

Floodplain Mapping 101

Brian Chaille, PE, CFM and Chris Hanstad, PE, CFM

Illinois State Water Survey

IAFSM 2016

Topics

- Background
- When Map Changes are Required
- Why Map Changes are Important
- Type of Map Changes
- Review Process and Timelines
- A Proactive Floodplain Mapping Approach

Background

- In 2010 ISWS began participation in FEMA's LOMR Review Partner pilot program.
 - Engage directly with communities
 - Worked with over 110 Illinois communities
- Review community applications to revise floodplain maps

Background

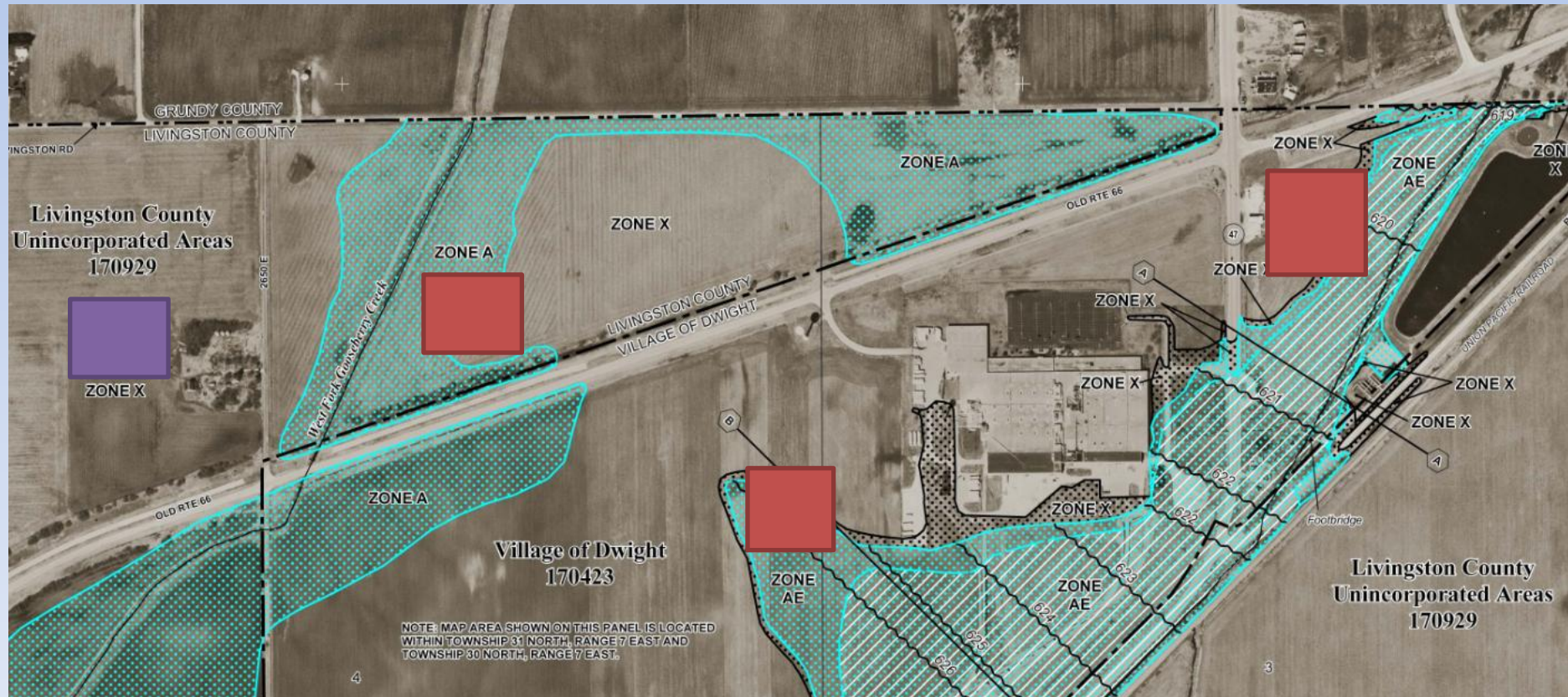
- Floodplain maps are essential to plan, regulate and manage flood risk
- The NFIP places responsibility on local community to update maps



When is a map change required?

- Map changes are often required when...
 - Better data which changes BFEs becomes available (CFR 44 part 65.3)
 - A proposed project is located in a regulatory flood zone

When is a map change required?

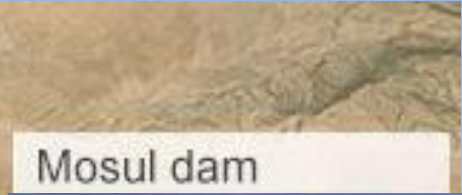


When is a map change required?

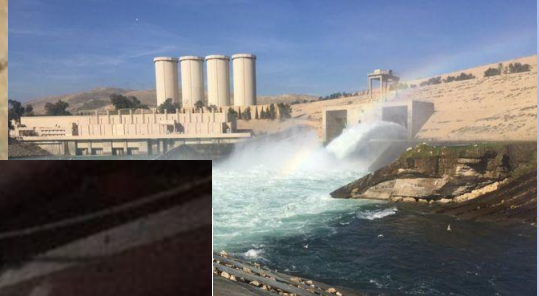
- Map changes are often desirable when...
 - The effective floodplain maps contain errors or natural changes have occurred
 - Structures on natural grade above BFE are incorrectly shown in the floodplain
 - Proactive planning toward future community development

Why is it important?

**The Most Dangerous
Dam in the World!!!**



Mosul dam



Mosul

100km
50 mile

■ Kurdistan Gov. control

Google

10km
5 mile

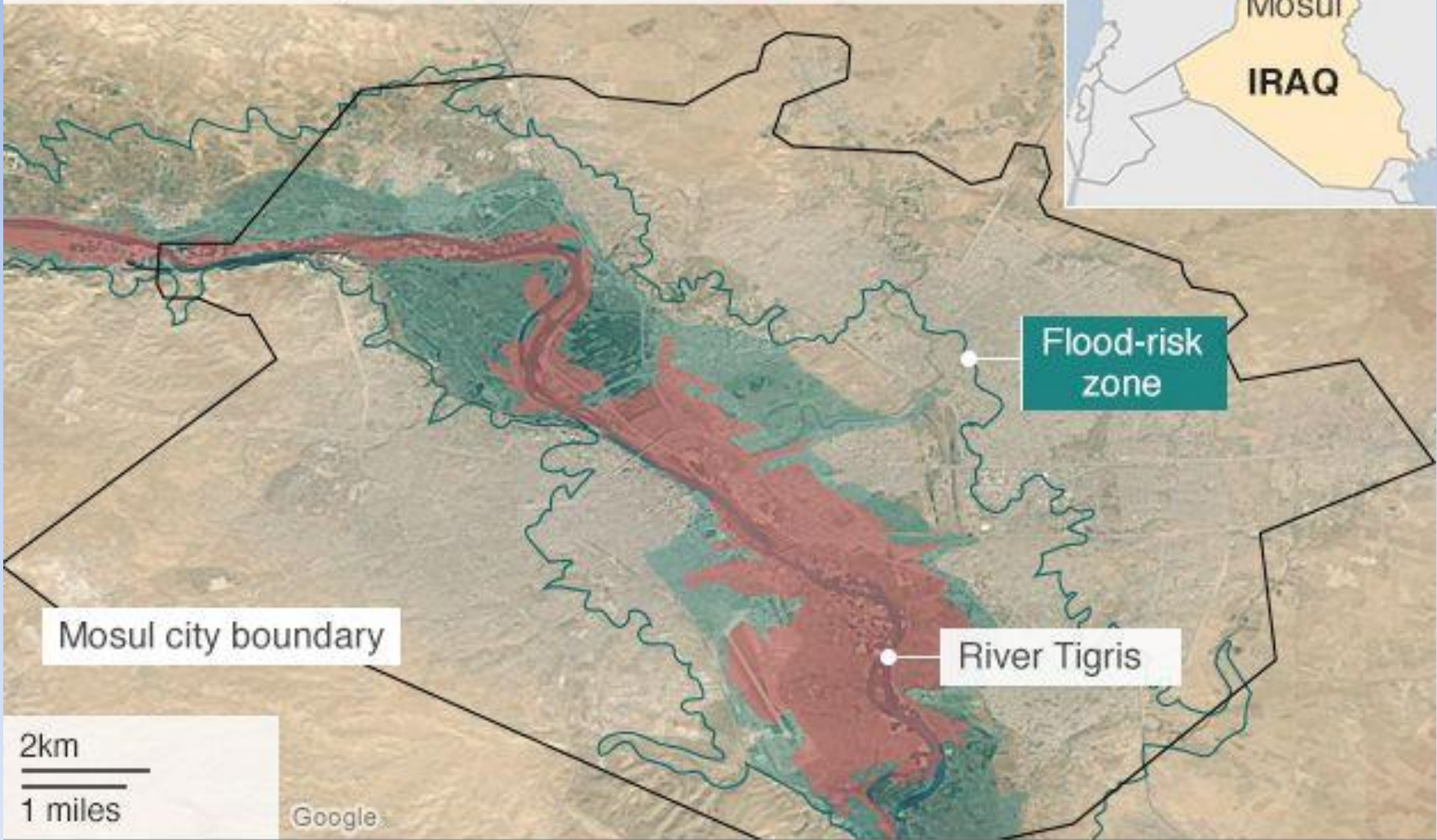


AFP

Alex Milner BBC News, 18 August 2014 <http://www.bbc.com/news/world-middle-east-28772478>



Worst-case flood depths: ■ More than 25m ■ More than 18m



Source: IWTC



Types of Map Changes

MT-1 Map Changes

- Letter of Map Amendment (LOMA)
- Conditional letter of Map Amendment (CLOMA)
- Letter of Map Revision Based on Fill (LOMR-F)
- Conditional Letter of Map Revision Based on Fill (CLOMR-F)

MT-2 Map Changes

- Letter of Map Revision (LOMR)
- Conditional Letter of Map Revision (CLOMR)
- Physical Map Revisions (PMR)

MT-1 Map Changes

- Typically involve a single lot or structure being removed from floodplain
- Can be based on fill or natural grades above BFE
- Usually requires an elevation certificate
- Cannot change BFEs or floodway delineation

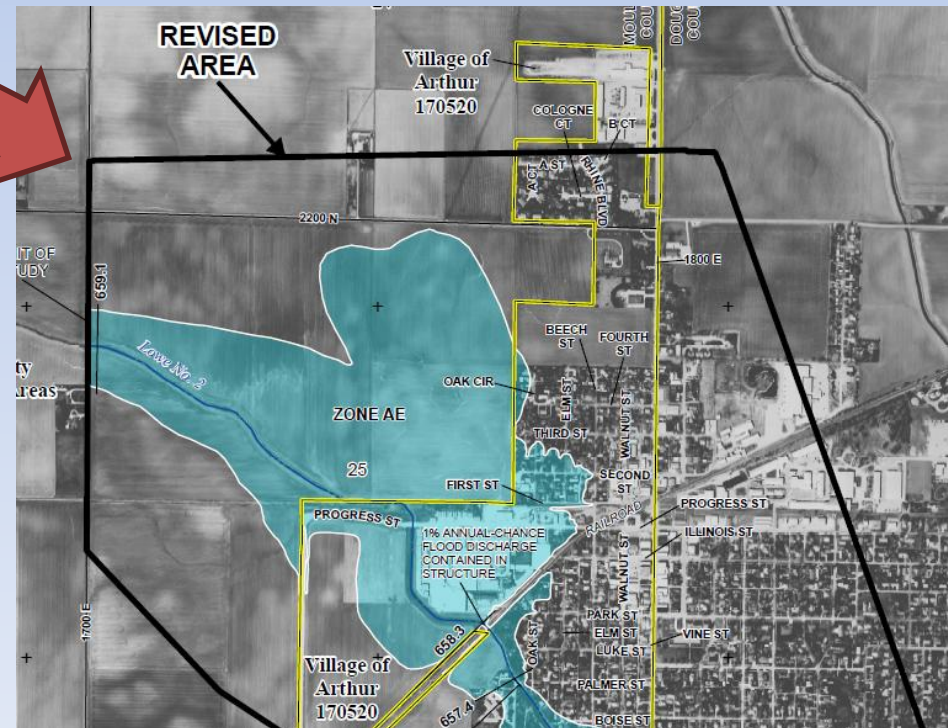
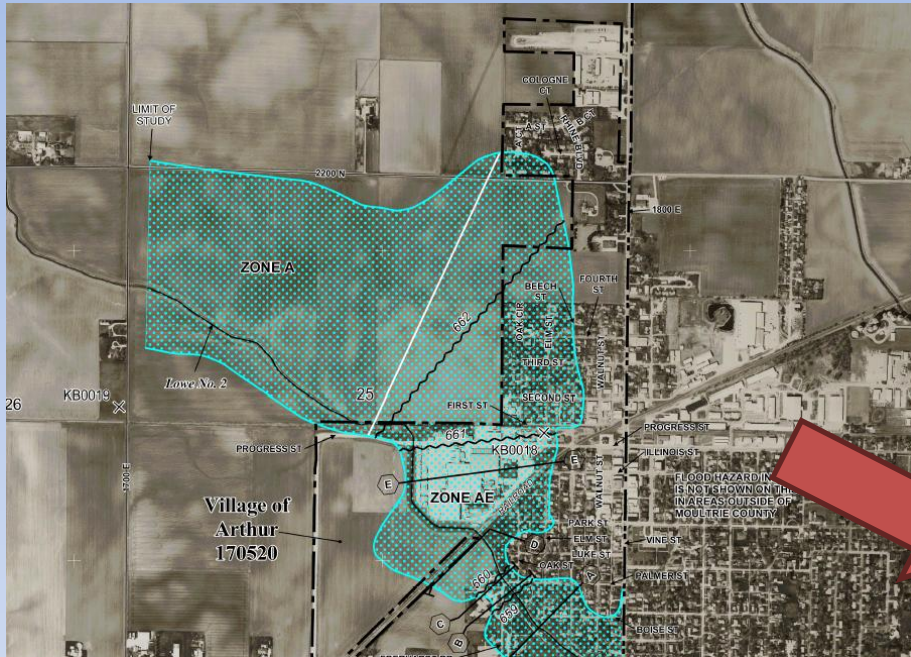
MT-1 Map Changes



MT-2 Map Changes

- Changes in either hydrologic or hydraulic conditions result in changes in BFEs
 - New study/methodology/error correction
 - Proposed projects cause changes in BFEs
- Redefines the regulatory flood zones
- Results in revised floodplain maps or reissued map panels

MT-2 Map Changes



MT-2 Map Changes

- Letter of Map Revision (LOMR)
- Conditional Letter of Map Revision (CLOMR)
- Physical Map Revision (PMR)

Letters of Map Revision (LOMR)

- LOMR revises floodplain map based on scientific and engineering data which revise BFEs
- Can be requested by:
 - Community
 - Adjacent Community
 - Individual (with community consent)
- All revisions require active participation in LOMR process by community

Letters of Map Revision (LOMR)

- Community roles in LOMR process
 - Concurrence with revision (MT-2 Form 1)

As the community official responsible for floodplain management, I hereby acknowledge that we have received and reviewed this Letter of of Map Revision (LOMR) or conditional LOMR request. Based upon the community's review, we find the completed or proposed project meets or is designed to meet all of the community floodplain management requirements, including the requirement that no fill be placed in the regulatory floodway, and that all necessary Federal, State, and local permits have been, or in the case of a conditional a LOMR, will be obtained. In addition, we have determined that the land and any existing or proposed structures to be removed from the SFHA are or will be reasonably safe from flooding as defined in 44 CFR 65.2(c), and that we have available upon request by DHS-FEMA, all analyses and documentation used to make this determination.

Community Official's Name and Title

Date

Mailing Address

Daytime Telephone No.

FAX No.

EMAIL ADDRESS

Community Official's signature (required)

Date

Letters of Map Revision (LOMR)

“We have determined that the land and any existing or proposed structures to be removed from the SFHA are or will be reasonably safe from flooding as defined in 44CFR 65.2(c)”.

44CFR 65.2(c) says:

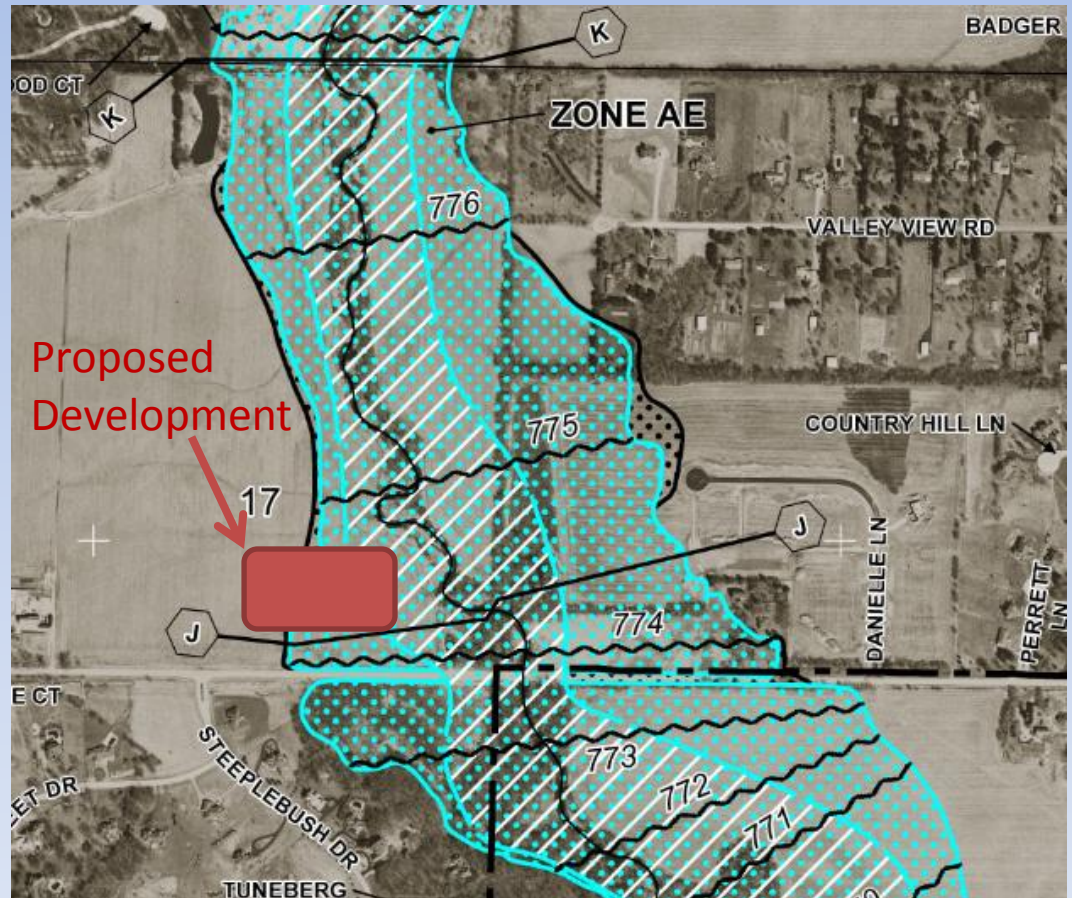
For the purposes of this part, “reasonably safe from flooding” means base flood waters will not inundate the land or damage structures to be removed from the SFHA and that any subsurface waters related to the base flood will not damage existing or proposed buildings.

Letters of Map Revision (LOMR)

- Community roles in LOMR process
 - Concurrence with revision
 - Issue public notice for floodway revision
 - Oversee individual property owner notifications

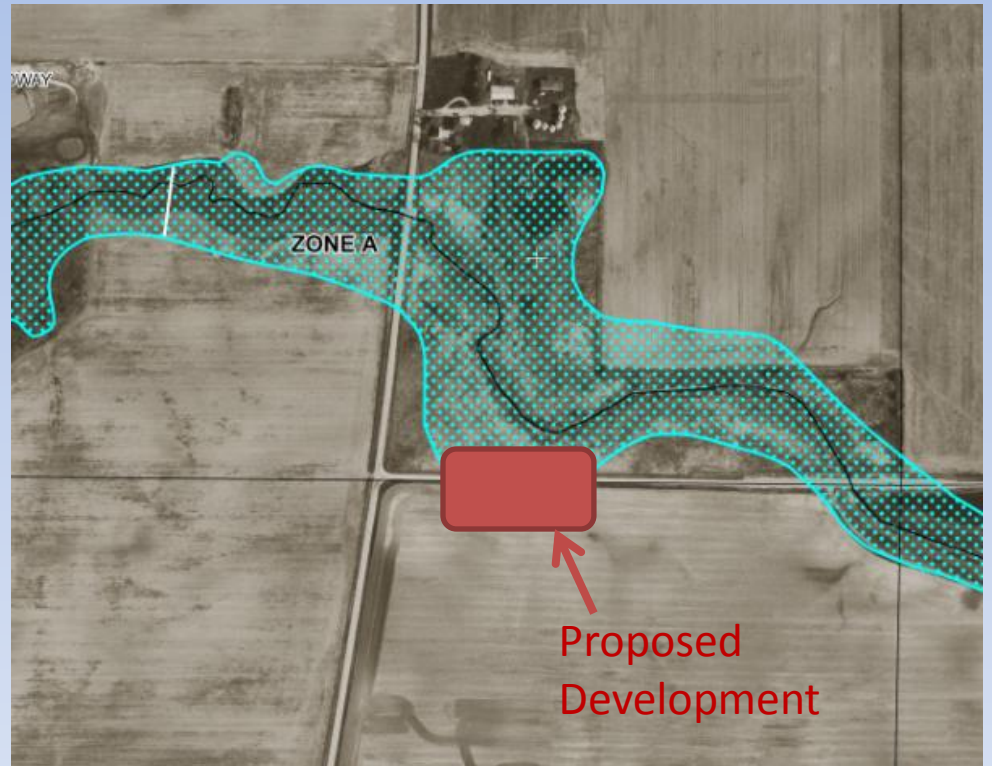
Conditional Letters of Map Revision (CLOMRs)

- Required when proposed project in floodway causes any increase in Base Flood Elevation
- Floodway > 0.00 ft
44CFR 65.12



Conditional Letters of Map Revision (CLOMRs)

- When no floodway is present a CLOMR is required when proposed project causes an increase of 0.1 foot or more
- State standards:
 - <0.1 ft rise,
 - <110% velocity,
 - >90% section area



Conditional Letters of Map Revision (CLOMR)

- 65.12 Requirements
 - CLOMR & Fee
 - Feasibility evaluation of compliant alternatives: more than \$\$\$
 - Individual legal notice explaining specific impact
 - Adjacent community concurrence
 - Certification that no structures are impacted
- Community roles in CLOMR process
 - Concurrence with revision
 - Issue public notice for floodway revision
 - Oversee individual property owner notifications
 - Endangered Species Act (ESA)

Endangered Species Act

- Illinois Eco-CAT is for Illinois, the Federal list of species is often different.
- <http://www.fws.gov/midwest/endangered/section7/s7process/index.html>
- FEMA_(Lawyers) requires this statement:

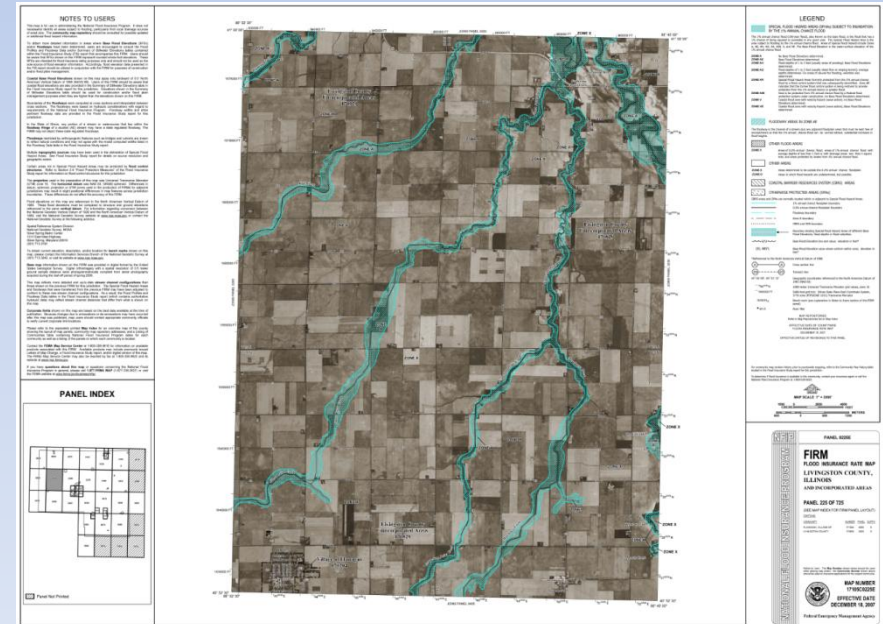
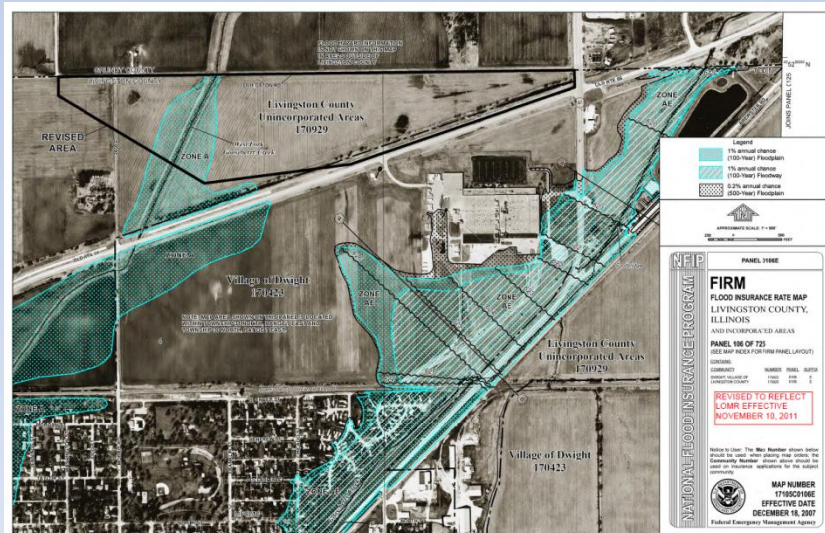
“Based on [insert all factors considered], I the project proponent confirm that there is no potential for take to occur as a result of the project. Take means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct, will not occur to threatened and endangered species located in the county as a result of the project. “

Physical Map Revision (PMR)

- Large scale revisions will revise the floodplain map by way of a **Physical Map Revision (PMR)**
- Two part map revision:
 - MT-2 review of new flood hazard data
 - FEMA funded mapping project to issue new floodplain maps to the community
- Similar technical requirements as a LOMR but different regulatory requirements

LOMR vs. PMR

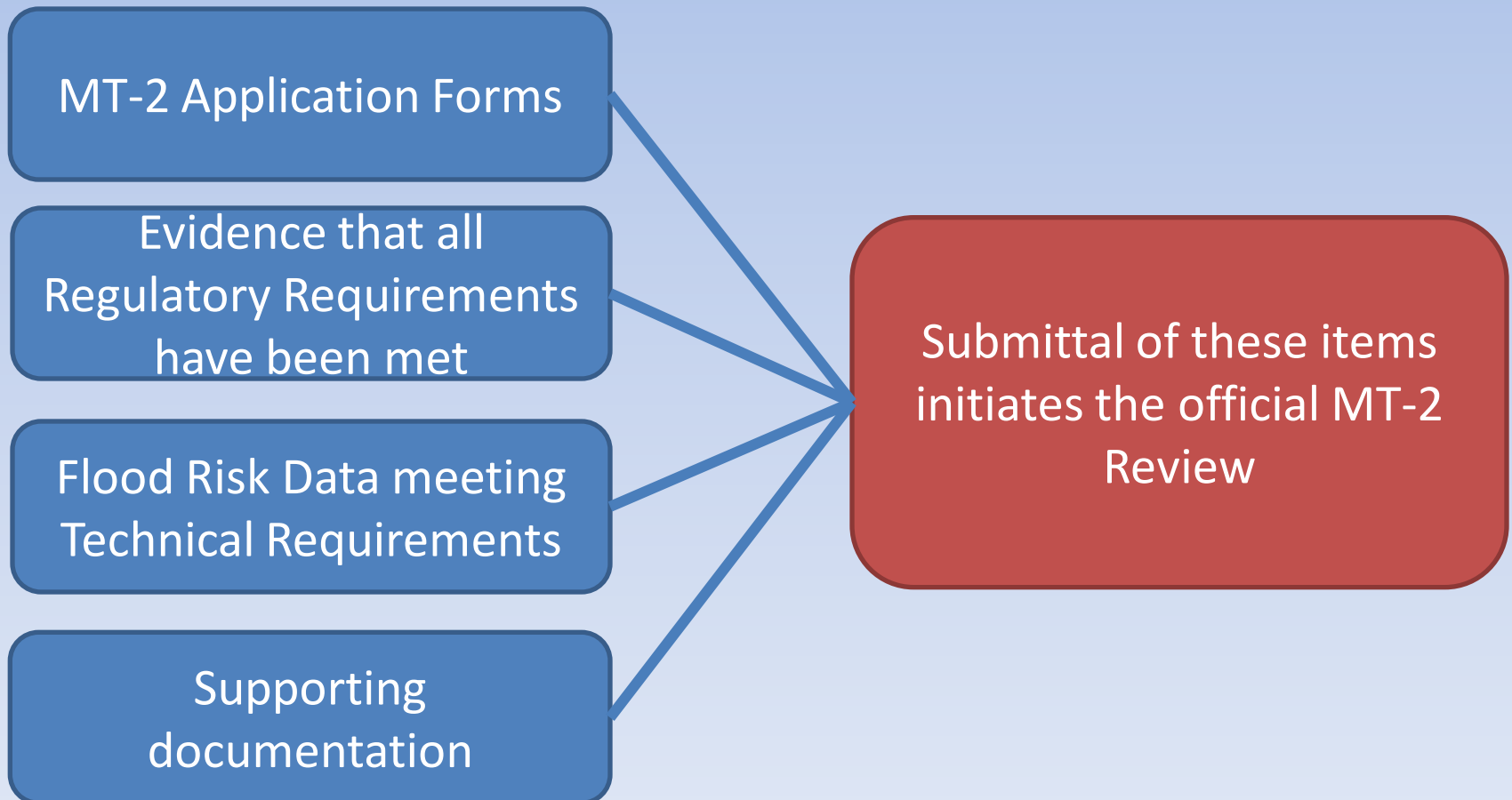
- LOMR – Letter that supersedes a portion of the effective map panel
- PMR – Issues a new map panel & FIS revision



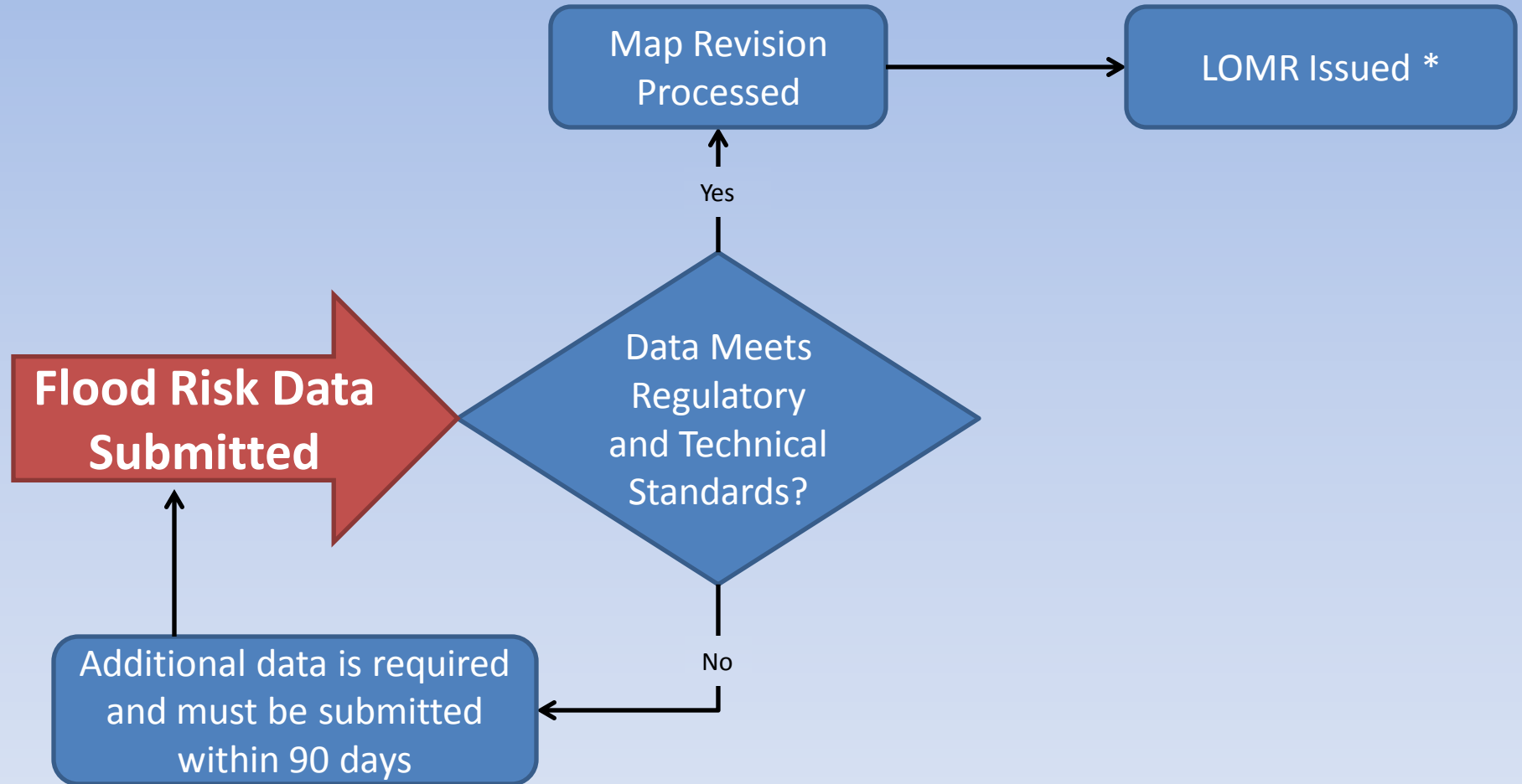
Physical Map Revision (PMR)

- Community roles in PMR process
 - Concurrence with revision (For MT-2 review only)
- MT-2 review results only in study approval and a separate mapping project will be funded by FEMA to issue new map panels to the community
 - FEMA will conduct all open houses and due process requirements with assistance from the community
 - Communities must explicitly adopt the revised FIRM panels

MT-2 Process



LOMR Life Cycle



*LOMRs are effective about 120 days after they are issued

PMR Life Cycle

MT-2 Process

PMR Approval Letter Issued

Mapping Project Funded by FEMA

Maps and FIS updated with new data

Preliminary Maps released for review

New Maps take effect

Flood Risk Data Submitted

Data Meets Regulatory and Technical Standards?

Additional data is required and must be submitted within 90 days

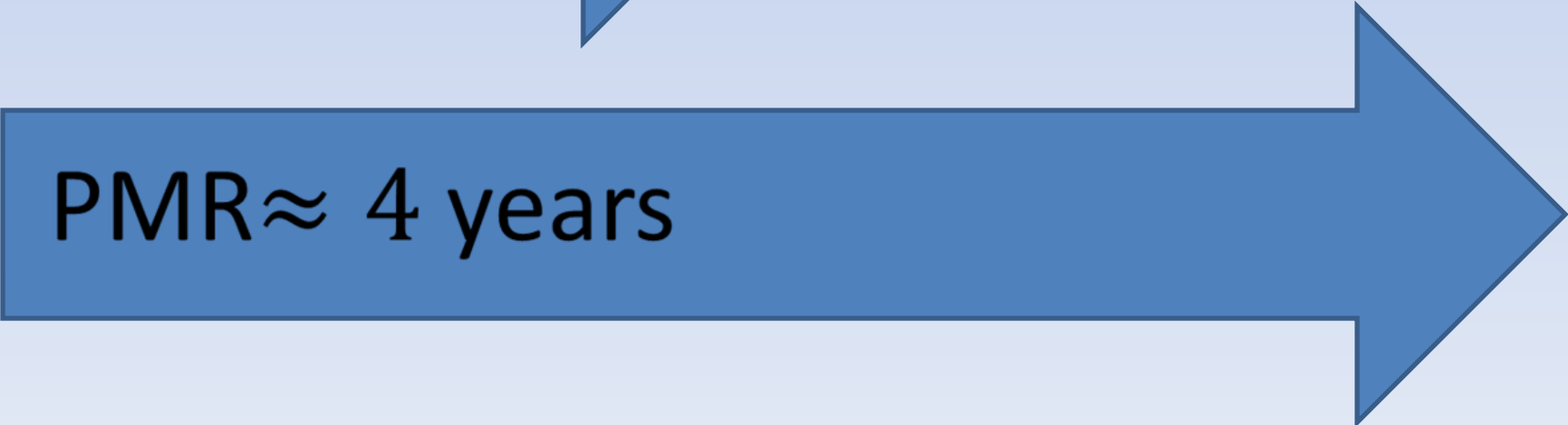
Separate Mapping Project

Timelines

- Time from initial submittal until revised floodplain maps take effect



LOMRs \approx 1 year



PMR \approx 4 years

A Proactive Floodplain Mapping Approach



ILLINOIS STATE WATER SURVEY

INSTITUTE OF NATURAL RESOURCE SUSTAINABILITY

Questions?



UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN