What Has Limited the Risk of Damages in Western Cook County? Good Policy or Good Luck?

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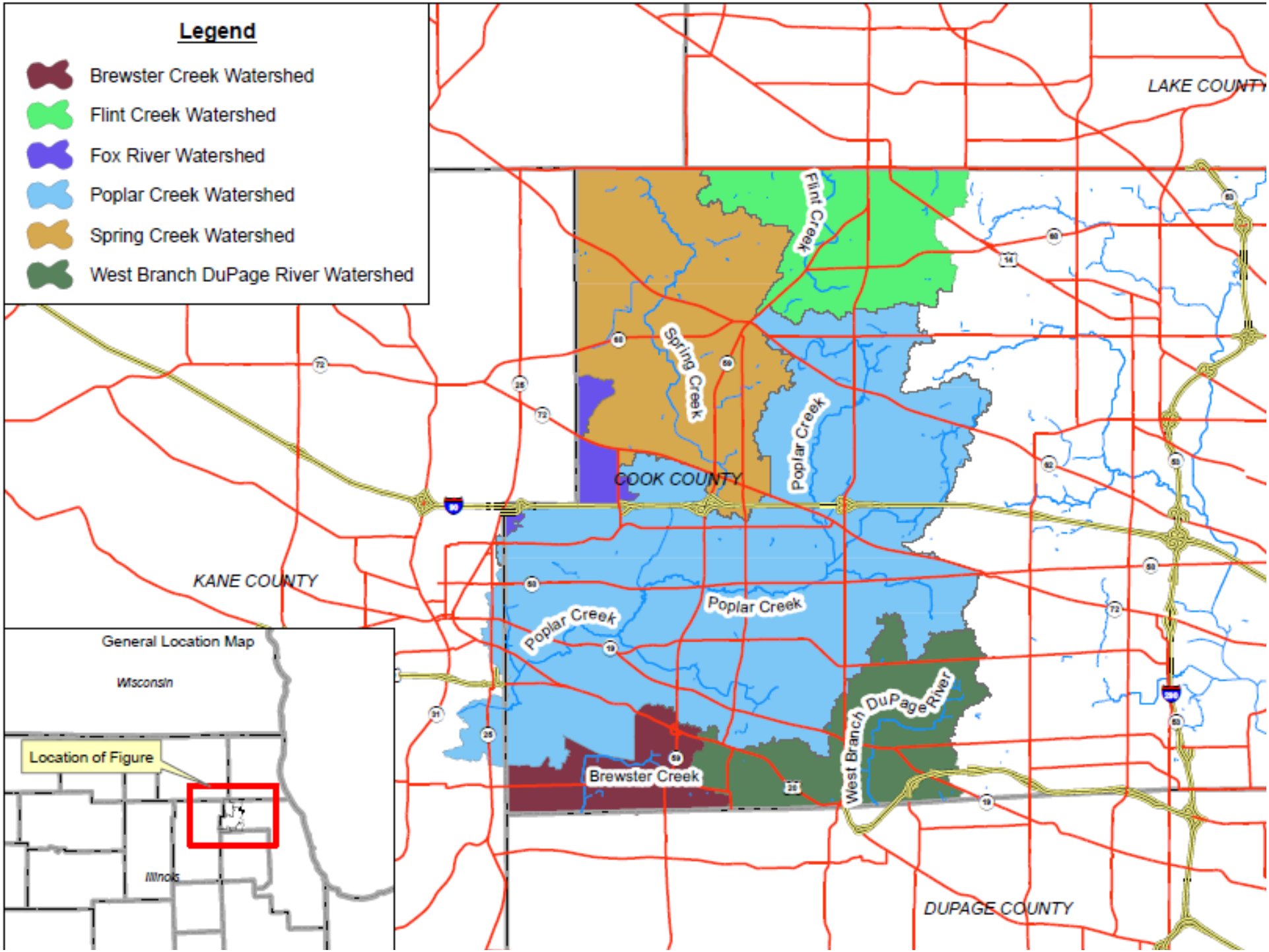
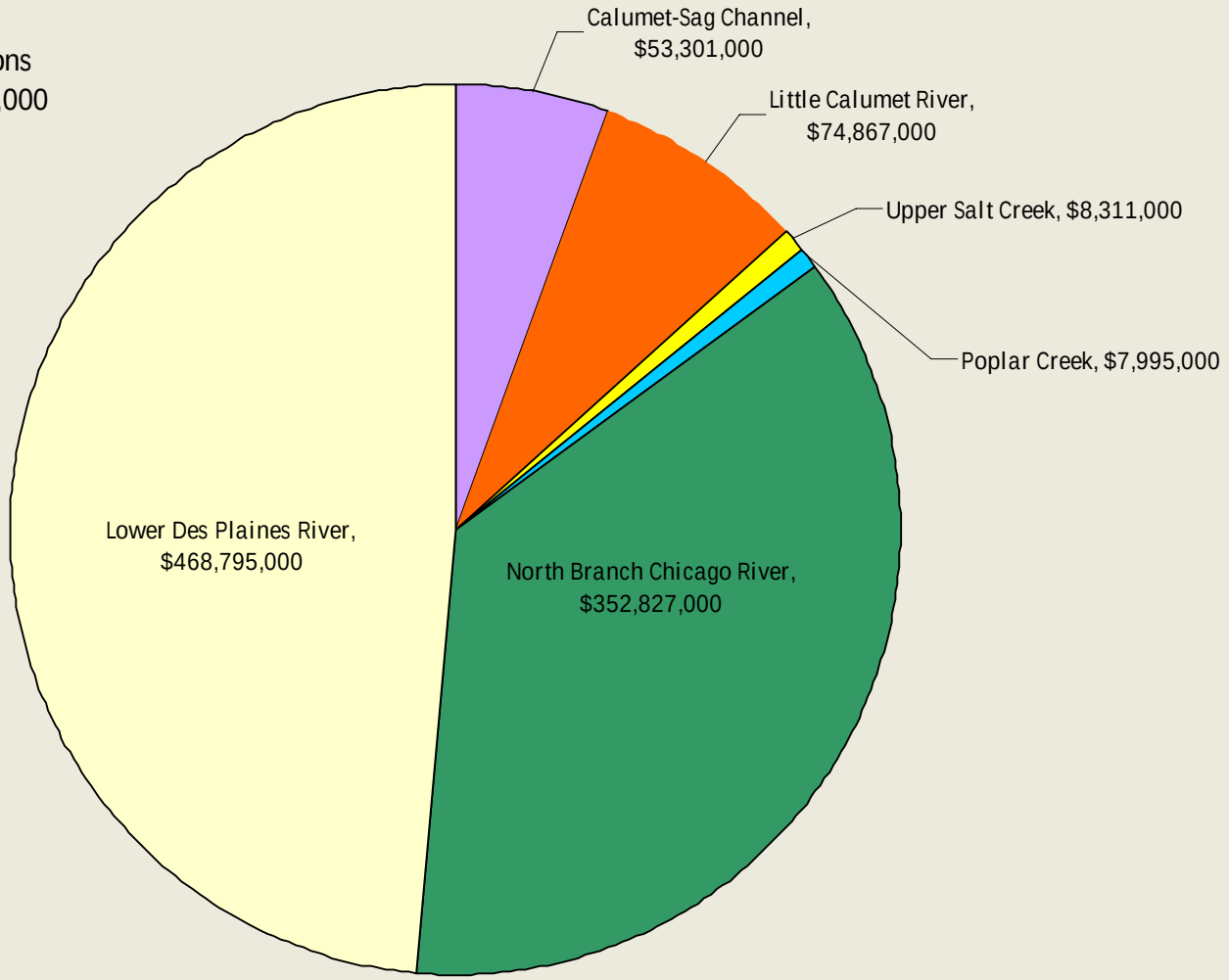
Overview/Background

- MWRD was granted Stormwater Management Authority for Cook County in 2004
- Part of the enabling legislation required the creation of Detailed Watershed Plans for six watersheds in Cook County
- In February 2011, all six DWPs were completed and studies identified total existing conditions damages from regional flooding or erosion to be $966,096,000


Legend
Brewster Creek Watershed
Flint Creek Watershed
Fox River Watershed
Poplar Creek Watershed
Spring Creek Watershed
West Branch DuPage River Watershed
LAKE COUNTY
Flint Creek
Spring Creek
Poplar Creek
COOK COUNTY
KANE COUNTY
Poplar Creek
Poplar Creek
West Branch DuPage River
Brewster Creek
DUPAGE COUNTY
General Location Map
Wisconsin
Location of Figure
Illinois

Total Existing Conditions Damages by Watershed

Total Existing Condtions
Damages = $966,096,000



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DWP Calculated Damages

Watershed	Existing Conditions Damage/Mi^2
Poplar Creek	$95,749
Upper Salt Creek	$151,109
Little Calumet River	$333,966
Calumet-Sag Channel	$352,987
Lower Des Plaines River	$2,534,027
North Branch of Chicago River	$2,940,225

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Why Do The Damages Vary?

- History/Patterns of Development
  - Availability of studies
  - Implementation of Regulations and Ordinances
- % Undeveloped Land/Open Space
- Hydrology of Watershed
- Regional Flood Control Structures

Watershed Timeline

1971-72	The NRCS (SCS) and MWRD Mapped Floodplains in the Watershed
1972	MWRD updates its Sewerage Permit Application to Require Detention
1973-74	MWRD Built Three Regional Flood Control Facilities on South Branch of Poplar Creek
1976	The NRCS Completed the “Poplar Creek Watershed Flood Water Management Plan”
1978-84	FIS Completed for Communities in the Watershed
1999	MWRD Updated Detention Requirements
2005	MWRD Starts Stormwater Management Program

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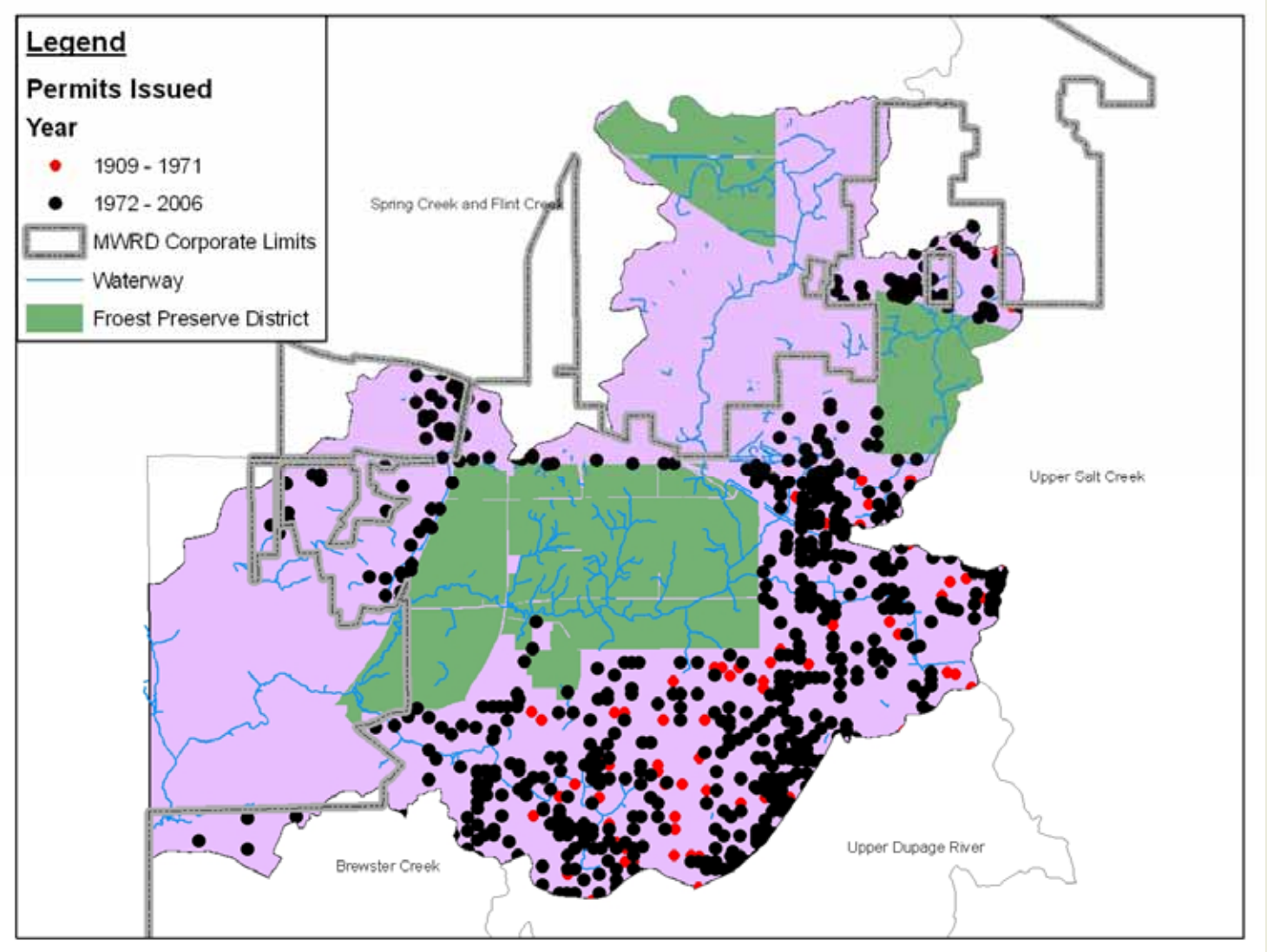
MWRD Permits Issued



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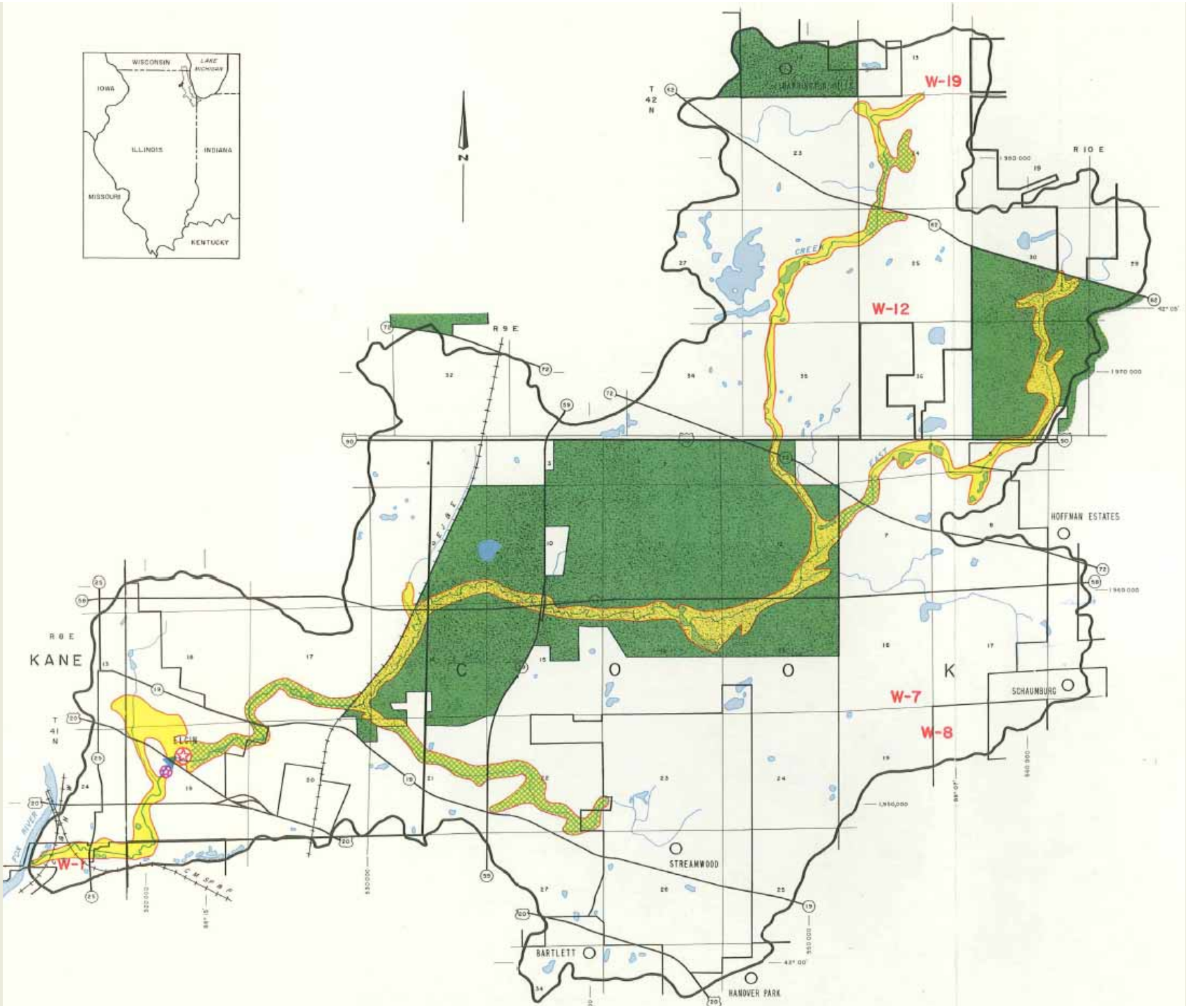
1976 Plan Recommendations

- Land treatment program (for SE/SC)
- Purchase of 435 acres of floodplain lands as open space
- Purchase 215 acres of wetlands plus 165 acres of buffers
- Adopt floodplain regulations
- Floodproof six buildings
- Construct Levee in Elgin and replace bridge
- Channel maintenance program


WISCONSIN
LAKE MICHIGAN
IOWA
ILLINOIS
INDIANA
MISSOURI
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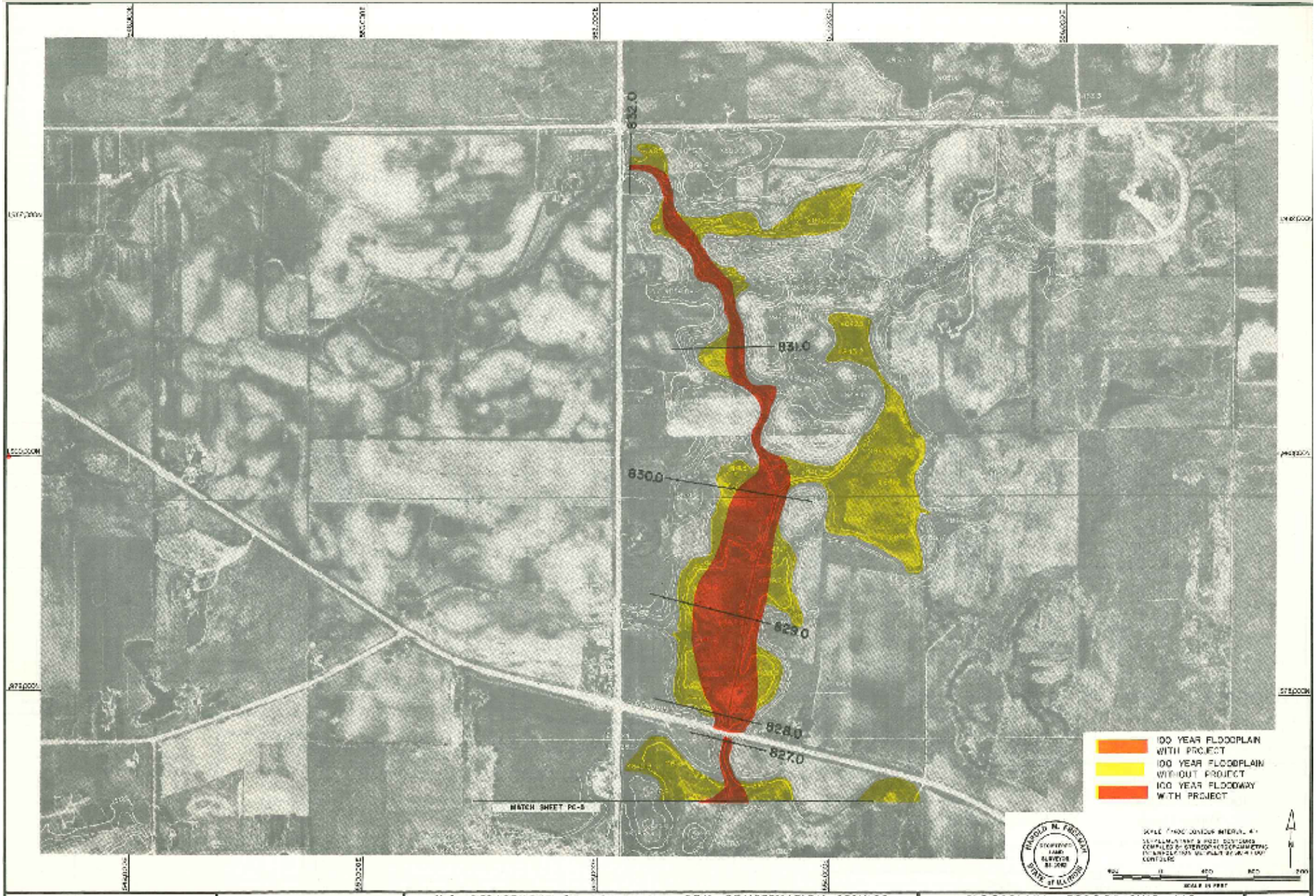
N
W-19
W-12
W-7
W-8
W-1
R 9 E
R 10 E
R 8 E
T 42 N
T 41 N
KANE
C O O K
HOFFMAN ESTATES
SCHAUMBURG
STREAMWOOD
BARTLETT
HANOVER PARK
ELGIN
FOX RIVER
CREEK
EAST

100-Year Inundation Risk

- FEMA Zone A and AE total 4,356 acres in the study area
- DWP 100-year inundation area totals 5,038 acres in the study area (16% increase)



PREPARED BY CHICAGO AERIAL SURVEY
2140 WOLF RD
DES PLAINES, ILLINOIS
60018

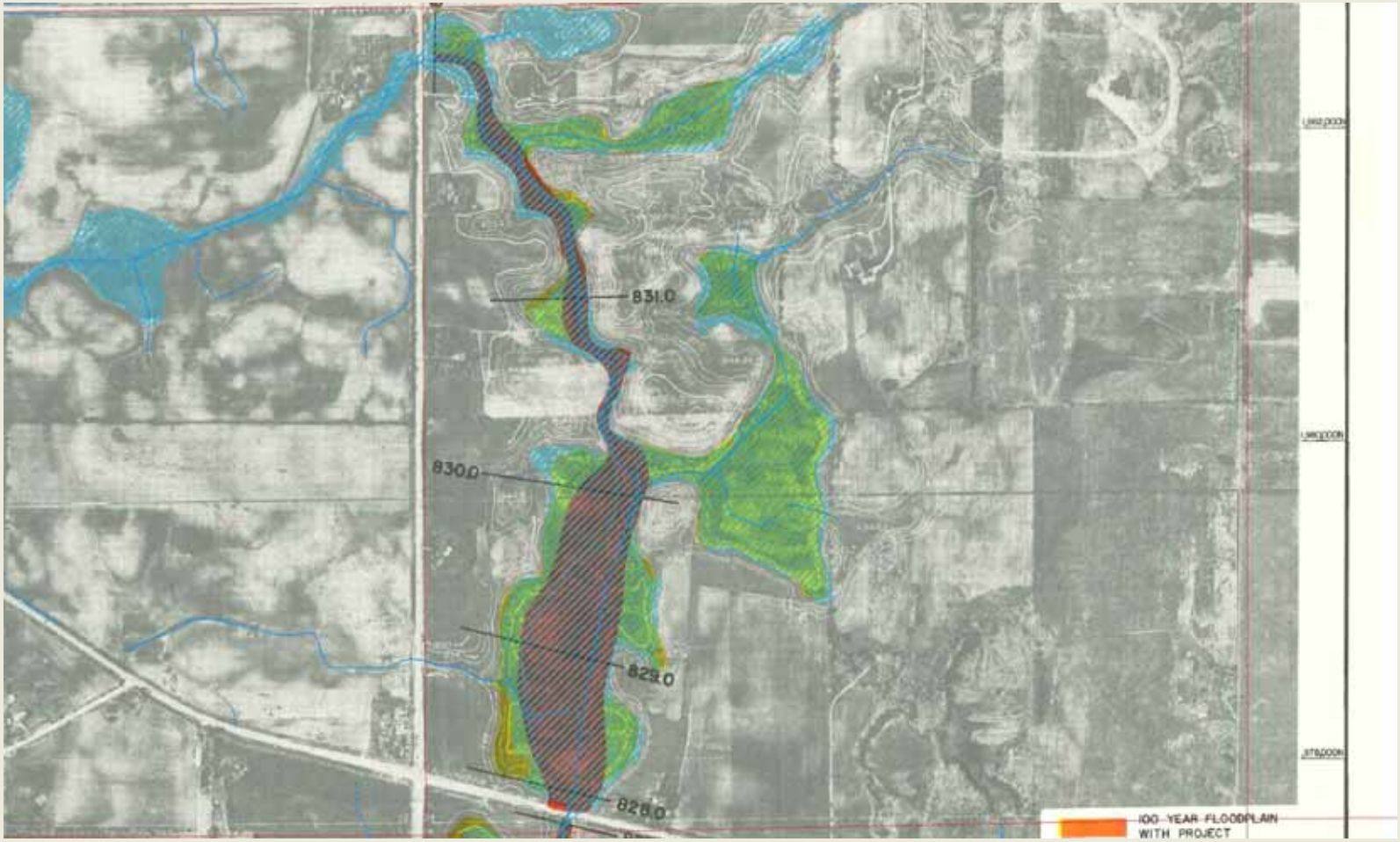
DATE OF PHOTOGRAPHY APRIL 1972
DATE OF MAPPING MAY 1977

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE
PREPARED FOR THE METROPOLITAN SANITARY DISTRICT OF GREATER CHICAGO
IN COOPERATION WITH

FLOODPLAIN TOPOGRAPHIC MAP
LITTLE CALUMET RIVER, WILL AND COOK COUNTIES, ILL. AND LAKE COUNTY IND.

SHEET PC-9

1972 Mapping with 2008 DFIRM Zone AE



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Development Respecting Established Floodplains

1970

2008

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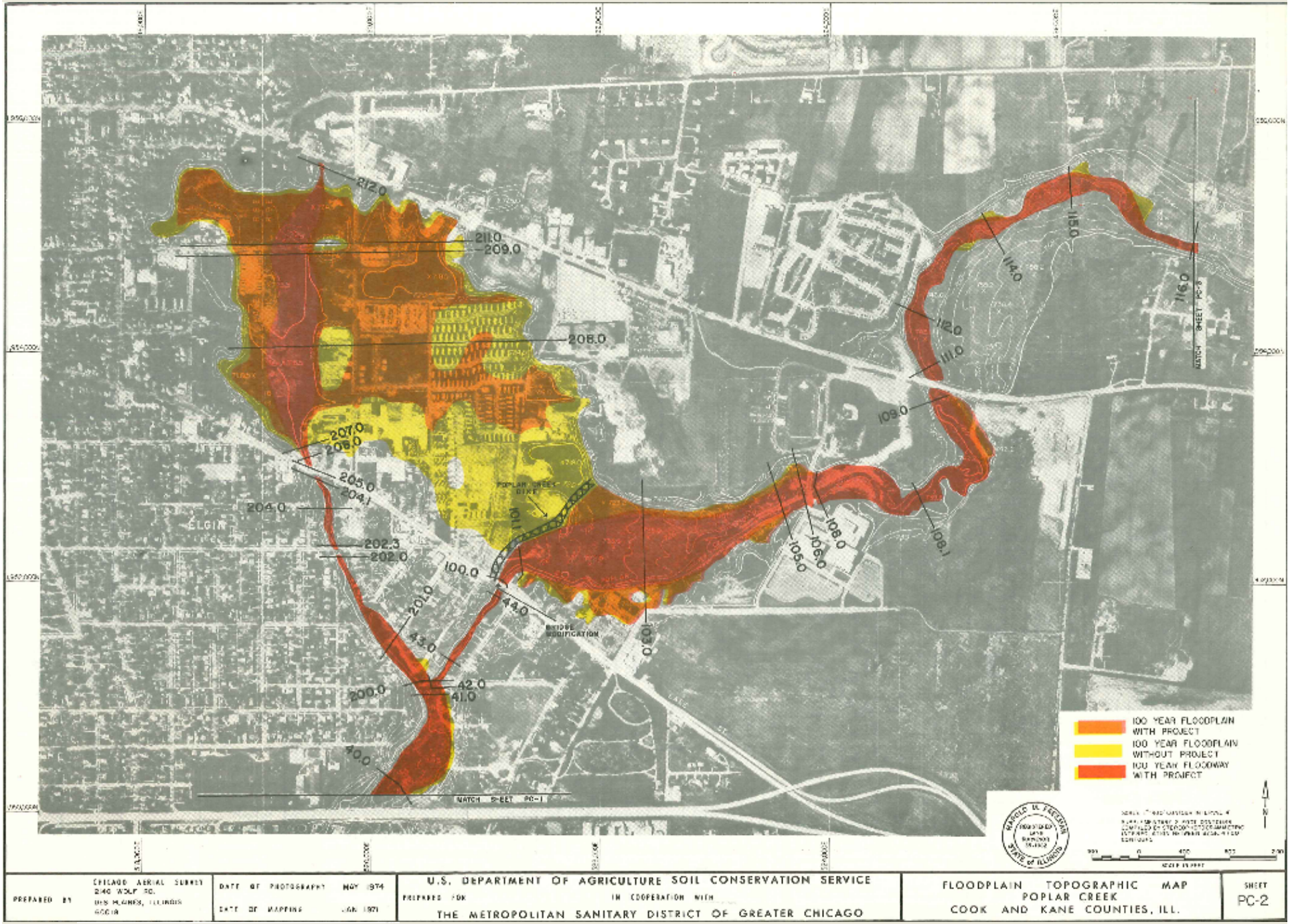
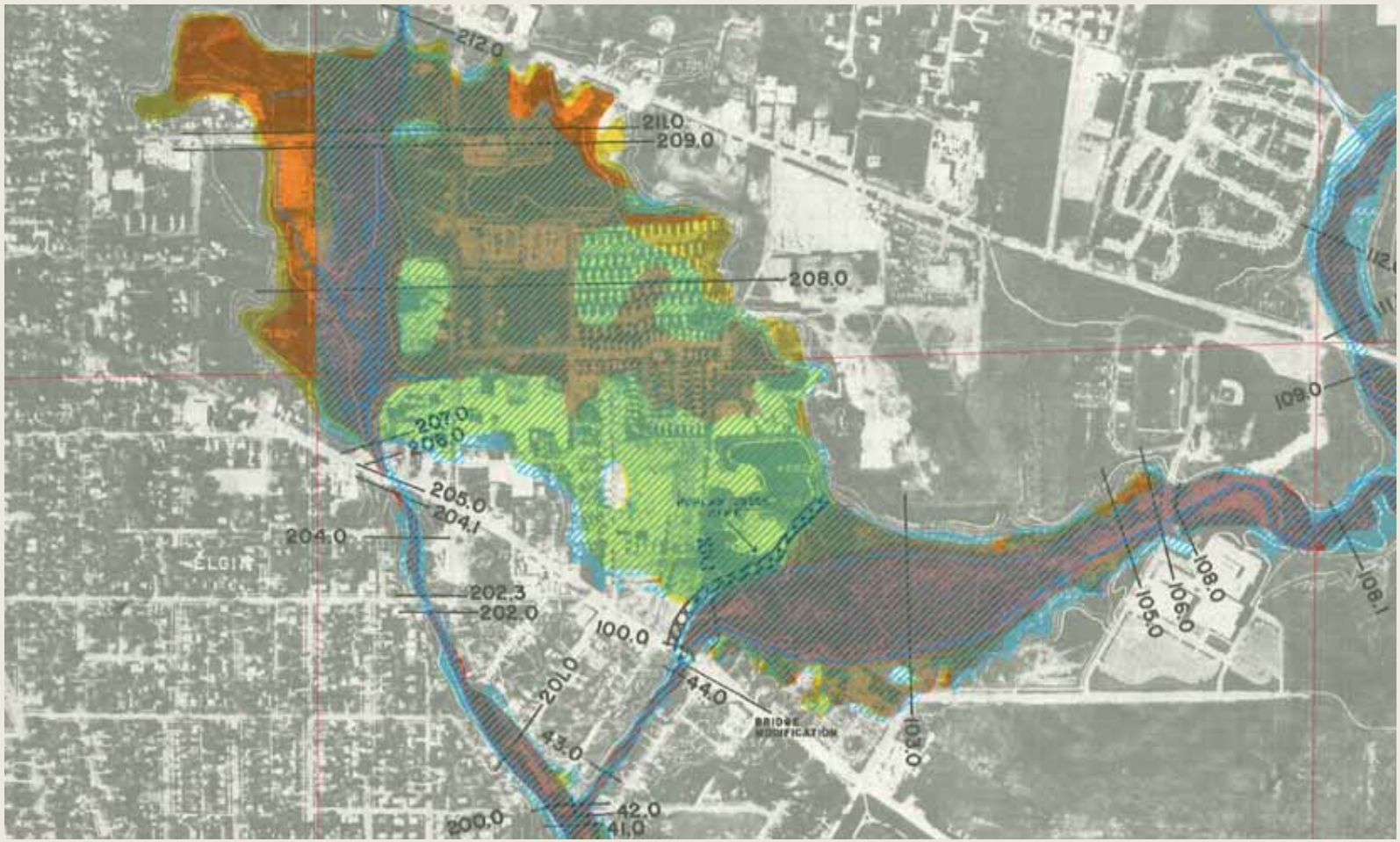


PREPARED BY CHICAGO AERIAL SURVEY 240 WOLF RD. DES PLAINES, ILLINOIS 60018	DATE OF PHOTOGRAPHY NOV 1974 DATE OF MAPPING JAN 1975	U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE PREPARED FOR IN COOPERATION WITH THE METROPOLITAN SANITARY DISTRICT OF GREATER CHICAGO	FLOODPLAIN TOPOGRAPHIC MAP POPLAR CREEK COOK AND KANE COUNTIES, ILL.	SHEET PC-2

1971 Mapping with 2008 DFIRM Zone AE



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Converting Developed Land to Open Space (sometimes)

1970

2008

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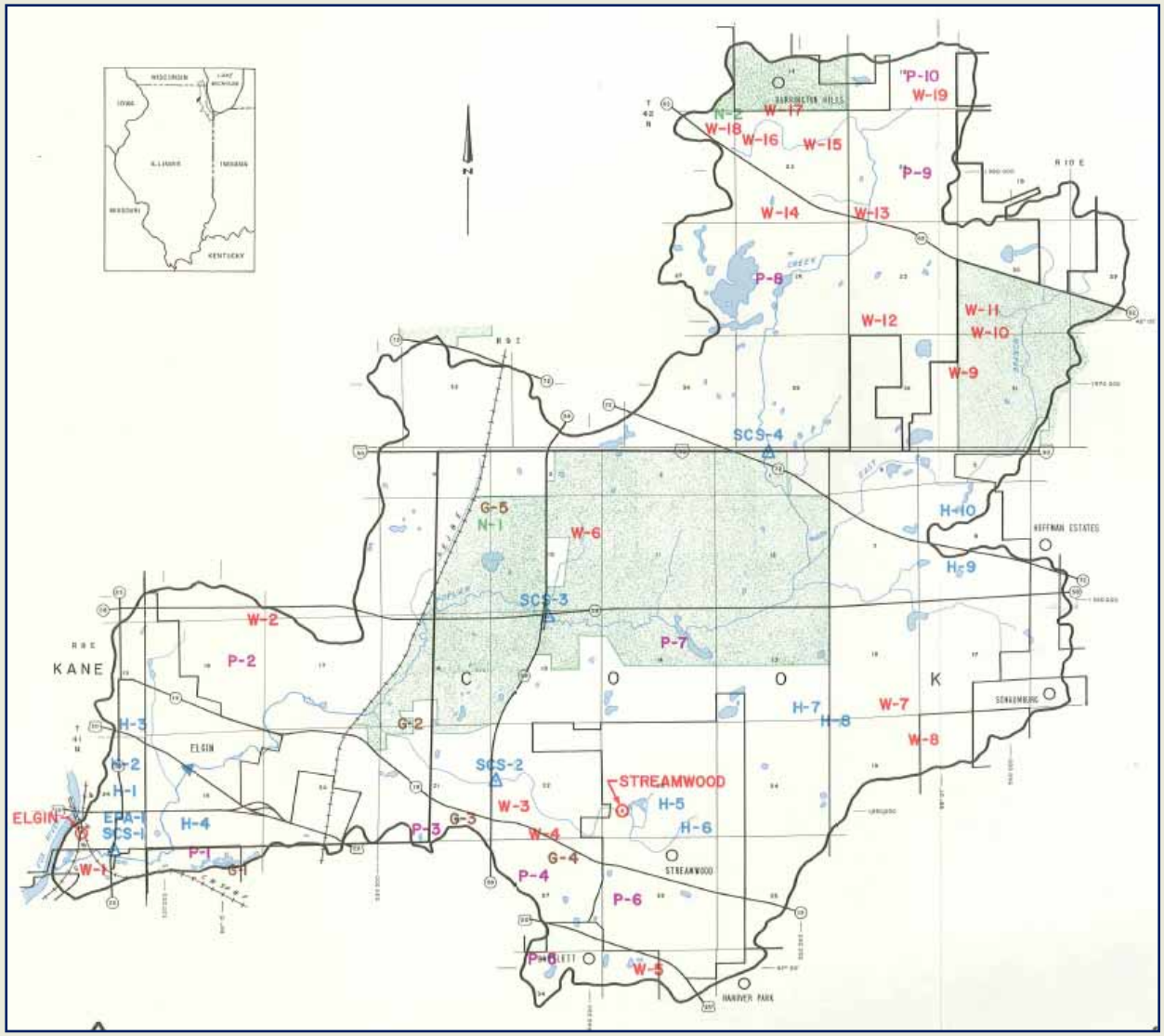
Additional Damages Since 1976 Study

(majority are mobile homes)

1976	128 structures identified as damaged in the 100-year event (69 mobile homes, 59 permanent structures)
2010	244 Structures identified as damaged in the 100-year event (140 mobile homes, 104 permanent structures)

(only for Poplar Creek watershed)

1976 Forest Preserve



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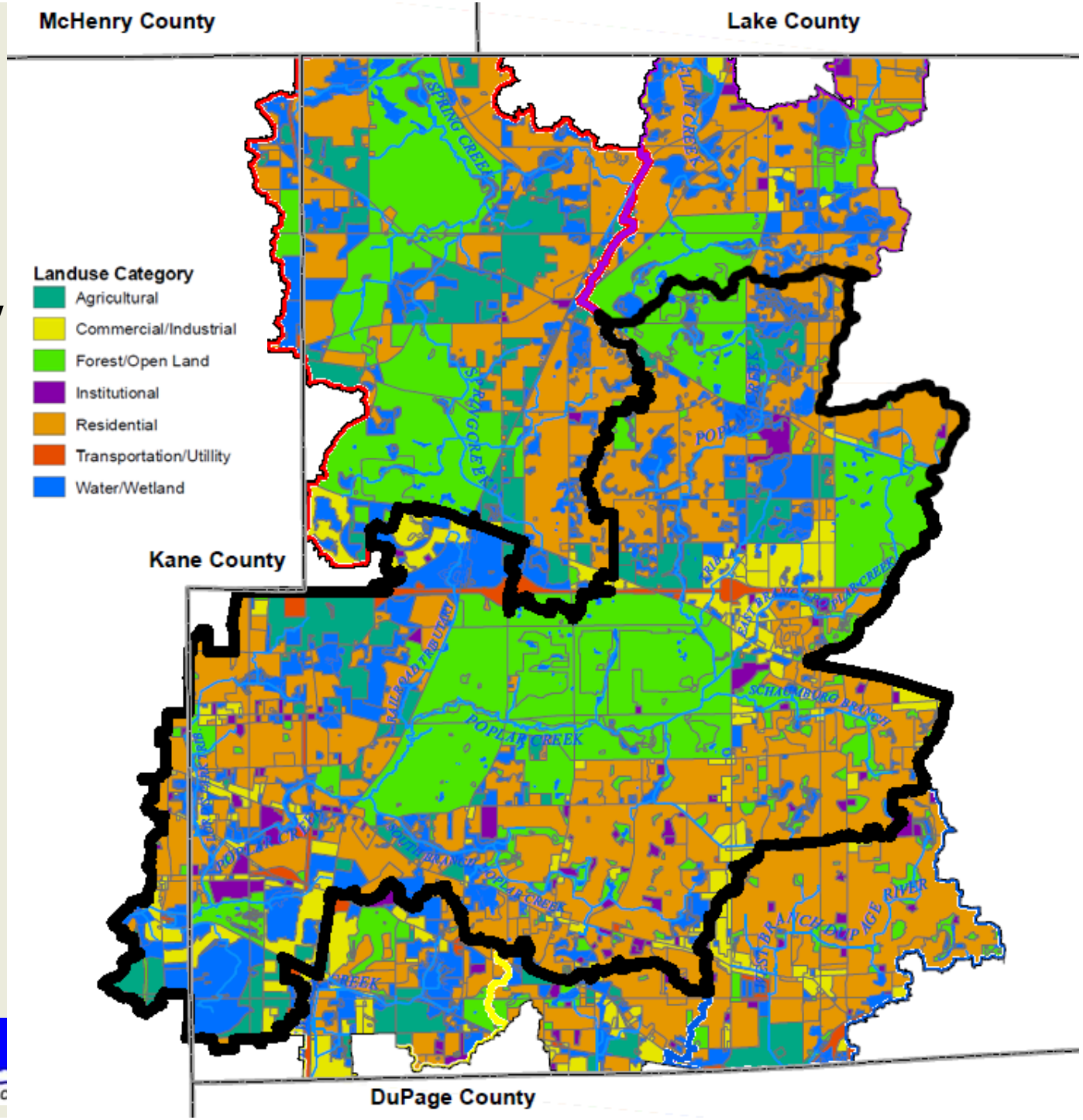
Land Use/ Hydrology



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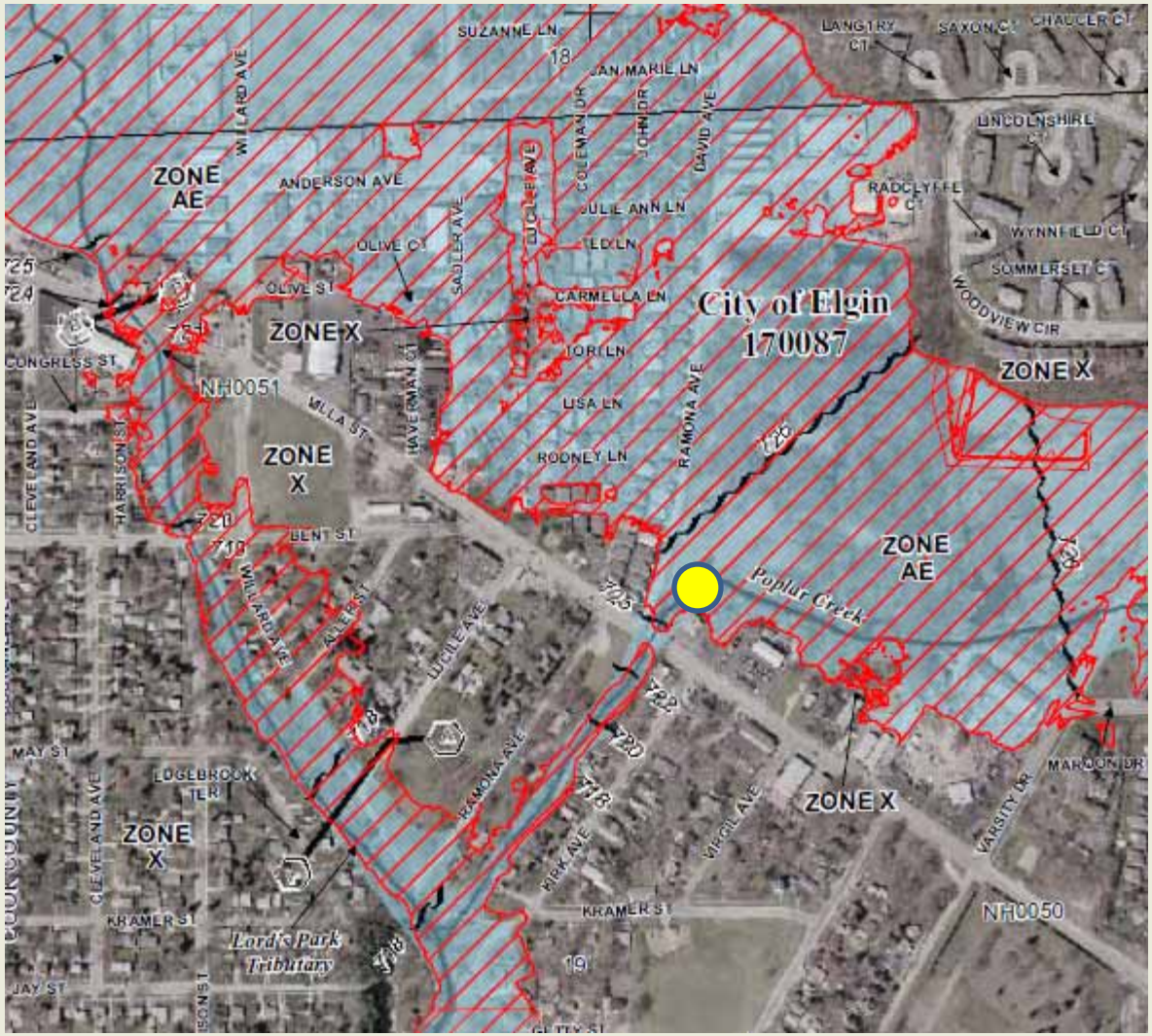
Stream Gage Location



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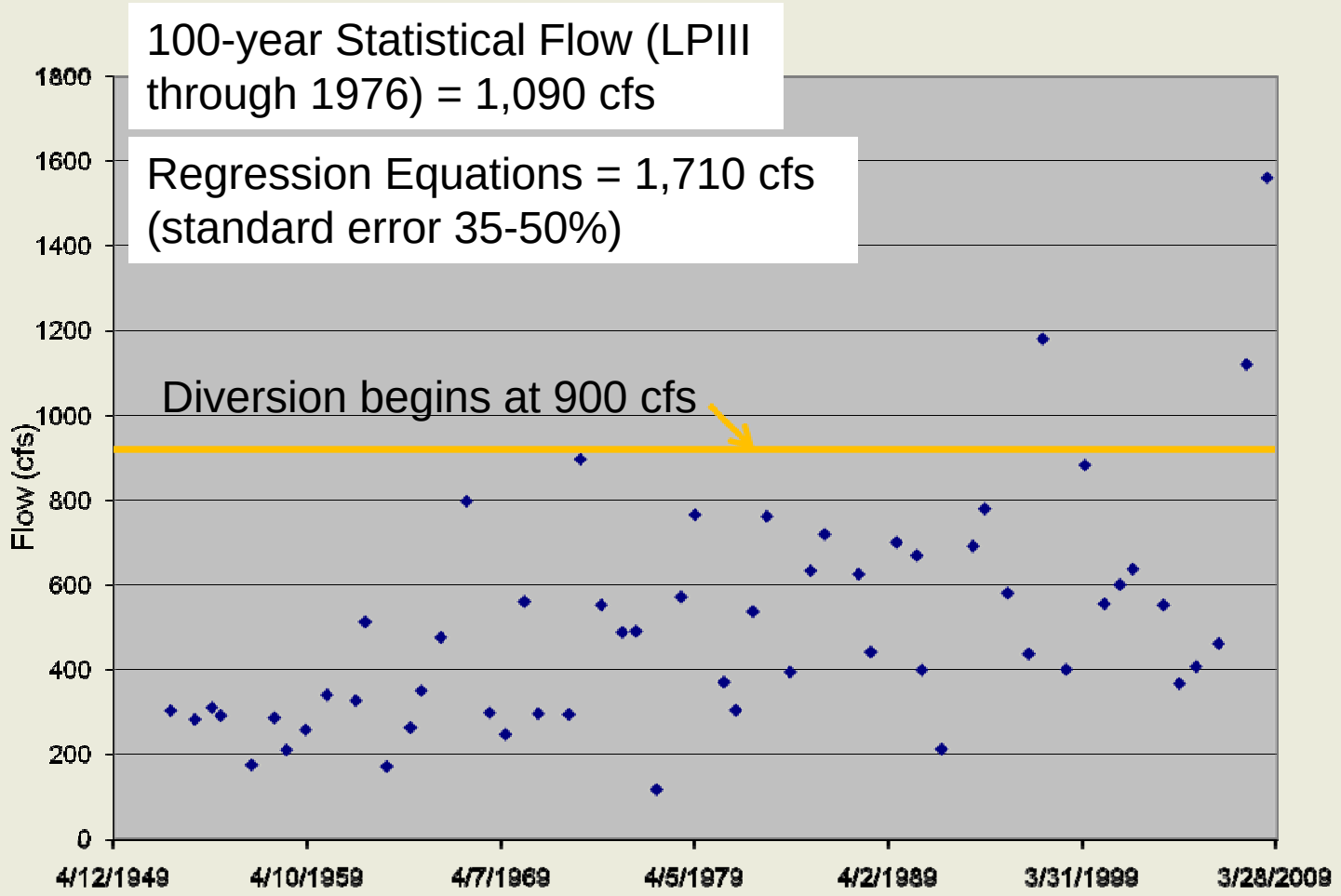
Poplar Creek Peak Flows



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Regional Flood Control

- Three flood control basins constructed in Streamwood between 1973 and 1974
- No current damages on Poplar Creek South Branch (Primarily Streamwood)

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Conclusions

- Large areas of the floodplain are contained in open space.
- Most development occurred after earliest flood studies were completed, respected floodplain boundaries and included detention.
- Hydrologic techniques did not underpredict flood flows too badly by modern standards.
- Ongoing efforts to buyout properties and restore open space to the floodplain have reduced damages.
- Flood control facilities designed almost 40 years ago provide protection from the 100-year event.