

Coordinated Needs Management Strategy

Marni Law, Illinois State Water Survey

Presentation Overview

- CNMS Basics
- Database Components
- Validation Process
- Future of CNMS
- CNMS Demo

What is CNMS?

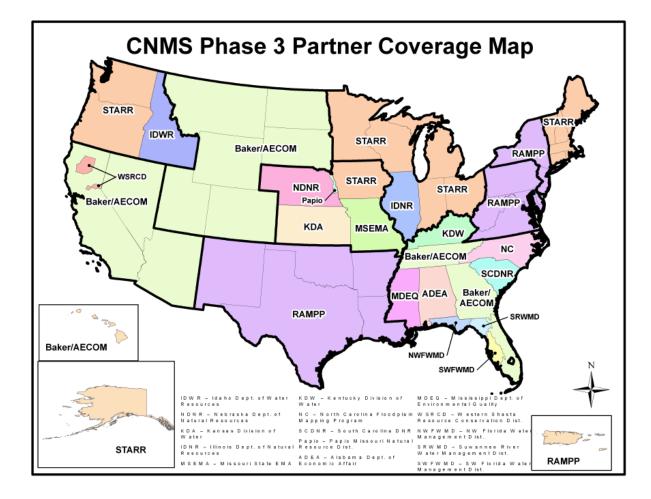
- CNMS is a FEMA initiative to update the way FEMA organizes, stores, and analyzes flood hazard mapping needs information for communities.
- CNMS is a method to enter and update an inventory of floodplain studies in a geospatial environment.
 - FEMA's CNMS Database User's Guide and Database lays out the structure and guidelines for CNMS.
- CNMS assesses validity of current studies using Physical environment, Climate patterns, and Engineering (PCE) factors. (17 Critical and Secondary Elements)
- Tool used to report New, Valid, or Updated Engineering (NVUE) statistics.
- Tool for performing Risk MAP (Risk Mapping, Assessment, and Planning) Discovery and Scoping tasks.

Why CNMS?



- Under Title 42 of the Code of Federal Regulations Chapter III Section 4101(e) FEMA is to revise and update all floodplain areas and flood risk zones based on an analysis of all natural hazards affecting flood risks on a five-year cycle.
- Due to the changing nature of the landscape from influences of physical, engineering, and climatological processes, timely updates to SFHA info on FIRMs become necessary to maintain accuracy and relevance.

CNMS Partners:



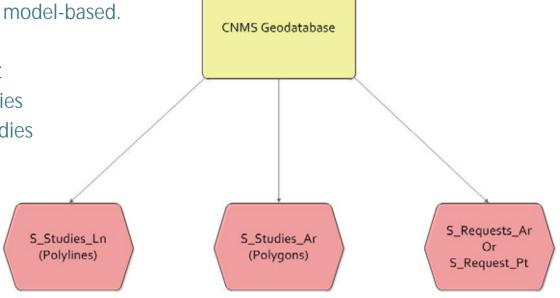
Main Geodatabase Components:

• S_Studies_Ln (Lines)

- Represent the centerlines of flooding sources.
- Can also include any requested study for a stream that is unmapped.

S_Studies_Ar (Polygons)

- Detailed studies
- Approximate studies that are model-based.
- S_Requests_Ar or S_Requests_Pt
 - Community requests for studies
 - Comments about existing studies



Polylines

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Useful Information in the feature class attribute tables:

Polylines

- Water name
- Stream Miles
- Validation Status of stream (Valid, Invalid, or Unknown)
- Flood Zone
- Reason the stream is 'Invalid'

Polygons

- Water name
- Date of Study
- Hydrologic and Hydraulic methods/models used
- Each Critical and Secondary Element's Evaluation
- Validation Status (Valid, Invalid, or Unknown)

Validation Process

- For Detailed and Model-Based Studies (Polygons), each study goes through 17 checks to determine validity:
 - Of these 17 checks, there are 7
 Critical and 10 Secondary Elements:
 - Invalid Study = 1 Critical or 4 or more Secondary deficiencies
 - Valid Study = 0 Critical and <4 Secondary deficiencies
- If the study reach is non-model based (most Zone A's), then the validation status is "Unknown" and there will be no polygon for the polyline.



7 Critical Elements:

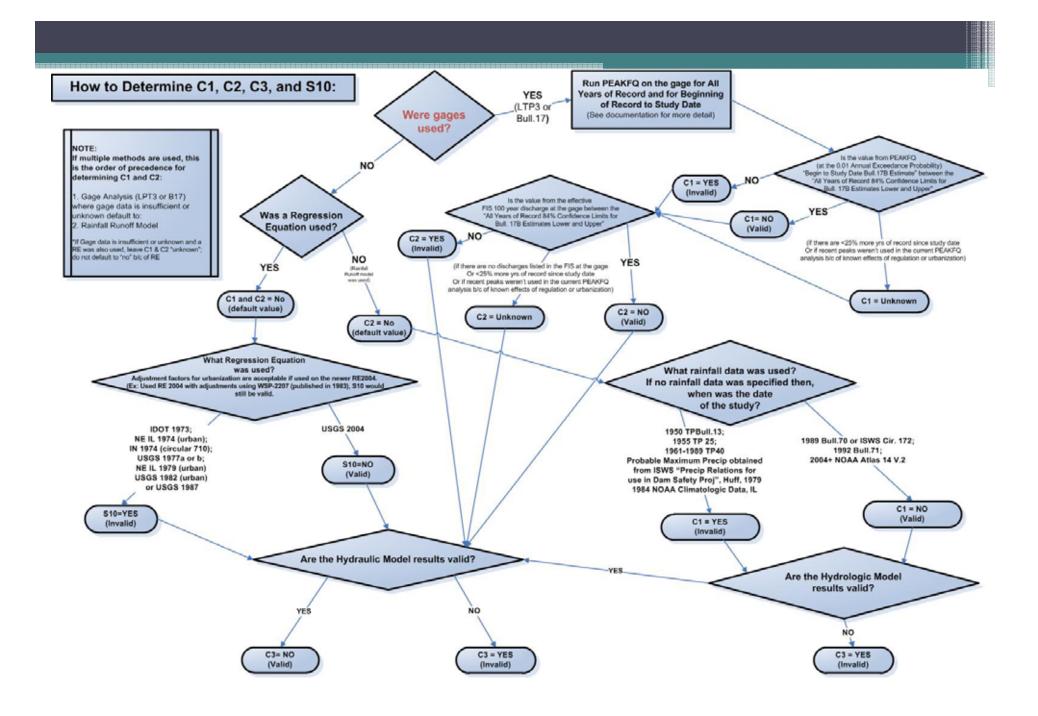
- C1_GAGE Change in gage record. Major change in gage record since effective analysis that includes major flood events?
- **C2_DISCH Change in Discharge**. Do the updated and effective peak discharges differ significantly based on confidence limits criteria in FEMA's Guidelines and Specifications for Flood Hazard Mapping Partners?
- C3_MODEL Model methodology. Model methodology no longer appropriate based on Guidelines and Specifications for Flood Hazard Mapping Partners?
- C4_FCSTR Hydraulic Change. Addition/removal of a major flood control structure?
- C5_CHANN Channel Reconfiguration. Current channel reconfiguration outside effective SFHA?
- C6_HSTR Hydraulic Change 2. More than 5 new or removed hydraulic structures (bridge/culvert) that impact BFEs?
- C7_SCOUR Channel Area Change. Significant channel fill or scour?

If one or more elements are true then Flood Hazard Information is 'Invalid'

10 Secondary Elements:

- S1_REGEQ Regression Equation. Use of rural regression equations in urbanized areas?
- S2_REPLO Repetitive Loss. Repetitive losses outside the SFHA?
- **S3_IMPAR Impervious Area**. Increase in impervious area in the sub-basin of more than 50 percent (i.e., 10 percent to 15 percent, 20 percent to 30 percent, etc.)?
- **S4_HSTR Hydraulic Structure**. More than 1 and less than 5 new or removed hydraulic structures (bridge/culvert) impacting BFEs?
- S5_CHIMP Channel Improvements. Channel improvements / Shoreline changes?
- S6_TOPO Topography Data. Availability of better topography/bathymetry?
- S7_VEGLU Vegetation or Land Use. Changes to vegetation or land use?
- **S8_DUNE Coastal Dune**. Failure to identify primary frontal dune in coastal areas?
- **S9_HWMS** High Water Mark. Significant storms with High Water Marks.
- **S10_REGEQ Regression Equation**. New regression equations available?

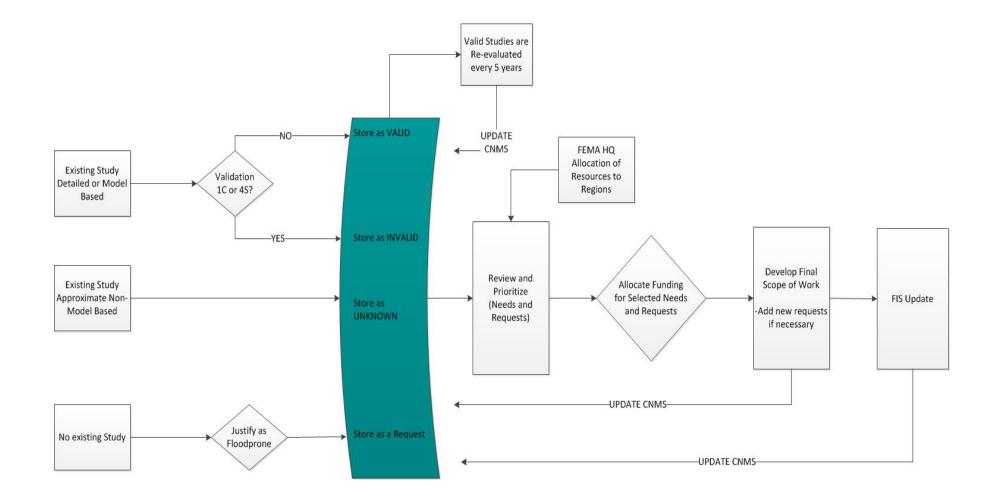
If four or more elements are true then Flood Hazard Information is 'Invalid'



CNMS and Beyond....

- CNMS is a 'Living Database'
 - Continuous new input and updates whenever there are new or revised studies.
 - 'Valid' streams will get reassessed every 5 years.
 - 'Invalid' streams will get prioritized for potential funding.
- Stream Inventory (polylines) will be used for regional and national NVUE (New Validated Updated Engineering) reporting.
- CNMS will provide support to data-driven planning efforts and will be used in prioritization for funding of new hydrologic and hydraulic watershed projects.
- Watershed Discovery Meetings will provide input for CNMS community requests (Requests Polygons and Points) and help prioritize studies in the watershed.
- The CNMS geodatabase will eventually be available online to the public.

CNMS Lifecycle:



CNMS Sneak Peak

Questions?

Marni Law, CFM Illinois State Water Survey <u>marnilaw@illinois.edu</u>

217-244-6644