

Cooperating Technical Partner Business Plan

June 2021 to May 2022

State of Illinois
Department of Natural Resources
Office of Water Resources

University of Illinois
Prairie Research Institute
Illinois State Water Survey

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Illinois
Department of
**Natural
Resources**

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Executive Summary

The borders of Illinois are physically and economically defined by large rivers and Lake Michigan. Waters that enter or flow from 24 states and two Canadian provinces. Illinois also has one of the largest inland systems of rivers, lakes, and streams in the entire nation, and flooding is a common occurrence in the state. While Illinois previously ranked in the top ten states for flood insurance claims, strong state and local regulations that protect property in areas with the potential for flood damage and efforts to move homes and businesses out of harm's way have removed it from the top ten. Even so, substantial flood risk remains in Illinois and so does the need to communicate and mitigate this risk.

This 2021 Illinois Business Plan serves as the State of Illinois' "notice of interest" to continue its participation as a Cooperating Technical Partner (CTP) with the Federal Emergency Management Agency (FEMA) and perform work under FEMA's Flood Hazard Mitigation, National Flood Insurance, and Mapping Programs through its Department of Natural Resources, Office of Water Resources (IDNR/OWR) and the Illinois State Water Survey (ISWS), Prairie Research Institute, University of Illinois. This State of Illinois plan extends the terms of the April 28, 2004, FEMA/IDNR CTP agreement and the September 9, 2013, FEMA/ISWS CTP agreement. As statewide CTPs, the IDNR/OWR and the ISWS are prepared to continue working with FEMA to identify flood hazard risks, communicate those flood hazard risks, identify means to reduce flood hazard risks, and implement those means to help FEMA meet its national goals.

Section 1: Background and Program Vision

Coordination of Cooperating Technical Partners

The Illinois Department of Natural Resources/Office of Water Resources (IDNR/OWR) and the Illinois State Water Survey (ISWS) work closely together to provide improved hazard information with a focus on flooding for communities and property owners with the goal of reducing personal and economic losses while increasing resiliency. This partnership extends a collaborative approach to the local communities by actively engaging them in the process of identifying and assessing natural hazard risks and identifying research needs. The continued tradition of public outreach aims to engage residents and government officials to inform, educate, and empower others to act in preventing losses from natural hazards, and understand their residual risks, climate change impacts, and effects of urbanization.

The State of Illinois CTP Business Plan is a collectively prepared plan by IDNR/OWR and ISWS. It defines the existing structure and capabilities of IDNR/OWR and ISWS and outlines current programs, program goals, activities, needs, challenges, and priorities related to flood risk identification and reduction. This plan provides the status of Digital Flood Insurance Rate Maps and Risk Mapping, Assessment, and Planning (MAP) in Illinois, as well as the short-term and long-term state goals in this regard.

The IDNR/OWR and ISWS will continue their partnership, coordinating activities to make the most efficient use of FEMA grant dollars to reduce flood risks and to provide the citizens of Illinois with accurate documentation of the residual flood risks.

Illinois Department of Natural Resources/Offices of Water Resources

The Illinois Department of Natural Resources/Office of Water Resources (IDNR/OWR) is responsible for managing the state's river, lakes, and streams. IDNR/OWR is also the lead state agency for water resources planning, navigation, floodplain management, the National Flood Insurance Program (NFIP), water supply, including Lake Michigan water allocations to over seven million people, drought, and interstate organizations on water resources. Interagency duties include the state water plan, drought response, flood emergency situation reports, the comprehensive review of Illinois water use law, and evaluation of national water policy.

The primary capital activity of the office is in the area of urban flood damage reduction with assistance to units of local government through planning, design, construction, regulations, and financial assistance. The urban program also features the acquisition of flood-prone homes and businesses. IDNR/OWR personnel activities include:

- Administration of programs that regulate construction in the floodways of rivers, lakes, and streams, including Lake Michigan; construction and operation of dams; diversion of water from Lake Michigan; and withdrawal of water from Lake Shelbyville, Carlyle Lake, and Rend Lake.
- Operation of the William G. Stratton lock and dam on the Fox River, the Sinnissippi Dam on Rock River, and other state-owned facilities.

- Sponsorship of water resources research and operates stream gauging stations, flood gauges, and lake water stage recorders in cooperation with federal, state, and local cooperators.
- Collection of water resource data prior, during, and following a flood or other disaster and disseminating data to various state and local agencies while serving as a Technical Liaison to the Illinois Emergency Management Agency (IEMA) and their Emergency Operations Center (EOC).
- Coordination of various state agencies and their statewide resiliency measures intended to reduce flooding issues throughout the state as the lead managing agency for the State of Illinois Resiliency Team.

IDNR/ OWR Goals

The goals of the IDNR/OWR are to continue the pursuit of sound floodplain management, provide for secure water sources for public and industrial uses, and further flood risk reduction in Illinois. Program-specific objectives follow:

Public Safety

- Implement removal of public low head dams in the Chicago River, Des Plaines, Vermilion (Illinois), Vermilion (Wabash), Fox, Kankakee, Hickory Creek, and Sangamon River Watersheds to improve public safety.
- Continue to conduct flood surveillance activities as flooding and flood damages occur statewide to update forecast gage stage damage information (identify what is damaged at what stage).
- Continue State Dam Safety Program review, inspections, and compliance determinations.
- Mapping levees statewide using a LiDAR-based survey to determine overtopping elevations, levee breach inundation mapping, and economic impacts of such levee failures.

Flood Risk Reduction

- Continue to implement additional Flood Hazard Mitigation (acquisition) Projects statewide to eliminate repetitive loss structures as available funding allows. Illinois also intends to continue to partner with FEMA and IEMA to help optimize repetitive loss acquisitions through the Hazard Mitigation Grant Program (HMGP) by working with local communities to provide for the required 25% local match either individually or globally.
- Based on Discovery information, the State of Illinois will continue to partner with local Illinois communities like Kingston, Illinois (Kishwaukee Watershed) to study the feasibility of potential flood hazard risk reduction projects and, if appropriate, complete project planning and project designs to implement such economically feasible measures. This DeKalb County community has sustained flood damages during several storm events in the past ten years. The IDNR is conducting a flood study of the tributaries through Kingston to identify the source of the flood problem and to develop a flood mitigation strategy for the future. Improved floodplain inundation mapping will be one of the products from this study for future use by FEMA.

Floodplain Management

- Continue to work with communities to demonstrate NFIP compliance, participate in the National Community Rating System (CRS) program and minimize flood hazard risks through FEMA's Community Assistance Program.
- Continue to actively participate in the IAFSM Special Unsteady Modeling Subcommittee as a means of developing better insight and policy related to the use of unsteady modeling for regulatory purposes.
- Seek to strengthen enforcement authorities in the Rivers, Lakes, and Streams Act, especially for high hazard public safety floodplain and dam safety violations.

Flood Hazard Identification and Mapping

Illinois recognizes that it needs to continue to develop better flood hazard maps for all urban and urbanizing areas of the State to improve NFIP activities and the State's regulatory floodplain management programs. Coordinated Needs Management Strategy (CNMS) has helped to identify technical deficiencies in existing floodplain studies and mapping. This information can direct resources to the areas where improved technical products can provide the greatest public benefit. IDNR/OWR through the CTP continues working with FEMA and ISWS toward this goal. IDNR/OWR staff assist in the mission of reducing flooding and flood risk through the performance of numerous activities¹. IDNR/OWR programs and activities that augment FEMA's efforts include:

- Regulatory Programs – Responsible for floodplain management activities across the state and the issuance of permits for dam construction, construction in stream floodways, and activities in public bodies of water. Assists in coordination of NFIP at the local level.
- Statewide Programs – Responsible for non-permit programs including floodplain management training, community assessment visits, and ordinance reviews. Leads coordination activities for the NFIP communities, coordinates with the CRS program assists in regional stormwater management programs and is responsible for the nonstructural mitigation program including buyouts of repeatedly flooded structures.
- Lake Michigan Programs – Regulates construction in the public bodies of water in Illinois, Lake Michigan, and a portion of the Chicago area water system. Monitors technical studies and data collection. Represents the state on interstate and international organizations related to Lake Michigan and works closely with the Illinois Coastal Management Program.
- Dam Safety – Regulates and maintains an inventory by class of all jurisdictional dams in the state. Monitors dam safety inspections, emergency action plans, and operation and maintenance manuals in the state. Performs dam site inspections as required by FEMA.

¹ See Section 3 for detailed program descriptions

- Engineering Studies Program – Generates hydrologic and hydraulic modeling for remapping, real-time flood inundation mapping, and risk reduction feasibility studies. Provides flood surveillance updates to IEMA.
- Technical Services Program – Responsible for the collection, development, and maintenance of various data sources used to produce floodplain maps, high-water marks, as-built, LiDAR, and other engineering studies.
- Division of Capital Programs – Sponsors land acquisition needed for the structural measures and implementation of various non-structural programs, project operations, and maintenance. The state requested FY21 OWR Capital Fund Appropriations total \$51,242,000 in mitigation buyouts, dam removal, and improvements.

Illinois State Water Survey

Prairie Research Institute

The Illinois State Water Survey (ISWS), the Illinois Natural History Survey, the Illinois State Geological Survey, the Illinois Sustainable Technology Center, and the Illinois State Archeology Survey are collectively referred to as the Illinois State Scientific Surveys. As of July 1, 2008, the ISWS joined the other state surveys to form the Prairie Research Institute (formerly the Institute of Natural Resource Sustainability) within the University of Illinois. The institute serves as a focal point for applied energy, environmental science, and sustainability programs, taking advantage of the surveys' complementary goals and missions of providing the scientific underpinnings for energy, sustainability, environmental policy, and natural resource management, ensuring that the natural environment is developed to enhance the well-being of citizens and communities.

Illinois State Water Survey

The ISWS is the primary agency for research and information on surface water, groundwater, and the atmosphere. The ISWS is a premier organization with 125 years of experience in all aspects of water resources. Located on the University of Illinois campus, the ISWS conducts research and monitors and provides information on the availability, use, and quality of surface water, groundwater, and atmospheric resources, including state and regional data on weather, climate, air quality, water supplies, and flood hazard identification. ISWS staff apply state-of-the-art science to solve real-world problems. Most staff are funded by grants and contracts through the University of Illinois.

The ISWS is home to the State Climatologist Office, the State Hydrologist, and the Midwestern Regional Climate Center, where precipitation, tornado, hail, and wind data are tracked and recorded. The Midwestern Regional

Illinois State Water Survey Website Pages

Illinois State Water Survey
www.isws.illinois.edu

Illinois Flood Maps Website
www.illinoisfloodmaps.org

Illinois State Climatologist Office Website
<https://stateclimatologist.web.illinois.edu>

Midwestern Regional Climate Center Website
<https://mrcc.illinois.edu>

Climate Center (MRCC) is a cooperative program of the ISWS and the National Climatic Data Center (National Oceanic and Atmospheric Administration, U.S. Department of Commerce). The MRCC is a partner in a national climate service program that includes the [National Climate Data Center](#), [Regional Climate Centers](#), and [State Climate Offices](#).

Coordinated Hazard Assessment and Mapping Program (CHAMP) Section

The CHAMP Section of ISWS focuses on natural hazard identification, risk assessment, and mitigation. In concert with the ISWS mission, CHAMP conducts research and provides information on surface water resources and hazards.

The CHAMP Section is dedicated to preventing losses from natural hazards through hazard identification, risk assessment, mitigation, and communication. Activities include but are not limited to:

Vision Statement

Through science and collaboration, the CHAMP Section is dedicated to preventing losses from flooding and other natural hazards.

- Engineering and mapping tasks to prepare the Digital Flood Insurance Rate Maps (DFIRMs) and technical data for Flood Insurance Studies (FIS).
- Hydrologic and hydraulic studies to identify flood hazards and manage stormwater.
- ISWS Flood Information Services and Web Resources – Maintains the Illinois Floodplain Maps website, home to Risk MAP watershed-based outreach and products. The site has four main pages (<http://www.illinois floodmaps.org/>) to support communities, FEMA, and local elected officials:
 - DFIRMs page - Tracks the status of the DFIRM mapping and provides links to additional resources
 - Outreach page – Risk MAP products made publicly available including Discovery Maps, associated databases, outreach materials, and useful websites
 - Services page – Provides additional services and project updates to communities including in-progress hydrologic and hydraulic studies and building footprint polygons for every county using LiDAR, and Topographic Wetness Index analyses for all counties are posted
 - MT-2 Letter of Map Revision (LOMR) page – Provides useful information including checklists and relevant websites when preparing an MT-2 application
- Structure Specific Risk Assessment Data and Website – Hosts the Structures at Flood Risk in Illinois (SAFR) website in support of the IDNR/OWR goal of a statewide database of structures in and near the Special Flood Hazard Area (SFHA). This website provides visualization of structures at risk and a rich array of products that can be downloaded.
- Hazard Mitigation Plan Assistance – Contributed to the Illinois Natural Hazard Mitigation Plan update, including information on climate change and mitigation success stories using Loss Avoidance Studies. Assist counties by preparing Hazus reports to supplement their local hazard mitigation plans. Assist counties with FEMA mitigation planning grant applications.

Showcase of Recent Accomplishments

The following section offers a few diverse accomplishments that IDNR/OWR and ISWS want to highlight. While not all directly stem from previous FEMA CTP funding, all are related to studying risk, educating the public, and reducing risk. More information and other recent accomplishments can be found in Section 3 under their respective agency.

- 5th Annual CTP Recognition Program, First Place Award Winners, ISWS/IDNR
 - In 2021, FEMA recognized the Illinois Department of Natural Resources and Illinois State Water Survey for the fifth annual CTP Recognition Award for developing structure-specific risk data statewide and creating the Structures at Flood Risk (SAFR) website.
- Recent ISWS Publications –
 - *Precipitation Frequency Study for Illinois*. 2020. Angel, J. R., M. Markus, K. A. Wang, B. M. Kerschner, S. Singh. Illinois State Water Survey Bulletin 75, Champaign, IL. <http://hdl.handle.net/2142/106653>
 - *Structure-Specific Flood Risk Assessment Studies*, 2109. Graff, L., McConkey, S., McVay, B., Illinois State Water Survey Contract Report 2019-09, Champaign, IL. <http://hdl.handle.net/2142/103055>

- Structure Specific Risk Assessment Data and Website – ISWS hosts the Structures at Flood Risk in Illinois (SAFR) website in support of the IDNR/OWR goal of a statewide database of structures in and near the SFHA. This website provides visualization of structures at risk, structure-specific surveyed elevation data, possible damage costs for various frequency storms, and various products that can be downloaded.

- Urban Flooding Awareness Act Report - IDNR/OWR and ISWS with input from other state agencies prepared the Urban Flooding Awareness Act Report in 2015. This report addresses the increasing impact of urban flooding, in particular flooding outside the mapped floodplain. Some of the flooding may be described as pluvial flooding. Illinois' research on urban flooding positions the state to address the urban/pluvial flooding problem in the future. Many recommendations were listed in the report.

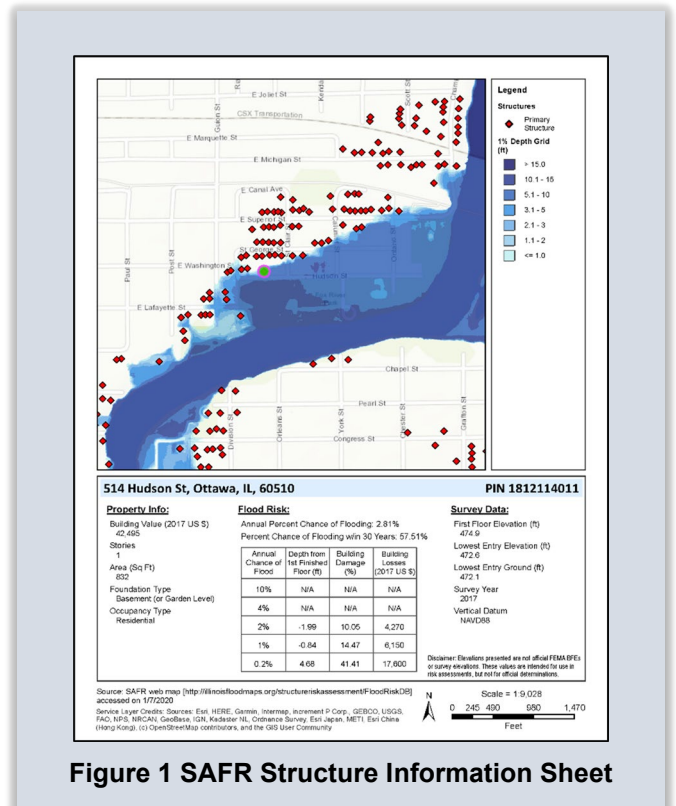


Figure 1 SAFR Structure Information Sheet

- In 2018 IDNR/OWR coordinated with the Center for Neighborhood Technology (CNT) on SB1337 sponsored by Senator Resin (previously Steans SB1507) and HB2756

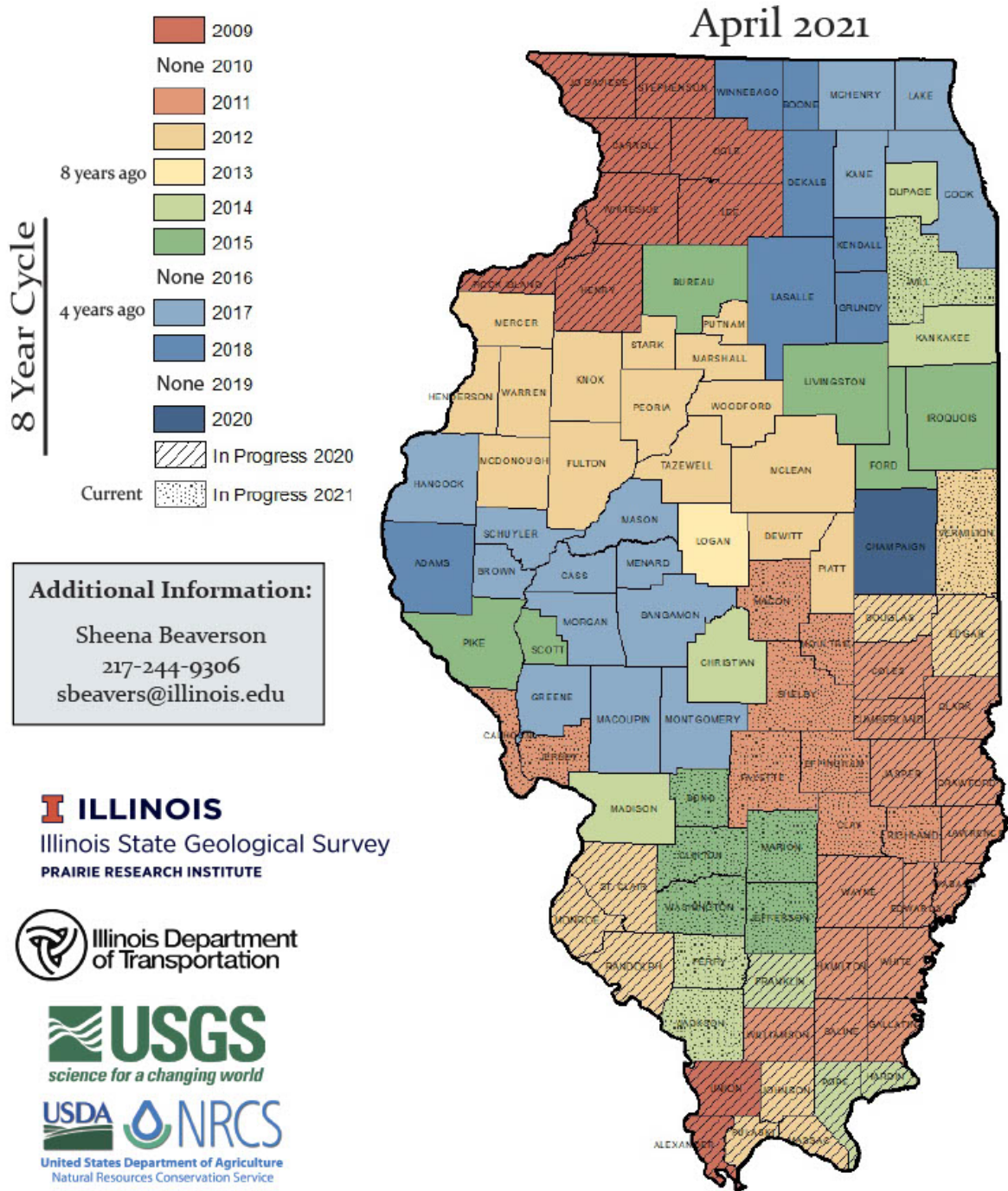
(Representative Cassidy and Fortner sponsors) concerning county stormwater authority statewide. A bill expanding the authority to counties with population centers exceeding 50,000 passed on August 10, 2018.

- The Illinois State Water Survey has completed topographic wetness index analyses for each county under a grant funded by the Natural Resource Conservation Service. These are available in an interactive viewer and as shapefiles at the ISWS web page <http://illinoisfloodmaps.org/twi.aspx>. Topographic wetness indices can be used for the identification of areas likely prone to urban flooding. This would afford communities the ability to identify areas requiring special consideration for below-ground construction.
- IDNR/OWR encourages communities to join the Community Rating System (CRS): Illinois now has 70 communities in CRS with an average rating of Class 6. Nearly 50 percent of all flood insurance policies in Illinois are discounted due to proactive floodplain management programs. Ottawa, Illinois reached a Class 2 rating in 2018.
- Community Adoption of Floodplain Ordinances. In addition to annual performance commitments agreed upon between FEMA and the IDNR/OWR through the CAP/SSSE program, there are several specifically required metrics which all states must meet. One of these national metrics is that 93% of participating communities that receive new floodplain maps must update ordinances and adopt the new maps. Illinois remains one of the few states (perhaps the only state?) in the nation to maintain a 100% community adoption rate. Illinois not only meets this FEMA metric every year but typically exceeds the metric through new communities joining the NFIP.
- Illinois, Rock, Pecatonica, and Mississippi River Flooding (March April 2019). OWR contacted 12 communities and determined that despite major flood stages, damages were found to be minimal due to previous mitigation projects and strict enforcement of floodplain regulations.
- Illinois had a Federal Disaster Declaration following flooding during the fall of 2019 IDNR contacted over 50 communities and assisted with or reviewed damage assessments of over 500 buildings.
- Completion of Statewide LiDAR Data Acquisition – LiDAR is available for all Illinois Counties as shown in Figure 1. New data acquisitions have been prioritized for counties that have older LiDAR with lower quality levels. Quality assurance checks are conducted for all collections by Illinois State Geological Survey staff. (Please see the appendix for additional information and figures.)
 - The Illinois Height Modernization Program (ILHMP) at the Illinois State Geological Survey has established data-sharing agreements to archive and distribute elevation data. Data are offered as originally delivered LAS tiles or as the derivative products of DEM/DTM or DSM.

Access LiDAR data and information at:

<https://clearinghouse.isgs.illinois.edu/data/elevation/illinois-height-modernization-ilhmp-lidar-data>

Illinois LiDAR Acquisition By Year



For Access to LiDAR Data, Please Google:
Illinois Height Modernization (ILHMP): LiDAR Data

Figure 2 LiDAR Status in Illinois

Completed and Ongoing CTP Projects

ISWS staff perform the full spectrum of activities funded under CTP grants. ISWS works collaboratively with the IDNR/OWR and with other agencies such as the USACE to perform project work. Below is a list of the tasks performed by ISWS and IDNR/OWR.

CTP Risk MAP Activities and Level of Involvement (ISWS unless otherwise noted)

- Planning (IDNR/OWR and ISWS)
- Discovery
- Deployment and Mitigation Action
- Hydrology and hydraulics (IDNR/OWR and ISWS)
- Floodplain mapping and Flood Insurance Study writing
- DFIRM database development
- Community Flood Risk Review Meetings
- Resilience Meetings
- Flood Risk Products (Changes Since Last FIRM; Depth and Analysis Grids; Hazus)
- Preliminary Map Products (FIRM, FIS, database)
- Public Open House and Community Officials Meeting
- Manage Comments and Appeals
- Ordinance Adoption - IDNR/OWR
- Effective DFIRMs – Revalidation Letters
- LOMR delegation (MT-2 application review)

CTP Program Management (IDNR/OWR unless otherwise noted)

- Global Program Management Activities
- Outreach for Mapping
- Training to State and Local Officials
- Flood Hazard Risk Assessments (IDNR/OWR and ISWS)
- Mitigation Planning Technical Assistance
- Staffing
- Technical Pilot Projects
- Mentoring
- Minimal Map Printing
- CNMS (IDNR/OWR and ISWS)

Risk MAP Projects

ISWS/CHAMP has conducted Discovery in twelve HUC8 watersheds since 2010 under various Mapping Activity Statements. There are four counties, Champaign, DuPage, Peoria, and Tazewell, which did not have effective FIRMs at the initiation of the Risk MAP program and were considered “conversion counties” as certain Risk MAP activities were performed.

IDNR/OWR participates in Discovery meetings as the State NFIP coordinator to evaluate future study and hazard mapping needs. The IDNR/OWR participation in Risk MAP activities is described in their annual Project Management Statement of Work.

<https://www.illinoisfloodmaps.org/>. shows the counties where digital FIRMs are effective or data products have been funded through FFY2020. ISWS/CHAMP has successfully completed FEMA MAS/SOW tasks funded in FFY2008, FFY2009, FFY2010, FFY2011, FFY2012, FFY2013, FFY2014 and FFY2016. The University of Illinois provides account management support, and all

periodic audits have passed without any negative findings. Current work funded under FFY2015, FFY2017, FFY2018, FFY2019, and FFY2020 is listed in Table 1.

Table 1. Summary of Current ISWS CTP Projects

MAS Number	MIP Case Number	Project Name	Comments
IDNR/OWR 2019-01	NA	Program Management	In progress
ISWS15-01	NA	Program Management	In progress
IDNR-ISWS 15-01	13-05-2653S	Upper Fox HUC8, Nippersink Creek Hydrology, and Hydraulics	Hydrology for Nippersink watershed, a hydraulic model for downstream 10.8 miles. In progress.
ISWS 17-01	NA	Program Management	In progress
ISWS 17-03	16-05-2969S	Little Wabash Watershed - Data Development to Preliminary	Conduct field survey, develop hydrologic and hydraulic models for streams in the Little Wabash HUC8. Prepare countywide preliminary DFIRMs for Effingham and Clay Counties. Scope change to add non-regulatory products and extend work into White County with no cost extension approved. In progress.
ISWS 17-05	16-05-3000S	Winnebago County - Data Development to KDP2 - Turtle Creek	Initially, work was to incorporate community comments from Flood Risk Review Meeting and submit to Key Decision Point (KDP) 2. The community submitted an entirely new model and a path forward identified for FFY2020 funding. Scope Change requested to close out FFY2017 tasks.
ISWS 17-06	18-05-0008S	Lower Rock Watershed - Data Development to KDP2 (select Zone A in Rock Island, Whiteside, and Henry Counties)	Prepare hydrologic and hydraulic models for Zone A mapping on panels affected by updated main stem Rock River study. In progress
ISWS 17-08	18-05-0009S	Lower Wabash Watershed - LAMP - Mt. Carmel Levee	Outreach meetings are nearly complete. Draft LAMP Report is complete.
ISWS 17-09	18-05-0008S	Lower Rock Watershed - LAMP (Penney's Slough, Zuma-Canoe, Rock Creek levees)	Contact levee owners to ensure all LAMP protocols are met. In progress
ISWS 18-01	NA	Project Management	In progress
ISWS 18-02	11-05-0090S	Lake County PMR Technical Support - BC GFT DD MC	In progress
ISWS 18-03	15-05-3958S / 14-05-4560S	Middle Wabash Busseron HUC-8 & Lower Wabash HUC-8 Data Development	Prepare hydrologic and hydraulic studies for streams in the Middle and Lower Wabash HUC8, coordinating work with Indiana DNR. In progress.
ISWS 18-04	12-05-1529S / 12-05-1585S	Peoria County Data Development & Community Engagement	Prepare hydrologic and hydraulic studies for streams in Peoria County where the effective study does not meet New Validated Unverified Engineering (NVUE) standards. In progress.

MAS Number	MIP Case Number	Project Name	Comments
ISWS 18-05	19-05-0002S / 12-05-1348S / 12-05-1356S	Alexander County Data Development & PMR/ Pulaski County Data Development	Prepare models to assess complex drainage patterns and prepare updated floodplain mapping. On hold for levee related issues.
ISWS 19-01	N/A	Project Management	In progress
ISWS 19-02	20-05-0022S	Richland Data Dev - QR1	In progress
ISWS 19-03	20-05-0021S	Stark Data Dev - QR1	In progress
ISWS 19-04	20-05-0020S	McDonough Data Dev - QR1	In progress
ISWS 19-05	20-05-0019S	Macoupin Data Dev - QR1	In progress
<i>ISWS 19-06</i>		<i>DROPPED - not used</i>	
ISWS 19-07	20-05-0018S	Bond Data Dev - QR1	In progress
ISWS 19-08	20-05-0017S	White Data Dev - QR1	In progress
ISWS 19-09	13-05-2653S	Nippersink Data Dev - QR3	In progress
ISWS 19-10	13-05-2653S	Spring-Poplar PMR - QR3	In progress
ISWS 19-LOMR		ISWS- LOMR Review Partners	In progress
ISWS 20-01	N/A	Project Management	In progress
ISWS 20-02	16-05-2969S	Clay Countywide DFIRM	In progress
ISWS 20-03	16-05-2969S	Effingham Countywide DFIRM	In progress
ISWS 20-04	16-05-2865S	Cook County PMR, Kane County PMR	In progress
ISWS 20-05	18-05-0008S	Lower Rock River HUC8 continued engagement	In progress
ISWS 20-06	16-05-3000S	Turtle Creek Data Dev	In progress
ISWS 20-07	21-05-0002S	Bureau County Data Dev	In progress
ISWS 20-08	21-05-0003S	Johnson County Data Dev	In progress
ISWS 20-09	21-05-0004S	Massac County Data Dev	In progress
ISWS 20-10	21-05-0005S	Pope County Data Dev	In progress
ISWS 20-11	21-05-0006S	Wayne County (Skillet HUC) Data Dev	In progress
ISWS 20-12	18-05-0007S	Kishwaukee HUC8 Data Dev	In progress
ISWS 20-13	12-05-1529S	Peoria County Continued Data Dev	In progress

Section 2: Project Planning

Illinois' long-term goals for flood hazard identification align with FEMA Risk MAP goals, including replacing all paper FIRMs with digital products, addressing high priority study needs, developing watershed-based hydrology and hydraulics, and building greater resiliency. Illinois projects by study type: Paper Inventory Reduction (PIR), unverified streams (CNMS) study needs, and Discovery for watershed-scale hydrologic and hydraulic data development are discussed and prioritized within each study type. On the basis of Illinois priorities, the five-year plan was updated considering a combination of the factors listed below. The overall five-year plan, detailed by project type, location, task range, and funding year, is found at the end of Section 2 in Table 7Table 7.

- Paper inventory reduction of unmodernized counties
- Optimize investment by leveraging best available data (e.g., IDNR/OWR Wabash River study, and recent LiDAR development)
- CNMS unverified studies
- Areas with engaged community partners with data development requests to assess risk
- CTP ability to balance ongoing projects and complete new projects in a timely manner
- Advance stated FY20 priorities for Region V and FEMA HQ, and help attain metrics

Paper Inventory Reduction / Completion of Statewide Digital Mapping

<https://www.illinoisfloodmaps.org/> illustrates the 7 counties that have not been funded for digital FIRM production and remain without improved flood hazard mapping in a digital format. Table 2 lists the counties in order of Federal Funding Year for countywide DFIRM initiation. LiDAR is available for all counties with a minimum Quality Level of 3. See Appendix for more information about LiDAR status. Hydrologic and hydraulic analyses are underway in some of the counties as part of watershed-scale analyses, e.g., Edwards. Mapping updates should be coordinated with outreach to counties not currently participating in the National Flood Insurance Program or without current Hazard Mitigation Plans.

Table 2. Paper Inventory Reduction Prioritization

County Name	FIPS	Population 2010	Miles (CNMS)	Federal Funding Year
Hamilton	17065	8457	206.87	2021
Montgomery	17135	30104	196.63	2021
Jasper	17079	9698	152.19	2022
Edwards	17047	47765	182.11	2023
Fayette	17051	22140	312.47	2023
Shelby	17173	22363	189.69	2023
Washington	17189	14716	234.72	2023

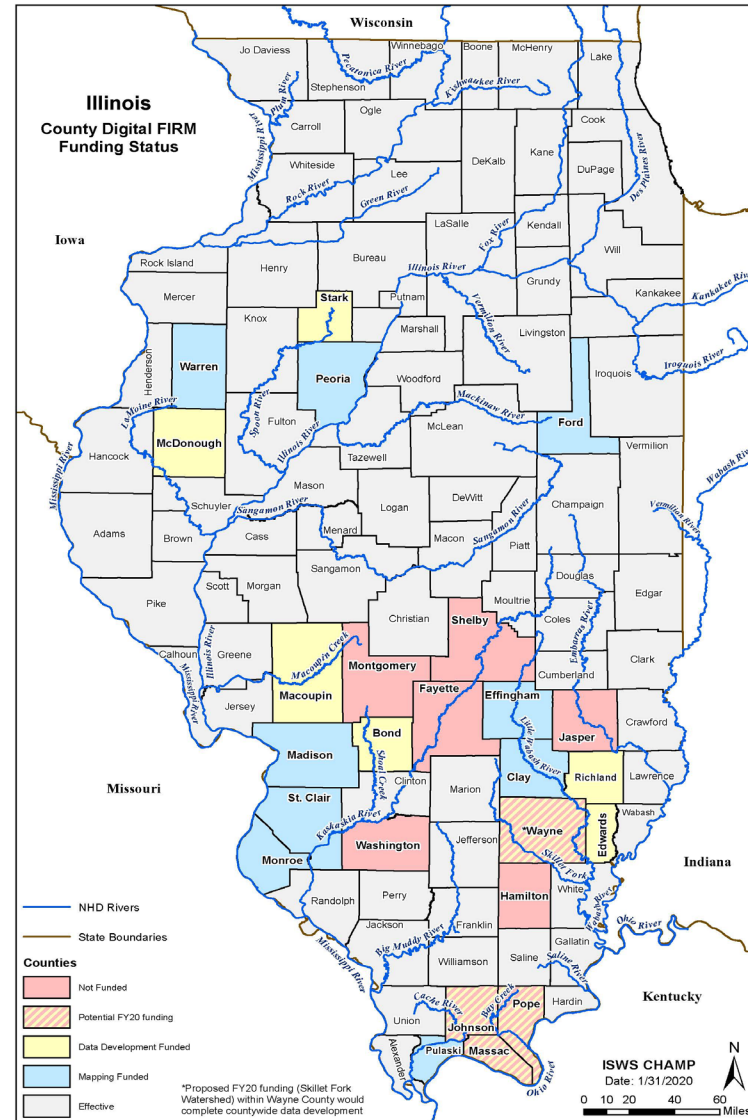


Figure 3 Digital FIRM Status

Coordinated Needs Management Strategy (CNMS)

The CNMS database is being used to determine future FEMA study and mapping needs throughout the state. CNMS Mapping Activity Statement No. IDNR10-01_ISWS10-12 was executed in September 2010 and resulted in the development of the CNMS database for all Illinois stream segments by ISWS and quality control evaluation of the database by IDNR/OWR. CNMS Mapping Activity Statement No. IDNR11-01_ISWS11-13 was executed in August 2011 and allowed to expire by FEMA on 9/30/14. That previous MAS resulted in updates to the CNMS database by ISWS with approval from IDNR/OWR. Each year FEMA's contractor completes an evaluation of expiring and remaining unknown miles. Currently, updates to the CNMS database by ISWS as part of project updates are reviewed and approved on an as-available basis by IDNR/OWR.

Summary of Coordinated Study Needs System Data

Table 3 lists summaries of stream miles classified under the New, Validated, or Updated Engineering (NVUE) standards that were accessed from the CNMS database maintained by the ISWS, which is current as of May 2020. The clear majority of streams in Illinois have only an approximate floodplain represented in the FIRM (Zone A). Regarding the validity of the engineering analyses, 5.7-percent of the mapped stream miles in Illinois are NVUE compliant. This does not include the stream miles in Illinois which have been identified as "unmapped" and yet a Special Flood Hazard zone should be shown. See *Identification of Unmapped Special Flood Hazard Areas in Illinois*, <http://illinoisfloodmaps.org/sfharisk.aspx> for unmapped Special Flood Hazard Areas (SFHA) draining more than 10 square miles in rural areas or 1 square mile in urban areas as of 2008. CNMS has a feature class called S_Unmapped_Ln (also known as Tier 0). Tier 0 is classified by FEMA as "Known to be flood-prone but not yet identified as SHFA on a regulatory FIRM." This feature class has been populated with reaches created by STARRII from the National Hydrology Dataset (NHD) and includes all unmapped/no SFHA areas that have more than one square mile of drainage based on the NHD flow accumulation grids. The definitions of the table fields are as follows:

Being Studied = Studies that are currently being studied or have been allocated funding for the current FY captured during the Discovery process

Being Assessed = Studies currently being assessed per CNMS stream reach level validation

NVUE Compliant = New study performed, or study passes stream reach level validation

To Be Assessed = Requires Regional input to either defer or perform a CNMS stream reach level validation

To Be Studied = Studies that need to be studied and are planned for a future FY

Tier 0 = Known to be flood-prone but not yet identified as SHFA on a regulatory FIRM

Table 3. CNMS Stream Miles Summary by HUC 8

HUC8	Name	Being Studied	Being Assessed	NVUE Compliant	To Be Assessed	To Be Studied	Tier 0 (> 1 sq. mile drainage and no SFHA)
4040001	Little Calumet-Galien	0	0	0	0	6.6	3.2
4040002	Pike-Root	13.1	4.2	6.1	0	13.6	5.4
5120108	Middle Wabash-Little Vermilion	0	0	0	0	43.5	90.5
5120109	Vermilion	44.8	14.7	77	0	273.3	547.1
5120111	Middle Wabash-Busseron	380.2	4.8	0	0	0	338.3
5120112	Embarras	38.6	26	44.2	0	772.3	938.9
5120113	Lower Wabash	355.8	0	0	0	0	202.3
5120114	Little Wabash	1174.9	0	2.5	0	13.9	784.2
5120115	Skillet	8.3	0	0	0	349.8	542.1
5140202	Highland-Pigeon	0	9.3	0	0	0	16.8
5140203	Lower Ohio-Bay	0	86.5	0	0	357.4	125.6
5140204	Saline	0	70.6	32.5	0	451.4	429.5
5140206	Lower Ohio	57.7	20.9	2.7	0	219.8	231.3
7060005	Apple-Plum	0	82.8	0	0	383.2	293.8
7080101	Copperas-Duck	17.4	94.8	4.9	0	74.3	262.3
7080104	Flint-Henderson	124.1	2.8	0	0	539.6	736.7
7090002	Middle Rock	1	3.6	0	0	0	0
7090003	Pecatonica	0	43.7	151.7	0	175.2	287.2
7090004	Sugar	0	23.1	10	0	11.1	17.3
7090005	Lower Rock	238.2	256.4	71.9	0	338.9	846.4
7090006	Kishwaukee	0.2	92.6	82.1	0	560	307.1
7090007	Green	38	13.3	0	0	330.1	435
7110001	Bear-Wyaconda	0	3	9.6	0	215.3	342.1
7110004	The Sny	0	346.1	47.8	0	146.4	495.8
7110009	Peruque-Piasa	72.5	48.8	1.8	0	63.6	92.6
7120001	Kankakee	0	12.4	115.6	0	397.8	195.7

HUC8	Name	Being Studied	Being Assessed	NVUE Compliant	To Be Assessed	To Be Studied	Tier 0 (> 1 sq. mile drainage and no SFHA)
7120002	Iroquois	3.3	30.2	0	0	305.8	740.9
7120003	Chicago	0	21.4	93.2	0	291	13.9
7120004	Des Plaines	29.8	128.4	280.6	0	953.3	49.4
7120005	Upper Illinois	0	24.2	44.1	0	350.6	524.7
7120006	Upper Fox	275	94.3	9.5	0	168.2	35.8
7120007	Lower Fox	3.1	88.6	63.2	0	442.8	366.5
7130001	Lower Illinois-Senachwine Lake	54.2	42.3	16	0	672.9	943.9
7130002	Vermilion	102.8	48.7	0.2	0	409.9	578.9
7130003	Lower Illinois-Lake Chautauqua	366.9	38.8	21	0	208.2	583.7
7130004	Mackinaw	2.8	8.8	11.3	0	470.1	403.2
7130005	Spoon	306.6	13.4	0	0	468.6	776.5
7130006	Upper Sangamon	19	20	56.1	0	471.6	515.8
7130007	South Fork Sangamon	7.4	14.2	0	0	449.6	442.2
7130008	Lower Sangamon	0	1.8	27.6	0	318.3	360.2
7130009	Salt	0	12.7	2.6	0	675.3	739.5
7130010	La Moine	250.1	0	0	0	370.6	538.5
7130011	Lower Illinois	15.5	106.3	79.2	0	669.5	1102.4
7130012	Macoupin	224.8	0	0	0	86.5	494
7140101	Cahokia-Joachim	322.4	173.7	111	0	90.2	190.8
7140105	Upper Mississippi-Cape Girardeau	0	136.2	0	0	238.1	154.2
7140106	Big Muddy	7.3	34.1	24.4	0	1124.7	855.4
7140108	Cache	104.1	31.9	18.3	0	152	68
7140201	Upper Kaskaskia	0	59	3.4	0	500.1	621.6
7140202	Middle Kaskaskia	84	30.4	0	0	722	682.8
7140203	Shoal	180.2	13.1	0	0	272.2	337.6

HUC8	Name	Being Studied	Being Assessed	NVUE Compliant	To Be Assessed	To Be Studied	Tier 0 (> 1 sq. mile drainage and no SFHA)
7140204	Lower Kaskaskia	507.8	76	0	0	558.2	370.6
Totals		5431.9	2508.9	1522.1	0	17177.4	21058.2
% of Total Miles		20.4%	9.4%	5.7%	0.0%	64.5%	
Total Miles:	26640.3						

Discovery for Identification of Watershed Hydrology and Hydraulic Study Needs

A list of Illinois HUC8 watersheds, in order of priority, is provided in Table 4. The selection of HUC8 watersheds for Discovery supports 1) identification of technical and mitigation needs and 2) information gathering for IDNR/OWR watershed planning, flood risk management, and mitigation objectives. Information gathered will be used to determine if further state action is warranted.

Table 4. Discovery HUC8 Ten Highest Priority

HUC Number	HUC Name	Priority
7140204	Lower Kaskaskia	1
7140202	Middle Kaskaskia	2
7140201	Upper Kaskaskia	3
7120005	Upper Illinois	4
7130001	Lower Illinois-Senachwine Lake	5
5120112	Embarras	6
7120001	Kankakee	7
7120002	Iroquois	8
7130008	Lower Sangamon	9
7130010	La Moine	10
7130012	Macoupin	TBD
5120115	Skillet	TBD
7130005	Spoon	TBD
7130007	South Fork Sangamon	TBD
5120109	Vermilion (Wabash)	TBD
7060005	Apple-Plum	TBD
7140106	Big Muddy	TBD
7080101	Copperas-Duck	TBD
7130002	Vermilion (Illinois)	TBD
7090003	Pecatonica	TBD
7110001	Bear-Wyaconda	TBD
7140101	Cahokia-Joachim	TBD
7080104	Flint-Henderson	TBD
7090007	Green	TBD
4040001	Little Calumet-Galien	TBD
7130011	Lower Illinois	TBD
7130003	Lower Illinois-Chautauqua	TBD
5140206	Lower Ohio	TBD

HUC Number	HUC Name	Priority
5140203	Lower Ohio-Bay	TBD
7130004	Mackinaw	TBD
7090002	Middle Rock	TBD
5120108	Middle Wabash-Little Vermilion	TBD
7110009	Peruque-Piasa	TBD
4040002	Pike Root	TBD
7130009	Salt	TBD
7140203	Shoal	TBD
7090004	Sugar	TBD
7110004	The Sny	TBD
7140105	Upper Mississippi-Cape Girardeau	TBD
7140108	Cache	Complete
7120003	Chicago	Complete
7120004	Des Plaines	Complete
5120114	Little Wabash	Complete
7120007	Lower Fox	Complete
5120113	Lower Wabash	Complete
5120111	Middle Wabash-Busseron	Complete
7090005	Lower Rock	Complete
5140204	Saline	Complete
7120006	Upper Fox	Complete
7130006	Upper Sangamon	Complete
7090006	Kishwaukee	Complete

Priority Streams for Hydrologic and Hydraulic Studies

This section addresses priority studies as identified through the watershed Discovery process. There are numerous hydrologic and hydraulic study needs throughout the state. Illinois' priority streams for hydrology and hydraulic study include the following.

Kishwaukee Watershed

Table 5 lists the streams in the Kishwaukee HUC8 watershed where updated hydrologic and hydraulic analyses are recommended as well as the desired resulting SHFA designation, Zone A or Zone AE. The NVUE impact of completing data development would be more than 600 miles. The development of hydrologic and hydraulic data in the watershed is expected to begin with FFY2020 funding. A phased approach is recommended with data development beginning in the lower part of the watershed and progressing upstream, see Figure 4. This progressive plan is included in the 5-year plan.

Phase 1 (FY20)

- Hydrologic analysis for entire main-stem Kishwaukee River.
- Survey main-stem Kishwaukee River structures and channel cross-sections within Winnebago County.
- Hydraulic analysis main-stem Kishwaukee River within Winnebago County (approx. 15 miles BLE-D).
- Survey scoped Zone AE tributary structures and channel cross-sections within HUC-10 watersheds contributing to Winnebago reach main-stem Kishwaukee River. (Kishwaukee River HUC10, Killbuck Creek HUC10, South Branch Kishwaukee River HUC10)

Phase 2 (FY21)

- Survey main-stem Kishwaukee River structures and channel cross-sections within Boone County.
- Hydraulic analysis main-stem Kishwaukee River within Boone County (approx. 17 miles BLE-D).
- Hydrologic analysis scoped tributaries within HUC-10 watersheds contributing to Winnebago reach main-stem Kishwaukee River. (Kishwaukee River HUC10, Killbuck Creek HUC10, South Branch Kishwaukee River HUC10)
- Hydraulic analysis scoped tributaries within HUC-10 watersheds contributing to Winnebago reach main-stem Kishwaukee River. (Kishwaukee River HUC10, Killbuck Creek HUC10, South Branch Kishwaukee River HUC10)
- Survey scoped Zone AE tributary structures and channel cross-sections within 3 HUC-10 watersheds contributing to Boone reach main-stem Kishwaukee River. (Beaver Creek HUC10, Piscasaw Creek HUC10, Coon Creek HUC10)

Phase 3 (FY22)

- No survey main-stem Kishwaukee River structures and channel cross-sections within McHenry County.

- Hydraulic analysis main-stem Kishwaukee River within McHenry County (BLE-C).
- Hydrologic analysis scoped tributaries within 3 HUC-10 watersheds contributing to Boone reach main-stem Kishwaukee River. (Beaver Creek HUC10, Piskasaw Creek HUC10, Coon Creek HUC10)
- Hydraulic analysis scoped tributaries within 3 HUC-10 watersheds contributing to Boone reach main-stem Kishwaukee River BLE-B and BLE-D). (Beaver Creek HUC10, Piskasaw Creek HUC10, Coon Creek HUC10)
- Survey scoped Zone AE tributary structures and channel cross-sections within the remaining HUC-10 watersheds contributing to Boone reach main-stem Kishwaukee River. (Rush Creek-Kishwaukee River HUC10, East Branch Kishwaukee River HUC10)

Phase 4 (FY23)

- Hydrologic analysis scoped tributaries within the remaining HUC-10 watersheds contributing to Boone reach main-stem Kishwaukee River. (Rush Creek-Kishwaukee River HUC10, East Branch Kishwaukee River HUC10)
- Hydraulic analysis scoped tributaries within the remaining HUC-10 watersheds contributing to Boone reach main-stem Kishwaukee River BLE-B, BLE-D). (Rush Creek-Kishwaukee River HUC10, East Branch Kishwaukee River HUC10)

Phase 5 (FY24)

- PMR Winnebago & Ogle

Phase 6 (FY25)

- PMR Boone

Phase 7 (FY26)

- PMR Dekalb & McHenry & Kane

Table 5. Kishwaukee Existing Unverified-CNMS Miles and Study Needs

HUC10	Name	<u>Zone A</u>	<u>Zone AE / FW</u>	<u>Zone AE / NO FW</u>
709000605	East Branch Kishwaukee River	72	11	0
709000607	Killbuck Creek	40	6	11
709000602	Rush Creek-Kishwaukee River	112	10	6
709000603	Piskasaw Creek	88	0	0
709000601	Coon Creek	76	0	0
709000608	Kishwaukee River HUC 10	17	7	2
709000606	South Branch Kishwaukee River	59	8	0
709000604	Beaver Creek	27	0	0

NA	Kishwaukee River (main stem)	27	33	0
TOTAL MILES		518	75	19

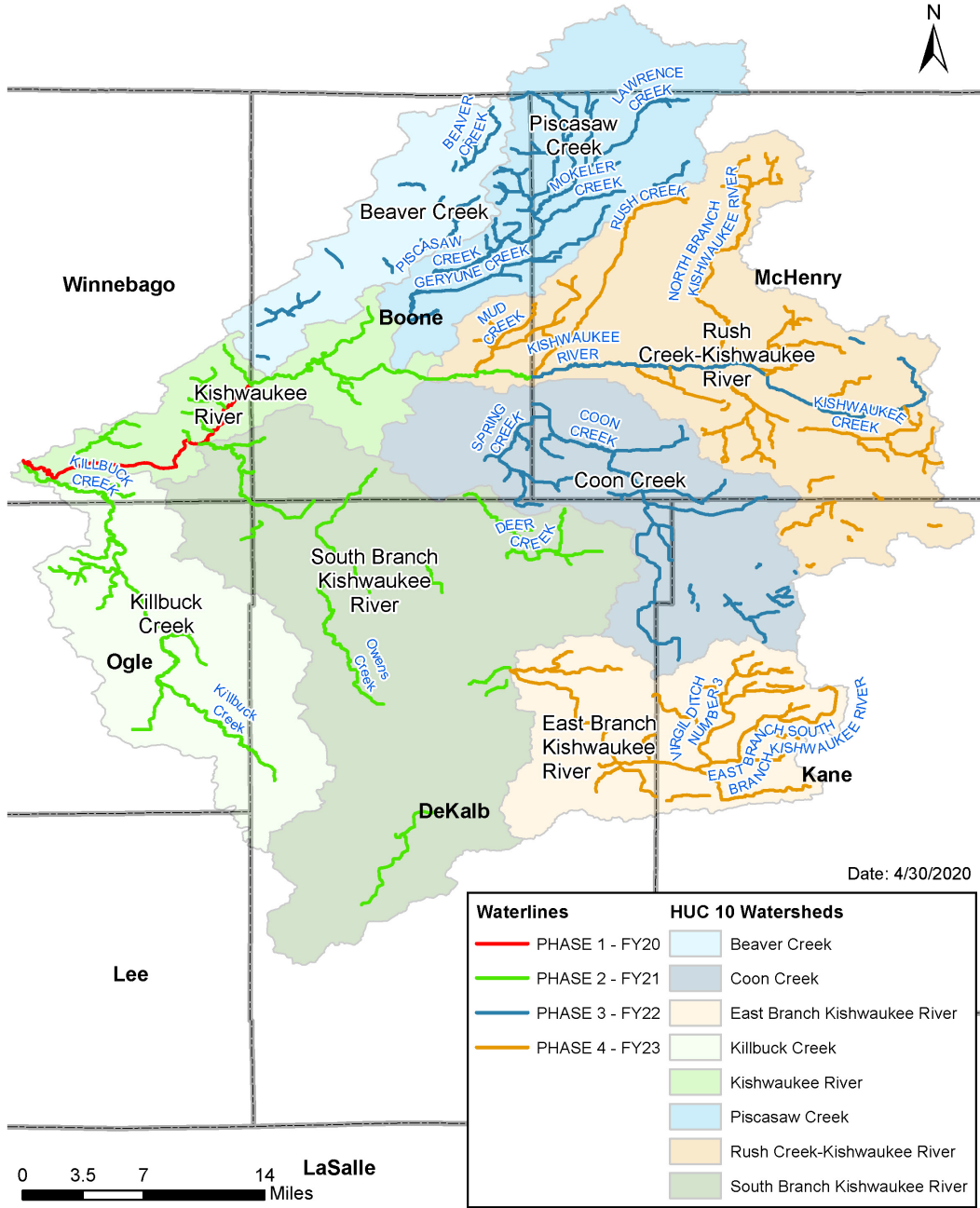


Figure 4 Kishwaukee Watershed Data Development Phasing Plan

Sangamon River - Upper Sangamon Watershed

Although not proposed for funding this year, the main stem of the Upper Sangamon River has been the subject of several FEMA initiated studies. Hydrology has been completed but due to the age of the study will require an update. An assessment of effective hydraulic models and available model data have been assembled in a draft working HEC-RAS model as of 2013. The level of study recommended, and the priority has been established but will need review before project initiation given the age of the assessment. The summary is provided in Table 6.

Table 6. Sangamon River Study Needs

Identification Number	Reach Description	Approx. River Mile from mouth (USGS, 1979)		Stream Center Line (Miles)	Effective Flood Hazard Zone ¹			Topography Acquired Date	Structure Data Availability			Comments	Suggested Next Steps ^{1,2,3}	Rank for Further Study by Apparent Community Interest and Data Availability
		downstream	upstream		Up stream	Reach	Down stream		Total Bridges	Bridge Plans	Bridge Models			
1	Sangamon Co. A	85.3	89.6	3.8	AE	A	AE(F)	2011 ⁴	1	1	0	First reach upstream of confluence with the South Branch of the Sangamon River, downstream of Clear Creek; South Fork Sangamon would be needed to include for detailed study; Discovery comments: some development pressure, new bridge at Oak Crest Road and study request.	Prepare model for Zone A from DEM when available.	6
2	Sangamon Co. AE	89.6	NA ²	6.7	A	AE	A	2011 ⁴	1	0	0	Zone AE is not model based, effects Clear Creek, mining, Discovery comment: some development pressure	Prepare model for AE (1% ACF only)	7
3	Sangamon / Christian A	NA	NA	14.2	AE(F)	A	AE	2011 ⁴	4	2	0	Discovery comment: minimal development pressure	Prepare model for Zone A from DEM when available.	10
4	Macon / Christian AE/ DS Lake Decatur dam	110.4	130.4	19.8	AE(F)	AE(F)	A	2010	10	7	8	PMR to follow Veolia ES Landfill Site CLOMR 08-05-4589R. Corrects Pre-FIRM fill placement omitted from effective study, results in +/- 6 mi revision within this reach, levee accreditation sought at Veolia and separately at Sanitary District of Decatur WWTP. Discovery comments: urban area, study requests to evaluate additional floodplain restrictions, unresolved discrepancy (1 ft. "reverse waterfall" between Decatur effective study and Macon County effective study at corporate limits).	Updated Zone AE(F) model; incorporate LOMR, some new survey needed.	1
5	Lake Decatur Dam to Piatt Co.	130.4	NA	18.2	A	AE(F)	AE(F)	2010	10	7	7	Draft model requires field survey verification of waterway openings; discrepancy between Decatur effective study and Macon County effective study (5 ft. "reverse waterfall") at corporate limits); Discovery comment: semi urban area.	Updated Zone AE(F); model; new survey needed.	3
6	Piatt Co A, Macon Co. - Monticello	148.8	NA	11.2	AE	A	AE(F)	2011	3	2	1	Discovery comments: minimal development pressure.	Prepare model for Zone A from DEM. Slope of 1 ft/mi in this reach, unsteady hydraulic analysis recommended for detailed study at a later time	11
7	Monticello AE	162.2 USGS gage at Monticello	NA	5.2	A	AE	A	2011	4	2	0	Zone AE is not model based, elevations extrapolated from gage data; effects Camp Creek and Goose Creek; Discovery comments: mining and development pressure in an urbanizing area.	Update effective study from AE to AE(F) model based.	8
8	Monticello, Piatt Co. to Mahomet, Champaign Co. A	NA	NA	16.5	AE(F)	A	AE	2011 / 2008	8	5	4	Discovery comments: 3 study requests, substantial development pressure in an urbanizing area, mining.	Prepare model for Zone AE (1% ACF only) if funding allows upgrade to AE(F).	5
9	Mahomet AE	185.7 USGS gage at Mahomet	NA	7.8	A	AE(F)	A	2008	7	7	7	Discovery comments: 3 study requests (2 on tributaries), substantial development pressure in an urbanizing area, floodplain encroachment, mining, further hydraulic model refinement recommended in mine area.	Update model for Zone AE(F).	4
10	Mahomet to Lake of the Woods	NA	187.6	7.0	A	A	AE(F)	2008	0	0	0	Discovery comments: 9 study requests (5 on tributaries), substantial development pressure in an urbanizing area, floodplain encroachment, Sangamon Valley Public Water District WWTP.	Prepare model for AE(F), new survey needed.	2
11	Lake of the Woods to McLean Co.	187.6	NA	26.0	A	A	A	2008	18	12	4	Discovery comments: little development pressure, with exception of Fisher, reach flows 0.1 mile in Ford Co.	Consider model for Zone A from DEM.	9
12	McLean Co.	219.9	237.3	17.2	A	A	A	2008	13	0	0	Discovery comment: little development pressure, with exception of Saybrook.	No action.	12

Notes:

¹AE(F) = Zone AE with Floodway

²Incorporate peak discharge values determined under Mapping Activity Statement (MAS) ISWS10-07

³ACF = Annual Chance Flood

⁴Anticipated Digital Elevation Model (DEM) availability January 2013

Priorities for Updating Digital Flood Insurance Rate Maps

LaSalle County

LaSalle County is a priority for updated mapping for a number of reasons, which include:

- The confluence of the Illinois River and the Fox River, which has an unverified effective study (discussed in "Priority Streams for Hydrologic and Hydraulic Studies FFY2018"), is in LaSalle County
- New high-resolution LiDAR is available for LaSalle County as of 2019
- Although in DFIRM format, the Zone A floodplains are not model backed
- Dayton Dam, which is a high-risk dam, is located in LaSalle County
- The City of Ottawa in LaSalle County is a focal point for the Illinois Valley Flood Resilience Alliance
- Discovery in Upper Illinois (HUC 7120005) and the Lower Illinois-Senachwine Lake (HUC 7130001) would support the update of LaSalle County FIRMs

Five Year Plan List of Priorities

The overall five-year plan, detailed by project type, location, task range, and funding year is provided below in Table 7. This table has been changed since the last business plan and reflects projected that may be funded in FFY2020. Adjustments to the plan are expected as projects progress. Principally the projects described in the five-year plan will be conducted by the ISWS and IDNR/OWR. However, two major USACE flood control reservoirs are located on the main stem of the Kaskaskia River. Updated information on flood elevations in this system will be needed from others to proceed with PIR projects in Shelby, Fayette, and Washington Counties.

Table 7. Proposed Five-Year Plan

Project Type	Location	Task Range	Funding Year	MAS No.
Data Development	Little Wabash HUC8 Watershed	H&H Data Dev thru KDP2	2017	ISWS 17-03
Data Development (for Paper Inventory Reduction)	Clay Co. to undated QR3	H&H Data Dev.to undated QR3	2017	ISWS 17-03
Data Development (for Paper Inventory Reduction)	Effingham Co. to undated QR3	H&H Data Dev.to undated QR3	2017	ISWS 17-03
Data Development	Lower Rock Watershed Select Zone A in Rock Island, Whiteside, and Henry Counties	H&H Data Dev thru KDP2	2017	ISWS 17-06
LAMP (Lite)	Lower Rock Watershed Rock Island, Whiteside, & Henry Counties Penney's Slough, Zuma-Canoe, Rock Creek Levees	Outreach thru Report	2017	ISWS 17-09
PMR Technical Support - BC GFT DD MC	Lake County	as needed	2018	ISWS 18-02
Data Development	Middle Wabash Busseron HUC-8s	H&H Data Dev thru KDP2	2018	ISWS 18-03
Data Development	Lower Wabash HUC-8s	H&H Data Dev thru KDP2	2018	ISWS 18-03
Data Development & Community Engagement	Peoria County	H&H Data Dev thru Undated QR3	2018	ISWS 18-04
Data Development	Alexander County	Data Dev thru KDP2	2018	ISWS 18-05
Data Development	Pulaski County	Data Dev thru KDP2	2018	ISWS 18-05
Countywide DFIRM & Post Prelimin Processing	Ford County	QR1 thru Effective	2018	ISWS 18-06
Countywide DFIRM & Post Prelimin Processing	Warren County	QR1 thru Effective	2018	ISWS 18-07
Data Development (for Paper Inventory Reduction)	Richland County	H&H Data Dev thru QR1	2019	ISWS 19-02

Project Type	Location	Task Range	Funding Year	MAS No.
Data Development (for Paper Inventory Reduction)	Stark County	H&H Data Dev thru QR1	2019	ISWS 19-03
Data Development (for Paper Inventory Reduction)	McDonough County	H&H Data Dev thru QR1	2019	ISWS 19-04
Data Development (for Paper Inventory Reduction)	Macoupin County	H&H Data Dev thru QR1	2019	ISWS 19-05
Data Development (for Paper Inventory Reduction)	Bond County	H&H Data Dev thru QR1	2019	ISWS 19-07
Data Development, HUC8 watershed completion	White County Little Wabash HUC-8 Little Wabash main stem and tributaries	H&H Data Dev thru QR1	2019	ISWS 19-08
Additional Data Development	McHenry County and Lake County Nippersink Creek	H&H Data Dev thru KDP2	2019	ISWS 19-09
Advance PMR	Cook and Kane County Poplar Creek Watershed	QR1 thru Undated QR3	2019	ISWS 19-10
Countywide DFIRM Continued & Post Prelimin Processing	Clay County Little Wabash HUC	Dated QR3 thru Effective	2020	ISWS20-02
Countywide DFIRM Continued & Post Prelimin Processing	Effingham County Little Wabash HUC	Dated QR3 thru Effective	2020	ISWS20-03
PMR & Post Prelimin Processing	Cook County Poplar Watershed & Spring Watershed and Kane Co. Poplar watershed	Dated QR3 thru Effective	2020	ISWS20-04
Continued Engagement	Lower Rock River HUC8	supports ISWS 17-06	2020	ISWS20-05
Additional Data Development	Winnebago Co. Turtle Creek	H&H Data Dev thru KDP2	2020	ISWS20-06
Data Development-already Modernized (for NVUE miles)	Bureau County	H&H Data Dev thru KDP2	2020	ISWS20-07
Data Development (for Paper Inventory Reduction)	Johnson County	H&H Data Dev thru KDP2	2020	ISWS20-08
Data Development (for Paper Inventory Reduction)	Massac County	H&H Data Dev thru KDP2	2020	ISWS20-09

Project Type	Location	Task Range	Funding Year	MAS No.
Data Development (for Paper Inventory Reduction)	Pope County	H&H Data Dev thru KDP2	2020	ISWS20-10
Data Development (for Paper Inventory Reduction)	Wayne County (Skillet WS portion)	H&H Data Dev thru KDP2	2020	ISWS20-11
Data Development - priority study areas	Kishwaukee HUC8 Data Development Phase 1 (Entire mainstem Hydro, Winnebago reach mainstem Survey & Hydra, Trib Survey for 3 HUC-10 WS)	H&H Data Dev	2020	ISWS20-12
H&H Data Dev and Floodplain Mapping (re-delineation)	Peoria County	supports ISWS 18-04	2020	ISWS20-13
Additional Data Development & FIRM Db	Rock Island County PMR Lower Rock HUC (Rock River mainstem, Meredosia Ditch, & select Zone A tributaries)	DD-QR1	2021	ISWS 21-02
Additional Data Development & FIRM Db	Whiteside County PMR Lower Rock HUC (Rock River mainstem, Meredosia Ditch, & select Zone A tributaries)	DD-QR1	2021	ISWS 21-03
Additional Data Development & FIRM Db	Henry County PMR Lower Rock HUC (Rock River mainstem, Meredosia Ditch, & select Zone A tributaries)	DD-QR1	2021	ISWS 21-04
Countywide DFIRM	Stark Countywide DFIRM	QR2 thru Effective	2021	ISWS 21-05
Data Development (for Paper Inventory Reduction)	Montgomery County	H&H Data Dev thru KDP2	2021	ISWS 21-06
Data Development (for Paper Inventory Reduction)	Hamilton County	H&H Data Dev thru KDP2	2021	ISWS 21-07
Additional Data Development & Engagement	Middle & Lower Wabash HUC-8s		2021	ISWS 21-08
Peoria Cont Engage	Peoria County		2021	ISWS 21-09
Bond Cont DD Engage	Bond County		2021	ISWS 21-10
COM SOW			2021	ISWS 21-11

Project Type	Location	Task Range	Funding Year	MAS No.
Data Development - priority study areas	Kishwaukee HUC-8 Phase 2 (Boone reach mainstem Survey & Hydra, H&H 1st group Tribs, plus Trib Survey for 3 more HUC-10 WS)	Continued H&H Data Dev	2021	ISWS 21-12
Data Development	Fox River Main stem Upper & Lower Hydrology	Gage Analyses	2022	
Data Development	Kaskaskia River Main Stem (Upper, Middle, Lower HUCs) H&H	Analyses by others	2022	
Discovery	Lower Kaskaskia	Discovery thru KDP1, No Automated engineering	2022	
Discovery	Middle Kaskaskia	Discovery thru KDP1, No Automated engineering	2022	
Discovery	Upper Kaskaskia	Discovery thru KDP1, No Automated engineering	2022	
Data Development (for Paper Inventory Reduction)	Jasper County	H&H Data Dev thru KDP2	2022	
COM SOW			2022	
Data Development	Kishwaukee HUC-8 Phase 3 (McHenry reach mainstem Hydra, H&H 2nd group Tribs, plus Trib Survey for 2 more HUC-10 WS)	Continued H&H Data Dev	2022	
Countywide DFIRM	Peoria County	Dated QR3 thru Effective	2022	
Countywide DFIRM	Bond County	QR2 thru Effective	2022	
PMR	McHenry County Nippersink	QR1 thru Effective	2022	
PMR	Lake County Nippersink	QR1 thru Effective	2022	
Countywide DFIRM	Richland County (Little Wabash, Lower Wabash, & portion Embarras HUCs)	QR2 thru Effective	2022	

Project Type	Location	Task Range	Funding Year	MAS No.
Countywide DFIRM	McDonough County	QR2 thru Effective	2022	
Countywide DFIRM	Macoupin County	QR2 thru Effective	2022	
Data Development	Fox River Main stem Upper & Lower Hydraulics	H&H Data Dev thru KDP2	2023	
Data Development	Kishwaukee HUC-8 Phase 4 (H&H 3rd group Tribs)	Continued H&H Data Dev	2023	
PMR	Edgar County PMR Middle Wabash HUC	QR1 thru Effective	2023	
PMR	Clark County PMR Middle Wabash HUC	QR1 thru Effective	2023	
PMR	Crawford County PMR Middle Wabash HUC	QR1 thru Effective	2023	
PMR	Lawrence County PMR (Middle Wabash & Lower Wabash HUC)	QR1 thru Effective	2023	
Data Development (for Paper Inventory Reduction)	Shelby County	H&H Data Dev thru KDP2	2023	
Data Development (for Paper Inventory Reduction)	Fayette County	H&H Data Dev thru KDP2	2023	
Data Development (for Paper Inventory Reduction)	Washington County	H&H Data Dev thru KDP2	2023	
Countywide DFIRM	Johnson County	QR1 thru Effective	2023	
Countywide DFIRM	Massac County	QR1 thru Effective	2023	
Countywide DFIRM	Pope County	QR1 thru Effective	2023	
Countywide DFIRM	Wayne County	QR1 thru Effective	2023	
Countywide DFIRM	Pulaski County	QR1 thru Effective	2023	

Project Type	Location	Task Range	Funding Year	MAS No.
Data Development	Upper & Lower Fox River Tributaries H&H	H&H Data Dev thru KDP2	2024	
Countywide DFIRM	Edwards County (Little Wabash & Lower Wabash HUC)	QR1 thru Effective	2024	
PMR	Wabash County (Mt Carmel LAMP & Lower Wabash HUC)	QR1 thru Effective	2024	
PMR	White County PMR (Little Wabash HUC & Lower Wabash HUC)	QR2 thru Effective	2024	
PMR	Gallatin County (Lower Wabash HUC)	QR1 thru Effective	2024	
Countywide DFIRM	Hamilton County	QR1 thru Effective	2024	
Countywide DFIRM	Montgomery County	QR1 thru Effective	2024	
PMR	Kishwaukee HUC8 PMR (Ogle County & Winnebago County)	QR1 thru Effective	2024	
Discovery	Lower Illinois-Senachwine Lake Watershed Counties in Watershed: Lee, Bureau, LaSalle, Putnam, Marshall, Woodford, Peoria, & Tazewell	Discovery thru KDP1, No Automated engineering	2024	
Discovery	Upper Illinois Watershed Counties in Watershed: Grundy, Kendall, Livingston, LaSalle, Will, & Kankakee	Discovery thru KDP1, No Automated engineering	2024	
PMR & Post Prelimin Processing	Kishwaukee HUC-8 PMR (Boone County)	QR1 thru Effective	2025	
Countywide DFIRM	Jasper County	QR1 thru Effective	2025	
PMRs	Upper & Lower Fox River HUC8	QR1 thru Effective	2025	
PMR & Post Prelimin Processing	Kishwaukee HUC-8 PMR (DeKalb County, Kane County, & McHenry County)	QR1 thru Effective	2026	
Countywide DFIRM	Shelby County	QR1 thru Effective	2026	

Project Type	Location	Task Range	Funding Year	MAS No.
Countywide DFIRM	Fayette County	QR1 thru Effective	2026	
Countywide DFIRM	Washington County	QR1 thru Effective	2026	

Programmatic Funding Requests

ISWS Programmatic Funding Requests

Program management funds are requested to maintain the illinoisfloodmaps.org website and for general program management. Program management responsibilities will remain consistent with previous years, as described in Section 1. Funding for this activity has been flat since 2008, remaining at \$50,000. CHAMP is becoming a greater partner with communities and is brought into regular conversations initiated by FEMA, IDNR/OWR, IEMA and communities to serve as an approachable technical liaison. An increase in funding level is requested in keeping with increasing involvement, collaborations on levee issues, and costs.

Mapping Study Repository

A single site repository is necessary to “house” all existing, updated, and new floodplain hydrologic, hydraulic, and floodway models in the State of Illinois. Such models that are the basis for flood insurance studies, regulatory mapping, and regulatory analysis purposes must be free and readily available to the public for use. The FEMA Map Library is the most logical repository for this information in Illinois. The State of Illinois has continued to press FEMA about this repository and the need to determine which models are already in the FEMA Library, which models are missing, and where the missing models are located (ISWS, IDNR, consultants, etc.).

IDNR/OWR Mapping Coordinator

Current FEMA CTP Program Management funding for IDNR/OWR is less than a third of the funding necessary to complete FEMA CTP Mapping and Mitigation activities. The IDNR/OWR Division of Resource Management Mapping Coordinator is needed to oversee mapping issues and work with FEMA and other state and local entities to assure continued improvements to flood hazard risk identification mapping in Illinois. IDNR/OWR General Revenue Personnel Services funds are not currently sufficient to fill this position.

Section 3: Staffing and Resources

IDNR/OWR Staffing and Resources

To help streamline program management, the IDNR/OWR has aligned its organization into two divisions, the Division of Resource Management and the Division of Capital Programs. The organization chart is shown in Figure 5.

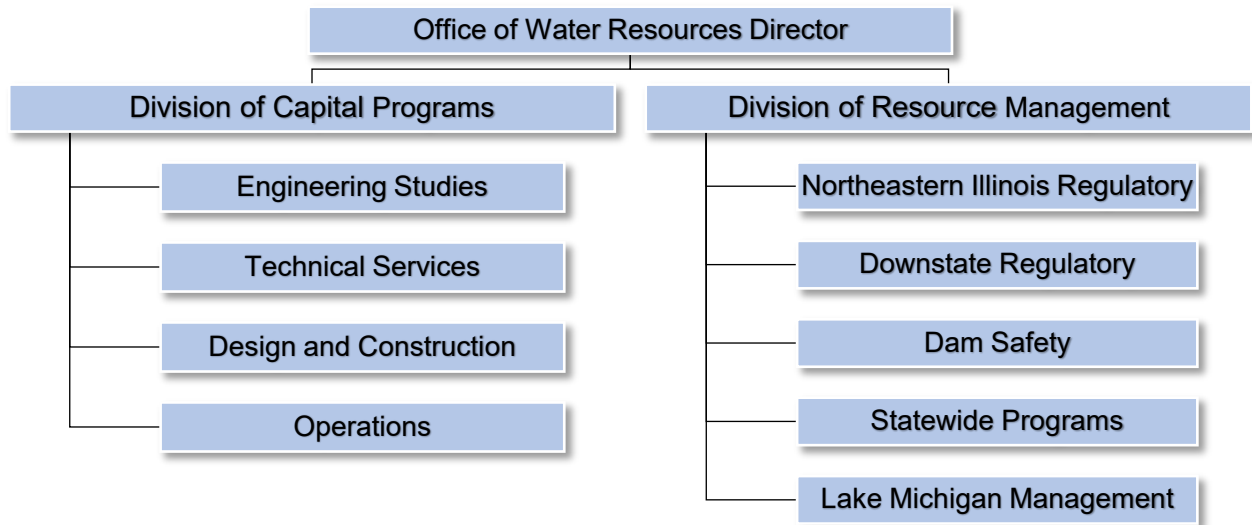


Figure 5 IDNR/OWR Organizational Chart

Division of Resource Management (Manager Steve Altman, P.E., CFM)

The Division of Resource Management is comprised of six sections including Northeastern Illinois Regulatory Section, Downstate Regulatory Section, Dam Safety Program, Statewide Programs, and Lake Michigan Management Program.

Northeastern Illinois Regulatory Section (Chief, William Boyd, P.E., CFM)

Staff

- 1 Section Chief (P.E., CFM)
- 3 Full-time Engineers (1 P.E., 2 Staff Engineers 2 CFM)
- 1 Part-time Engineer (CFM)
- 1 Engineer on non-work-related disability

Downstate Regulatory Section (Chief Bill Milner, P.E., CFM)

Staff

- Section Chief (P.E., CFM)
- 3 Engineers (3 EIT, 2 CFM)

Dam Safety Program (Chief Paul Mauer, P.E.)

Staff

- 1 Section Chief (P.E.)
- 2 Engineers (1 P.E.)

1 Part-time Engineer (P.E.)

Statewide Programs Section (Chief, Vacant)

Staff

2 Floodplain Managers (2 CFM, 1 P.E.)

1 Mapping and Studies Engineer (CFM, P.E.)

Lake Michigan Management Section (Chief, Jim Casey)

Staff

1 Section Chief

1 Unit Chief (1 P.E.)

1 Engineer

1 Part-time Administrative Assistant

Division of Capital Programs (Manager, Rick Pohlman, P.E.)

Staff

1 Publications Specialist

1 Administrative Assistant

Engineering Studies Section (Chief, Wes Cattoor, P.E., CFM)

Staff

1 Section Chief (P.E., CFM)

1 Dam Operations Engineer (P.E.)

1 Water Supply Engineer (Vacant) 1 Flood Surveillance Engineer (P.E.)

1 Civil Engineer II

1 Civil Engineer Trainee (Vacant)

Technical Services Section (Chief, Lee Woodward, PLS)

Staff

1 Land Surveyor (PLS)

1 GIS Analyst (Vacant)

3 Engineering Technicians (field)

Design and Construction Section (Chief, Ted Montrey P.E., S.E.)

Staff

1 Section Chief (P.E., S.E.)

1 Design Unit Chief Engineer (Vacant)

1 Construction Manager (P.E., S.E.)

1 Engineering Technician IV (Office)

1 Engineering Technician III (Office)

Michael Baker, Jr. (Consultants – contract thru 11-1-2021)

V3 Companies of Illinois (Consultants – contract thru 12-31-2021)

Hanson Professional Services (Consultants – contract thru 7-30-2021)

Operations Section (Chief, Jason Reddy P.E)

Staff

1 Section Chief (P.E.) (Vacant)	1 Lock Master
1 Waterway Construction Supervisor II (Vacant)	1 Assistant Lock Master
2 Waterway Construction Supervisor I	4 Lock and Dam Tenders

IDNR/OWR Mapping Coordinator

IDNR/OWR Division of Resource Management needs to establish the position of Mapping Coordinator to oversee mapping issues and work with FEMA and other state and local entities to assure continued improvements to flood hazard risk identification mapping in Illinois. IDNR/OWR General Revenue Personnel Services funds are not currently sufficient to fill this position. This position is noted in Section 2 as a staff funding request.

IDNR/OWR aims to hire a Mapping and Cooperative Technical Partner (CTP) coordinator in this section to:

- Manage floodplain and floodway mapping development, modification, and prioritization activities statewide to ensure such activities meet state flood risk mapping standards and properly convey flood risk where needed and appropriate.
- Coordinate all FEMA CTP program management and competitive grants and activities in cooperation with the ISWS.
- Assist with preparation of mapping products for the IDNR/OWR; and
- Carry out projects and priorities identified in the annual IDNR/OWR Business Plan.

IDNR/OWR Floodplain/Floodway Studies and Revisions Review Staff

IDNR/OWR takes seriously its role to review floodplain/floodway studies and revisions for compliance with state rules and policies in a timely manner and has developed and now maintains a database on the IDNR/OWR website of floodplain map revision and study review requests and review status for public information. Additional funding sources to support additional full-time staff in this program will improve the timeliness of necessary floodplain study and mapping reviews.

Staff

While the OWR is aggressively posting and hiring for vacant positions, staff levels for FY-2021-22 remain critically low due to attrition and retirements. The approved State of Illinois operations budget continues to limit the hiring of required new staff and necessary internal promotions. The OWR is working to staff additional engineering studies, engineering design, operations, floodplain management, dam safety, and mapping study review positions as rapidly as the state hiring process allows. Due to attrition and unfilled vacancies, existing onboard staffing levels are 32-percent lower (50 of 72 required) than staffing levels necessary to maintain the existing workload, and do not consider any necessary program expansions. Staff work assignments are often adjusted to service critical objectives of the Office.

IDNR/OWR intends to seek additional staff including:

- Civil Engineer 1 – Design and Construction
- Geographic Information Specialist Trainee – Technical Services
- Unit Chief – NFIP
- Waterway Construction Supervisor I
- Water Supply Engineer – Engineering Studies
- Civil Engineer Trainee – Engineering Studies
- Maintenance Equipment Operator - Operations
- Public Service Administrator – Design and Construction

Northeastern Illinois Regulatory Section

This section is responsible for enforcing higher floodplain management standards in the metropolitan Chicago counties of Cook, DuPage, Kane, Lake, McHenry, and Will. Its staff of six engineers and one administrative assistant reviews permit applications for construction in floodways of rivers and streams and activities in public bodies of water. It also assists with the administration of the Dam Safety Program. This section reviews on average approximately 180 permit applications annually. It conducts site visits of dams, other completed projects, and proposed construction sites. It takes enforcement action on unlawful activities in cooperation with local jurisdictions and assists with the coordination of the NFIP.

This section administers a program through which local governments are delegated authority to approve projects under the State's floodway construction rules. There are 59 communities within the six-county Chicago metro region (Part 3708 rules area) that have been delegated IDNR/OWR's regulatory authority, including DuPage and Lake Counties. These communities are authorized to complete their own review of proposed floodway construction activities and issue permits to applicants that comply with existing state and local standards (Part 3708 rules). The Northeastern Illinois Section is currently conducting audits of these delegated communities to ensure that all terms of the IDNR's delegation are being enforced properly prior to recertification of these communities by the Department.

The team of engineers that make up this section responds to numerous phone, email, and people who walk-in inquiries daily related to floodplain management and dam safety regulatory issues in Northeastern Illinois. Additionally, these engineers conduct community and professional outreach seminars several times each year to expand and improve the understanding of flood risk, sound floodplain management, and dam safety principles and regulations in the region.

Downstate Regulatory Section

This section is responsible for enforcing higher standards floodplain management in Illinois except for the six-county metropolitan area covered by the Northeastern Illinois Regulatory Section. Its staff reviews permit applications for construction in stream floodways (Part 3700 Administrative Rules), activities in and along public bodies of water (Part 3704 Administrative Rules), as well as identification and inspection of violations of the Part 3700 and 3704 Administrative Rules. It also assists with the coordination of the NFIP as necessary. This section reviews approximately 325 floodway and public bodies of water permit applications annually on average.

Regulations Updates

As staff resources allow, both the Northeastern Illinois and Downstate Regulatory sections are working to update the current Part 3700, 3704, and 3708 Administrative Rules.

The Regulatory Programs continue to take actions against an ever-growing number of violations across the state up to and including legal actions by the State Attorney General.

The Regulatory Programs are also developing a means to identify statewide mapping needs based on the magnitude, frequency, and extent of permitted floodway activities.

Dam Safety Program

Dam Safety Program activities include:

- Maintaining an inventory of all Class I (high hazard), Class II (medium hazard) and Class III (low hazard) dams in the state
- Monitoring all dam safety inspections, emergency action plans (EAPs) and operation and maintenance manuals in the state
- Conducting dam site inspections.
- Developing and/or reviewing EAPs for Class I and Class II dams to ensure compliance with Illinois Emergency Management Act and Dam Safety Program requirements.

Statewide Programs

The Statewide Programs section is responsible for floodplain compliance, community outreach, NFIP coordination, flood hazard mitigation, and floodplain mapping study reviews.

Assessment of Conveyance Floodway Mapping Community Compliance

Part 3708 Administrative Rules provide for Conveyance Floodway (90-percent floodplain storage not preserved in the designated floodway) delineation mapping in the six-county Chicago Metro area. Communities must enter into a Memorandum of Understanding agreeing to regulate and preserve all floodplain storage within a designated stream reach. The Statewide Programs Section is conducting a floodplain storage audit of these specially-mapped communities in the six-county Chicago Metro area to assess compliance with the storage preservation requirements established in accordance with the terms of the existing IDNR agreements with these communities. Failure to comply with the terms of the Conveyance Only Floodway Agreement results in the limited floodway maps being rescinded and replaced with either previous storage floodway mapping or considering the entire floodplain floodway for regulatory purposes. The Section has completed (2020)the Map Revision and New Studies guidelines manual.

Community Outreach and Compliance

From June 2020 to May 2021, the Statewide Programs Section conducted the following activities:

- Workshops and training: Due to Covid restrictions, in person training was restricted. Virtual training seminars have been held with realtor associations, building official and surveyors. Presentations were made at the annual conferences for the Illinois Association for

Floodplain and Stormwater Management and the Illinois Professional Land Surveyors Association.

- Community assessment visits and compliance visits: While communities in Illinois continue to be audited for floodplain compliance, the emphasis this year was on gaining compliance with past audits. The section has worked with over 30 communities on the resolution of past violations, closing 16 audits.
- Community Outreach – the program continued outreach efforts by adding a quarterly newsletter, The Flood Record. The newsletter is available on the Office of Water Resources webpage and is sent to the nearly 900 communities across the state that participate in the National Flood Insurance Program.
- General technical assistance to local communities and citizens: As of April 2021, nearly 300 technical assistance contacts were provided by the Statewide Programs Section.
- Coordination meetings with other agencies: Over 40 coordination or mapping meetings were attended with other agencies such as the U.S. Army Corps of Engineers, IEMA, FEMA, etc.
- Community Rating System (CRS): As of October 2020, Illinois has 73 communities in CRS providing their residents a discount on their flood insurance policies. With an average rating of Class 6, the average flood insurance premium discount is 20%.

Flood Hazard Mitigation Program

Through the Flood Hazard Mitigation Program, repetitively flood-damaged structures are purchased and removed. This program is used as a global match, allowing communities to take advantage of matching FEMA mitigation programs. In addition:

- The IDNR/OWR Flood Hazard Mitigation program is focused on assisting Illinois communities to implement flood damage reduction projects and creating open space. IDNR can purchase real property (mobile homes are excluded).
- The program operates independent of, or provides cost-share assistance with, other state or federal mitigation programs.
- Projects are selected based on the overall benefit to the State of Illinois.
- The program operates as an IDNR/OWR reimbursement program, not a grant program. The community must pay all expenses and request reimbursement from IDNR/OWR for the expenses related directly to the project.

Currently, IDNR/OWR has over \$250 million in mitigation project requests. Several other communities have requested participation in the program and the IDNR/OWR will be entering the discussion with those communities to potentially initiate other new flood hazard mitigation projects.

Table 8 provides the projects completed between 2018 and 2020.

Table 9 lists completed and ongoing projects for 2019, 2020, and 2021.

Table 10 lists buyout needs identified through the Discovery process. Additional projects may also be considered based on mitigation acquisition projects identified in existing countywide Hazard Mitigation Plans

Table 8. IDNR/OWR FY18 Completed Mitigation Projects

Project Location	IDNR/OWR Funding	Structures
Alexander County	\$5,000,000	113
Pearl City	\$2,145,000	23
Des Plaines	\$1,925,000	12
DuPage County	\$277,500	1
McHenry County (FY19)	\$317,680	3
Total	\$9,665,180	152

Table 9. IDNR/OWR FY19, FY20, and FY21 Completed and Ongoing Mitigation Projects

Project Location	IDNR/OWR Funding	Structures	Status
Albany	\$92,673	1	Complete
Calhoun County	\$440,611	9	
Carbondale	\$2,000,000	1	Complete
Crystal Lake	\$1,268,803	5	
Des Plaines	\$1,500,000	12	
Fisher	\$122,500	1	Complete
Freeport	\$989,350	16	Complete
Hardin	\$1,762,900	5	
Hamburg	\$476,572	7	
Kampsville	\$771,000	11	
Kampsville Inn	\$65,000	1	Complete
Kankakee County	\$507,289	5	
Lake County (FY19)	\$3,503,373	13	
Lake County (FY20)	\$1,732,968	7	
McHenry County (FY20)	\$1,744,049	8	
Machesney Park (FY19)	\$443,004	3	
Machesney Park (FY21)	\$458,600	4	
Mason County	\$364,744	10	Complete
Mt. Vernon	\$833,929	16	
Oquawka	\$382,410	2	
Rock Island County	\$1,543,140	15	
Rockford	1,581,650	2	
Swansea	\$547,500	4	Complete
Watseka	\$5,357,029	65	
Wood Dale	\$1,118,000	5	
Total	\$28,793,559	232	

Table 10. Community Buyout Needs Identified through Discovery

Watershed	County	Community	Approximate Number
Des Plaines	Cook	Maine Township	60
Des Plaines	Cook	Wheeling Township	*
Des Plaines	Cook	Franklin Park, Village of	33
Des Plaines	Cook	Mount Prospect, Village of	*
Des Plaines	Cook	Maywood, Village of \ Melrose Park, Village of	60
Des Plaines	DuPage	Addison, Village of	14, 3 (2 areas)
Des Plaines	DuPage	Carol Stream, Village of	4
Des Plaines	DuPage	Wood Dale, City of	9
Des Plaines	Will	Joliet, City of	*
Chicago	Cook	Glenview, Village of	*
Rock	Winnebago	Machesney Park, Village of	31+ (in progress)
Lower Fox	LaSalle	Ottawa, City of	4 (numerous completed)
Lower Fox	Kane	Kane County	3 (completed)
Lower Fox	Kane	South Elgin, Village of	2
Upper Fox	Lake	Lake County, Pistakee Lake	*
Upper Fox	Lake	Lake County, Slocum Lake	*
Upper Fox	Lake/McHenry	Fox Lake, Village of	*
Upper Fox	Lake/McHenry	Port Barrington, Village of	3
Upper Fox	McHenry	Cary, Village of	4
Upper Fox	McHenry	Crystal Lake, City of	3
Upper Fox	McHenry	Lakemoor, Village of	1
Upper Sangamon	Macon	Decatur, City of	6
Upper Sangamon	Macon	Macon County	5
Upper Sangamon	Piatt	Monticello, City of	*
Upper Sangamon	Sangamon	Sangamon County	*
Saline	Saline	Harrisburg, City of	5
Middle Wabash Busseron	Crawford	Hutsonville, City of	2

*Specific need to be determined

Floodplain Mapping Study Reviews

Activities include:

- Reviews and approves new and revised hydrologic watershed and hydraulic floodplain studies that will be incorporated into or used to revise FEMA regulatory mapping, which often includes stream discharges used for regulatory programs.

- State review of applications for Letters of Map Amendment and Revision, which impact floodways.
- Assists regional or local floodplain management programs and individual property owners.
- Maintains a summary table on the IDNR/OWR website to track the status of current study review requests, map revision requests, and discharge certification requests.
- In summary, this section's June 2020-May 2021 activities included:
 - 17 watershed studies reviewed and approved
 - 7 watershed studies reviewed, revisions required
 - 26 Letters of Map Amendment reviewed
 - Four miscellaneous inquiries requiring significant follow-up
 -

Lake Michigan Management Section

This section is responsible for enforcing the Department's Part 3704 Rules, which regulate construction in the Public Bodies of Water of Illinois, in Lake Michigan and a portion of the Chicago Area Water System and for regulating the allocation of water from Lake Michigan in accordance with the Department's Part 3730 Rules. Staff in this section work closely with the Illinois Coastal Management Program and other state and federal agencies associated with Lake Michigan. IDNR has acquired a consultant to determine the re-allocation of Lake Michigan water. The re-allocation should be complete in 2021.

Engineering Studies Section

- Develop Statewide Water Sustainability Assessment to support statewide water demand and water supply.
-
- Flood Surveillance and coordination with IEMA
- Fox River Chain of Lakes operations study, unsteady hydrologic and hydraulic modeling study initiated
- Management of Federal Reservoir Water Use Contracts
- Management of Regional Water Supply Planning
- Update the State Water Plan to provide policy and program guidance in water resources management to state and local agencies.
-

Technical Services Section

Activities related to flooding and flood risk include:

- As-built and construction staking surveys for Fox River Stratton Lock and Dam Expansion Project
- As-built and construction staking surveys for Len Small levee breach in Alexander County
- Bathymetric surveys of water supply lakes and State-managed recreational impoundments
- Coordination of GIS data and activities with other entities inside IDNR and other outside agencies

- Creation of project-specific LiDAR derivative products (contours, hillshade relief)
- Data collection for state-owned dams in need of repairs (Sinnissippi)
- Development and maintenance of web-based interfaces for LiDAR data
- Development of geodatabases for OWR project and activity locations
- Development of GIS mobile data collection applications
- Development of Rock River Real-Time Flood Inundation mapping web application
- Extraction and formatting of geospatial data for use by CAD software
- GIS project support and data management
- LiDAR data management
- River flood inundation mapping
- Survey of first floor elevations of structures located in floodplains in Illinois and Mississippi River communities
- Surveys of bridge structures, channel cross-sections and floodplain sections in the Little Wabash River watershed
- Wetlands and ordinary high-water marks for dam removal projects, etc.

Capital Appropriations

Capital Appropriations is a unique program that has augmented how FEMA programs work in Illinois. IDNR/OWR requested Re-Appropriations for the fiscal year 2021 shown in Table 10 include funding for flood control and flood hazard mitigation projects.

The governor judiciously controls the release of these funds for expenditures. Accordingly, limited funding is provided to the IDNR/OWR as state finances and approved bond sales allow based on prioritized funding requests from the IDNR/OWR.

Table 8. FY22 (estimated) OWR Requested Re-Appropriations

Project Category	Cost of Projects
Flood Control	\$21,400,000
Flood Hazard Mitigation Program	\$10,000,000
Dam Removal and Improvements to Waterways	\$19,842,000
Total	\$51,242,000

Existing and anticipated IDNR/OWR capital projects include the following:

Dam Removal and Improvements to Waterways

- Carpentersville/Fabyan causeway
- Chick Evans Dam removal and new pedestrian bridge
- Crissenberry Dam Plunge Pool and spillway repairs
- Dam 4 removal by OWR
- Develop and implement a Fox River Watershed System and Stratton Dam Operation outreach strategy
- Fox River - Stratton Lock and Dam life extension construction
- Fox River - Yorkville by-pass channel repairs
- Hadley Valley Spring Creek restoration
- Kankakee River - Wilmington
-
- McHenry Dam Downstream Bank Stabilization
- Brandon Road Interbasin Project
- Maintain state owned dam infrastructure and associated pools for mandated navigation, recreation, water supply, and power generation purposes.
- Maintain state owned dam infrastructure and associated pools for mandated navigation, recreation, water supply, and power generation purposes.
- North Aurora Dam Removal Design
- Pilcher Park Dam removal
- Repairs to State Facilities
- Sangamon River dam removals
- Sinnissippi Dam Rehabilitation
- Statewide construction management
- Tam O Shanter Dam Removal
- Touhy Dam removal by OWR
- Trinski's Island
- Vermilion River - Oglesby Dam removal
-

Flood Control

- East Dubuque Flood Control Project
- Edgar Lake Pump Station Repairs
- Spring and Hickory Creek Channel Improvements
- Town Branch Jacksonville
- Village of Kingston
- Levee 37 Pump Station (Mt. Prospect)
- Palatine Road Closure Structures
- Cache River Levee Repairs
-

Flood Hazard Mitigation

\$22,000,000 has been released so far in FY18 and FY19 for flood hazard mitigation with an additional \$10,000,000 programmed for FY20. Several other communities have requested participation in the program and the IDNR/OWR will be entering the discussion with those communities to potentially initiate other new flood hazard mitigation projects.

Additional projects may also be considered based on mitigation acquisition projects identified in existing countywide Hazard Mitigation Plans. Table 11 identifies additional buyout needs that have been identified through Discovery efforts.

Table 9. Community Buyout Needs Identified through Discovery

Watershed	County	Community	Approximate Number
Des Plaines	Cook	Maine Township	60
Des Plaines	Cook	Wheeling Township	*
Des Plaines	Cook	Franklin Park, Village of	33
Des Plaines	Cook	Mount Prospect, Village of	*
Des Plaines	Cook	Maywood, Village of \ Melrose Park, Village of	60
Des Plaines	DuPage	Addison, Village of	14, 3 (2 areas)
Des Plaines	DuPage	Carol Stream, Village of	4
Des Plaines	DuPage	Wood Dale, City of	9
Des Plaines	Will	Joliet, City of	*
Chicago	Cook	Glenview, Village of	*
Rock	Winnebago	Machesney Park, Village of	31+ (in progress)
Lower Fox	LaSalle	Ottawa, City of	4 (numerous completed)
Lower Fox	Kane	Kane County	3 (completed)
Lower Fox	Kane	South Elgin, Village of	2
Upper Fox	Lake	Lake County, Pistakee Lake	*
Upper Fox	Lake	Lake County, Slocum Lake	*
Upper Fox	Lake/McHenry	Fox Lake, Village of	*
Upper Fox	Lake/McHenry	Port Barrington, Village of	3
Upper Fox	McHenry	Cary, Village of	4
Upper Fox	McHenry	Crystal Lake, City of	3
Upper Fox	McHenry	Lakemoor, Village of	1
Upper Sangamon	Macon	Decatur, City of	6
Upper Sangamon	Macon	Macon County	5
Upper Sangamon	Piatt	Monticello, City of	*
Upper Sangamon	Sangamon	Sangamon County	*
Saline	Saline	Harrisburg, City of	5
Middle Wabash Busseron	Crawford	Hutsonville, City of	2

*Specific need to be determined

FEMA Grants

FEMA grants have been awarded to the IDNR/OWR for the Dam Safety Program, the NFIP, and the CTP Program. These grants support staff assigned to these missions. Staff must provide reports as indicated in Table 12 **Error! Reference source not found.**

Table 10. FEMA Grants

FEMA Grant	Grant Period	Grant Award	Reporting
Dam Safety 2020	07/01/2020-06/30/2021	\$137,385	Quarterly
NFIP Community Assessment Program (CAP) 2020	7/01/2020 – 06/30/2021	\$463,834	Quarterly
CTP Project Management 2020	9/26/2020 – 09/25/2021	\$50,000	Quarterly

Projects in Progress or Proposed

- **Wabash River:** A new hydraulic model of the Wabash River was developed for improved flood profiles and floodplain mapping. Numerous floods have occurred along the Wabash River over the past ten years. The existing maps are based on a physical model of the Wabash River, and experience has demonstrated that the Wabash River moves and changes regularly, making the existing maps of limited value. In coordination with the State of Indiana, the new modeling will serve as a basis for new mapping in the watershed and will be used for regulatory purposes to evaluate proposed floodway activities.
- **Rock River:** IDNR/OWR has reviewed, commented, and vetted the technical aspects of the mapping and study proposal as required and considers the modified version of the proposed study and computer modeling to be technically sound. IDNR/OWR issued a concurrence letter on April 17, 2020. For regulatory program purposes, IDNR/OWR will continue to abide by the errant existing regulatory floodway mapping (until it is superseded by FEMA with new mapping) for jurisdictional determinations (is a proposed activity within the floodway, or in the floodplain fringe) concerning the need for an IDNR/OWR permit for work in the floodway. However, IDNR/OWR will utilize/require the new modeling be used as “best available information” to determine floodway activity flooding impacts to others when assessing compliance with the IDNR Administrative Rules Part 3700 as required by the Rivers, Lakes, and Streams Act when an IDNR/OWR permit is required for floodway activities. On tributary streams to the Lower Rock River, such as Zuma Creek, where no tributary floodway has been delineated, IDNR/OWR will continue to regulate all activities in the entire tributary floodplain as floodway in accordance with our Administrative Rules until floodway modeling for the tributary stream has been defined and approved by IDNR/OWR.
- **Mississippi River:** Continuing to assist the USACE in preparing hydraulic modeling of the Mississippi River, which would become the basis for all future work along the river. The adoption of this model by multiple Mississippi River states would minimize the differences in regulatory efforts between states and would ensure that levee districts, highway departments, and others have a sound and consistent model for their application. Although preliminary results of a Mississippi River Levees impact analysis completed using this model have been provided to the states of Illinois, Missouri, and Iowa for consideration, the USACE has been directed by Corps headquarters to refrain from public dissemination of the analysis for now.
- **Cache River:** Repairing the breached levee and mapping the Upper Cache River and Lower Cache River to accurately reflect flood risk is proposed. The Karnak Levee breached in 2002 leaving the Lower Cache River unprotected from high water on the Ohio River and the Upper Cache River. Flooding of the Lower Cache River occurred in 2008 and 2011. Inundation mapping in the upper portion of the Lower Cache River watershed is used to manage ecological and agriculture resources in the watershed and resolve inundation area conflicts between those two interests.
- Continuing to develop the ability to create real-time inundation mapping in those additional river reaches in the state capable of producing real-time flood inundation mapping based on National Weather Service gage predictions particularly on the Rock, Wabash, and Fox River Watersheds.

- Resolving levee accreditation issues in Illinois where levees remain un-accredited and county mapping remains in an unapproved status, limiting the use of new mapping data. An unaccredited levee in Peoria County has prevented the adoption of improved floodplain and floodway maps. The resolution of the accreditation issue will lead toward improved mapping along the Illinois River in Peoria County.
- Continuing efforts to resolve unsteady modeling floodway determination issues. The use of unsteady and 2-dimensional models in Illinois represent the latest in technology when modeling watersheds and the dynamic response of floodplains. Unsteady models (and in select cases 2-dimensional models) are encouraged by Illinois but the use of unsteady and 2-dimensional models to develop floodways has proven to be problematic.

Risk Assessment

- Working with a consultant to utilize existing structural flood damage assessment information already computed (using previously surveyed first floor and low entry surveyed elevations) for strategic flood damage reduction studies to add to a master statewide flood hazard risk assessment database including such watersheds as the North Branch Chicago River Watershed and individual communities such as Grafton, Champaign, Kirkland, Ashland, communities along the Mississippi River and many more.
- The State of Illinois has created a library of Mississippi River flood inundation maps at different stages for the Illinois communities not protected by levees along the Mississippi River. The interpolated flood maps were created so that one-foot increment stage readings at the nearest river gage could be properly mapped at an at-risk community using LiDAR-based topography and the hydraulic river profiles developed by the USACE Flow Frequency Study. The State of Illinois intends to develop a database (and/or PDF booklet) of structural flood damage assessments for each of these communities to be used by the communities to inform individual property owners of their flood risk, to prioritize flood hazard mitigation activities, and to better predict and prepare for impending flood conditions, resulting in more resilient communities. Long-term floodplain/levee management on the Mississippi River requires this better understanding of existing flood risks along the river in Illinois.

Past Projects

- Upper Mississippi River System Hydraulic Modeling – Converting the UNET model to the HEC-RAS unsteady flow model. The reach of the Mississippi River is Keokuk, IA to Thebes, IL.
- Structural Flood Damage Assessments for structures located behind the Rock Island Levee System
 - IDNR survey data collected and provided to the USACE for assessment
 - IDNR project coordination
- Flood Zone Alliance - Documentation for starting a Flood Zone Alliance (FZA) based on the Upper Illinois River, Quad Cities area, Iroquois River
 - IDNR establish FZA working group

- IDNR document what worked and what did not
- IDNR coordination and facilitation of FRM initiatives
- Flood Risk Preparedness Communication Rock Island Levee Breach
- Des Plaines River Flood Inundation Mapping – Combining the flood inundation maps with the structure survey
 - IDNR – Inundation Mapping – Real-time vs static incremental mapping
 - IDNR – Develop map products
 - IDNR – Coordination with Lake County
- NE Illinois Climate Change – Update the Des Plaines River models to HEC-HMS and HEC-RAS
 - IDNR – Update to HEC-RAS model
- Jersey County Loss Avoidance Study – Determine how excellent floodplain management has prevented both the monetary and societal costs of flooding. Study will be used to promote floodplain management to other communities.
 - IDNR – Gather data on elevation data
- Rock Island County Structural Flood Damage Assessment – Building on the Rock Island Levee project of FY-17, structures behind the East Moline, Milan, and Big Island levees will be analyzed for flood damages.
 - IDNR – Collection of structure survey data
 - Project coordination

2021 Proposals

- Upper Mississippi River Communities Inundation Mapping and Risk Assessment – Combines the incremental inundation mapping for the unprotected communities on the Mississippi River with structure first floor data.
 - IDNR – Survey of first floor data
 - IDNR – Add survey data to inundation maps
 - Outreach – Help communities understand the mapping
- Interagency Levee Safety Proposal – Evaluate and communicate changes to levee elevations and potential impacts
 - IDNR – Coordinate the planning and training to entities in Illinois and facilitate exploration of potential solutions

ISWS/CHAMP Staffing and Resources

CHAMP staff is comprised of GIS Professionals, engineers, and outreach and data management staff. Seven engineers are Registered Professional Engineers in Illinois. Nearly all staff are Certified Floodplain Managers. One planner is an American Institute Certified Planner. Three GIS professionals are certified Hazus-MH trained. Nine GIS staff have earned their Geographic Information Systems Professional (GISP) certification. The CHAMP organization chart is shown in **Error! Reference source not found.**

CHAMP staff are primarily funded through grants and contracts secured through proposal writing and responding to various requests for services from communities and agencies for project work related to our mission and expertise. The ISWS provides 0.5 FTE to support FEMA flood studies and projects. Recognizing that flood hazards are the most predictable natural hazard, the ISWS has long been engaged in programs and activities to identify flood hazards and provide technical support to individuals and communities. ISWS staff actively participate in the Illinois Association for Floodplain and Stormwater Management (IAFSM), the Association of State Floodplain Managers (ASFPM), the Illinois Geographic Information System Association (ILGISA), Illinois State Hazard Mitigation Plan committee, and the Illinois Silver Jackets. The ISWS, and in particular CHAMP, will continue to seek out and identify agencies and professional organizations for coordination and information exchange that will help promote our long-term vision.

Non-federal funding is provided by the ISWS for a minimum of 0.5 FTE to directly support FEMA projects.

Mitigation planning contributes to building more resilient communities. Working with the University of Illinois Extension, CHAMP has assisted Illinois Counties (Grundy, Henderson, and Hancock) to prepare FEMA approved Hazard Mitigation Plans by preparing Hazus risk assessments. CHAMP is extending its efforts to assist communities in mitigation planning. CHAMP staff are working directly with communities to prepare FEMA mitigation grant applications to support the development of comprehensive mitigation plans, from beginning to end. Resilience Meetings are proposed to be utilized to further advance identified mitigation needs through community-tailored activities. Depending on these needs, an interdisciplinary team of subject matter experts including academic researchers, state agencies, non-governmental organizations, businesses, and community leaders will assist in identifying the relevant risks while developing resources. Activities may include helping a community update building codes, supporting a regional or watershed coalition, assisting with benefit-cost for mitigation projects, grant application support, supplemental analysis or workshops for hazard mitigation plans, or other needs as identified by the community. CHAMP anticipates working closely with the Region 5 Planners on future outreach.

ISWS Coordinated Hazard Assessment and Mapping Program Section
Subject Areas
June 2021

Section Head – Glenn Heistand

<p style="text-align: center;">Engineering</p> <p>Senior Hydraulic Engineer - Chris Hanstad</p> <p>Project Engineers Aaron Thomas (<i>Survey</i>) Greg Byard Brian Chaille Dawn Consentino</p> <p>Staff Engineer Jimmy Powell Addison Jobe</p> <p>H&H Engineer Nikhil Sangwan Sabin Paudel Laura De La Guardia Hernandez Jennifer Byard</p> <p>Assistant Engineer Mary Richardson (<i>Outreach Coordinator</i>)</p> <p>Programmer Vlad Iordache</p>	<p style="text-align: center;">GIS</p> <p>GIS Manager – Ryan Meekma</p> <p>GIS Specialists Curt Abert (<i>GIS Hydrographer</i>) Matt Jefferson (<i>Remote Sensing Data Analyst</i>) Marni Law (<i>CNMS</i>) Zoe Zaloudek Samikshya Pantha</p> <hr/> <p style="text-align: center;">MT-2 Review & Processing</p> <p>Lead - Chris Hanstad Brian Chaille Jimmy Powell</p> <p>Mapping & Support Sam Chakravorty - Lead Greta Buckley Brad McVay Engineers & GIS as needed</p> <p>Post Processing Michelle Fuller</p>	<p style="text-align: center;">Mapping Program and Risk Communication</p> <p>Mapping Manager - Diana Davisson Sam Chakravorty (<i>SOMA</i>) Sarah Milton (<i>MIP</i>) Rebecca Leitschuh (<i>FIS</i>)</p> <p>GIS Team Lead Lisa Graff</p> <p>GIS Specialists Brad McVay Marni Law Zoe Zaloudek (<i>geospatial applications developer</i>) Meirah Williamson</p> <p>Post Processing Michelle Fuller</p> <hr/> <p style="text-align: center;">Quality Checks & Quality Review</p> <p>GIS Specialist Sarah Milton Engineer Diana Davisson</p>	<p style="text-align: center;">Community Resilience, Mitigation, & Planning</p> <p>Mitigation Manager – Lisa Graff Rebecca Leitschuh Shanay Patel Brad McVay (<i>Hazus</i>) Zoe Zaloudek (<i>Webmap & Db</i>) Mary Richardson</p> <p>Sutapa Banerjee (graduate student)</p> <hr/> <p style="text-align: center;">Web Page Sarah Milton Zoe Zaloudek</p> <hr/> <p style="text-align: center;">Notes: Black = primary assignment Blue = secondary assignment</p>
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Figure 6 CHAMP Organizational Chart

IDNR/OWR and ISWS Local, State, and National Associations

Illinois Association for Floodplain and Stormwater Management (IAFSM)

ISWS and IDNR/OWR staff routinely hold officer and board positions. IAFSM is a state chapter of the ASFPM. Its objective is to promote the common interest in floodplain and stormwater management, enhance cooperation among various local, state, and federal agencies, and encourage effective and innovative approaches to managing the State's floodplain and stormwater management systems. The IAFSM annual conference, which attracts approximately 500 attendees each year, provides an effective venue for floodplain and stormwater training, continuing education, FEMA messaging, and professional collaboration statewide. Outside of the conference, IAFSM facilitates and promotes education and outreach around the state for the CRS program, effective floodplain and stormwater management, legislative awareness, hazard mitigation, collaborative community assistance, the State of Illinois CFM certification, and local official support. Members of IAFSM gain the ability to communicate a uniform position on current concerns, rule changes, local programs, and other issues impacting floodplain and stormwater management.

IAFSM Rapid Assistance Flood Team (RAFT)

Following flooding in 2013, 2015, 2017, and 2018 the IAFSM RAFT team was assembled to assist the local floodplain managers in Watseka, Mason County, and Fox Lake, respectively, with damage assessments. Staff from ISWS, IDNR/OWR, and several local communities participated in these efforts, which resulted in well over 200 damage assessments. Many of those damaged structures have since been elevated or demolished, thereby minimizing future flood damages.

Association of State Floodplain Managers (ASFPM)

The 2020 Annual National Conference was held virtually. ISWS and IDNR/OWR provided multiple presentations for the conference. Amanda Flegel (ISWS) served one year as Treasurer in 2017/2018. Glenn Heistand (ISWS) served two terms as Treasurer in 2019 and 2020. Glenn also served one term as Secretary in 2021.

Illinois Geographic Information Systems Association (ILGISA)

The Illinois GIS Association is the only statewide organization of GIS/geospatial professionals in Illinois. ILGISA advances the understanding, communication, and effectiveness of geospatial technology in Illinois. ILGISA connects over 500 members working in local, regional, state, and federal government, higher educational institutions, and private industries. ILGISA offers a wide variety of programs that educate and inform the members. Training programs include an annual conference, regional meetings, training events, and webinars that address the ever-evolving geospatial technologies, applications, and standards. ISWS staff have served on the Board of Directors and currently serve on committees. Involvement with ILGISA earns CEUs to maintain the GISP Certification. ISWS information booths at the annual conference provide education about flooding and how GIS is used to identify and communicate the hazard and determine the risk.

American Planning Association (APA)

ISWS CHAMP planners are members of both the national APA and state association. APA strives to inform, provide continuing education opportunities, and build peer relationships among practicing planners. CHAMP planners are certified professionals (AICP) through APA and participate in the Hazard Mitigation and Disaster Recovery Planning Division, a membership division dedicated to fostering professional communications on the topics of natural and man-made hazards and in planning recovery. ISWS will host information booths at future conferences in addition to participating in workshops.

Association of State Dam Safety Officials (ASDSO)

IDNR Dam Safety Section engineers participate in ASDSO activities, conferences, and training to improve the condition and safety of dams through education, support for state dam safety programs, and fostering a unified dam safety community.

Flood Resilience Alliances

Starting with the formation of the Illinois Valley Flood Resilience Alliance IDNR/OWR and ISWS staff have supported the formation and continuation of these grassroots alliances to build local capabilities to reduce the impact of flooding. IDNR/OWR and ISWS staff attend quarterly meetings and present on topics as requested. Below currently operating alliances in Illinois.

Illinois Valley Flood Resilience Alliance (2013)

Quad-Cities Flood Resiliency Alliance (October 2018)

Fox Watershed Flood Commission (Feb 2019)

Illinois Silver Jackets / Illinois Flood Risk Management Team

IDNR/OWR hosts the teleconference and in-person meetings of the Illinois Flood Risk Management Team (Silver Jackets). ISWS and IDNR/OWR staff attend quarterly meetings and present on topics as requested.

The team brings together Federal and State Agencies to focus on four themes to reduce flood risk in Illinois: hazard mitigation, emergency response, structural flood reduction measures, and policy evaluation. The IFRMT strengthens intergovernmental partnerships within the State of Illinois and promotes the development and implementation of comprehensive and sustainable solutions to flood hazard challenges in Illinois.

Structure-Specific Risk Assessments in Illinois have been funded through the Silver Jackets program in Rock Island County and along the Mississippi River.

There are four focus themes:

- Illinois Mitigation Advisory Group (IMAG) – non-structural solutions,
- Illinois Flood Management Group (IFMG) – structural solutions to flood reduction,
- Illinois Emergency Response Group (IERG) – emergency response and preparedness, and
- Illinois Policy Advisory Group (IPAG) – policy analysis.

Conclusion

The State of Illinois through the Illinois Department of Natural Resources and the Illinois State Water Survey wishes to continue to partner with FEMA through the CTP program. This business plan serves as a notice of interest for funding in FFY2020 and into the future. It is important to continue the dialogue between the State and FEMA to identify projects that serve the common interests and advance the reduction of flood risk in Illinois.

Appendix:

North Eastern Illinois (NEIL) LiDAR Data Acquisition: Data were acquired in 2017 using new technologies as a QL1 pilot project for four Illinois Counties, including Cook, Lake, Kane, and McHenry, and two adjacent counties in Wisconsin. Data were acquired at 20 points per square meter (ppsm) and sub-sampled down to 8 ppsm. Funding was provided by the individual counties in concert with federal funding via a USGS 3DEP grant. We took delivery of all four counties in 2019; data are accessible on-line. Note that the vendor also acquired DuPage County; we have received preliminary reporting that the USGS may be working with the vendor to process these data as well.

Champaign County LiDAR Data Acquisition: Data for Champaign County were acquired in December of 2019 with funding from FEMA, NRCS, USGS 3DEP, and the Champaign County GIS Consortium (CCGIS) at QL2 point density. In addition, a buy-up for the cities of Champaign and Urbana was acquired at QL1 in spring 2019; the data the cities are accessible on-line.

Carroll, Henry, Lee, Jo Daviess, Ogle, Rock Island, Stephenson, and Whiteside Counties LiDAR Data Acquisition: Data are in the process of being acquired in Winter 2019/2020 with funding from FEMA, NRCS, and USGS 3DEP at QL2 point density if flooding conditions subside before leaf-out. Roughly 58% of the project area was acquired in December 2019.

Monroe, Randolph, St. Clair and also Alexander, Edwards, Franklin, Gallatin, Hamilton, Hardin, Johnson, Massac, Pope, Pulaski, Saline, Union, Wabash, Wayne, White, and Williamson Counties LiDAR Data Acquisition: Data are in the process of being acquired in Winter 2019/2020 with funding from NRCS and USGS 3DEP at QL2 point density if flooding conditions subside before leaf-out. Roughly 7% of the project area was acquired in December 2019.

Hurricane Ike funding for LiDAR Data Acquisition: Spring 2020 acquisition for **Clark, Coles, Crawford, Cumberland, Douglas, Edgar, Jasper, and Lawrence Counties LiDAR Data Acquisition:** Data are contracted to be acquired in Spring 2020 with primary funding from the Hurricane Ike Disaster Declaration and supplemental funding from the USGS (*pending*) at QL2 point density if flooding conditions subside before leaf-out.

The plan for future LiDAR data acquisition is shown in Figure 7. The quality level of available data as of February 2019 is shown in Figure 8.

Illinois LiDAR Future Acquisitions Plan

April 2021

- Quality Level 2 or Higher Collections
- In Progress 2020
- In Progress 2021

Priority Level

- 1 = 15 Counties
- 2 = 1 County

Additional Information:
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ILLINOIS
 Illinois State Geological Survey
 PRAIRIE RESEARCH INSTITUTE








Quality Level	Point Density	Nominal Point Spacing	Vertical RMSEz	Equivalent Contour Accuracy
Quality Level 1	8pt/m ²	0.35 m	≤ 9.25 cm	1 foot
Quality Level 2	2pt/m ²	0.7 m	≤ 9.25 cm	1 foot
Quality Level 3	1pt/m ²	1-2 m	≤ 18.5 cm	2 foot

For Access to LiDAR Data, Please Google:
Illinois Height Modernization (ILHMP): LiDAR Data

Figure 7 LiDAR Acquisition Plan

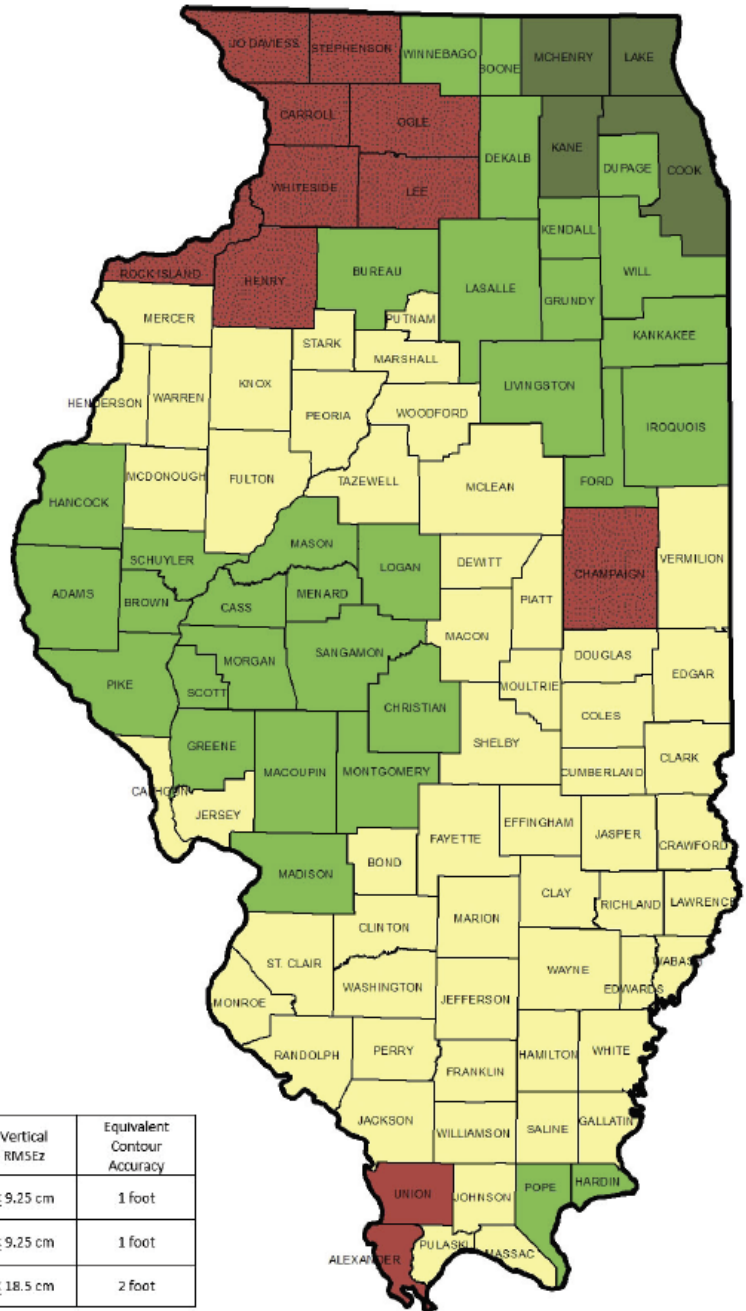
Illinois LiDAR Quality Levels

February 2019

-  QL1
-  QL2
-  QL3 After 2010
-  QL3 Before 2009
-  In Planning

Additional Information:

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Quality Level	Point Density	Nominal Point Spacing	Vertical RMSEz	Equivalent Contour Accuracy
Quality Level 1	8pt/m ²	0.35 m	≤ 9.25 cm	1 foot
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Figure 8 LiDAR Quality Levels in Illinois