Evolution of Flood Hazard Identification and Mapping

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Illinois State Water Survey

PRAIRIE RESEARCH INSTITUTE

ILLINOIS

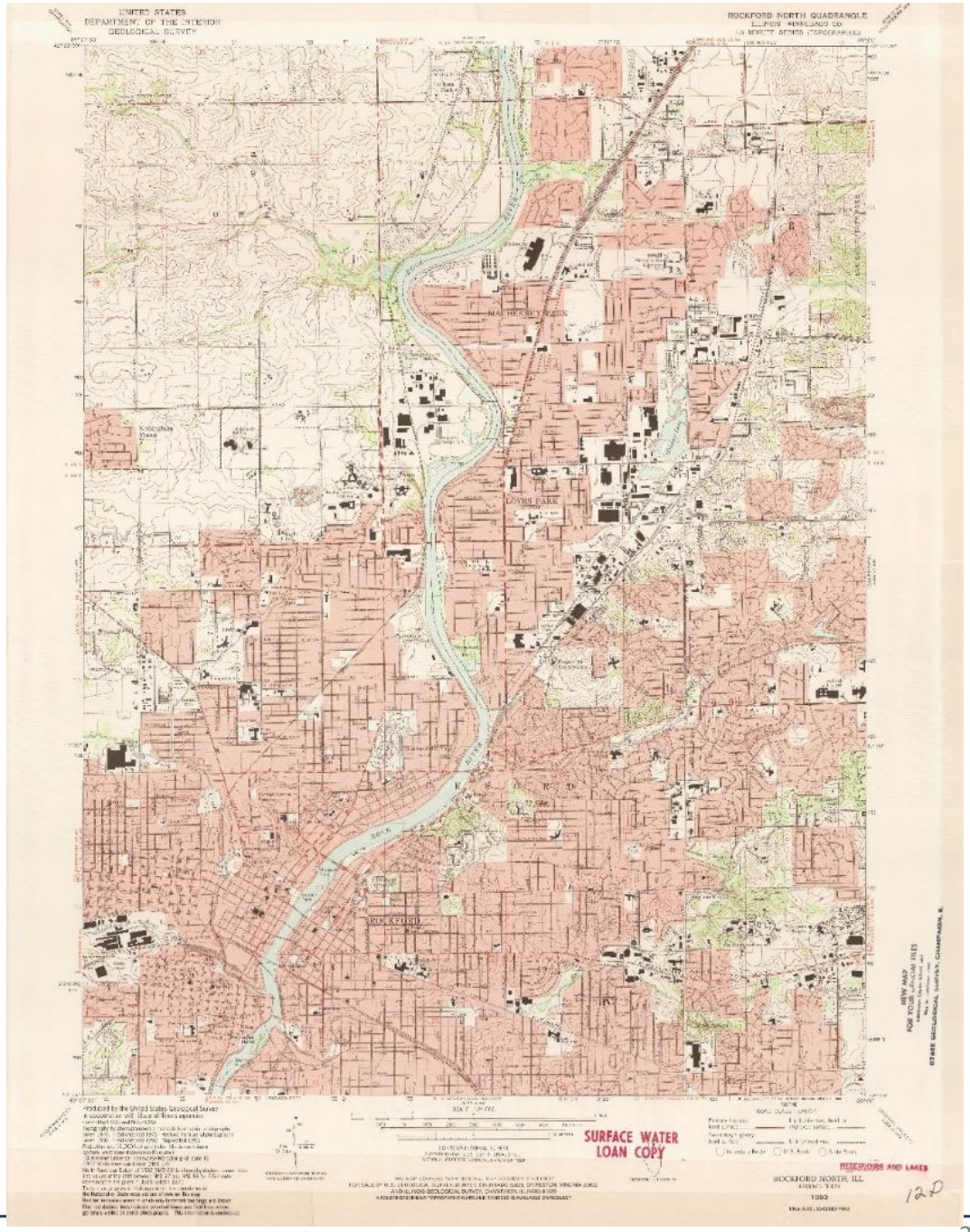
ISWS and Flood Mapping Timeline

- 1968 – National Flood Insurance Act initiates nationwide mapping
- 1970s – Hydrology Consultant to Illinois Division of Waterways (now the Illinois Dept. of Natural Resources Office of Water Resources)
  - Supporting the regulation of floodplain development
  - Review discharges. Recommended approval or disapproval
  - Local studies to determine flood elevations
- 1977 – State Repository for floodplain information
- 1983 – Begin using GIS
  - First CD of statewide flood zone GIS data
- 2004 – Map Modernization and IDNR / ISWS & OWR Cooperating Technical Partners (CTP) with Federal Emergency Management Agency
- 2008 – ISWS under Univ. of IL becomes a CTP
- 2010 – Risk MAP program launches & 2010 – ISWS becomes Letter of Map Revision Partner (MT-2 review)
- 2020 – ISWS Celebrates 125-year Anniversary

Getting started

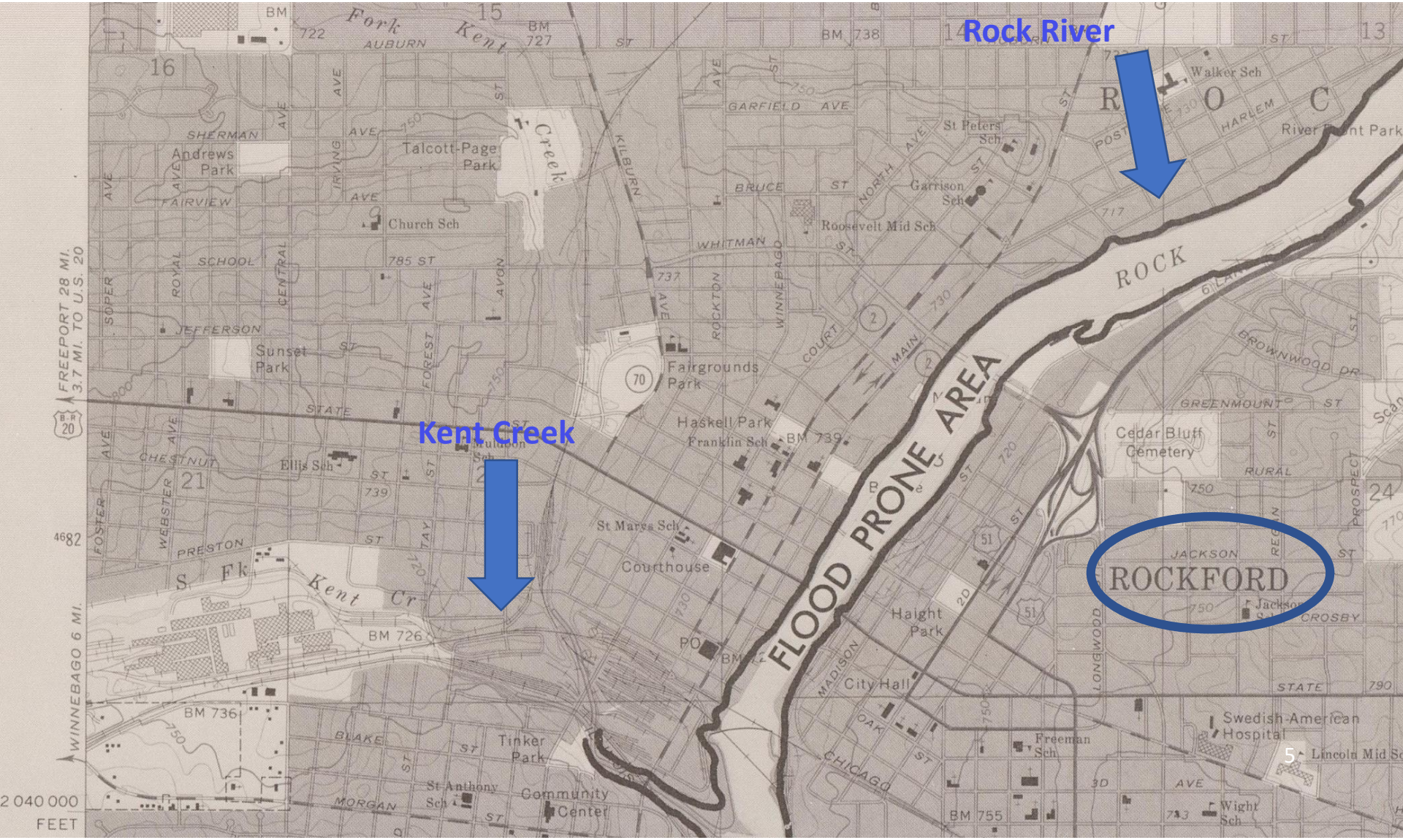
USGS
7.5 minute
topographic
quadrangle

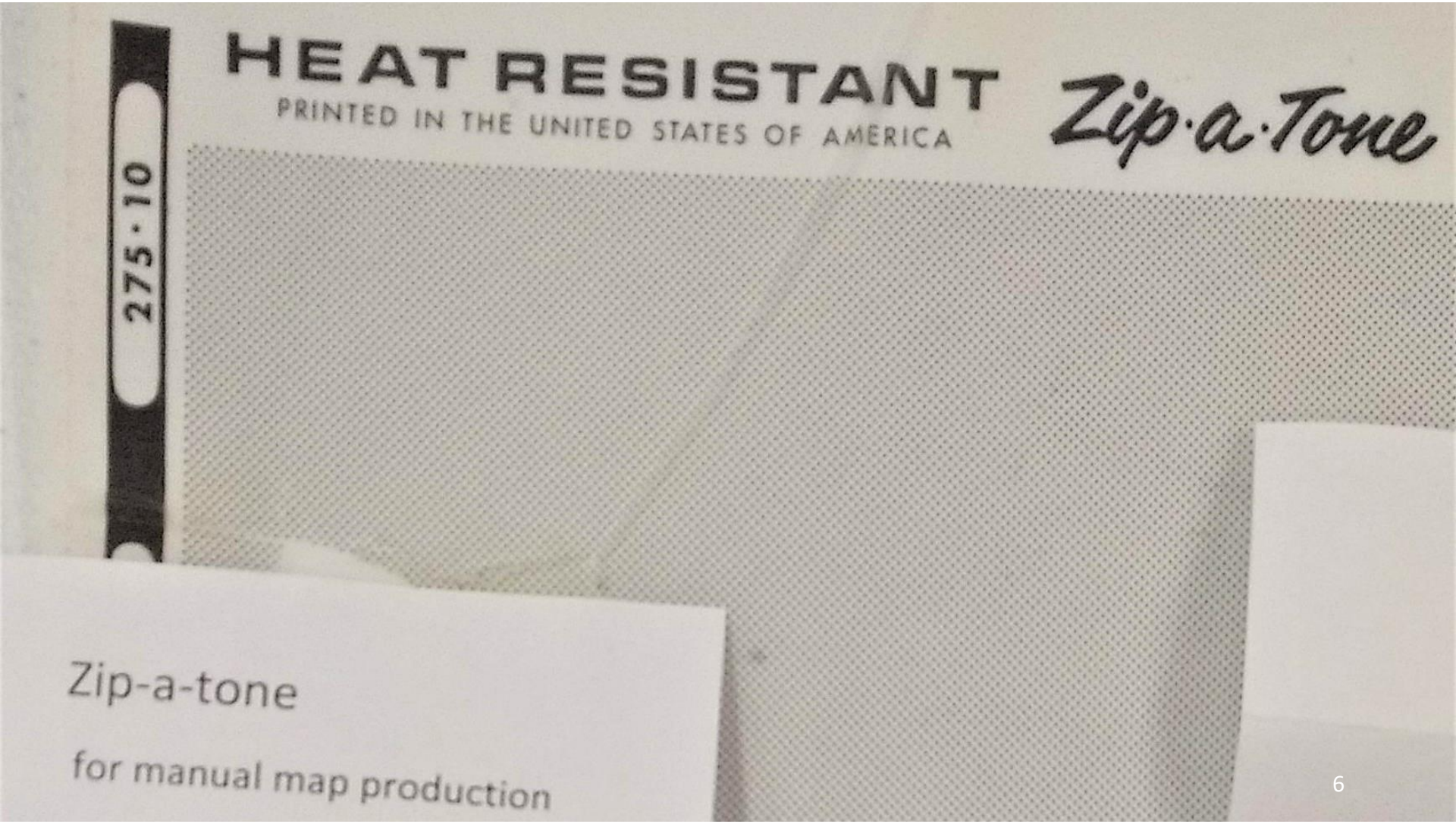
Rockford North, ILL
1 inch = 2000 feet



Flood Prone Area Maps

Rockford, IL


Rock River
Kent Creek
FLOOD PRONE AREA
ROCKFORD
Andrews Park
Talcott-Page Park
Church Sch
Sunset Park
Fairgrounds Park
Haskell Park
Franklin Sch
Ellis Sch
St Marys Sch
Courthouse
Haight Park
City Hall
Tinker Park
St Anthony Sch
Community Center
Walker Sch
St Peters Sch
Garrison Sch
Roosevelt Mid Sch
Cedar Bluff Cemetery
Swedish-American Hospital
Freeman Sch
Wight Sch
Lincoln Mid Sch
ROCK
FREEPORT 28 MI. 3.7 MI. TO U.S. 20
WINNEBAGO 6 MI.
2 040 000 FEET


HEAT RESISTANT
PRINTED IN THE UNITED STATES OF AMERICA
Zip·a·Tone
275·10
Zip-a-tone
for manual map production


by PARA-TONE
INCORPORATED
TELEDYNE
POST
38EF-060
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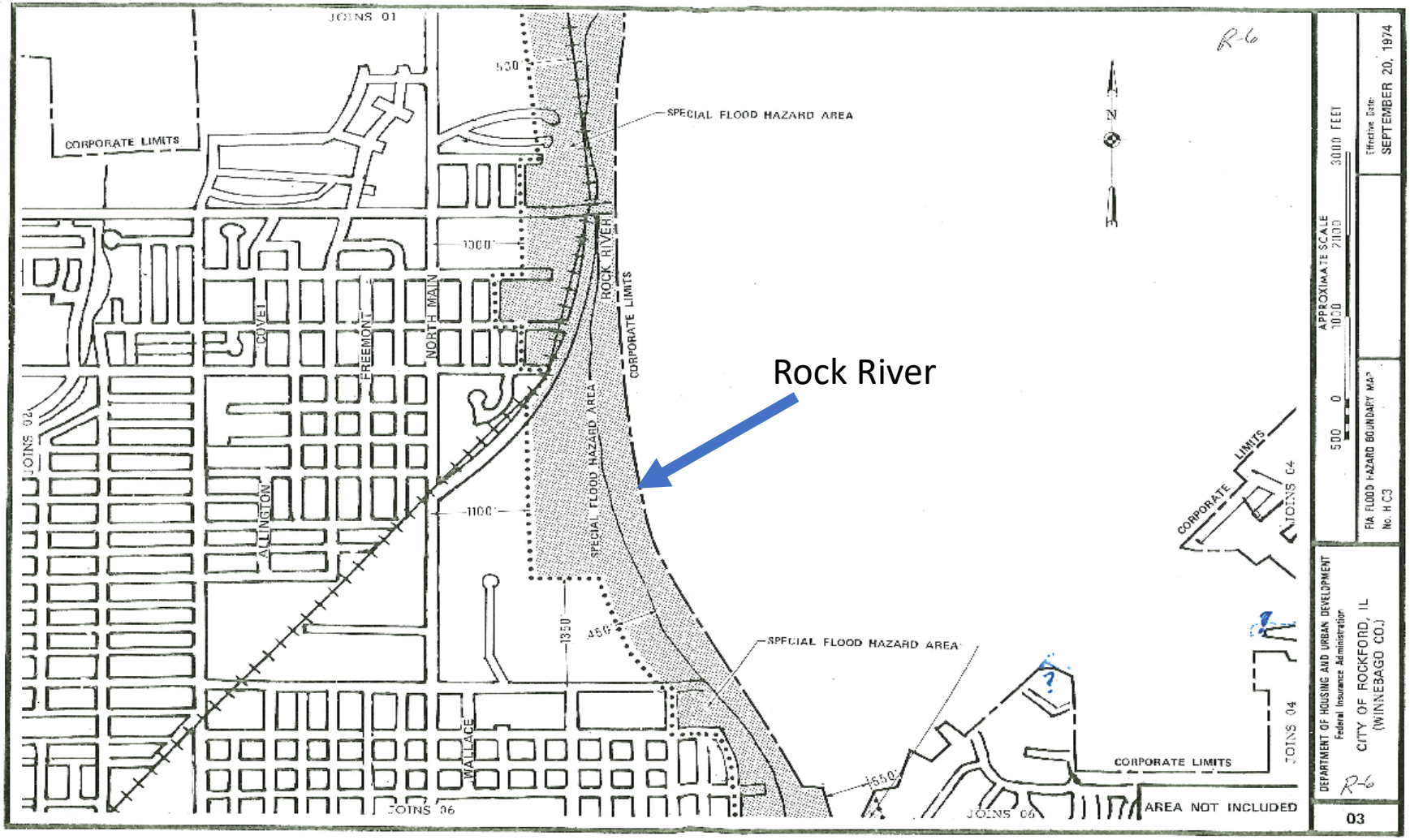
French curves
For manual map production

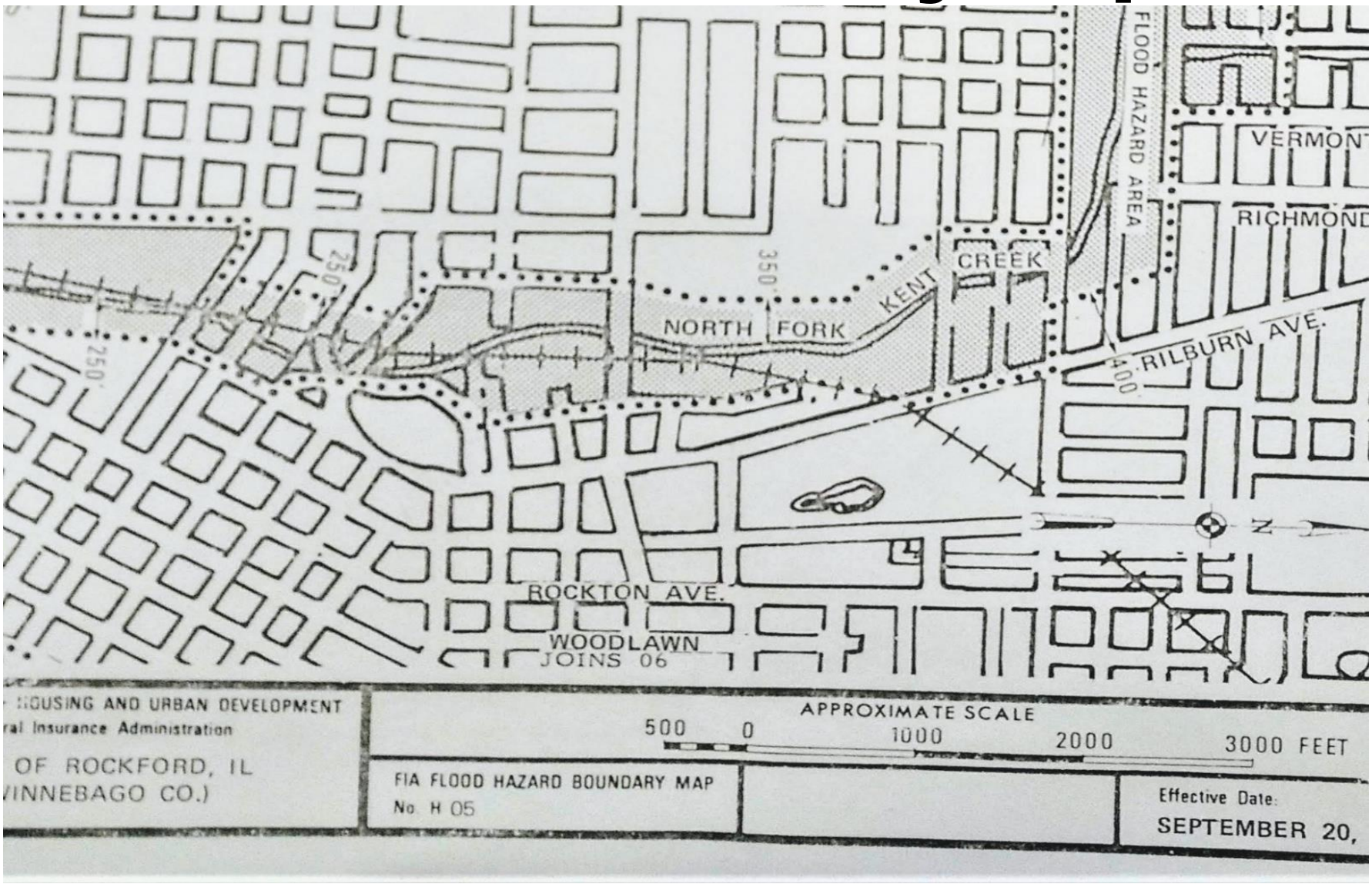
Flood Hazard Boundary Map (FHBM)

a.k.a. Zip-a-tone specials 11X 17 Map Format

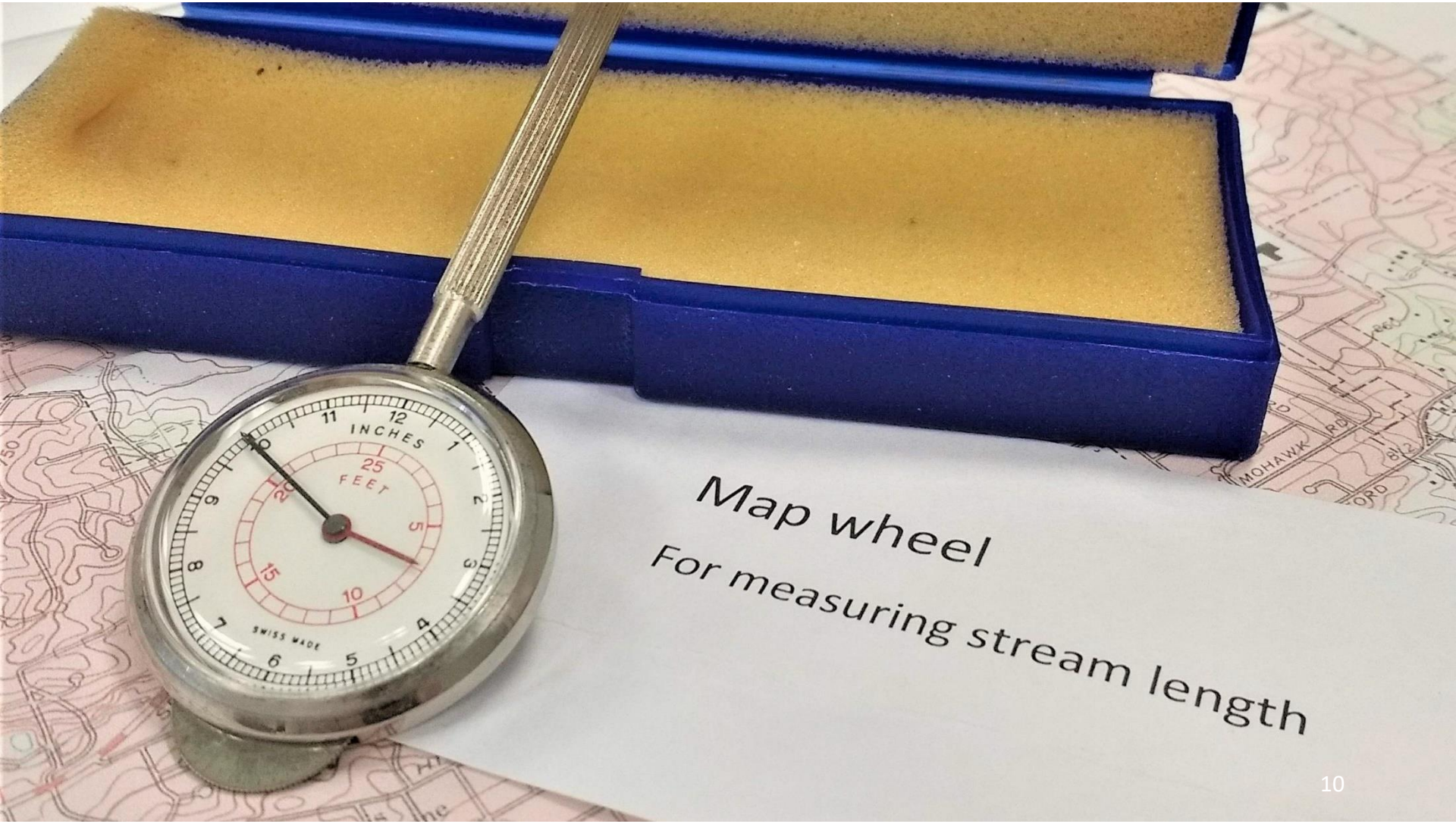


City of Rockford, Sept. 20, 1974

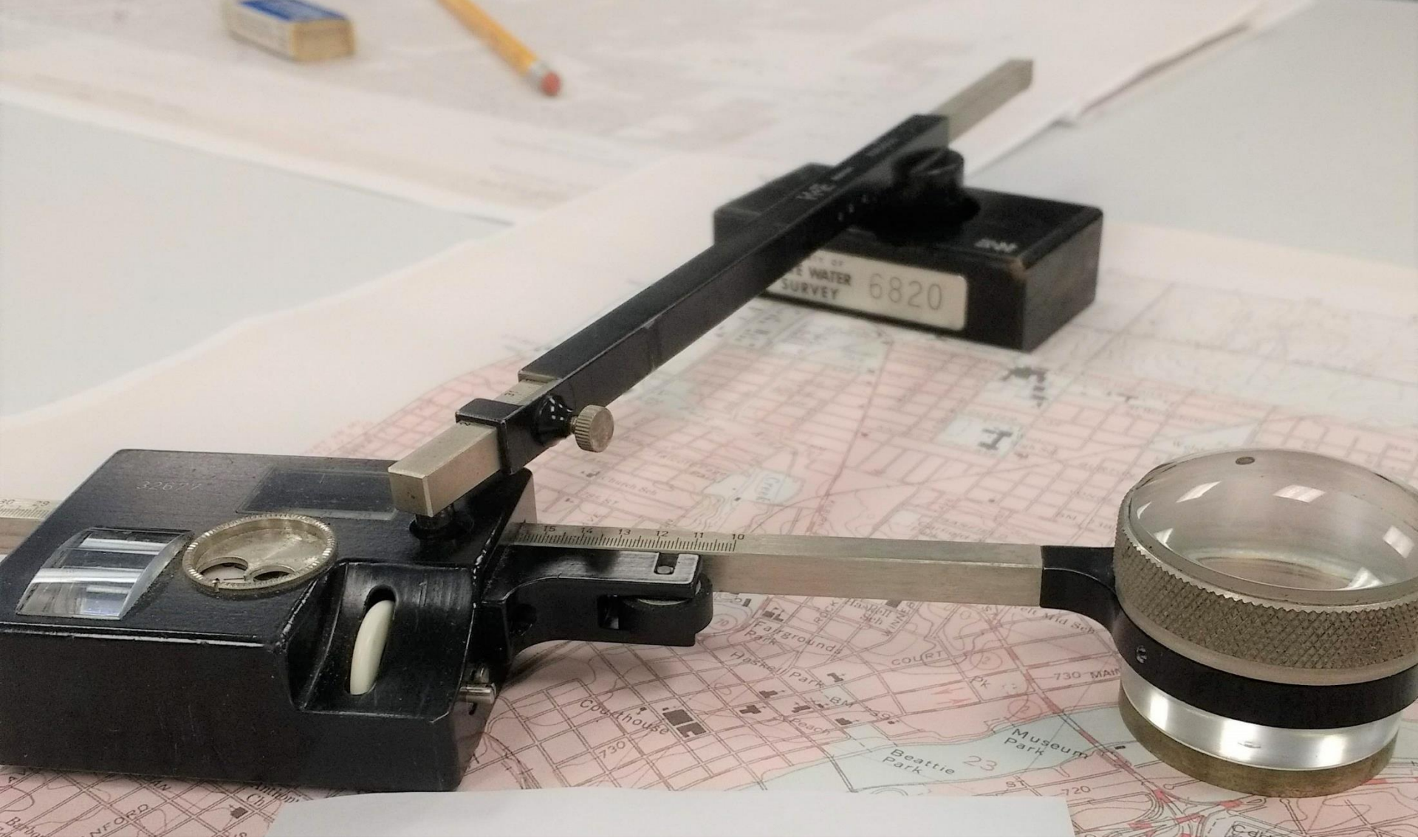
Flood Hazard Boundary Map



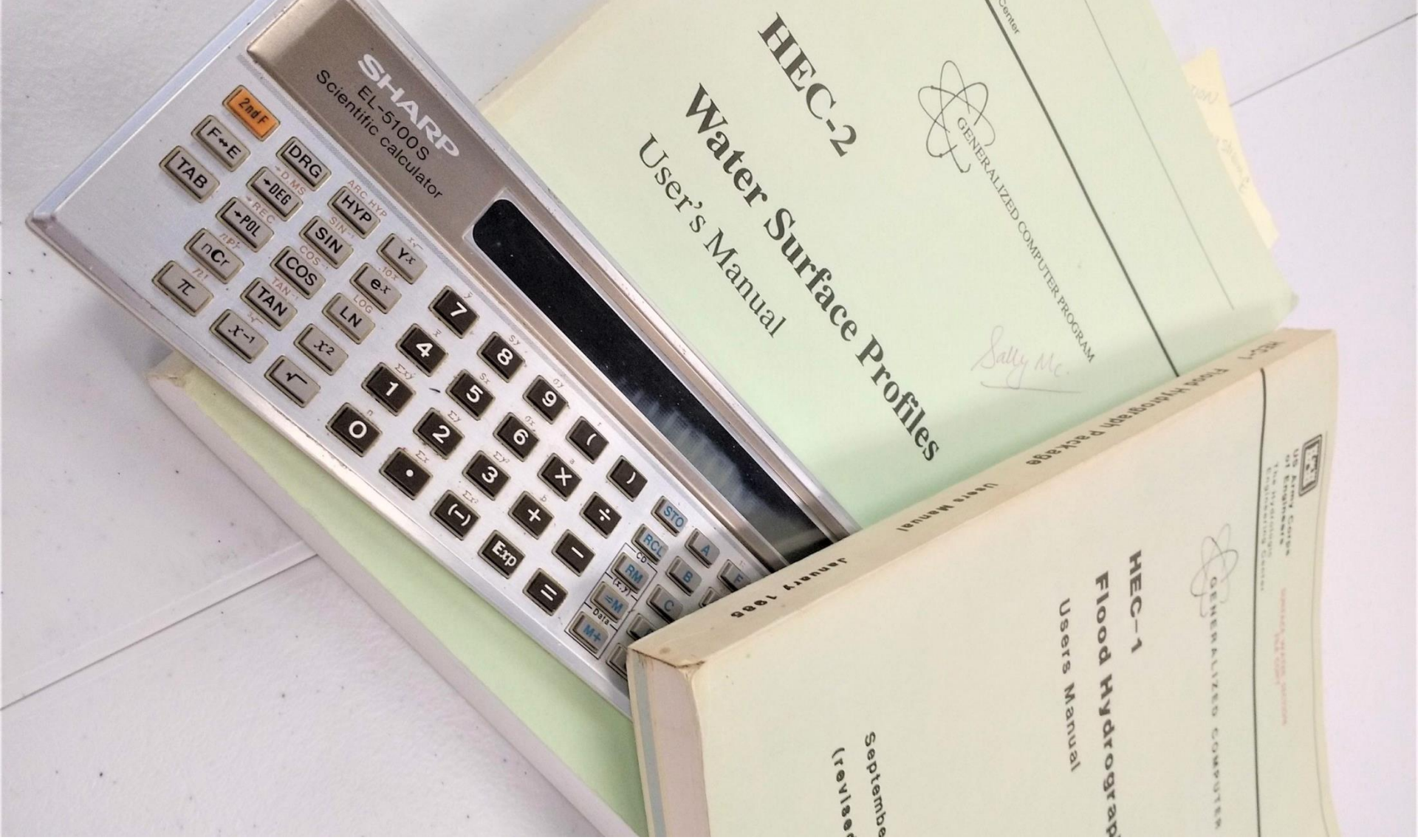
City of Rockford, Sept. 20, 1974


INCHES
FEET
SWISS MADE
Map wheel
For measuring stream length

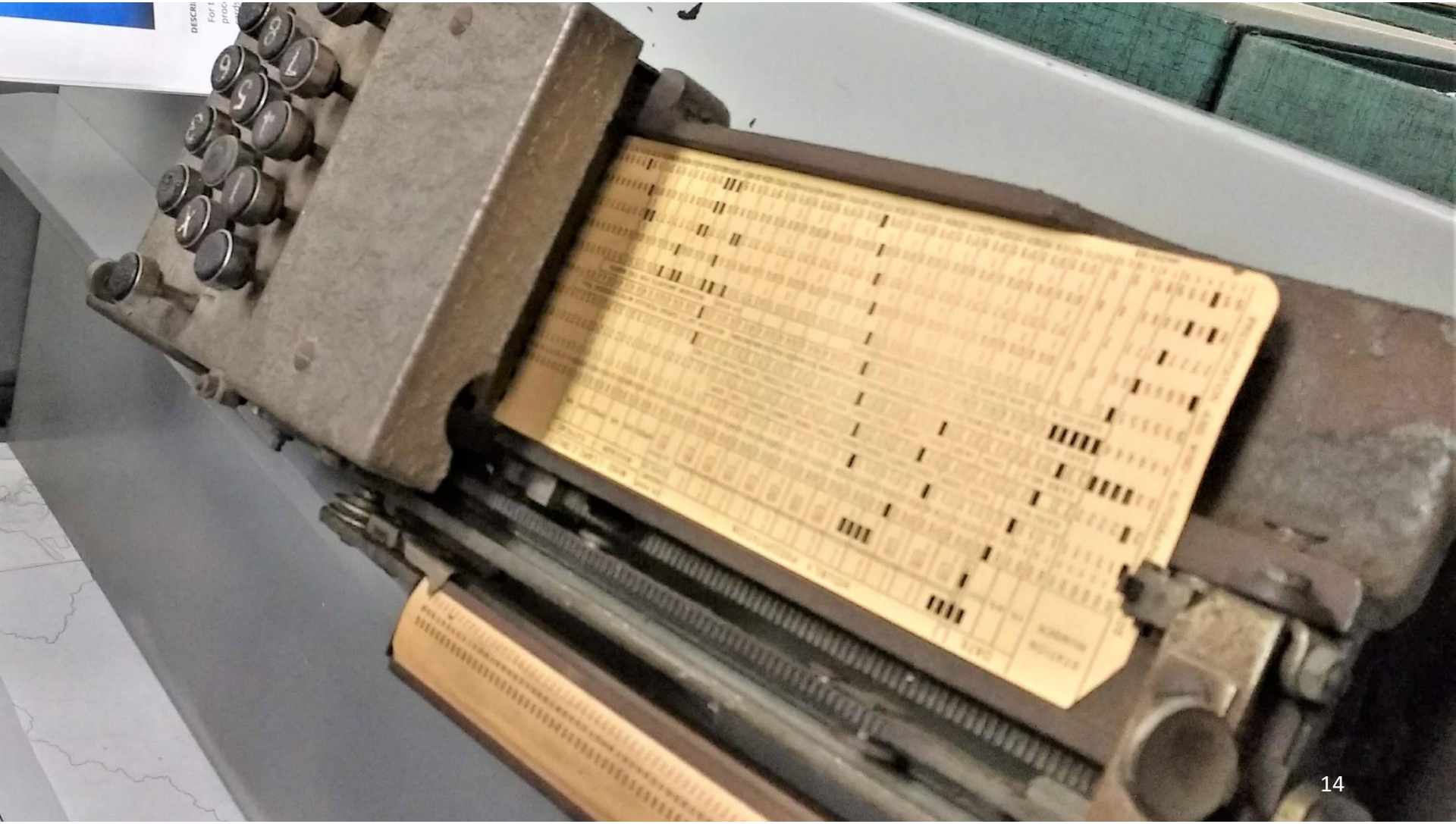

STAEDTLER
ENGINEER
987 19-34
Engineering scale
for multiple map scales
FLOOD PRONE AREA
Courthouse
Community Center
Library
Mandeville Park
Washington Mid Sch



Planimeter – measure area



HEC 1 and HEC 2 Manuals

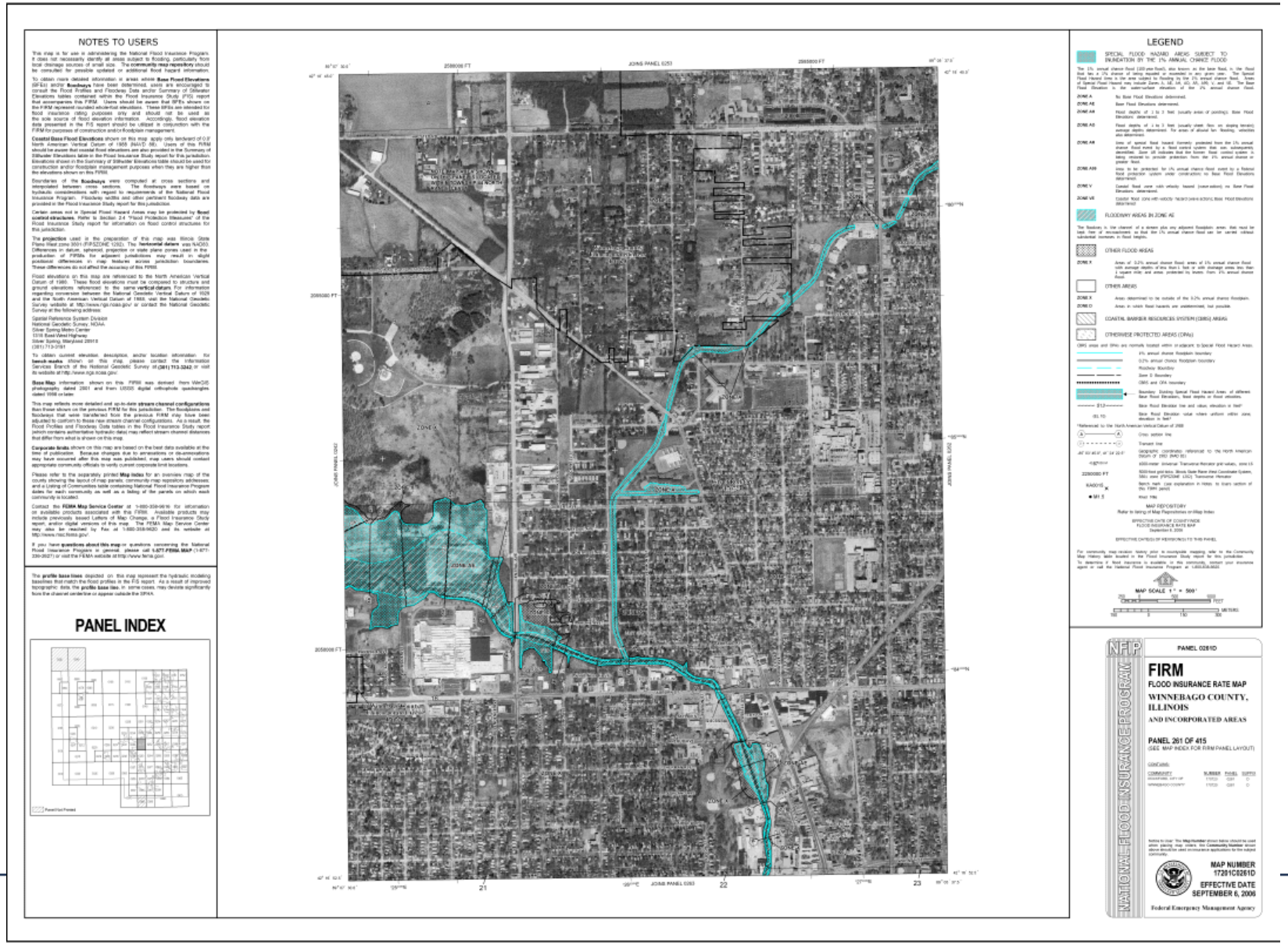


Flood Insurance Rate Map (FIRM)
City of Rockford, Panel 13, June 18, 1982

Flood Boundary and Floodway Map (FBFM)
City of Rockford, Panel 13, June 18, 1982

2004 Map Modernization and Hello GIS

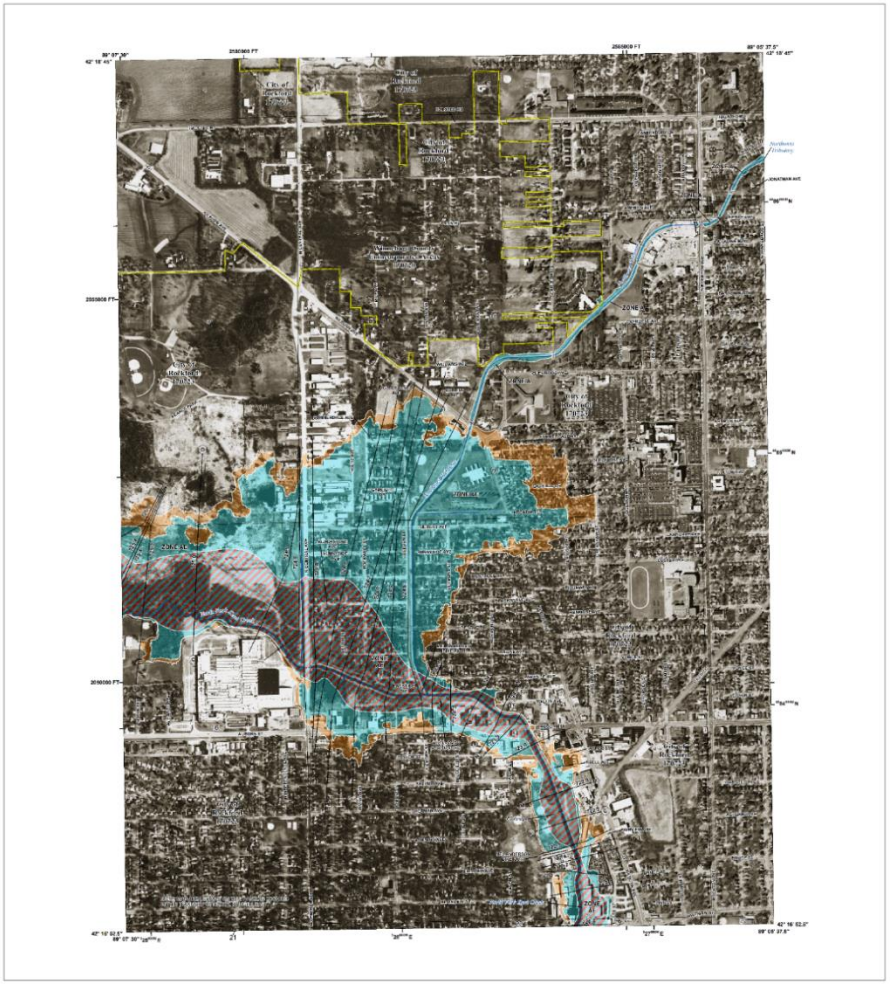
Rockford, Winnebago County, IL, Panel 261, Sep. 6, 2006

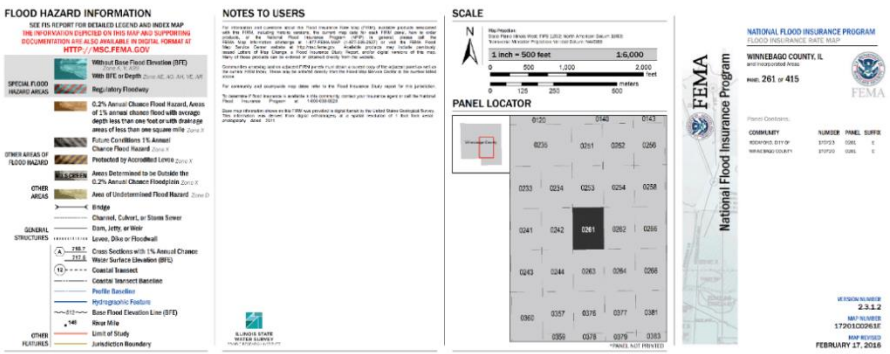


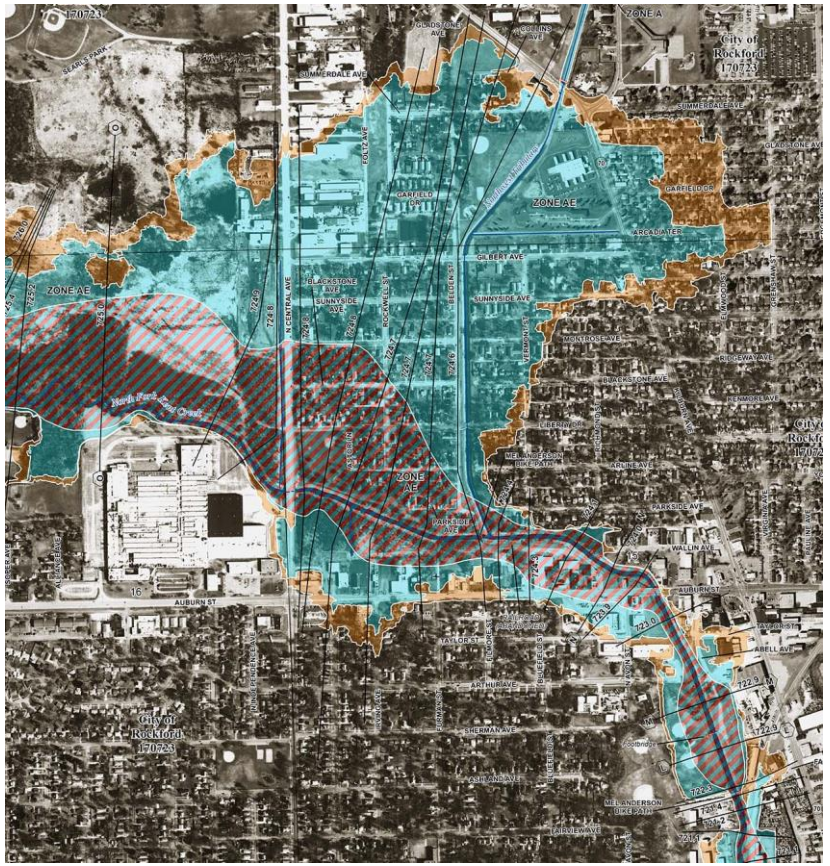
Paper Weight

Sorting Paper FIRMs

Next Generation

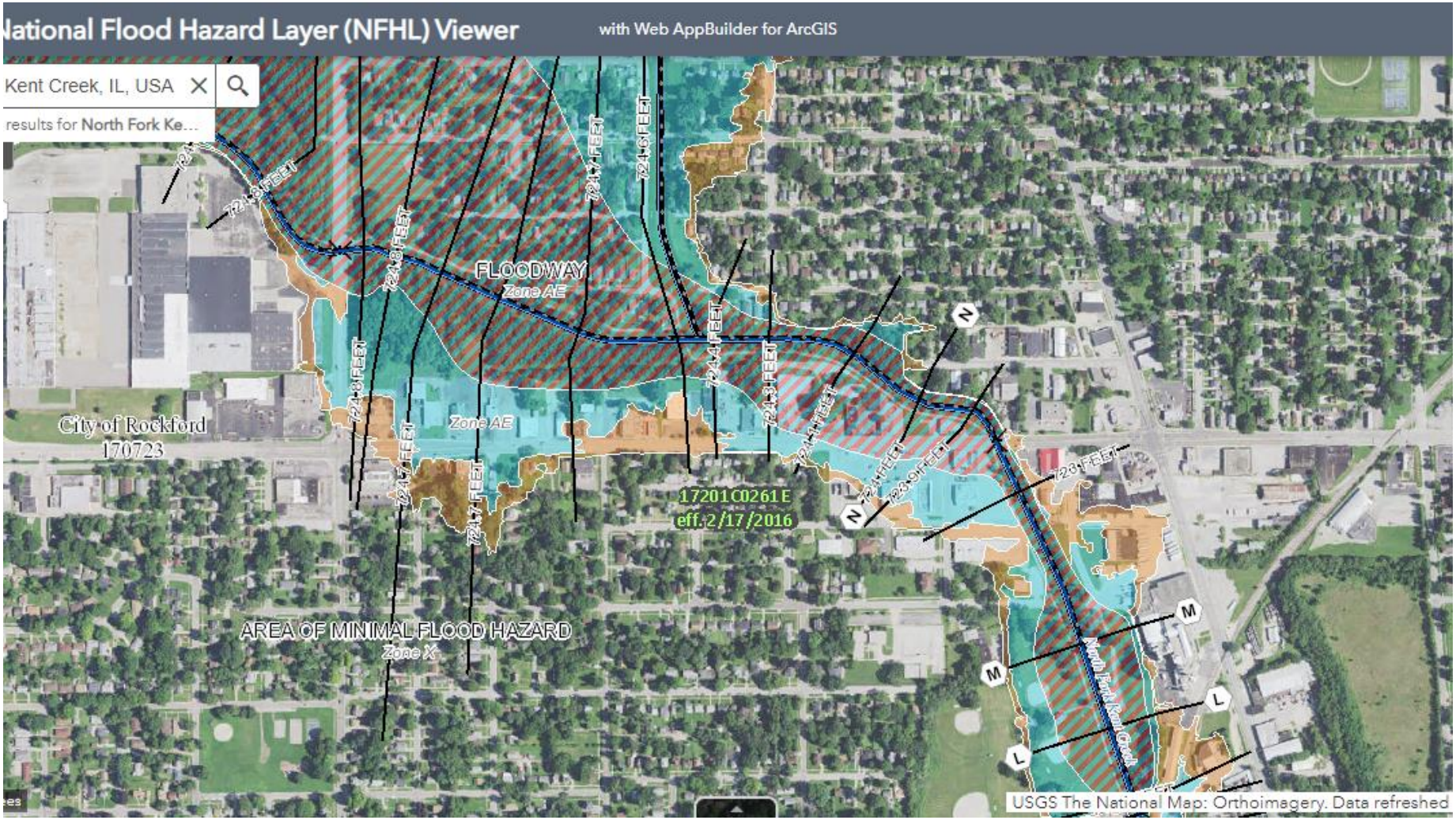






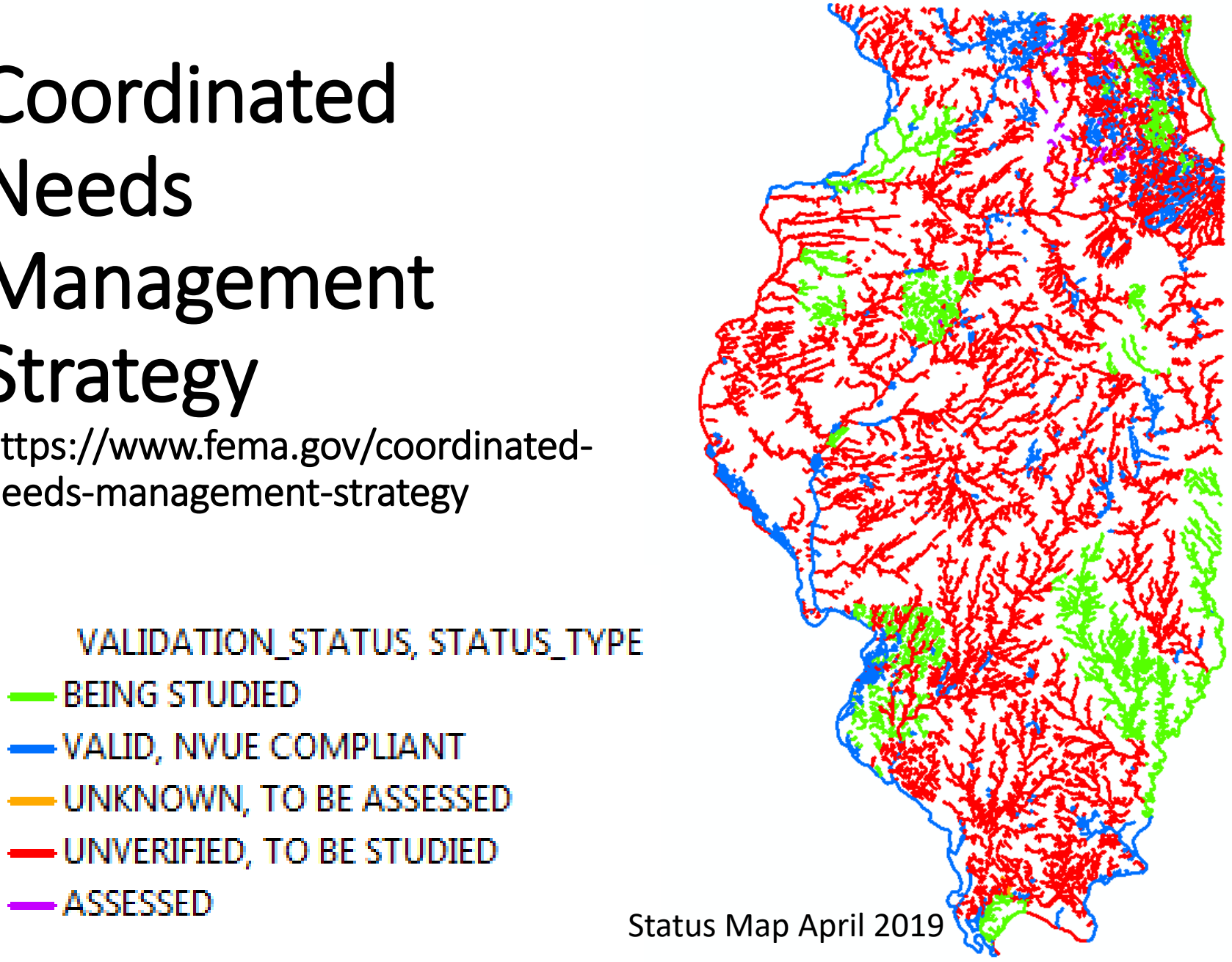
Rockford, Winnebago County, Panel 261, Feb. 17, 2016

National Flood Hazard Layer



Coordinated Needs Management Strategy

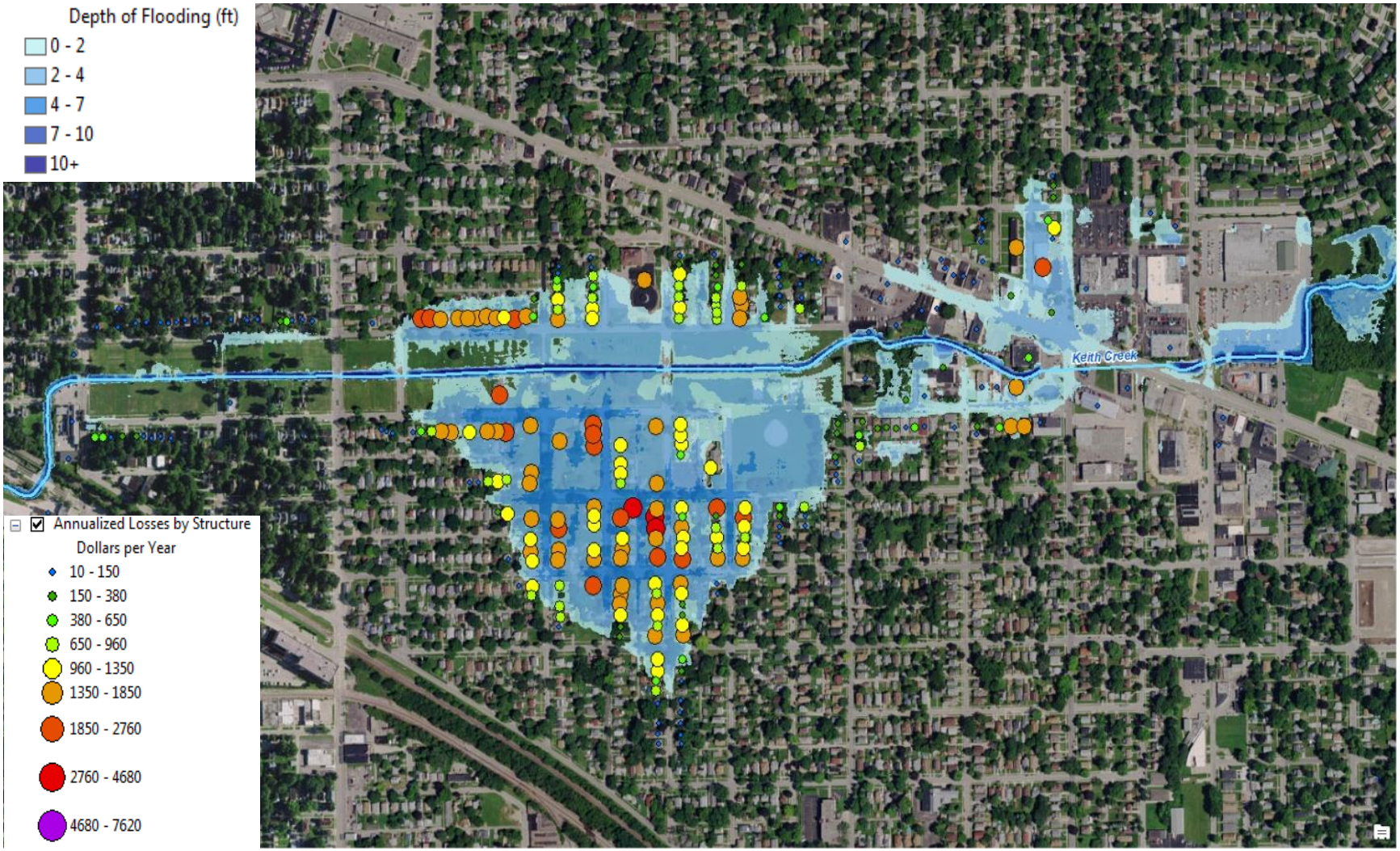
https://www.fema.gov/coordinated-needs-management-strategy



Status Map April 2019

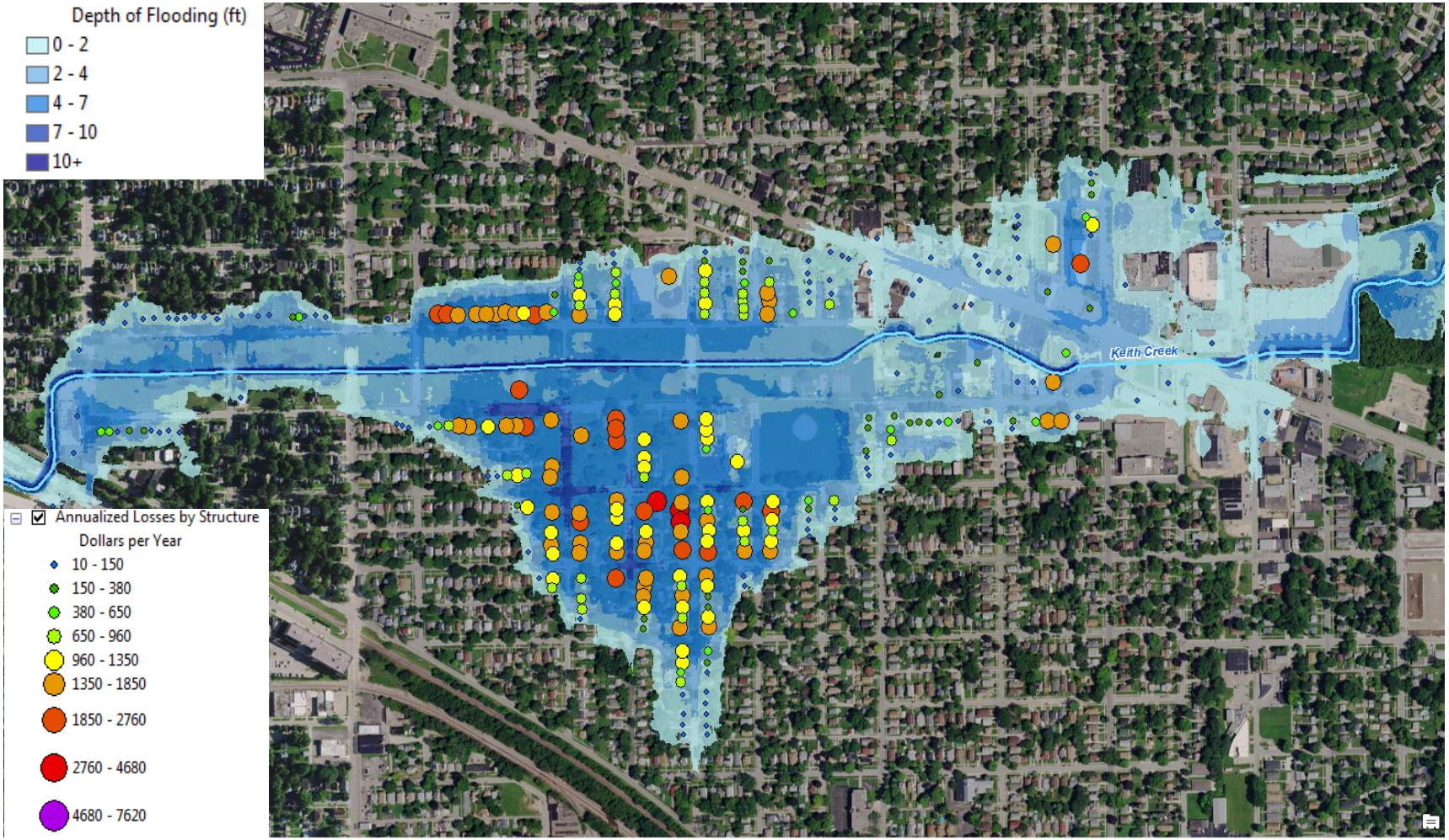
Advanced Flood Hazard Identification and Risk Communication

Depth Grids and Structure Specific Risk Assessments



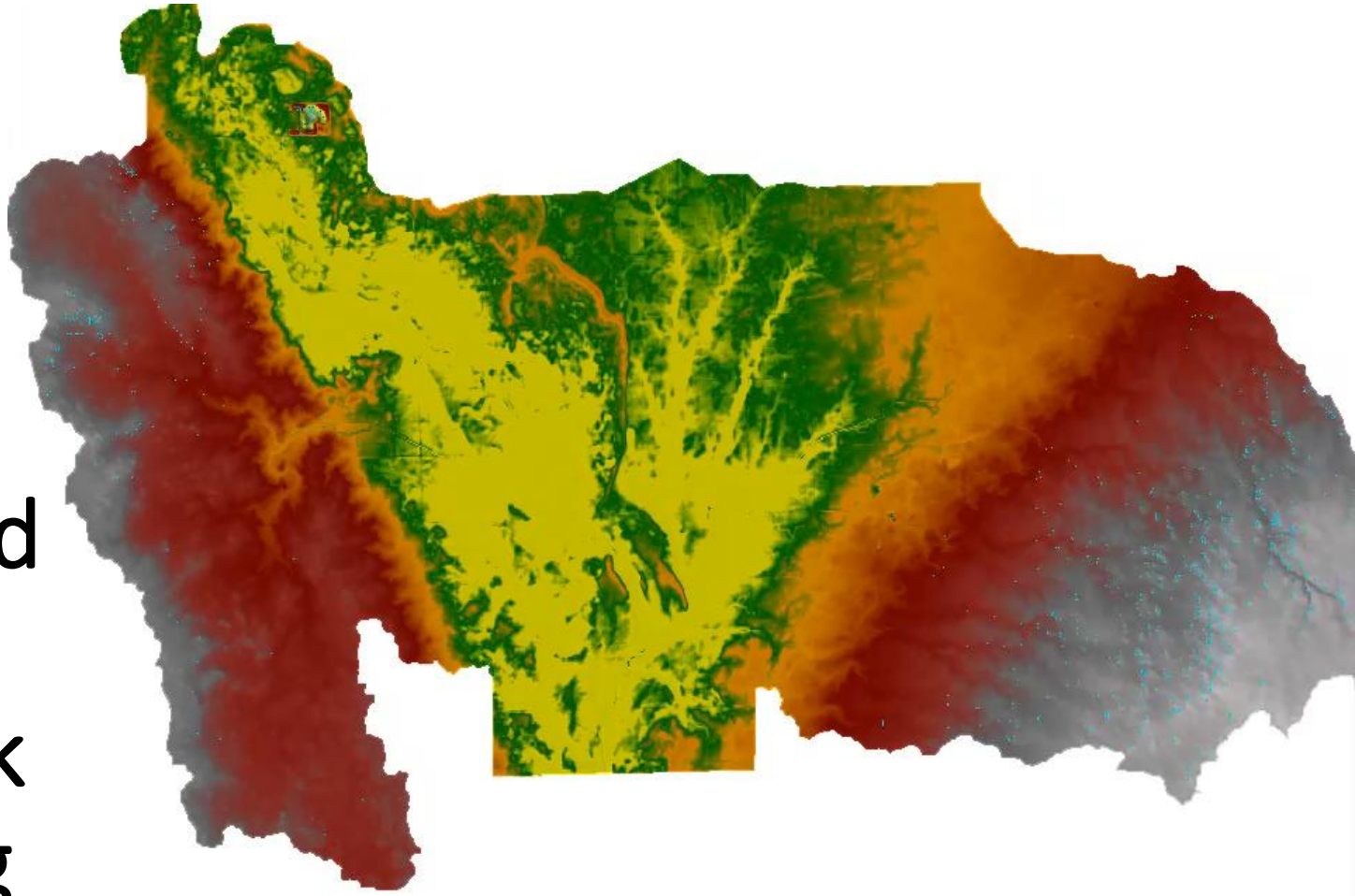
10% Annual Chance Depth Grid

Depth Grids and Structure Specific Risk Assessments



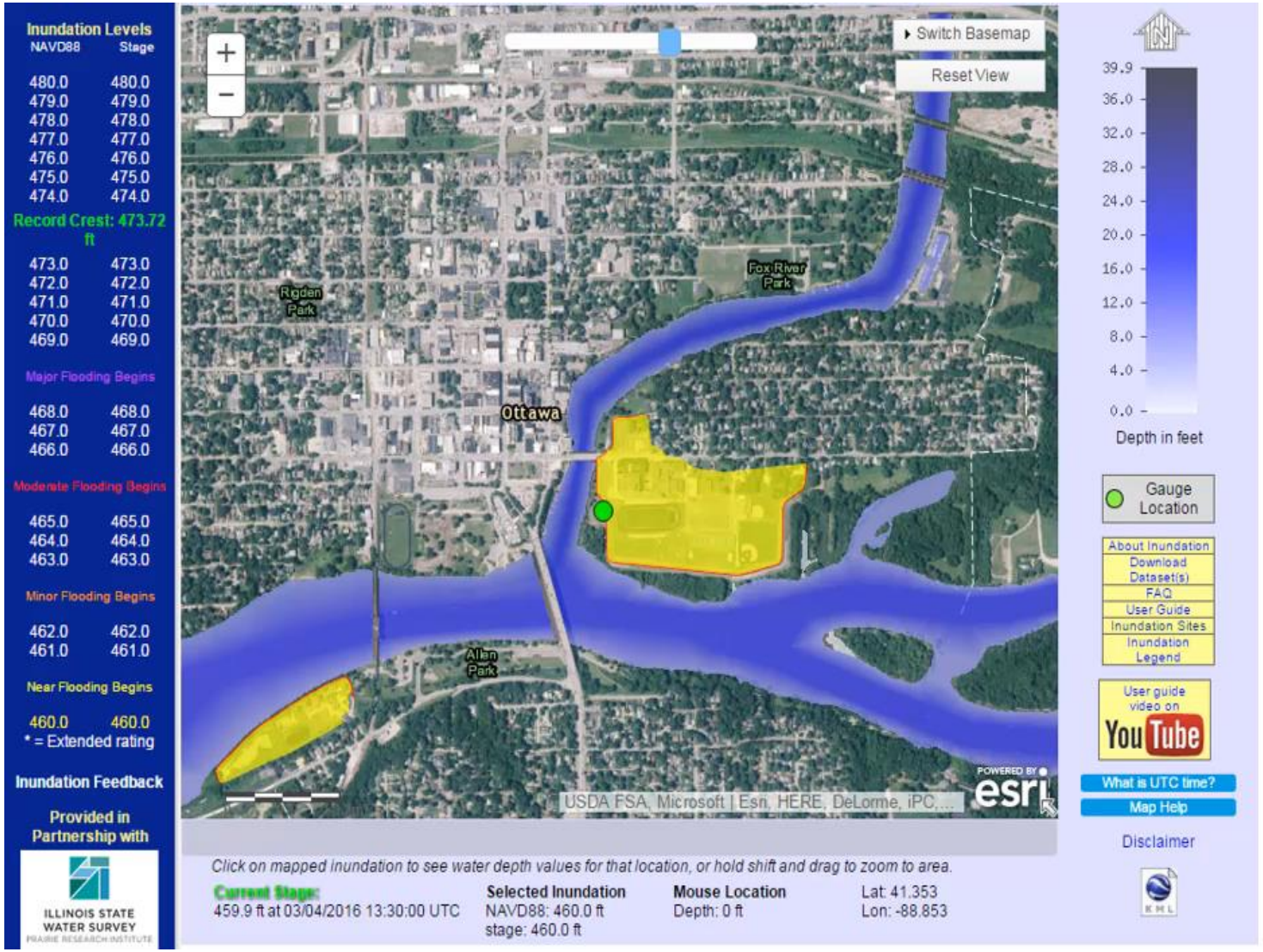
0.2% Annual Chance Depth Grid

Watershed Scale Flood Risk Modeling



Visualizing Complex Flow

Flood Forecast Inundation Modeling



PRESS RELEASE

Scientists to Calculate Flood Risk for Every Home in America

JUNE 13, 2019

World-renowned scientists from Columbia University, Fathom, the Massachusetts Institute of Technology, Rhodium Group, Rutgers University, the University of California–Berkeley, and the University of Bristol have partnered with tech nonprofit First Street Foundation to calculate the past, current, and future flood risk of every property in America. Recent historic flooding in the Midwest, along with multiple hurricanes throughout the 2018 season, destroyed thousands of homes classified as low-risk by the Federal Emergency Management Agency (FEMA). This highlights the need for complete, up-to-date, publicly available flood risk data that takes rising sea levels and increasing atmospheric and sea surface temperatures into account.

While institutional real estate investors and insurers have privately purchased this type of costly information for years, First Street Foundation and its partners will be the first to calculate the data based on peer-reviewed science and release it for free. The research will be easily accessible and understandable through the Foundation's online database and visualization tool, Flood iQ (floodiq.com).

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Catastrophe models: The good, the bad and the ugly

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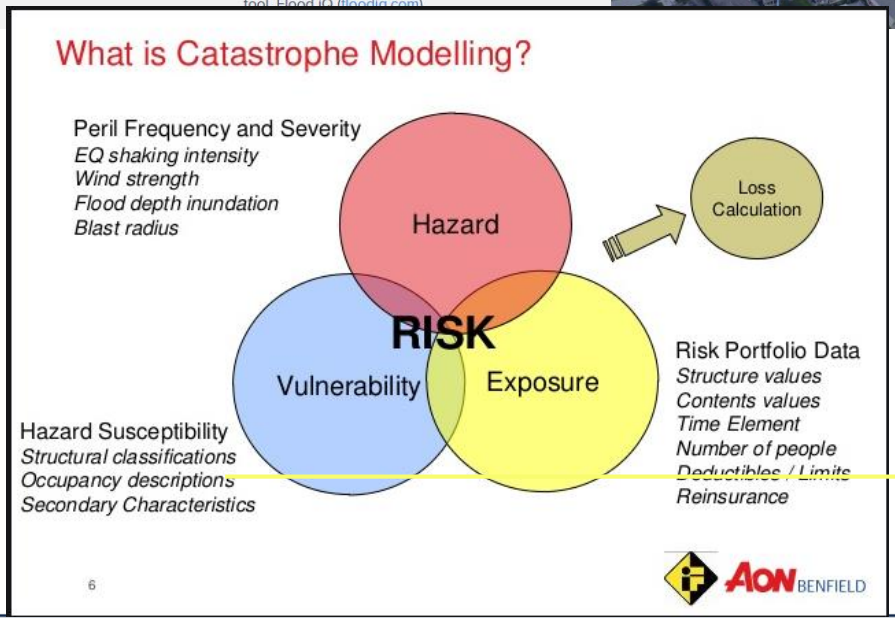
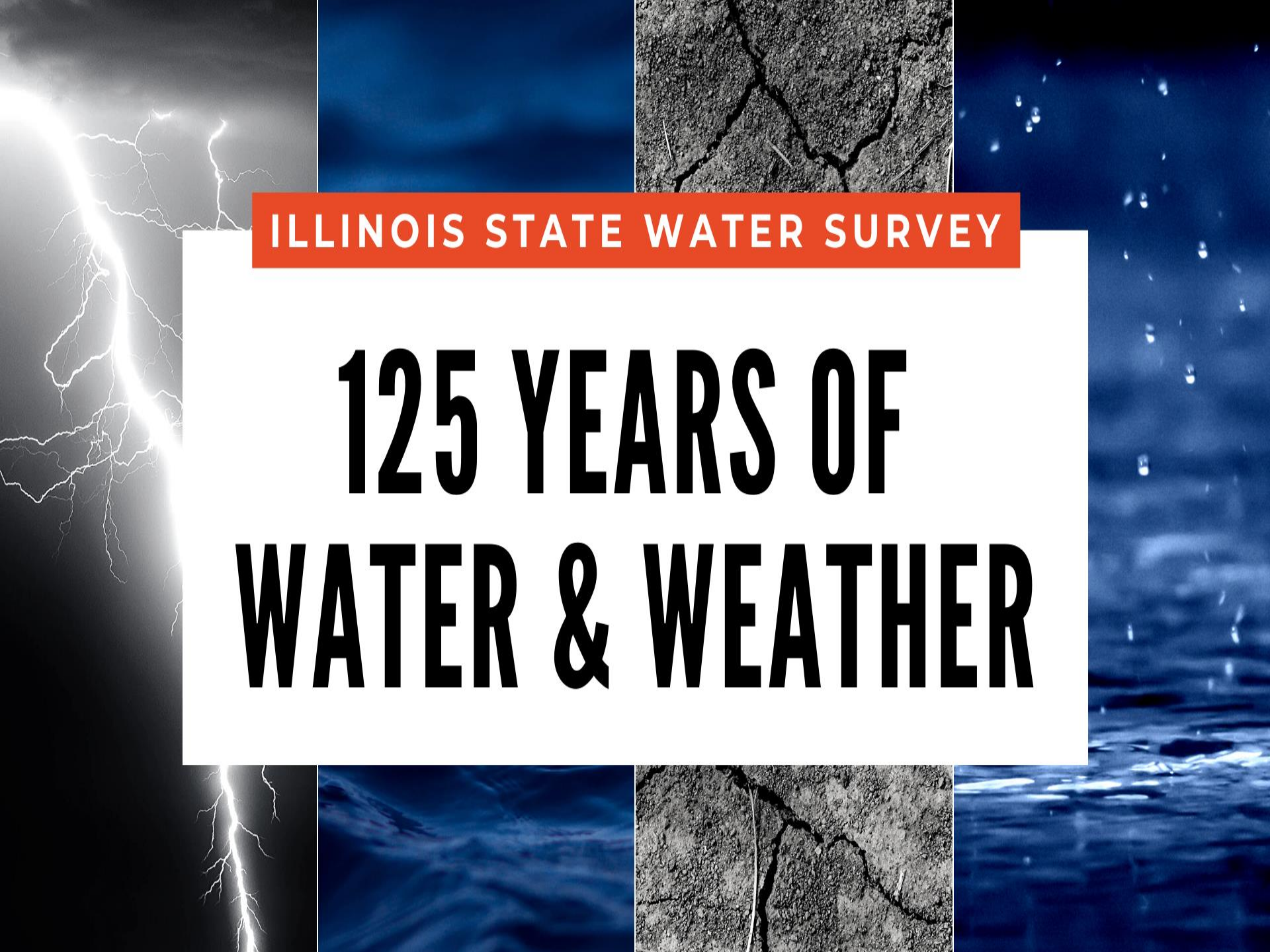
By Matthew Farnham

The catastrophe modelling community is set to convene at the OASIS LMF in London on the 13-14th September, with the event strapline being "The good, the bad and the ugly". Ambiental's Flood Catastrophe Modelling experts will be attending this event, so in alignment with that theme this article discuss the main benefits (good), the known limitations (bad), and the unknown uncertainty (ugly) that can be derived from a catastrophe model.

What is Catastrophe Modelling?



What *is* next?



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125 YEARS OF WATER & WEATHER

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