POST FLOOD REPORT
APRIL 2013 CHICAGO AREA
RIVERINE AND BASEMENT FLOODING

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U.S. Army Corps of Engineers

Chicago District

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AGENDA

Overview of April 2013 Flood Event

Overview of Survey

Survey Methodology

Riverine and Basement Survey Highlights

Lessons Learned

Questions

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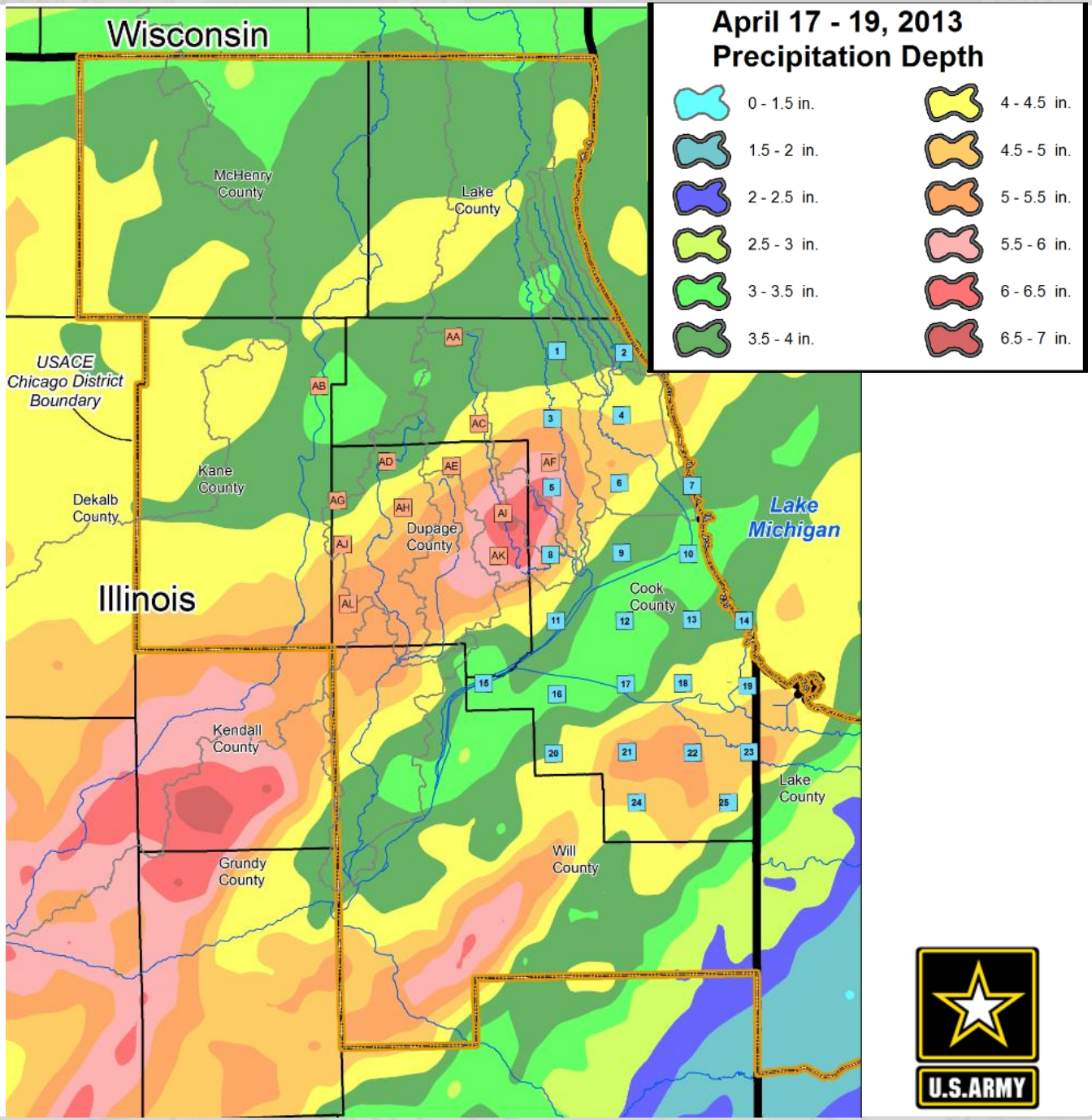
OVERVIEW OF APRIL 2013 EVENT

Between April 15-19, 2013, a slow-moving storm system resulted in record flooding across much of the State of Illinois

Periods of intense rainfall, with depths of 3.62 to 6.84 inches recorded over a 24-hour period between April 18 and 19 in Chicago region

River gages reached heights of 5 to 500 year levels

Federal Disaster (FEMA-4116-DR) Declared



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LATEST» Tuesday's Deals And Steals: String Lights, A Hammock, Cleaner Air And Beyond! READ STORY>

Community Corner

St. Charles: Fox River Flood Center

Links to the lates updates on flooding, street closures and other information you need to know to navigate the flooding in St. Charles.

By Ted Schnell (Patch Staff) - May 7, 2013 5:54 pm ET

Like 0 Share

The News:

St. Charles Overview

Friday, May 3, 2013:

- Comptroller: Flood-Recovery Payments Will
  Priority

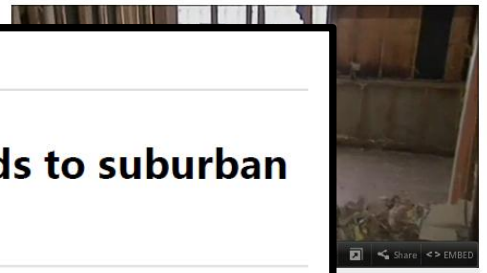
Home News Weather Investigations Entertainment

Maps & Radar Weather Alerts School Closing Alerts Weather News

Flood Victims Compare Homes to War Zone

USGS: More than 50 streamgages at or above flood levels

By Michelle Relerford



dumped billions of floods.

oes or flotation devises,

esponse

Is it okay to cry at work?

- Yes
- No
- I don't know

Daily Herald

News updated: 4/18/2013 9:41 PM

Images: Heavy rain leads to suburban flooding

Lisle firefighters carry a resident of the Snow Valley Nursing and Rehabilitation Center in Lisle to safety after floodwaters threatened the facility.

Daniel White | Staff Photographer

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CHICAGO 04/18/2013 11:35 am ET | Updated Apr 18, 2013

Chicago Flooding: Heavy Rain Storm Prompts State Of Emergency, Road Closures In Cook County

210

43

Updated story

Heavy rains in the Chicago area have made for a major headache Thursday, prompting Gov. Pat Quinn to declare a state of emergency in Cook County.

Gov. Quinn made t
Tribune, after flood

Overnight rain total
and other streets a
roadway conditio

Amid rising flood-st
suburbs are being
opened up shelters
was evacuated Thu

(Have photos of th

In the city, the Met
conserve water by
help ebb the flow re
the city re-reversed
flooding at the river

About 24,000 Com
according to Fox C
history — and will r

In south suburban
their school bus go

On Chicago's Sout
person earlier Thur
CTA buses were re
Twitter.)

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Many Roads Remain Closed As Thousands Deal With Flooding

Residents face huge cleanup after storm water floods area

By Staff Report

Alicia Roman is tracking a mostly cloudy, cold end of Friday with scattered showers and even a few flurries. Conditions remain dry trough the weekend, but more rain is expected next week. (Published Monday, April 22, 2013)

An incredible amount of rain fell on the Chicago metropolitan area Wednesday night and into Thursday morning, flooding homes and roads, and prompting officials to issue disaster proclamations.

"I urge everyone to stay alert and avoid flooded areas," Gov. Pat Quinn said. "Residents should tune in to local TV and radio stations for updated information about any closed routes or evacuations."

Mike Lorber spent Thursday afternoon surveying flooding around the Chicago area. (Published Friday, April 19, 2013)

TRENDING STORIES

1 VIDEO Bomb Threat Reported at Jewish School on North Side

2 Husband Responds After Dying Wife's Love Letter Goes Viral

3 Blackhawks' Panarin Apologizes for Racially Charged Remark

4 Former Chicago Lawyer Pleads Guilty for Threatening People Who Downloaded Porn

SPONSORED VIDEO Winter Weather Advisory

WEATHER FORECAST

WEATHER ALERTS View all

Chicago, IL

48° Scattered Clouds Feels Like 40°

Radar Forecast Maps

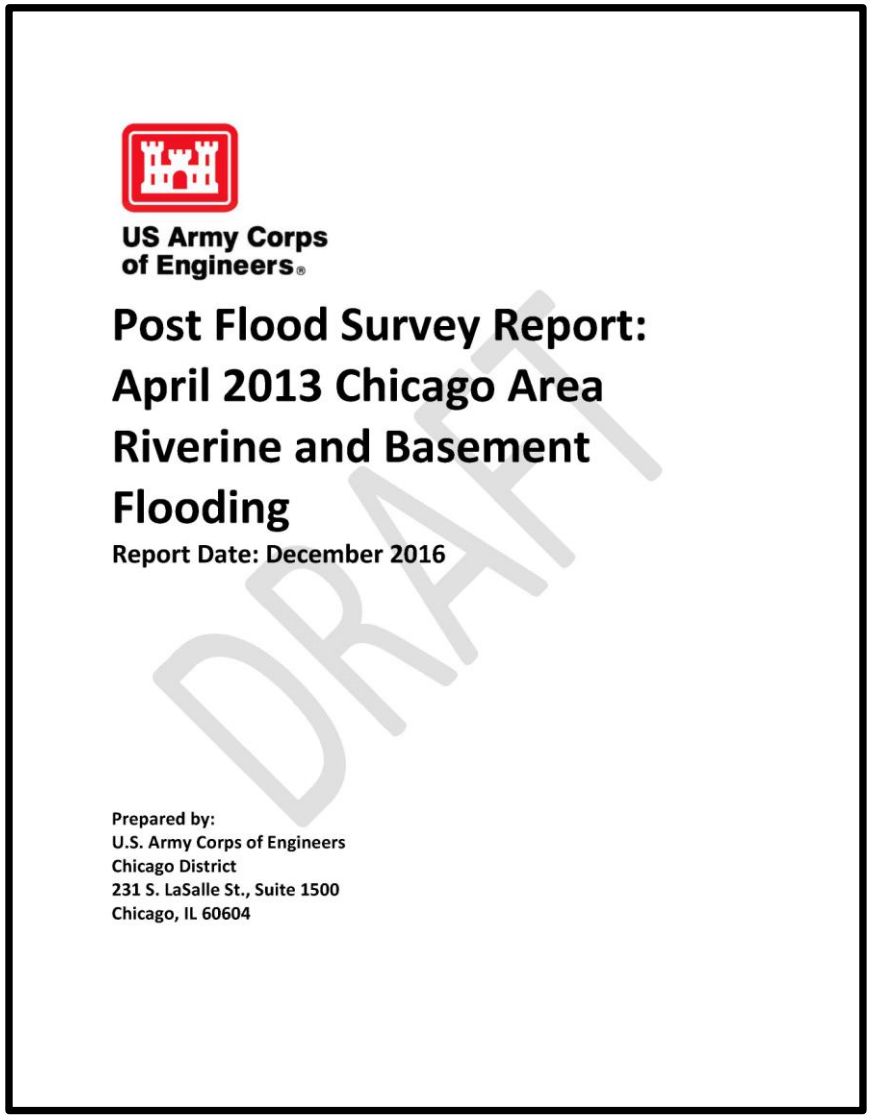
WHAT DO YOU THINK?

Did you learn how to ride a bike with or without training wheels?

- With
- Without
- I never learned how to ride a bike

POST FLOOD SURVEY REPORT

- Document the extent of flooding within the Chicago metropolitan area
- Summarize meteorological data
- Analyze river gages
- Conduct public survey to understand impacts of flood event
- Study conducted through USACE's Floodplain Management Services (FPMS) Program, under the authority provided by **Section 206** of the 1960 Flood Control Act (PL 86-645), as amended


US Army Corps of Engineers®

Post Flood Survey Report: April 2013 Chicago Area Riverine and Basement Flooding

Report Date: December 2016

DRAFT

Prepared by:
U.S. Army Corps of Engineers
Chicago District
231 S. LaSalle St., Suite 1500
Chicago, IL 60604

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STUDY AREA

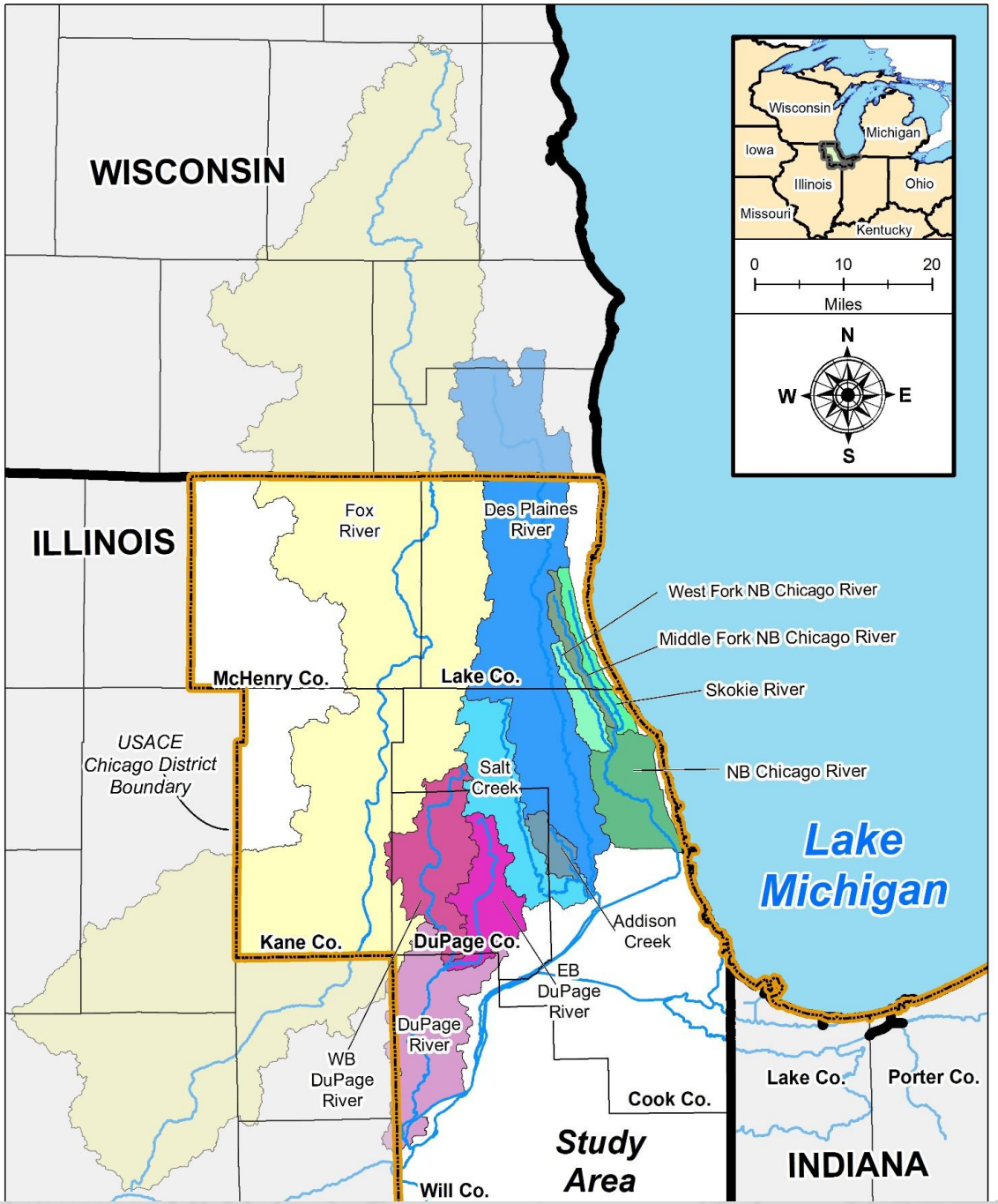
- USACE Chicago District Boundaries in Illinois

Watersheds and Sub-watersheds:

- North Branch of the Chicago River
- Des Plaines River
- DuPage River
- Fox River

Basement Survey Area:

- McCook Reservoir Service Area (Cook County)



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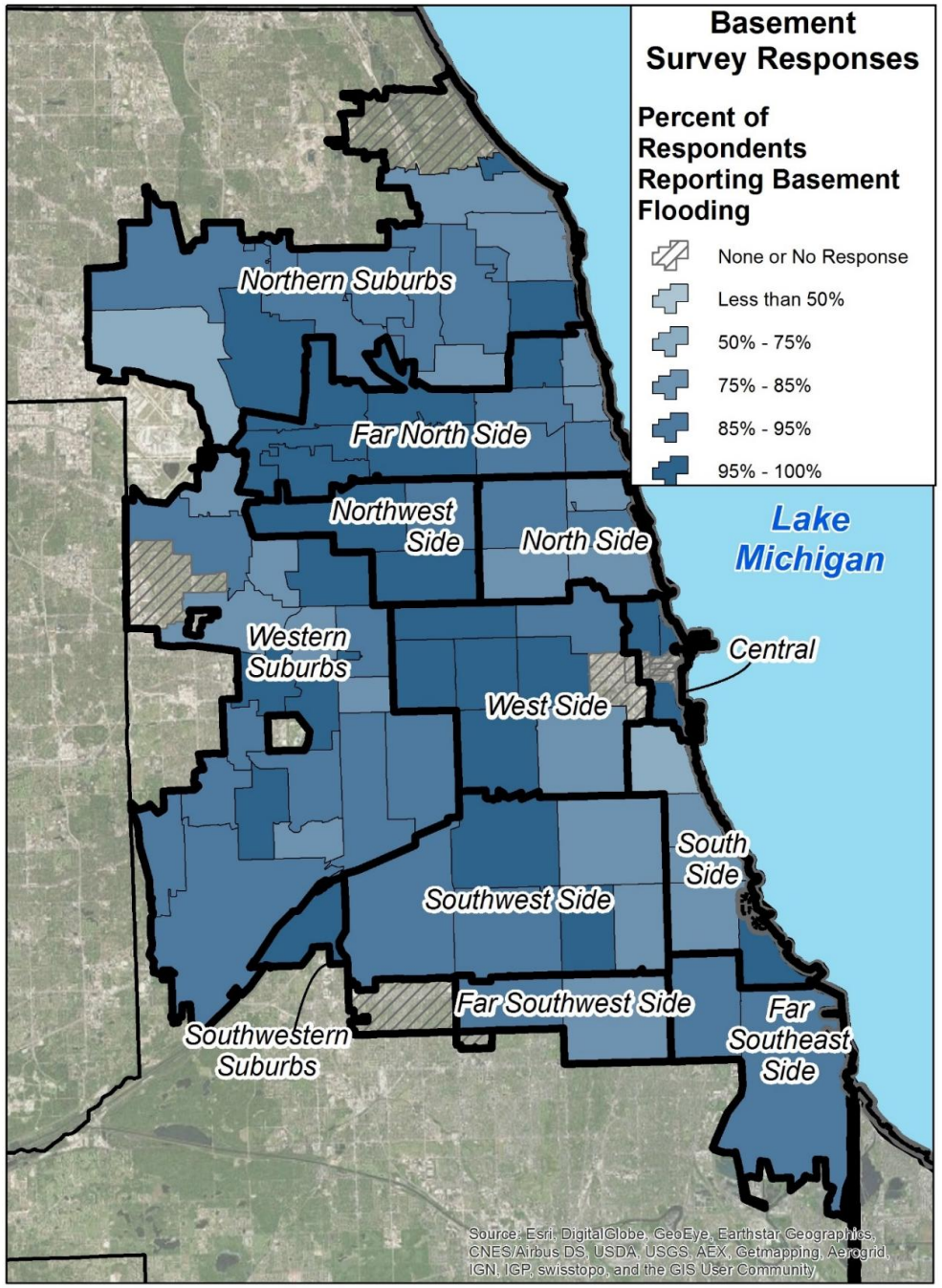
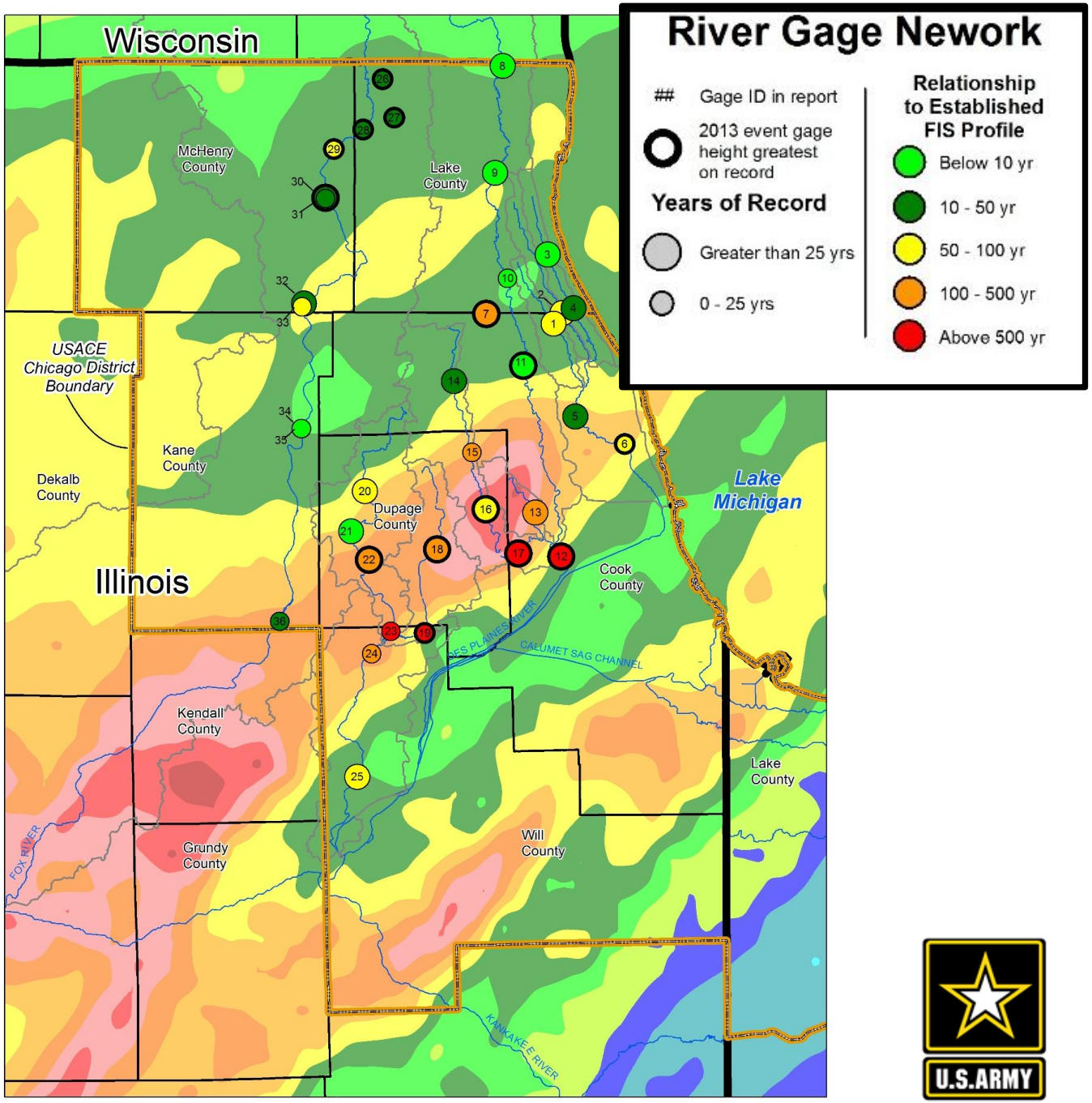


RIVER GAGES ANALYSIS

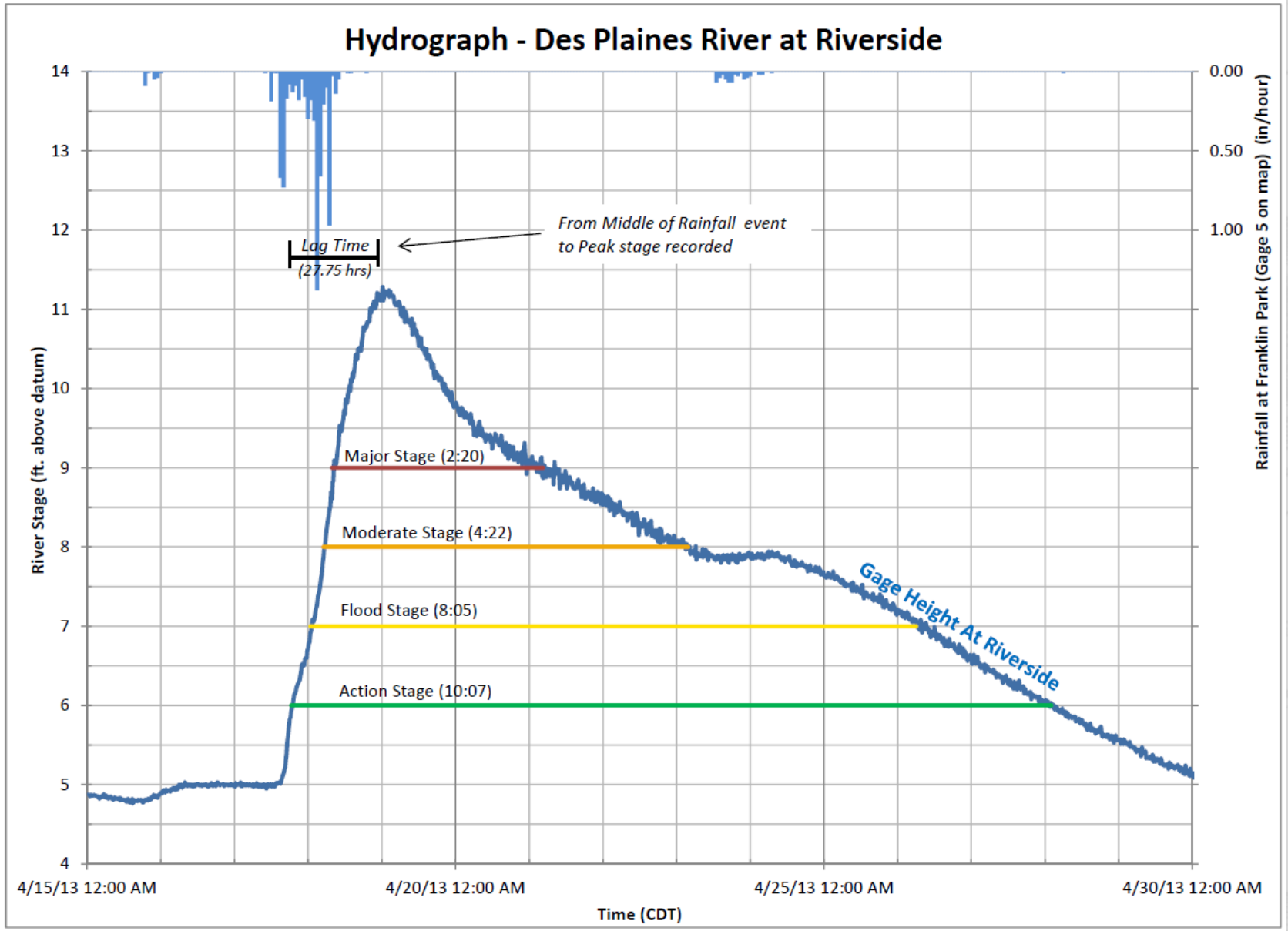
- Comparison of recorded gage height to FEMA flood profiles
- Evaluation of lag time
- Time above defined flood stages



RIVER GAGES ANALYSIS

Time above defined flood stages

- Gages in each watershed exceeded “Major Flood Stage” as defined by the NWS
- Time above Major River Stage ranged from 0.5 – 9 days
- Longer flood durations in Fox River Watershed
- Shorter durations in Chicago River Watershed



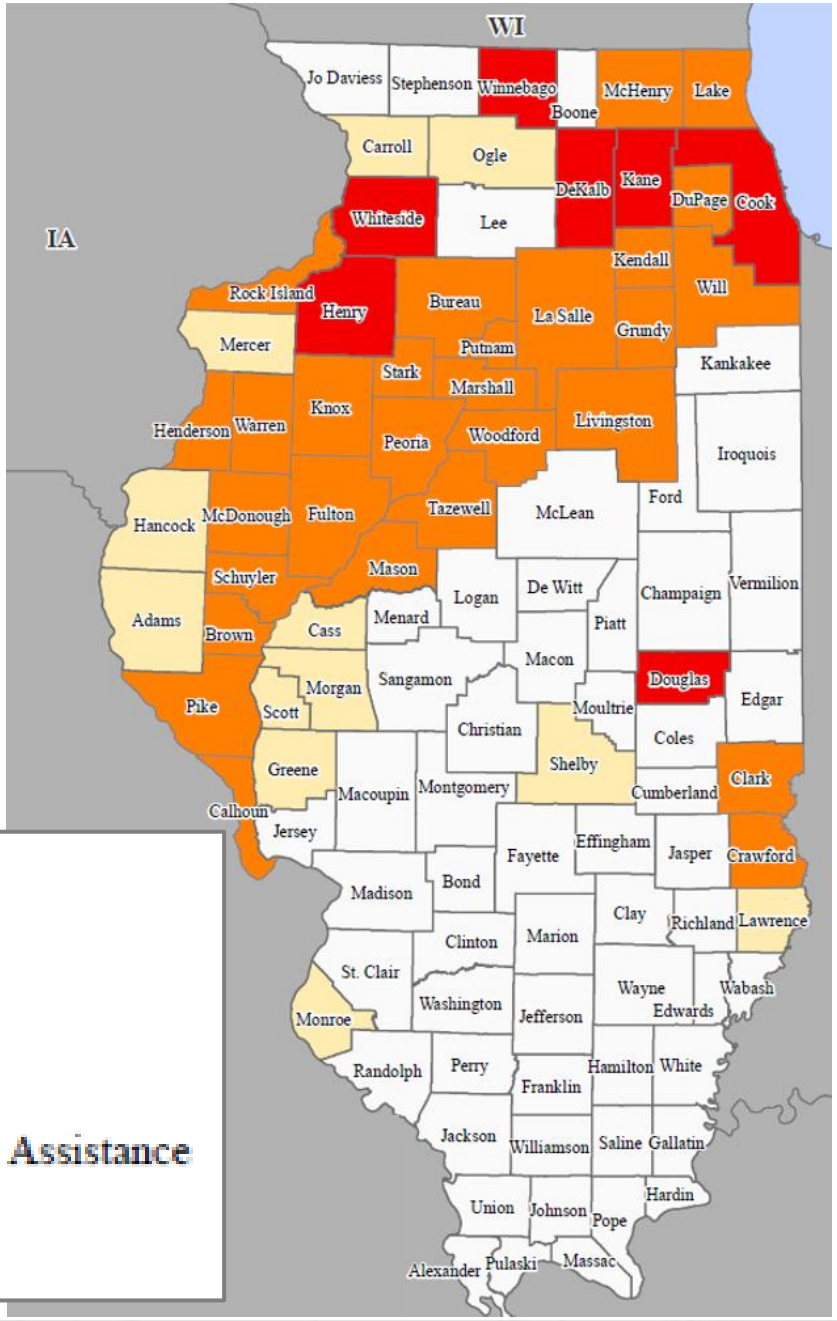
FEMA RESPONSE – FEMA-4116-DR

Individual Assistance

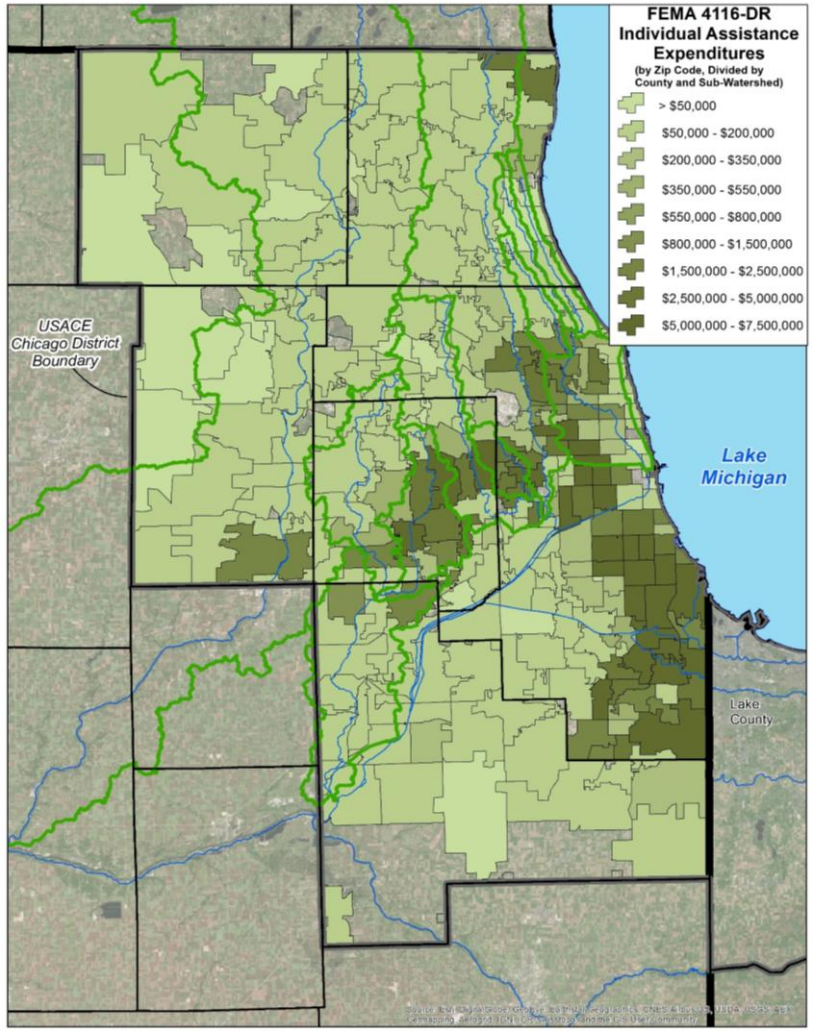
- $169,345,000
- 35 Counties

Public Assistance

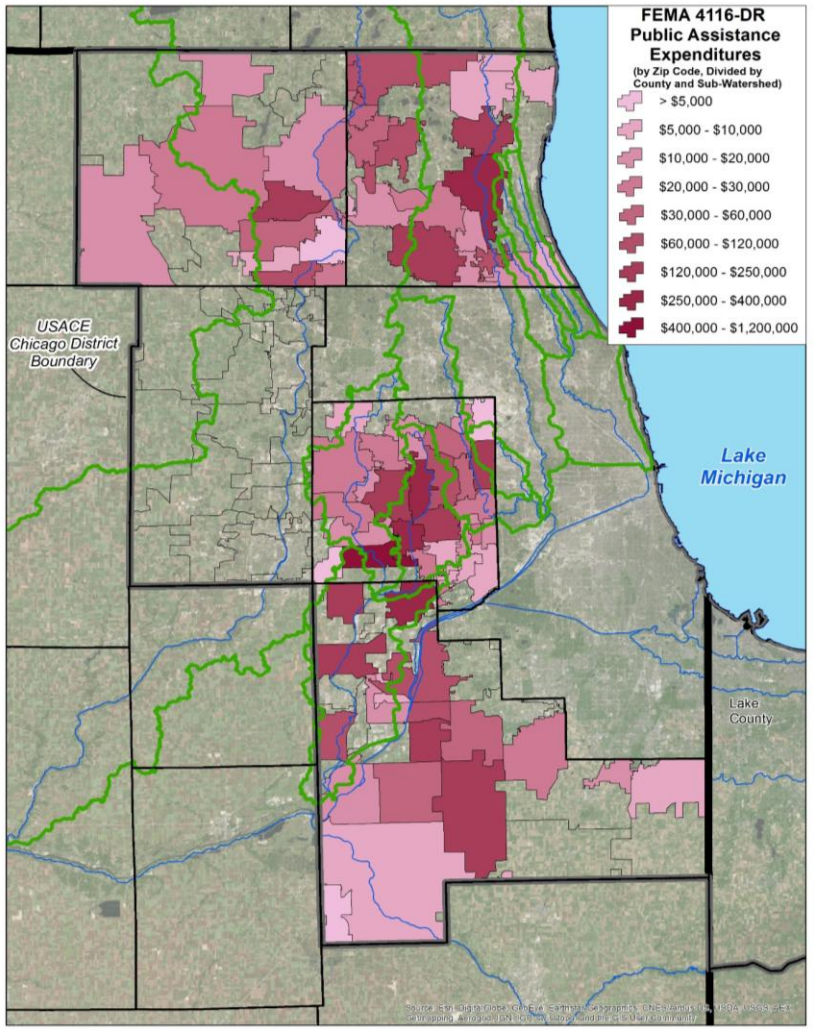
- $30,736,000
- 39 Counties



FEMA PUBLIC AND INDIVIDUAL ASSISTANCE



Individual Assistance



Public Assistance

Data by zip code

Within Study Area

Individual Assistance $152,700,000

Public Assistance $5,271,000

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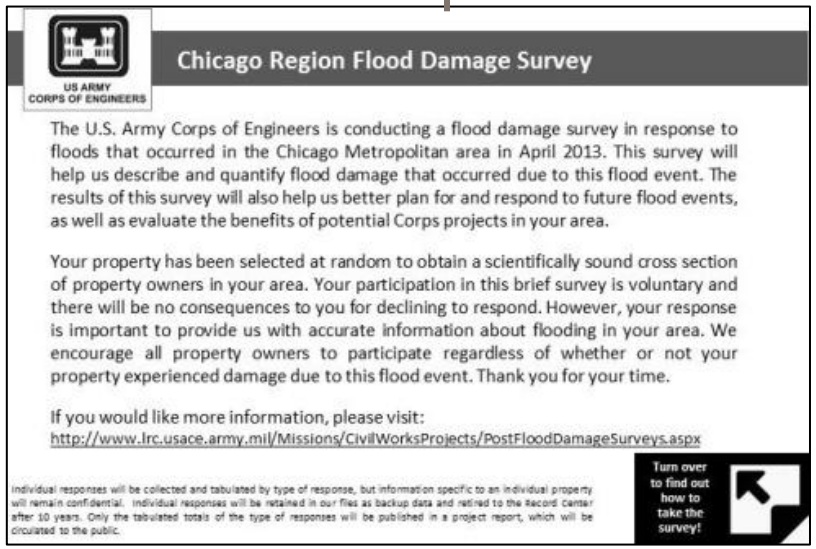
OVERVIEW OF APRIL 2013 FLOOD SURVEY

Two Surveys:

Type of Flooding	Riverine	Basement
Postcards Mailed	38,509	Approx. 35,694
Number of Responses	1,829	1,361
Response Rate	5%	3%
Audience	Residential and Commercial	Residential
Study Area	4 Watersheds	Cook County



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Chicago Region Flood Damage Survey

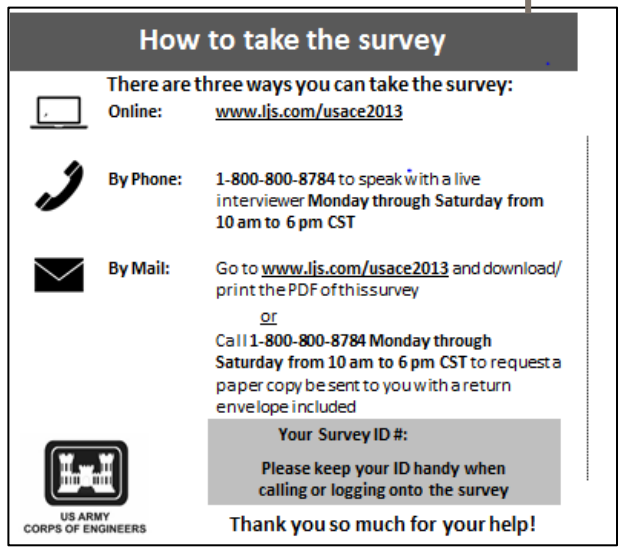
The U.S. Army Corps of Engineers is conducting a flood damage survey in response to floods that occurred in the Chicago Metropolitan area in April 2013. This survey will help us describe and quantify flood damage that occurred due to this flood event. The results of this survey will also help us better plan for and respond to future flood events, as well as evaluate the benefits of potential Corps projects in your area.

Your property has been selected at random to obtain a scientifically sound cross section of property owners in your area. Your participation in this brief survey is voluntary and there will be no consequences to you for declining to respond. However, your response is important to provide us with accurate information about flooding in your area. We encourage all property owners to participate regardless of whether or not your property experienced damage due to this flood event. Thank you for your time.

If you would like more information, please visit:
http://www.lrc.usace.army.mil/Missions/CivilWorksProjects/PostFloodDamageSurveys.aspx

Individual responses will be collected and tabulated by type of response, but information specific to an individual property will remain confidential. Individual responses will be retained in our files as backup data and retired to the Record Center after 10 years. Only the tabulated totals of the type of responses will be published in a project report, which will be circulated to the public.

Turn over to find out how to take the survey!



How to take the survey

There are three ways you can take the survey:

Online: www.ljs.com/usace2013

By Phone: 1-800-800-8784 to speak with a live interviewer **Monday through Saturday from 10 am to 6 pm CST**

By Mail: Go to www.ljs.com/usace2013 and download/print the PDF of this survey

or

Call **1-800-800-8784 Monday through Saturday from 10 am to 6 pm CST** to request a paper copy be sent to you with a return envelope included

Your Survey ID #:

Please keep your ID handy when calling or logging onto the survey

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Thank you so much for your help!

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RIVERINE SURVEY HIGHLIGHTS

Mapped/Tabulated in Report

Reporting Flooding in April 2013
First Time Flooding
Frequency of Flooding
Duration of Flooding
Flood Warning Types
Official Warnings
Notable Communities Providing Notification
Actions Taken in Response

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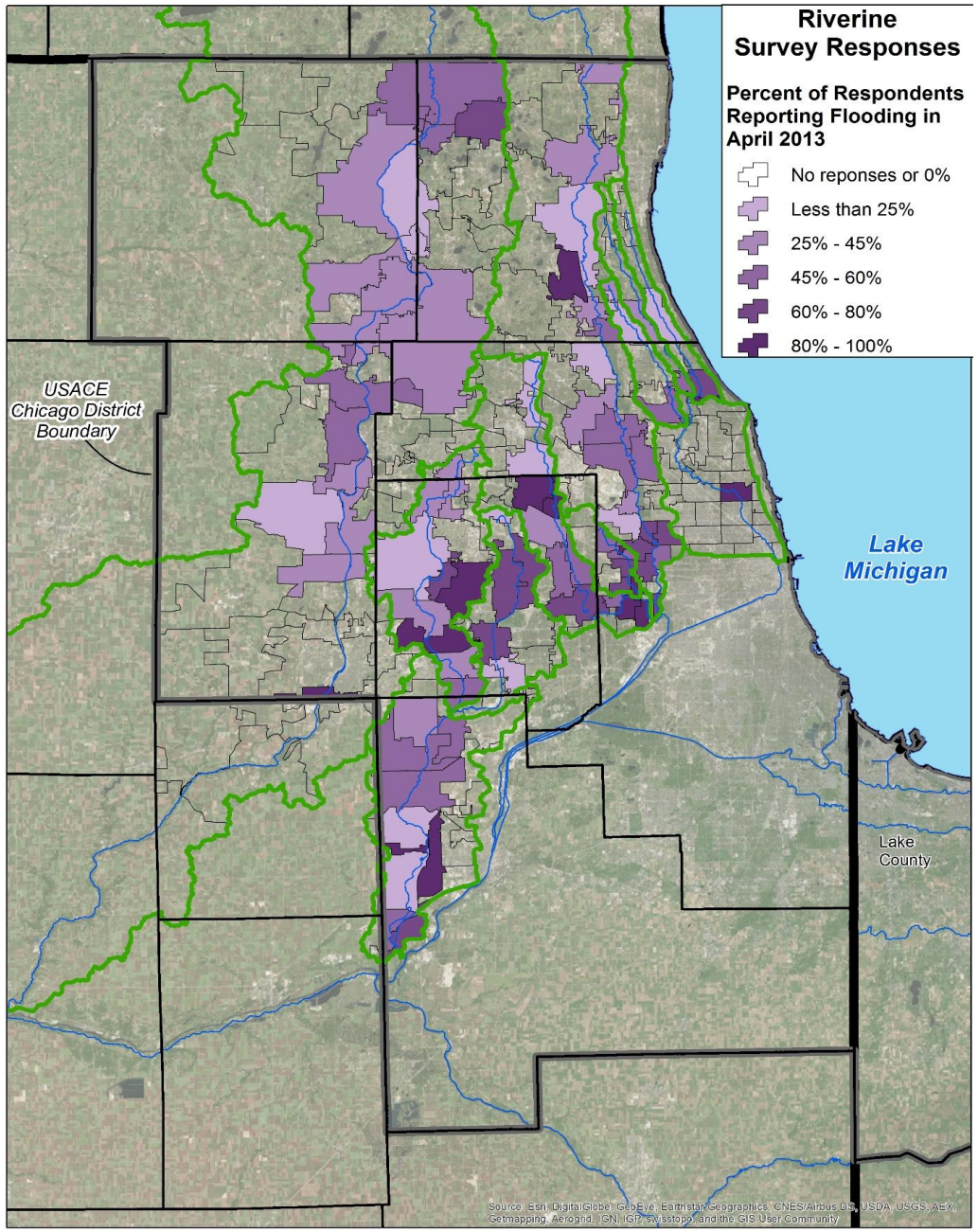

RIVERINE SURVEY HIGHLIGHTS

RESPONDENTS REPORTING FLOODING

Key Point: Significant number of respondents flooded in April 2013

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RIVERINE SURVEY HIGHLIGHTS

RESPONDENTS REPORTING FLOODING

	Total Survey Responses	Flooded April 2013	% of Respondents Flooded
North Branch Chicago River			
Total	189	64	34%
Des Plaines River			
Total	838	449	54%
DuPage River			
Total	333	162	49%
Fox River			
Total	469	220	47%

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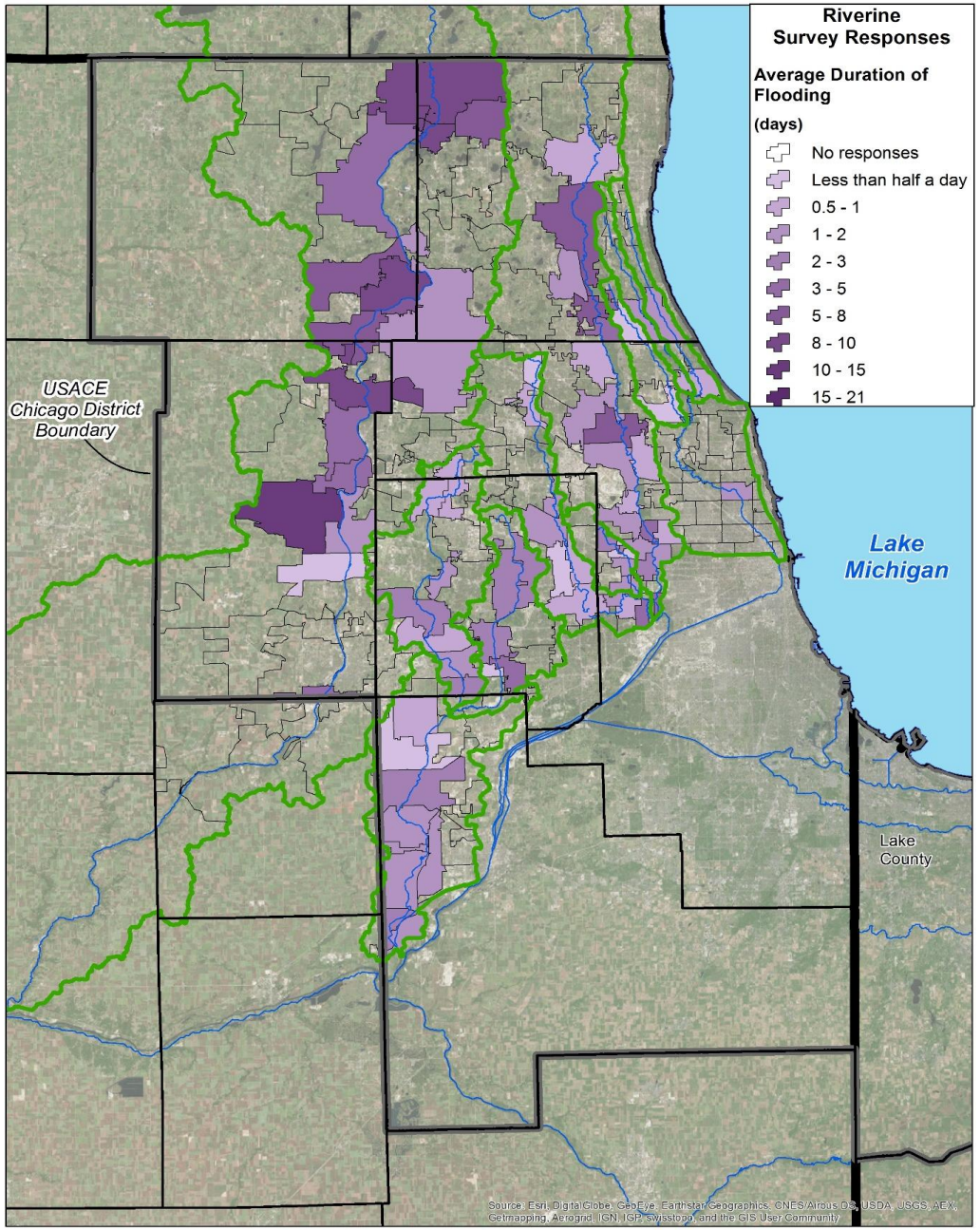

RIVERINE SURVEY HIGHLIGHTS

AVERAGE DURATION OF FLOODING

Key Point: Survey validates known hydrology of waterways studied

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RIVERINE SURVEY HIGHLIGHTS

AVERAGE DURATION OF FLOODING

	Average (hrs)	Maximum (hrs)
North Branch Chicago River	23	>120 hrs (5 days)
Des Plaines River	>48 hrs (2.1 days)	>192 hrs (8 days)
DuPage River	>48 hrs (2.1 days)	>168 hrs (7 days)
Fox River	>168 hrs (7.7 days)	> 504 hrs (21 days)

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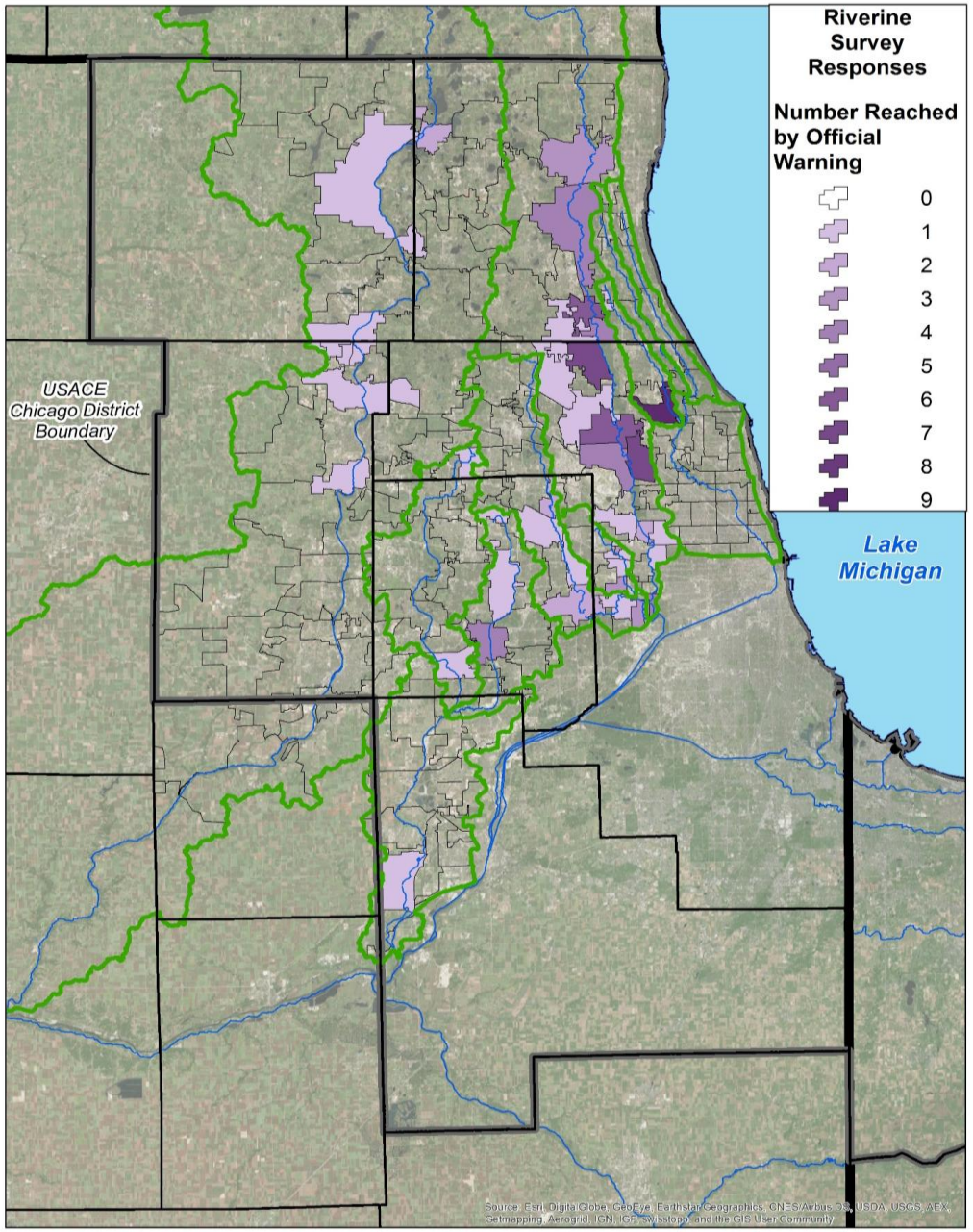

RIVERINE SURVEY HIGHLIGHTS

REACHED BY OFFICIAL WARNING

Key Point: Highlights success stories and areas for improved warning systems

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RIVERINE SURVEY HIGHLIGHTS

REACHED BY OFFICIAL WARNING

Community	Total Surveys	Total Flooded	Total Warned by Public Official or Official Notification (%)	Total who Flooded and were Warned by Public Official or Official Notification (%)
Brookfield	15	12 (80%)	4 (27%)	2 (17%)
Des Plaines	124	72 (58%)	10 (8%)	2 (3%)
Forest View	38	37 (97%)	7 (18%)	6 (16%)
Glenview	62	27 (44%)	9 (15%)	4 (15%)
Gurnee	16	6 (38%)	3 (19%)	1 (17%)
Libertyville	53	7 (13%)	4 (8%)	0 (0%)
Lincolnshire	36	14 (39%)	7 (19%)	3 (21%)
Lisle	56	38 (68%)	4 (7%)	3 (8%)
Oak Brook	12	8 (67%)	2 (17%)	2 (25%)
Park Ridge	43	25 (58%)	6 (14%)	4 (16%)
River Grove	30	24 (80%)	2 (7%)	2 (8%)
Riverside	50	33 (66%)	5 (10%)	4 (12%)
Riverwoods	20	7 (35%)	4 (20%)	1 (14%)
Stone Park	5	5 (100%)	3 (60%)	3 (60%)
Westchester	60	37 (62%)	4 (7%)	1 (3%)
Wheeling	41	8 (20%)	7 (17%)	3 (38%)
Wood Dale	8	7 (88%)	2 (25%)	2 (29%)

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RIVERINE SURVEY HIGHLIGHTS

WARNING TYPE

Watershed/County	Total Responses		Warning Type			
		Observing Water Levels (only) (%)	Public, Emergency Worker, or Other Official Notifications (%)	General News Media (%)	Neighbor or Other Person (%)	Other (%)
North Branch Chicago River						
Total	171	**56 (33%)**	10 (6%)	101 (59%)	1 (1%)	5 (3%)
Des Plaines River						
Total	764	**256 (34%)**	82 (11%)	346 (45%)	38 (5%)	41 (5%)
DuPage River						
Total	301	**139 (46%)**	9 (3%)	132 (44%)	9 (3%)	13 (4%)
Fox River						
Total	450	**276 (61%)**	7 (2%)	147 (33%)	8 (2%)	10 (2%)

Key Point: Many respondents became aware of flooding only by observing water levels

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BASEMENT SURVEY HIGHLIGHTS

Mapped/Tabulated in Report

Total Responses
Reporting Flooding
Reporting Sewer Backup
Reporting Worst Flooding in April 2013
Average Cost of Cleanup
Average Increase in Drive Time

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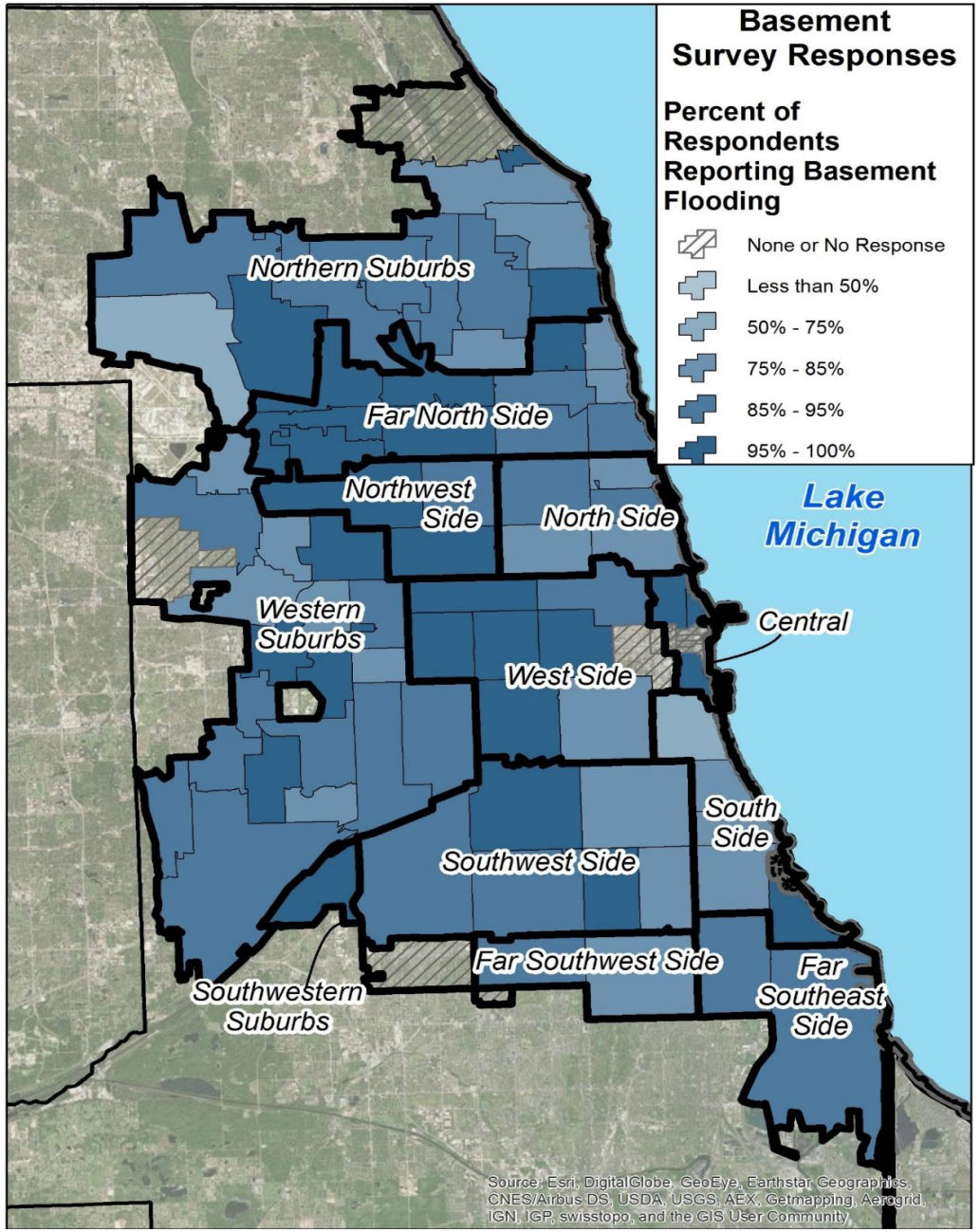

BASEMENT SURVEY HIGHLIGHTS

REPORTING BASEMENT FLOODING

Key Point: Overwhelming majority of respondents reported basement flooding at some point

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BASEMENT SURVEY HIGHLIGHTS

REPORTING BASEMENT FLOODING

Community Area	Number of responses	Number of Respondents Reporting Flooding	Number of Respondents Reporting Worst Flooding in April 2013
Central	7	6 (86%)	0
Far North Side	217	202 (93%)	28 (13%)
Far Southeast Side	19	17 (89%)	1 (5%)
Far Southwest Side	40	34 (85%)	0 (0%)
North Side	105	83 (79%)	7 (7%)
Northern Suburbs	287	255 (89%)	40 (14%)
Northwest Side	76	73 (96%)	11 (14%)
South Side	38	27 (71%)	1 (3%)
Southwest Side	97	87 (90%)	4 (4%)
Southwestern Suburbs	6	6 (100%)	0 (0%)
West Side	48	42 (88%)	1 (2%)
Western Suburbs	421	368 (87%)	38 (9%)
Total	***1361***	***1200 (88%)***	***131 (10%)***

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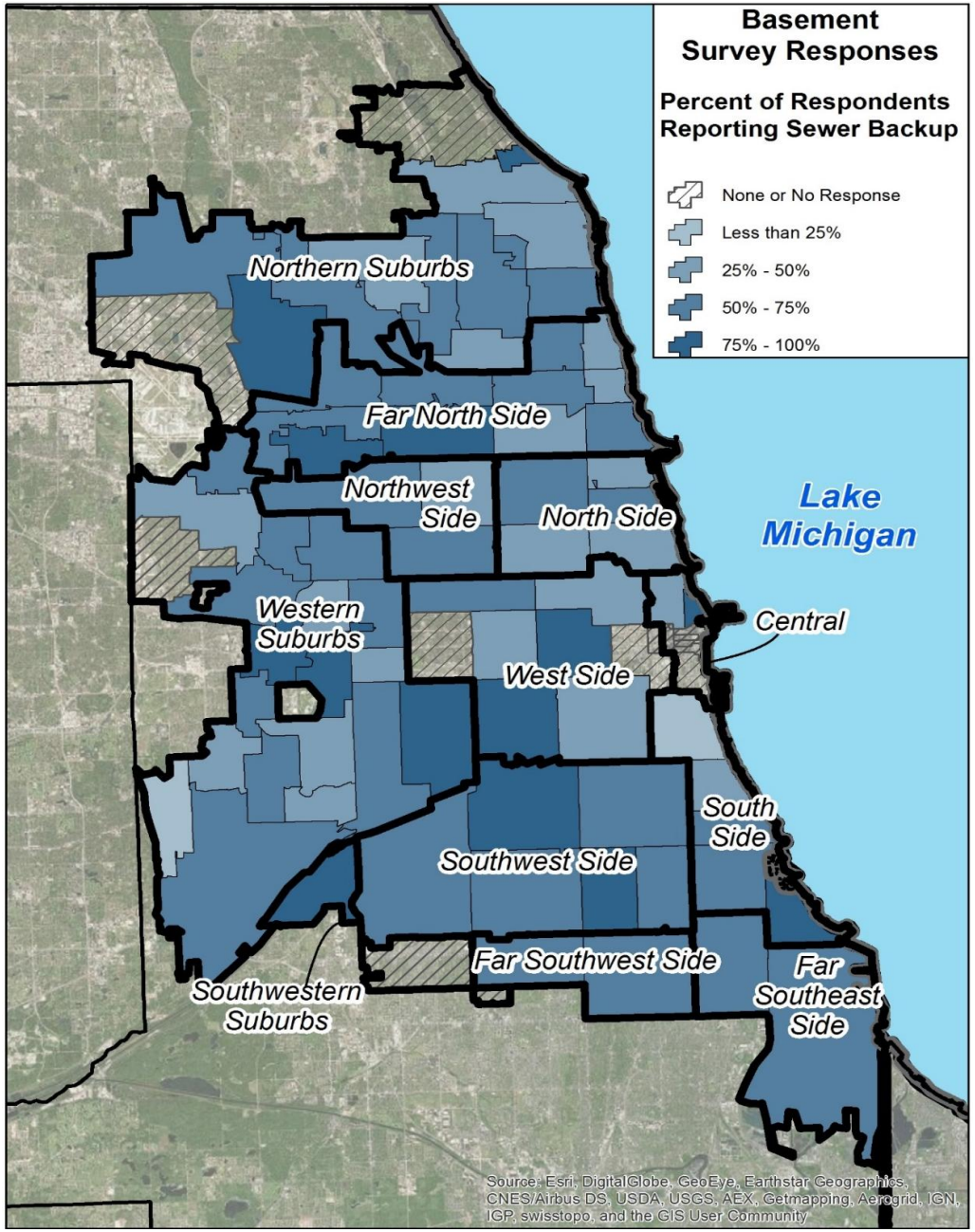

BASEMENT SURVEY HIGHLIGHTS

REPORTING SEWER BACKUP

Key Point: Opportunity for increased residential education

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BASEMENT SURVEY HIGHLIGHTS

REPORTING SEWER BACKUP

Community Area	Number of responses	Number of Respondents Reporting Sewer Backup in Basement
Central	7	4 (57%)
Far North Side	217	139 (64%)
Far Southeast Side	19	14 (74%)
Far Southwest Side	40	24 (60%)
North Side	105	54 (51%)
Northern Suburbs	287	168 (59%)
Northwest Side	76	47 (62%)
South Side	38	21 (55%)
Southwest Side	97	62 (64%)
Southwestern Suburbs	6	6 (100%)
West Side	48	28 (58%)
Western Suburbs	421	220 (52%)
Total	***1361***	***787 (58%)***

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LESSONS LEARNED

Create Survey Ahead of Time

Less is More

Avoid Open-Ended Questions

Explicit Language

Avoid Jargon

Realistic Scope and Survey Area

Engage Stakeholders

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THANK YOU!

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