Transportation Planning: Using GIS to Determine the Presence of Known Cultural Resources

Presented by:
Frank DeSendi and Ira Beckerman

October 11, 2005
Pennsylvania Planning Association
Agenda

• Resource Types
• Purpose and Need
• Project History and Milestones
• Platform – Hardware/software
• Demonstration of the Cultural Resources GIS Application
• Benefits and Future Directions
• Question/Answer
Resource Types

• Historic Buildings – 110,000 statewide
Resource Types

- Historic Districts - 2,500 statewide
Resource Types

- Archaeological Sites - 19,000 statewide
Purpose and Need

- PennDOT must consider project impacts on historic resources
  - What historic resources are already known?
  - What surveys have already been done?
  - How to interpret what is found?
Purpose and Need

- Pennsylvania Historical and Museum Commission
  - State repository for sites inventory
  - Is consulted on issues of eligibility and effect
  - Provides guidance
  - Research
  - Education
Challenges

• Only one existing copy – files have been lost
• Only one place to do research–Harrisburg
• Hours of access are limited
• Physical files are in active use and frequently moving from desk to desk
• Maps and files are deteriorating
Detail
Other Challenges

• Multiple and non-standardized map bases
• 55-year accumulation of site inventory
• No standardization for data collection
• Primitive (mainframe) search capabilities
Project History and Milestones

1993 Feasibility Study
1996 Database design & Dictionary
1997 Strategic Plan
1997 Pilot Project
2001 Intranet launch
2005 Internet launch
Project Partners

- PENNDOT
- Pennsylvania Historical and Museum Commission (PHMC)
- US Army Corps of Engineers
- Penn State University
- GeoDecisions
Partners – Internet Project

• PENNDOT
• Pennsylvania Historical and Museum Commission (PHMC)
• GeoDecisions
Data Structure

• Four Tables
  – Archaeological Inventory (PASS)
  – Historic Structures Inventory (PHRS)
  – Archaeological Surveys (ER Database)
  – Historic Structures Survey (virtual)

• Associated mapped layers on USGS base
• Environmental features as overlays
Platform Technical Aspects

- GeoMedia WebMap
- GeoMedia Professional
- Oracle 9i
- Programming
  - VB
  - ASP
Client Side Software

- Internet Explorer 5
- Active X Control
- Windows Image Viewer
Functionality

- What’s in my project area?
- Where is this historic resource?
- What other resources are like this one? (Ask ReGIS)
Demonstration

http://gisdemo/ce
Security

• Sensitive data
  – Archaeological site locations
  – Landowner information
Security

• Solution
  – Password protected
  – Restricted user requirements
  – Registration of restricted users
  – Tracking of use to machine address
  – SSL, Authentix, and object level security
Benefits

• Data is now worldwide, instead of one place
• Multiple maps have been integrated onto one map base
• Database dictionary promotes consistent data entry
• GIS unearths data gaps and errors from 50 years of entry.
Benefits

• PennDOT savings of consultant trips on projects
• PennDOT Cultural Resources Experts can scope projects early on
• Powerful research capabilities with Ask ReGIS
“Accidental” Benefits

• Public (which includes all Planning Organizations) can now access all above-ground data
• System users can report data errors
• Schools could use CRGIS as a teaching tool on Pennsylvania history/prehistory
Future Directions – Phase II

• Version 2.0 changes underway. Expect completion by March 2006
  - System was built piecemeal – code is being unified
  - Tables will get consistent look and feel
  - Improving image software
  - Integrate system with Videolog and MPMS
  - Special user level for permits
Future Directions – Phase III

• Projected revisions for 2006-07
  – Electronic forms and data entry
  – Customized access for individual groups, e.g. counties, Federally recognized tribes, MPO’s
    • Fenced boundaries
    • Automated queries and reports
  – Addition of archaeology sensitivity layer for planning, e.g. transportation planning by MPO’s, RPO’s
Pennsylvania Historical & Museum Commission
in partnership with PennDOT Bureau of Planning & Research
and Bureau of Design announces the launch of the

**CRGIS**

This web based GIS allows you to view information about historic resources listed in the PHMC files based on spatial searches of the maps - OR - You can Ask ReGIS to find categories of resources and build thematic maps based on attributes stored in the database.

**Qualified archaeological professionals:**

*Register now for access to archaeological data.*

*(Just read the intro pages and follow the links!)*

http://crgis.state.pa.us