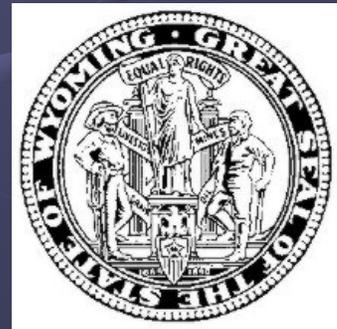


Wyoming Information Technology (IT) Update

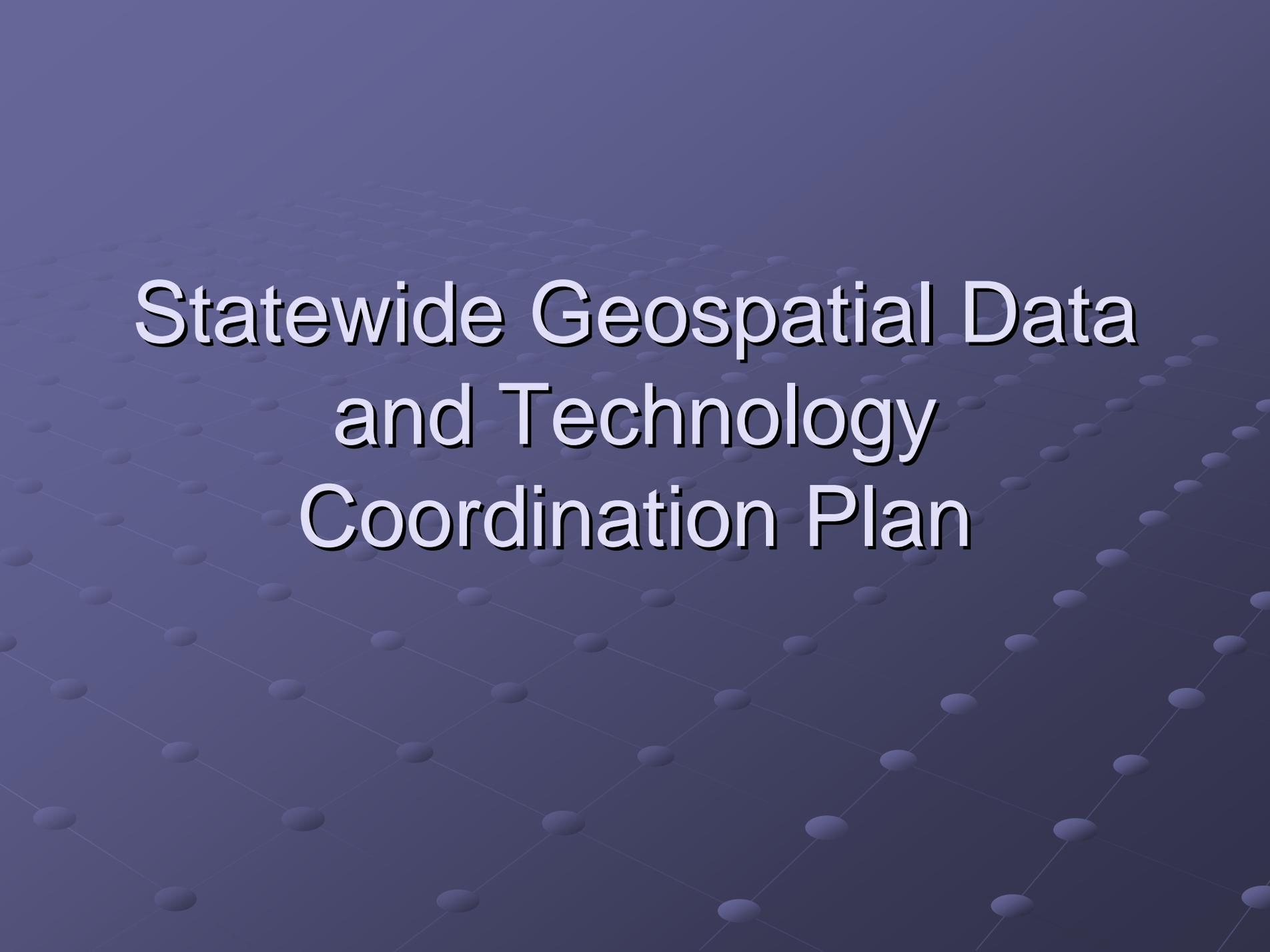
Western Regional Technical Team (WRTT) Workshop
Bismarck, North Dakota
May 23-25, 2006

Marcelo Calle
Wyoming Department of Environmental Quality (WDEQ)
Land Quality Division (LQD)



Topics

- Statewide Geospatial Data and Technology Coordination Plan
- WDEQ IT Initiative Progress Report
- New Land Quality Division (LQD) Technologies
- Statewide Light Detection And Ranging (LIDAR) Project
- Interesting National Happenings



Statewide Geospatial Data and Technology Coordination Plan

Statewide Geospatial Data and Technology Coordination Plan Evolution

- The Wyoming Geographic Information Advisory Council (WGIAC) was created in 1994 through an Executive Order
- Comprised of volunteer membership that represents city, county, state, federal governments, university, and the private sector
- The WGIAC's mission is to “promote statewide interests and requirements for mapping data... serving where possible, as a focal point for coordination between federal and state agencies for mapping programs and products, encouraging input from county, local and private parties”.

Statewide Geospatial Data and Technology Coordination Plan Evolution (cont.)

- In 2003, the WGIAC conducted a survey of statewide GIS activity and needs
- Request by the Chief Information Officer (CIO) that WGIAC develop a plan for the coordination of geographic technology activities statewide
- The report and recommendations were provided to the CIO and the Governor in November of 2004

WGIAC Report Recommendations

- Hire a full time GIS coordinator – Geographic Information Officer - to be located in the Office of the CIO.
- Replace WGIAC with a new structure consisting of three entities:
 - Geographic Information Officer (GIO) – responsible for the conduct day-to-day operations of coordination, communication, and education.
 - Oversight Committee – provides executive direction to the GIO on GIS related activities, five Governor appointed positions plus one TAG member
 - Technical Advisory Group (TAG) – communicates GIS user needs and technical advice to the Oversight Committee and the GIO.
- Establish a technical services function to host and present GIS data statewide.

NSGIC National Guidance

- The recommendations are consistent with the National States Geographic Information Council (NSGIC) white paper titled “State Model for Coordination of Geographic Information Technology” . . .
- This 2002 study of successful state GIS coordination efforts determined the following nine “Coordination Criteria” to create success in GIS Coordination.

NSGIC National Guidance (cont.)

1. A full-time, paid coordinator position is designated and has the authority to implement the state's business and strategic plans.
2. A clearly defined authority exists for statewide coordination of geospatial information technologies and data production.
3. The statewide coordination office has a formal relationship with the state's Chief Information Officer (or similar office).
4. A champion (politician or executive decision maker) is involved in the process of coordination.
5. Responsibilities for developing the National Spatial Data Infrastructure and a State Clearinghouse are assigned.
6. The ability exists to work and coordinate with local governments, academia, and the private sector.
7. Sustainable funding sources exist to meet projected needs.
8. Coordinators have the authority to enter into contracts and become capable of receiving and expending funds.
9. The Federal government works through the statewide coordinating authority.

Benefits

Organized State coordination offers:

- Reduced costs
- Reduced impact on existing efforts
- Increased sharing of data and other resources
- Common standards
- Extension of existing opportunities, resources, data, etc. to all levels of government

Statewide Geospatial Data and Technology Coordination Plan Evolution (cont.)

- In May of 2005 an exception budget request was submitted to the Governor
- The request was seen as low priority, compared to other budget requests
- Revised recommendation plan is drafted
 - Modify Executive Order 1994-3, which created the Wyoming Geographic Information Advisory Council (WGIAC).
 - Appoint an executive-level Oversight Committee for geospatial activities.
 - Establish a Technical Advisory Group (TAG) from GIS professionals within the state.
 - Allocate 50% of an existing position within the Office of the CIO (OCIO) to support the Oversight Committee, the Technical Advisory Group, and state government GIS coordination activities.
 - Seek other sources of funding to promote statewide coordination activities.

Statewide Geospatial Data and Technology Coordination Plan Evolution (cont.)

- On April 18, 2006 the 1994 Executive Order creating WGIAC was discontinued and the new structure employed
 - Oversight Committee comprised of five Governor appointed members and one TAG representative
 - TAG comprised of 14 voting members
- No funding for GIO
- No funding for establishing technical services program

WDEQ IT Initiative Progress Report



WDEQ IT Initiative Background

- Senator Nicholas, Co-Chairman of the Joint Appropriations Committee requests that WDEQ “prepare an estimate of what it would take for DEQ to become a paperless Agency”.
- 1.8 Million is approved for Design Phase
- Wyoming IT Initiative goes out for bid in summer of 2005
- CH2MHILL is awarded contract in September of 2005

Project Goals

- Maximize the quality, quantity and timeliness of permitting using approaches such as on-line submission
- Improve, communications, analysis and decision making resulting in better decision in less time
- Maximize the ease of submission, review, access and storage of environmental data

Project Goals (cont.)

- Facilitate access to information by WDEQ customers
- Facilitate report of information to federal and other governmental agencies
- Maximize information sharing within WDEQ and other governmental agencies
- Improve tracking of agency performance measures

Project Goals (cont.)

- Optimize the use of GIS to provide enhanced data analysis capabilities and permitting decisions
- Increase productivity and efficiency of staff by reducing the manual effort involved with input, management and reporting information
- Improve billing, fee collection and tracking processes
- Improved archiving efficiency

IT Initiative Schedule for Design Phase

Phase A: Business Process Evaluation (BPE)

Task 1: Project Initiation

Task 2: Workshops

Task 3: Benefit Evaluation

Task 4: Develop BPE and Reengineering Report

Completed!

Phase B: IT System Design

Task 5: Requirements

Task 6: Conceptual Database Design

Task 7: Logical Database Design

Task 8: System Architecture Design

Task 9: Final Design Report

Task 10: Knowledge Transfer Workshop

Committed!

Task 1: Project Initiation

September 2005

● Team Chartering

- Identify CH2MHILL Project Team
- Identify WDEQ Project Manager
- Identify WDEQ Project Steering Group
- Identify Divisional Workgroups and set up schedules in support of Task 2

● Kickoff Meetings

- Formally introduce all Team members
- Establish roles and responsibilities
- Gain endorsement for the Project Plan

Task 2: Workshops

October-December 2005

- 60 workshops conducted total
- Effort covered 7 divisions including three field offices
- Served to document current operational practices and existing IT systems that support the fundamental WDEQ functions of permitting, inspection, compliance, enforcement, data management and administration
- Documented 226 business processes using Group Systems software
- High level of participation by management and staff
- Workshops also extended to external stakeholders such as federal agencies, other state agencies and the regulated community

Land Quality Division Processes

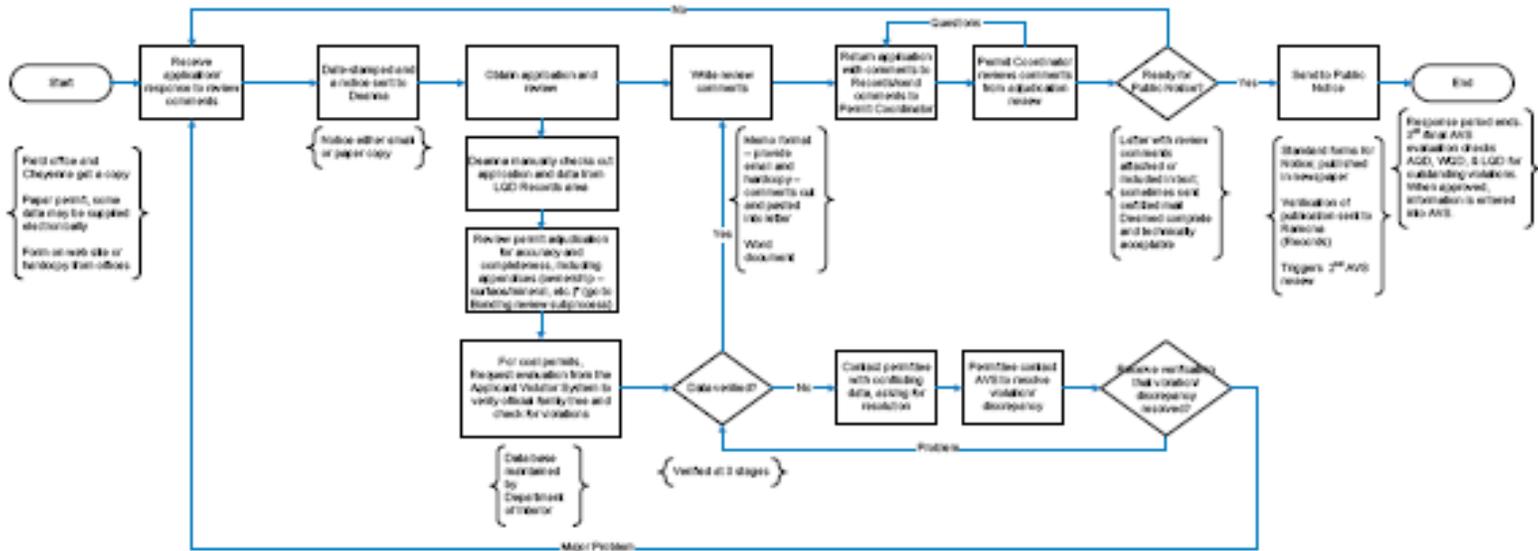
Division	Section	Process	Status	High	Med	Low
LQD	Records and Archiving	Permit adjudication review	F	X		
		Bonding instruments review	F	X		
		Permit tracking	F	X		
	Bonding	Long-term records management	F	X		
		Create & update Rules	F	X		
		Permits, amendments, and renewals for coal and non-coal regular mines	F	X		
	Bond Release	Permitting for small mines	F	X		
		Miscellaneous operations including limited mining operations	F	X		
		Revisions and updates for coal and non-coal mines	F	X		
		Non-significant revisions for coal and non-coal mines	F	X		
		Annual report	F	X		
		Annual report & inspection tracking	F	X		
		Coal inspections	F	X		
		Non-coal inspections	F	X		
		Coal enforcement	F	X		
		Non-coal enforcement	F	X		
		Coal bond release administrative	F	X		
		Coal bond release verification	F	X		
		Non-coal bond releases	F	X		
		Bond forfeiture & reclamation of bond forfeiture sites	F	X		
Number of Processes				21	0	0
Total Number of Process Mapped			20			
Number of Process Finalized			20			

Status: F=Final; C=Complete, no final review; N=Not mapped

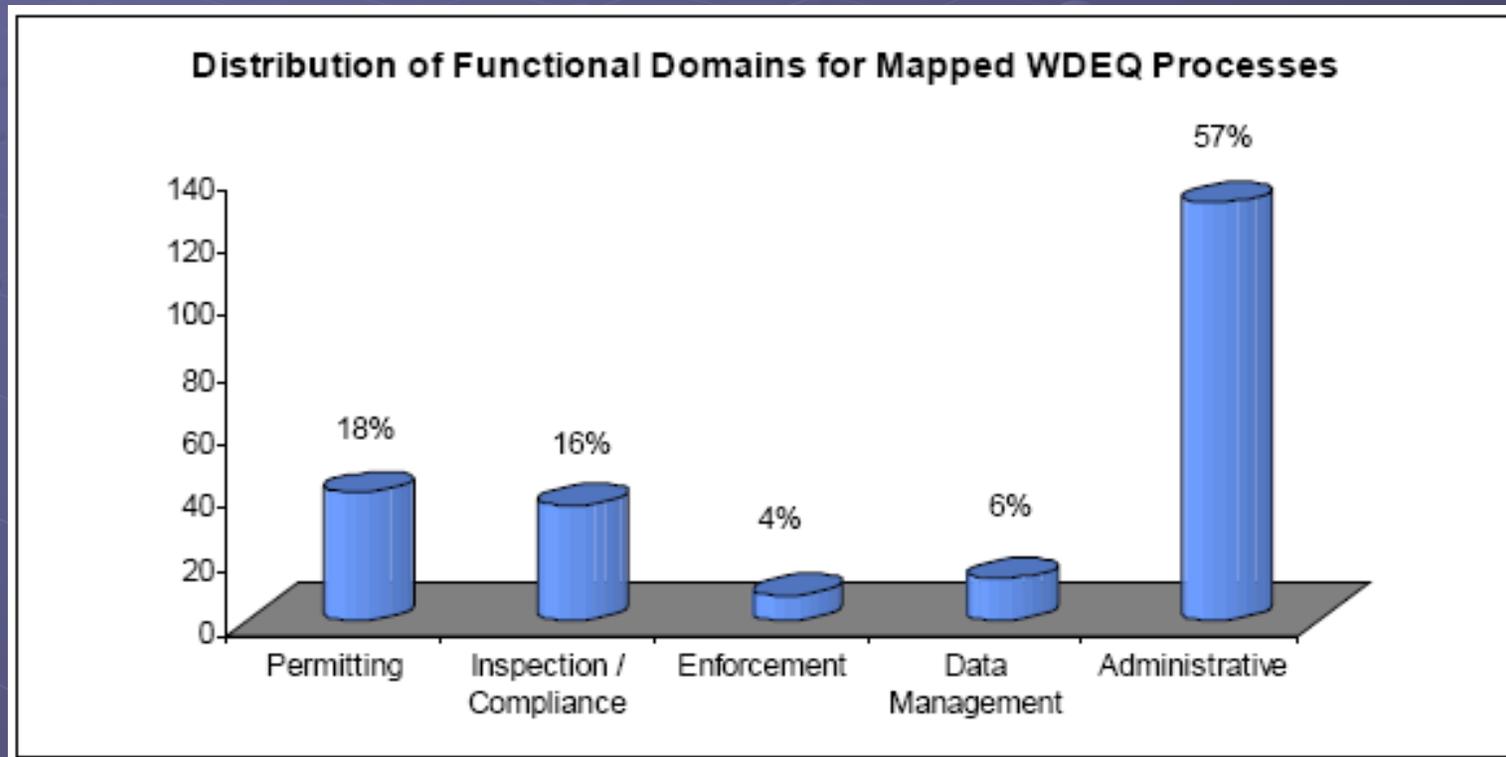
Process Flow Charts

Land Quality Division: Permit Adjudication Review

{ Process under Desktop MS }



Dominant Functional Categories



Task 3: Benefit Evaluation

December 2005

- Which technology solutions should be applied ?
- Which processes should the solution apply to?
- What is the scope and what are the limitations to the design?
- What are the benefits versus the costs?

Task 3: Benefit Evaluation (cont.)

Ultimately, the designed IT solution will focus on:

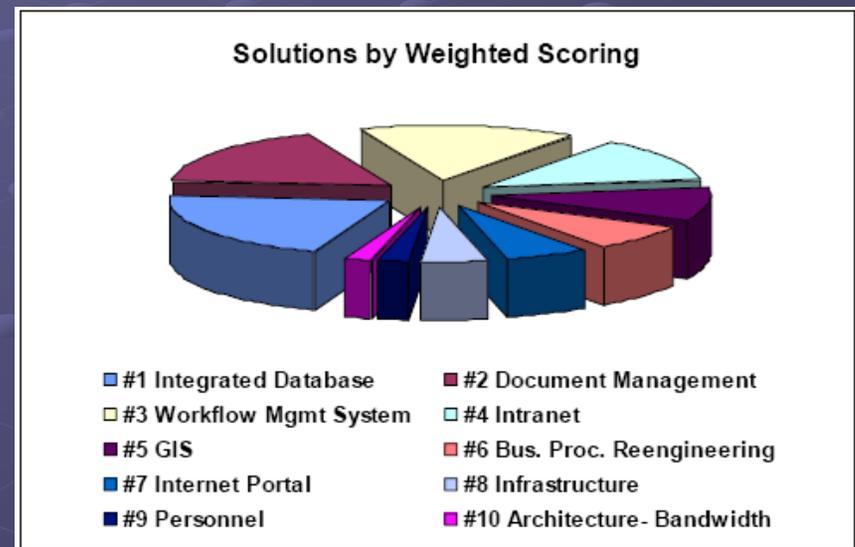
- Improvements to existing business processes
- Integration of existing IT systems
- Development of new IT systems

Task 3: Benefit Evaluation (cont.)

- Application of matrices and ranking
- All processes evaluated against 10 different technical solutions
- All existing IT systems evaluated by complexity and integration potential
- Results should indicate what technical solutions will provide the greatest benefit across all processes
- Results should indicate what existing IT systems should be integrated.

High Ranking Technical Solutions

- Integrated database
- Document management system
- Workflow management system
- Web portal
- GIS Integration
- Intranet



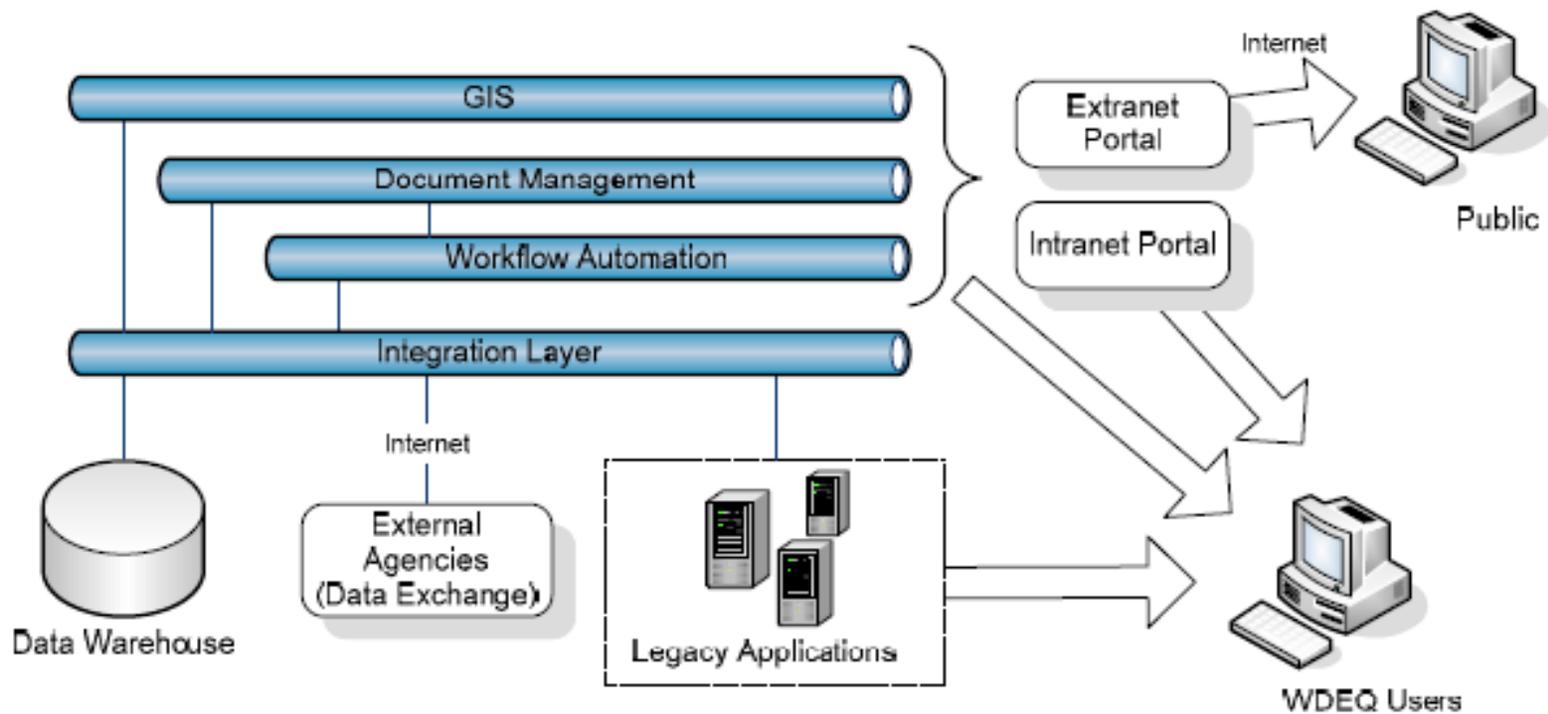
Task 4: Develop BPE and Reengineering Report

Finalized March 2006

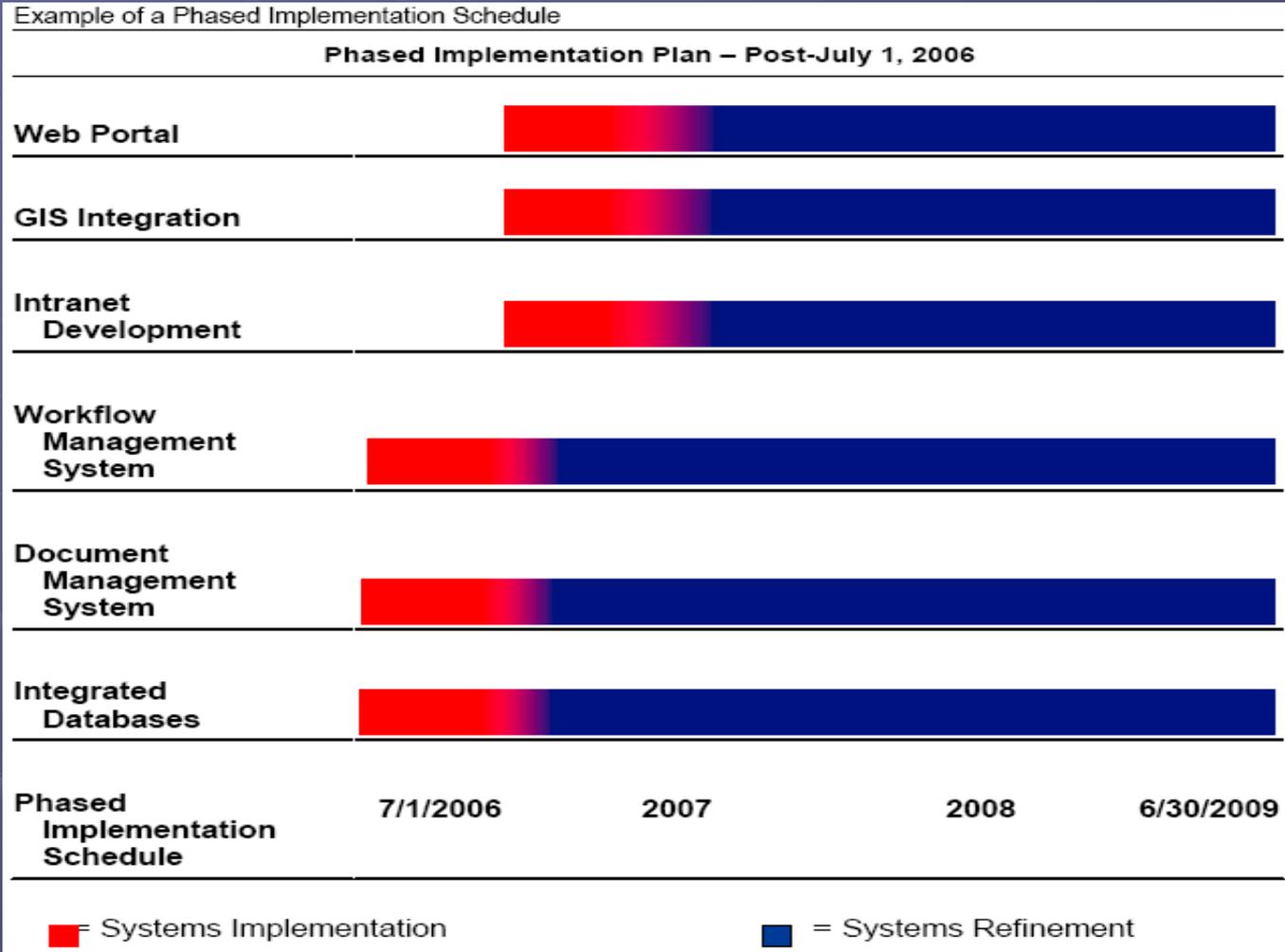
- Based upon findings in Task 3, recommendation of six essential technical solutions
- 95 of the original 122 processes are identified for reengineering
- Proposed conceptual IT solution
- Implementation schedule outlined
- Estimate of projected costs

Proposed Conceptual IT Solution

Architecture of Transition between Current IT System and Proposed IT Solution



Phased Implementation Approach



Estimate of Projected Costs

WDEQ IT Implementation ROM Estimate

WDEQ IT Implementation ROM Estimate							
	Document Management System	Integrated WDEQ Database	Workflow Management System	Enterprise GIS	Integration Layer	Intranet Portal	Extranet Portal
Total Costs this Technology Across All WDEQ – Lifecycle	\$3,800,000	\$5,100,000	\$2,700,000	\$3,500,000	\$750,000	\$1,100,000	\$1,000,000
Ongoing Cost Annual (2011 dollars)	\$610,000	\$580,000	\$160,000	\$600,000	\$35,000	\$160,000	\$160,000
Ongoing FTEs (Cost Included in O&M Cost)	4.4	4.4	1.1	4.4	0	1.1	1.1
Total 6-Year Cost	\$18,000,000						
Annual O&M Cost in 2011 Dollars	\$2,300,000						
Annual O&M FTEs	16.5						



New Land Quality Division (LQD) Technologies

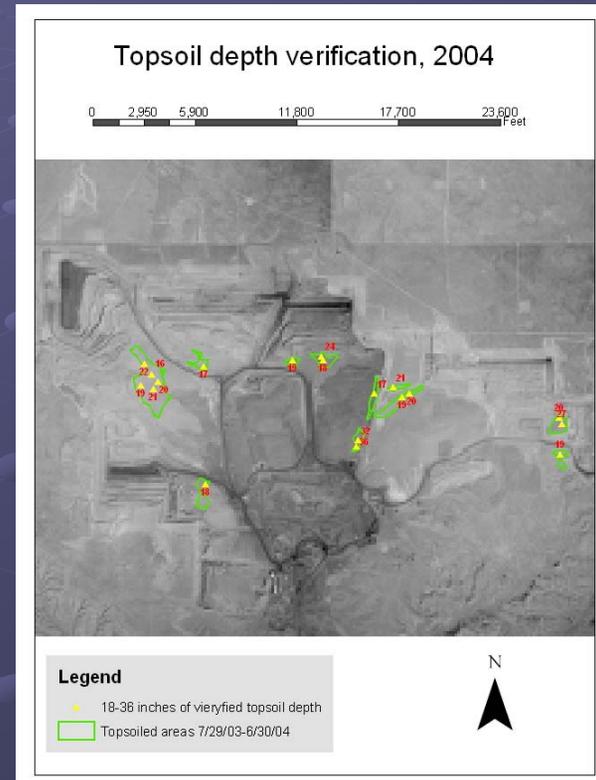
Mobile Computing

- Purchase of Fujitsu Stylistic (ST5000) Tablet PC
- GPS enabled using Compact Flash Receiver
- GIS applications using ArcPad 7



Mobile Computing (cont.)

- Inspection and Compliance
- Development of electronic inspection forms
- Bond Release compliance of verification criteria

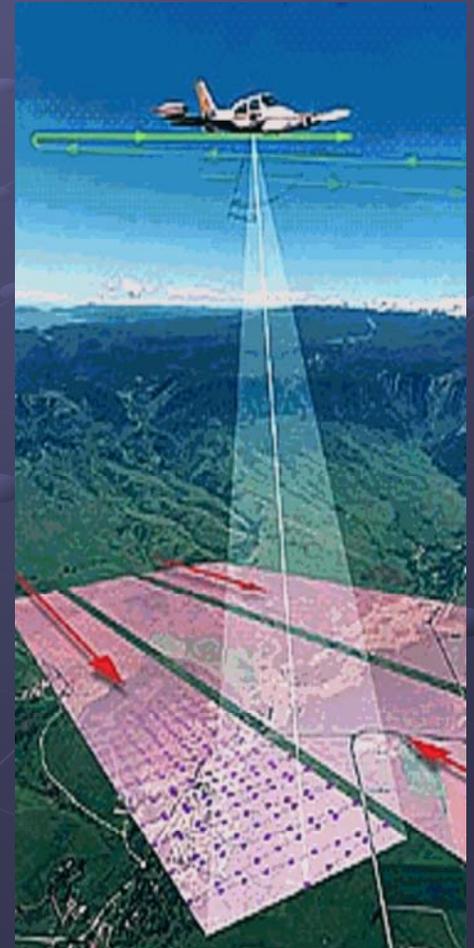




Statewide Light Detection And Ranging (LIDAR) Project

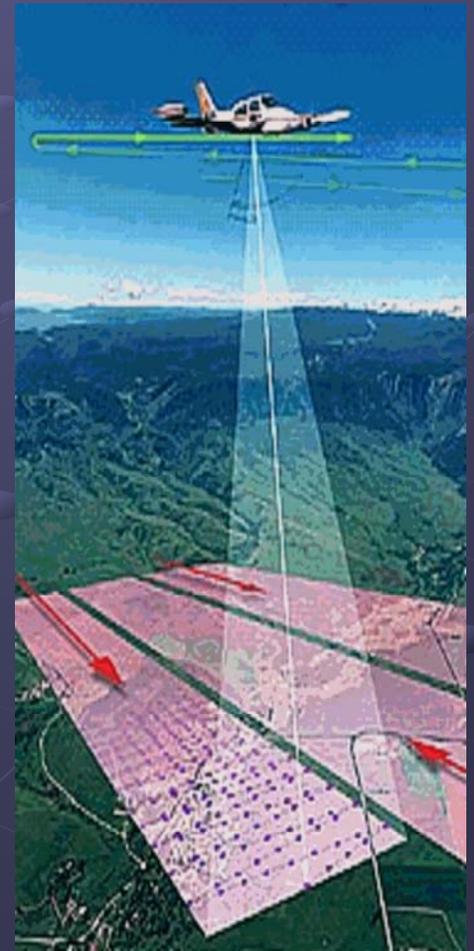
Statewide Light Detection And Ranging (LIDAR) Project

- Project lead by Natural Resources Conservation Service (NRCS)
- Statewide 1-meter bare-earth and first return Digital Elevation Model (DEM)
- Estimated cost of \$75/ sq. mile



Benefits of LIDAR

- Creation of highly accurate DEMs (2 foot contours)
- Larger area can be covered in less time, cost effective data collection
- Accurate mapping of surface water
- Canopy penetration
- High density of elevation points with random spacing
- Timely data delivery, 2 to 6 months



Important National Happenings



“Putting a New Face on Mining Reclamation” A National Interactive Forum on Geomorphic Reclamation

- September 12-14, 2006
- San Juan Community College Farmington, New Mexico
- Applying of geomorphic principles for landscape reconstruction of drastically disturbed lands
- Available tools for geomorphic design



San Juan Mine,
New Mexico

Digital Imagery for the Nation

- Team effort by NSGIC, National Digital Orthophoto Program (NDOP) Committee and the Federal Geographic Data Committee (FGDC)
- Create a new nationwide aerial imagery program that will collect and disseminate standardized multi-resolution products on “set” schedule
- “Buy-up” provisions will allow acquisition of imagery that meets more specific needs
- Currently a survey assessing national data needs at the NSGIC website