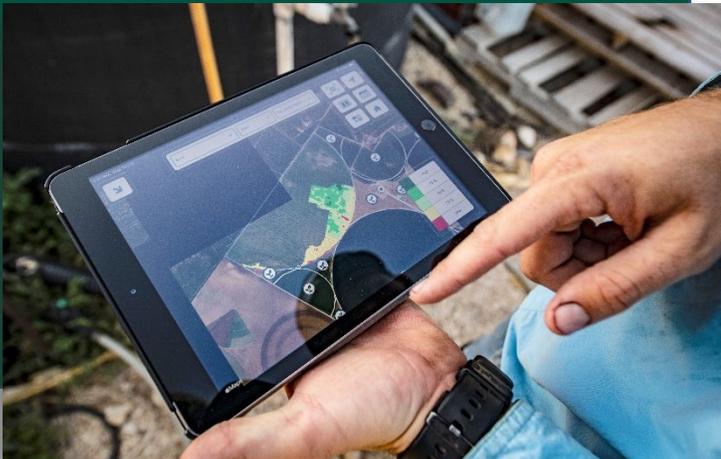




**United States  
Department of  
Agriculture**



# Geospatial Strategic Plan



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# EXECUTIVE SUMMARY



**Gary Washington,**  
**USDA**  
**Chief Information Officer**

The U.S. Department of Agriculture (USDA) creates critical information and products from location-based data and has recognized the need to better organize and manage geospatial assets among its agencies. To this end, USDA Geospatial Program leadership has created this Geospatial Strategic Plan with the following four overall goals:

**Goal 1:** Implement the requirements of the Geospatial Data Act (GDA) and align with associated directives and legislation.

**Goal 2:** Strengthen leadership and stakeholder understanding of the value of geospatial data, information, tools, and technology.

**Goal 3:** Implement collaborative partnerships to create geospatial cost efficiencies.

**Goal 4:** Empower the USDA geospatial community of practice (CoP) in support of the USDA's mission.

This Strategic Plan elaborates upon each of the goals with specific objectives that include providing guidance and education to other agencies, expanding use of geospatial data and access to it, promoting adoption of policies and standard software, securing funding and staff for geospatial initiatives, and otherwise developing partnerships and encouraging geospatial innovation and professional competency.

The Implementation Framework section offers a Process Overview of the planned activities for achieving each objective, along with target timelines and owners for each. These efforts must involve collaboration among multiple offices and agencies, including the USDA Geospatial Advisory Committee (GAC), USDA agencies, and appropriate Deputy and Associate Deputy CIO areas.

The Conclusion describes several examples of current, successful initiatives comprising geospatial imagery, training, software, and data sharing and explains how the initiatives align with geospatial goals and objectives.

# INTRODUCTION



**Dr. Ron Sequeira, USDA  
Geospatial Information Officer**

Geospatial information is information associated with a location or pertaining to spatial characteristics. In the USDA this information is collected, analyzed, and used to make informed business decisions tied to specific places and activities on the ground. It is estimated that geospatial services drive \$1.6 Trillion in revenue in the USA today. <sup>1</sup> Examples of how geospatial information is critical to USDA’s mission can be found in how agencies provide disaster response and recovery assistance to agricultural producers, help producers implement conservation practices, oversee timber production in USDA’s National Forests, ensure safe trade, enhance U.S. export opportunities, protect the security of our agricultural assets, strengthen risk analyses and monitor plant or animal disease outbreaks. It is also widely used to help children and their families find nutritious meals when school is out, typically in summer, but critically during the COVID-19 pandemic. Likewise, leveraging the geospatial information collected across the Department assists USDA customers in exercising good land stewardship, increase the accuracy of the information

needed for informed, agile decision-making in the face of disasters or emergencies, and improves customer access to USDA programs and services. A strong geospatial framework ensures safe agricultural import trade and strengthens U.S. agricultural export posture, an impact measured in the hundreds of billions of dollars.

The federal government has recognized the need to organize and coordinate the collection and management of geospatial data since at least 1990. In that year, the Office of Management and Budget (OMB) revised Circular A-16, which provides guidance regarding coordination of federal surveying, mapping, and related spatial data activities, to establish the Federal Geographic Data Committee (FGDC) and to promote the coordinated use, sharing, and dissemination of geospatial data nationwide. Past Congresses have recognized the challenge of coordinating and sharing geospatial data from the local, county, and state level to the national level and vice versa. Until enactment of the Geospatial Data Act (GDA) of 2018, however, the executive branch led nearly all efforts to better coordinate and share geospatial data within the federal government.

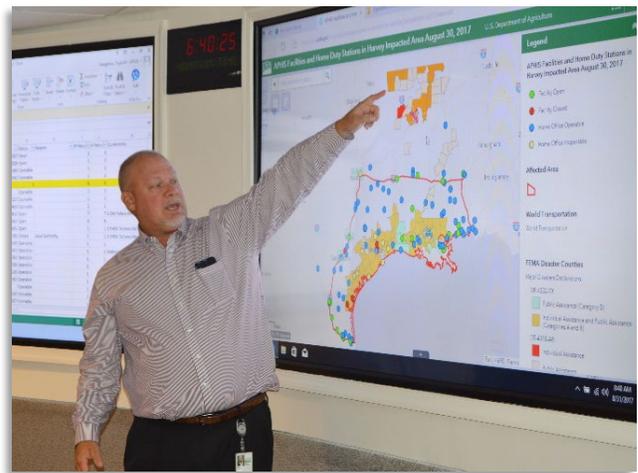
On October 5, 2018 the GDA was signed into law by the President (H.R. 302, P.L. 115-254.) The GDA recognizes the essential role that geospatial data and technology play across government. It formalizes Federal government structures related to geospatial data, provides policy to empower the use of geospatial data and technology, and emphasizes that continued development of the National Spatial Data Infrastructure (NSDI) is critical. It includes several congressional oversight components, such as a requirement for annual performance reporting through the FGDC, and the act requires the FGDC to make available to Congress, not less than every two years, a report summarizing agency performance.

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<sup>1</sup> Geospatial Services: A \$1.6 Trillion Growth Engine for the U.S. Economy, Boston Consulting Group, 2012

Other legislation, such as the Foundations for Evidence-Based Policy Making Act of 2018 and its Title II, OPEN Government Data Act of 2019, establish requirements for the federal government to modernize its data management practices, evidence-building functions, and statistical efficiency to inform policy decisions. Importantly, the USDA Office of the Chief Information Officer (OCIO) efforts to implement the GDA align with this legislation.

To harness the vast potential of geospatial capabilities in support of its mission and meet legislative requirements, the USDA must ensure it has a clear geospatial strategy in place. The USDA Geospatial Strategic Plan provides a roadmap that outlines critical steps to implement the requirements of the GDA, strengthen the value of geospatial information and technology across the enterprise, implement collaborative partnerships to create cost efficiencies, and empower the USDA geospatial community of practice to provide effective mission support.



The USDA has a vision to provide economic opportunity through innovation, helping rural America to thrive; to promote agriculture production that better nourishes Americans while also helping feed others throughout the world; and to preserve our Nation's natural resources through conservation, restored forests, improved watersheds, and healthy private working lands. By bringing geospatial data to the forefront, we can further this vision, strengthen USDA mission delivery, and become a federal leader in the use of geospatial information and technology.

# USDA GEOSPATIAL VISION AND MISSION

## Vision

Deploy geospatial information, tools, technology, and evidence-driven analytics to strengthen American agriculture, ensure global food security, and protect our natural environments.

## Mission

Advance the application of geospatial in the USDA and:

- 🌐 Improve consistency, streamlining, cost-savings, and increased Return on Investment (ROI) by implementing requirements of the GDA and associated directives and legislation.
- 🌐 Increase understanding of the value of geospatial data, including geospatial analytics, to inform decision making.
- 🌐 Leveraging geospatial assets to depict the connection between places, people, and activities and to illustrate the where, when, how, and why, for better decision making.
- 🌐 Encourage partnerships that improve access to data and drive down costs.
- 🌐 Sustain and empower the USDA geospatial community of practice to support the Department's mission.

## Guiding Principles

1. **Transparency** — Develop collaborative decision-making processes and openly share information about geospatial data and ongoing initiatives throughout USDA and its partners.
2. **Advocacy** — Promote the value of geospatial data, information, analytics, tools, and technology to all levels of USDA, partners and the public to support USDA mission.
3. **Participation** — Provide opportunities for USDA constituents and partners to shape and improve geospatial services.
4. **Collaboration** — Work cooperatively, in partnership, at all governmental levels domestically and internationally, on policy matters affecting a broad audience, including developing and sustaining partnerships.
5. **Accountability** — Ensure that geospatial services, systems, and programs (geospatial data collection, management, analysis, cartography, and visualization capabilities) are measured against USDA geospatial strategic goals.
6. **Customer Focus** — Serve the USDA, constituents, and programs by delivering geospatial products and services that address their diverse needs.
7. **Professionalism** — Build and maintain a highly skilled and diverse geospatial workforce.
8. **Results Orientation** — Make outcome-based management decisions to ensure resources are applied where they can have the most impact.

9. **Adaptability** — Ensure flexibility to respond dynamically to customer needs and explore creative solutions.
10. **Innovation** — Introduce new ideas, approaches, and methods to advance geospatial information, tools, and technology in the USDA.
11. **Inclusiveness** — Take advantage of diversity in all its forms. By doing so, foster the inclusion of a diversity of approaches so that each strategy adds value to our geospatial posture.



# GOALS AND OBJECTIVES

## Goal 1: Implement the requirements of the Geospatial Data Act (GDA) and align with associated directives and legislation.

**Anticipated Outcome:** USDA Geospatial Policy is aligned with the GDA, the Federal Data Strategy (FDS), and the OMB Circular A-16. USDA is compliant with the requirements of the GDA, and as a result, USDA's geospatial capabilities are enhanced.

### Objective 1.1: Provide USDA agencies with policy and guidance to implement GDA requirements.

- Action 1:** Identify GDA required activities, to include standards, reporting, and audit requirements, in addition to the necessary resources needed to accomplish them.
- Action 2:** Develop policy to fulfill Covered Agency<sup>2</sup> responsibilities for effective geospatial data collection, production, governance and stewardship.
- Action 3:** Develop policy for data sharing, including the handling of secure and sensitive geospatial data and open/publicly available geospatial data using appropriate cybersecurity methods.
- Action 4:** Maintain authoritative listing of all USDA-managed, open geospatial data.
- Action 5:** Update policies and practices to support the Federal Geographic Data Committee (FGDC) with financial and staff resources.<sup>3</sup>

### Objective 1.2: Develop governance structure/processes to incorporate best practices and align with GDA and related statutes and policies.

- Action 1:** Establish new or, as appropriate, align with existing Department-wide groups to develop collaborative governance for geospatial portfolio management, including enterprise architecture, requirements gathering, and acquisition needs.
- Action 2:** Establish Department-wide geospatial data management team for policy and governance.
- Action 3:** Establish geospatial governance groups within agencies and mission areas for intra- and cross-agency collaboration.

### Objective 1.3: Promote and integrate geospatial data from all appropriate sources.

- Action 1:** Define priorities, roles, and responsibilities for effective enterprise collaboration and coordination efforts.
- Action 2:** Promote mutually beneficial partnerships within the USDA and externally (government, academia, industry, professional organizations, etc.).

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<sup>2</sup> USDA is the defined covered agency.

<sup>3</sup> This action is dependent on final OMB A-16 and FGDC technical guidance.

**Action 3:** Develop processes to promote and exchange knowledge about geospatial data and tools that are available within the USDA, as well as externally and through the National Spatial Data Infrastructure/FGDC Geospatial Platform.

**Action 4:** Develop policy, tools, and processes to ensure all appropriate sources of existing geospatial data are fully searched before expending resources.

**Objective 1.4: Ensure geospatial data, maps, and information products are included in Agency Record Schedules.**

**Action 1:** Collaborate with USDA Records Management Officials to ensure guidance is available for geospatial data, maps, and informational products and included in Agency Records Retention Schedules.



**Action 2:** Develop processes to align agency records management activities with GDA reporting requirements.

**Objective 1.5: Determine minimum geospatial standards for data lifecycle management, and ensure that appropriate geospatial data standards, including standards for metadata, are implemented.**

**Action 1:** Develop or refine existing processes to incorporate and document standards used in the development of geospatial products, maps, and information.

**Action 2:** Set minimum standards for managing and storing geospatial datasets that align with federally mandated standards.

**Action 3:** Develop or refine existing processes to ensure all relevant open geospatial data is made available through the [FGDC Geospatial Platform](#).

**Action 4:** Ensure all open geospatial data metadata is made available through the FGDC Geospatial Platform and Data.gov.

## Goal 2: Strengthen leadership and stakeholder understanding of the value of geospatial data, information, tools, and technology.

**Anticipated Outcome:** Leadership and stakeholders understand and advocate for the increased use of geospatial data, information, tools, and technology to support mission needs and decision making. Geospatial data, information, tools, and technology are adequately funded, and agencies are sufficiently staffed to meet GDA requirements and mission needs.

### Objective 2.1: Educate leadership and stakeholders about the value of geospatial data, tools, information, and technology.

**Action 1:** Establish a Department-level champion for geospatial data, information, tools, and technology and cultivate agency level championship.

**Action 2:** Identify senior leadership priorities that can be addressed with geospatial capabilities and identify and implement geospatial solutions to meet those needs.

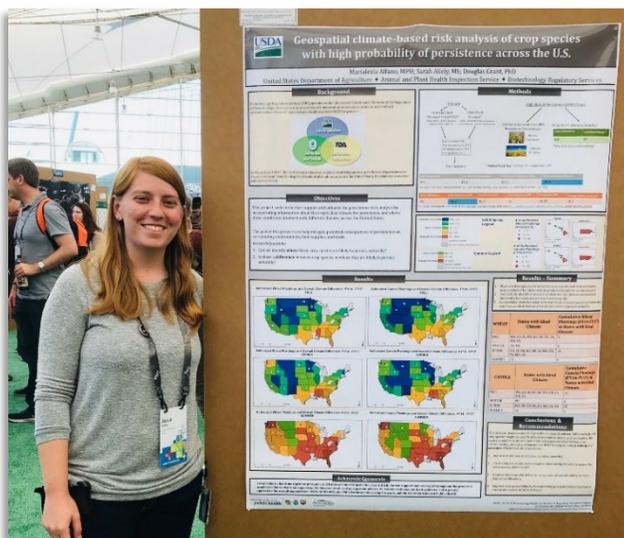
**Action 3:** Create communication products and messages that improve the understanding and value of geospatial data, information, tools, and technology.

**Action 4:** Hold periodic events to engage geospatial management, practitioners, program management and staff, and other stakeholders, to promote the value of geospatial data, information, tools, and technology.

### Objective 2.2: Expand the adoption and use of geospatial data, information, tools, and technology.

**Action 1:** Identify, categorize, and publicize information about geospatial products and services for integrated applications, visualization, and reporting that are available across the Department.

**Action 2:** Define barriers and prioritize and build processes to facilitate governmental and non-governmental collaboration.



### Objective 2.3: Adequately fund and staff geospatial initiatives including data maintenance, documentation, and development.

**Action 1:** Identify mandated geospatial initiatives and associated funding/staffing requirements.

**Action 2:** Identify and prioritize collaborative initiatives that can be jointly funded by multiple agencies and develop a funding strategy.

## **Goal 3: Implement collaborative partnerships to create geospatial cost efficiencies.**

**Anticipated Outcome:** USDA land and location-based mission requirements are supported through a strategic focus on geospatial data, information, tools, and technology. Implement processes that leverages government and industry best practices. Collaboration is increased within USDA and with the inter-agency geospatial community, while access to geospatial data, information, tools, and technology is expanded and made more cost efficient.

### **Objective 3.1: Increase the use of USDA-wide and inter-agency geospatial contracts and agreements to create cost savings and efficiencies, including inter-departmental initiatives, such as NASA/USDA-umbrella and annex agreements.**

**Action 1:** Establish a process to document use cases, identify requirements, and build standard language for potential inter-agency agreements, including Enterprise Level Agreements (ELA) and Blanket Purchase Agreements (BPA).

**Action 2:** Inventory available acquisition vehicles, including those from other federal partners.

**Action 3:** Prioritize potential vehicles based on benefits and available funding. Implement highest priority opportunities as resources permit.

**Action 4:** Monitor portfolio and leverage opportunities for further ELAs and BPAs.

### **Objective 3.2: Promote department-wide adoption of minimum baseline GIS software packages.**

**Action 1:** Compile a core list of roles-based geospatial software covered by existing ELAs and identify opportunities for new ELAs.

**Action 2:** Maintain updated core software and identify opportunities for integrating new technologies.

### **Objective 3.3: Leverage agencies' respective strengths.**

**Action 1:** Sponsor ongoing Geospatial Advisory Council (GAC) dialogue and initiatives around agency geospatial products and services, particularly focusing on those areas of individual strength.

**Action 2:** Identify opportunities to partner or leverage commonly needed services.

**Action 3:** Prioritize opportunities and develop models for shared service delivery and cost sharing. Implement highest priority opportunities as resources permit.

### **Objective 3.4: Expand Department-wide access to geospatial datasets that can be managed as a shared service.**

**Action 1:** Establish a prioritized list of datasets that are candidates for shared access.

**Action 2:** Identify best candidates for shared service delivery.

**Action 3:** Develop a roadmap to achieve shared access to priority geospatial datasets, including protocols for integration, management, governance requirements, costs and value return, and funding and technical implementation plan. Implement the roadmap as resources permit.

### **Objective 3.5: Capitalize on opportunities for shared infrastructure or IT services.**

**Action 1:** Establish a process to document use cases and identify requirements for geospatial infrastructure.

**Action 2:** Inventory available platforms, including the FGDC Geospatial Platform and those from other federal partners, and ensure that future agency geospatial information technology (IT) investments align with shared service objectives across the department.

**Action 3:** Prioritize opportunities and develop models for service delivery and cost sharing. Implement the highest priority opportunities as resources permit.

### **Objective 3.6: Encourage geospatial innovation Department-wide.**

**Action 1:** Sponsor ongoing GAC initiatives around agency innovations involving geospatial data, information, tools, or technology.

**Action 2:** Identify opportunities to further leverage geospatial innovation from both within the USDA and externally.

**Action 3:** Prioritize opportunities and develop models for service delivery and cost sharing. Implement targeted innovations and work to maintain long-term practices.

## **Goal 4: Empower the USDA geospatial community of practice in support of the USDA's mission.**

**Anticipated Outcome:** A well-established, collaborative community of geospatial practitioners exists, in which individuals feel valued and integrated into the USDA mission. Geospatial practitioners are competent and trained in the use of the tools and technologies needed to excel in their duties. Stakeholders value and rely upon quality geospatial services, support, and increased capacity.

### **Objective 4.1: Adequately fund USDA geospatial, community-based initiatives.**

**Action 1:** Secure funds to support base costs associated with the hosting and attendance of USDA-wide geospatial initiatives, including, but not limited to, the annual USDA Geospatial Summit, USDA-wide GIS Day activities, and geospatial community of practice webinars.



## **Objective 4.2: Strengthen the professional competency of geospatial practitioners across the USDA.**

**Action 1:** Define USDA-wide geospatial competency standards as appropriate for the geospatial sciences, leveraging existing agency standards and creating performance measures based on those standards.

**Action 2:** Identify key professional development requirements to meet competency standards and establish the funding necessary to meet those requirements.

**Action 3:** Increase competencies of geospatial practitioners by sponsoring attendance and participation in geospatial training, workshops, and/or conferences.

**Action 4:** Review and update geospatial classifications for future recruitment.

## **Objective 4.3: Create opportunities for geospatial staff to participate and contribute to mission activities and initiatives.**

**Action 1:** Provide geospatial practitioners with opportunities to better understand and be engaged in USDA lines of business. Examples include, but are not limited to, shadow assignments, mentorships, details, and assignment to committees and governance boards.

**Action 2:** Leverage work done by USDA agencies, with mature geospatial programs and practices in place, to help less mature sister agencies increase spatial and location-based capabilities and staff competencies.

# IMPLEMENTATION FRAMEWORK

## Vision

Deploy geospatial information, tools, technology, and evidence-driven analytics to strengthen American agriculture, ensure global food security, and protect our natural environments.



**Implement requirements** of the Geospatial Data Act and associated directives and legislation.



**Increase understanding** of the value of geospatial data, including geospatial analytics, to inform decision making.



**Support** the unique and complex nature of geospatial data to emphasize and illustrate connection between places, people, and activities.



**Encourage partnerships** that improve access to data and drive down costs.



**Sustain and empower** the USDA geospatial community of practice to support the Department's mission.

## Guiding Principles

Transparency - Participation - Accountability - Professionalism - Innovation  
Advocacy - Collaboration - Customer Focus - Results Orientation - Adaptability - Inclusiveness

# Implementation Approach

The USDA Geospatial Strategic Plan lays out the strategy for advancing geospatial information and related technology and activities, it also requires formalizing a framework to guide strategic implementation. Key elements in this section include target timelines and resources responsible for enacting the goals and objectives identified in the plan.

Following the adoption of the Strategic Plan, a detailed Implementation Plan with specific milestones, timelines, responsible parties, required resources, and performance metrics will be launched. Because geospatial information, data, tools, and technology cross program and IT areas, these strategic goals will be intrinsically collaborative. The implementation plan will be carried out in collaboration with the USDA GAC USDA agencies, Deputy and Associate Deputy CIO areas, including the Chief Data Officer (CDO) and Associate Chief Data Officers (ACDOs) and critically, with key representatives of the stakeholder community.

## Goal 1: Implement the requirements of the Geospatial Data Act (GDA) and align with associated directives and legislation.

### Objective 1.1: Provide USDA agencies with policy and guidance to implement GDA requirements.

#### Process Overview

##### Identify required activities and resources.

- Map GDA requirements that require written policy, agency specific steps, and like actions.
- Identify resources, including funds and personnel.

**Timeframe:** Q2 FY21

**Owner(s):** Enterprise Geospatial Management Office (EGMO), Geospatial Information Officer (GIO)

**Sub-owner(s):** GAC, OCIO

##### Develop policy for data collection, production, and stewardship.

- Inventory agencies for issues and impacts and prioritize needs. Include metadata.
- Create a **Department Manual (DM)** to provide a framework surrounding key policy items.  
NOTE: The DM must be published by Oct. 2021, according to Office of Inspector General GDA Audit 50501-0023-12.

**Timeframe:** Q2-Q4 FY21 for framework DM. Ongoing for the **National Geospatial Data Management Team (NGDMT)** (See [Objective 1.2](#)).

**Owner(s):** EGMO, GIO, NGDMT

**Sub-owner(s):** GAC

##### Develop policy for data sharing of secure data or Personally Identifiable Information (PII).

- Include needs surrounding sharing and using secure data in the inventory mentioned above.
- Collect policy that currently exists and add it to the DM.

**Timeframe:** Q2-Q4 FY21

**Owner(s):** EGMO, GIO, NGDMT

**Sub-owner(s):** GAC, Information Security Center (ISC), Office of General Council (OGC)

**Develop policy for FGDC financial and staff resources.**

- Receive an Inter-Agency Agreement (IAA) from FGDC and work with eGOV-Information Resource Management Center (IRMC) to establish a funding process.

NOTE: Agency representation is dependent on FGDC structure.

**Timeframe:** Q1-Q3 FY21;

**Owner(s):** EGMO, GIO

**Sub-owner(s):** CIO Council;

Q2 FY21 (Both timeframes are dependent on FGDC.)

Agency managers

Agency Managers

**Objective 1.2: Develop Governance to align with GDA and best practices.**

**Process Overview**

**Establish and align with governance, oversight, and coordination groups.**

- Define governance needs, purpose, and goals.
- Define where groups exist and where others are needed (i.e., needs are not being met).

**Timeframe:** Q1-Q3 FY21

**Owner(s):** EGMO, GIO, GAC, GAC Sub-committee

**Sub-owner(s):** Collaboration with CDO and OCIO

**Establish a USDA National Geospatial Data Management Team (NGDMT).**

- Define purpose, goals, and structure of the geospatial data management team.
- Request agency representation.
- Integrate with groups established by the USDA Chief Data Office (CDO).

**Timeframe:** Q1 FY21

**Owner(s):** EGMO, GIO, GAC to establish a self-sustaining team. NGDMT

**Sub-owner(s):** Team Lead or Rotating Team Lead

**Establish governance groups at the agency level.**

- Set up a GAC sub-committee to establish a framework, with roles and responsibilities, and recommendations for agencies, in coordination with existing data governance framework.
- Establish DM policy based on framework recommendations.

**Timeframe:** DM Q2-Q4 FY21

**Owner(s):** EGMO, GIO, GAC sub-committee provide framework. Agencies ultimately establish and own.

**Sub-owner(s):** GAC to assist in agency implementation.

**Objective 1.3: Promote and integrate geodata from all sources.**

**Process Overview**

**Define collaboration priorities, roles, and responsibilities.**

- Establish framework for inter/intra agency collaboration

**Timeframe:** Q2 FY21-Ongoing

**Owner(s):** EGMO, GIO, GAC,  
Agencies

**Sub-owner(s):**

**Promote Partnerships within the USDA and externally.**

- Use GAC membership as a forum for updates and information sharing.

**Timeframe:** Q2 FY21-Ongoing

**Owner(s):** EGMO, GIO, GAC,  
Agencies

**Sub-owner(s):**

**Develop processes to promote geo-data and tools available in the USDA, National Geospatial Data Assets (NGDAs), and GeoPlatform.**

- Use GAC membership for intra-USDA information sharing.
- Recruit FGDC and Department of Interior (DOI) guest speakers to GAC for GeoPlatform support.

**Timeframe:** Begin Q4 FY21, then  
ongoing

**Owner(s):** EGMO, GIO, GAC,  
Agencies

**Sub-owner(s):**

**Establish policy for searching all sources of data before expending funds.**

- Establish DM policy to support.
- Publicize Acquisition Approval Request (AAR) policy stated in the Department Regulation 3464-001 for acquisition of geospatial data to the GAC and program areas.

**Timeframe:** Q2 FY21 for DR update

**Owner(s):** EGMO, GIO, OCIO-AE (for  
AAR process)

**Sub-owner(s):** GAC (within  
agencies)

**Objective 1.4: Include geodata in records management schedules.**

**Process Overview**

**Establish Records Management collaboration.**

- Establish formal liaison effort for geospatial data and geospatial data requirements.

**Timeframe:** Q2 FY21 to establish,  
then ongoing

**Owner(s):** EGMO, GIO, Dept. and  
Agency Records Management,  
NGDMT

**Sub-owner(s):** Agency programs

**Develop processes and policy to align records management with GDA.**

- Establish DM policy for geospatial data and records management.

**Timeframe:** Q2-Q4 FY21, then  
ongoing by Records Management

**Owner(s):** EGMO, GIO, NGDMT

**Sub-owner(s):** Agency programs

**Objective 1.5: Establish minimum standards for data lifecycle management.**

**Process Overview**

**Develop processes to incorporate and document standards used in development of geospatial products and information.**

- Establish DM policy and processes for geospatial product and information standards development.

- Incorporate updates by the NGDMT.

**Timeframe:** Q2-Q4 FY21 for framework policy, then ongoing efforts by NGDMT

**Owner(s):** EGMO, GIO, NGDMT

**Sub-owner(s):** Agency programs

**Create Minimum Standards for managing and storing geodata.**

- Identify agency best practices and create a framework of geospatial data management and storage guidelines.

**Timeframe:** Q2-Q4 FY21

**Owner(s):** GAC Sub-committee, Associate Chief Information Officers (ACIO)

**Sub-owner(s):**

**Develop processes to make relevant geo-data available through GeoPlatform.**

- Establish DM policy to identify, review, assess how geospatial data is made available through the GeoPlatform. Once policy is established, this activity remains an ongoing task.

**Timeframe:** Q2-Q4 FY21

**Owner(s):** EGMO, GIO, GAC Sub-committee, ACIO

**Sub-owner(s):** Agency Programs

**Develop processes to ensure all open geodata metadata is on data.gov and the geospatial platform.**

- Establish DM policy for publishing geospatial data metadata. This remains an ongoing agency effort.

**Timeframe:** DM: Q2-Q4 FY21

**Owner(s):** DM – EGMO, GIO, Input and follow-on by NGDMT

**Sub-owner(s):** CDO, Agencies



## Goal 2: Strengthen leadership and stakeholder understanding.

### Objective 2.1: Educate leadership and stakeholders.

#### Process Overview

##### Establish a Department level champion and cultivate agency level championship.

- Create a GAC sub-committee of interested and available participants.
- Provide department and agency level presentations.
- Find an interested department level champion.

**Timeframe:** Q1 FY21-Q2 FY21

**Owner(s):** CIO

**Sub-owner(s):** GAC sub-committee

##### Identify senior leadership priority needs; then, identify and implement geospatial solutions.

- Request feedback from management and create a prioritized list.
- Implement scheduled solutions.

**Timeframe:** Q2 FY21-Q3 FY21

**Owner(s):** CIO

**Sub-owner(s):** GAC sub-committee

##### Create communication products and messages that improve understanding.

- Direct the GAC to work with Agency representatives to provide quarterly updates on geospatial efforts.

**Timeframe:** Q2 FY21-Ongoing

**Owner(s):** GAC

**Sub-owner(s):** GAC sub-committee and Agency Representatives

##### Hold periodic events to engage the geospatial community.

- Spotlight geospatial projects from across USDA.

**Timeframe:** Q1 FY21-Ongoing

**Owner(s):** EGMO, GIO, GAC

**Sub-owner(s):** Agency Representatives

### Objective 2.2: Expand adoption and use of geospatial products and services.

#### Process Overview

##### Identify, categorize, and publicize information about geospatial products and services.

- Provide details on the internal USDA webpage and/or agency internal pages.
- Post on the FGDC Geospatial Platform.

**Timeframe:** Q1 FY22-Ongoing

**Owner(s):** EGMO, GIO, GAC

**Sub-owner(s):** Agency Representatives

##### Define barriers and prioritize and build processes to facilitate collaboration.

- Identify issues that prevent collaboration.
- Setup a USDA-wide collaborative effort on geospatial projects.

**Timeframe:** Q2 FY22-Ongoing

**Owner(s):** GAC sub-committees

**Sub-owner(s):**

## Objective 2.3: Adequately fund and staff geospatial initiatives.

### Process Overview

#### Identify mandated geospatial initiatives and associated funding.

- Detail requirements for the GDA of 2018, including funding and personnel.

**Timeframe:** Q1-Q2 FY21      **Owner(s):** CIO, ACIO, EGMO, GIO,      **Sub-owner(s):**  
GAC

#### Identify and prioritize collaborative initiatives that can be jointly funded and develop strategy.

- Create a prioritized initiatives list.
- Consult other government agencies on how they fund base costs.
- Develop a funding strategy.

**Timeframe:** Q3-Q4 FY21      **Owner(s):** CIO, ACIO, EGMO, GIO,      **Sub-owner(s):**  
GAC

## Goal 3: Implement collaborative partnerships to create geospatial cost efficiencies.

### Objective 3.1: Increase the use of USDA-wide and inter-agency geospatial contracts and agreements.

#### Process Overview

#### Establish a process to document use cases, identify requirements, and build standard language (ELAs and BPAs).

- Charter a standing working group within the GAC.
- Identify agency high priority geospatial use cases and requirements.

**Timeframe:** Q2-Q4 FY21      **Owner(s):** GAC, GAC sub-committee      **Sub-owner(s):** EGMO, GIO, Agency Geospatial Staffs

#### Inventory available acquisition vehicles.

- Create inventory of available geospatial acquisition vehicles.

**Timeframe:** Q2-Q4 FY21      **Owner(s):** GAC sub-committee in partnership with Department procurement personnel      **Sub-owner(s):** GAC, Agency Geospatial Leads, Procurement Staffs, Category Management, CIO/ACIO

#### Prioritize potential acquisition mechanisms; Implement highest priority opportunities.

- Map use cases and requirements to vehicles and prioritize implementation of those that will have the greatest return on investment (considering potential utility and level of effort).
- Document recommendations and present them to the full GAC.
- Take appropriate governance action to implement recommended actions.

**Timeframe:** Q3-Q4 FY21

**Owner(s):** GAC, GAC sub-committee

**Sub-owner(s):** Agency Geospatial Staffs, Procurement Staffs, CIO/ACIO

**Monitor portfolio and leverage opportunities (ELAs and BPAs).**

- Reconvene annually to assess how well existing agreements are meeting requirements, any updates to use cases and requirements, and any changes to available vehicles.
- Update recommendations and present them to the full GAC.

**Timeframe:** Ongoing

**Owner(s):** GAC, GAC sub-committee

**Sub-owner(s):** Agency Geospatial Staffs, Procurement Staffs, CIO/ACIO

**Objective 3.2: Encourage Department-wide adoption of minimum baseline GIS software packages.**

**Process Overview**

**Compile a core list of roles-based geospatial software covered by ELAs.**

- Charter a standing working group.
- Develop a list of common geospatial roles within the Department (GIS Specialist, Remote Sensing Specialist, Cartographer, and others).
- Compile a list of geospatial software covered by ELAs.
- Assess software ELAs and maps them to roles.

**Implement baseline recommendations.**

- Document recommendations and present them to the full GAC.
- Take appropriate governance action to implement recommended baselines.
- Move forward on approved actions, developing applicable shared service and cost sharing models to support.

**Timeframe:** Q2-Q4 FY21

**Owner(s):** GAC, GAC sub-committee

**Sub-owner(s):** EGMO, GIO, Agency Geospatial Staffs, Category Management Team, CDO, CIO/ACIO

**Maintain updated core software and identify opportunities for integrating.**

- Reconvene annually to assess how well existing ELAs are meeting requirements, any updates to use cases and requirements, and any changes to available ELAs.
- Update baseline recommendations and present them to the full GAC.

**Timeframe:** Q4 FY22 and annually thereafter

**Owner(s):** GAC, GAC sub-committee

**Sub-owner(s):** EGMO, GIO, Agency Geospatial Staffs, Category Management Team, CDO, CIO/ACIO

### Objective 3.3: Leverage agencies' respective strengths.

#### Process Overview

##### Sponsor ongoing Geospatial Advisory Council (GAC) dialogue and initiatives.

- Establish annual calendar of opportunities for dialogue and initiatives.
- Assign GAC members or working groups as needed to plan and sponsor.

**Timeframe:** Q1-Q4 FY21 calendar developed. Dialogues and initiatives ongoing as identified in Plan.

**Owner(s):** EGMO, GIO, GAC

**Sub-owner(s):** GAC sub-committees as needed; Agency Geospatial staffs

##### Identify opportunities to partner or leverage services needed.

- Charter a standing sub-committee.
- Identify agencies' geospatial needs and strengths.

**Timeframe:** Q1 FY21-Ongoing

**Owner(s):** GAC, GAC Working Group

**Sub-owner(s):** EGMO, GIO, Agency Geospatial Staffs

##### Prioritize opportunities and develop models for shared service delivery and cost sharing; Implement highest priority opportunities.

- Identify opportunities for partnership and priorities based on return on investment (considering potential utility and level of effort).
- Document recommendations and present them to the full GAC.
- Take appropriate governance action to implement recommendations.
- Move forward on approved actions, developing applicable shared service and cost sharing models to support.
- Reconvene annually to assess how well shared service models are meeting requirements, any emerging requirements or updates to existing requirements, and any changes to Agency strengths.
- Update recommendations and present them to the full GAC.



**Timeframe:** Q3-Q4 FY21, Ongoing

**Owner(s):** GAC, GAC sub-committees as needed

**Sub-owner(s):** Agency Geospatial Staffs, Procurement Staffs, CIO/ACIO

### Objective 3.4: Expand Department-wide access to geospatial datasets that can be managed as a shared service.

#### Process Overview

##### Establish a prioritized list of datasets for shared access.

- Canvass agencies to identify and document shared data needs.

**Timeframe:** Q2 FY21

**Owner(s):** GAC, NGDMT

**Sub-owner(s):** EGMO, GIO,  
Agency Geospatial Staffs

**Identify best candidates for shared service.**

- Identify high potential sharing opportunities (considering potential utility and level of effort).

**Timeframe:** Q2-Q3 FY21

**Owner(s):** NGDMT

**Sub-owner(s):** EGMO, GIO,  
Agency Geospatial Staffs,  
CIO/ACIO

**Develop a road map to achieve shared access to priority geospatial datasets.**

- Develop a proposed roadmap for implementing shared access.
- Present the roadmap recommendations to the full GAC

**Timeframe:** Q3-Q4 FY21

**Owner(s):** NGDMT, GAC

**Sub-owner(s):** EGMO, GIO,  
Agency Geospatial Staffs, Grants  
and Agreements Staff, CIO/ACIO

**Implement shared access in accordance with roadmap.**

- Take appropriate governance action to implement recommended actions.
- Move forward on approved actions, developing applicable shared service and cost sharing models to support.

**Timeframe:** Q1 FY22

**Owner(s):** GAC, NGDMT

**Sub-owner(s):** EGMO, GIO,  
Agency Geospatial Staffs, Grants  
and Agreements Staff, CIO/ACIO

**Objective 3.5: Capitalize on opportunities for shared infrastructure.**

**Process Overview**

**Establish process to document use cases and identify requirements.**

- Charter a standing working group.
- Identify agencies' high priority geospatial use cases and requirements.

**Timeframe:** Q2-Q3 FY21

**Owner(s):** GAC, GAC Working  
Group

**Sub-owner(s):** EGMO, GIO,  
Agency Geospatial Staffs, CDO,  
CIO/ACIO

**Inventory available platforms.**

- Create an inventory of available and authorized geospatial platforms, including the FGDC Geospatial Platform.

**Timeframe:** Q4 FY21

**Owner(s):** GAC sub-committee

**Sub-owner(s):** Agency  
Geospatial Staffs, CDO, CIO/ACIO

**Prioritize opportunities and develop models for service delivery and cost sharing; Implement highest priority opportunities.**

- Map use cases and requirements to platforms and prioritize implementation of those with the greatest return on investment (considering potential utility and level of effort).
- Document recommendations and present them to the full GAC.
- Take appropriate governance action to implement recommended actions.
- Move forward on approved actions, developing applicable shared service and cost sharing models to support.

**Timeframe:** Q1-Q4 FY22

**Owner(s):** GAC, GAC sub-committee

**Sub-owner(s):** EGMO, GIO, Agency Geospatial Staffs, Procurement Staff, Grants and Agreements Staff, CDO, CIO/ACIO

**Objective 3.6: Encourage geospatial innovation Department wide.**

**Process Overview**

**Sponsor ongoing GAC initiatives around Agency innovations.**

- Establish annual calendar of opportunities for dialogue and initiatives.
- Plan and sponsor initiatives.

**Timeframe:** Q2-Q3 FY21 and annually thereafter

**Owner(s):** GAC

**Sub-owner(s):** GAC Working groups, agency geospatial staffs, industry, academia, other Departments, CDO, CIO/ACIO

**Identify opportunities to further leverage geospatial innovation.**

- Charter a standing working group.
- Canvass agencies, other government, industry, and academia for geospatial innovations.
- Considers innovations and potential application to USDA mission requirements.
- Document recommended innovations to pilot and returns recommendations to the full GAC.
- Take appropriate governance action to initiate pilots.

**Timeframe:** Q1-Q2 FY22

**Owner(s):** GAC, GAC sub-committee

**Sub-owner(s):** Agency geospatial staffs, USDA mission SME's, CDO, CIO/ACIO

**Prioritize opportunities and develop models for service delivery and cost sharing.**

- Document recommended innovations to pilot (considering potential utility and cost) and return recommendations to the full GAC.
- Take appropriate governance action to initiate pilots.
- Move forward on approved pilots, documenting results and, where appropriate, developing proposed shared service and cost sharing models in support.
- Take appropriate governance action to implement shared service and cost sharing models where warranted.
- Working group reconvenes regularly to consider potential new innovations.



**Timeframe:** Cycle starts Q2 FY22 and annually thereafter; Projects to implement will establish their own timeline.

**Owner(s):** GAC, GAC sub-committee

**Sub-owner(s):** Agency geospatial staffs, USDA mission SMEs, CDO, CIO/ACIO

**Goal 4: Empower the USDA Geospatial community in support of their mission.**

**Objective 4.1: Support fund USDA geospatial community-based initiatives.**

**Process Overview**

**Secure funds to support base costs associated with the hosting and attendance of USDA-wide geospatial initiatives.**

- Consult other government agencies on how they fund base costs.
- Establish a process for acquiring funds.

**Timeframe:** Q3-Q4 FY21

**Owner(s):** EGMO, GIO, GAC

**Sub-owner(s):** GAC sub-committee

**Objective 4.2: Strengthen the professional competency of geospatial practitioners.**

**Process Overview**

**Define USDA-wide geospatial competency standards as appropriate.**

- Review what currently exists in the USDA and geospatial industry standards.
- Develop standards based on reviews.

**Timeframe:** Q4 FY21

**Owner(s):** EGMO, GIO, GAC

**Sub-owner(s):** Agency Leads

**Identify key professional development requirements to meet competency standards and funding to support those requirements.**

- Review current state and available opportunities
- Define requirements and necessary funding based on above

- Consult funding options achieved in Obj. 1, identify additional or new mechanisms to acquire funding.

**Timeframe:** Q2 FY22

**Owner(s):** EGMO, GIO, GAC

**Sub-owner(s):** Agency Leads

**Increase competencies of geospatial practitioners by sponsoring attendance and participation.**

- Utilize sponsorship and funding connected to Objective [4.1](#).
- Develop a strategy to increase participation (may include scholarships and other similar initiatives).
- Report on success stories.

**Timeframe:** Q4 FY22 and ongoing

**Owner(s):** EGMO, GIO, GAC, Agencies

**Sub-owner(s):** Agency Leads and Committees

**Review and update geospatial classifications.**

- Review recent efforts to update classifications.
- Assemble a working group for the task.
- Develop updated classifications.
- Usher the new classifications through the approval process.

**Timeframe:** Q2 FY23

**Owner(s):** EGMO, GIO, GAC, HR

**Sub-owner(s):** Agency Leads and Committees, GAC Working Group

**Objective 4.3: Create opportunities for geospatial staff to participate and contribute to the mission.**

**Process Overview**

**Provide geospatial practitioners with opportunities to better understand and be engaged in USDA lines of business.**

- Establish a working group to strategize.
- Define communications and outreach opportunities.
- Identify mechanisms for tracking and maintenance.

**Timeframe:** Q1 FY22-Ongoing

**Owner(s):** Agency Leads and Committees; Geospatial staff Supervisors

**Sub-owner(s):** EGMO, GIO, GAC, Geospatial practitioners

**Leverage work done by lead USDA agencies to assist in emerging agency programs and increase diversity.**

- Identify existing geospatial working groups, committees, and others.
- Invite emerging agency programs to participate in working groups and committees.
- Develop plans to encourage women and minorities to leverage skills and capabilities in geospatial roles.
- Encourage cross-agency development through shadow assignments and workforce development activities

**Timeframe:** Q1 FY21-Ongoing

**Owner(s):** EGMO, GIO, GAC, Agency Leads

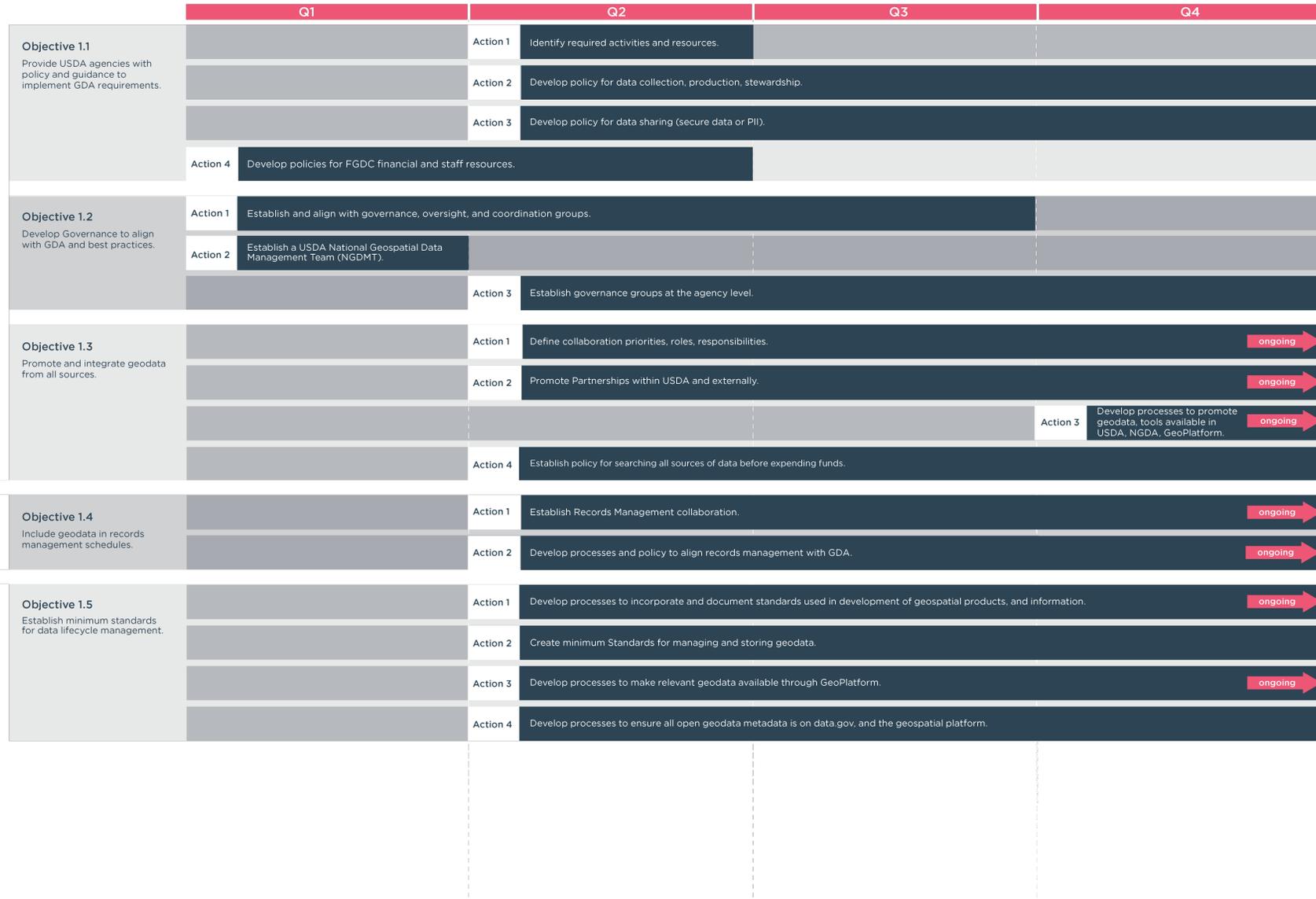
**Sub-owner(s):** Mission Areas



# Visual Timeline

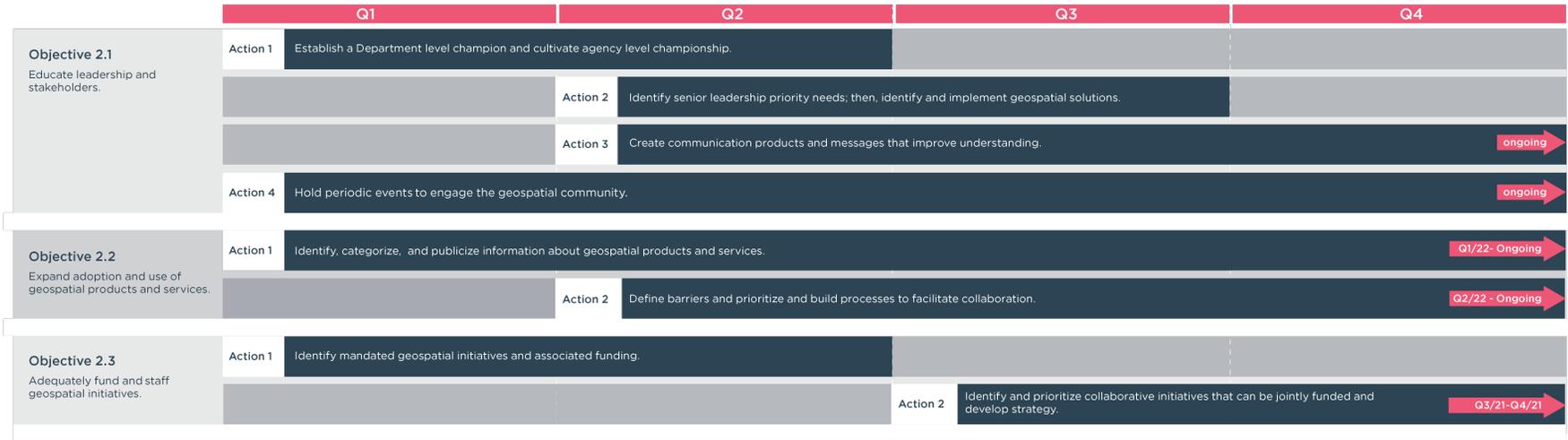
## Geospatial Strategic Plan Implementation Timeline FY 21-22

Goal 1: Implement the requirements of the Geospatial Data Act (GDA) and align with associated directives and legislation.



## Geospatial Strategic Plan Implementation Timeline FY 21-22

Goal 2: Strengthen leadership and stakeholder understanding.



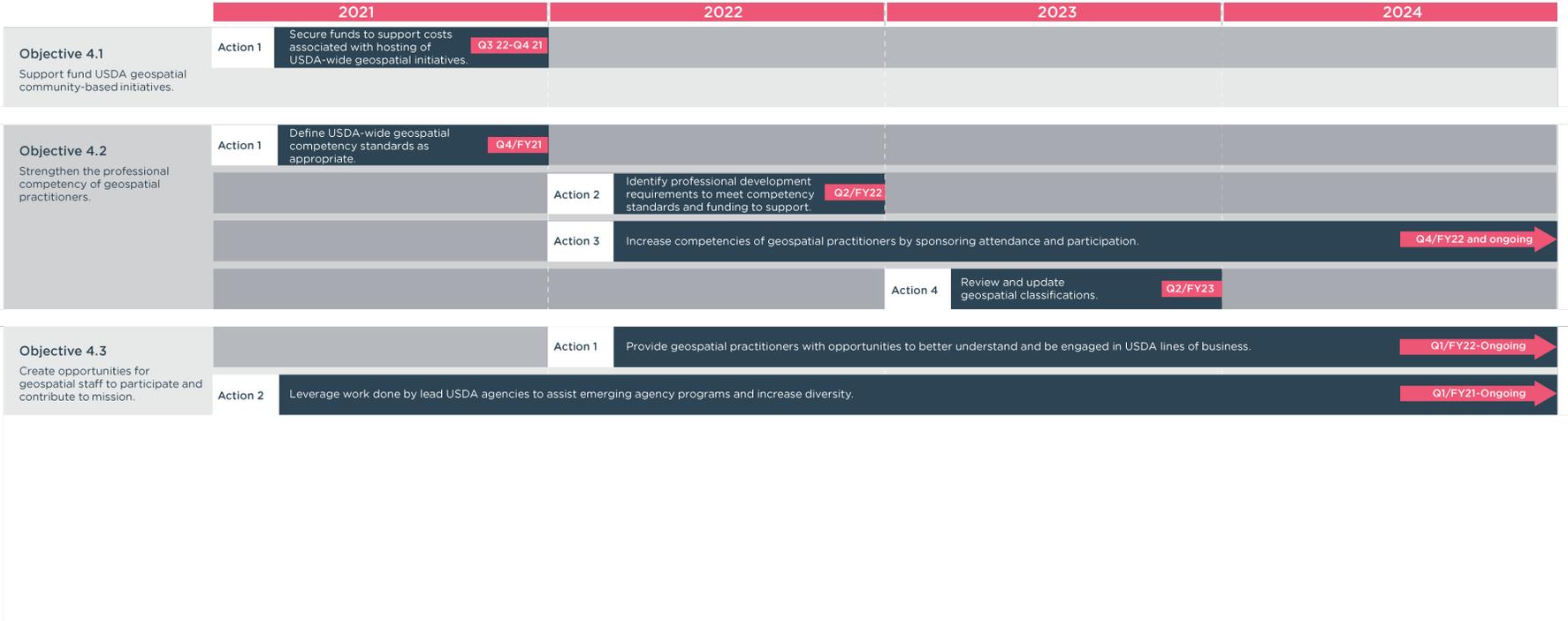
# Geospatial Strategic Plan Implementation Timeline FY 21-22

Goal 3: Implement collaborative partnerships to create geospatial cost efficiencies.

	Q1	Q2	Q3	Q4	
<b>Objective 3.1</b> Increase the use of USDA-wide and inter-agency geospatial contracts and agreements.		<b>Action 1</b> Establish a process to document use cases, identify requirements, and build standard language for potential Enterprise Level Agreements (ELA) and Blanket Purchase Agreements (BPAs).			
		<b>Action 2</b> Inventory available acquisition vehicles.			
			<b>Action 3</b> Prioritize potential acquisition mechanisms and implement highest priority opportunities.		
	<b>Action 4</b> Monitor portfolio and leverage opportunities (ELAs and BPAs).			ongoing	
<b>Objective 3.2</b> Encourage Department-wide adoption of minimum baseline GIS software packages.		<b>Action 1</b> Compile a core list of roles-based geospatial software covered by ELA's.			
		<b>Action 2</b> Implement baseline recommendations.			
			<b>Action 3</b> Maintain updated core software and identify opportunities for integrating.	Q4/FY22	
<b>Objective 3.3</b> Leverage agencies' respective strengths.	<b>Action 1</b> Sponsor ongoing Geospatial Advisory Council (GAC) dialogue and initiatives.			ongoing	
	<b>Action 2</b> Identify opportunities to partner or leverage services needed.			ongoing	
			<b>Action 3</b> Prioritize opportunities and develop models for shared service delivery and cost sharing; Implement highest priority opportunities	ongoing	
<b>Objective 3.4</b> Expand Department-wide access to geospatial datasets that can be managed as a shared service.		<b>Action 1</b> Establish a prioritized list of datasets for shared access.			
		<b>Action 2</b> Identify best candidates for shared service.			
			<b>Action 3</b> Develop a road map to achieve shared access to priority geospatial datasets.	Q3-ongoing	
				<b>Action 4</b> Implement shared access in accordance with roadmap.	Q1/FY22
<b>Objective 3.5</b> Capitalize on opportunities for shared infrastructure.		<b>Action 1</b> Establish process to document use cases and identify requirements.			
				<b>Action 2</b> Inventory available platform.	
				<b>Action 3</b> Prioritize opportunities, develop models for service delivery, and cost sharing.	Q1-Q4 FY22
<b>Objective 3.6</b> Encourage geospatial innovation Department-wide.		<b>Action 1</b> Sponsor ongoing GAC initiatives around Agency innovations.		ongoing	
				<b>Action 2</b> Identify opportunities to leverage geospatial innovation.	Q1/Q2 FY22
				<b>Action 3</b> Develop models for service delivery and cost sharing.	Q2 FY22

# Geospatial Strategic Plan Implementation Timeline FY 21-24

Goal 4: Empower the USDA geospatial community in support of mission.



## CONCLUSION: LEVERAGING CURRENT SUCCESSSES FOR THE FUTURE

The USDA Geospatial Strategic Plan provides a roadmap to implement the requirements of the GDA, strengthen the value of geospatial information and technology across the enterprise, implement collaborative partnerships to create cost efficiencies, and empower the USDA geospatial community of practice to provide effective mission support. However, the USDA has a long history of incorporating geospatial data, tools, and innovative technologies into day-to-day operations at the agency level.

Geospatial technologies are a fundamental business enabler in agriculture. For the U.S. economy, geospatial applications are linked to over a trillion dollars in value added. At USDA and for the agricultural sectors, geospatial applications allow the leveraging of complex information sources within an integrated framework represented by mature geographic information systems. In the agricultural trade arena, U.S. agriculture dominates other components of the economy with a positive balance of trade, including with our Asian trading partners. USDA leverages geospatial methods to ensure safe trade and to strengthen an import and export posture that is worth hundreds of billions of dollars - every year. More importantly, geospatial applications lead the way in USDA's ability to respond to emergencies, saving human lives, property, livestock, crops and wildlands.

As fire-prone parts of the country were threatened by massive fires driven by worsening climatic conditions, USDA has deployed machine learning enhanced pattern analyses to identify where firefighters need to be deployed to be most effective—and safe. USDA agencies responsible for rural development use geospatial products to optimize loan programs and broadband access while our agencies that ensure food security use geospatial products to ensure that children will find a meal and that families will be supplied with necessities.

Today's agriculture relies increasingly on technologies as diverse as robotics, unmanned aerial systems, detailed elevation maps, high resolution remotely sensed images that can be used to characterize plant health and biological composition and much more. All of these "big data" streams use geospatial platforms as the ultimate integration framework, allowing USDA to combine all relevant data to provide science-based, information-rich guidance to farmers, to the many diverse agricultural sectors and to every individual in the American public space.

Below we highlight a very few of the thousand of applications deployed each day in support of USDA's mission.

## National Agriculture Imagery Program (NAIP)



The National Agriculture Imagery Program has been collecting wide-scale aerial photography since the early 2000s. This program, the largest of its kind in the federal-civilian government, acquires aerial photography during the agricultural growing seasons in the conterminous U.S. One of NAIP's primary goals is to make digital ortho photography available to governmental agencies and the public within a year of acquisition.

For agencies across the USDA, purchasing imagery acquired through NAIP provides an extremely high return on investment. These agencies use this common data layer in their daily workflows for planning, mapping, estimating inventory, monitoring land management, and managing natural disasters. Because the imagery can be collected with stereo photography specifications, modern computer applications can even allow analysts to recreate scenes in three dimensions and visualize and understand the landscape an additional way.

Despite obvious benefits to the USDA, securing consistent and sufficient funding for NAIP has always been difficult. Every year, gathering the funds required to support the timely acquisition of the aerial photography proves challenging. Not only is it difficult to properly fund the program, the interagency agreements used to administer the contracts and cost sharing prove problematic. USDA Geospatial Strategy Objectives [2.3](#) and [3.1](#) address efforts to improve department funding of geospatial initiatives and simplify the use of USDA-wide contracts and agreements to introduce cost savings and efficiencies.

### Geospatial Training

USDA agencies run a robust geospatial training program available to all its employees. Selected agency programs address the full suite of geospatial disciplines, including GIS, remote sensing, photogrammetry, GPS, mobile computing, and more. As geospatial tools become more common and accessible to employees, training continues to be a significant business need for the agency.

Ten years ago, this program largely focused on in-person, instructor-led training courses. As travel budgets dropped and constraints increased, the Forest Service (FS) pivoted to focus on web delivery, leading to significant increases in participation across the agency.

The training program focuses on three delivery formats: Lightning Talks, Awareness Sessions, and Technical Classes. Lightning Talks are brief demonstrations or discussions about a new software, workflow, or data. Awareness Sessions are multi-hour meetings that go into more depth and provide greater context on the use of the software, workflow, or data. Finally, Technical Classes may span multiple days and go as far as instructing the student on the specifics of the topic, such as what buttons and parameters to control to create a desired output in a new piece of software.

Geospatial Strategic Objective [4.2](#) indicates a need to “strengthen the professional competency of geospatial practitioners across the USDA.” In the case of GIS, all USDA agencies leverage the same enterprise software and platform solution, Esri ArcGIS Enterprise. Sharing best practices and training materials and creating a community of practice could help the USDA meet this objective.



## Enterprise Geospatial Infrastructure Platform

Through partnership with private sector providers, USDA has leveraged the most up to date technological advances within the geospatial arena. For example, the USDA FS Forest Inventory and Analysis (FIA) Program has configured a cloud-based system to support national-scale mapping of forest resources, otherwise known as the Big Data, Mapping, and Analytics Platform (BIGMAP). BIGMAP is designed to store, process, analyze, and deliver Forest Service FIA-related content in ways that streamline USDA’s internal workflows and make it easy to share authoritative, map-based content through web technologies.

The system utilizes field data collected by FIA, Landsat satellite imagery stored in the cloud, and custom machine learning algorithms. Recent work on this project is focused on the creation of maps of forest carbon pools for the contiguous United States, using the latest available field data and satellite imagery. Once reviewed, the output raster maps are shared through the Forest Service online accounts as well as through other Open Data outlets.

All USDA agencies rely on enterprise level platforms for many geospatial workflows. While everyone shares the benefits of the department-level ELA, more can be done across agencies to leverage shared infrastructure (Geospatial Strategic Objective [3.4](#)), shared datasets (Objective [3.3](#)), and best practices (Objective [4.2](#)). Each agency has unique requirements that dictate specific implementation of enterprise solutions, but opportunities to share resources and create efficiencies in delivery to the public and other partners are waiting to be explored.

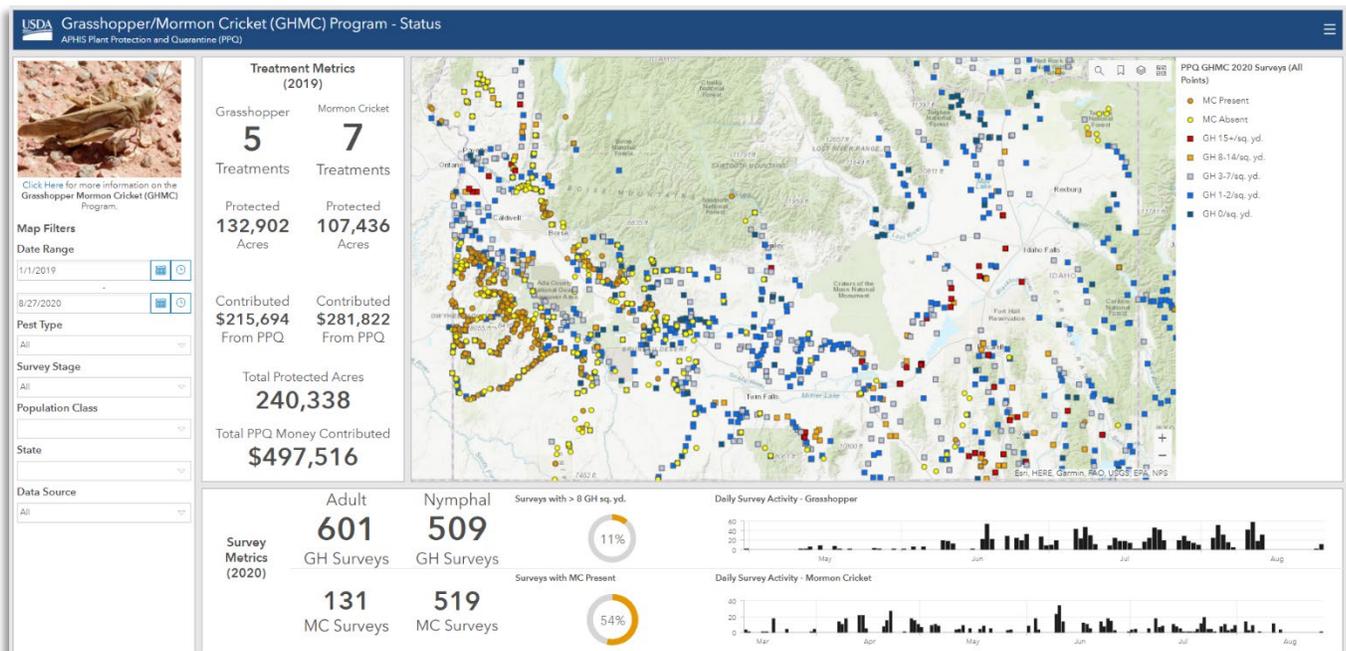
## Improving the Quality, Use, and Accessibility of Domestic Data

Animal and Plant Health Inspection Service (APHIS) Plant Protection and Quarantine (PPQ) is working to improve the quality, accessibility, and use of domestic program data through the Domestic Data Improvement Initiative (DDII). The goal of this initiative is to enhance program management by using high

quality, readily available data and new reporting tools to support decision making. The initiative has four goals: Improve domestic data quality, increase electronic data collection, improve data accessibility, and enhance data reporting.

Through the implementation of Core Data elements, defined governance, and improved quality assuredness, this initiative strengthens the overall integrity of PPQ data. Collecting domestic pest program data electronically can reduce time and resources, while also improving the quality of the information collected. PPQ is also working to modernize and improve the management and use of program data. Initial efforts are focused on extracting data from federal and cooperator domestic data systems into an integrated environment, where the data then feeds numerous analytic and reporting tools supporting program decision makers at all levels. Using innovative approaches to reporting allows APHIS to gain insight into agency program data and turn that data into action. Finally, through dashboards and other interactive applications, APHIS can now visualize data that enhances understanding and improves overall decision making.

A reporting dashboard supporting the Grasshopper/Mormon Cricket Program is shown below, which illustrates the result of all four goals working together for stronger and smarter data that will yield better and more informed decisions.



The DDII project aligns with the Geospatial Strategic Plan objectives for promoting geospatial data ([1.3](#)), educating leadership and stakeholders ([2.1](#)), expanding adoption ([2.2](#)), and encouraging innovation ([3.6](#)).

## Common Land Unit Data Sharing

The USDA Farm Service Agency (FSA) established a national geospatial agricultural cadaster layer called the Common Land Unit (CLU) layer in 2005. The CLU is the smallest unit of land that has a permanent, contiguous boundary, a common land cover and land management, a common owner, and a common producer in agricultural land associated with USDA farm programs. CLU boundaries are delineated from relatively permanent features such as fence lines, roads, and/or waterways. FSA maintains over 35 million polygons in this dynamic geospatial database.

The USDA Risk Management Agency (RMA) acquires and processes the FSA CLU file monthly to provide land-based files to RMA-Approved Insurance Providers for use in writing insurance policies. This process has been in place for several years, aided by a Memorandum of Understanding between FSA and RMA. The process currently involves FSA-funded contractors providing a monthly nationwide extract from the CLU relational database. RMA-funded contractors receive the files and spend approximately two additional weeks processing them to incorporate the needed attributes and create the appropriate formats per NAIP region/state. This important process allows RMA to support the insurance companies in providing crop insurance.

Geospatial Strategic Plan Goal 3, “Implement collaborative partnerships to create geospatial cost efficiencies” will improve this process, as the actions include improving collaboration and interagency partnerships, which can make access to real time CLU data access more realistic for RMA. The existing process could be improved and result in geospatial cost efficiencies by removing steps along the way and replacing manual processes with automation, including a joint workflow between FSA and RMA to incorporate an output that is useful for both agencies. Since other USDA agencies also utilize CLU for various projects and go through a process similar to obtain copies of the CLU, these improvements could be translated across the enterprise as well.



## In Closing

This Strategic Plan’s goals and objectives provide the approach to taking initiatives like these to the next level. By leveraging lessons learned and best practices and integrating individual successes on an enterprise level, USDA can improve overall processes, products, and services in the USDA and ensure any new and emerging solutions will better support the Department’s mission and the public we serve.

# APPENDICES

## Glossary

This section defines the terms and acronyms found in this Strategic Plan.

**Authoritative Data** – Data deemed or otherwise designated by an authority to be trusted, accurate, and/or true.

**Blanket Purchase Agreement (BPA)** – An agreement established by a government buyer with a contractor to fill repetitive needs for supplies or services.

**Cartography** – The art and science of constructing and producing maps—a graphical representation (in hardcopy or electronic image form) of spatially distributed features and phenomena, showing them in their respective forms, sizes, and relationships according to some convention.

**CIO** – Chief Information Officer or Chief Information Office.

**Collaborate** – To work with an entity to achieve a goal; to align with the purpose or goals of another in a shared way.

**Coordinate** – To bring different elements of an activity or organization into a relationship that will ensure effectiveness and efficiency.

**Covered Agency** – (i) an Executive department, as defined in section 101 of title 5, United States Code, that collects, produces, acquires, maintains, distributes, uses, or preserves geospatial data on paper or in electronic form to fulfill the mission of the Executive department, either directly or through a relationship with another organization, including a State, local government, Indian tribe, institution of higher education, business partner or contractor of the Federal Government, and the public; (ii) the National Aeronautics and Space Administration; or (iii) the General Services Administration; and (B) does not include the Department of Defense (including 30 components and agencies performing national missions) or any element of the intelligence community.” (GDA Sec. 752(3))

**Data** - Elements of information (attributes, values, quantities, coordinates, etc.) used as a basis for describing conditions and informing decisions.

**Data.gov** – Website serving the U.S. government’s open data, meaning data that is meant for open sharing and access by anyone.

**Data Lifecycle Management** – A policy-based approach to managing the flow of an information system's data throughout its life cycle: from creation and initial storage to the time when it becomes obsolete and is archived or deleted.

**DM** – Department Manual, a policy handbook.

**Enterprise** – A systematic, planned undertaking or venture; a body of organized effort.

**Enterprise Architecture** – The organizing logic for business processes and IT infrastructure, reflecting the integration and standardization requirements of an organization’s operating model.

**Enterprise License Agreement (ELA)** – An agreement to license software and related services for a specified amount of time.

**Federal Geographic Data Committee (FGDC)** - A United States government committee that promotes the coordinated development, use, sharing, and dissemination of geospatial data on a national basis.

**GAO** – General Accountability Office. The GAO provides fact-based, nonpartisan information to Congress. Often called the "congressional watchdog," GAO investigates federal spending and performance.

**Geospatial** - Geo [earth]; spatial [having locational or spatial characteristics]. Of, pertaining to, or involving the location of features, objects, and phenomena on the Earth. Used broadly, the term includes spatially referenced data; technologies that allow for the gathering, manipulation, storage, and display of spatial data; requirements, programs, policies, and standards that shape geospatial activities, and more.

**Geospatial Analysis and Analytics** – An approach to applying statistical analysis and other informational techniques to data which has a geographical or geospatial aspect. Such analyses typically employ software capable of geospatial representation and processing and apply analytical methods to terrestrial or geographic datasets, including the use of geographic information systems and geomatics.

**Geospatial Applications** – Tools, techniques, and associated databases developed principally to support the collection, storage, maintenance, display, and analysis of geospatial data and associated attributes.

**Geospatial Community of Practice** – A group of people in the geospatial sciences who share a concern or a passion for something they do and learn how to do it better as they interact regularly.

**Geospatial Data Act** – The GDA formalizes governance processes related to geospatial data, provides policy and guidance to empower the use of geospatial data and technology, and facilitates broad cooperation between the public and private sector.

**Geospatial Data** – Data presented with attributes providing a locational context.

(A) means information that is tied to a location on the Earth, including by identifying the geographic location and characteristics of natural or constructed features and boundaries on the Earth, and that is generally represented in vector datasets by points, lines, polygons, or other complex geographic features or phenomena;

(B) may be derived from, among other things, remote sensing, mapping, and surveying technologies;

(C) includes images and raster datasets, aerial photographs, and other forms of geospatial data or datasets in digitized or non-digitized form;”

Extract of “Geospatial Data Act of 2018” (GDA), (P.L. 115-254), H.R. 302, Subtitle F, Sections 751 – 759  
[www.fgdc.gov](http://www.fgdc.gov)

**Geospatial Databases** – Structured collections of various types and kinds of data that include a locational reference.

**Geospatial Information** – Spatially-referenced information derived from geospatial data.

**Geospatial Policies** – Governance and administrative policies and their development and coordination. Policies that pertain to or involve in some way the location of a feature, object, or phenomena on the Earth, or the depiction of the locational context of a feature, object, or phenomena. Geospatial policies are those that

not only govern the collection and analysis of geospatial data and the decisions about the management of geospatial technology, but also those that involve geospatially enabling the business of the USDA.

**Geospatial Sciences** – Fields of scientific endeavor principally concerned with or involving establishing, portraying, and analyzing the shape of the earth or the position of features, objects, or phenomena on or in the Earth, or the position of features, objects, or phenomena relative to others. These fields can include the following: geodesy, surveying, cartography, Geographic Information Systems (GIS), remote sensing (RS), photogrammetry, spatial statistics, and spatial database design, implementation, and maintenance.

**Geospatial Standards** – Standard data formats, methods, or procedures used in populating, managing, or maintaining geospatial data sets, or for performing analysis with/on geospatial data.

**Geospatial Technology** – Technology principally concerned with locating, mapping, or analyzing the position of features and phenomena or analyzing their spatial context. Geospatial technologies include Geographic Information Systems (GIS), Global Positioning Systems (GPS), Remote Sensing (RS) platforms and sensors, Cartography and Photogrammetric systems, spatial information architectures and database environments, and supporting information system technologies (hardware, software, and web services).

**Geospatial Advisory Council (GAC)** - A Federal Advisory Committee sponsored by the Department of Agriculture.

**Geospatial Data Act of 2018 (GDA)** – Legislation that establishes a clear vision, assigns responsibility, provides authority, and ensures Congressional oversight of federal geospatial activities.

**Geospatial Platform** - An FGDC initiative that provides shared and trusted geospatial data, services, and applications for the advancement of the NSDI.

**GIS** - Acronym for geographic information system. An integrated collection of computer software and data used to view and manage information about geographic places, analyze spatial relationships, and model spatial processes. A GIS provides a framework for gathering and organizing spatial data and related information so that it can be displayed and analyzed.

**Governance** - The act, process, or exercise of authority and control, including the persons who make up a governing body to administer such actions. A structure of authority established to make decisions, allocate resources, and coordinate activities related to inventory, monitoring, and assessment.

**Map** – A graphic representation, drawn to scale and usually on a flat surface, of features of an area of the Earth or of any celestial body.

**Metadata** - Information that describes the content, quality, condition, origin, and other characteristics of data or other pieces of information. Metadata for spatial data may describe and document its subject matter; how, when, where, and by whom the data was collected; availability and distribution information; its projection, scale, resolution, and accuracy; and its reliability with regard to some standard. Metadata consists of properties and documentation. Properties are derived from the data source (for example, the coordinate system and projection of the data), while documentation is entered by a person (for example, keywords used to describe the data).

**National Spatial Data Infrastructure (NSDI)** - The technologies, policies, standards and human resources necessary to acquire, process, store, distribute, and improve utilization of geospatial data. The NSDI enhances the accessibility, communication, and use of geospatial data to support a wide variety of decisions at all levels of society, including government, the private and non-profit sectors, and the academic community.

**OMB Circular A-16** – A Government circular that was created by the United States Office of Management and Budget (OMB) to provide guidance for federal agencies that create, maintain, or use spatial data directly or indirectly through the establishment of the National Spatial Data Infrastructure (NSDI) and the Federal Geographic Data Committee (FGDC). The circular establishes guidelines for the management of digital spatial data and the use of those assets. It also appoints the FGDC to the interagency coordinating body for NSDI-related activities. The Secretary of the Interior is established as chair, with the Deputy Director for Management, OMB as Vice-Chair.

**Platform** – A group of technologies that are used as a base upon which other applications, processes, or technologies are developed and sustained.

**Program** – A group of related projects managed in a coordinated way to obtain benefits and enhanced control not available from managing them individually.

**Service** – A tangible act or provisioning of something helpful or useful, usually in a planned and sustained manner. In the context of this strategy, service includes training, helpdesk support, web-based map and data services, subject matter expert consultation, and the like.

**Stakeholder** – An entity that has an investment, share, or interest in a topic or project.

**Standards** – A model or set of criteria established by authority, custom, or general consent; a rule for the measure of quantity, weight, extent, value, quality, or performance established by an authority. Standards may apply to data, information, practices, and technologies.

**Stewardship** – Responsibility for the oversight and protection of something considered worth caring for and preserving.

**Vision** – The outcome of successful mission accomplishment; a concise statement of a desired state.

## References

Federal Aeronautical Authority (FAA) Reauthorization Act of 2018, (subtitle F-Geospatial Data Act) Pub. L. No. 115-254, Sec. 751-759c (2018)

Foundations for Evidence-Based Policymaking Act of 2018, Pub. L. No. 115-435, 132 Stat. 5529 (2019)

Federal Geographic Data Committee (FGDC). (2020) *National Spatial Data Infrastructure Strategic Plan 2020 – 2022 Version 1.0.*

Office of Management and Budget (OMB), Office of Science and Technology Policy (OST), Department of Commerce (DOC), Small Business Administration (SBA). (2020) *Federal Data Strategy 2020 Action Plan.*

Office of Management and Budget (OMB). (2020) *Circular A-16 Revised, Coordination of Geographic Information and Related Spatial Data Activities.*

United States Department of Agriculture (USDA) Office of the Chief Information Officer (OCIO). (2020) *USDA Geospatial Assessment.*

United States Department of Agriculture (USDA) Office of the Chief Information Officer (OCIO). (2019) *Information Technology Strategic Plan 2019-2022 Version 1.0.*

United States Department of Agriculture (USDA) Office of the Chief Information Officer (OCIO). (2019) *USDA Data Strategy.*

# SWOT Analysis



## Strengths

USDA is data rich and provides **quality geospatial information** through individual agency analytics activities.

USDA's Geospatial Community is committed to the USDA Mission.

USDA's Geospatial Community is open to innovation and change.

GDA requirements support USDA geospatial initiatives.

USDA established a **Geospatial Advisory Committee** to support the USDA GIO and the EGMO with technical assistance, coordination, and guidance.

USDA agencies maintain **successful internal and external partnerships** and support expanding partnerships efforts.



## Opportunities

Educate all levels of USDA about the value and opportunities provided by geospatial data, information, tools, and technology.

Identify agencies' **strengths, skills and lessons**, and leverage them enterprise-wide.

Assess **budget and governance tools** to fund enterprise geospatial acquisitions.

Create **enterprise-wide geospatial policies and standards**.

Use the **GDA requirements** to implement change across USDA.

**Collaborate to consolidate contracts and procurement** of geospatial professional services, data, and technical support.

Educate agency IT professionals about the **benefits of geospatial technology** and collaborate on the technical capabilities necessary to implement geospatial technology.



## Weaknesses

**Insufficient funding for geospatial initiatives** limits cost savings, is inefficient, and impacts success.

**Enterprise geospatial policy and governance is limited** and guidance in key areas must be expanded.

**Leadership does not fully understand the immense value of geospatial capabilities.**

Much of USDA's geospatial data is **not readily accessible** across the enterprise, and in some cases lacks data quality.

USDA lacks an **enterprise-wide geospatial architecture**.

**Isolated instances of agency territorialism and protectionism** impact partnerships.

**Traditional IT organizations possess limited understanding of geospatial requirements** and don't proactively support geospatial technology.



## Threats

**Unless sufficient, sustainable funding** for enterprise resources is provided, cross-agency coordination efforts like GDA implementation will be threatened.

**Anticipated reductions in federal funding** will result in further negative impacts to Under-resourced areas.

**Personnel turnover** in key positions threatens successful implementation of geospatial programs.

**The value of geospatial information and GIS capabilities are not understood** thus limiting successful program implementation.