

NRCS Geospatial Investment Strategy (Executive Summary)

Executive Summary

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NCGC Director

Sponsors

- Bill Puckett, Deputy Chief for Science and Technology
- Sara Schmidt, West Regional Assistant Chief

Geospatial Mile Markers

Gateway
Delivery
2001

GIS Enterprise
License
2001

Geospatial Data
Warehouse
2002

Telecom
Enhancement
2003

NCGC Web Map
Services
2005

Geodatabases
ArcSDE
2006

Web Soil
Survey
2006

NRCS Geospatial
Framework
2007



Next
Geospatial
Strategy

Geospatial Drivers

- *Resource Limitations*
- *Progress Reporting Activity*
- *One Conservation Plan Concept*
- *Federal Enterprise Architecture*
- *Data Management*

Geospatial Challenges

The challenges associated with addressing operational needs include:

- *Infrastructure*
- *Planning and Investment*
- *Human Capital*

Acknowledging the Importance of Geospatial Data

- NRCS geospatial business area represents a collection of data, content, standards, technology, staff, technology tools, services and systems that directly support the majority of NRCS functional responsibilities.
- Geospatial solutions are deeply intertwined with core mission systems, functions, and infrastructures in NRCS
- Significant investments are being spent annually on geospatial data, labor, services, and technologies

Acknowledging the Importance of Geospatial Data

Five year Historical Geospatial Investment

Year	2003	2004	2005	2006	2007
	Millions of Dollars				
Applications	0.2	0.3	0.5	0.8	0.6
Data	15.9	17.5	16.4	18.5	19.1
Hardware and Infrastructure	2.4	2.0	1.9	1.4	2.0
Services	0.4	0.4	0.4	0.4	0.5
Annual Investment	18.9	20.2	19.2	21.1	22.2
Cumulative Investments		39.1	58.3	79.4	101.6

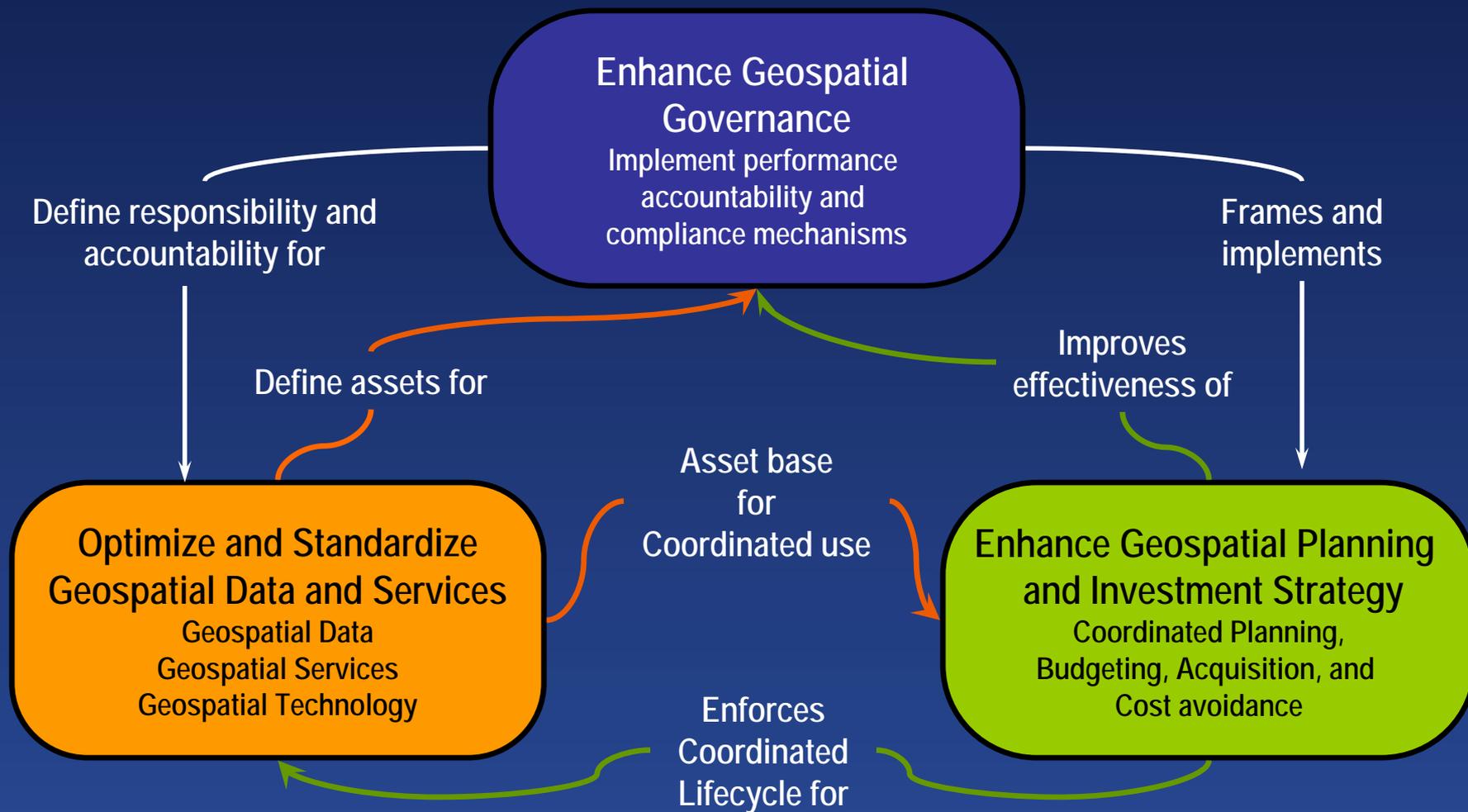
NRCS Geospatial Data Assets

Data category	GB	Only source	Updates	Replicated	Replacement value
NRI data mart	92,000	Yes	500 GB/day	No	TBD
Elevation data	1,000	No	Qtr. Refresh	No	400 millions
Soils	400	Yes	Daily	Yes	\$5 billion
Other vector data	500	No	By theme	Yes	TBD
Other imagery	80,000	No	4,000 GB/year	No	TBD
Replicated data (for failover from APFO)	14,000	No	4,000 GB/year	No	TBD
Other data marts (SDM/IMG server)	11,000	No	By theme	No	TBD
Total	198,900				

NRCS Geospatial Business Vision

- Supports the NRCS Business Lines
 - Conservation planning and technical consultation
 - Conservation implementation
 - Natural resource inventory and assessment
 - Natural resource technology transfer
 - Financial assistance
- Follows the model for the Federal Geospatial Line of Business (GLOB)
- In Sync with OMB directives for aligning and managing Federal geospatial services and data planning activities

NRCS Geospatial Strategy



Optimize and Standardize Geospatial Data and Services

This component of the Geospatial Strategy has key objectives, focusing on the selection of critical geospatial data assets and the ability to incrementally manage the evolution of the assets and architecture.

1. Establish Authoritative Data Sources (ADS) and Stewards
2. Optimize the Geospatial Infrastructure, Products, and Services
3. Implement Print on Demand technology
4. Build and Implement Agile Geo-Enabled Corporate Data

Geospatial Governance

The Geospatial Governance model enables NRCS to manage geospatial investments as a cohesive set of assets and services that provide optimal value to the NRCS mission. Geospatial Governance will:

- Establish a Geospatial Business Requirements Planning Process
- Managing the Geospatial Portfolio through Governance
- Implement Geospatial Management

Enhance Geospatial Planning and Investment Strategy

The Strategy relies on the capture of geospatial business requirements during the work activity planning cycle. It is important for Stakeholders to identify opportunities for shared acquisition, resource use and cost savings. This component of the Geospatial Strategy includes:

- NRCS-wide geospatial requirements planning process
- Identifying business requirements for investment in geospatial data, services, and equipment and human resources
- Identifying and managing costs associated with resource requirements, geospatial data, technology refresh, and scalable infrastructure development

Five-year Geospatial Investment Budget Projections

Year	2008	2009	2010	2011	2012	5-year Investment
	Millions of Dollars					
Geospatial data						111.5
Imagery	11.6	11.6	11.6	11.6	11.6	
Elevation	8.6	8.6	8.6	8.6	8.6	
Other data	2.1	2.1	2.1	2.1	2.1	
Subtotal	22.3	22.3	22.3	22.3	22.3	
Geospatial data management	2.2	2.2	2.2	2.2	2.2	11.0
Geospatial applications	1.0	1.0	1.0	1.0	1.0	5.0
Geospatial services	2.1	2.1	2.1	2.1	2.1	10.5
Equipment/GPS/Licenses	1.9	9.8	9.8	9.8	9.8	41.1
Total Annual Investment	29.5	37.4	37.4	37.4	37.4	179.1

Leveraging of NRCS Corporate Geospatial Assets

- Supports Improved Conservation Planning, Resource Decisions, & Technical Consultations
- Soil MLRA Business Data Needs
- Critical Data
 - Soils
 - Climate
 - Imagery
 - Other State Centric Layers
 - Elevation (LIDAR & IFSAR)
 - Cultural
 - Demographic

Trusted Geospatial Data Sources

Everywhere

All The Time

- **Geospatial Map, data, and Web Services**
- **Best Available Easy to Use Tools and Technology**

Agile Geo-Enabled Corporate Data (One Stop Shop)

- It is not enough to have access to data. Today's data must have an intelligence or agility that is inherent.
- **Identification of an Area of Interest (AOI)** for a resource concern.
- Vertical and horizontal integrated data set that knows what core information
- Integrates form and function to core tasks and activities through a **single interface** to give the end user **access to customer information, scheduling, reporting, visualization, and geospatial analysis. This agility defines efficiency.**

Geospatial Analysis and Reporting on a Non-County-Centric Basis

- Analyze data on a non-county-centric basis
 - watershed
 - congressional district
 - basin
 - service center area
 - AOI.

Developing PNT Requirements for Soil Science

Positioning, Navigation, & Timing
Technology

10,000+ USDA personnel on the landscape every day, using GPS to provide program assistance, service, and technical support to USDA customers and partners

- Safety-of-Life operations –Fire, Snow Survey
- Administration of the Farm Bill
- Conservation Planning and Application
- Natural and Cultural Resource Data Collection, Inventorying and Monitoring
- Landscape Characterization & Engineering Applications
- Soil Mapping



Methodology for Establishing PNT Requirements

1. Identify individual landscapes activities
 - Destination Navigation
 - Preliminary / Intermediate / Final mapping
 - Revisit Capability
2. Consider the X Y Z values needed for each activity
 - Level of Accuracy; Horizontal & Vertical

Methodology for Establishing PNT Requirements

3. Consider the geospatial requirements of the final product
 - Scale; fixed / variable
 - Resolution; Image
 - Mapping Standards; data collection / display
4. Working on the landscape
 - Occupation Time; Real time / Static
 - Equipment Form Factor

Methodology for Establishing PNT Requirements

5. Declare Reliability

- Precision Related to Accuracy;
 - ✓ Example: 98% @ 1-2 meters Horizontal
- Data Representation; QA based on technique

NCGC is prepared to assist in developing and supporting Soil Science of other NRCS PNT Requirements

National Cartography & Geospatial Center



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NCGC Home Page: <http://www.ncgc.nrcs.usda.gov>