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Executive Summary

This State Business Plan serves as Illinois' "notice of interest" to participate in the Federal Emergency Management Agency's (FEMA) national Flood Map Modernization Program – Phase I and Phase II. The program will convert flood risk information that is in a paper map format or an older digital format into a digital Geographic Information Systems (GIS) format. The newer GIS digital format makes it possible to display floodplains on up-to-date digital base maps. The modernization effort will benefit the nearly 800 communities in Illinois that rely on these maps to participate in FEMA's National Flood Insurance Program (NFIP).

This Plan requests FEMA funding for Fiscal Years 2004-2009 for the Illinois Department of Natural Resources (IDNR) to develop digital flood maps (Phase I) and to maintain the data for the joint use of the state's floodplain regulatory program and the NFIP (Phase II).

FEMA's flood map modernization criteria and national milestones are based primarily on population characteristics. With more than 12.4 million residents, Illinois comprises nearly one quarter of the FEMA Region Five population. The state's participation will significantly help FEMA meet its national milestones while benefiting the people of Illinois.

Participation will allow the state to:

- Reduce or eliminate the potential for conflicting flood hazard information used by state regulators and communities in their NFIP floodplain management responsibilities.
- Consolidate the mapping and map tracking already in place for water resources information management.
- Combine state resources with FEMA resources to provide the most efficient use of funding.
- Use local knowledge to update and maintain flood hazard information.
- Easily incorporate stream and flood data developed by other state and local agencies to improve flood hazard information.
- Provide Illinois citizens with the most current information on flood hazards.

This Plan proposes a cooperative effort between FEMA and IDNR (Office of Water Resources and State Water Survey) to develop and maintain Illinois flood hazard data in a digital format. With funding from FEMA, IDNR proposes to modernize flood maps over the next five years. To do this it will:

- Identify the best available digital base maps that meet FEMA standards,
- Convert Illinois flood hazard mapping to a digital, geo-database format (DFIRM2003),
- Help NFIP communities adopt the new maps, and
- Develop internal tracking to coordinate: state flood mitigation projects, new hydrology and hydraulics reviews for flood insurance studies, and applications for letters of map change.

The funding request is \$3.6 million in the first year and an average of \$5.4 million in the following four years. These resources will allow IDNR to modernize maps for 17 counties, encompassing 67 percent of the State's population, within two years and 100 percent by the end of the fifth year. The overall effort will allow FEMA to reach its flood map modernization goals for Region V.

Introduction

Illinois has one of the largest inland systems of rivers, lakes, and streams in the entire nation. With water from 24 states entering or flowing along Illinois boundaries, flood disasters are a common occurrence in the state. Since the flood of 1993 the state has experienced seven state or federally declared flood disasters. While Illinois used to rank in the top ten states for flood insurance claims, strong state and local regulations that protect property in potential flood damage areas, and efforts to move homes and businesses out of harm's way, have removed it from the top ten. Even so, flood damage is still estimated to exceed \$700 million dollars per year in Illinois.¹ Therefore, the state is committed to maintaining an aggressive floodplain management and flood mitigation program.

Illinois' population is the fifth largest in the country and continues to grow, especially in the already urbanized northeastern part of the state. Because rapid incorporation of new data is critical to successful floodplain management, improved mapping is a priority.

The Illinois Department of Natural Resources (IDNR) is responsible for managing the state's rivers, lakes, and streams. The Office of Water Resources (OWR) regulates activities within or adjacent to Illinois rivers, lakes, and streams; allocates and monitors water use from Lake Michigan; coordinates the National Flood Insurance Program (NFIP); and administers structural and nonstructural flood mitigation programs.

The State Water Survey (SWS) researches and disseminates information on surface water, groundwater, and the atmosphere. Its Watershed Science Section provides floodplain management information and technical services to individuals, industry, business, professionals, public agencies, and governmental units.

The OWR and the SWS have worked together since the beginning of the NFIP to provide better flood information for communities and property owners. OWR's Division of Resource Management and SWS's Watershed Science Section will continue this collaboration for the map modernization program.

Flood Map Modernization

Most floodplain maps used in Illinois for regulatory and flood insurance purposes are paper maps called Flood Insurance Rate maps, or FIRMs. While a scanned paper map can be projected as a picture, it is not a digital product that can be manipulated. These paper maps will have to be converted to a digital format.

About 10 counties in Illinois already have FIRMs in a digital format, referred to as Digital Flood Insurance Rate Maps, or DFIRMs. However, these digital maps are in a format called DFIRM95 that is far below current standards. They will also have to be converted to meet standards consistent with the latest GIS technology—geo-databases—before they can be entered into FEMA's nationwide Map Information Portal (MIP).

The map modernization activities have been categorized as "Phase I" and "Phase II". Phase I

Illinois Department of Natural Resources Website Pages

Office of Water Resources -
www.dnr.state.il.us/owr

Illinois State Water Survey –
www.sws.uiuc.edu

Surface Water and Floodplain
Information Services Website:
www.sws.uiuc.edu/fpi/

¹ Illinois Emergency Management Agency

activities involve converting flood hazard maps into digital data (ArcGIS geo-database format) and loading it into the MIP. Phase II activities include maintaining the data, reviewing and processing map data changes, and outreach.

Because Congress has provided FEMA with significant funding to conduct the Flood Map Modernization Program, the General Accounting Office has established national milestones for the program. FEMA has established criteria and priorities for how it will implement the Program to accomplish the milestones that it must meet by 2009. The criteria and the national milestones are based primarily on population. Illinois is part of FEMA's Region V, along with Indiana, Michigan, Minnesota, Ohio, and Wisconsin. With more than 12.4 million residents, Illinois makes up nearly 25 percent of the Region's population. Therefore, it is important that flood map modernization be accomplished in Illinois in order for FEMA to reach the national milestones.

The IDNR's Office of Water Resources and the State Water Survey developed the initial 2004 State Business Plan with the assistance of Molly O'Toole & Associates, Ltd., a watershed management consulting firm, and funding from FEMA Region V. This revision was produced jointly by OWR and the SWS.

Purpose of the Plan

The Illinois Flood Map Modernization Business Plan responds to a request from FEMA for assistance in meeting U. S. flood map modernization goals. FEMA asked states to examine their existing capabilities and determine their level of interest in undertaking map modernization over five fiscal years.

This Plan outlines Illinois' approach to flood map modernization and serves as the State's "notice of interest" for funding from FEMA. Funding is requested for Phase I activities for 2004-2009, and for Phase II activities for those years, plus additional years for map maintenance.

Summary of FEMA Flood Map Modernization Activities

Phase I. Develop Data for the Map Information Portal (MIP)

- Assess Community Mapping Needs and Capability for MIP.
- Develop digital base map inventory.
- Convert current countywide digital maps to GIS format.
- Convert paper FIRM maps to GIS format.
- Provide existing and prepare new hydrologic and hydraulic flood data for the MIP.
- Provide assistance to NFIP communities for adopting new ordinances.

Phase II. Maintain MIP Data and Review Map Changes

- Statewide Digital Base Map Inventory- Maintenance
- Digital Base Map Sharing
- DFIRM Maintenance
- Hydrologic and Hydraulic Review for map changes
- Continued Assessment of Community Mapping Needs
- Technical Standards Agreement
- Information Technology Systems
- Outreach - Website Posting & Informational Mailing
- Outreach - Multi-Media Promotional Activities

Section I. Current Regulation and Mapping

A. Illinois Floodplain Regulatory Activities

Illinois has regulated construction in state waters since 1914 under the Rivers, Lakes, and Streams Act of 1911, and formal administrative regulations for floodway construction have been in effect since 1975. The state regulates all development within floodways of rivers and streams as well as activities bordering public bodies of waters, including Lake Michigan. The regulations apply to any stream with a drainage area of one square mile in an urban area or 10 square miles in a rural area. State legislation provides legislative authority to regulate any development that could cause damages or an increase in flood heights. Anticipated future development and storage effects are also considered during permit review. In the six counties surrounding the Chicago Metropolitan Area, only “appropriate uses”, or non-obstructive developments, are allowed in the floodway, such as parking lots and open space. Three sections in the OWR Division of Water Resource Management are responsible for floodplain regulation.

Northeastern Illinois Regulatory Programs

This section is responsible for floodplain management in the metropolitan Chicago counties of Cook, DuPage, Kane, Lake, McHenry, and Will. It issues permits for construction of dams, other construction in stream floodways, and activities in and along public water bodies. It also helps coordinate the NFIP and administers a program through which local governments are delegated authority to approve projects under the state's floodway construction rules.

Downstate Regulatory Programs

This section is responsible for floodplain management in the remaining counties. It issues permits for construction of dams, other construction in stream floodways, and activities in and along public water bodies. It also helps coordinate the NFIP.

Statewide Programs

This section administers the nonstructural mitigation program, which purchases and removes structures that are repeatedly flooded; and coordinates NFIP activities, regulatory floodplain mapping, approval of stream discharges used for regulatory programs, and state assistance to regional stormwater management programs.

Illinois Regulations that Exceed NFIP Minimum Criteria

One-tenth of a foot rise for floodways.

Model ordinances include a flood protection elevation of one foot above BFE for lowest floor elevations.

Only “appropriate uses” of floodway allowed in Northeastern Illinois.

Limit on loss of floodplain storage.

Limit on increase of velocity.

B. NFIP Participation

More than 800 communities in Illinois now participate in the National Flood Insurance Program; most have adopted a state model ordinance that provides more protection than FEMA’s minimum regulatory requirements. Local compliance with NFIP regulations is a priority for the state, and IDNR conducts approximately 125 community contacts and floodplain inspections every year. In addition, the department holds regulations workshops for local officials, and flood insurance and floodproofing seminars for the private sector. The state has also produced several floodplain management and floodproofing publications.

C. Floodplain Studies and Mapping

OWR's Division of Planning is responsible for planning, funding, and conducting hydrology and hydraulic (H&H) modeling for structural flood control projects. The division also works closely with local governments to prepare H&H calculations for flood insurance studies. However, modeling data from numerous streams have not yet been incorporated into flood maps.

D. Flood Map Revisions

Hydrologic and Hydraulic Reviews

In 1989, IDNR and FEMA signed a technical standards agreement for IDNR to review the H&H for letters of map change applications (LOMCs). The current agreement also addresses the state standards for activities in floodways and floodplains that exceed the minimum NFIP requirements. A second H&H review of LOMCs is conducted by a FEMA contractor prior to the processing of the amendment or revision.

Letters of Map Changes

Through the current technical standards agreement, IDNR reviews Letters of Map Revisions (LOMRs) and Letters of Map Amendments (LOMAs) when they involve changes in discharges or involve activity in a floodway. If IDNR approves, FEMA issues a Conditional LOMR or LOMA. CLOMRs and CLOMAs approval is required from IDNR before FEMA reviews the application.

Much of the review conducted by FEMA's contractor duplicates IDNR's efforts. Table 1 shows an estimate of annual map revision applications processed by FEMA's contractor. Generally, there is a growing number of LOMC each year.

Letters of Map Changes (LOMC)

CLOMA- Conditional Letter of Map Amendment

LOMA- Letter of Map Amendment

LOMA-F- Letter of Map Amendment for Fill

CLOMR-Conditional Letter of Map Revision

LOMR-Letter of Map Revision

MT-1 - Application for LOMA

MT-2 – Application for LOMR

Table 1.
Estimate of Annual Map Revisions -- Illinois Letters of Map Changes

Year	CLOMA/LOMA (MT-1)*		CLOMR/LOMR (MT-2)*	
	Received	Completed	Received	Completed
FY00	628	565	86	56
FY01	902	744	94	65
FY02	953	747	121	74
FY03	1,020	844	109	68

* While some applications are more extensive, the average review time for a CLOMA and LOMA is 8 hours, and the average review time for a CLOMR and LOMR is 70 hours.
Source – PBS&J (FEMA Contractor)

E. Current Flood Map Formats and FIRM Panel Count

FEMA's Flood Insurance Rate Maps began to be modernized in the 1990s with the development of countywide maps and digital FIRMs. Rather than having separate maps for each community that participates in the NFIP, countywide maps provide a seamless map for all communities within a county. Disconnects or inconsistencies in flood levels from one community to the next have to be

addressed. The digital FIRMS, or DFIRMs, that were developed in the past are predominately in a DFIRM95 format, an older digital flood data format (Arc/View or AutoCAD) that cannot be used in the Map Information Portal.

As of 2004, only 17 of Illinois' 102 counties had a countywide FIRM. Ten of those counties also had flood data in the older digital format. Appendix A lists Illinois counties, their 2000 U.S. Census populations, the type of FIRM they had in 2003, and the number of panels.

Section II. Current State Capabilities and Resources

A. Human Resources

IDNR Office of Water Resources

IDNR Office of Water Resources (OWR) is organized into five divisions, two of which deal with floodplain management. Their responsibilities are described in Section 1 subsections A-C.

IDNR State Water Survey

Located on the University of Illinois campus in Champaign, the Illinois State Water Survey is the primary state agency for research and information on surface water, groundwater, and the atmosphere. One-third of SWS staff is funded through the States general revenue fund and two-thirds are funded by grants and contracts through the University of Illinois. The SWS is organized into six sections and the Office of the Chief.

The Watershed Science Section is responsible for the “Surface Water and Floodplain Information Services” program, a public service that provides information and technical services related to floodplain management. The section has 10 engineers and hydrologists that conduct applied research in water resources. The Geographic Information System Resource group, under the Office of the Chief, provides GIS assistance to all the Sections of the survey, including training by in-house certified ESRI trainers. The floodplain program is supported by an award-winning web development team.

Table 2.
IDNR/Office of Water Resources - Personnel

<u>Division of Resource Management - Engineers:</u>	<u>FTEs:</u>
Northeastern Illinois Regulatory Program	5.0
Northeastern Illinois H&H/CLOMR Review	1.3
Downstate Regulatory Program	5.0
Statewide Program - NFIP Coordination	3.0*
Flood Mitigation	1.3
Total:	17.1
<u>Division of Planning - Engineers:</u>	<u>FTEs:</u>
Flood Control Studies (Including H&H Studies)	18

* 2.5 Full-Time Employees (FTEs) are funded through FEMA's Community Assistance Program-State Support Services Element.

Table 3
IDNR/State Water Survey
Personnel in Floodplain Services

<u>Watershed Science Section:</u>	<u>FTEs:</u>
Engineer	0.5
CFM	0.7
Total:	1.2

B. Mapping Resources

OWR maintains regulatory floodway maps for northeastern Illinois and the SWS Floodplain Information Program provides map and database information for Illinois (www.sws.uiuc.edu/fpi/). Fees are charged for some of the SWS services. The Floodplain Information Program makes the following data available:

Zone A flood elevations. Estimations of 100-year flood elevations for individual properties for Zone A floodplains and Base Flood Elevations from published profiles for specific sites.

Map Repository. Current FEMA flood hazard maps and Flood Insurance Studies (FIS) developed for the NFIP, engineering data and supportive studies related to flooding, a complete set of National Wetlands Inventory maps, U.S. Geological Survey topographic quadrangles, and various

surface water data files.

Flood Discharges. Online searchable database of streamflow flood discharges that are certified by OWR and published in current FIS's. The database fields include river basin, stream name, drainage area, location description, Township-Range-Section coordinates, and source document. Updates are made as new and revised FIS's are published.

Hydraulic Model Database. A searchable inventory of floodplain hydraulic models maintained by the SWS is posted online for technical users, who may order copies. The primary source of the model data is the FEMA archives for Flood Insurance Studies. NOTE: this database does not contain all of the most current regulatory models or all the FIS models that exist.

Digital Ortho-Quadrangle Data. Produced by the USGS and packaged for distribution by the Illinois State Geological Survey, DOQs are available for the entire state. USGS is currently developing the "next generation" of DOQs that can be used as digital base mapping for Illinois' rural areas. The DOQs have a scale of 1 inch = 1000 feet.

Digital Statewide Floodplain Boundary Data. Over a period of years, the SWS digitized the 100-year and 500-year floodplains from FIRMs in unincorporated areas of the state using ArcInfo. The digital data is available county by county. This coverage is consistent with the current FIRMS in the rural central and southern part of the state, but is not current in the northeastern portion.

C. Cooperative Technical Partnerships

Three Illinois communities are part of FEMA's Cooperative Technical Partnership (CTP) program and have signed Mapping Activity Statements that outline the hydrologic and hydraulic analyses to be done and the mapping products to be produced. This Plan assumes that existing CTP agreements will remain in place.

DuPage County has been a CTP since 1999. It has a population of more than 900,000, a little over seven percent of the state. Its most recent Mapping Activity Statement calls for GIS-based flood data and base map data for tributary streams being studied.

Kane County signed a CTP agreement with FEMA in 2001 to perform hydrologic and hydraulic analyses and to provide improved flood hazard mapping for the Blackberry Creek watershed. Its Mapping Activity Statement calls for the use of 1995 flood data specifications rather than the current specifications for ArcGIS flood data and base map data.

The city of Hamilton in Hancock County became a CTP in 2001. Its agreement calls for producing maps rather than digital data.

Section III. Flood Map Modernization Goals

A. Summary of State Needs

All Illinois communities participating in the NFIP are mapped. More than 400 non-NFIP communities remain unmapped. As of March 2004, the average age of Illinois FIRM maps was nine years. In northeastern Illinois, where 65 percent of the State's population is located, FEMA calculates the average age of FIRMs as six years. These map ages represent the average time since the maps were re-published. While some maps may have been re-published with new data, most often they were merely re-published in a countywide or DFIRM95 format—the age of the FIRM usually does not reflect the age of the base map or the flood data. This is an important distinction in Illinois given that areas of the State, such as northeastern Illinois, have experienced a significant population increase over the last decade.² The population increase has led to changes in land cover and runoff rates, not to mention the construction of flood control structures. Most FIRMs do not reflect these changes.

Illinois recognizes that it needs better flood hazard maps for northeastern Illinois and other urban, and urbanizing, areas of the State. IDNR views the importance of this as twofold: for the improvement of the NFIP and for the improvement of the State's regulatory floodplain program. However, Illinois also recognizes that converting existing flood data and base maps into a digital format is a critical first step. Once existing data has been digitized, new data can be included and utilized within the MIP.

B. FEMA Flood Map Modernization Objectives

FEMA initiated the Flood Map Modernization Program with funding from Congress in fiscal year 2002. The long-term objective is for the entire U.S. population to have reliable digital flood hazard data and maps for flood-prone areas. The objectives stated in the *Multi-Year Flood Hazard Identification Plan* are:

- Establish and maintain a premier flood-hazard data collection and delivery system.
- Build and maintain mutually beneficial partnerships.
- Achieve effective program management.
- Expand and better inform the user community.

FEMA established key performance indicators to measure progress towards these objectives (Table 4).

² Population in northeastern Illinois increased 11 percent between 1990 and 2000; Will County alone saw a 40 percent increase.

Table 4.
Map Modernization Key Performance Indicators
FY 2004 – 2009

Sub-Program Element Performance Measures		Targets					
		2004	2005	2006	2007	2008	2009
1	Percentage of population (as represented by communities) with digital GIS flood hazard data available on-line	20%	50%	65%	75%	85%	100%
2	Percentage of population (as represented by communities) with adopted maps that meet quality standards	10%	20%	35%	50%	70%	90%
3	Leveraged effort toward digital GIS flood hazard data	20%	20%	20%	20%	20%	20%
4	Percentage of appropriated funds sent to CTPs (States and locals)	20%	25%	35%	45%	50%	60%

August 2004

C. Illinois Flood Map Modernization Goals

IDNR has identified the following goals for flood map modernization in Illinois:

- Participate in FEMA’s Flood Map Modernization Program to the fullest extent possible. Full participation will ensure that IDNR meets these goals.
- Reduce or eliminate discrepancies in flood hazard mapping that cause inconsistent administration of federal, state, and local regulations.
- Ensure that good flood hazard mapping is developed to foster better watershed management throughout Illinois.
- Maximize state resources for flood map modernization, including developing digital data and maintaining maps.
- Incorporate better flood data and base mapping into regulatory flood maps when it exists.
- Reduce or eliminate duplication of federal and state efforts in reviewing flood map revisions.

Section IV. Status of Map Modernization in Illinois

A. County Prioritization

FEMA initially developed decile rankings for each Illinois county, with Decile 1 having the highest priority and Decile 10 the lowest. FEMA also estimated the number of flood map panels that would be developed for each county based on the map scale needed to make determinations for potential activity in a floodplain (see Appendix B). FEMA further refined its priorities in Appendix A, “Detailed Production Report - Sequencing by County,” of the August 2004 MHIP.

B. 2004 Activities

Since the initial business plan was submitted in 2003, the following have been accomplished:

- Mapping Activities Statements — Mapping Activities Statements were prepared for Sangamon, Clinton, Cook, Kane, Kendall, Rock Island, and Champaign counties. FEMA approved all seven. Five are for map conversions; two are for H&H work (Cook and Kendall).
- Staffing — Personnel were hired at both the State Water Survey and the Office of Water Resources. SWS hired six people to conduct mapping activities and OWR hired two people to handle administrative duties, scoping, and outreach.
- Training — The newly hired staff received pre-production training for mapping tools (administrative staff audited the training). Administrative staff is scheduled for Scoping and Earned Value Management System Training.
- MHIP — Staff reviewed the Multi-Year Flood Hazard Identification Plan and provided comments to FEMA. The State of Illinois concurs with the timeline and schedule of counties itemized in Appendix A of the Plan.
- NSGIC — IDNR-OWR completed a survey, developed jointly by FEMA and the National Association of State Geographic Information Councils, on available GIS data.
- Mapping Activity — SWS began converting digital flood layers to the DFIRM2003 format; populating the geodatabase fields for Clinton, Sangamon, Kane, and Rock Island counties; and registering flood layers to higher resolution base maps.
- Project Teams — Project teams for the seven counties with MAS will meet in the early part of the year. Scoping meetings should be complete for at least five counties by the end of the first quarter.

Section V. Activities Needed for Map Modernization 2005-2009

Expanding IDNR's in-house resources and using them for flood map modernization is Illinois' best option for meeting FEMA's five-year time frame. Phase I development activities present the most significant challenge—in administration, scheduling, funding, and quality assurance. Conducting the mapping in-house:

- Provides a means to begin data development and adapt to on-going changes in MIP requirements (since many of its features are not yet developed).
- Combines OWR's NFIP responsibilities and SWS's flood information with FEMA's vision of flood map modernization and the Map Information Portal.
- Gives IDNR the ability to pilot conversion efforts and other project elements.
- Reduces the project management requirements of parallel efforts.
- Allows IDNR to draw on the personnel resources offered by its connection to the University of Illinois.
- Allows Phase II inventory and map maintenance activities to be developed concurrently with Phase I activities.
- Provides for a smooth transition from Phase I digital data development to Phase II map maintenance.

Increasing IDNR's staff and resources for the project is an efficient and cost effective way to accomplish FEMA's goals and comply with Congressional directives.

A. Phase I – Flood Map Modernization

1. Develop Digital Map Data

Three activities are needed to accomplish this step:

- Assess community mapping needs and capabilities.
- Develop digital base map inventory.
- Convert FIRMs and DFIRMs to digital format.

a. Assess Community Mapping Needs and Capabilities

Though FEMA lists this activity as a fundable Phase II activity, IDNR feels it should be started at the onset of Phase I. While assessing mapping needs is an ongoing effort at IDNR, it will be expanded during Phase I to review available base mapping and H&H information and to determine the level of potential community involvement in flood map maintenance. The assessment will allow the state to identify where better flood hazard information is needed for both the flood insurance program and the regulatory floodplain program. The information will be provided to FEMA for input into the Mapping Needs Update Support System (MNUSS).

Lead: OWR
Timing: Years 1 and 2, then ongoing
Funding: Years 1 and 2, then ongoing
Staffing: Years 1 and 2, then ongoing

This activity will be done in conjunction with developing the digital map inventory.

b. Develop Digital Base Map Inventory

This effort will largely consist of identifying aerial mapping and ortho-imagery at the community level. IDNR will work cooperatively with communities to inventory digital mapping and share available information. Figures 1 and 2 show the Illinois counties that use GIS and the type of GIS software that they use.

In areas without GIS capability, 1:24,000 DOQs currently available statewide will be used as base maps. (The Illinois Department of Agriculture, U.S. Geological Survey, and Illinois State Geological Survey are currently collaborating on higher resolution DOQs for Illinois.)

This activity will also include an inventory of available digital elevation data.

Lead: SWS
Timing: Years 1 and 2, then ongoing
Funding: Initial and ongoing
Staffing: Years 1 and 2, then ongoing

c. Convert FIRMs and DFIRMs to Digital Format

IDNR developed four project categories for this activity:

- Category I—Convert countywide DFIRM95s to DFIRM2003.
- Category II—Convert countywide paper FIRMs to DFIRM2003.
- Category III—Develop countywide DFIRM2003s for counties with large populations and communities that have paper maps and H&H.
- Category IV—Develop countywide DFIRM2003s for counties with relatively low populations and little or no H&H.

Appendix C lists Illinois counties according to this categorization. The 10 Category I counties comprise 63 percent of the State's population and 15 percent of FEMA Region V. Adding the seven Category II counties brings the total to 67 percent of the State. Most of these counties are included in the MHIP sequencing for the first two years of map modernization. The remaining counties, categorized as III/IV in Illinois' original plan, would be completed later in the program.

Efforts to convert Category I and II maps will begin in Year 1 and should be completed by the end of Year 2. The remaining map conversion will be scoped in Year 3. The scoping phase will help to determine the best available base map data and H&H data to create the DFIRM2003's. For example, ArcInfo 100-year and 500-year floodplain coverages could be used for unstudied flood hazard areas. If elevation or other GIS datasets are available, they will be assessed to determine if automated H&H techniques could be employed to improve floodplain mapping for that particular area.

Lead: SWS
Timing: Years 1 through 5
Funding: Years 1 through 5
Staffing: Years 1 through 5

Insert Figure 1 here

Insert Figure 2 here

2. Develop MIP Information

DFIRM databases developed for each county will provide the basic input to the MIP. As information management and production tracking systems are introduced by FEMA they will be adopted. IDNR will submit revised standard DFIRM databases as new H&H is developed and approved, as well as updates on new base mapping. The updated DFIRMs would be distributed by FEMA.

Since the information management and production tracking systems have not been fully developed, the protocol for this activity is not clear. While IDNR is interested in participating, until the specifications have been provided the department cannot estimate the level of effort that will be required.

Lead: SWS and OWR
Timing: Unknown
Funding: Unknown
Staffing: Unknown

3. Help NFIP Communities Adopt the Countywide DFIRM2003's

When DFIRM95 maps and countywide paper maps have been converted to the DFIRM2003 format, FEMA and IDNR will orchestrate their acceptance and adoption by communities. There are 280 NFIP communities (counties, cities, and villages) in Category I (DFIRM95s) and 68 NFIP communities in Category II (countywide maps on paper). The administrative effort, or new map implementation effort, will include scoping meetings with local officials, data collection, site inspections and verifications, review and incorporation of valid community concerns and revisions to the draft maps, internal coordination with mapping staff, letters of final determination, final meetings, ordinance updates and mailings, ordinance reviews, public hearings, tracking of map progress and coordination with local officials, and working with local officials to adopt CTP agreements.

Lead: OWR and SWS
Timing: Year 1 and ongoing
Funding: Initial and ongoing
Staffing: Year 1 and ongoing

Community adoption of DFIRM2003 maps will begin in Year 2.

B. Phase II – Maintenance of Flood Map Data

As stated in the goals and objectives on page 10, flood map modernization will allow Illinois to provide a consistent floodplain management program and foster better watershed management throughout the State.

FEMA has provided the states with a list of seven fundable Community Assistance Program Mapping (CAP-MAP) Phase II activities. Phase II activities such as hydrologic and hydraulic reviews and technical standards agreement are already in place at IDNR. The following discussion examines the feasibility of expanding the State's role as the FEMA MIP is further developed. However, the scope and extent of DFIRM maintenance, information technology systems, and outreach activities will not be clear until the MIP is developed and digital flood data maintenance procedures are defined by FEMA. Therefore, at this stage the Plan does not fully identify staffing and other resources that will be needed to carry out the activities.

1. Maintain the Statewide Digital Base Map Inventory

GIS work being performed by Illinois counties will be monitored, along with the efforts of the Illinois State Geological Survey and the U.S. Geological Survey. IDNR will also monitor the forthcoming MIP procedures for updating digital base map data in the DFIRM2003 format.

Lead: SWS
Timing: Ongoing from Year 2
Funding: Ongoing from Year 2
Staffing: Ongoing from Year 2

2. Share Digital Base Maps

IDNR will facilitate sharing digital base map data.

Lead: SWS
Timing: Year 1 and ongoing
Funding: None
Staffing: Unknown

3. Maintain DFIRMs

IDNR has an interest in maintaining the DFIRM maps at the state and community level so that it can provide up-to-date flood hazard information and support its regulatory floodplain program. While the department will use existing personnel for map maintenance, it assumes that additional staff will also be required for statewide maintenance. Until the frequency of maintenance and maintenance procedures have been proposed, IDNR cannot determine the total level of staffing required.

Lead: OWR
Timing: Investigate in Year 3, Pilot in Year 4 and ongoing
Funding: Years 3 and 4 and ongoing
Staffing: Beginning in Year 3

4. Conduct Hydrologic and Hydraulic Reviews

As discussed in Section I, IDNR conducts an H&H *review* of letters of map changes (LOMC). The department is interested in eliminating the duplication of effort of IDNR reviewers and FEMA contractor reviewers. (IDNR does not charge fees for reviews or permits issued.) If FEMA makes procedural changes, IDNR would like to conduct the H&H reviews for LOMCs. Cost and staff estimates presented here are preliminary.

Lead: OWR
Timing: Ongoing
Funding: Beginning in Year 3
Staffing: Additional personnel beginning in Year 3

5. Continually Assess Community Mapping Needs

Illinois recognizes the need for better flood hazard maps for northeastern Illinois and other urban, and urbanizing, areas of the state. Under Phase II, IDNR would continually assess mapping needs statewide and update the MNUSS database. It would monitor available base mapping, determine the need for improved H&H information, and determine the ability of communities to assume flood map maintenance responsibilities. This activity would begin during the review and community adoption process of Category I and II DFIRMs. During this process, more current base mapping data, areas where existing flood hazard representation does not reflect changes in the watershed, or

changes in the H&H of the stream system may be identified. The assessment would be done in conjunction with maintaining the statewide digital base map inventory and would foster all of FEMA's Map Modernization goals.

Lead: OWR
Timing: Year 3 and ongoing
Funding: Year 3 and ongoing
Staffing: Year 3 and ongoing

6. Technical Standards Agreement

IDNR and FEMA a signed technical standards agreement in 1989 for the H&H *review* of requested letters of map changes. The current technical standards agreement addresses the additional State standards for activities in floodways and floodplains that exceed the minimum NFIP requirements. Should Illinois receive funding to *approve* letters of map changes, IDNR recommends expanding the existing agreement, without compromising adopted general standards of FEMA and IDNR, to address and resolve unique problems which may arise.

Lead: OWR
Timing: Ongoing
Funding: Additional funding would not be required for this activity; funding would be provided through H&H reviews or DFIRM Maintenance
Staffing: None

7. Information Technology Systems

While it is not clear where MIP data will be stored or how it will be accessed, IDNR has an interest in participating in the information technology systems. At this time, the level of effort and facilities required from the department cannot be estimated. If appropriate, IDNR will pursue information technology resources within the State that are outside of the department

Lead: SWS and OWR
Timing: Investigate in Year 5 and ongoing
Funding: Unknown
Staffing: Unknown

8. Outreach

IDNR's current outreach activities include websites, newsletter articles, brochures, and handbooks. Information is provided from the Floodplain Information Service upon request. An expanded outreach effort—in print, on the Internet, and in multi-media formats—will help both the IDNR and FEMA achieve their goals for flood map modernization.

The Illinois River Decision Support System (<http://ilrdss.sws.uiuc.edu>) is an example of a department website that uses ArcIMS, while ArcSDE is used for in-house information dissemination. Since IDNR has limited experience with multi-media approaches to outreach, this capability would need to be developed internally or through consultants. IDNR will investigate additional outreach methods to address community and other user needs. New efforts for website expansion will be done in coordination with the Illinois Governor's Office of Technology.

Lead: SWS and OWR
Timing: Investigate in Year 5 and ongoing
Funding: Unknown
Staffing: Unknown

Section VI - Illinois Flood Map Modernization Plan

A. Objectives

Based on the stated goals and the activities identified for flood map modernization, IDNR's five-year objectives, with funding assistance from FEMA, are as follows:

1. Manage and convert base maps and flood hazard information into digital data for FEMA's Map Information Portal.
2. Provide administrative support for community adoption of new DFIRM2003 maps.
3. Assess community flood hazard mapping needs to provide Illinois with accurate flood hazard mapping.
4. Maintain flood map data for the MIP and for base map data inventories and information sharing services.
5. Conduct H&H reviews and process letters of map changes.
6. Investigate and create a website-based outreach program that will help communities use flood maps and flood hazard data.

B. Illinois Five-Year Work Plan (2005-2009)

The primary objective of the five-year work plan is to identify base maps and prepare digital flood hazard data in the DFIRM geo-database format, and to maintain and update digital flood data as needed. This effort will involve the following major work tasks:

1. Upgrade existing DFIRMs to DFIRM geo-database format.
2. Convert existing countywide format maps to DFIRM geo-database format.
3. Convert remaining counties to countywide DFIRM geo-database format; counties with large population centers and existing H&H studies will be a priority.
4. Assist FEMA and communities with the review and adoption process for flood information data and DFIRM2003s.
5. Investigate, pilot and implement map maintenance activities.

Table 5 presents the work plan for Phase I and Phase II activities that Illinois has undertaken with the support of FEMA funding. Costs and additional full-time employees (FTEs) that are required are shown for each year.

The five-year work plan is being conducted within IDNR. New employees have been hired by the SWS, through the University of Illinois, to develop the digital base map and flood hazard data. The OWR has added staff to perform project management and scoping duties, H&H work, community assistance, and map maintenance. If it is determined that the objectives of the Work Plan cannot be met in the timeframe presented, IDNR may out-source work to consultants to allow for the most efficient use of time and staff.

Table 6 shows a timeline for the work plan. Total cost estimate (at full funding) is shown at the bottom of each year.

**Table 5.
Illinois Flood Map Modernization Work Plan**

Year	Phase I Activities:	Phase II Activities:	FTE* and Total Cost
1	<ul style="list-style-type: none"> • Assess Community Mapping Needs and Capability • Develop Statewide Digital Base Map Inventory: DOQs, county mapping programs, city mapping programs • Advertise, interview, hire, and train staff • Purchase equipment and prepare space • Upgrade existing D-FIRMS to D-FIRM geo-database format (Category I) • Begin pilot project to convert countywide FIRMs to geo-database D-FIRM (Category II) • Assist with the process for community adoption of DFIRM2003s 	<ul style="list-style-type: none"> • Ongoing IDNR efforts: <ul style="list-style-type: none"> ○ Review hydrology and hydraulics for map changes ○ Develop new H&H ○ Implement current technical standards agreement 	18
	Cost: \$3,600,000	Cost: \$ (ongoing)	\$3,600,000
2	<ul style="list-style-type: none"> • Continue Assessment of Community Mapping Needs and Capability • Complete upgrade of D-FIRMS to geo-database format (Category I) • Convert countywide maps to geo-database D-FIRM (Category II) • Conduct quality reviews of developed DFIRM2003s • Provide digital data to MIP • Begin pilot project for countywide DFIRM2003 for priority Category III and IV counties • Continue to advertise, interview, hire, and contract staff • Continue community adoption of DFIRM 2003 process 	<ul style="list-style-type: none"> • Maintain Statewide Digital Base Map Inventory • Ongoing IDNR efforts 	37
	Cost: \$5,170,000	Cost: \$60,000	5,230,000

**Estimate of FTEs does not include the estimate of part-time student employees for Phase I activities. A budget for hiring part-time students, however, is included in the cost estimates.*

**Table 5. – Continued
Illinois Flood Map Modernization Work Plan**

Year	Phase I Activities:	Phase II Activities:	FTE* and Total Cost
3	<ul style="list-style-type: none"> • Continue developing DFIRM2003s (Category III and IV) • Conduct quality reviews of developed DFIRM2003s • Provide digital data to MIP • Continue community adoption of DFIRM 2003 process • Begin using the MIP automated H&H 	<ul style="list-style-type: none"> • Maintain Statewide Digital Base Map Inventory • Maintain Assessment of Community Mapping Needs and Capability • Investigate DFIRM2003 maintenance • Ongoing IDNR efforts 	40
	Cost: \$4,890,000	Cost: \$480,000	\$5,370,000
4	<ul style="list-style-type: none"> • Continue developing DFIRM2003s (Category III and IV) • Conduct quality reviews of developed DFIRM2003s • Provide digital data to MIP • Continue community adoption of DFIRM 2003 process • Continue using the MIP automated H&H 	<ul style="list-style-type: none"> • Pilot DFIRM2003 maintenance • Maintain Statewide Digital Base Map Inventory • Maintain Assessment of Community Mapping Needs and Capability • Ongoing IDNR efforts 	41
	Cost: \$4,890,000	Cost: \$620,000	5,510,000
5	<ul style="list-style-type: none"> • Continue developing DFIRM2003s (Category III and IV) • Conduct quality reviews of developed DFIRM2003s • Provide digital data to MIP • Continue community adoption of DFIRM 2003 process • Continue using automated H&H 	<ul style="list-style-type: none"> • Conduct DFIRM maintenance • Maintain Statewide Digital Base Map Inventory • Maintain Assessment of Community Mapping Needs and Capability • Investigate base map sharing • Investigate Information Technology Systems • Ongoing IDNR efforts • Investigate outreach mechanisms 	41
	Cost: \$4,890,000	Cost: \$620,000	5,510,000

**Estimate of FTEs does not include the estimate of part-time student employees for Phase I activities. A budget for hiring part-time students, however, is included in the cost estimates.*

**Table 5. – Continued
Illinois Flood Map Modernization Work Plan**

Year	Phase I Activities:	Phase II Activities:	FTE* and Total Cost
Post 5		<ul style="list-style-type: none"> • Conduct quality reviews of developed DFIRM2003 • Provide digital data to MIP • Continue community adoption of DFIRM 2003 process • Continue using automated H&H • Conduct DFIRM maintenance • Maintain Statewide Digital Base Map Inventory • Maintain Assessment of Community Mapping Needs and Capability • Provide base map sharing • Ongoing IDNR efforts • Conduct outreach • Retain one GIS manager and one engineer and proportional support staff to process map revisions, maintain inventory. Hire graduate and undergraduate students as needed for workload. 	15
	Cost: \$0	Cost: \$1,400,000	\$1,400,000

**Estimate of FTEs does not include the estimate of part-time student employees for Phase I activities. A budget for hiring part-time students, however, is included in the cost estimates.*

**Table 6.
Illinois five-year Flood Map Modernization Timeline**

	Lead	Year 1	Year 2	Year 3	Year 4	Year 5	Post Year 5
Phase I - Development of Map Information Portal (MIP) Digital Data:							
	Assessment of Community Mapping Needs and Capability	OWR	*****	*****			
	Development of digital base map inventory	SWS	*****				
I	Conversion of Countywide DFIRMs to Standard DFIRM database (DFIRM2003)	SWS	*****	*****			
II	Conversion of Countywide FIRMs to DFIRM2003	SWS	Pilot	*****			
III	Development of Countywide DFIRM2003 for communities with H&H	SWS		Pilot	*****	*****	*****
IV	Development of Countywide DFIRM2003 for communities without H&H	SWS		Pilot	*****	*****	*****
	Automated H&H	OWR/SWS			*****	*****	*****
	New H&H (ongoing)	OWR	*****	*****	*****	*****	*****
	Community Adoption of DFIRM 2003	OWR	*****	*****	*****	*****	*****
Phase II - Map Modernization Maintenance Activities							
	Statewide Digital Base Map Inventory- Maintain	SWS			Investigate	*****	*****
	Digital Base Map Sharing (ISWS and OWR)	SWS				Investigate	*****
	DFIRM Maintenance	OWR/SWS			Investigate	Pilot	*****
	Hydrologic and Hydraulic Review	OWR	*****	*****	*****	*****	*****
	Assessment of Community Mapping Needs	OWR			*****	*****	*****
	Technical Standards Agreement	Done	*****	*****	*****	*****	*****
	Information Technology Systems	OWR/SWS				Unknown	*****
	Outreach - Website Posting & Informational Mailing	OWR/SWS				Investigate	*****
	Outreach - Multi-Media Promotional Activities	OWR/SWS				Investigate	*****
	Total Funding Request:		\$ 3,600,000	\$ 5,230,000	\$ 5,370,000	\$ 5,510,000	\$ 5,510,000
						\$ 1,400,000	

C. Coordination with Cooperative Technical Partners and Communities

When appropriate, IDNR will work with communities to help them become Cooperative Technical Partners (CTP). Expanded local capability will help to further the state's flood map modernization goals (page 10).

IDNR will continue to work cooperatively with the current CTP communities, but will assume quality control for maps produced by current or future CTPs. The department will review data provided by communities that are not CTPs to determine if it meets data specifications. When specifications are met, or when the data can be improved to meet standards, the product will be incorporated under map conversion or maintenance activities.

D. Cost-share

IDNR is able to provide cost-share for the following:

- Staff to review and issue CLOMRs (duplication of effort by FEMA will be removed),
- H&H studies funded by IDNR,
- Floodplain Information Services staff,
- Office space/physical plant,
- Telephone and office equipment, and
- Supervisory and administrative support.

E. Project Management

Administration

IDNR will use existing administrative arrangements to manage any new or amended contracts with FEMA.

Personnel and Training

IDNR will implement the five-year work plan; managers at OWR and SWS will supervise project development, work effort, hiring, performance standards, and quality assurance. A Map Modernization Manager will manage the project.

All personnel will be technically qualified and IDNR will provide comprehensive training for both existing and new staff. Staff will attend training offered by FEMA, or recommended by FEMA, relating to flood map modernization.

Contracts with any consultants will be based on qualifications and will be implemented through IDNR's required procedures.

Quality Assurance and Performance Standards

Products in the work plan will be developed according to FEMA specifications and standards, and IDNR will develop a procedure for independent review of flood map data. The department will meet with FEMA staff as well as internal staff to review deliverables and QA/QC procedures.

Table 7 summarizes the number of counties and the percent of the State's population that will have preliminary DFIRM2003's ready for review at the end of each year. These numbers come from Appendix A of the MHIP. If it is determined that objectives cannot be met in the timeframe presented, e.g., due to delays in hiring qualified staff, IDNR may out-source work to consultants.

Performance standards will be established for activities such as assisting communities adopt new maps; these will be modeled after the Community Assistance Program.

Tracking and Reporting

IDNR anticipates reporting to FEMA monthly and quarterly. Monthly reports will track the status of DFIRM panel production. Quarterly reports will show the status of all other map modernization activities.

F. FEMA-Requested Funding Scenarios

Table 8 presents a summary of map modernization activities based on level of funding.

Full Funding: The Illinois five-year work plan (Table 5, page 20) provides a “full funding” proposal for flood map modernization in Illinois.

Medium Funding: IDNR would undertake all plan activities but the completion timeline would be extended depending on the reduction.

Low Funding: IDNR would implement the activities for map maintenance. No map conversion would be completed unless a separate CTP was funded by FEMA.

No Federal Funding: If no federal funding is available, IDNR will complete the current activities in the map maintenance area. These capabilities will include maintenance of digital products as they are introduced in Illinois.

See Section VII B for a discussion of the MHIP base funding level.

End of Year	# Counties with DFIRM2003	Percent of Population
1	8	18%
2	27	74%
3	46	84%
4	72	94%
5	102	100%

**Table 8.
Consideration of FEMA Funding Levels**

	Full Finding	Medium Funding	Low Funding	No Funding
<u>Phase I - Development of Map Data:</u>				
Initial Assessment of Community Mapping Needs and Capabilities	Year 1 & 2	Year 1 & 2		
Initial development of digital base map inventory	Year 1	Year 1		
I Conversion of Countywide DFIRMs to Standard DFIRM database (DFIRM2003)	Year 1 & 2	Years 1-2		
II Conversion of Countywide FIRMs to DFIRM2003	Year 1 & 2	Years 1-4		
III Development of Countywide DFIRM2003 for communities with H&H	Year 2, 3, 4, 5	Year 4 & 5		
IV Development of Countywide DFIRM2003 for communities without H&H	Year 2, 3, 4, 5			
Automated H&H	Year 2, 3, 4, 5 and ongoing	Year 4, 5 and ongoing	Unknown	Unknown
New H&H (ongoing)	Ongoing	Ongoing	Ongoing	Ongoing
Community Adoption of DFIRM 2003	Year 2, 3, 4, 5 and ongoing	As Required	As Required	Ongoing
<u>Phase II - Map Maintenance Activities:</u>				
Statewide Digital Base Map Inventory- Maintain	Year 2, 3, 4, 5 and ongoing	Year 2, 3, 4, 5 and ongoing	Ongoing	
Digital Base Map Sharing (ISWS and OWR)	Year 2, 3, 4, 5 and ongoing	Year 2, 3, 4, 5 and ongoing	Ongoing	
DFIRM Maintenance	Year 2, 3, 4, 5 and ongoing	Year 4, 5 and ongoing	Year 5 and ongoing	
Hydrologic and Hydraulic Review	Ongoing	Ongoing	Ongoing	Ongoing
Assessment of Community Mapping Needs - Maintain	Year 3, 4, 5 and ongoing	Year 5 and ongoing	Expanded* Ongoing	Expanded* Ongoing
Technical Standards Agreement	Ongoing	Ongoing	Ongoing	Ongoing
Information Technology Systems	Year 5 and ongoing	Year 5 and ongoing		
Outreach - Website Posting & Informational Mailing	Year 5 and ongoing	Year 5 and ongoing		
Outreach - Multi-Media Promotional Activities	Year 5 and ongoing	Year 5 and ongoing		
Average Annual five-year Funding Request:	\$ 5,000,000	\$ 4,000,000	\$ 2,400,000	\$ 0
Post 5- year Funding Request:	\$ 1,400,000	\$1,200,000	& 700,000	\$ 0

On-going means the current on-going effort with current state resources.

* Expanded means an expansion of current on-going efforts with existing state resources.

Section VII - Conclusions and Recommendations

A. Conclusions

In this State Business Plan, IDNR has outlined how it will participate in FEMA's Flood Map Modernization Program. The cooperative effort between the state and FEMA will:

- Develop up-to-date-flood hazard data.
- Provide maps and data in digital format.
- Integrate Illinois and its communities into the mapping process.
- Reduce or eliminate inconsistencies in flood hazard mapping.
- Foster better watershed management throughout Illinois.
- Incorporate better flood data and base mapping into regulatory flood maps.
- Reduce or eliminate duplication of federal and state effort in flood map maintenance.

B. Funding Request

The IDNR reiterates its request for full funding of this business plan. The plan estimates the cost of map conversion to be no less than \$26,620,000. This does not include the cost of incorporating new hydrologic and hydraulic data. In the November 2004 Multi-Year Flood Hazard Implementation Plan, total expenditure for Illinois was listed at \$14,133,000, not including almost \$1,000,000 for H&H work in the first two years. This means the projected funding is 53% of the estimated cost to complete map conversion.

While the MHIP anticipates that, with such a nationwide effort, lower-cost technologies and modes of production will be developed, it is unlikely that savings will occur at the beginning of the project. We do not believe that new technology will reduce the cost of map conversion by more than 50% in any year. Moreover, if the difference in costs between MHIP and the Illinois Business Plan are to converge, the cost savings in the outlying years will need to be greater than 50%. This expectation, in Illinois' opinion, is unrealistic.

In addition, IDNR is dedicated to improving the quality of floodplain mapping in the state and seeks to produce maps that are consistent with the best available base map information. Our current experience has shown that this often requires labor intensive refitting (registration) of flood layers to higher resolution and more accurate orthophoto base maps and topography. This additional time and cost, and the time and cost of reviewing community and county level H & H studies that have not been officially adopted, could significantly increase the cost of map modernization for some counties.

While we hope that the project develops significant cost efficiencies as it moves forward, the funding levels contained in the MHIP must be reconsidered. If underfunding becomes an obstacle to the accurate conversion, updating, and improvement of existing maps, Illinois will have to revise its business plan at the "Medium Funding" level described in Section VI. At this revised level of effort, converting countywide FIRMs to DFIRM2003 would be extended two more years, and developing countywide DFIRM2003s for communities with H & H data would be delayed until the fourth and fifth years. Developing countywide DFIRM2003 for communities without H & H data would be eliminated. In some cases, Phase II map maintenance activities would be delayed to later in the five-year plan or undertaken at the current level of effort with existing state resources.

If MHIP funding levels cease after Year 5, Illinois conversion will not be complete and FEMA will not meet OMB goals. IDNR will complete the map modernization project on a funds-available basis.

The Office of Water Resources and the State Water Survey have historically produced high quality floodplain information for the citizens of Illinois. Full funding of this business plan is necessary to continue this tradition and to help FEMA meet its key indicators for map modification.

C. Proposed Schedule

Full funding will allow IDNR to develop digital base map and flood hazard data for 67 percent of the state's population (17 counties) in two years and 100 percent by the end of the fifth year. The proposed schedule is presented in Table 6 (page 24).

D. Notice of Interest

The *Illinois Business Plan for Flood Map Modernization* serves as the state's "notice of interest" to continue its participation in the Federal Emergency Management Agency's (FEMA) Flood Map Modernization Program – Phase I and Phase II.

References

Illinois Map Modernization Plan, 2002 (Dewberry)

Floodplain Management – Local Administrator’s Manual, IDNR/OWR, January 1996

Floodplain Management in Northeastern Illinois – Local Administrator’s Manual, IDNR/OWR, December 1996

“Statewide Survey of GIS Development in Illinois Counties” (Figures 1 and 2), City of Danville, Vermillion County, Illinois Department of Development Services, GIS Division, Adam Aull, GIS Manager.

FEMA Website for Flood Hazard Mitigation and Map Modernization Program (www.fema.gov/fhm/).

United States Geological Survey National Hydrography Database (nhd.usgs.gov/).

Appendix A.

Counties Mapping Status in 2003

County	Population 2000	Pop. Rank	No. of Mapped Communities	No. of Unmapped Communities	Existing* Panels	DFIRM	Countywide
Adams	68,277	21	2	13	17		
Alexander	9,590	89	5		9		
Bond	17,633	64	2	6	7		
Boone	41,786	32	2	2	12		
Brown	6,950	95	1	4	8		
Bureau	35,503	42	11	6	20		
Calhoun	5,084	100	5	1	10		
Carroll	16,674	70	5	3	10		
Cass	13,695	82	4	2	9		
Champaign	179,669	12	8	16	34		
Christian	35,372	44	5	10	17		
Clark	15,921	67	3		24		Yes
Clay	14,560	79	3	4	8		
Clinton	35,535	41	10	6	11	95	Yes
Coles	53,196	27	4	1	12		
Cook	5,376,741	1	129	1	1,217	95	Yes
Crawford	20,452	58	4	3	12		
Cumberland	11,253	87	3	2	13		
De Witt	16,798	69	3		50		Yes
DeKalb	88,969	19	15		112		Yes
Douglas	19,922	60	7	1	12		
DuPage	904,161	2	36	2	189		CTP
Edgar	19,704	61	2	7	7		
Edwards	6,971	94	3	1	5		
Effingham	34,264	45	5	6	10		
Fayette	21,802	56	2	6	12		
Ford	14,241	81	2	8	8		
Franklin	39,018	36	8	4	14		
Fulton	38,250	37	11	10	27		
Gallatin	6,445	96	7	1	12		
Greene	14,761	78	5	5	20		
Grundy	37,535	38	10	5	25		
Hamilton	8,621	90	2	4	8		
Hancock	20,121	59	7	9	26		
Hardin	4,800	101	4		7		
Henderson	8,213	91	6	3	20		
Henry	51,020	29	7	9	20		
Iroquois	31,334	48	14		60		Yes
Jackson	59,612	24	10	2	21		
Jasper	10,117	88	4	4	16		
Jefferson	40,045	34	4	6	19		
Jersey	21,668	57	4	3	9		
Jo Daviess	22,289	55	5	6	15		
Johnson	12,878	85	2	6	2		
Kane	404,119	5	18	8	61	95	Yes
Kankakee	103,833	18	8	5	28		
Kendall	54,544	26	9		24		
Knox	55,836	25	8	7	19		
La Salle	111,509	17	23	2	143	95	Yes
Lake	644,356	3	47		558	95	Yes
Lawrence	15,452	74	7		20		

County	Population 2000	Pop. Rank	No. of Mapped Communities	No. of Unmapped Communities	Existing* Panels	DFIRM	Countywide
Lee	36,062	40	9		48		Yes
Livingston	39,678	35	5	13	16		
Logan	31,183	49	3		50		Yes
McDonough	32,913	47	2	3	7		
McHenry	260,077	7	25	1	71		
McLean	150,433	13	21		155	95	Yes
Macon	114,706	16	7	1	29		
Macoupin	49,019	30	4	22	11		
Madison	258,941	8	16	11	54		Yes
Marion	41,691	33	5	1	10		
Marshall	13,180	83	7	1	12		
Mason	16,038	73	6		14		
Massac	15,161	76	4		7		
Menard	12,486	86	4	2	10		
Mercer	16,957	68	5	8	11		
Monroe	27,619	51	6	1	15		
Montgomery	30,652	50	4	18	12		
Morgan	36,616	39	4	8	14		
Moultrie	14,287	80	6	2	11		
Ogle	51,032	28	8	4	41		
Peoria	183,433	11	8	8	18		
Perry	23,094	53	3	4	10		
Piatt	16,365	71	5	4	12		
Pike	17,384	65	8	11	19		
Pope	4,413	102	2	2	6		
Pulaski	7,348	92	6	2	8		
Putnam	6,086	98	4	3	8		
Randolph	33,893	46	8	7	18		
Richland	16,149	72	2	4	7		
Rock Island	149,374	14	16	2	154	95	Yes
St. Clair	256,082	9	24	5	63	95	Yes
Saline	26,733	52	4	3	9		
Sangamon	188,951	10	15	11	44	95	Yes
Schuyler	7,189	93	2	3	9		
Scott	5,537	99	3	4	6		
Shelby	22,893	54	2	10	11		
Stark	6,332	97	4	1	4		
Stephenson	48,979	31	6	6	14		
Tazewell	128,485	15	14	4	30		
Union	18,293	63	4	3	9		
Vermilion	83,919	20	13	7	25		
Wabash	12,937	84	2	3	6		
Warren	18,735	62	5	1	12		
Washington	15,148	77	4	10	12		
Wayne	17,151	66	3		11		
White	15,371	75	6	5	11		
Whiteside	60,653	23	10	2	20		
Will	502,266	4	27		374	DB	Yes
Williamson	61,296	22	7	7	15		
Winnebago	278,418	6	10	3	47		
Woodford	35,469	43	6	11	13		

* Provided by FEMA. This number may not reflect the current countywide panel count.

Appendix B. County Decile Ranking and Proposed DFIRM2003 Map Panel Count

County	Population 2000	Pop. Rank	Decile	Existing* Panels	Proposed Panel Count	Countywide	# Mapped Communities
Adams	68,277	21	3	17	119		2
Alexander	9,590	89	3	9	49		5
Bond	17,633	64	10	7	61		2
Boone	41,786	32	6	12	52		2
Brown	6,950	95	6	8	33		1
Bureau	35,503	42	5	20	127		11
Calhoun	5,084	100	1	10	47		5
Carroll	16,674	70	6	10	55		5
Cass	13,695	82	3	9	50		4
Champaign	179,669	12	2	34	160		8
Christian	35,372	44	9	17	100		5
Clark	15,921	67	9	24	45	Yes	3
Clay	14,560	79	10	8	60		3
Clinton	35,535	41	7	11	78	95	10
Coles	53,196	27	7	12	77		4
Cook	5,376,741	1	1	1217	339	95	129
Crawford	20,452	58	9	12	56		4
Cumberland	11,253	87	9	13	53		3
De Witt	16,798	69	8	50	101	Yes	3
DeKalb	88,969	19	3	112	65	Yes	15
Douglas	19,922	60	5	12	74		7
DuPage	904,161	2	1	189	113	CTP	36
Edgar	19,704	61	9	7	81		2
Edwards	6,971	94	10	5	40		3
Effingham	34,264	45	8	10	75		5
Fayette	21,802	56	10	12	82		2
Ford	14,241	81	10	8	81		2
Franklin	39,018	36	6	14	88		8
Fulton	38,250	37	2	27	126		11
Gallatin	6,445	96	9	12	44		7
Greene	14,761	78	5	20	73		5
Grundy	37,535	38	3	25	79		10
Hamilton	8,621	90	9	8	49		2
Hancock	20,121	59	5	26	106		7
Hardin	4,800	101	10	7	12		4
Henderson	8,213	91	4	20	62		6
Henry	51,020	29	4	20	117		7
Iroquois	31,334	48	7	60	139	Yes	14
Jackson	59,612	24	4	21	100		10
Jasper	10,117	88	9	16	58		4
Jefferson	40,045	34	8	19	79		4
Jersey	21,668	57	1	9	73		4
Jo Daviess	22,289	55	3	15	97		5
Johnson	12,878	85	9	2	55		2
Kane	404,119	5	1	61	135	95	18
Kankakee	103,833	18	2	28	106		8
Kendall	54,544	26	4	24	67		9
Knox	55,836	25	7	19	110		8
La Salle	111,509	17	2	143	189	95	23
Lake	644,356	3	1	558	152	95	47
Lawrence	15,452	74	9	20	42		7
Lee	36,062	40	4	48	97	Yes	9
Livingston	39,678	35	6	16	140		5
Logan	31,183	49	8	50	84	Yes	3

County	Population 2000	Pop. Rank	Decile	Existing* Panels	Proposed Panel Count	Countywide	# Mapped Communities
Macon	114,706	16	3	29	106		2
Macoupin	49,019	30	7	11	123		25
Madison	258,941	8	2	54	151	Yes	21
Marion	41,691	33	7	10	85		7
Marshall	13,180	83	6	12	63		4
Mason	16,038	73	3	14	82		16
Massac	15,161	76	7	7	30		5
McDonough	32,913	47	9	7	87		7
McHenry	260,077	7	1	71	137		6
McLean	150,433	13	3	155	177	95	4
Menard	12,486	86	8	10	46		4
Mercer	16,957	68	7	11	71		5
Monroe	27,619	51	3	15	68		6
Montgomery	30,652	50	9	12	122		4
Morgan	36,616	39	3	14	92		4
Moultrie	14,287	80	10	11	55		6
Ogle	51,032	28	3	41	102		8
Peoria	183,433	11	1	18	116		8
Perry	23,094	53	9	10	62		3
Piatt	16,365	71	10	12	68		5
Pike	17,384	65	2	19	134		8
Pope	4,413	102	9	6	29		2
Pulaski	7,348	92	6	8	50		6
Putnam	6,086	98	7	8	38		4
Randolph	33,893	46	3	18	101		8
Richland	16,149	72	9	7	47		2
Rock Island	149,374	14	1	154	98	95	16
Saline	26,733	52	9	9	56		24
Sangamon	188,951	10	2	44	161	95	4
Schuyler	7,189	93	4	9	63		15
Scott	5,537	99	7	6	51		2
Shelby	22,893	54	9	11	101		3
St. Clair	256,082	9	2	63	170	95	2
Stark	6,332	97	10	4	32		4
Stephenson	48,979	31	5	14	81		6
Tazewell	128,485	15	2	30	121		14
Union	18,293	63	6	9	57		4
Vermilion	83,919	20	5	25	135		13
Wabash	12,937	84	9	6	40		2
Warren	18,735	62	9	12	62		5
Washington	15,148	77	10	12	93		4
Wayne	17,151	66	9	11	70		3
White	15,371	75	8	11	76		6
Whiteside	60,653	23	3	20	79		10
Will	502,266	4	1	374	226	DB	27
Williamson	61,296	22	4	15	86		7
Winnebago	278,418	6	2	47	104		10
Woodford	35,469	43	2	13	99		6

Provided by FEMA. This number may not reflect the current countywide panel count.

Appendix C.

IDNR Mapping Categories

Category I Counties — 63% of Illinois' population

County	Population 2000	Population Rank	DFIRM/ Countywide	Existing Panels	Proposed Panel Count	No. of Mapped Communities
Clinton	35,535	41	95	61	135	10
Cook	5,376,741	1	95	54	151	129
Kane	404,119	5	95	112	65	18
La Salle	111,509	17	95	374	226	23
Lake	644,356	3	95	155	177	47
McLean	150,433	13	95	44	161	4
Rock Island	149,374	14	95	7	30	16
Sangamon	188,951	10	95	558	152	4
St. Clair	256,082	9	95	1217	339	2
Will	502,266	4	DB	71	137	27

Category II Counties — 4% of Illinois' population

County	Population 2000	Population Rank	DFIRM/ Countywide	Existing Panels	Proposed Panel Count	No. of Mapped Communities
Clark	15,921	67	CW	6	40	3
De Witt	16,798	69	CW	10	55	3
DeKalb	88,969	19	CW	154	98	15
Iroquois	31,334	48	CW	11	78	14
Lee	36,062	40	CW	143	189	9
Logan	31,183	49	CW	189	113	3
Madison	258,941	8	CW	63	170	21

Category III and IV Counties

County	Population 2000	Population Rank	Existing Panels	Proposed Panel Count	No. of Mapped Communities
Adams	68,277	21	12	77	11
Alexander	9,590	89	27	126	4
Bond	17,633	64	5	40	5
Boone	41,786	32	15	68	5
Brown	6,950	95	12	56	5
Bureau	35,503	42	7	87	6
Calhoun	5,084	100	29	106	3
Carroll	16,674	70	15	97	4
Cass	13,695	82	14	88	5
Champaign	179,669	12	25	135	5
Christian	35,372	44	14	82	13
Clay	14,560	79	4	32	3
Coles	53,196	27	12	74	8
Crawford	20,452	58	8	60	6
Cumberland	11,253	87	16	58	2
Douglas	19,922	60	50	84	8
DuPage	904,161	2	47	104	36
Edgar	19,704	61	11	55	4
Edwards	6,971	94	10	47	2
Effingham	34,264	45	50	101	6
Fayette	21,802	56	9	63	5
Ford	14,241	81	6	51	2
Franklin	39,018	36	10	62	7
Fulton	38,250	37	20	79	10
Gallatin	6,445	96	20	62	4
Greene	14,761	78	12	122	3
Grundy	37,535	38	11	123	9
Hamilton	8,621	90	8	49	2
Hancock	20,121	59	60	139	1

County	Population 2000	Population Rank	Existing Panels	Proposed Panel Count	No. of Mapped Communities
Hardin	4,800	101	6	29	4
Henderson	8,213	91	13	99	7
Henry	51,020	29	20	127	4
Jackson	59,612	24	14	92	2
Jasper	10,117	88	9	49	3
Jefferson	40,045	34	11	71	4
Jersey	21,668	57	30	121	4
Jo Daviess	22,289	55	19	79	4
Johnson	12,878	85	13	53	7
Kankakee	103,833	18	15	86	14
Kendall	54,544	26	48	97	10
Knox	55,836	25	26	106	2
Lawrence	15,452	74	2	55	5
Livingston	39,678	35	9	56	5
Macon	114,706	16	24	67	8
Macoupin	49,019	30	7	81	8
Marion	41,691	33	12	62	16
Marshall	13,180	83	12	82	3
Mason	16,038	73	16	140	4
Massac	15,161	76	7	61	4
McDonough	32,913	47	24	45	7
McHenry	260,077	7	18	116	8
Menard	12,486	86	7	47	2
Mercer	16,957	68	9	57	2
Monroe	27,619	51	10	85	5
Montgomery	30,652	50	20	42	7
Morgan	36,616	39	14	81	7
Moultrie	14,287	80	8	38	4
Ogle	51,032	28	20	117	10
Peoria	183,433	11	34	160	4
Perry	23,094	53	12	93	5
Piatt	16,365	71	8	33	5
Pike	17,384	65	19	110	5
Pope	4,413	102	8	50	4
Pulaski	7,348	92	9	73	2
Putnam	6,086	98	19	134	6
Randolph	33,893	46	12	52	11
Richland	16,149	72	12	63	6
Saline	26,733	52	11	76	2
Schuyler	7,189	93	17	100	2
Scott	5,537	99	11	70	2
Shelby	22,893	54	20	73	8
Stark	6,332	97	7	12	3
Stephenson	48,979	31	18	101	6
Tazewell	128,485	15	17	119	10
Union	18,293	63	11	101	7
Vermilion	83,919	20	10	75	8
Wabash	12,937	84	10	46	2
Warren	18,735	62	8	81	25
Washington	15,148	77	12	44	24
Wayne	17,151	66	9	50	4
White	15,371	75	12	68	7
Whiteside	60,653	23	41	102	8
Williamson	61,296	22	25	79	6
Winnebago	278,418	6	28	106	6
Woodford	35,469	43	21	100	15

