



US Army Corps
of Engineers

Overview of the National Levee Database

Tim Pangburn, PE, D.WRE
USACE Remote Sensing/GIS Center of Expertise
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Outline

- Levee Database Modeling Effort
 - Questionnaire
- National Levee Database
 - Database Model
 - Status of 5 Pilot Districts
 - Levee Inspection System
 - National System

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National Levee Database

What We Need

A single ...

- Comprehensive (Complete)
- Spatially Precise
- Authoritative
- Consistent
- Temporally explicit

Levee database for the Nation

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Objective

- Initiate the development of an SDSFIE-compliant geospatial National Levee Database including all necessary attributes of levees/floodwalls relevant to design, construction, operations, maintenance, repair, inspections, and potential for failure. This database model shall consist of mandatory attributes that must be populated as well as optional attributes that are specific to the management practices of specific communities of practice. The database structure shall be the same at every District to assure commonality of levee data with other agencies (Federal, state and local). The databases shall be maintained at District level and be accessible as a regional/national database by Division and HQUSACE users. In this Pilot effort, the reporting requirements of the Flood Control and Coastal Emergencies (FCCE) program, as described in EP-500-1-1, will be the used as the test metric for success.

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PDT Members

- Kevin E. Carlock, CEMVR-OD-T
- Tony Hill, CESWL-EM
- Michael L. O'Neill, CESPK-ED-GI
- Rory J. Sutton, CESAJ-IM-I
- Seshagirir V. Vaddey, CENWS-EC-TB-HE
- Paul A. Deatrck, CELRL-OP-E
- Mathew T. Walsh, CENAE-EP-PS
- Christopher N. Dunn, CEIWR-HEC-WR
- Allyson L. Windham, CEERD-ID
- Joel D. Schlagel, CEERD-RT
- Travis Clark, Michael Baker Jr., Inc.

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June Focus Change

- Geospatial Database Model for Levee Inventory
- GIS Inventory of Corps Federal Projects
 - Federally Owned Projects
 - Federally Built and Locally Maintained
 - Inspections by ICW (~ 1600 projects)
 - Non-Federal Projects
 - PL84-99 Program (~1200 projects)
- Methodology for Performing Risk Assessments
- Beta Test Methodology on 10-15 Corps Fed. Proj.

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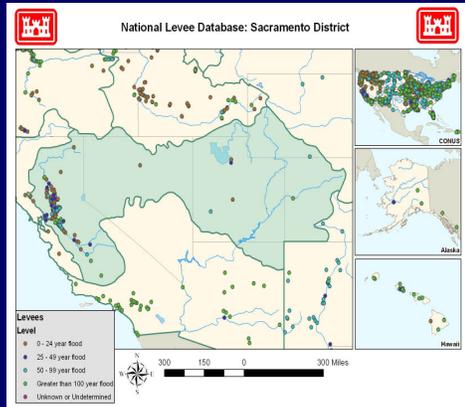
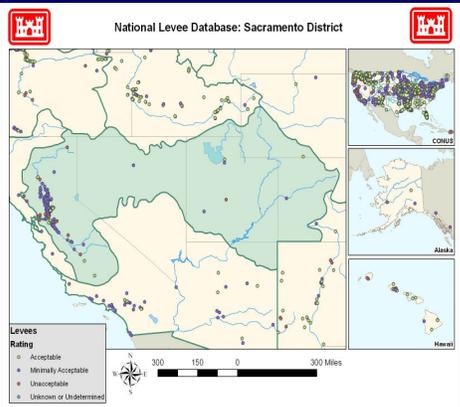
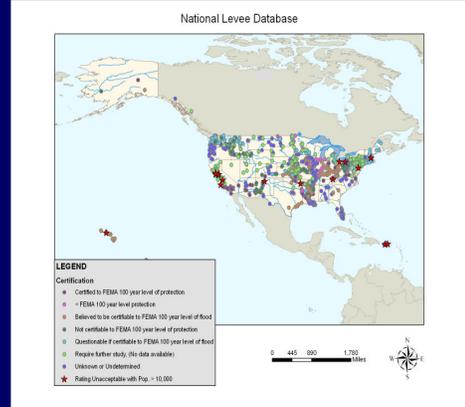
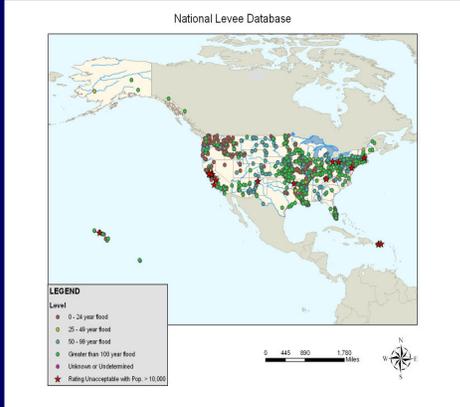
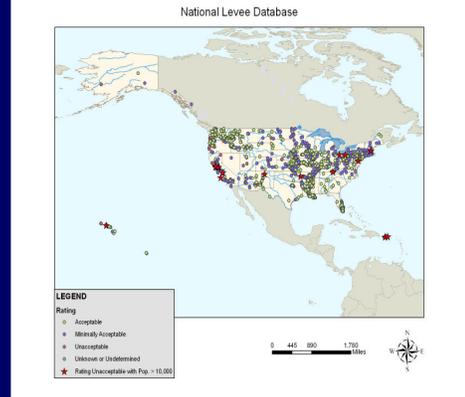


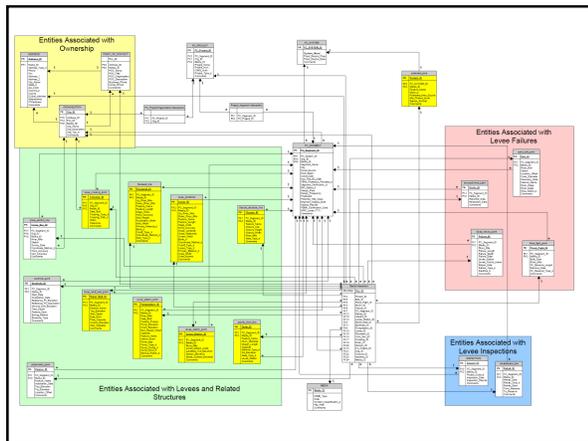
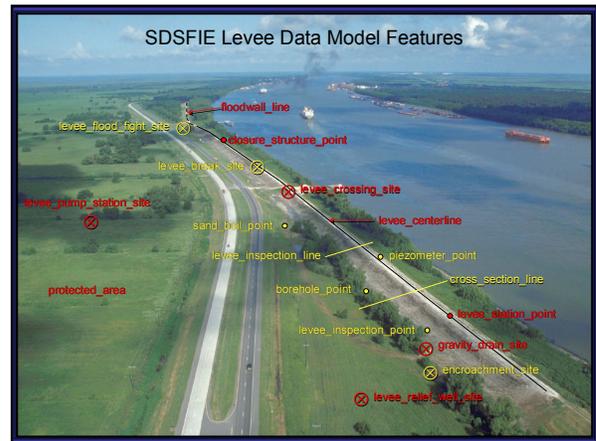
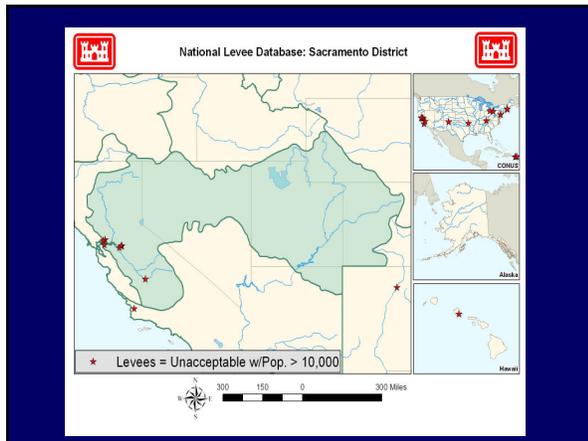
National Levee Database Timeline

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TECHNICAL TASK	Planned START	Planned FINISH
Phase 1: Assessment and Program Management Plan		
Task 1: Survey Corps Districts	15 March 2006	30 June 2006
Task 2: Program Management for Pilot Implementation	15 March 2006	30 June 2007
Task 3: Software Upgrade and Testing	15 March 2006	15 March 2007
Phase 2: Execute Production Plan for National Levee Database Population		
Task 1: District Population of Mandatory Fields of National Levee Database (5 Districts)	1 July 2006	1 March 2007
Task 2: Prototype Regional/National Viewing Capability	1 July 2006	1 March 2007
Phase 3: Continue Production Plan for National Levee Database Population		
Task 1: Continue production plan for National Levee Database (32 Districts)	1 January 2007	30 May 2007
Task 2: Operational Regional/National Viewing Capability	1 January 2007	30 June 2007
Task 3: National Implementation Guidance and Strategy for National Levee Database	1 April 2007	30 July 2007

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Fundamental Elements

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- Flood Control Segment – Discrete portion that is operated and maintained by a single entity
- Flood Control System – One or more segments which collectively provide protection to a defined area
- Flood Control Project – one or more segments which were constructed under the same authorization (USACE specific reporting)

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Criteria for Selection of Pilot Districts

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- In-house GIS capability (Knowledge of district skills, and district is willing to be a pilot district)
- Knowledge of Levee Database Model as it is being developed (participated on the model development)
- Existing digital levee data for their geographic region (determined from survey or knowledge of the district)
- Types of projects reported in the Initial Survey (scheduled completion 30 June 2006)
- Representation across five separate USACE Divisions.
- Based on results of the Initial survey, a few high risk projects may be added from other districts. Data would be required in order to possibly perform risk assessments on those projects.

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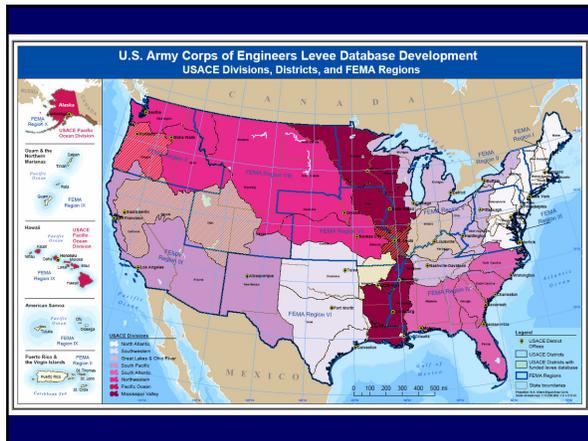
Pilot Districts

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- Little Rock
- Louisville
- Sacramento
- St. Louis
- Portland

– 22% of all levee segments collected in questionnaire were located in these five districts (438 out of 1988)

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Levee Inspection Application

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for ArcGIS Version 9.1
Overview of New Features and Functionality

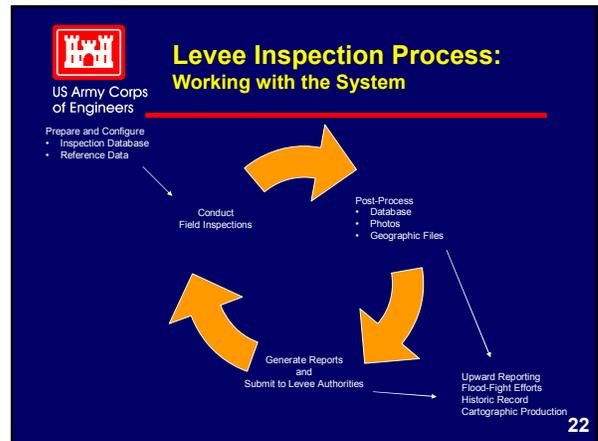
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Application Components

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- Levee Inspection System
 - Field Inspection Data Collection and Database Updates
- Photo Management Tool
 - Organizing and Assigning Digital Photos to Field Observations
- Data Management Tool
 - Managing Data Within the Organization
- Reporting – Advanced and Basic
 - Provides Organizational Standardization to Reporting Requirements

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What Do You Need To Make It Work?

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- Levee Inspection Application
- ArcGIS Software
- Crystal Reports
- MS Word / MS Access
- Laptop Computer or Tablet PC
- GPS Receiver
- Digital Camera
- Reference Data
- Organizational Support

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Configuration Dialog

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- Configuration Window
 - Select Database
 - Select Geodatabase
 - Select Inspection Directory (no longer limited to C Drive or Specific Folder)

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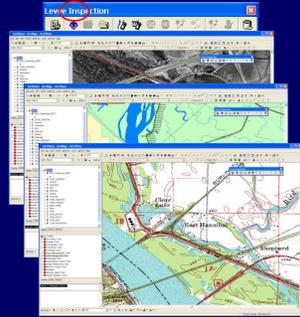


Data View After Loading Layers

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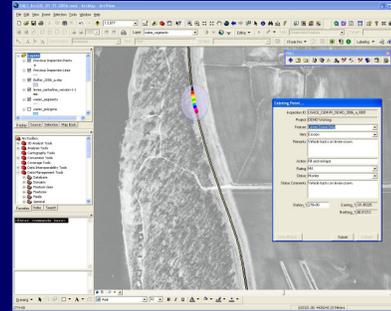
- Once All Data Layers Have Been Added, the User May Re-Order the Layers for Desired Display in the Field

Note: It is Recommended to Use ArcGIS Layer Files to Store All Symbology and Scale Information - Create These Files Prior to Adding Project Data.



GPS Controlled Inspection

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Reporting Requirements

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The report options and information are stored in the database and a report in word format may be generated at any time.



A partial report will generate a report based on the items and sub-items listed under the current report. A full report will dump the entire EP-500-1-1 (as it is entered in the database) in report format.

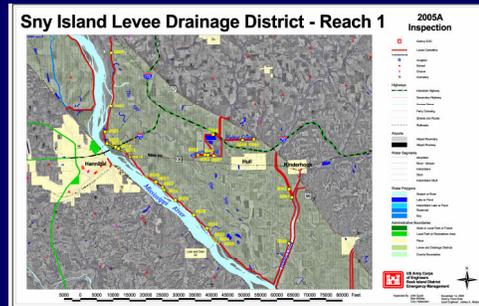
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Inspection Map

All New and Unresolved Items

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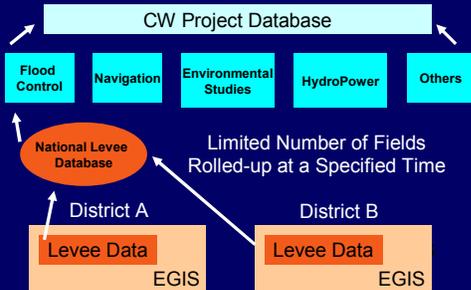


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Database Design

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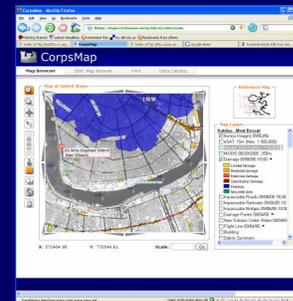


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CORPSMAP

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Overview of the Levee GIS Data Model

Questions?