Activities of the Bureau of Langement

FIG Commission 7 Cadastre & Land Management June 22, 2005 Madison Wisconsin

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Donald Buhler Chief Cadastral Survey Bureau of Land Management



BACKGROUND

Public Domain – 1776
 Western Reserves
 Need for Security
 Show of Unity
 Need for Revenue
 Promote Settlements

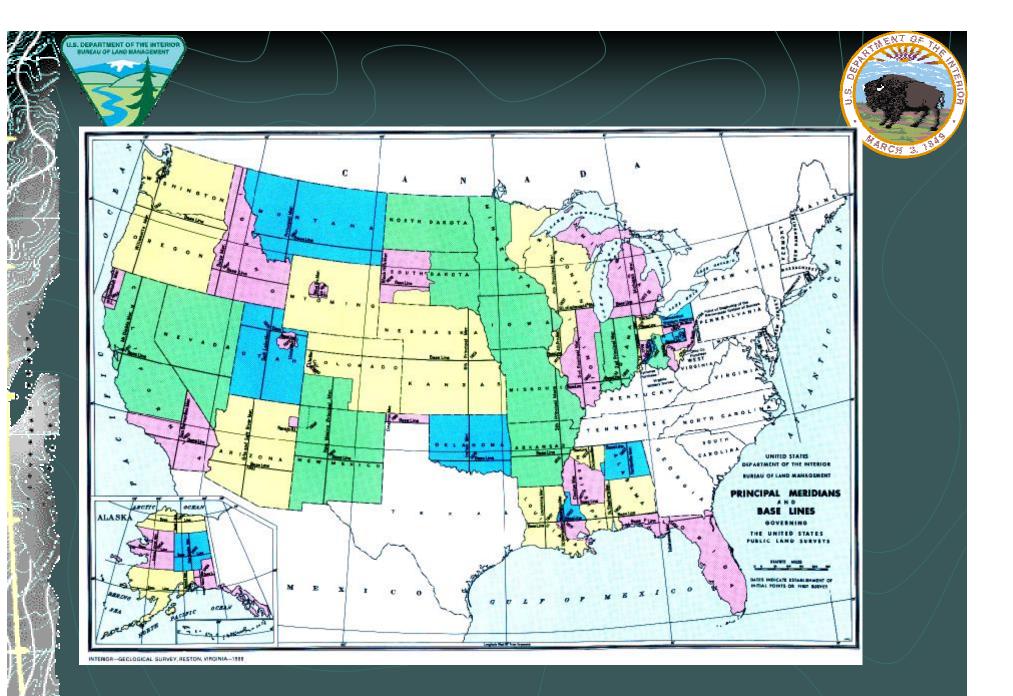
DEPARTMENT OF THE INTERIC





PUBLIC LAND SURVEY SYSTEM

ØHotly debated by Thirteen Colonies ØDesigned by Thomas Jefferson with major input from other States <u>
 ∠Land Ordinance of 1785
</u> **Ø**Three Principals **Ø**Survey before settlement ØFollow the design **Ø**Standard Unit



0

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UNITED STATES RECTANGULAR SURVEY SYSTEM 24 miles 24 miles 24 miles 24 miles 24 miles RANGES WEST FIRST STANDARD PARALLEL- NORTH . 24 miles T4N, 6 mi. (less convergence R4W in 24 miles) TOWNSHIPS NORTH 6 mi. 6 mi. iiii gi 6 mi. BASE LINE 6 mi. 6 mi. 6 mi. Initial Point FIRST GUIDE MERIDIAN - EAST SECOND GUIDE MERIDIAN - WEST PRINCIPLE MERIDIAN SECOND STANDARD PARALLEL- SOUTH



TOWNSHIP DIVIDED INTO SECTIONS

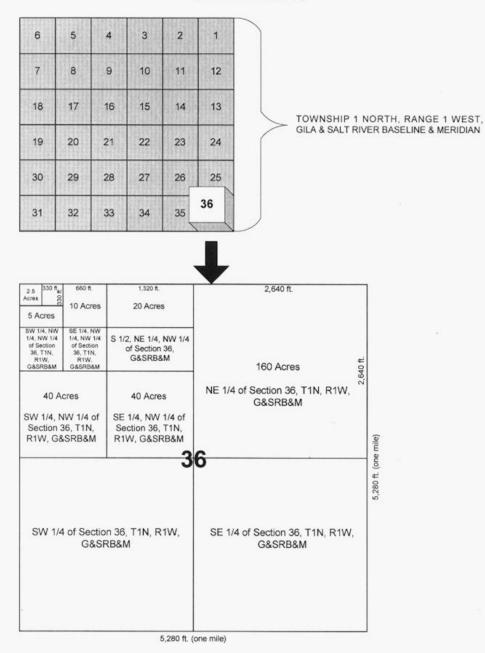


[1 1
	6	5	4	3	2	1	
	7	8	9	10	11	12	
	18	17	16	15	14	13	
	19	20	21	22	23	24	SIX MILES
	30	29	28	27	26	25	
	31	32	33	34	35	36	

SIX MILES -



SECTION DETAIL





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LAND POLICIES

Land Ordinance of 1785 & 1787
General Land Office 1812
Homestead Act 1862
Railroad land grants 1862 - 1871

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- Yellowstone National Park and General Mining Law 1872
- Ø Opening of Indian lands 1887
- Forest Reserve Law of 1891
- Ø National Park Service 1916





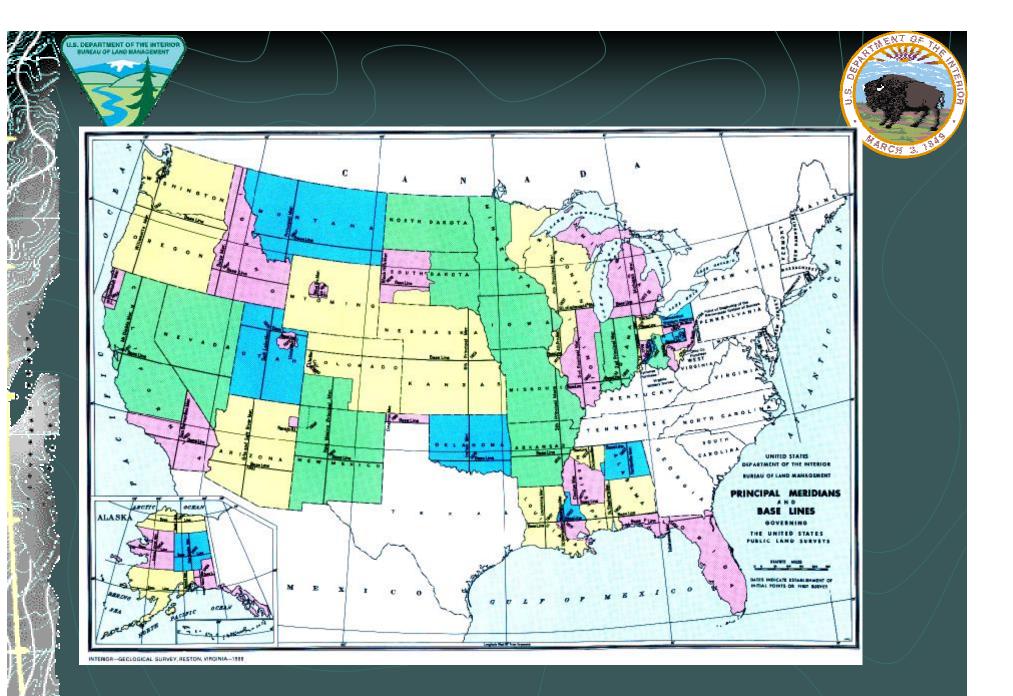
LAND POLICIES (cont.)

- Taylor Grazing Act of 1934
 Fish and Wildlife Service created, 1940
- Bureau of Land Management created, 1946
- Land and Water Conservation Fund Wilderness Act of 1964
- Wild and Scenic Rivers Act of 1968

- National Environmental Policy Act of 1970
- Alaska Native Claims Settlement Act of 1971
- Endangered Species Act, 1973
- Federal Land Policy and Management Act (FLPMA) of 1976

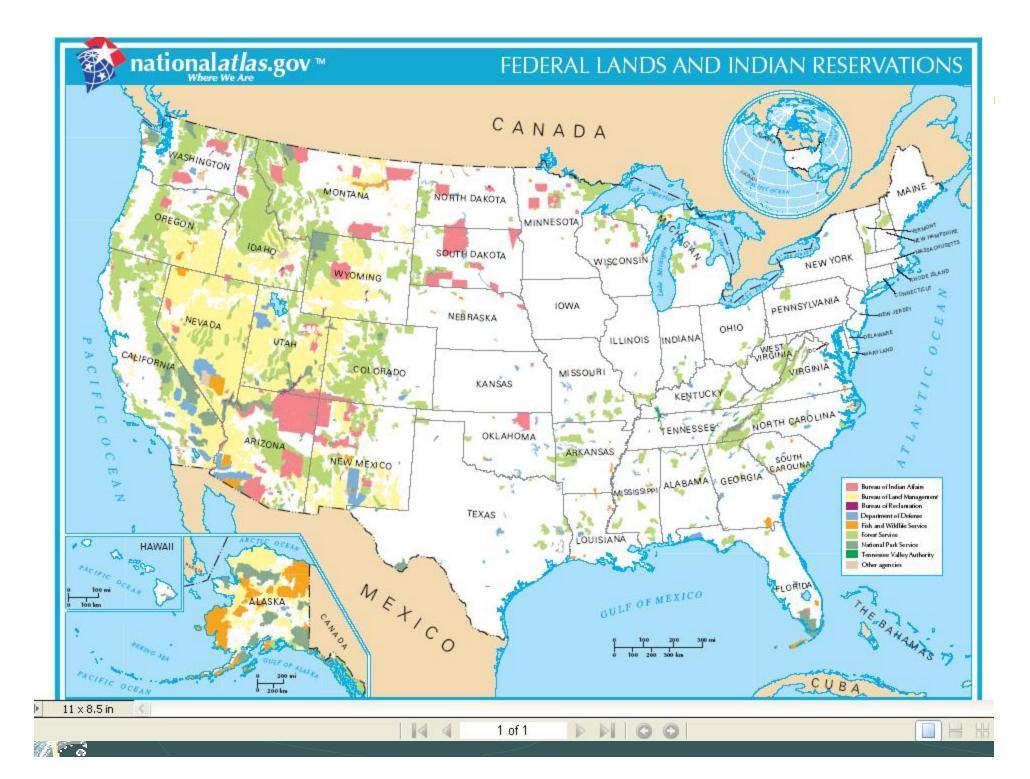
MAJOR FEDERAL LAND AGENCIES

ØBureau of Indian Affairs **Ø**Bureau of Land Management ØBureau of Reclamation ØDepartment of Defense Ø Fish and Wildlife Service **ØU.S.** Forest Service **ØNational Park Service**



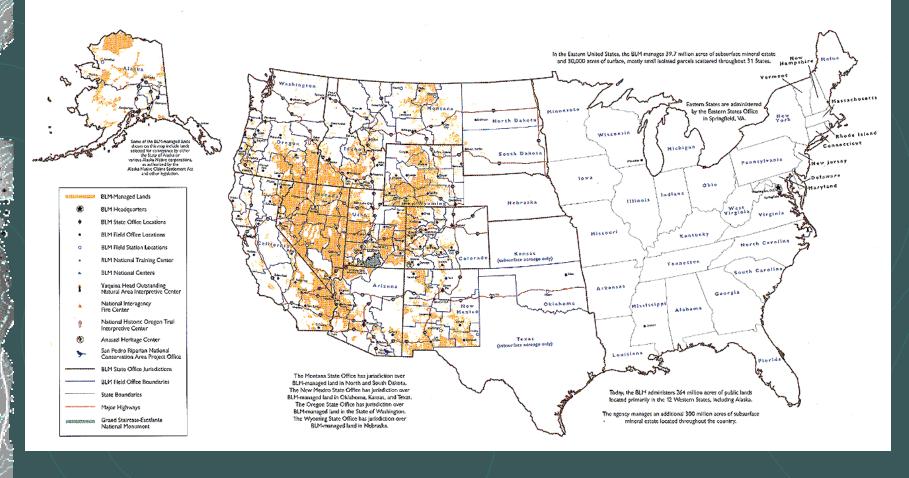
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Public Lands Managed by the Bureau of Land Management (BLM)



FEDERAL LAND MANAGEMENT AGENCIES

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Surface Managing Agency (SMA)	<u>Acres (n</u>	<u>Acres (millions)</u>	
BLM	261		
Other Federal SN Forest Serv Fish & Wildlife Servic National Park Servic Dept. of Defense/Corps of En	ice ce* ce* ng.	191 93 84 12	
Subtotal (Other Federal SN	1A)	380	
Non Federal (State/Private) SMA	58		
ТОТ	AL 699 mill	ion acres	

BLM MISSION COMPONENTS



ØResource Protection
ØRecreation
ØResource Use
ØServing Communities

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12 WESTERN STATES INCLUDING ALASKA.

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ØOutdoor recreation
ØLivestock grazing
ØEnergy
ØMineral development
ØConserving natural, historical, cultural, and other resources



BLM PRIORITIES FY 07 to 09

Ø ENERGY

Contribute to Domestic Energy Supply

Ø WATERSHEDS

Manage Rangelands and Forests to Achieve Healthy and Productive Watersheds

ØRECREATION

Ø Improve Dispersed Recreational Opportunities

Ø HERITAGE

Protect Cultural and Natural Heritage Resources

Stretch the Buying Power of New Appropriations



Ø PARTNERSHIPS

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Working with partners that are willing to donate funding or labor to projects that benefit BLM lands

Ø COST RECOVERY

Recovering costs to the BLM of its use authorization reviews
 Reimbursable accounts

Ø WORFORCE MANAGEMENT

Forecasting and managing the workforce to optimize its efficiency



PARTNERHSIPS **Projects That Benefit BLM Lands** Geographic Coordinate Data Base ØDemands Increasing Indian Country Needs **Western Governors' Association Resolution** Contributed Services Agreements Proponent pays BLM and provides labor Zimely services provided

DEMAND FOR CADASTRAL SURVEY SERVICES

BLM'S backlog of high priority surveys
 Inventory by field managers
 \$93 million with additional yearly needs



DEMAND FOR CADASTRAL SURVEY SERVICES Meeting BLM's fiduciary responsibility for Indian trust A long term commitment Over \$63 million high priority for next 3 years (\$110 m in backlog) Additional needs of \$2 M per year Modern land status system base upon surveyed data



HIGH PRIORITY CADASTRAL SURVEY INITIATIVES Alaska Conveyance – complete in 2009 Increase of to \$ 42 million in FY 05 Cadastral survey ØFiduciary trust model - \$11 million PLSS Maintenance, GCDB, Certified federal surveyor ØNational parcel data base – multipurpose cadastre **Solution** Linked to the proposed Federal Real Property Bill Leverage existing State and County databases



ARCS 3, 1840

FGDC Cadastral Subcommittee

Subcommittee – Bob Ader, Don Buhler Chairs

Nancy von Meyer - Secretary Members from:

BLM State Offices, USFS, USFWS, FSA, Corps of Engineers, NGS, MMS, NACo, Counties, NSGIC, Private Industry

Western Steering Committee

Bill Ferguson - Coordinator

Regional Agency Offices, Federal State Reps, States, Counties, Private Sector, WGA GI Council

Eastern Steering Committee

David Stage - Coordinator

Regional Agency Offices, Federal State Reps, States, Counties, Private Sector

CADASTRAL PHILOSOPHY



Standards to Meet Business Needs **Ø** Standards have a basis in applications **Ø Build profiles of standards to support application** Ø Tie activities to the needs of our customers ØPartner and participate with customers These Initiatives Can Actually Happen Ø Florida has core data assembled statewide Ø Alabama program has 80% of their parcels converted in three years **Ø** Implementation of and compliance with standards (Tribes, Montana, USFW and Park County Colorado and many many others)



Accomplishments

ØOur Web Page (http://www.nationalcad.org) Completed and Maintaining a State-by-State Survey Standard Maintenance, Implementation and Compliance State Boundaries Control Project **Outreach and Partnerships**

FGDC Cadastral Subcommittee

This is a new site and we'd appreciate your comments.

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Western Steering Committee

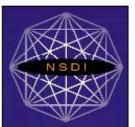
National Subcommittee

Eastern Steering Committee

Click on the 🕨 buttons for more options.

- National Subcommittee
- Eastern Steering Committee
- Western Steering Committee
- **Ongoing Projects**
- **Reports & Documents**
- **Cadastral Standards**
- Land Records Inventory
- Search and Query

FEDERAL GEOGRAPHIC DATA COMMITTEE SUBCOMMITTEE FOR CADASTRAL DATA



These web pages provide information related to the development, standards and implementation of the Cadastral National Spatial Data Infrastructure (NSDI). This site is the home for the Federal Geographic Data Committee (FGDC) Subcommittee for Cadastral Data and serves as a focus for coordinating national cadastral, parcel, and land records efforts. The Bureau of Land Management (BLM) is charged with coordinating cadastral information under OMB Circular A-16.

U.S. DEPARTMENT OF THE INTERIOR

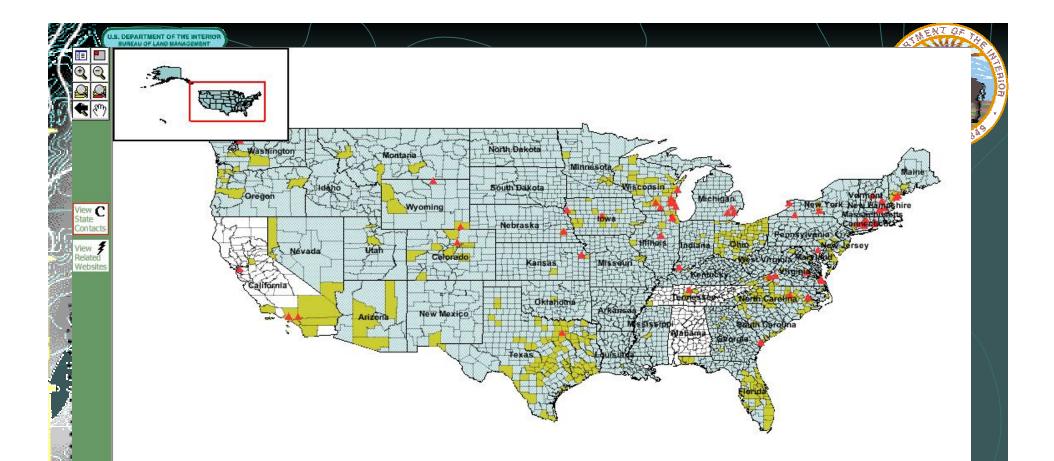
REAU OF LAND MARAS

To further the cadastral NSDI, two related web sites for the Eastern Cadastral Steering Committee and the Western Cadastral Steering Committee are linked to and integrated with this site.

For the lastest news and information regarding this subcommittee visit the "news" section under Reports & Documents.

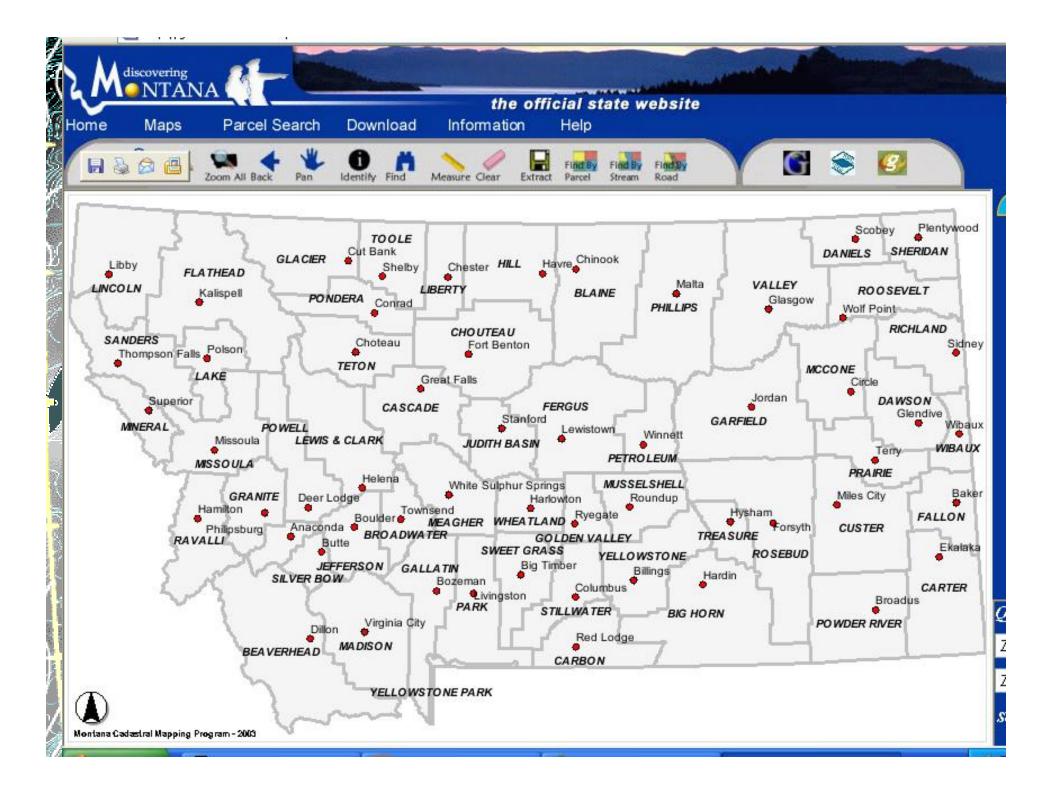
If you have any questions or comments on this site **please let us know**. We welcome your input and suggestions and we encourage you to use the information on this site to assist your project.

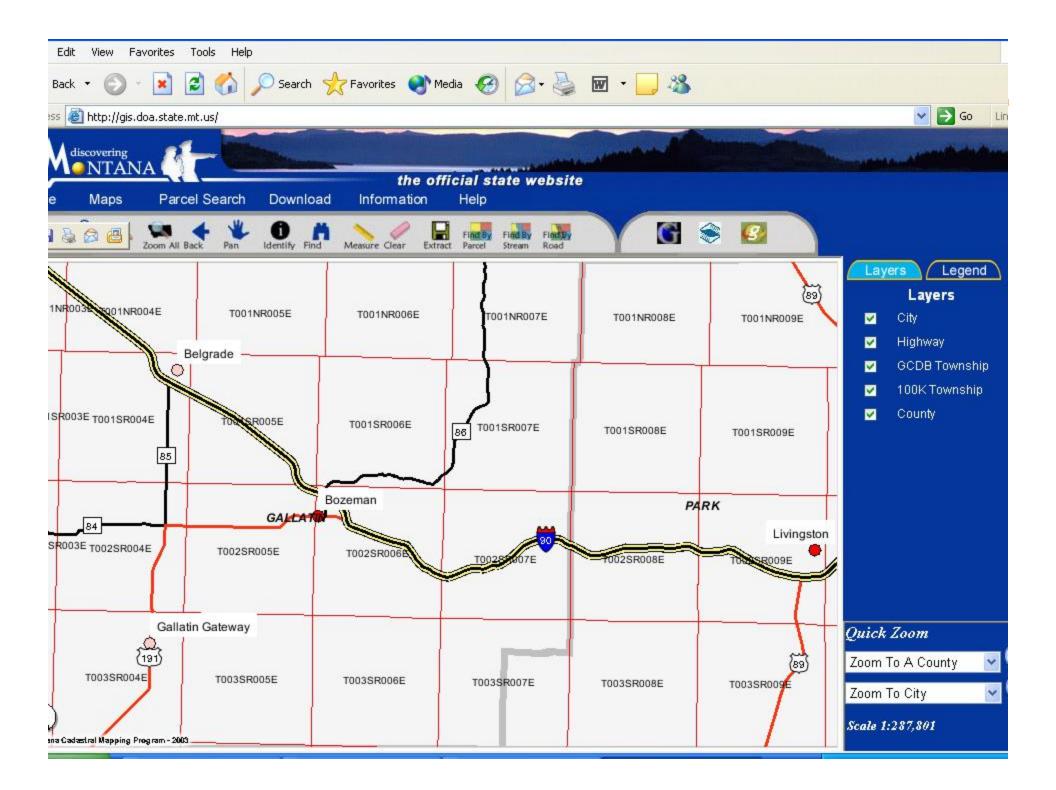
http://www.nationalcad.org

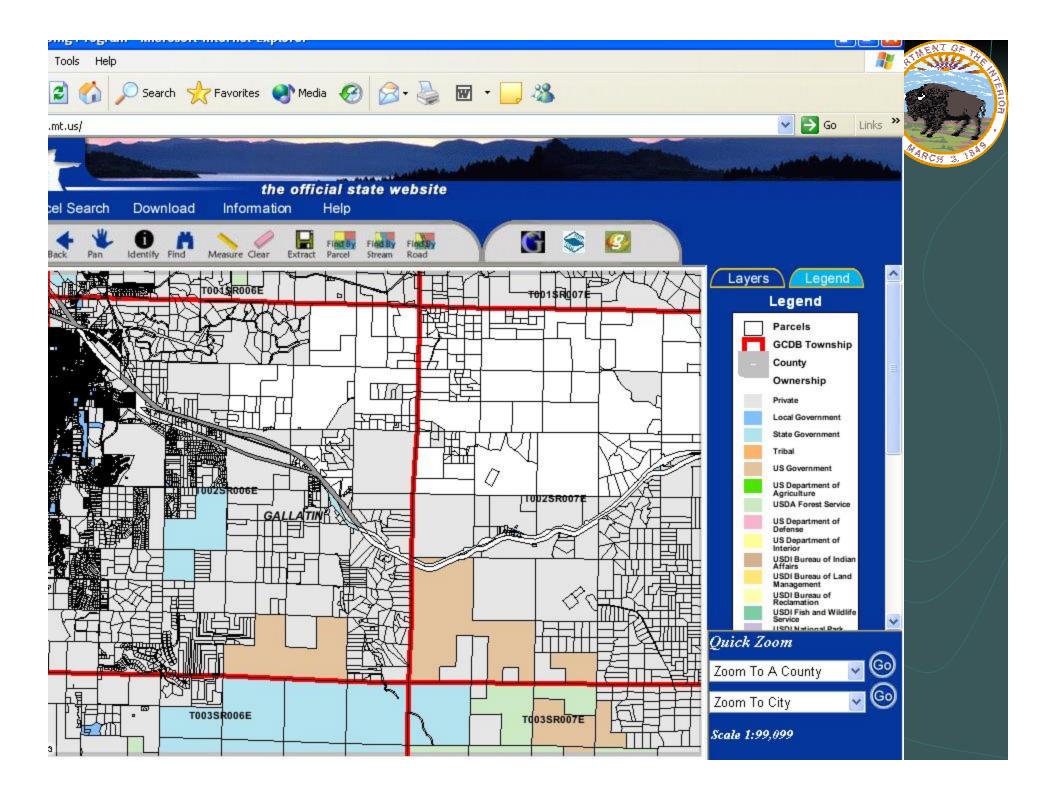


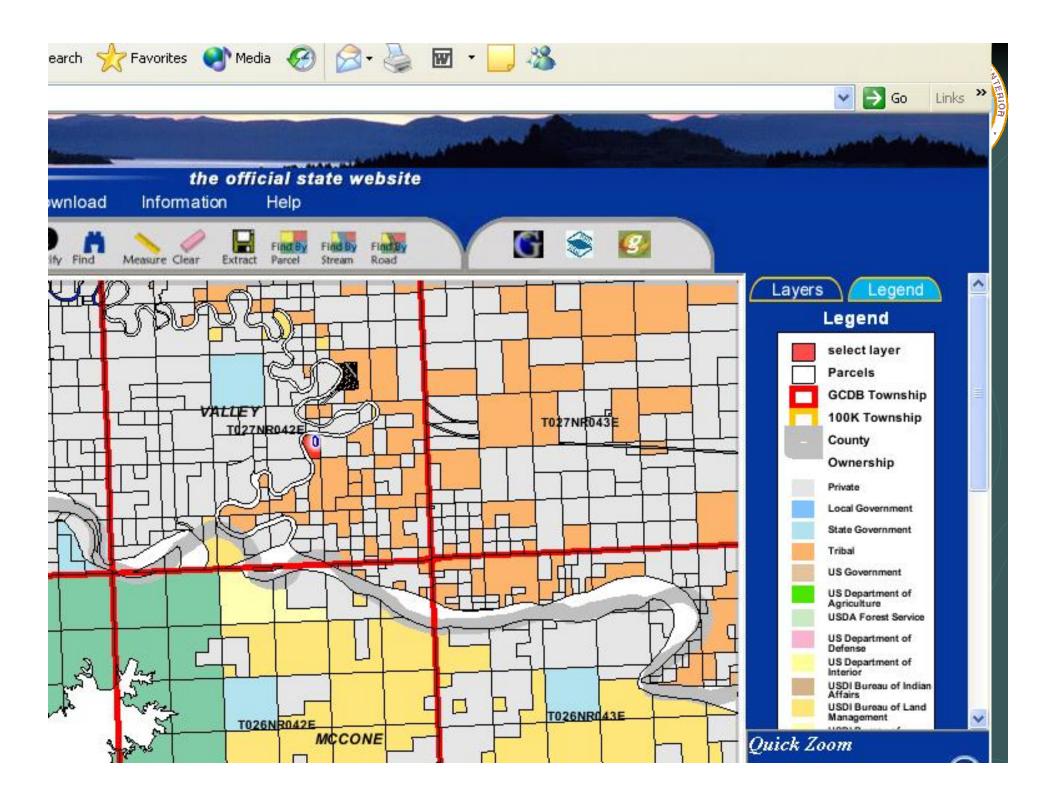
State Survey and Contacts

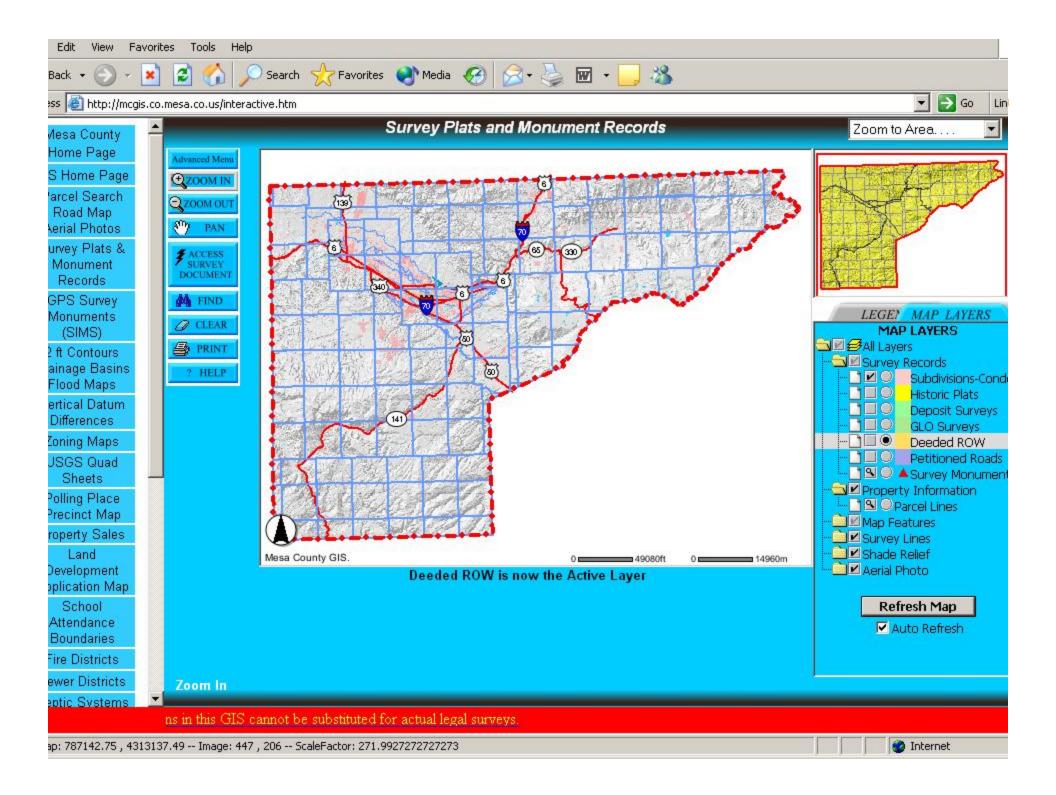
Contacts for federal agencies by state State cadastral coordinators Related web sites for reaching the contacts

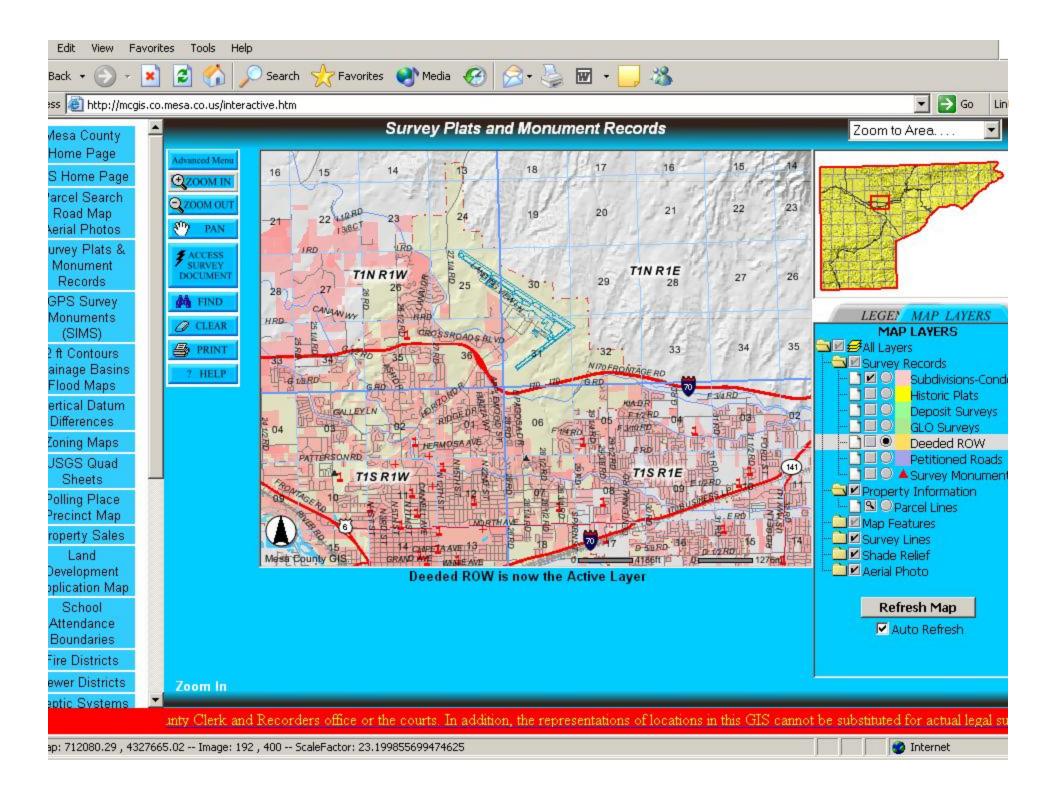


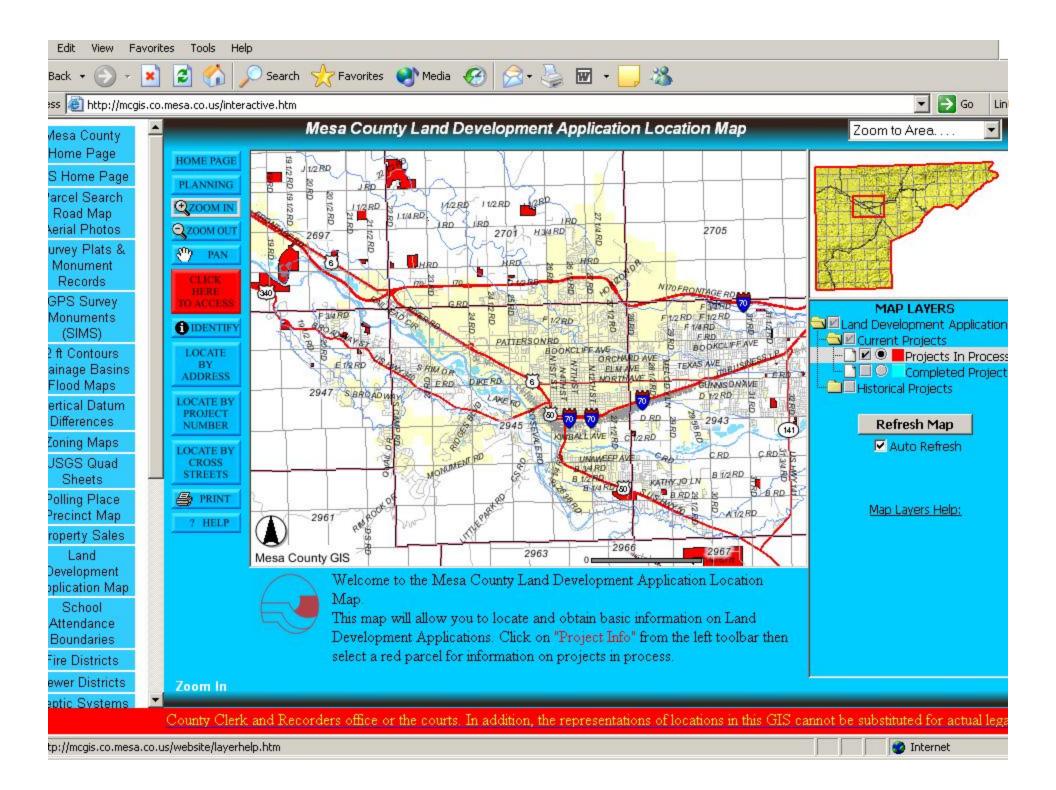












Federal Land Records, Review Mesa County, Colorado

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- Public Land Survey System
 - Land Disposals (Patents, etc.)
 - State Lands
 - Bureau Of Reclamation Wdls.
 - USFS Withdrawals
 - Wilderness & Study Areas
 - Federal ROW Cases
 - Mesa County Parcels
 - Federal Mineral Estate
 - Telecom. Right-Of-Way
 - Federal Oil & Gas Leases



COST RECOVERY

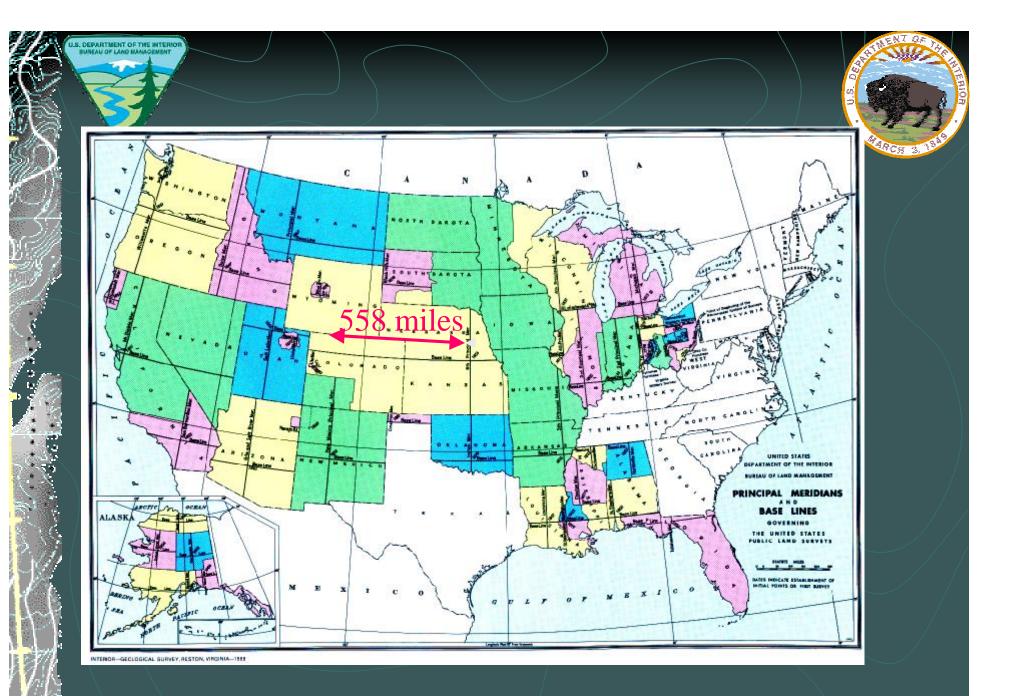
ØIndian Surveys ØFull costs are reimbursed \$ 10 M Can supports BLM initiatives **Ø**Secretary's Fiduciary Trust Responsibility ØMaintains BLM survey expertise ØForest Service and other Agencies **Ø**Can support BLM initiatives ØMaintains BLM survey expertise

WORFORCE MANAGEMENT



- Prioritizing Cadastral Services to BLM's four major themes
- Matching Cadastral Services to BIA, Forest Service and other Agencies
- Program Assessment Rating Tool
 ØPerform highest priority surveys
 ØComplete surveys promptly

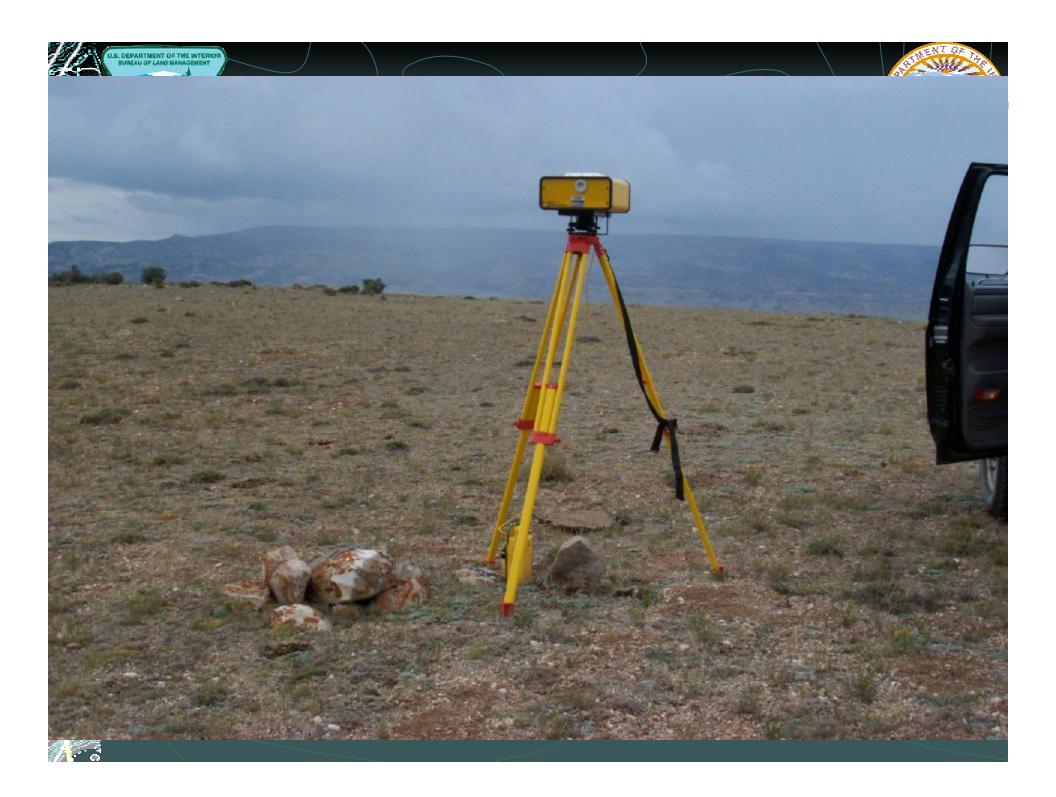


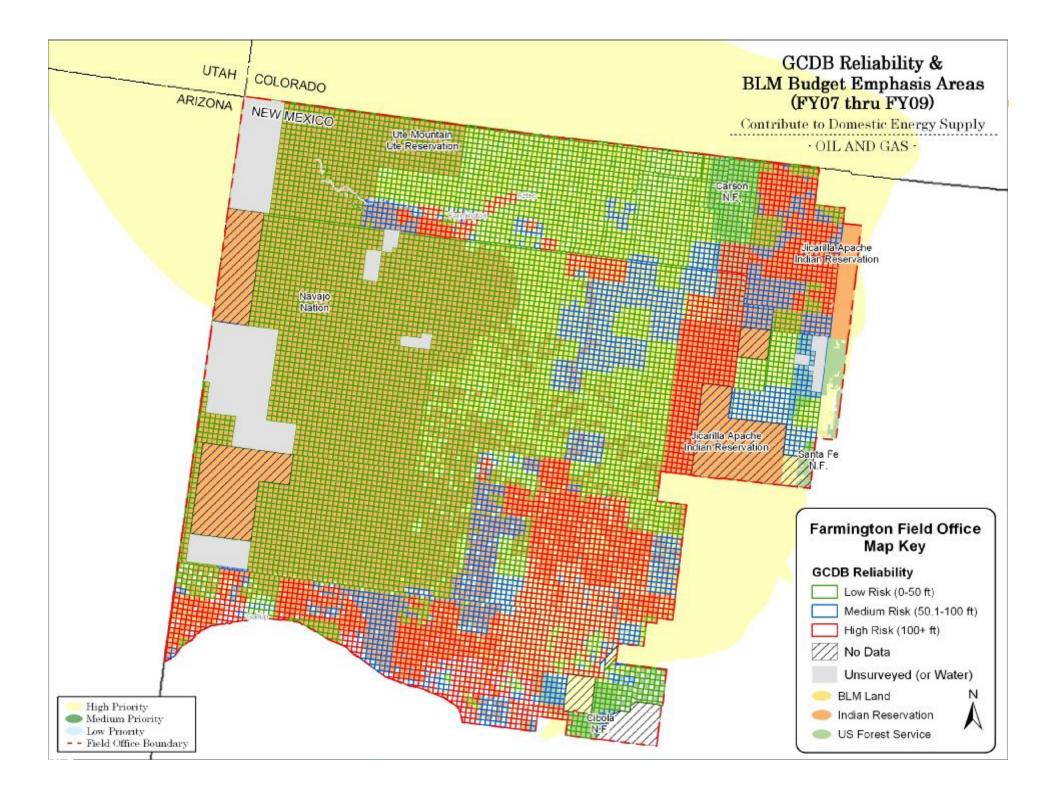


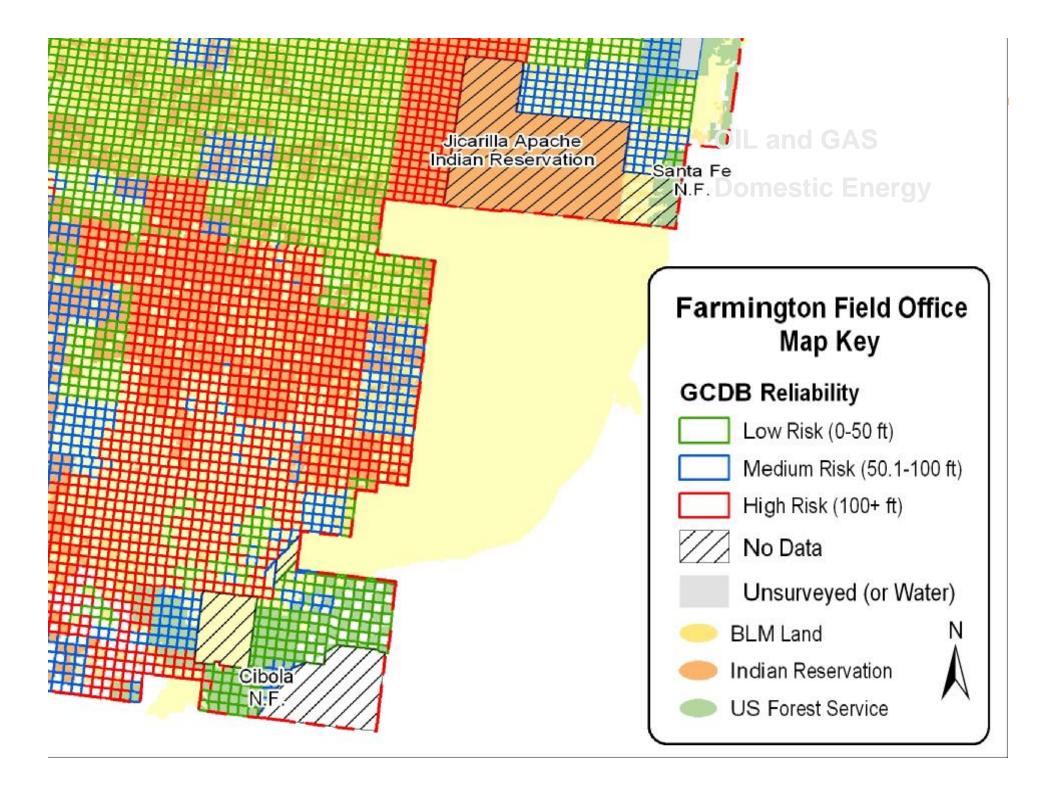
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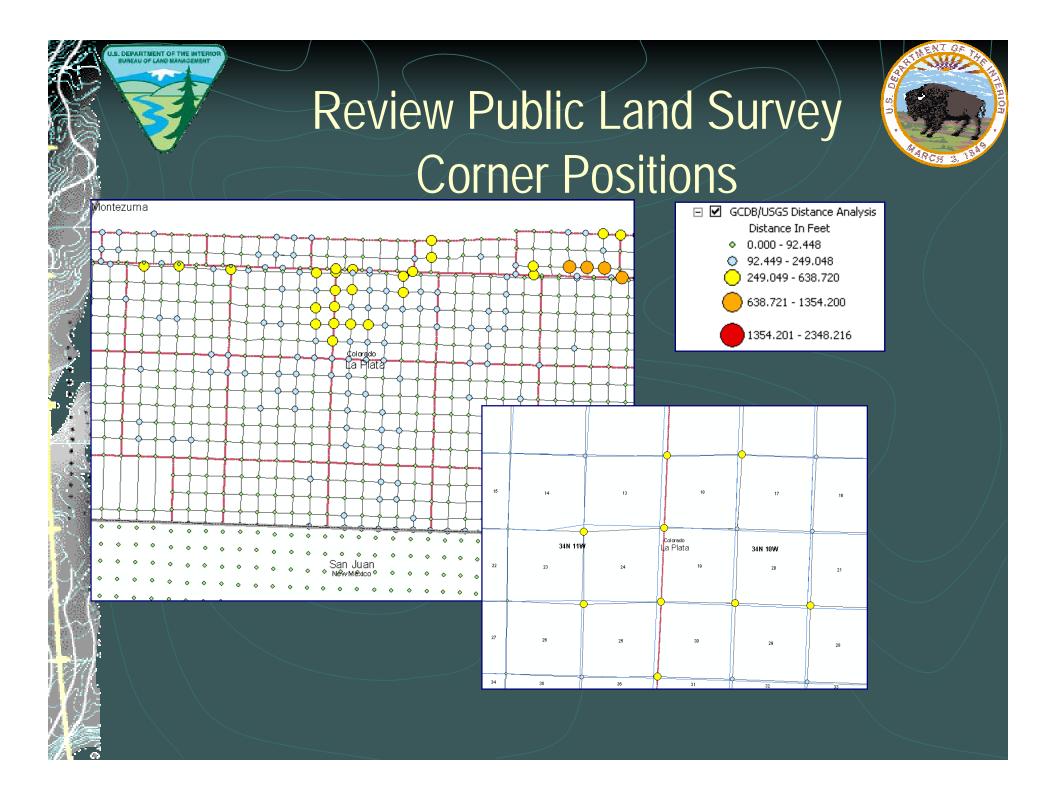
81 M

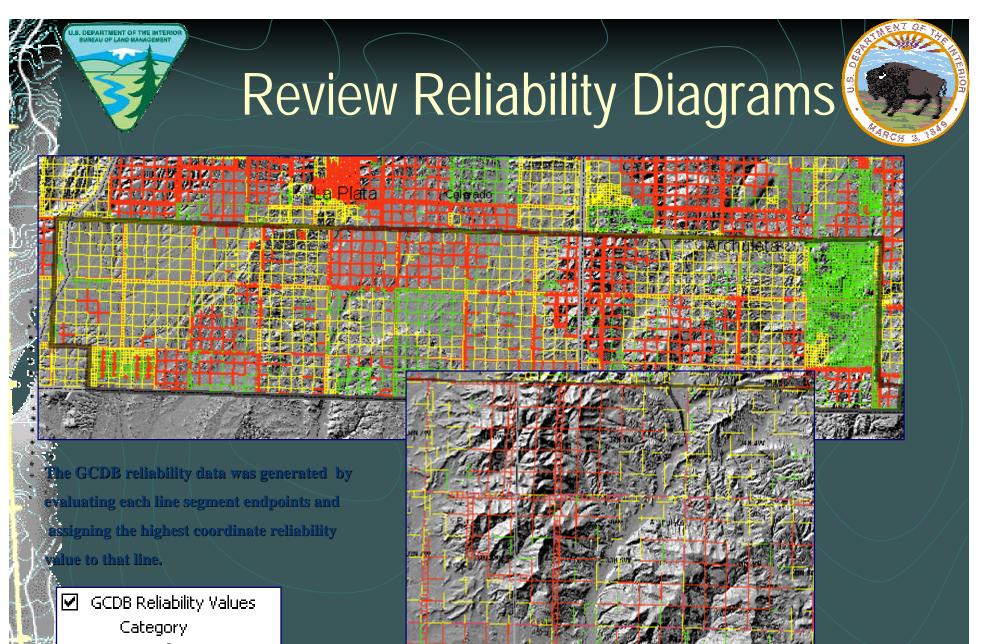




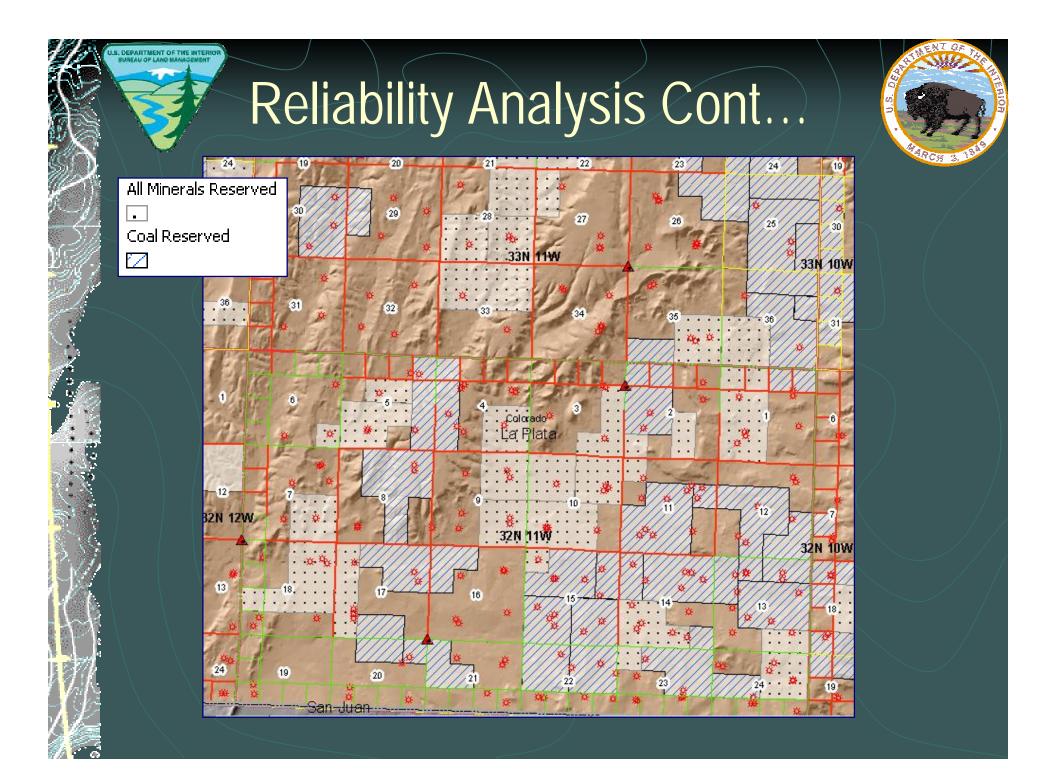








- 100 + ft.
- 21 -100 ft.
- less than 21 ft.





INDIAN ISSUES

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FIDUCIARY TRUST MODEL



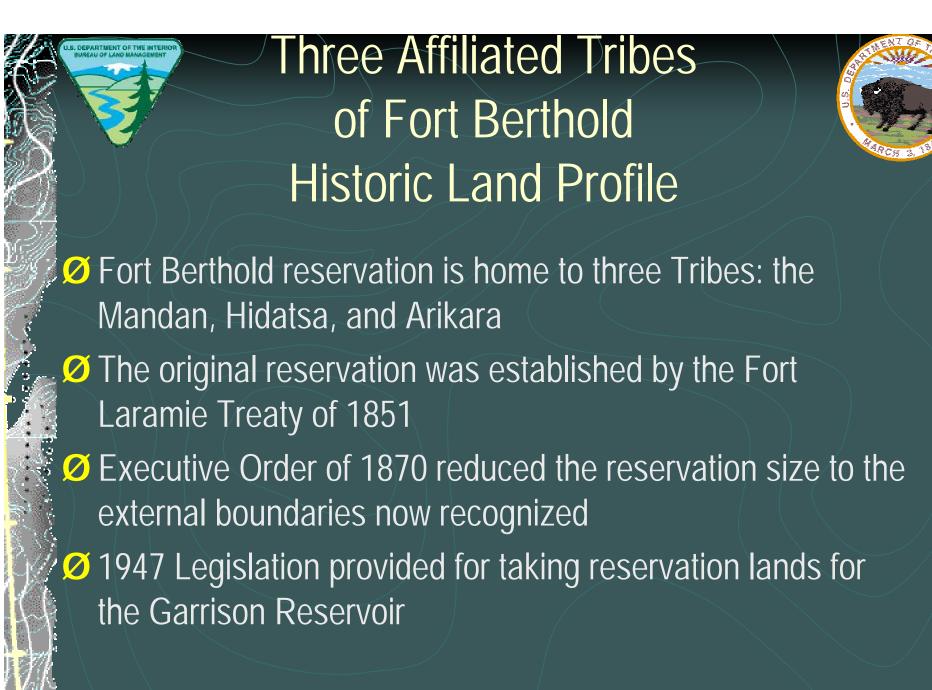
Three Affiliated Tribes of Fort Berthold Cadastral Geographic Information System Pilot Project

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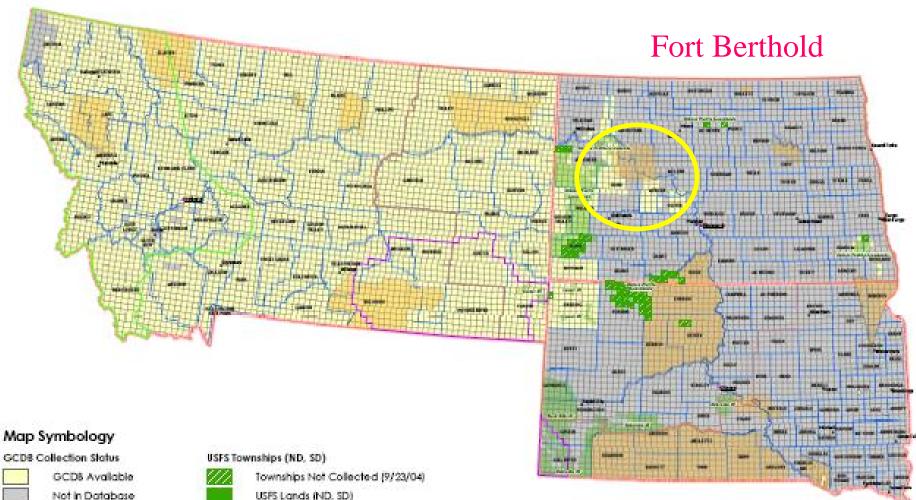


Project Background

The Three Affiliated Tribes was one of four Cadastral GIS pilot projects selected in FY 04
Project is entered into by:
Bureau of Indian Affairs
Three Affiliated Tribes
Office of the Special Trustee
Bureau of Land Management
Project is funded by OST for \$200,000

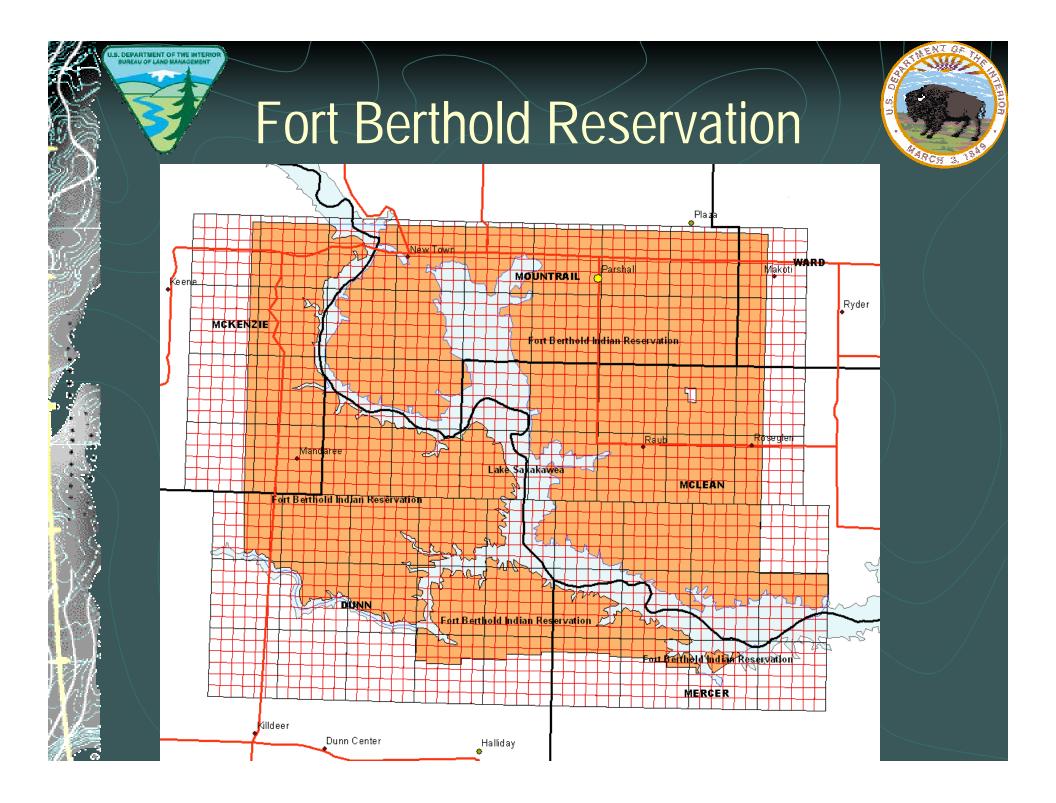


GCDB Collection Status - Montana and The Dakotas



- Not in Database Williston Basin Montana Thrust Belt Basin Powder River Basin Indian Reservation Boundaries
- Premier
- Partial Belgi Lankar, Iao. 1000, Visto, Harvar, John 200 Begianzas, O. 6000 Procession 2004/12008 Procession 2004/12008 Procession 2004/12008 Partial Participanti Partial Data Partial Partia
- USFS Lands (ND, SD) State Boundary
- County Boundary
- State Capitals
- Cities (pop. 10,000+)







LAND STATUS PROFILE

ØTotal Area: 988,000 acres Ø Tribally Owned: 79,233 acres ØAllotted Owned: 378,604 acres Tribal/Allotted Owned: 457,837 acres **Ø**Government Owned: 3,280 acres Ø Non-Indian Owned: 526,883 acres Reservoir Taken area: 155,000 acres

COMMUNITY ENVIRONMENTAL PROFILE



Population of enrolled members: 8,400
Reservation Population: 3,776
Land Use Economy:
Agriculture 78,150 acres
Grazing 377,134 acres
Forestry 3,477 acres
Other 2,356 acres

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PROJECT GOALS



- Promote management of Tribal Assets through self determination
- Implement GIS technologies in support of BLM and BIA to fulfill Trust Responsibilities under the Fiduciary Trust Model

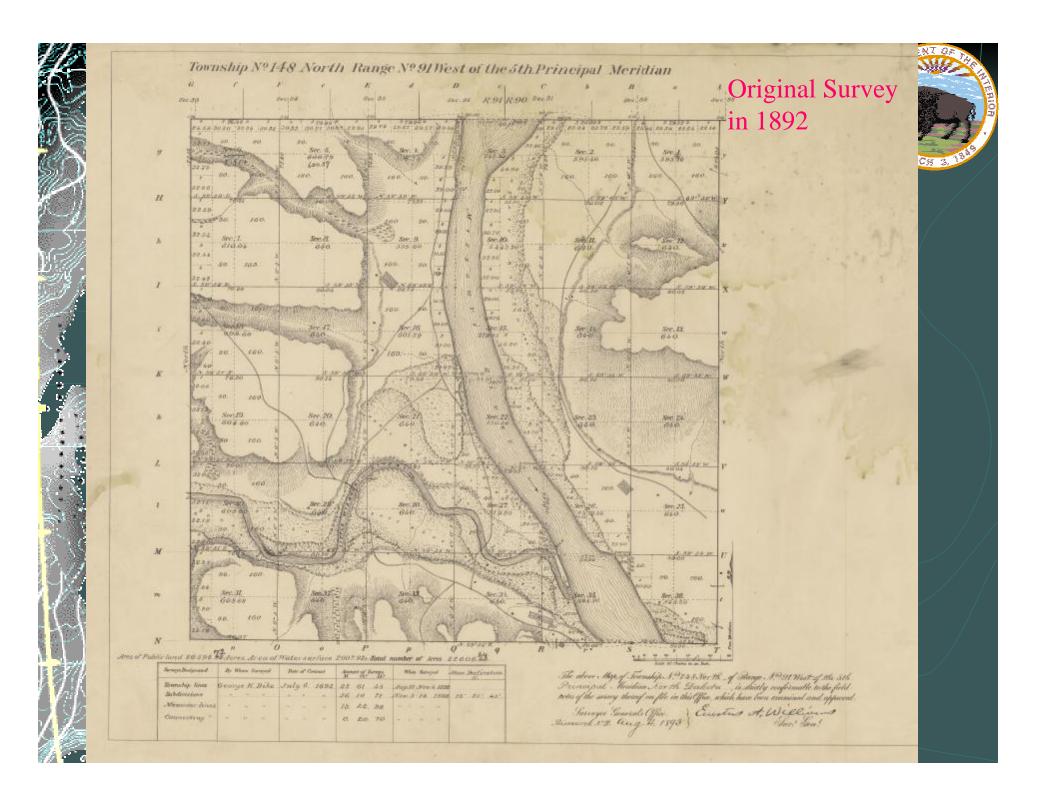
PROJECT OBJECTIVES

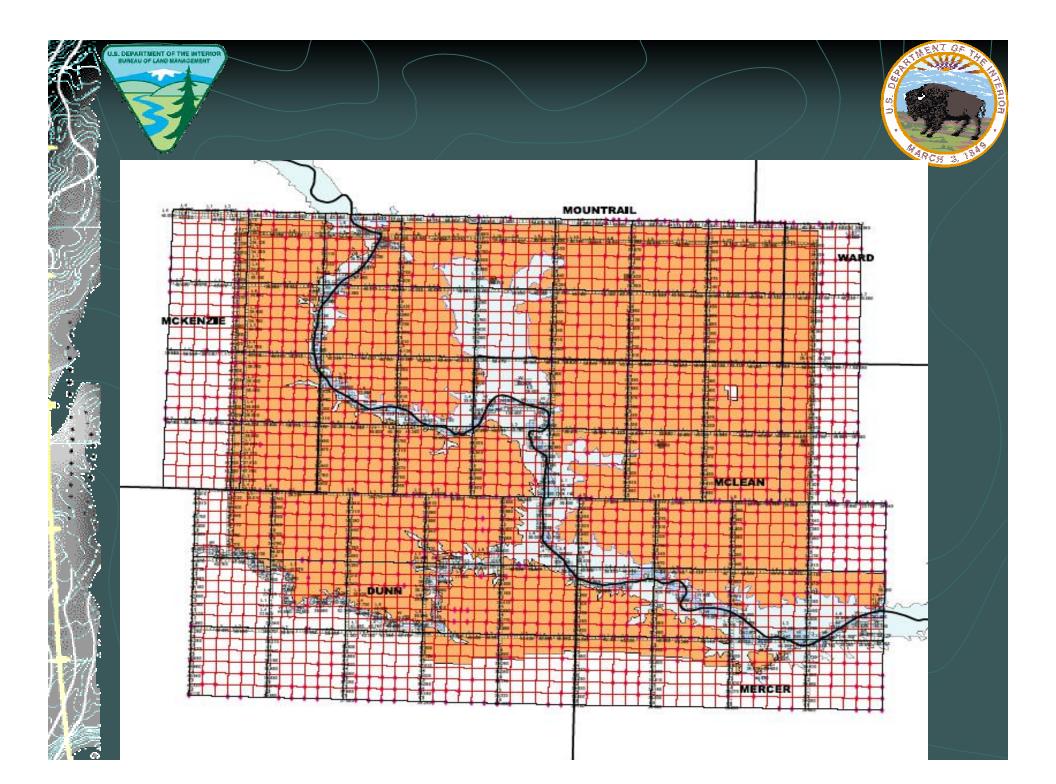
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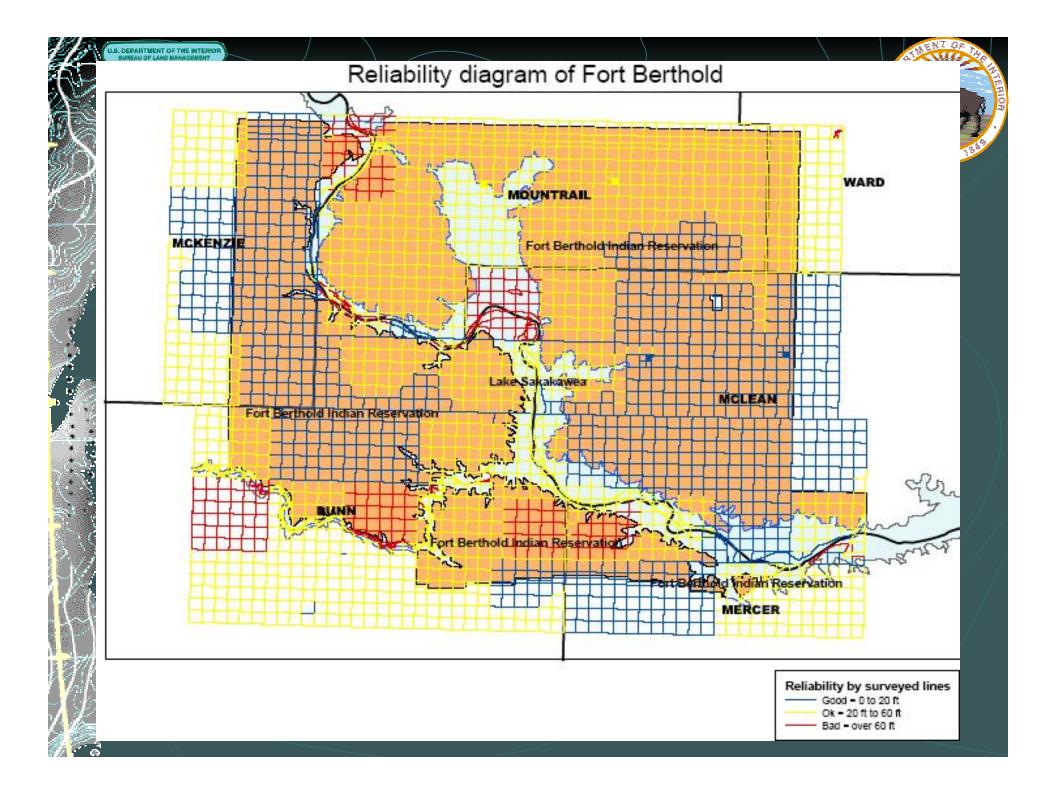


Initial computation and collection of GCDB PLSS to the aliquot part, government lot level from GLO records for the entire reservation.

- Integrate GCDB data with land status information from the Bureau of Indian Affairs
- Develop a Tribal GIS Business Plan: Conduct a Needs Assessment for GIS and GCDB integration
- Collection of agreed upon land use authorizations data needed to meet Tribal and BIA business requirements, as much as is practicable in the time allowed for two priority townships.







T. 148 N.,R. 91 W GCDB combined with survey plat and aerial photo

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Needs Assessment and Requirements Analysis



Major Points

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Ø Business Planning and Development Guide Serves as the blue print and road map for system evolution Ø Valuable For Funding Initiatives & Development Grants Ø Evaluation Of Current GIS/LIS Programs Ø Assessment OF Business Requirements/Needs Review Of Data Assets Ø Inventory Current Spatial Data Ø Evaluate Land Information Systems Ø Land Ownership Land Use Authorizations
 Deases, Rights Of Way, Permits, etc... Ø Define Future Needs Ø Data Ø Software Ø Hardware

Ø Training

Crosswalk Against FCDC/Cadastral Content Standards

Assessment Process



PARSHALL

Berthold

OTT

Operation Departmental Interviews
Operation departmental functions
Operation departmental data dependencies
Operation data functions, creator, maintainer, user
Operation data functions of the GIS/LIS to other systems
Operation data distribution parameters

Planning Issues

Ø What are the short and long term goals of the system?

Is the current GIS/LIS meeting user needs?

Ø How will the system evolution be funded & supported?

What tabular data bases will be processed through the system?

Are end user analysis tools available in the current system?

- Are legal land descriptions properly entered and map compatible?
- Ø What types of maps must be produced from the system, at what scale?
- Ø Are current data layers based on survey?

Positional Accuracy (+/- 1 foot, or +/- 100 feet)

Ø Source

Ø Scale

How are maps and data to be processed/produced?

- Ø Who will update the data & how will it be managed?
- Who needs to be trained, & what training is needed?



GIS\LIS Business Applications

ØTribal, Federal State & Local Government

Property Parcel Maps Response

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- Land Management/Planning
- Land Management Bnds.
- Ø Resource Anal .& Mgmt.
- Transportation Analysis
- Environmental Planning
- Ø Demographic Analysis
- Ø Wild Land Fire Fighting

- 911 Emergency
- Infrastructure Mapping
- Water Conservation
- Ecology Studies
- Disaster Analysis
- Environmental Analysis
- Soil Conservation
- Emergency Planning

Business Application Matrix

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																							/\	1 1 2		
A	В	С	D	E	F	G	н	1	J	К	L	M	N	0	P	Q	B	S	Т	U	V	V	X	Y	Z	AA
Department		ssesso			ng Inspe			nmunical			Planning			Enforce			nmental			Finance			Surveyo		CSU E	
applications	PIN# Pscinn	Sales Nap		Permit Geocode	Address Acianmi			All Route Address			parcel mapping			roads li address			TOULE inspotes		capital impumts		data interrato		ROW mapping		leafy spurge	spray mar
Geographic Feature / Database	/ Security	7-784	7-76g.	CALCEDE	1200000	maching	10000000	77007555	greater			200000	,,,eph	0000000	7776494 Wig	1.2.2.0 20111	negeone.	mape	114.41112	Contractor.	inegrani	///20/20///	mapping	regene		
Base Mapping																										
PLSS townships, sections																										
GPS physical control																										
Precise section corner locations																										
400-scale Orthophoto images																									<u> </u>	<u> </u>
Physical Geography																										<u> </u>
Ponds, lakes, rivers, creeks																										
Ridgelines																										
Soils																										
Vetlands																										
Flood and Fire areas (potential)																										<u> </u>
Geologic hazards Landcover																										-
Landcover																										<u> </u>
Streets and Addresses																										
Digital Centerline with names																										
Standard Names list with location																										
Centerline with address ranges																										-
Street Names by Subdivision																										-
Mile marker locations Driveway/access road locations																										<u> </u>
Drivewagraccess road locations																										<u> </u>
Property Addresses																										
Addressing standards countywide																										
Master Address Database																										
Structure x,y link to addresses																										
Utility pole numbering and x,y																									<u> </u>	<u> </u>
Parcel Mapping																										<u> </u>
Schedule # converted to PIN																										
Map of Subdivision outlines/names																										
x,y centerpoint for each PIN																										
35 Acre tract locations																										
Ownership parcel boundaries																										
Zoning boundaries																										
Right-of-Way boundaries Digital block,lot,dimensions																										-
Land Use																										
Scanned Images of Recorded Plats																										
-																										
Utilities																										
Water lines																										-
Gas lines Electric lines																										-
Sever lines																										_
Septic systems locations																										
ocpao systems loodaons																										
Other Facilities																										
Fire Hydrants																										
Propane tanks																										<u> </u>
Administrative Districts																									i	<u> </u>
Administrative Districts Tax Area boundaries																										
Election districts																										
Utility service district boundaries																										
Road Maintenance Districts																										
Annexations																										
School attendance boundaries																										
Census boundaries																										



Data Needs Matrix

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<i>_Data Needs Inventory</i> C = Create Data M = Maintain Data	Assessors Office	Building Department	Clerk & Recorder	Freasurer's Office		Emeregency Mgmt.	Communications	Planning Department	Environmental Health	County Surveyor	nformation Systems	County Attorney	Extension Office	& Bridge
U = Use Data	9633	lding	ırk &	a sur	Sheriff	ereg	nmm	nin	viron	unty	urma.	unty	ensi	Road &
	As:	Βn	ö	Τre	ЧS	ш	ပီ	å	Ъ́Ш	ပီ	Info	පී	Б	ĉ
Assessed Value														
Zoning Classification														
Tax Jurisdictions														
Political Jurisdictions														
Special Districts (school, voting, fire, sewer, etc.)														
Public Land Survey Corners														
Geodetic Control (vertical & horizontal)														
Remonumentation status														
Facilities rights-of-way														
Railroads														
Parcel Identifiers														
Parcel boundaries, dimensions & numbers														
Subdivision plats, certified surveys														
Street names / addresses														
Street centerlines														
Rights-of-way and easements														
Official roads map (with future rights-of-way)														
Legal descriptions and ownership														
Leaseholds														
Geology: surficial, bedrock														
Soils														
Land cover														
Water bodies & stream courses														
Watershed/water quality														
Wetlands and environmental corridors														
Mineral / air / solar rights														
Parks and open space									-					
Farm & ranch tracts and fields														
Historical & archeological sites														
Floodplain														
Well locations, recharge zones														
Septic locations														
Underground storage tanks														
Landfills: current & abandoned														
Hazardous waste generators & haulers														
Hazardous waste on-site														
Land use: existing & planned														
Relief information (slopes, contours)														
Census & population densities														
Locations of buildings														

General Report Contents



Current Situation
Functional Needs
Data Needs

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Geographic information needs inventory Map inventory Geographic Information needs matrix Tabular data needs Tabular data inventory Tabular information needs matrix

Conversion Needs

Map conversion Data entry File translation

- Data Processing Needs
- Hardware And Software Needs
- Staffing Needs
- Training Needs
- Legal Needs
- Multi-participant Strategies

Multi-participant Strategies

- Coordination with the Federal Government
 - Bureau Of Indian Affairs
 - Bureau Of Land Management
 - Department Of Agriculture
 - Corps Of Engineers
 - N.D. State Government
 - County Government
- Coordination with regulated industry
 - Natural gas utilities
 - Electric utilities
 - Telephone companies
 - Oil & Gas companies

Summary Principals of Trust Management



Protect and preserve Indian trust assets from loss, damage, unlawful alienation, waste and depletions;

Enforce the terms of all leases or other agreements that provide for the use of trust assets, and take appropriate steps to remedy trespass on trust or restricted lands

Communicate with beneficial owners regarding the management and administration of Indian trust assets

Accurate Boundary Placement



Following the deployment of the initial data sets, the following activities will be supported

- Geographic inventory of Tribal lands, leasing assets, land rights, and economic development areas
- Compare rights described in paper documents with actual rights as exercised on the ground.
- Boundary review by abstracting legal land descriptions from documents
- Boundary analysis to determine the nature and extent of conflicts
 On the ground situation identification to drive survey priorities
 - and identify areas that require survey enhancements.

Fiduciary Trust Model and Indian Trust Lands Boundary Standards Cadastral Services



Cadastral Survey
Geographic Coordinate Data Base
Fee to Trust
Expert Witness Services
Land Status Determinations
Land Description Review Certification
Boundary Line Assurance Certification
Review of State Authority Surveys

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E CONTRACT

STORES IN

(202) 452-7781 (202) 785-6561	For Immediate Release: Tuesday, May 3, 2005	Contacts: Don Buhler (202) 452-7781	Doug Haywood (202) 785-6561
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BLM Cadastral Survey Will Hire Land Surveyors for Indian Country

As part of an ongoing effort to streamline land surveying in Indian Country, the Bureau of Land Management (BLM), Office of the Special Trustee for American Indians, and Bureau of Indian Affairs (BIA) has hired land surveyors specifically for Indian lands in six regions. Officials of the agencies met with the new surveyors for the first time today in Washington, DC.

"It gives me great satisfaction to welcome these new employees to Washington," said Ross Swimmer, the Interior Department's Special Trustee for American Indians, who hosted the meeting. "They will play a key role in managing administrative duties and providing technical guidance on survey services performed in Indian Country, and in improving service to individual and tribal trust beneficiaries."

The six new surveyors are part of a larger effort to hire land professionals and develop the Certified Federal Survey Program for licensed land surveyors to establish legal boundaries on Indian lands. Another six are slated to be hired in 2006, ultimately allowing one surveyor to be assigned to each BIA regional office.

"These surveyors will work with the federal agencies and individual tribes to ensure that high-priority work is addressed first," said Jim Hughes, Deputy Director for the BLM, who will also attend the meeting. "Since the Tribes themselves have identified the projects that need to be addressed, the surveying work will address real, on-the-ground concerns," he added.

The new surveyors are as follows:

- Michael Beale, Great Plains Region (Aberdeen, South Dakota): Mike Beale obtained his Land Surveyor registration in Montana in 1989 and has over 15 years of experience working with native villages in Alaska.
- Thomas Caster, Northwest Region (Portland, Oregon): Tom Caster, a Cadastral Surveyor at the BLM's Oregon State Office for over 15 years, has a degree in surveying from Oregon Institute of Technology and opened and worked for 5 years in the BLM's project office on the Yakama Indian Reservation in south central Washington.
- Roger Green, Midwest Region (Fort Snelling, Minnesota): Roger O. Green is currently a Forest Land Surveyor in Northwestern Montana, stationed on the Kootenai National Forest, has been surveying for the Federal government for 27 years, working on projects in 17 States from Washington, DC to the Grand Canyon, with the most experience in Oregon, Arizona and Montana.
- Daniel Ontiveros, Eastern Oklahoma Region (Muskogee, Oklahoma): A Field Chief with the BLM's Nevada State Office, Ontiveros has over 20 years of experience in a wide range of surveying disciplines and has provided cadastral services to Native American groups such as the Inupiat, Athabaskan, Aleut, Piute, Shoshone, Haida, and the Eyak people.
- Ronald Scherler, Navajo Region (Gallup, New Mexico): Ron Scherler, a graduate of Oregon Technical Institute, has worked as a cadastral surveyor for over 30 years, with significant experience in dealing with land boundaries in Indian Country, and has served as an instructor for BLM training courses on Advanced Cadastral Survey and Land Tenure in Indian Country.
- Richard Widmar, Southern Plains Region (Anadarko, Oklahoma): A graduate of Iowa State University, Widmar has worked since 1984 for the BLM in New Mexico as a cadastral surveyor servicing Oklahoma, Texas, Kansas, and New Mexico.

Cadastral surveys establish land boundaries and subdivisions that create units suitable for transfer or define the limitations of a parcel's title. Surveyors also identify and establish the legal boundaries between public and private lands to determine the extent and nature of private rights adjoining public or Indian lands for both the surface and subsurface estate.



Questions?

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Current Websites Bureau of Land Management: <u>www.blm.gov</u> FGDC Cadastral Subcommitee: <u>www.nationalcad.org</u> Cadastral Survey: <u>www.blm.gov/cadastral</u>

