

U. S. DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

Strategic Plan for Managing the Public Land Survey System

BLM LIBRARY
SC-652 BLDG 80
DENVER FEDERAL CENTER
P.O. BOX 3047
DENVER, CO 80225-0047

"Foundation of the Nation's Infrastructure"



Collecting Spatial Data
Building Information Systems
Effecting Boundary Management





Statement from the Director...

These are exciting times to be involved in land and resources management. With the significant enhancements in communications and technological developments in virtually every field, the Bureau of Land Management (BLM) is better postured, and challenged by our customers, to deliver improved and expanded services. No longer can the BLM carry out its mission independently. We must be willing to work side by side with other Federal agencies and State and local communities to enhance the beauty, character, and resources of the landscape.

Relatively unknown to the public is the importance of the Nation's land tenure and recordation systems, most notably the Public Land Survey System (PLSS), which spans from the Ohio Valley to the Bering Sea. The PLSS forms the basis for all land transactions as it defines the boundaries of the original transfer of title from Federal to private or State ownership. Being timely in making PLSS records available to land managers at all levels of government and the public is a BLM priority.

I am pleased to sponsor this Strategic Plan for Managing the Public Land Survey System as it is the blueprint for utilizing spatial information to assist decisionmakers in arriving at solutions to complex environmental, social, and economic problems. This plan emphasizes the role of the PLSS in achieving the BLM's goals and the goals of other Federal, State, and local agencies and private landowners. In our rapidly changing world, establishing and maintaining land boundaries are essential to sound land and ecosystem management and will become even more important in the future.





Table of Contents

Statement from the Director	i
Executive Summary	1
Mission Statement	3
Vision Statement	4
Surveyor's Contribution to Land Management	5
Program Overview	6
Strategic Goals	8
Customer Service	
Product Enhancement	
Community Enrichment	
Program Development	
Diversity	
Education	
Appendices	14
Appendix A - Glossary	
Appendix B - Significant Legislation	





Executive Summary

The Bureau of Land Management's (BLM) mission in managing public lands includes three basic responsibilities: (1) natural and cultural resource management, (2) maintenance of land and mineral records, and (3) the Public Land Survey System (PLSS). As the BLM begins to employ Ecosystem Management, Land Information Systems Management, and Boundary Management concepts and practices, its managers need to know what information exists, how to obtain it, and how it can be merged with other sources of information. The Public Land Survey Program is a critical component in assimilating and supporting the information needed to successfully manage the Nation's public and private lands. To meet current and future customer needs (both internal and external), the Public Land Survey Program has developed a Strategic Plan that complements the mission and vision of the BLM.

This plan provides both a long-range, shared vision for the BLM's Public Land Survey Program and strategies to reach that vision. Six goals have been identified that will set the foundation for a coordinated approach to broadening the services and products that are currently provided. By focusing on customer service, product enhancement, community enrichment, team building, diversity, and education, the BLM hopes to enhance its cadastral survey, land records, and spatial land information capabilities. Strategies have been identified to pursue each goal.

This plan has been developed to meet two distinct, but overlapping needs--the maintenance of the Nation's Cadastral infrastructure and the development of spatially referenced information systems. The BLM's responsibilities for the PLSS extend beyond its administrative jurisdiction to include all Federal interest lands. This plan specifically addresses the needs of BLM's internal and external customers.

This plan also addresses nationally identified needs for spatial land information. Accessibility, data sharing, standards development, and coordinated data collection activities are important issues faced not only by BLM managers but also by State, county, and private interests as well. State and county governments, which have the primary responsibility of building and maintaining cadastral systems, are in the process of building land and geographic information systems. They rely on the BLM for its leadership, technical assistance, and land information.





This plan is significant to BLM, and perhaps more importantly, its customers. During these times of rapid change, it is important to reexamine where one has been and where one needs to be. In the formation of this plan, much effort was expended in answering three basic questions: (1) Who are our customers?, (2) What do our customers want?, and (3) How can we best serve them? Answering these questions has allowed the BLM to reflect and refocus its energies on meeting the current and future needs of its customers.





Mission Statement

The mission of the Public Land Survey Program is to provide cadastral surveys and related services, as well as spatial land information products, to enhance the management of the natural and cultural resources of the United States by continually improving the quality of our services and performing in a manner warranting the highest degree of public confidence. We will:

Preserve, improve, and provide oversight and accountability for the PLSS and enhance its operation and functionality;

Provide leadership in the innovation and effective development of spatial land information and systems for land tenure, land registration, and land management;

Continuously improve the quality of land information to our customers;

Create, interpret, and evaluate land and geographic-related information; and

Fulfill the Secretary of the Interior's responsibilities for establishing and managing the public land boundaries.





Vision Statement

Support the BLM's and the Nation's need for cadastral surveys, land records, and spatial land information through leadership, innovation, technology, and a commitment to excellence. Our vision will be achieved by:

Striving for excellence in everything we do;

Making continuous improvement a daily objective;

Exceeding our customers' expectations;

Recognizing the importance of each individual;

Encouraging the free exchange of ideas and information;

Promoting a team spirit; and

Recognizing achievement and learning from our failures.





Surveyors' Contribution to Land Management

Land surveyors contribute significantly to land management policy development and practice. Through integrated data collection efforts, land information system development, and as participants in land planning processes, surveyors are an essential component in achieving sustainable and economic development.

The surveyor's role in land management is destined to increase in the future as new sources for data are discovered, evaluated, and utilized. The integration of data collection tools, such as satellite positioning systems with remote sensing systems or the electronic map (now under development), brings to the land management community not only new, but also more accurate, timely information about our environment. The development of the "information highway," whereby spatially referenced information is accessible and integrated horizontally (i.e., across scientific, technical, and social disciplines) and vertically (e.g., from local to national to global levels), will be critical to attaining sustainable and economic development.

The development of land and geographic information systems allowed land managers to assemble and organize vast amounts of spatially referenced information from which land use decisions could be based, thereby optimizing the use of a parcel(s) of land. The combination of data such as soils, hydrology, wetlands, riparian, recreation, census, land cover, etc., onto a cadastral layer (land tenure and registration data) allows for an integrated, coherent, and credible planning system.

Land is essential for sustaining life. It provides shelter from the elements, the growing of food, and is a source of resources. The pressures placed on the land (as well as the air and water) from human settlement and urbanization intensify the need for land management. Sustaining development while preserving resources for future generations poses significant challenges for land managers. Specialized skills and knowledge from a diverse group of professionals are essential to developing sound land management policy.

The BLM provides these services and products to local, national, and international customers, in both the government and the private sector. In conjunction with other geographic science disciplines, such as geography, cartography, remote sensing, photogrammetry, and geodesy, the BLM's Public Land Survey Program is better able to deliver new products and services to meet user needs.





Program Overview

The BLM is responsible for maintaining the PLSS, conducting cadastral surveys on Federal interest lands, maintaining and preserving survey and survey-related records, and assuring access to both historical and current survey records.

The Federal Government has, at various times in United States history, held title to about 80 percent of the Nation's total area. Since the government's formation, it has disposed of its lands to private interests. In 1785, the Continental Congress established a "land tenure" system whereby the "public lands" were first surveyed and then described for eventual disposal. This system, the PLSS, is the foundation for all legal land transactions and serves as the basis for much of the country's land tenure and land registration systems.

The need for an integrated and comprehensive national land records system has driven the BLM's records modernization efforts. The BLM's Geographic Coordinate Data Base (GCDB) provides a graphical representation of the Nation's cadastral infrastructure (land tenure and land registration system). Information contained in the GCDB, in conjunction with the Automated Land and Mineral Record System (ALMRS) and the General Land Office (GLO) system (described below), is critical to the BLM's management of the public lands. The need for land information and the ability to link it to other data types have resulted in the development of a close working relationship between BLM and State, county, and local levels of government. Coordination at the Federal level has been achieved through the Federal Geographic Data Committee for which BLM is the designated lead for Cadastral Data.

In addition to BLM's GCDB Program, the BLM has two additional projects, the GLO and ALMRS Projects. The GLO Project involves the conversion of existing documents (land patents issued by the United States) to optical disks, while ALMRS Project is converting land and mineral records to digital, textual files.

In supporting wilderness, riparian, wildlife habitats, wetlands, minerals, and recreation programs, the BLM provides cadastral survey services to not only BLM land managers but also to other land management agencies, such as the Forest Service, Bureau of Indian Affairs, National Park Service, etc. By improving access to its more than one billion land records and utilizing modern technologies, the BLM has established a leadership position in Federal spatial land information and land boundary management.





The BLM's leadership position in spatial land information is attributable to its most valued resource, its people. The BLM's commitment to employee development, diversity, customer service, and excellence and leadership has enabled it to better serve its customers.

To meet current and future customer needs, the BLM has developed six long-range strategic goals that provide a picture of the future of the Public Land Survey Program. These shared goals provide the framework which will guide the Public Land Survey Program into the 21st century. The goals are aimed at developing an expanded set of products and services that will serve the needs of our current and future customers.





1. CUSTOMER SERVICE

Increase customer service to internal and external customers by increasing quality, productivity, and efficiencies in the Public Land Survey Program.

Strategic Initiatives

- A. Utilize questionnaires to monitor, evaluate, and improve customer satisfaction with BLM products and services.
- B. Utilize interagency groups (i.e., Interagency Cadastral Coordination Council, Federal Geographic Data Committee, etc.) as input/feedback mechanisms to improve services and products and to monitor changing customer needs.
- C. Make greater use of contracting services to expedite the delivery of services and products to our customers.
- D. Place land surveying capabilities closer to project areas in order to increase responsiveness to customer needs.
- E. Maintain a knowledgeable, highly skilled, and adaptable workforce to meet tomorrow's challenges in land surveying, land records, and spatial land information through continuous educational and training opportunities.
- F. Promote a greater awareness and appreciation for land surveys, land records, and spatial land information products and services through outreach programs to internal and external customers.
- G. Identify personnel and budget resources to enhance the Interagency Cadastral Coordination Council's coordination of land surveys and land records management among Federal agencies.





2. PRODUCT ENHANCEMENT

Broaden and expand products and services to meet the requirements of the customers.

Strategic Initiatives

- A. Reengineer conventional processes to meet changing customer needs for land surveying, spatial land information, and geographic sciences products in land and ecosystem management.
- B. Utilize shared Federal spatial land information to enhance products and services to our customers.
- C. Assemble and integrate the geographic science disciplines within the Public Land Survey Program to enhance the usability and quality spatial data products and services.
- D. Complete development of the GCDB's operational and maintenance functions to meet current and future data requirements of government and industry.
- E. Develop and implement Bureauwide Satellite Positioning System products and services (i.e., standards, procedures, training, etc.) to enhance land and resource management.
- F. Complete land records system automation for easier public access and records distribution.
- G. Expand awareness and use of land surveying, spatial land information, and geographic sciences products in nontraditional program areas.





3. COMMUNITY ENRICHMENT

Strengthen and further define the role of the Public Land Survey Program in the management of public and private lands.

Strategic Initiatives

- A. Increase understanding of the legal, economic, environmental, and social aspects of land surveying, geographic sciences, and spatial land information in supporting the attainment of sustainable development.
- B. Expand legislative awareness at both the State and Federal levels on the benefits of boundary management.
- C. Improve relationships between government, professional societies, industry, and academic organizations.
- D. Construct partnerships with State, county, and local governments to increase the utility of spatial land information in land and ecosystem management.
- E. Create work/training programs and continue efforts with secondary schools (i.e., volunteer, summer camp, community service, high schools, job and career fairs, etc.) to increase the vocational potential of America's future workforce.





4. PROGRAM DEVELOPMENT

Incorporate the use of boundary management concepts and principles into public and private land management processes.

Strategic Initiatives

- A. Fully coordinate the Public Land Survey Program with other land and resource management programs governmentwide.
- B. Develop policies and procedures/methods to enhance the management of public land boundaries.
- C. Expand current products and services to include use of mapping, Geographic/Land Information Systems, Satellite Positioning Systems, and remote sensing capabilities.
- D. Develop partnerships with other land and resource management programs (internal and external) to produce new or enhanced spatial land information products.
- E. Expand information sharing on the applications of new technologies to internal and external customers.





5. DIVERSITY

Develop a workforce which reflects the diverse character of the American people.

Strategic Initiatives

- A. Develop additional and expand existing agreements with the Hispanic Association of Colleges and Universities (HACU's), Historically Black Colleges and Universities (HBCU's), and Native American Colleges and Universities (NACU's).
- B. Develop partnerships with organizations that promote workforce diversity (i.e., Blacks in Government, American Indian Science and Engineering Society, Federal Women's Program, Image Conference, etc.).
- C. Continue to create and use multi-disciplinary and bridge positions as a diversity tool.
- D. Develop a career ladder to bridge between technical and professional positions.
- E. Foster partnerships with other governmental agencies in promoting a diversified workforce.
- F. Assist HBCU's, HACU's, and NACU's in developing geographic science curriculums.





6. EDUCATION

Develop and maintain a workforce with the academic qualifications and technical expertise in Surveying and Land Management to efficiently and effectively manage the Nation's natural and cultural resources.

Strategic Initiatives

- A. Focus training, information, and research, in conjunction with industry and academia, on the economic use of geographic sciences in land management.
- B. Improve relationships with institutions with natural resource and geographic science programs to facilitate information sharing and recruitment.
- C. Explore the use of joint research initiatives relevant to land surveying, land records, and spatial land information.
- D. Increase career development and training opportunities for land surveying personnel in other BLM program areas and vice versa.
- E. Develop a career ladder and corresponding training for land surveyors.





Appendix A

Glossary

Boundary Management - 1. The determination and management of the legal delineation (boundary) between public and nonpublic Lands. 2. The determination and management of the delineation between two land types.

Boundary management involves (1) the establishing and/or reestablishing of land boundaries, (2) maintaining accurate land descriptions, (3) on-the-ground identification and perpetuation of boundaries, (4) the storage, retrieval, and dissemination of land records and spatial land information, and (5) the graphic portrayal and automated mapping of land boundaries for the purposes of managing the Nation's natural and cultural resources and ecosystems.

Cadastral Survey - A survey relating to land boundaries and subdivisions made to create units suitable for management or to define the limits of title. The distinguishing features of the cadastral surveys are the establishment of monuments on the ground to define the boundaries of the land and their identification in the records by field notes and plats.

Geodesy - A branch of applied mathematics concerned with determining the size and shape of the earth and the exact positions of points on the earth's surface. The science also studies variations in the magnetic fields of the earth.

Geographic Coordinate Data Base (GCDB) - A data base containing geographic coordinates (latitude and longitude) for corners of the Public Land Survey System. The GCDB is designed to provide graphic portrayal and automated mapping of the land net, and to tie resource information, e.g., wildlife habitat, cultural resources, etc., and land and mineral records to common geographic coordinate points.

Geographic Sciences - The disciplines of cartography, geodesy, geography, photogrammetry, remote sensing, and surveying.

Geographic Information System (GIS) - A system of computer hardware, software, and procedures designed to support the capture, management, manipulation, analysis, modeling, and display of spatially referenced data for solving complex land planning and management problems.

Land Information System (LIS) - An automated system that focuses on the management of land and its resources, both surface and subsurface. The LIS is a concept directed toward the linkage of three major BLM data bases: the Geographic Coordinate Data Base, ALMRS, and the Automated Resource Data.





Land Surveying - The practice of land surveying is the application of the science of measurement to assemble and assess land and geographic related information; to use that information for the purpose of planning and implementing the effective administration of the land, sea, and structures thereon; to investigate the advancement and development of such practices; and to take into account the relevant legal, economic, environmental, and social aspects affecting each project (Adopted from the International Federation of Surveyors).

Public Lands - Any land and interest in land owned by the United States that are administered by the Secretary of the Interior through the BLM, without regard to how the United States acquired ownership, except (1) lands located on the Outer Continental Shelf and (2) lands held for the benefit of Indians, Aleuts, and Eskimos. (Section 103(e) 43 U.S.C. 1702). The "Public Lands" term also includes (a) National Forests; (b) wildlife refuges and ranges; (c) the surface and subsurface resources of all the remaining public domain of the United States; (d) the remaining public domain of the United States; (e) reservations, other than Indian reservations, created from public domain; (f) lands withdrawn, reserved or withheld from private appropriations, and disposal under the public land laws, including mining laws; and (g) outstanding interests of the United States in lands which have been patented or otherwise conveyed under the public land laws.

Public Land Survey System - The PLSS is the foundation for all legal land parcel descriptions in the public land States, whether Federal, State, local, or private. The system was authorized by the Land Ordinance of 1785 and includes the creation of land boundaries following a prescribed rectangular pattern, the establishment of monuments in/on the ground, and the preparation of a narrative and graphic record of the survey which, upon official acceptance and approval, becomes a quasi-legal document and enters the public domain. These records are used in two general areas of local and national importance: (1) they form the basis of and become part of the patents issued when public lands pass out of Federal ownership; and (2) they form the basis for the overall administration and management of the lands retained in the Federal ownership.

Satellite Positioning System - The positioning or mapping of points, lines, areas, and features of the earth's surface utilizing a variety of satellite systems (i.e., Global Positioning System, Land Sat, etc.)

Spatial Data - Geographically referenced features that are described by geographic positions and attributes in an analog and/or computer-readable (digital) form.

Strategic Plan for Managing the Public Land Survey System





Appendix B

Significant Statutes and Legislation

1. Significant Statutes
 - A. The Act of May 20, 1785 (Continental Congress) established the current public land survey system for townships 6 mile square, containing 36 sections of 1 mile square.
 - B. The Act of February 11, 1805, established rules for the subdivision of sections and declared the original corners unchangeable.
 - C. The Act of April 25, 1812, as amended (43 U.S.C. 2) designates Secretary of the Interior the authority for the surveying and sale of the public lands.
 - D. The Act of March 3, 1909, granting resurvey authority.
 - E. The Alaska Statehood Act of July 7, 1958 (48 U.S.C. Chapter 2 note), as amended, requires the survey of lands for conveyance to the State.
 - F. The Alaska Native Claims Settlement Act of December 18, 1971 (43 U.S.C. 1612), requires the survey of Alaska Native lands for conveyances to Native corporations and individuals.
 - G. The Federal Land Policy and Management Act of October 21, 1976 (43 U.S.C. 1701 et seq.), authorizes the delineation of boundaries of the Public Lands.
 - H. The Alaska National Interest Lands Conservation Act of December 2, 1980 (16 U.S.C. 3101 et seq.), requires maps and legal descriptions for certain areas.
2. Department Manual: Parts 135 and 757 outlines the Department of Interior and the BLM's responsibility for surveying and mapping.
3. OMB Circular No. A-16 for the coordination of surveying and mapping activities within the Federal Government. Within the scope of the Circular, the BLM, through the Department of the Interior, has been assigned the responsibility of coordinating cadastral data.





UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
WASHINGTON, D.C. 20240

In Reply Refer To:
9600 (720)

March 23, 1994

Information Bulletin No. 94- 291

To: All Field Officials

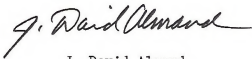
From: Director

Subject: Transmittal of the Bureau of Land Management's (BLM) Cadastral Strategic Plan

Attached is the BLM's Strategic Plan for Managing the Public Land Survey System. This provides the basic direction for the ongoing cadastral program reengineering initiative which will meet a portion of the BLM's efforts under the Vice President's National Performance Review objectives

This document is intended for internal use and guidance. A subsequent edition of this strategy will be prepared for our external customers.

Comment and questions should be directed to Robert Scruggs, Division of Cadastral Survey, WO-720, on (202) 452-5064.



J. David Almand
Acting Deputy Director

1 Attachment
1 - Strategic Plan (19 pp.)

