requirements, as well as demonstrate an enterprise-wide public service enhancement.

This policy creates consolidated Departmental direction for mission and staff office management of authoritative geospatial data. It serves as a supplement to any existing Departmental, agency, staff office, program, and/or external partnership policies or delegations of authority, as well as existing USDA Digital Government, Open Government, Open Data, and data lifecycle management-related policies. The DR helps ensure coordinated action and responsiveness within the Department, and between external stakeholders, on enterprise geospatial data management issues.

## 2. SCOPE

This DR applies to all USDA agencies, staff offices, programs, teams, organizations, appointees, and employees including contractors and grantees operating on behalf of USDA. This policy introduces the data quality and process improvement foundation for the adoption of geospatial data asset management best practices, used by USDA internal and external geospatial data creators, partners, publishers, and consumers.

This DR applies to all geospatial Authoritative Data Sources (ADS) and the National Geospatial Data Assets, the Office of Management and Budget (OMB) A-16 data themes, defined for the USDA by the Federal Geographic Data Committee (FGDC). ADS is defined as production data that the USDA Agencies produce, or have a statutory responsibility for and curate for the purpose of the Agencies' mission. A list of the A-16 data themes are found at the FGDC National Geospatial Data Asset (NGDA) site.

## 3. SPECIAL INSTRUCTIONS/CANCELLATIONS

This DR is effective immediately when published. All agencies and staff offices shall align their policies and procedures to comply with this DR.

## 4. BACKGROUND

The primary focus of the USDA EGDM policy is the enterprise-wide portfolio management of geospatial data as a capital asset. Data management, and particularly geospatial data management, is an essential element for conducting government business, optimization of policy and administrative outcomes, and supporting the effective and economical use of federal resources.

A portfolio-centric asset management model helps resolve USDA data, technology and management duplication and redundancy by applying consistent enterprise guidance. This DR increases the understanding of common geospatial data management expectations.

Citizens increasingly embrace a wide range of location-based technologies to make our lives easier. An evolution in detailed street data, geospatial software, airborne and satellite sensing and imaging, and global positioning systems (GPS) inform personal decisions. The same capabilities sustain effective public policy creation, program administration and governance in the context of local, regional, and national public service requirements and innovations.

USDA agencies and staff offices use spatially enabled data, and remote sensing satellite and aerial photography imagery, to create maps and conduct mapping and spatial analytic functions with Geographic Information System (GIS) technologies. Geospatial solutions enable a multitude of sophisticated capabilities such as evidence-based problem identification, policy decisions, program analysis, scientific investigation, landscape planning, and predictive modeling.

USDA's EGDM policy establishes the geospatial data principles, metadata and data lifecycle management framework to mature enterprise practices. The EGDM policy also delegates geospatial executive authority, establishes geospatial asset management responsibility, directs participation on statutory, national advisory, and/or interagency committees, and prescribes procedures governing USDA geospatial data management activities and operations. Beyond these Departmental geospatial data management improvements, USDA's EGDM policy helps reduce or eliminate duplicative and redundant data management policies, functions, and geospatial data assets.

5. POLICY

USDA shall establish, maintain, and continuously update the EGDM practices in accordance with any Departmental policy including investment DRs; DR 3130-008, *Definition of Major Information Technology Investments* and DR 3130-009, *Non-Major Information Technology (IT) Investments* respectively, and information resource investments.

a. Management Principles:

Core Departmental values and norms regarding geospatial data assets are summarized in a set of principles. These statements are intended to convey the essential awareness, attitude, and behavioral commitments USDA attributes to geospatial data management across the enterprise. The core management principles are:

(1) Geospatial data (ADS and A-16 geospatial data most importantly) created and/or acquired by USDA agencies and staff offices shall be managed as enterprise geospatial data assets, and made easily accessible to anyone with access authority.

(2) The creation and/or acquisition of geospatial data encompasses all platform sources including the desktop, portals, mobile, cloud, Web applications, and legacy

applications to which this DR applies. Acquisitions of geospatial data shall be subject to a modified Acquisition Approval Request (AAR) and Portfolio review reporting within the capital planning and investment control process. The modification is being worked on during the writing of this DR.

(3) Each individual creating, manipulating, managing, and/or supervising the maintenance/upkeep of geospatial data assets shall have defined stewardship responsibilities in Section 7 of this policy for those assets.

(4) Each designated ADS geospatial data asset shall be formally certified and registered by agencies and staff offices in compliance with USDA OCIO standards before release to internal and/or external stakeholders.

(5) Agencies and staff offices shall maintain ADS asset references in a single geospatial data asset reference repository, such as the Geospatial Solutions Library (GSL), accessible by all USDA agencies and staff offices who have access authority and publishable to external Federal government repositories.

(6) Each ADS geospatial data asset shall have a specific lifecycle (defining, acquiring/collecting, maintaining, measuring and archiving) identified and cataloged from which to determine required IT products and services.

(7) USDA agency and staff office ADS geospatial data approved for external public consumption shall be published and maintained in accordance with OMB Circular A-16 Revised, *Coordination of Geographic Information and Related Spatial Data Activities*, guidance within the National Spatial Data Infrastructure (NSDI).

(8) Each certified and registered ADS geospatial data asset shall be assessed to ensure they are accessible, discoverable, and usable by the public for open data publication, and released in accordance with direction presented in the OMB Memorandum M-13-13, *Open Data Policy-Managing Information as an Asset*.

(9) If the geospatial data asset cannot be shared with the public because it is subject to statutory, privacy, confidentiality pledge, security, trade secret, contractual, or other valid restrictions on release, the metadata must reflect that the asset is restricted from release. However, certification and registration requirements still apply.

(10) All USDA agencies and staff offices shall follow an OCIO approved set of standards and documented procedures to conduct a formal search of the National Spatial Data Clearinghouse Marketplace reference catalog prior to expending funds for geospatial data acquisition and/or collection.

(11) All USDA agencies and staff offices shall engage in cooperative data partnerships with Federal, state, local, tribal and international governments, where feasible, to reduce geospatial data investment costs.

b. Metadata Management:

Metadata management guides geospatial data asset definition for publishing ADS and A-16 geospatial data. Data architecture functions to ensure: conformance to data naming standards; validation of data name abbreviations; required components of data definition are provided; maintained control of data reengineering and correction processes; evaluation of data models for normalization; evaluation of database design for integrity, such as primary key to foreign key integrity; procurement and acquisition task and deliverable descriptions; configuration and change management continuity; and performance optimization. USDA agencies and staff offices shall define and document the data architecture for all geospatial data assets created for support of its mission. The metadata management practices which shall be followed are:

(1) The USDA broadly endorses and adopts the FGDC metadata standards, International Organization for Standardization (ISO) Standard ISO 19115-1:2014, *Geospatial Information - Metadata Part 1 Fundamentals*, and other FGDC standards endorsements. All ADS data and all ADS imagery data will include specific metadata based on ISO 19115-2:2009, *Geospatial Information - Metadata Part 2 Extensions for Imagery and Gridded Data*. Where appropriate, USDA develops extended internal and/or stakeholder metadata information for mission needs. Metadata records will contain all minimum elements for the metadata standard used.

(2) All USDA geospatial data products shall reference the specific metadata standards used in individual geospatial data metadata.

(3) At a minimum for internal reuse and repurposing of assets, all geospatial data created and/or acquired by USDA components shall contain descriptions of asset attributes sufficient for discovery, internal use, and repurposing.

(4) Each certified and registered USDA geospatial data asset shall be openly accessible and referenced through a common metadata search and/or index engine supported by current internal USDA approved Web browsers.

c. Data Lifecycle Management:

The ADS geospatial data lifecycle stages allow stakeholders to assess whether USDA data production activities meet business requirements and utilize best practices that enable open government, execution of the mission, deployment of shared or common services, and cost savings and avoidance. Geospatial data lifecycle management does not behave as a rigid, sequential or linear process; emerging business requirements drive the necessary activities occurring at each stage. The quality assurance and/or quality control (QA/QC) functions described in the Performance Management section of this policy shall be included at every stage of the ADS geospatial data lifecycle. The

elements of this lifecycle help to clarify data workflows and provide a uniform structure for comparative analysis of individual agency and staff office practices.

USDA personnel shall use the following stages when developing, managing, and reporting on geospatial data:

(1) Define: Characterization of data requirements based upon business-driven user needs;

(2) Inventory/Evaluate: The creation and publication of a detailed list of data assets and data gaps (both internal and external) as they relate to business-driven user needs;

(3) Obtain: The collection, purchase, conversion, transformation, sharing, exchange, or creation of geospatial data that were selected to meet the business needs is identified;

(4) Access: Making data produced known and retrievable to the community through documentation and discovery mechanisms so the users can meet their business requirements;

(5) Maintain: Ongoing processes and procedures to ensure that the data meet business requirements;

(6) Use/Evaluate: The ongoing assessment, validation, and potential enhancement of data to meet user needs and business requirements; and

(7) Archive: Required retention of data and the data's retirement into long-term storage.

d. Performance Management

The management maturity framework, outlined in Section 5 d. (4) below, shall be the way in which agencies will be reviewed for successful geospatial asset management for both geospatial and imagery data. The performance management principles are:

(1) The traditional commercial-off-the-shelf (COTS) GIS desktop spatial data use provides high levels of expert support for the missions and staff. Cloud platforms offer many benefits for extended collaboration and data exchange. Due to the increased access, contributions and participation of practitioners in publication of locally created data, there is potential for accelerated dissemination, duplication, and public service brand degradation with diffusion of poor quality data and inadequate metadata. Performance management requires a deliberate set of targets and measures to ensure robust quality controls, and use of data assets and technology for the benefit of the public. Agencies will be reviewed on improving data management outcomes such as collaboration, access to data, data quality, and sufficient metadata.

(2) All geospatial vector and imagery data assets shall meet performance expectations for:

(a) Utility to ensure the information is usable, supported through the USDA quality characteristics of timeliness, concurrency, precision, accessibility, contextual clarity, usability, and rightness;

(b) Objectivity to ensure the information is being presented in an accurate, clear, complete, and unbiased manner; and

(c) Integrity to ensure the information is protected from corruption or falsification.

(3) With regard to specific geospatial asset management, USDA shall adopt a Capability Maturity Model Framework to create alignment and measure performance of enterprise geospatial data management at the enterprise mission, program, business unit, and activity levels of the Department. This framework includes the following tiers of maturity:

(a) Level 1 Data Quality Maturity: Initial

At the initial level, the processes used for data quality assurance are largely ad hoc, with most of the effort expended in reacting to data quality issues. Problems that arise are acute, require immediate attention, and often require significant rollback and rework. The environment is relatively unstable, and as a result it becomes challenging to trace back the sources of the introduction of flawed data and to determine the quick fix. Fixes are one-time and, most likely, will not address any long-term improvement in the information or the processes. Success is often correlated to individual heroics in correcting data flaws, not on proven processes for root cause analysis and managed remediation. At this level, there is little or no sharing of information or experiences, and therefore there is limited or no ability to repeat successes;

(b) Level 2 Data Quality Maturity: Repeatable

At the repeatable level, there is some basic organizational management and information sharing, augmented by some process discipline, mostly in recognizing good practices and attempting to replicate them in similar situations, enabling some ability to repeat success. There is an introductory level of governance with limited documentation of processes, plans, standards, and practices. When representatives from the lines of business application understand these good practices and attempt to put them in place, their ability to respond to data failures is more streamlined. The rate of adoption of data management practices varies across different lines of business. Some considerations of the impacts of poor data quality lead to introductory efforts for business evaluation and identification of gross-level measures. These measures may be for proactive data quality management. Some technology

components are in place, but they may not be standardized and their behaviors are not synchronized. A focus on the need for technology eclipses the identification of business needs for tools and the definition of methods for using any acquired tools;

(c) Level 3 Data Quality Maturity: Defined

At the defined level, a structured team of data quality practitioners begin to document good practices, which include: an established set of data governance policies; processes for defining data quality expectations; technology components; and processes and services for implementing data quality validation, assurance, and reporting. Once these are documented and can be made available across the organization, there emerges a degree of consistent use. An enterprise-wide data quality team has scheduled meetings to discuss organizational issues, review methods and technology, and to exchange ideas. A framework for determining responsibility and accountability for the quality of the organization's information is in place, and accountability is monitored by an organizational governance board with representatives from the business and Information Technology (IT) divisions. There are tailored guidelines for establishing standards and management objectives, and there are processes in place to ensure that these objectives are met. Expectations based on defined data quality dimensions can be expressed, documented, and integrated within a conceptual service model. The use of technical components is standardized at both service and implementation layers;

(d) Level 4 Data Quality Maturity: Managed

At the managed level, the data quality program fully incorporates business impact analysis with the ability to express data quality expectations and measure conformance to those expectations. These measurements form the basis of clearly defined criteria for performance in relation to meeting business objectives. Metrics composed of these weighted measurements are used in evaluating statistical process control at different service levels. Measured performance characteristics can be used to assess overall system performance against success criteria. Data quality is proactive, with data flaws identified early in the information workflow. Remediation is governed by well-documented procedures, information is shared, and overall performance against quality expectations is predictable; and

(e) Level 5 Data Quality Maturity: Optimized

At the optimized level, the data quality maturity governance framework is in place such that enterprise-wide performance measurements can be used for identifying opportunities for improved systemic data quality. The ability to assess success and identify causes for process variation may suggest actions to adapt standards, policies, and processes for incremental or fundamental quality

improvements. Strategic improvements and continuous process monitoring of the data life cycle using dashboards are applied throughout the organization.

6. PROCEDURES

A series of Departmental Manuals (DM) shall be issued which address specific, and/or unique, geospatial data management requirements, standards, procedures, processes, and performance measures.

7. ROLES AND RESPONSIBILITIES

a. The USDA Executive Information Technology Investment Review Board (E-Board) shall:

(1) Exercise executive authority overseeing all mission and staff office geospatial technology investment in the Department including the geospatial administrative service function and the core set of tools and data elements of the Departmental geospatial portfolio; and

(2) Provide investment direction to the USDA Chief Information Officer (CIO) regarding new Executive Office initiatives and other emergent technology issues using geospatial data.

b. The USDA CIO shall:

(1) Provide executive accountability for Departmental IT strategy, capital planning and investment, development, and operations related to geospatial solutions and assets;

(2) Provide executive governance oversight over infrastructure, applications and services, data, and technology-enabled business processes, including all geospatial capital assets created, provisioned, and consumed across the Department;

(3) Participate in the formal AAR process to provide strategic oversight and review of all geospatial capital asset acquisition to ensure procurement strategies and acquisition plans align to support Departmental strategies, and demonstrate operational linkages to the *USDA Information Technology Strategic Plan*; and

(4) Delegate executive leadership for geospatial technology, data, and information solutions to the Senior Agency Official for Geospatial Information.

c. The Senior Agency Official for Geospatial Information (SAOGI) shall:

(1) Serve as the senior executive responsible for Departmental geospatial strategy, planning, coordination, assessment, and synchronization of all USDA geospatial activities;

(2) Have authority, responsibility, and accountability for USDA Departmental geospatial related issues;

(3) Oversee, coordinate, and facilitate USDA internal and external coordination and implementation of the geospatial policies, directives, requirements, geospatial data management, enterprise architecture, and product and service standardization;

(4) Serve as the policy-level official representing USDA on the FGDC Steering Committee;

(5) Appoint agency and staff office representatives to serve on the FGDC Coordination Group, and other business solution, governance and working groups;

(6) Maintain a knowledge base of USDA geospatial portfolio investments, oversee the enterprise geospatial capital asset planning and investment controls process, and advocate for agency and staff office geospatial budgets and acquisition plans;

(7) Serve as a champion for the use, value, and benefits of geospatial innovation and information supporting decision-makers, citizens, partners, and others;

(8) Collaborate with the USDA CIO and the Geospatial Program Manager to implement geospatial strategic initiatives;

(9) Be responsible for the Departmental response to external geospatial data calls; and

(10) Serve as the USDA Geospatial Information Officer (GIO) which is not different from the SAOGI for the USDA.

d. USDA Geospatial Program Manager shall:

(1) Act as the primary Departmental Geospatial Program Manager;

(2) Manage Enterprise Level geospatial contracts as the Contracting Officer's Representative (COR);

(3) Act as the point of contact for strategic sourcing in the geospatial arena;

(4) Support and coordinate geospatial component agencies and state/field offices;

(5) Be responsible for researching new geospatial technologies and potential implementations across component agencies and state/field offices;

(6) Write supporting DM's to provide specific guidance on this DR;

(7) Participate in OCIO portfolio reviews of agencies on an annual basis; and

(8) Provide technical guidance for AAR process reviews.

e. USDA Agency and Staff Office CIOs shall:

(1) Ensure agency or staff office geospatial guidance aligns to this DR technical guidance as a subject matter expert for AAR process reviews concerning geospatial requests;

(2) Oversee respective geospatial data quality, governance, and lifecycle management to ensure alignment with this DR;

(3) Be accountable for monitoring and reporting of geospatial technologies and spatial data management practices, metadata and lifecycle management;

(4) Ensure geospatial assets are aligned to internal business strategies and annual Fiscal Year (FY) investment portfolios are prepared according to provide guidance; and

(5) Compose the quarterly geospatial data management report for the USDA CIO.

(6) The USDA Agency and Staff Office CIO may delegate any of these responsibilities to an USDA Agency or Staff Office GIO.

(7) The USDA Agency and Staff Office CIO is responsible to ensure legal restrictions, upon release, such as "1619" data, is handled appropriately and not disclosed to the public.

f. The USDA Chief Information Officer Council (CIOC) Geospatial Subcommittee shall:

(1) Advise and support the SAOGI in the design, development, and deployment of enterprise-wide geospatial technology strategy, tactics, and operations management;

(2) Promote adoption of geospatial asset management, reuse and optimization;

(3) Endorse geospatial business and technology requirements validation best practices and solution feasibility testing; and

(4) Recommend and guide geospatial data quality management activities.

g. The USDA Remote Sensing Coordination Committee (RSCC) shall:

(1) Provide advice to the SAOGI concerning geospatial policy, operations, and procedures with the scope of RSCC's contribution including business technical

requirements, portfolio management, acquisition, solutions development, and archival infrastructure and practices;

(2) Provide governance oversight for the Department's remote sensing, airborne, and satellite imagery;

(3) Ensure coordination, visibility and adequate data lifecycle management of remote sensing, airborne and imagery assets for all USDA agencies, staff offices, and other Federal, state, local, and tribal governments, commercial interests, academic, and citizen stakeholders; and

(4) Research, review and recommend geospatial policy and data standards.

h. USDA Agency and Staff Office Directors and Administrators shall:

(1) Be responsible for ensuring geospatial assets are managed in a coordinated, documented, and predictable manner within their respective IT portfolios;

(2) Ensure geospatial data management roles and functions are defined and assigned for their agency or staff office and geospatial ADS are understood and managed throughout the data lifecycle; and

(3) Provide executive oversight, including assignment and support of four key geospatial data management roles and functions within their respective area of responsibilities: Data Owner; Data Steward; Data Custodian; and Data Stakeholder.

i. Data Owners shall:

(1) Shall have functional area authority within a business program and be responsible for making decisions concerning the use of geospatial datasets and/or imagery;

(2) For any geospatial product or service derived from other information, maintain a digital governance reference to all raw data used;

(3) Be responsible for the quality, integrity, accuracy, timeliness, and completeness of the data;

(4) Be responsible for data extraction, conversion, value added work, and metadata creation;

(5) Be responsible for data updating, QA/QC, data distribution, and open data channel management; and

(6) Delegate these responsibilities to the Data Steward as appropriate.

j. Data Stewards shall:

(1) Be the designated Department expert for a specific ADS data set;

(2) Manage individual data sets to promote data accessibility and reusability across the Department, and to meet the data content and data quality requirements of all users; and

(3) Serve as a consultant to other program offices on the content, quality, and applicability of their data.

(4) Deliberately record and document the original purpose, requirements and nature of the geospatial data intended for meeting specific mission and staff office, and other stakeholder, goals and/or objectives.

k. Data Custodians shall:

(1) Manage the enterprise storage and delivery of data provided by Data Owners and/or Data Stewards; and

(2) Be responsible for ensuring the geospatial data security, integrity, and availability.

## 8. DEPARTMENTAL REVIEW PLAN

The CIO shall require USDA agencies and staff offices to provide quarterly reports based on DR 3130-008 and DR 3130-009 during major and non-major IT Investments documenting:

- Geospatial data portfolio inventories of certified and registered ADS geospatial assets;
- Current geospatial data management strategy, goals, and performance objectives;
- Geospatial data management implementation challenges, and roadblocks; and
- Evolving best practices and enterprise recommendations for geospatial data asset management.

The quarterly reports, of not greater than 12 pages, excluding data inventories tables, function as a means of creating enterprise-wide visibility and optimization of all geospatial data assets, thereby increasing recognition of common requirements, improving portfolio and product management, and facilitating reuse and repurpose of existing capital assets.

## 9. POLICY EXCEPTIONS

a. All USDA agencies, staff offices, and entities shall conform to this policy. In the event a specific policy requirement cannot be met as explicitly stated, agencies and staff offices, program offices, and contractor facilities may submit a waiver request. The waiver request must identify the sponsoring executive, explain the reason for the request, identify compensating controls/actions that meet the intent of the policy, and identify how the compensating controls/actions provide a similar or greater level of quality, mitigation or compliance than the policy requirement. Agencies and staff offices shall address all policy waiver request memoranda to the USDA GIO and submit the request to usdageospatial@ocio.usda.gov.

b. Unless otherwise specified, agencies and staff offices shall review and renew policy waivers every fiscal year, or as needed. Approved waivers must be tracked as a Plan of Action and Milestones (POA&M) item in the USDA *Federal Information Security Modernization Act of 2014* (FISMA) database, and completion of this agency requirement must be certified in writing by the USDA Chief Information Security Officer (CISO).

## 10. INQUIRIES

Information regarding this DR, policy recommendations, updates and/or changes, and relationships to other Administration, Departmental, agency, staff office, and Federal government policy, directives, and memoranda shall be directed to the USDA GIO located in OCIO Enterprise Geospatial Management Office (EGMO) at usdageospatial@ocio.usda.gov.

-END-

APPENDIX A

ACRONYMS AND ABBREVIATIONS

| | |
|---|---|
| AAR | Acquisition Approval Request |
| AGAR | Agriculture Advisory Regulation |
| ADS | Authoritative Data Sources |
| CFR | Code of Federal Regulations |
| CIO | Chief Information Officer |
| CIOC | Chief Information Officer Council |
| CISO | Chief Information Security Officer |
| COR | Contracting Office Representative |
| COTS | Commercial-off-the-shelf |
| CPIC | Capital Planning and Investment Control |
| DM | Departmental Manual |
| DR | Departmental Regulation |
| E-Board | Executive Information Technology Investment Review Board |
| EGDM | Enterprise Geospatial Data Management |
| EGMO | Enterprise Geospatial Management Office |
| ESS | Enterprise Shared Services |
| FGDC | Federal Geographic Data Committee |
| FISMA | Federal Information Security Management Act |
| FY | Fiscal Year |
| GAO | Government Accountability Office |
| GIO | Geospatial Information Officer |
| GIS | Geographic Information System |
| GPS | Global Positioning System |
| GSL | Geospatial Solutions Library |
| ISO | International Organization for Standardization |
| IT | Information Technology |
| NGDA | National Geospatial Data Asset |
| NSDI | National Spatial Data Infrastructure |
| OCIO | Office of the Chief Information Officer |
| OMB | Office of Management and Budget |
| PII | Personally Identifiable Information |
| P.L. | Public Law |
| PNT | Positioning, Navigation, and Timing |
| POA&M | Plan of Action and Milestones |
| QA/QC | Quality Assurance/Quality Control |
| RSCC | Remote Sensing Coordination Committee |
| SAOGI | Senior Agency Official for Geospatial Information |
| UID | Unique Identification |
| U.S.C. | United States Code |
| USDA | United States Department of Agriculture |

APPENDIX B

AUTHORITIES AND REFERENCES

Authorities:

7 Code of Federal Regulations (CFR) 2.89, *Delegations of Authority from the Secretary to the Chief Information Officer*

*The Clinger-Cohen Act of 1996*, 40 United States Code (U.S.C.) §1401 et seq.

*The Federal Information Security Modernization Act of 2014* (FISMA), Public Law (P.L.) 113-283, December 18, 2014

*Information Quality Act*, Section 515 of the Treasury and General Government Appropriations Act for Fiscal Year 2001 (P.L. 106–554; H.R. 5658)

References:

Executive Order 12906, *Coordinating Geographic Data Acquisition and Access: The National Spatial Data Infrastructure*, April 11, 1994

Executive Order, *Executive Order -- Making Open and Machine Readable the New Default for Government Information*, May 9, 2013

FGDC, FGDC-STD-001-1998, *Content Standard for Digital Geospatial Metadata*, 1998

GAO, GAO-15-193, *Geospatial Data: Progress Needed on Identifying Expenditures, Building and Utilizing a Data Infrastructure, and Reducing Duplicative Efforts*, March 18, 2015

ISO, Standard ISO 19115-1:2014, *Geospatial Information - Metadata Part 1 Fundamentals*, April 1, 2014

ISO, Standard ISO 19115-2:2009, *Geospatial Information - Metadata Part 2 Extensions for Imagery and Gridded Data*, February 15, 2009

OMB, Circular A-16 Revised, *Coordination of Geographic Information and Related Spatial Data Activities*, August 19, 2002

OMB, Memorandum M-06-07, *Designation of a Senior Agency Official for Geospatial Information*, March 3, 2006

OMB, Memorandum M-11-03, *Issuance of OMB Circular A-16 Supplemental Guidance*, November 10, 2010

OMB, Memorandum M-13-13, *Open Data Policy-Managing Information as an Asset*, May 9, 2013

OMB, Memorandum M-15-14, *Management and Oversight of Federal Information Technology*, June 10, 2015

OMB Circular A-130, *Management of Federal Information Resources*, November 28, 2000

USDA, DM 3560-000, *Capital Planning & Investment Control (CPIC) for Security*, February 17, 2005

USDA, DM 3575-001, *Security Controls in the System Life Cycle/Systems Development Life Cycle*, May 27, 2005

USDA, DR 1496-001, *Digital Strategy Governance*, November 21, 2012

USDA, DR 3130-008, *Definition of Major Information Technology Investments*, February 27, 2015

USDA, DR 3130-009, *Non-Major Information Technology (IT) Investments*, November 18, 2015

USDA, DR 3180-001, *Information Technology Standards*, May 12, 2015

USDA, DR 3600-000, *USDA Information and Technology Transformation*, November 2, 2004

USDA, DR 3630-001, *USDA Enterprise Shared Services (ESS)*, June 1, 2005

USDA, *USDA Information Technology Strategic Plan 2014-2018*, April 1, 2014

USDA, *USDA Strategic Plan FY 2014 – 2018*, 2014 (see Objective 1.2)

Other Guidance:

USDA, *Integrated IT Governance Framework: Guidebook*, version 3.2, April 1, 2014

USDA, Agriculture Advisory Regulation (AGAR) Procurement Advisory No. 101A, *Shared First Policy in USDA Contracts*, May 1, 2013

USDA, *USDA Information Technology Capital Planning and Investment Control Guide*, May 5, 2013

APPENDIX C

DEFINITIONS

a. Authoritative Data Source (ADS): A recognized or official data production source with a designated mission statement or source/product to publish reliable and accurate data for subsequent use by customers. An authoritative data source may be the functional combination of multiple, separate data sources. ADS's are not interim products leading to a final published ADS. From the DoDD8320.03, Unique Identification (UID) Standards for a Net-Centric Department of Defense, March 23, 2007 (https://acc.dau.mil/adl/en-US/143762/file/27858/DoD%20Directive%208320-03%20UID%20Standards%20for%20a%20Net-Centric%20DoD%20(23%20Mar%2007).pdf)

b. Certified and Registered: All metadata must be certified (identified that this is the authoritative data from a specific agency owner as defined in Section 7 of this DR) and registered (metadata for the data is positioned in an authoritative system that can be queried to find the ADS/OMB A-16 Data Themes as defined in Section 5 a (5) of this DR). All metadata must be certified and registered even if the underlying data is subject to restrictions on public release.

c. Enterprise: Used in the context at the Department Level even though the Agency may own, create, and manage the geospatial assets.

d. Federal Geographic Data Committee (FGDC): An interagency committee that promotes the coordinated development, use, sharing, and dissemination of geospatial data on a national basis. The FGDC is a 32 member interagency committee composed of representatives from the Executive Office of the President, and Cabinet level and independent Federal agencies. The Secretary of the Department of the Interior chairs the FGDC, with the Deputy Director for Management, Office of Management and Budget (OMB) as Vice-Chair. Numerous stakeholder organizations participate in FGDC activities representing the interests of state and local government, industry, and professional organizations. (Source: FGDC Web site; retrieved February 25, 2015)

e. Geospatial Data: Geospatial data describe features or phenomena that can be referenced to specific locations relative to the earth's surface. For example, features such as buildings, rivers, road intersections, power plants, and national parks can all be identified by their locations. In addition, phenomena such as wildfires, the spread of an enterovirus, and the thinning of trees due to acid rain can also be tracked by their geographic locations. GIS data or geodata has explicit geographic positioning information included within it or contains coordinate geometry. (http://researchguides.library.yorku.ca/content.php?pid=245987&sid=2176375)

f. Geographic Information System: A computer-based graphics program that allows the superposition of plan-maps of thematic elements, such as roads, rivers, land use patterns,

and the like to aid in local or regional planning activities. (Source: National Weather Service Glossary)

g. Global Positioning System (GPS): The GPS is a U.S.-owned utility that provides users with positioning, navigation, and timing (PNT) services. This system consists of three segments: the space segment, the control segment, and the user segment. The U.S. Air Force develops, maintains, and operates the space and control segments. (Source: GPS.gov Web site; retrieved February 25, 2015)

h. Information: means any communication or representation of knowledge such as facts, data, or opinions in any medium or form, including textual, numerical, graphic, cartographic, narrative, or audiovisual forms. Source: https://www.whitehouse.gov/omb/circulars_a130_a130trans4/

i. National Spatial Data Infrastructure (NSDI): A physical, organizational, and virtual network designed to enable the development and sharing of this nation's digital geographic information resources, and a consistent means of sharing geographic data among all users to produce significant savings for data collection, use and enhance decision making. The technologies, policies, and people necessary to promote sharing of geospatial data throughout all levels of government, the private and non-profit sectors, and the academic community. (Source: FGDC/NSDI Web page; retrieved February 25, 2015 and Executive Order 12906, *Coordinating Geographic Data Acquisition and Access: The National Spatial Data Infrastructure)*

j. Remote Sensing: A collection of raster data consists of a matrix of cells, or pixels, organized into rows and columns in a grid, where each cell contains a value representing information, such as temperature. Rasters are digital aerial photographs, imagery from satellites, digital pictures, or scanned maps.
(Source: Esri, 2015)