

National Integrated Land System (NILS) Project Plan

a Service First initiative of the Bureau of Land Management (BLM) and the U. S. Forest Service (FS)

1.0 Introduction

The NILS project plan serves as a guide for the Project Manager and Deputy Project Manager in prioritizing project activities, managing available resources and adjusting strategy in developing and deploying NILS products to equip common organizational units of both agencies with modern land record tools.

The project management plan establishes the purpose and scope of approved activities critical to meeting the common mission objectives of both agencies, and is also the basis for establishing further partnership initiatives and coordinated development initiatives with governmental entities which support the National Spatial Data Infrastructure (NSDI).

1.1 Description of Project

generic, one paragraph

The NILS project is a phased effort to develop a common data model and toolset for managing land records in a Geographic Information System (GIS) environment. The common data model and toolset will meet the core survey and parcel management business requirements of the Bureau of Land Management and the US Forest Service. Because these business requirements have much in common with those of the larger survey and land management community, the NILS project is a cooperative venture

1.1.1_ Initiation

On January 7, 1998, a Memorandum entitled "Bureau of Land Management-Forest Service Partnership for Land Management and Customer Services" was signed by Michael Dombeck, Chief, Forest Service and Pat Shea, Director, Bureau of Land Management. This became known as the "Service First" initiative. Subsequently, a Partnership Agreement for an "ALP/ALMRS Joint Development Project" was signed on June 11, 1998 by four sponsors: Jack Arthur (Director, IRM) and Jack Craven (Director, Lands) for the Forest Service, and Gayle Gordon (Assistant Director, IRM) and Pete Culp (Assistant Director, Minerals, Realty & Resource Protection) for the Bureau of Land Management. The ALP/ALMRS Project Charter was signed on ??? by the four project sponsors. With approval of this plan, the project will henceforth be known as the National Integrated Land System.

1.1.2 Historical Background

All public agencies with land management responsibilities share a common need to maintain a record of land survey and title encumbrances. Documents and legal instruments of these types are collectively referenced as land tenure records.

Insert paragraph about State and County responsibility for land records, which preceded the federal government with the original 13 colonies/states. Maybe a statement about the Land Ordinance of 1785.

Federal responsibility for the orderly survey and sale of the public domain was established with the Land Law of 1796, and responsibility assigned to the Treasury Department. Responsibility was subsequently transferred to the General Land Office upon its creation in 1812.

As the country expanded westward, new states were formed. The federal government continued to transfer the public domain lands to the states and to private citizens, through sales or outright grants. As local governments were formed, record systems for land tenure were established to track the subsequent subdivision and sale of lands between private citizens and organizations.

In the early years of the nation, the emphasis in public lands policy was to encourage settlement of the vast public domain by citizens, and to generate revenues by the sale of those lands. With the creation of National Parks and Forest Reserves in the late 1800's, public land policies began to slowly change, with increased emphasis on selective retention of certain lands for the benefit and enjoyment of all citizens, and the preservation of unique natural resources.

One result was that federal land tenure records became increasingly complex. In addition to surveys and title transactions, the records now needed to reflect actions to withdraw lands for specific purposes (parks, forests, wilderness, recreation areas), to grant temporary use rights (rights-of-way, mineral exploration,) and dispose of specific resources (leasing of grazing rights, sales of timber and minerals).

- a single shorter paragraph on BLM

When the Bureau of Land Management was formed under the Department of Interior in 1946, it inherited the responsibility for maintaining the records of all federal land and mineral transactions from the General Land Office, and in addition, the ongoing management of the Public Lands which today number at approximately 264 million surface acres (primarily in the western states and Alaska) and another 300 million acres of the subsurface mineral estate remaining in federal ownership under private lands and those of other public agencies. A modernization of the public land tenure records for the western states was begun in the mid 1950's and included the introduction of the Master Title Plat and Historical Indices, still in use today. The Title Plat is a graphic of current land status for every township by state and the Historical Indices contain an abstracted tabulation of all federal land and mineral transactions in each township.

- one paragraph on the USFS

The US Forest Service, Department of Agriculture, began a system of inventory and control by forest boundary of its lands in 1907, under its first director, Gifford Pinchot. The first direction for land status record standardization was issued in 1908 and was expanded to include acquired lands under the Act of March 1, 1911, (Weeks Act). In 1958, the Forest Service began a modernization effort to update its land status records and resulted in the establishment of the standard Land Status Atlas, containing status maps and a summary tabular record of title, partial

interests, rights and use restrictions pertaining to Forest Service lands. It is the land status record currently used Service-wide. The Forest Service manages approximately 191 million acres of land scattered throughout the United States.

Since the early 1950's, both agencies have struggled to maintain and modernize their land tenure records. Population growth, increased public scrutiny, environmental laws, and legal challenges have served to highlight the continuing demand for timely delivery of complete and accurate land tenure data to agency officials and to the public that enjoy and use the public lands.

, comprehensive, deteriorating, difficult to access records in a climate of decreased financial support have forced all agencies to consider alternative, more effective technologies.

Of the federal land managing agencies the BLM and the Forest Service were the first to initiate records automation projects. In 1978, the Forest Service began to computerize all tabular records in the land status atlas as the Landownership Status (LOS) and Land Use Restriction (LUR) data bases. In 1992, under the Information Management Framework established by the Chief, the Forest Service lands staff developed a plan to make land status (the legacy data bases), including the land survey network, a foundation for corporate applications, geographic information systems (GIS) and inter-agency data sharing. This project is known as ALP (Automated Lands Project).

The BLM was prompted to begin records automation from several sources. In 1976, a study of the physical condition and consistency of the Master Title Plats and Historical Indices concluded that poor grades in both areas indicated the need for records improvement. The Bureau made the decision to both rebuild the records and begin automation, so by 1979 the Legal Land Description (LLD) and Status (ownership records) were being collected in files on the Honeywell system. The Federal Land Policy and Management Act (FLPMA) of 1976 required BLM to track the location and disposition of mining claims, resulting, in 1978, with the development of the Mining Claims Recordation System, also on the Honeywell system. The surge of Oil and Gas lease applications on public lands in the early '80's overwhelmed the Bureau's case processing capability and resulted, in 1983, in the development of the Case Recordation system, which by 1988, included geothermal and lands cases. Field user input into design of an automated system continued into early 1990's and a contract was issued in 1993 to Computer Sciences Corporation (CSC). This system development, which became known as the Automated Land and Mineral Record System (ALMRS) project, focused primarily on text-based case recordation and reporting, but included a proof-of-concept demonstration of spatial display and query tools using ArcView, an ESRI product that is a standard BLM GIS application.

In 1998, the Chief Information Officers of the BLM and Forest Service and land program managers of the two agencies recognized an opportunity to realize major operational efficiencies in automating land and mineral records through a consolidation of the Forest Service's ALP and the Bureau's ALMRS. An interim ALP/ALMRS team was commissioned to explore the potential for a successful partnership in developing and maintaining one common land information system. Over the course of several meetings the team completed a high level validation of common business requirements, conducted an overview comparison of currently

planned system design solutions in ALP and ALMRS, and developed a vision and framework plan for project collaboration.

The county connection-----

1.1.3 Vision & Goals

Vision - A land information customer can access and process the parcel data they need that is current and consistent regardless of business location or technology.

Goal - Create a common system that will support land management decision-making at the parcel level.

Goal - Improve productivity, facilitate uniform data and parcel management procedures.

1.1.4 Project Scope

This collaborative development will focus on three components of a land information system:

- 1) the essential data stores and data relationships, in compliance with FGDC Cadastral Data Content Standard, to include land and survey information that serve as a geographic and descriptive reference for all realty transactions;
- 2) streamlined software processes directed by flexible business rules, to include the capabilities to collect, maintain, and store parcel level information and to display federal land ownership, agency jurisdiction, rights and restrictions;
- 3) an intelligent user interface populated with appropriate input/output tools to improve productivity, insure accurate, consistent data, and facilitate data sharing.

These components will be accepted and deployed based on fitness for business purpose as the overriding criterion.

Business requirements unique to an organization will be accommodated as modular additions to the core system and will not be within the scope of NILS.

The fourth component of an integrated land information system, technology (i.e., the computers, operating systems, networks, and communications), must accommodate and facilitate the other three developmental components and must be developed in partnership with this Project. As a major customer of each agency, NILS should be a factor in agency decisions concerning each agency's IT investments. This project will define technology requirements, network performance, disk space, etc to implement tools and applications. NILS also will need to

evaluate and test new technology to support its own development needs and will present proposed solutions to each agency's IT Staffs.

1.1.5 High-level Milestones

1.1.6 Assumptions & Constraints

The Project Manager assumes that adequate technical skills will be in place and that most users will have learned to use automated systems.

The Project Manager assumes that program and organization structures will be in place at each organizational level of the BLM and Forest Service prior to the deployment of NILS.

The Project Manager assumes the successful deployment of BLM's Legacy Rehost (LR 2000) Project and of the Forest Service's ALP Project

1.1.7 Approach (project management philosophy)

Integrating automated functions for land transactions across agencies and organizations must begin with the fundamental land and survey information and core tools commonly used for parcel management. The NILS Project Plan recognizes the importance of that foundation as the highest priority in a collaborative strategy to consolidate common cadastral business requirements, build on partner experience and successes, and leverage commercially available software to the greatest extent possible. NILS is an opportunity based project. Partnerships at the design and developments phases insure widely useful products and evolve into ongoing partnerships in the collection and maintenance of land and survey information.

This project redirects existing duplicate efforts to automate land records and incorporates development originally planned for the Forest Service's ALP and the BLM's ALMRS Release 2 as parallel projects.

Start with the land foundation as the common reference for the vertical integration of current and future themes.

Partnerships to leverage technology, minimize duplication of effort

Follow the tenets of Rapid Application Development:

1. Active user involvement throughout Project, and each task life cycle. Each work task

will involve User Groups in developing functional requirements, testing, modifying, and validating tools and applications prior to release.

2. Product based (rather than process-based) view of requirements. The focus will be on the delivery of tools and applications.
3. Requirements base lined at a high level
4. Iterative and incremental development to converge on accurate business solution
5. Focus on frequent, incremental product delivery cycles. The Project Staff will establish version control and tracking processes to help validate, improve, and update products.
6. Cooperation of all stakeholders will be maintained by meeting real business needs, even as technology, organizations, or customer needs change.

2.0 Detailed Objectives

2.1 Relationship to BLM Goals

2.2 Relationship to FS Goals

2.2.1 Relationship to BLM's Legacy Rehost Project and to the Forest Service's ALP Project

2.2.2 Relationship to other Public and Private Entities

2.3 Objectives

2.3.1 Program Objectives

2.3.2 Project Objectives

Project Objectives, in Priority Order:

1. Develop the capability to generate, maintain, and store a common parcel level Land data base for the depiction of historical and current realty activities.
2. Develop the capability to accurately determine and display the cumulative affect of realty transactions for a given parcel or area of land to determine status of land ownership, restrictions, agency jurisdiction, and authorized uses and activities.

3. Develop the capability to abstract case information from realty databases needed for generation of official agency records in support of land management analysis.
4. Develop case processing software tools that improve productivity, reinforce data and procedural standards, and reduce risk of realty litigation.

2.3.3 System Objectives

2.3.4 User Objectives

3.0. NILS Project Organization and Management

(a) Project Sponsors - There are four sponsors, two from each agency. The Director for Information Resources Management and the Director for Lands represent the US Forest Service (FS). The Assistant Director for Information Resources Management and the Assistant Director for Minerals, Realty & Resource Protection represent the Bureau of Land Management (BLM).

The Sponsors are responsible for oversight of Project activities. They approve the Project Charter and revisions. They approve the Project Plan, changes in scope and significant changes to tasks and priorities. The Sponsors ensure the Project direction is consistent with Bureau and Forest Service goals and objectives, and ensure that funding, FTE and required support services are allocated to the Project Manager. The Sponsors are liaisons for external communications and reviews with the Office of Management and Budget (OMB), General Services Administration (GSA), General Accounting Office (GAO), and other external agencies or entities. The sponsors will, at a minimum meet or have a conference call once a month.

(b) System Owners - The FS Director for Lands and the BLM Assistant Director for Minerals, Realty & Resource Protection are the System Owners at the completion of the Project.

(c) Project Manager & Deputy - The Project Managers are responsible to the Project Sponsors for the successful completion of the activities in the Project Plan. Specific duties are detailed in position descriptions, but generally include the full range of management responsibilities for budget, planning, communications, staff supervision, certification of project deliverables, and interagency coordination on those Project tasks that relate to ongoing activities in ALP and ALMRS.

3.1.3 ALMRS Integrated Project Manager

3.1.6 Operation and Maintenance Coordinator

3.1.7 System Owners

The System Owners are accountable for oversight of the use, management and integrity of a project application after it is implemented. The owners advocate and ensure effective use of the application, ensure adherence to life cycle management, coordinate with other organizations throughout the Bureau and the Forest Service to prevent duplication of systems and data, and ensure manuals and instructions for use are up-to-date. System Owners have final authority over the program aspects for any changes to an operational application or system and ensure funding to support operations and maintenance and future modifications. The System Owners also ensure that data quality and integrity through institutionalized data standards and necessary funding.

3.1.8 System Owners Council

System Owners Council - This management advisory group will be made up of experienced field office realty and records managers from both agencies. The council provides feedback to the Project Managers and Project Sponsors on development priorities, identification of impacts of deployment on agency organization and procedures and will validate that the finished products will support agency business requirements.

3.1.9 Training Coordinator

3.2 User Representatives

Field User Group - A small team of subject matter specialists from the BLM, FS and cooperating county organizations will provide project direction with continuity of technical feedback throughout the project life cycle. They will review the Project Plan, validate requirements, conduct ad-hoc testing, generate recommendations, and ensure that the technical input from subject matter experts on the various development teams is consistent and meets the overall objectives of the two agencies. Individuals from this group may also serve on specific task design and development teams.

3.2.1 User Requirements/Acceptance Team

3.2.2 User review of requirements for NILS

3.2.3 Development and Test Sites

(a) Primary Development Site - The Project Manager is located in Denver. The Deputy Project Manager and full-time development staff are located in joint BLM/FS office space

in Portland, Oregon. During the Project startup phase, emphasis at the Portland and Denver sites will be on completing discrete increments of Objective 1 tasks, selecting staff and structuring the design and development teams, working out roles and responsibilities, and developing demonstration prototypes of planned interoperability. When project management is satisfied that the skills, organizational structure, planning and communication protocols are in place and functioning effectively, simultaneous task development at other sites will be considered.

(b) Satellite Development Sites - Project task development at other BLM and FS sites will be considered after the startup phase, and established at the discretion of the Project Manager. Development at other sites will be contingent on the availability of qualified software developers and subject matter experts, on the availability of support services to the satellite development teams, on commitment to close integration with all other project development activities, on acceptance of assignments within the framework of the project plan, and strong local management support. During appropriate phases of the project, the Project Manager may designate the locations of private industry partners or contractors as NILS development sites and provide staff and technical user support to those sites.

(c) Demonstration Sites - Demonstration of system and application capabilities, field testing, and incremental deployment will be conducted at selected sites at appropriate milestones in the Project Plan.

3.3 Unit/Staff Roles and Responsibilities

The Project staff, including contract support staffs, are responsible for NILS tasks assigned by the Project Manager and Deputy Project Manager and as reflected in the project Work Breakdown Structure and other Project Management tools.

3.4.3 Operations and Maintenance Coordination

BLM: The NIRMC Division of Operations and Maintenance, the Deputy State Director with responsibility for technical IRM and operations for each state, NIFC representative that has the responsibility for technical IRM and operations and Washington Office ADP Branch Chief together will assist the Project Manager for the technical operations and maintenance aspects for the NILS application.

Forest Service:

3.4.4 System Engineering

3.4.5 Data Conversion

4.0 Reference to other Plans

ALMRS/Modernization Project Plan, May, 1991
Project Management Plan, June 1993
ALMRS/Modernization Project Plan, August 1994
IOC Project Management Plan, November 1996
ALMRS Release 1 Project Management Plan, June 1997
Transition Plan, August 1997

LS2000 Plan ??

ALP Project Plan ??

5.0 Summary of Overall Resources/Requirements

5.1 Project Personnel Needs

5.1.1 Skill Level/Mix Required

Project Staff - The full-time Project Staff is a mix of government employees and contractors selected by project management for their expertise in lands and realty, system analysis, database development, GIS design and development, programming, technical writing, and system and database administration. Additional temporary staff, composed of contractors and government employees on detail, will be assigned to the project for the duration of specific developmental tasks.

5.1.2 Other Resource Needs/In-house and Contractor Support

Support Services Staff - Both the BLM and FS will provide professional and technical support services to the Project, at the request of the Project Manager. Support services will be required for contract administration, IRM operations, budget analysis, major procurement buys, personnel actions, etc.

5.2 Contracting requirements

5.3 Equipment/Hardware Requirement

5.4 Facilities

5.5 Overall Budget

5.6 Overall Schedules and Deliverables

5.6.1 General

The Project Manager and Deputy Project Manager will provide the following deliverables:

- Project Charter
- Project Plan
- Project File
- Test Plan
- Test Descriptions
- Test Reports
- User Test Results and Acceptance Documentation
- User Guides/Manuals
- Training Courses
- Sample Implementation Plan

5.6.2 Deliverables to the User

- System Version Software
- User Guides, Manuals, Handbooks
- Diskettes
- Training Courses, Data Sets and Manuals
- Sample Implementation Plan

5.6.3 Deliverables to Operations & Maintenance

- Version Description Document
- User Guides and Manuals
- Software Product Specifications
- Software Test Description
- Source Code

5.6.4 Deliverables to Other Systems/Applications

6.0 Life Cycle Management and Cost Analysis

An BLM ALMRS Benefit Cost Study Update was completed on March 27, 1992 as part of the ALMRS/Modernization Project. A cost benefit analysis was completed for ALMRS Release 2 in March, 1998.

7.0 Project Management Plan

7.1 Work Breakdown Structure (WBS) by Stage

7.2 WBS Dictionary for each Task

7.3 Project PERT Chart

7.4 Project GANTT Chart

8.0 Testing Plan

An overall BLM ALMRS/Modernization Testing Strategy was developed (March 29, 1996) and a more detailed Capability Demonstration and Assessment Testing in New Mexico (March 1997) was developed specifically for Release 1. A similar CDA will be prepared for NILS. The CDA is a strategy for testing integrated events efficiently and sufficiently to assure BLM and the Forest Service that NILS is operational and deployable. It is an umbrella set of operational tests.

The strategic goal for CDA is to replicate normal business operations of BLM and Forest Service users and service providers. The objective for the NILS CDA is a comprehensive assessment of the system. Results from this effort will assist BLM and the Forest Service in identifying interim release software deficiencies and problems and ensure that the final release provides both BLM and the Forest Service with a deployable and useful system. There are three primary goals for CDA:

- Provide timely information and insight to BLM and the Forest Service concerning NILS capabilities
- Confirm that state and forest deployment readiness requirements are complete and achievable
- Identify deficiencies in the Modernization infrastructure that interfere with deployment and subsequent operations

CDA covers a range of activities over a period of time and is separated into three phases:

- Define operational tests
- Test operations
- Certify operations

These phases are dependent, each relying on and building on the work and efforts of the prior phase. The strategy for scheduling the phases is based on decision points. When the entry criteria are achieved (successful completion of the prior phase), then the next phase will be formally initiated.

Since software development for NILS is planned to be conducted in four phases, Alpha and Beta testing will be designed in the same phased approach.

A detailed testing plan will be developed for all releases of NILS

8.1 Performance Testing

8.2 Alpha Testing

8.3 Beta Testing

9.0 Deployment Decision- Go/No Go

9.1 Deployment Plan if Go decision

10.0 Plan Modifications

10.1 Procedures to Change Project Plan

Modifications to this Plan will occur at least annually, following an overall review by the Project Sponsors, Sponsor's Agent and the Project Manager. New dates, tasks and other changes will be detailed. Interim reviews will occur when planning, schedule and resources for tasks currently on hold are finalized.

10.2 Scheduled Plan Modification Points

11.0 Acquisition of Reference Data Plan

11.1 Describe Digital Orthophoto Quads

11.2 Describe Digital Raster Graphics

12.0 Communication Plan for NILS

12.1 Inreach (including both the BLM and the Forest Service)

12.2 Outreach

13.0 Monitoring

13.1 Project Baseline

The Project Baseline will be set upon final approval of this Plan by the Project Sponsors, the Agent and the Project Manager. Each update will be numbered, dated and submitted using a Record of Change Form to enable the reader to track changes and measure progress.

13.2 Project Documentation

The Project Manager will maintain a complete set of the official NILS Project Plan Documents, including the Project Charter, Project Plan, Project Documentation and progress reports. All documentation will conform to data quality assurance standards, codes, training and testing for the BLM and the Forest Service.

13.3 Report Procedures

The Project Manager will provide the Project Sponsors, the Agent with brief monthly reports which will include the progress on tasks and upcoming milestones, monthly accomplishment, meeting minutes and any issues or concerns which may need resolution.

After approval by the Sponsors, all the members of the Project Management Board and any other party deemed necessary.

13.4 Risk Analysis/Mitigation

NILS will be [pushing the envelope] of agency capabilities and working in a rapidly changing technology and business environment. There will be constant trade-offs and decisions on how and when tools and applications should be delivered. Questions like, should we deliver now knowing a better technology is right around the corner, or what is the cost/benefit to meeting a business need at a higher or lower level of user interaction, will be constant. The following rules will apply to NILS to assist in these decisions:

1. Maximum use of Commercial Off-The-Shelf (COTS) software will be made.
2. The critical path for major tasks will be closely monitored and frequently assessed.
3. Rapid Application Development model for prototyping, testing and adaptation of software applications will be the standard methodology.

The potential exists for conflicts and non-attainable objectives due to the following identified risks:

Oversight: Every organizational or management layer between sponsors and project manager is a barrier to clear communications and timely decision-making. A flat reporting structure insures fast Project accomplishments.

Scope creep: Sponsors and Project Manager must guard against, and forcefully resist, attempts to expand project scope or individual development tasks.

Critical path: A simple plan, closely managed, is superior to the most elaborate and well-documented plan followed by too many experts.

14.0 Post-Project Review

The Project Manager and Deputy Project Manager will write a project evaluation upon completion of the Project. The report will discuss innovations discovered, successes, deficiencies and alternative methods for problem resolution.

14.1 Criteria for Project Success

System development is timely and meets intended needs
Quality of deliverable
Milestones reached on time
Project Personnel reassigned to meaningful positions
User needs within both BLM and Forest Service have been met
Project within budget
Products implemented successfully
Products being used both within BLM and the Forest Service
Products serve intended need
Disruptions minimized in both agencies
Reuse of generic software tools by applying rule-based procedures.

Success can be measured by the tools, applications, and other products delivered to the agencies to meet business needs. The following are agency based criteria to measure the success of NILS:

1. Accurate information, universally accessible to all who need it
2. Software extensibility and system scalability to timely meet changing customer needs and statutory requirement
3. Increased staff productivity, and compliance with realty standards and guides.
4. Elimination of redundant data collection efforts, repetitive procedural reviews (checkers checking checkers), and overlapping developmental projects.
5. High degree of data, application software and support systems integration.
6. Consistent, reliable records that maximize the use of rule-based procedures in data analysis processes.

14.2 Criteria for Project Failure

Products too complicated to use
Products fail to meet targeted goals and objectives
Products do not meet BLM's and Forest Service's business needs
Products not implemented Bureau-wide and Forest Service-wide

14.3 Enhancement Evaluation Plan

14.4 Configuration Management Transition Plan

BLM: CM is responsible for maintaining the integrity of established system baselines and controlling any changes to those baselines. A revised Configuration Management Guide was issued April 21, 1997 (IB-NI-97-4003). That document was placed under CM by the National Configuration Management Board (NCMB). Any changes to the configuration management have to be addressed to the NCMB.

Forest Service:

15.0 Training Plan

16.0 Operation and Maintenance Plan

BLM: An Operations and Maintenance Guide for the IRM Modernization System was updated May, 1996. Additionally, the Computer System Operators Manual was prepared June 12, 1997. The appropriate sections of these documents will be revised for NILS.

Forest Service:

- Incremental resource requirements
- Incremental development software, COTS hardware and COTS software maintenance requirements
- Incremental training requirements

17.0 Security Plan