

Implementation of GIS Standards for Historic Buildings/Structures



Author

The CADD/GIS Technology Center

<http://tsc.wes.army.mil>

Natural and Cultural Resources Field Working Group

<http://tsc.wes.army.mil/contacts/groups/FWG/Natural-Cultural/>

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Abstract

The collection, storage, management, and analysis of geospatial data are critical component of an archeological GIS application. This presentation will discuss a proposed, **integrated, database schema for historic buildings and structures**. The approach employed is based on management practices of Federal requirements, DoD mandates, real property tracking, and financial tracking in support of military installations and Federal projects. The geospatial features, attributes and domain tables are organized into these management functions.

Topics

- Center's Cultural Standards Committee
- Federal & DoD Mandates
- Existing Standards
- Standards Integration
- Historic Building/Structures Features
- Proposed Data Model
- Summary & Recommendations

Natural/Cultural Res. Field Working Group

- **Mission:** To evaluate CADD and GIS technologies related to natural and cultural resource management issues.
- **Goals:** Focus on natural/cultural issues, Be apprised of leading edge technologies, and identify tools for natural/cultural managers
- **Cultural Resources Task Committee**
 - Dr. Chris Hamilton (Army, Ft. Benning)
 - Ron Johnson (NAVFAC)
 - Dr. Paul Green (Air Combat Command)
 - Dr. Jay Thomas (HQ NAVFAC)
 - Jim Wojtala (USACE)
 - Julie Webster (USACE)



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Assessment of Historic Buildings Standards – Phase 1



- Identify Federal & DoD mandates for historic buildings/structures
- Collect existing data dictionaries
- Evaluate SDSFIE Cultural Stds
- Recommend new geospatial features and definitions

Web Download:

<http://tsc.wes.army.mil/contacts/groups/FWG/Natural-Cultural/>

Federal Mandates

- Historic Sites Act of 1935
- National Historic Preservation Act of 1966
 - Sec. 101 – National Register of Historic Places
 - Sec. 106 - Soliciting Comment on Federal Undertakings
 - Sec. 110 – Responsibility to Preserve and Use Historic Properties

DoD Mandates

- DoD Cultural Resource Management Policies
 - DoDD 4710.1 Archeological and Historic Resource Management
 - DoDD 4715.1 Environmental Security
 - DoDI 4715.3 Environmental Conservation Program
 - DoDI 4715.3 Environmental Conservation Program
 - DoDI 4165.14 Inventory of Real Property
 - DoDD 3200.15 Sustainment of Ranges and Operating Areas (signed 10 Jan 03)



Federal and DoD Accounting Requirements

- Federal Level
 - Chief Financial Officers Act of 1990
 - Statements of Federal Financial Accounting Standards
 - General Accounting Office Report
- DoD Level
 - Financial Management Regulations

DoD Future Initiatives

- **BRAC 2005**

- Inventory/infrastructure requirements will be collected
- About 20-25% of bases will be closed based on operation/maintenance costs
- Maximize real property assets and reduce the expenses of leased spaces
- Cross-service restructuring

- **Joint Vision 2020**

- Preparing Tomorrow's Forces
- Jointness American Style
- Capability Comparison

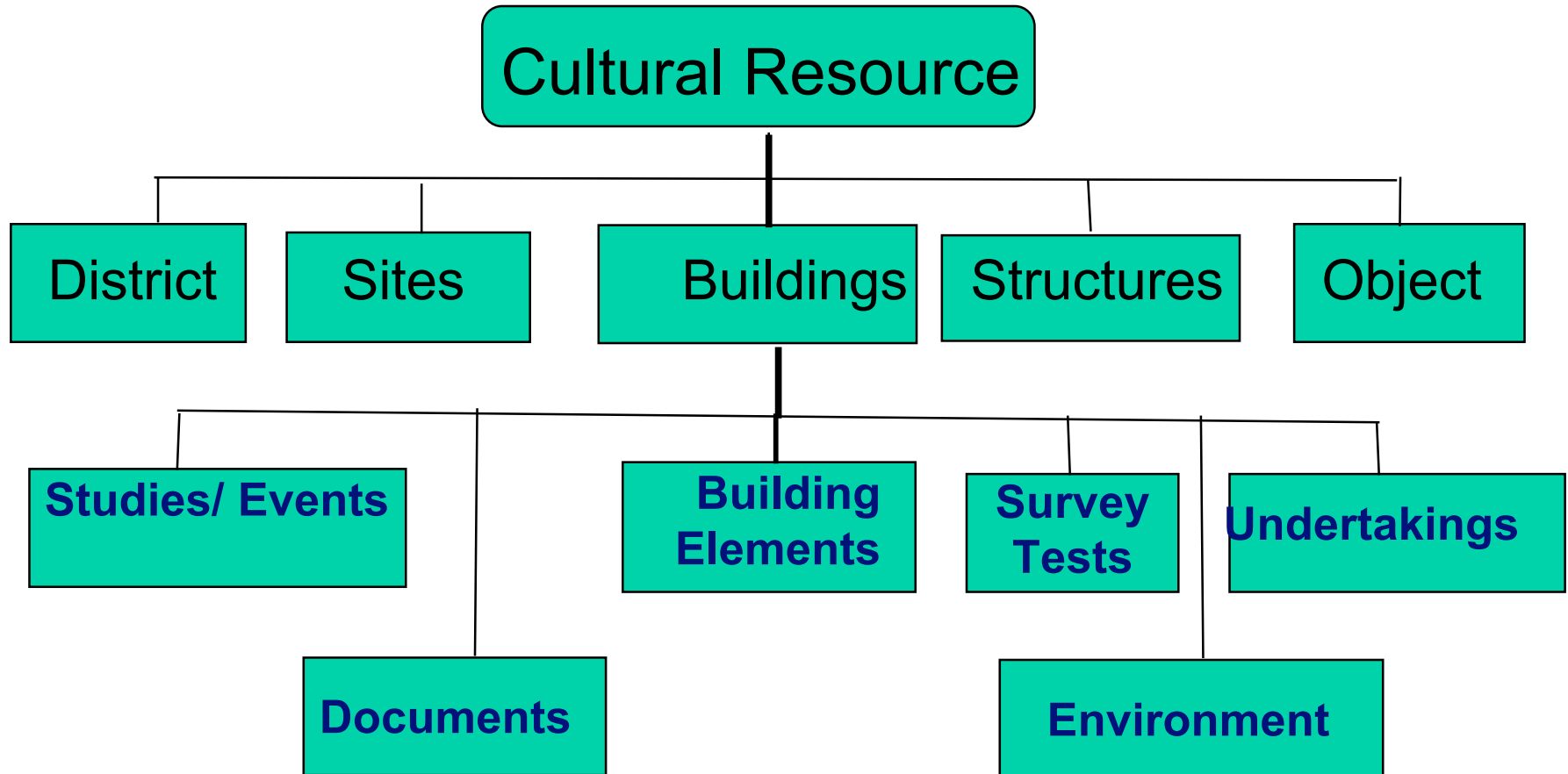


Existing Standards

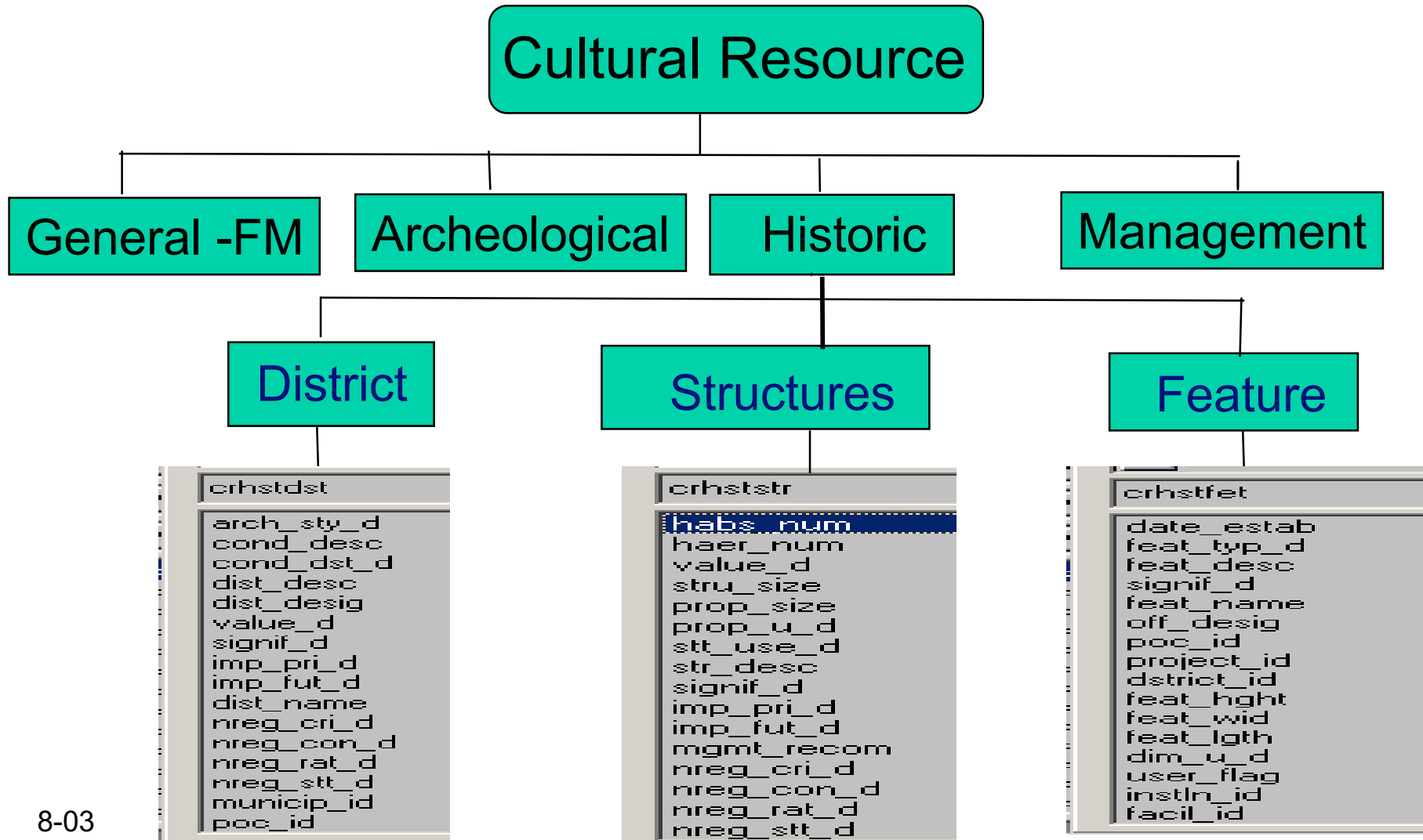


- NPS National Register Information System
- FGDC Cultural Standards
- **S**patial **D**ata **S**tandards for **F**acilities, **I**nfrastructure, and **E**nvironment Cultural Entity Set
- AF Air Combat Command Cultural Resources Model

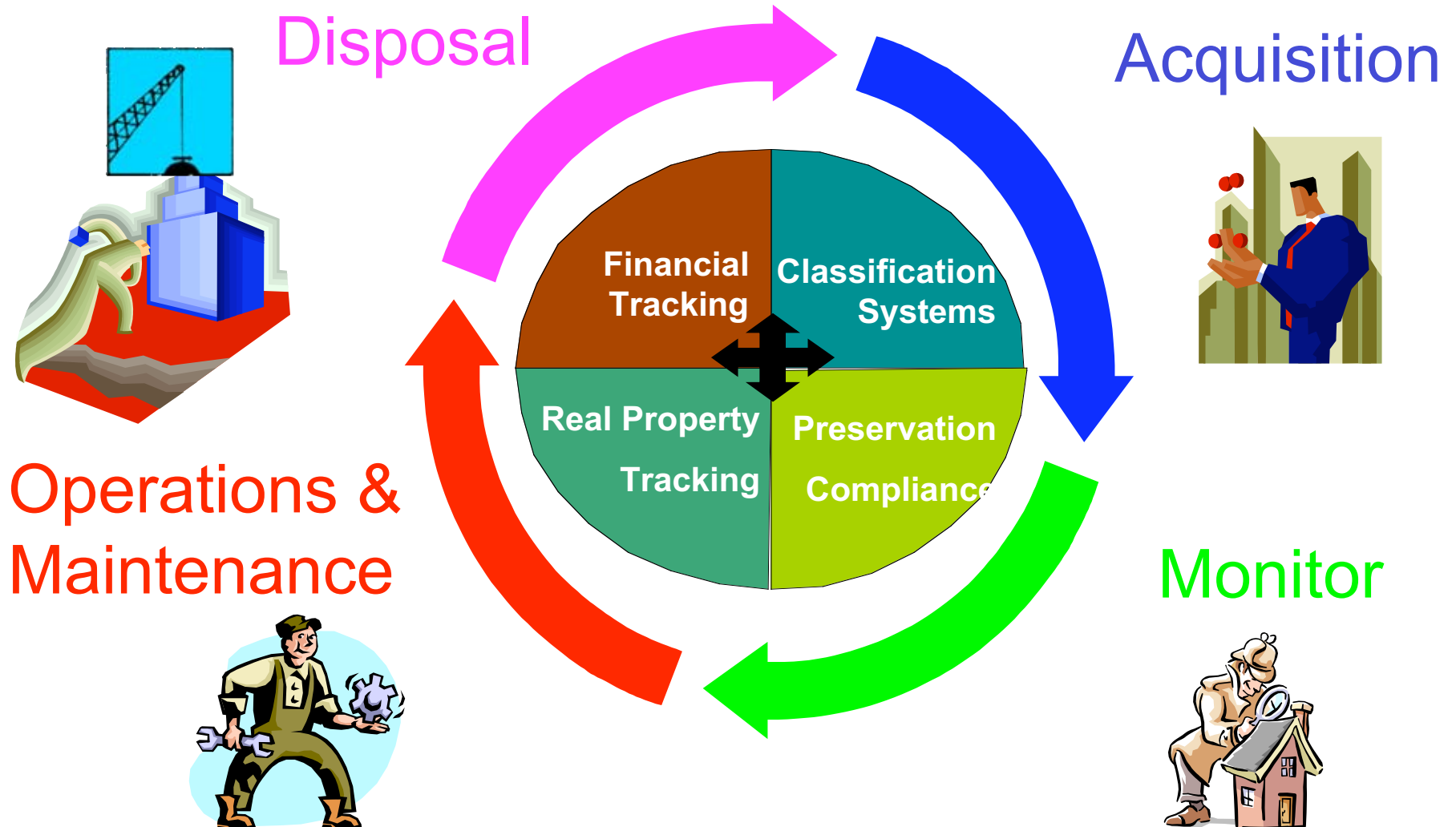
AF ACC CRUD Model



SDSFIE – Cultural Entity Set



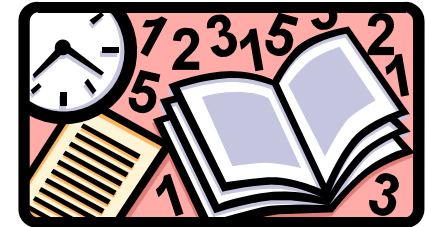
Life-Cycle Approach Historic Buildings/ Structures



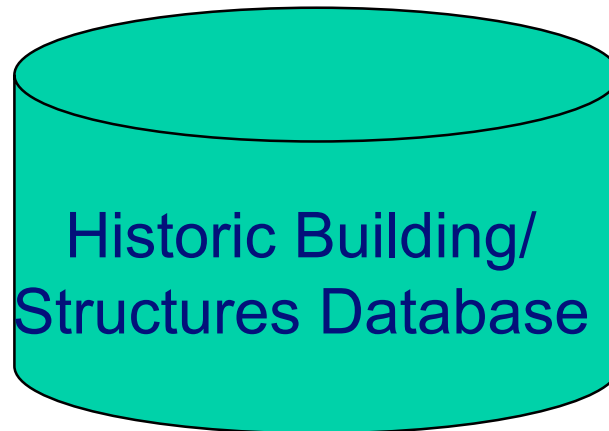
Proposed Standards Framework



Federal Register



Financial



Historic Building/
Structures Database

Classification

Real Property





Fed/DoD Registration Tables

- NRHP status – Nomination and eligibility listing
- NRHP criteria – Significance of building/structure
- NRHP conditions – Integrity of building/structure
- NRHP ratings

Classification Tables

- Detailed tables should be based on National Register Information System and Listed Classified Structure
 - Usage status – Past and Present
 - Functions – Past and Present
 - Historic significance – Documentation & POC
 - Threats to building/structure

DoD Real Property Systems

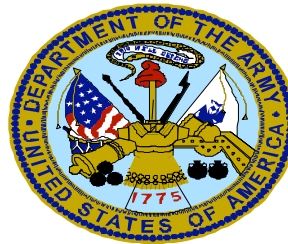
ACES-FM



Automated Civil Engineering System-Real Property

- 5 Heritage Asset Tables
- MAJCOM_Submittals

IFS



Integrated Facilities System

- Heritage Asset Code
- Heritage Asset Description

iNFADS



Internet Navy Facility Assets Data Storage

- Navy Facility Assets
- Master Activity General Information Control
- Cost Category Directory

Real Property Tracking Tables

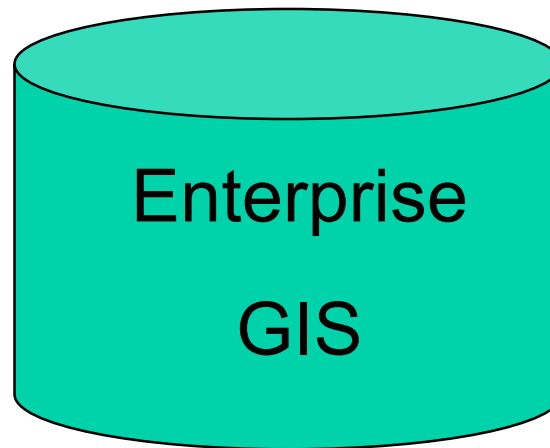
- Physical inventory of NHPA properties
- Tenant and leasing information
- Links to Agency real property systems
- Non-graphic tables listing
 - Contract info
 - Materials
 - Treatment

Financial Tracking Tables

- Links to agency financial systems (Foreign Keys)
- Asset Condition
- Changes in Asset
- Service potential of assets
- Cost and spending for acquisition
- Maintenance costs for government operations
- Maintenance costs to preserve Heritage Assets

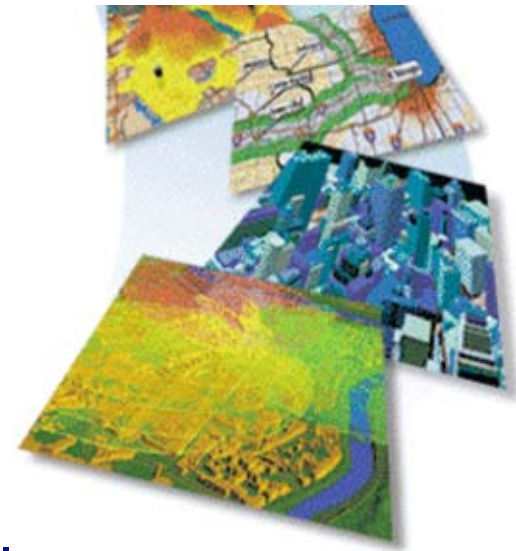
Enterprise Cultural GIS

Web Apps &
Knowledge Portal



Federal, State, & Local
Government Agencies

Map Layers



Summary

- Cultural Resource standards must satisfy **multi-agency mandates**, project workflow, and GIS architecture.
- Standards approach should include:
 - Real property tracking
 - Classification systems
 - Financial tracking
 - Preservation compliance
- Revisions and expansion of the SDSFIE is under the guidance of the CADD/GIS Tech Center's Cultural Resources Task Committee.

Where do we want to be?

- **Exchange of Cultural Geospatial Data:**
 - Avoid incompatibility of data and terms on Federal, DoD, State, and Local levels
- **Support Data Calls and Management Queries:**
 - Satisfy Headquarter data requests and Cost accounting inquiries
- **Wholesale approach:**
 - Satisfy multi-agency requirements
- **Data terms to across Agency boundaries:**
 - Consistent high-quality environmental assessment
- **Establish a Cultural Knowledge-based Web Portal:**
 - Captured and enhanced through technology

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Questions