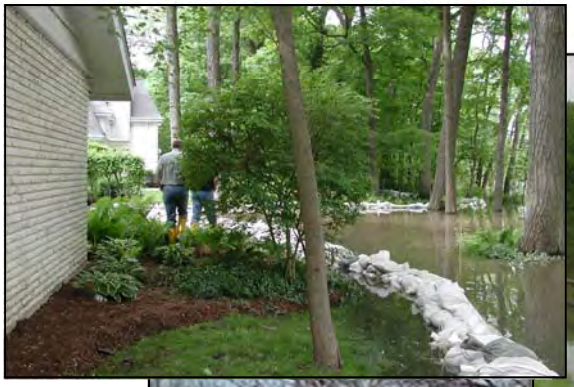
Village of Lincolnshire Natural Hazards Mitigation Plan

Village of Lincolnshire
Incorporated 1957



Village of Lincolnshire Hazard Mitigation Planning Committee

September 2014

Molly O'Toole & Associates, Ltd.
engineers • consultants

Village of Lincolnshire Natural Hazards Mitigation Plan

September 2014

Adopted by the Mayor and Board of Trustees of the Village of Lincolnshire
on September 22, 2014 by Resolution #743

Developed by:
Village of Lincolnshire Mitigation Planning Committee

With Supplemental Information
Included in the Adopted

Lake County All Natural Hazards Mitigation Plan, June 2012

Planning Consultant:

Molly O'Toole & Associates, Ltd.

[page intentionally left blank]

Village of Lincolnshire
Natural Hazards Mitigation Plan

Table of Contents

September 2014

Executive Summary ES-1

Chapter 1 Introduction 1-1
1.1 Purpose of the Plan 1-1
1.2 Organization of the Plan 1-1
1.3 Village of Lincolnshire Overview 1-3
1.4 Land Use and Development 1-4
1.5 Critical Facilities 1-5

Chapter 2 Planning Process 2-1
2.1 Plan Approach 2-1
2.2 Public Involvement 2-3
2.3 Agency Coordination 2-4
2.4 Plan Adoption and Implementation 2-4

Chapter 3 Risk Assessment 3-1
3.1 Natural Hazards in Lake County and Lincolnshire 3-1
3.2 Floods 3-2
3.3 Summary of Natural Hazard Risk Assessment 3-13

Chapter 4 Mitigation Goals 4-1
4.1 Review of ANHMP Goals and Guidelines 4-1
4.2 Lincolnshire's Mitigation Goals and Guidelines 4-2
4.3 Consideration of Other Plans 4-3

Chapter 5 Mitigation Strategies and Capabilities Assessment 5-1
5.1 Preventive Measures 5-2
5.2 Property Protection 5-5
5.3 Natural Resource Protection 5-13
5.4 Emergency Services 5-15
5.5 Structural Measures 5-20
5.6 Public Information Activities 5-23
5.7 Capability Assessment Summary 5.24

Chapter 6 Action Plan and Implementation Strategy 6-1
6.1 Lake County ANHMP Action Items for Lincolnshire 6-1
6.2 Lincolnshire Mitigation Action Plan 6-2

6.3 Implementation Strategy 6-7

Chapter 7 Plan Maintenance 7-1
7.1 Plan Adoption 7-1
7.2 Maintenance and Monitoring 7-1
7.3 Continued Public Participation 7-2
7.4 Evaluating the Plan's Success 7-2

Appendix A Village of Lincolnshire Resolutions A-1
Appendix B Public Information Materials B-1
Appendix C Planning Committee Materials C-1

List of Exhibits

Exhibit 1-1 Village of Lincolnshire Municipal Map 1-3
Exhibit 1-2 Village of Lincolnshire Future Land Use 1-6
Exhibit 1-3 Village of Lincolnshire Critical Facilities 1-7
Exhibit 3-1 Lake County Watersheds and Subwatersheds 3-6
Exhibit 3-2 Village of Lincolnshire April 2013 Known Flood Issues 3-11
Exhibit 3-3 Village of Lincolnshire Flood Focus Areas 3-14

List of Tables

Table 1-1 Summary of Lake County ANHMP and Village of Lincolnshire Mitigation Plan Contents 1-2
Table 1-2 Village of Lincolnshire Population Data 1-4
Table 1-3 Village of Lincolnshire Land Use 1-5
Table 1-4 Village of Lincolnshire Critical Facilities 1-5
Table 2-1 Village of Lincolnshire Natural Hazards Mitigation Planning Committee 2-2
Table 3-1 Presidential Disaster (DR) And Emergency Declarations (EM) In Lake County 3-1
Table 3-2 Des Plaines River Watershed in Lake County 3-5
Table 3-3 North Branch of the Chicago River Watershed in Lake County 3-7
Table 3-4 Lake County Flood Insurance Active Policies and Claims, FEMA 2011 3-8
Table 3-5 Lake County Repetitive Loss Structures 3-8
Table 3-6 Structures Located in Lake County Floodplains 3-12
Table 3-7 Estimated Market Value of Structures Located in Lake County

Floodplains 3-12
Table 3-8 Summary of Lake County Natural Hazards from the Lake County ANHMP 3-15
Table 3-9 IEMA Hazard Ratings for Lake County..... 3-16
Table 5-1 Natural Hazard Mitigation Activities 5-1
Table 5-2 NWS Flood Forecast Points 5-17
Table 6-1 Summary of Village of Lincolnshire Mitigation Action Items 6-8
Table 6-2 Summary of Village of Lincolnshire Mitigation Plan Goals..... 6-9
Table 6-3 Summary of Lake County ANHMP Action Items 6-10

List of Figures

Figure 3-1 Description of a Floodplain..... 3-3

Executive Summary

The Federal Emergency Management Agency (FEMA), through the Disaster Mitigation Act of 2000 (DMA 2000) and the Stafford Act require communities develop and adopt a FEMA-approved natural hazard mitigation plan to be eligible for hazard mitigation grant funds. To meet this requirement, the Village of Lincolnshire participated with Lake County and other Lake County municipalities in the development of the 2012 Lake County All Natural Hazards Mitigation Plan (ANHMP). The Village of Lincolnshire adopted the Lake County ANHMP in August 2012.

FEMA's National Flood Insurance Program's (NFIP) Community Rating System (CRS) provided CRS floodplain management planning credit to the Village of Lincolnshire; however, the Lake County ANHMP does not meet certain CRS planning requirements, which if met, the Village of Lincolnshire could improve beyond the current CRS Class 5 rating. Currently, properties located in the Special Flood Hazard Area (SFHA) receive a 25% discount in flood insurance premiums. Moving to a Class 4 rating would mean a 30% premium discount.

The Village of Lincolnshire Natural Hazard Mitigation Plan allows the Village to meet all planning requirements of the CRS, and it also furthers the Village's efforts to protect life, health and safety, and reduce damage to property and infrastructure from natural hazards. This Mitigation Plan assesses the natural hazards affecting the Village of Lincolnshire, sets mitigation goals, considers current mitigation efforts being implemented, evaluates additional mitigation strategies, and recommends mitigation actions to be implemented in the next five years. The mitigation actions are designed to protect the people and assets of the Village of Lincolnshire, and designed to be undertaken by both the public and the private sectors.

This Mitigation Plan was developed by the Village of Lincolnshire Natural Hazard Mitigation Planning Committee consisting of residents, community stakeholders, Village elected officials and Village staff, along with the assistance of a mitigation planning consultant. The Planning Committee was formed by a Village resolution passed on August 6, 2013 to facilitate the development of this Mitigation Plan and other CRS-related plans.

The Planning Committee identified priority hazards listed in Chapter 3. Due to the April 2013 flooding in Lincolnshire and the Village's interest in improving the CRS class rating, the focus of this Mitigation Plan is on floods.

The Planning Committee developed goals and guidelines for this Plan, developed recommendations for mitigation measures (preventive, property protection structural measures, emergency services and public information), and identified an action plan for the

Village to use to implement this plan. The Planning Committee is fully aware recommendations and action items will only be implemented when the Village's resources (staff time and funding) allow.

The Planning Committee will continue to meet annually to assess this Mitigation Plan and determine if any updates or changes are required. An annual progress report will be presented to the Village Board as an informational item. FEMA and CRS require all mitigation plans to be updated and re-adopted every five years.

This Mitigation Plan, when used in conjunction with the Lake County ANHMP, allows the Village of Lincolnshire to be more aware of the risks associated with natural hazards, the potential impact of the hazards on the community, and provides a list of actions to better protect property and people from harm.

Chapter 1. Introduction

The Village of Lincolnshire is located in southeastern Lake County along the Des Plaines River. Lake County, Illinois is located in northeastern Illinois. The Village of Lincolnshire is subject to flooding, severe summer and winter storms, extreme cold and heat, and tornadoes. The Village of Lincolnshire participates in the National Flood Insurance Program and the Community Rating System (CRS).

Lake County worked with the Lake County Local Planning Committee (LPC) to develop the 2012 Lake County All Natural Hazards Mitigation Plan (ANHMP). The Village of Lincolnshire is a member of the LPC and adopted the Lake County ANHMP locally in August 2012. In June 2013, the Village organized its own Mitigation Planning Committee to develop the Village of Lincolnshire Natural Hazards Mitigation Plan.

1.1 Purpose of the Plan

The purpose of the Village of Lincolnshire Natural Hazards Mitigation Plan (Mitigation Plan) is to examine flood mitigation actions that should be considered for the Village of Lincolnshire and to obtain floodplain management planning (FMP) credit in the CRS. The development of this Mitigation Plan included the participation of the Village of Lincolnshire Mitigation Planning Committee. The Mitigation Plan has been adopted by the Village of Lincolnshire Board of Trustees.

The Village's August 2012 adoption of the Lake County ANHMP allows the Village to be eligible for FEMA hazard mitigation grant funding from all of the FEMA Hazard Mitigation Assistance grant programs that fund mitigation activities. While the Lake County ANHMP meets all CRS planning requirements, additional FMP credit is being sought by the Village through this Mitigation Plan to allow the Village to earn a better CRS class rating. An improved CRS class rating will provide additional flood insurance premium discounts to Village of Lincolnshire floodplain residents and property owners.

The Village of Lincolnshire also worked with the Mitigation Planning Committee to develop a "Plan for Public Information" and a "Flood Insurance Coverage Improvement Plan." These plans are public information mitigation action items recommended in the Lake County ANHMP, and the implementation of these plans provide for additional CRS credit.

1.2 Organization of the Village of Lincolnshire Mitigation Plan

This Mitigation Plan is organized into seven chapters, and in the same manner as the Lake County ANHMP, the Village of Lincolnshire Mitigation Plan and the Lake County ANHMP are complimentary plans. Table 1-1 summarizes the contents of the Lake County ANHMP chapter and the Village of Lincolnshire Mitigation Plan. Chapter 2 of this Mitigation Plan describes what additional analysis and work of the Village of Lincolnshire Mitigation

Planning Committee went into this plan beyond the information provided in the Lake County ANHMP.

Table 1-1 Summary of Lake County ANHMP and Village of Lincolnshire Mitigation Plan Contents

	2012 Lake County ANHMP	2013 Village of Lincolnshire Natural Hazards Mitigation Plan	CRS Planning Step(s)
Chapter 1 Introduction	Includes the Lake County ANHMP's purpose and organization, provides an overview of County, a summary of Lake County land use, base maps, and a summary of critical facilities.	Examined the Village's land use and provides a map of critical facilities within the Village.	Step 1 and 2
Chapter 2 Planning Process	Presents the FEMA-recommended 10 step planning process and a summary of the major changes made from the 2006 to the 2012 Lake County ANHMP.	Summarized the planning process undertaken.	Step 1, 2 and 3
Chapter 3 Risk Assessment	Discusses the natural hazards that can impact Lake County.	Relies on the Lake County ANHMP and summarized the flood hazards in Lincolnshire.	Step 4 and 5
Chapter 4 Mitigation Goals	Presents the goals and guidelines of the Lake County ANHMP.	Presents the goals and guidelines tailored to the Village of Lincolnshire.	Step 6
Chapter 5 Mitigation Strategies and Capabilities Assessment	Provides a description of the mitigation activities already underway in Lake County and recommends additional activities for six mitigation strategy categories. Also considers the County and municipal capabilities for implementing measures.	Relies on the Lake County ANHMP and summarized the six mitigation strategies for flood mitigation. Conclusions and recommendations specific to the Village of Lincolnshire are included.	Step 7
Chapter 6 Action Plan and Implementation Strategy	Discusses the consideration of countywide and community-specific mitigation action items to be implemented as staff and funding resources allow.	Presents a Village of Lincolnshire natural hazard mitigation action plan, though the Village is still participating in the implementation of the Lake County ANHMP.	Step 8, 9 and 10
Chapter 7 Plan Maintenance	Discusses plan adoption, outlines the Lake County ANHMP maintenance and monitoring efforts, continued public participation, and evaluating the plan.	Same.	Step 10

1.3 Village of Lincolnshire Overview

The Village of Lincolnshire is located in southeastern Lake County, primarily within Vernon Township, and a small portion of the eastern end of the Village in West Deerfield Township. The Village was incorporated in 1957. The Village of Lincolnshire is bordered by the Villages of Buffalo Grove to the south and west, Vernon Hills to the west, Lake Forest to the north and east, Bannockburn to the east and Riverwoods to the south. Two unincorporated portions of Vernon Township also border the Village of Lincolnshire.

The Des Plaines River flows through the Village of Lincolnshire. Lake County Forest Preserve lands are located to the south and north of the Village of Lincolnshire along the Des Plaines River.

A map of the Village of Lincolnshire is presented in Exhibit 1-1.

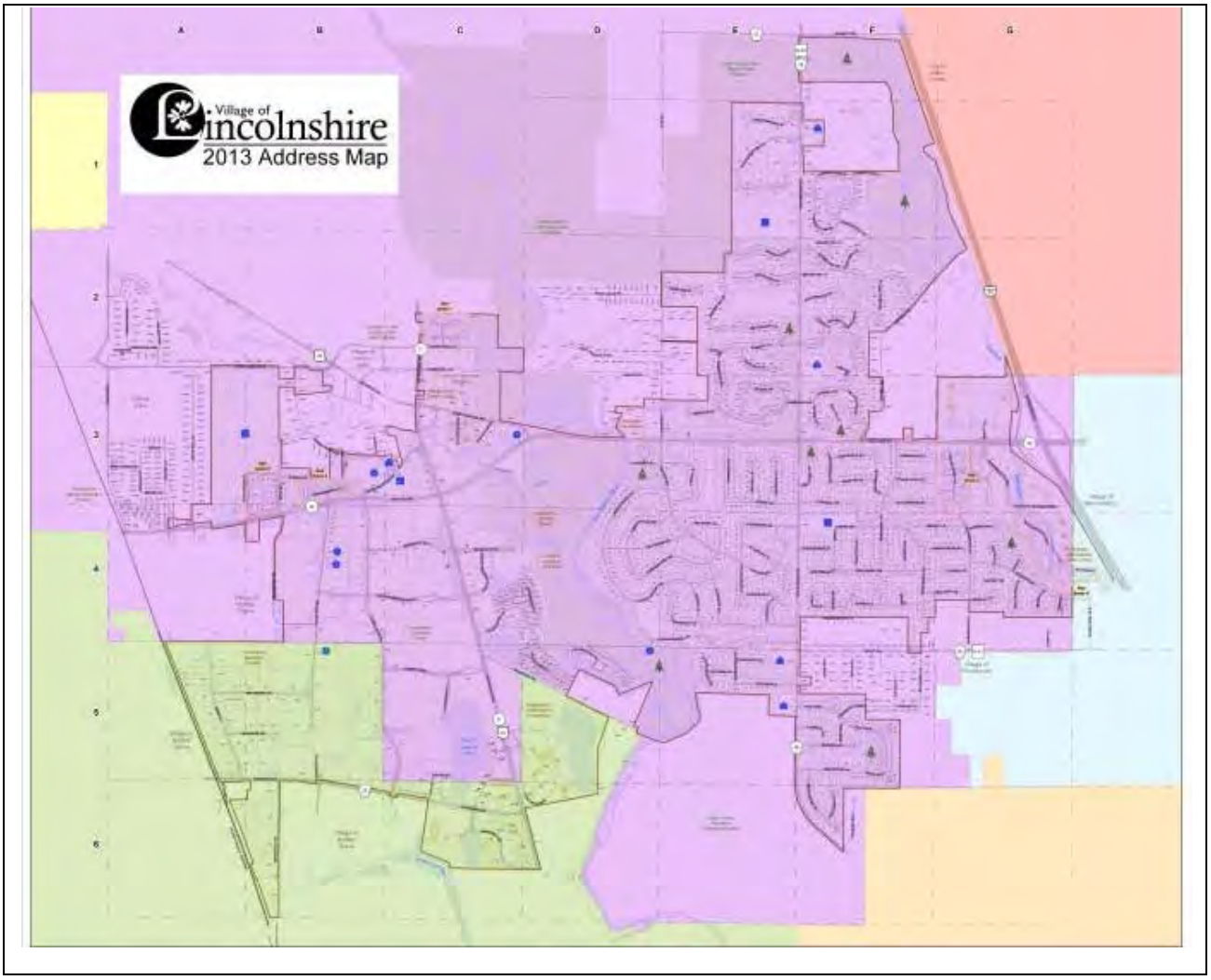


Exhibit 1-1 Village of Lincolnshire Municipal Map

Watersheds: A majority of the Village of Lincolnshire is part of the Des Plaines River watershed. The Des Plaines River originates in Wisconsin, flows south through Lake County and south into Cook County. Indian Creek is a tributary to the Des Plaines River and is located on the western portion of Lincolnshire. The eastern portion of the Village is part of the West Fork of the North Branch of the Chicago River.

There are 480 parcels of land located in the Special Flood Hazard Area (SFHA).

Population: The Village of Lincolnshire has a population of 7,275, according to the 2010 U.S. Census. Lake County has a population of 703,462. There are approximate 3,400 household units in Lincolnshire.

Population of Lincolnshire has grown 19% from 2000 to 2010 as shown in Table 1-2. The Chicago Metropolitan Agency projects population growth to continue for Lake County, with a projected population of over 950,000 by the year 2040.

Table 1-2 Village of Lincolnshire Population Data

	Lake County	
Community	**2000 Population**	**2010 Population**
Village of Lincolnshire	6,108	7,275
Total:	**644,356**	**703,462**

Employment: Largely due to its office, industrial, hospitality, and commercial/retail sectors, Lincolnshire has a diverse economic base. The Village consists of a number of office and business parks, including the Lincolnshire Corporate Center, Lincolnshire Business Center, Tri-State Office Park, and Millbrook Office Park, which house employers, such as AON Hewitt, Walgreens, HydraForce and Quill. The Village's daytime population totals more than 25,000.

Lincolnshire is home to six hotels including the Lincolnshire Marriott Resort.

Schools: Lincolnshire is part of the Lincolnshire-Prairie View School District 103 Elementary School District and the Adlai E. Stevenson High School District 125.

1.4 Land Use and Development

Current Zoning Map: The current Village of Lincolnshire's zoning map can be viewed at http://www.village.lincolnshire.il.us/village-maps.

Future Land Use: Exhibit 1-2 shows the future land use map.

Development Trends: The Village of Lincolnshire's Comprehensive Plan was updated in March 2012. The Village expects continued growth in the community for both housing units and commercial and industrial development. The Comprehensive Plan can be viewed at

http://www.village.lincolnshire.il.us/departments-services/community-economic-development/comprehensive-plan-update-2012.

Table 1-3 Village of Lincolnshire Land Use

	Land Use	
Land Use	**Acres**	**Percent**
Residential	1,360	46%
Non-residential	573	20%
Open Space and Parkland	395	13%
Other	609	21%
Total	**2,938**	**100%**

1.5 Critical Facilities

Critical facilities are buildings and infrastructure whose exposure or damage can affect the well-being of a large group. The continued operation of critical facilities is vital to preparedness, response and recovery from any sort of natural or manmade hazard event. Exhibit 1-3 shows the critical facilities located within the Village of Lincolnshire and those located in the SFHA (100-year floodplain).

Further investigation into critical facility locations, use of critical facility mapping, and protection of critical facilities is discussed in Chapters 3 and 5 of this Mitigation Plan.

Table 1-4 Village of Lincolnshire Critical Facilities

Critical Facility Category	Within Village	Within SFHA
Fire Department	1	0
Police Department	1	0
Riverside Foundation	1	1
Village Hall	1	0
Public Works and Water Facility	1	0
Sanitary Facility	8	2
Schools	4	0
Water Facility	1	0
Total:	**18**	**3**

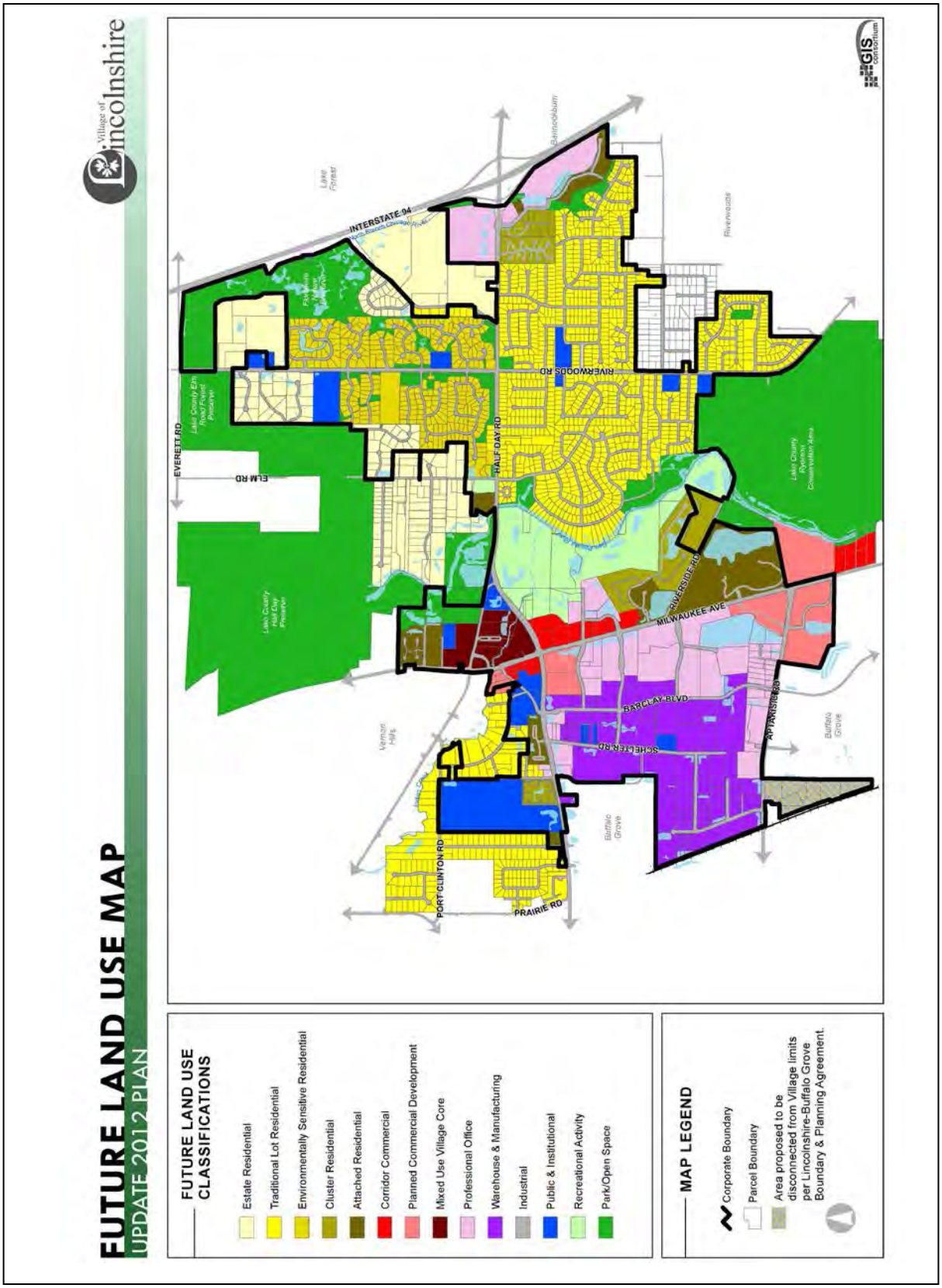


Exhibit 1-2 Village of Lincolnshire Future Land Use Map

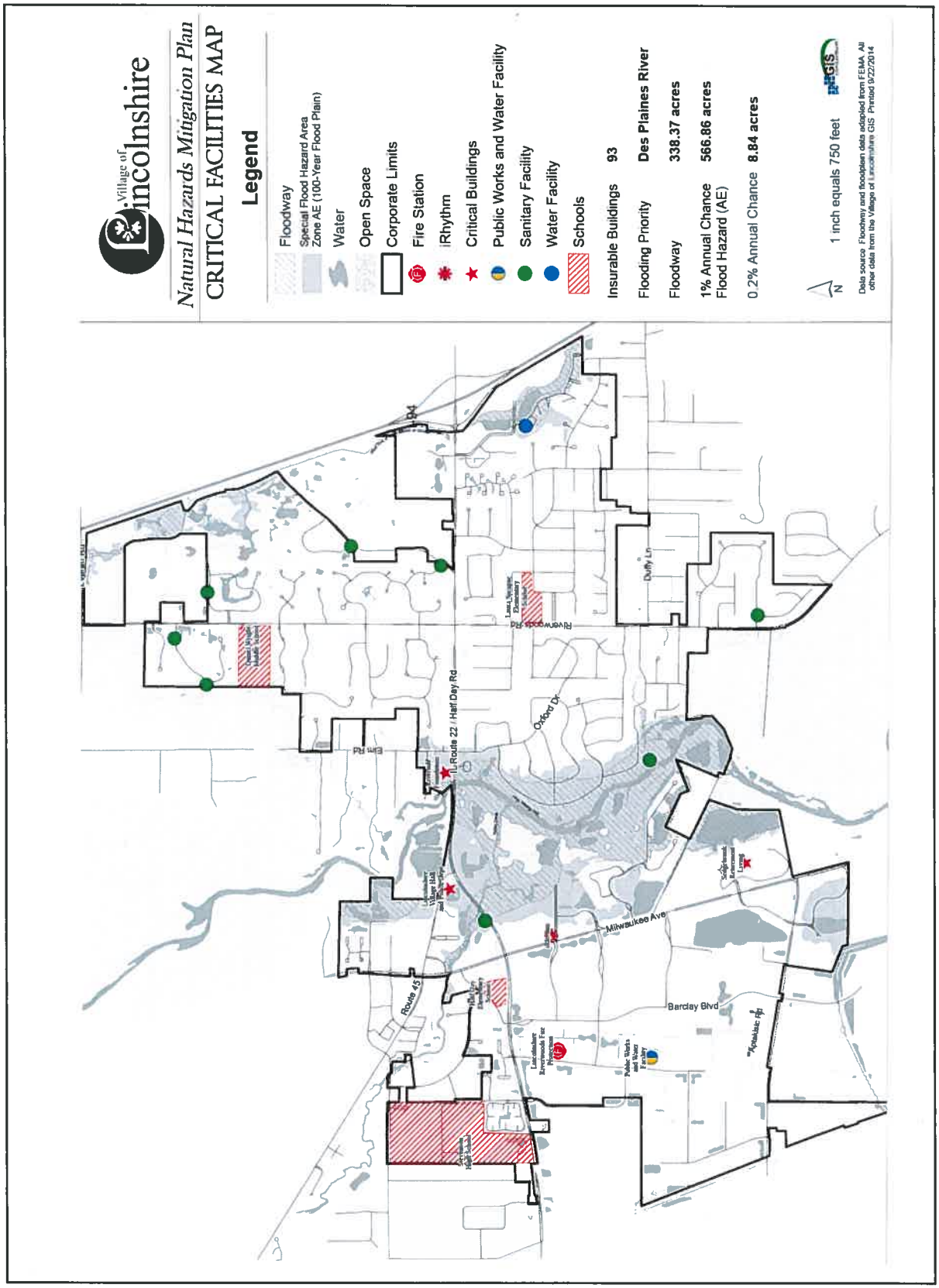


Exhibit 1-3 Village of Lincolnshire Critical Facilities

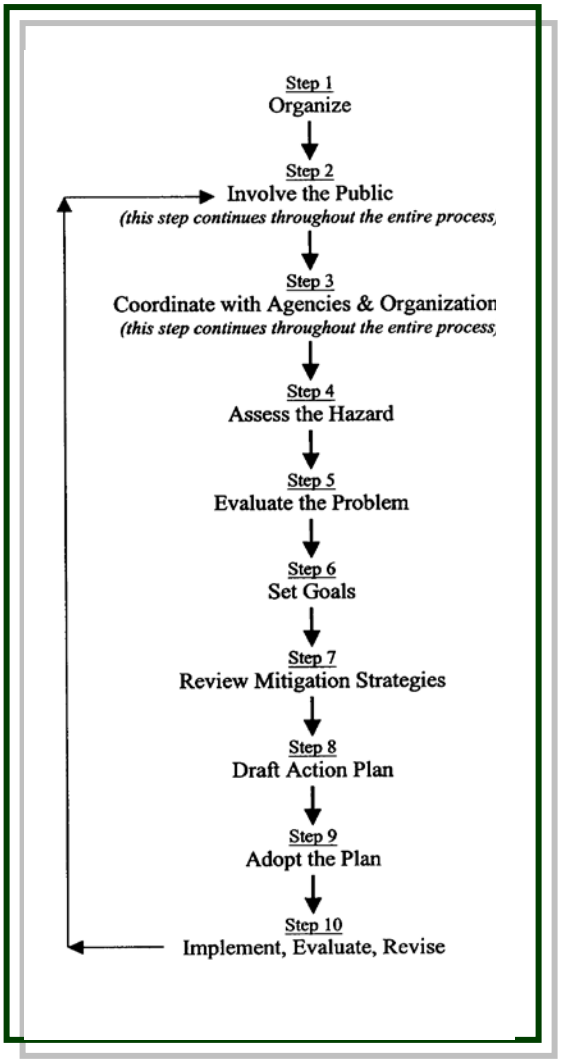
2014 Lincolnshire Critical Facilities Emergency Contact Information

	Critical Facility	Contact Name	Contact Phone Number
1	Laura Sprague Elementary School	Scott Warren, Superintendent	847.634.3650
2	Half Day Elementary School	Scott Warren, Superintendent	847.634.3650
3	Daniel Wright Junior High School	Scott Warren, Superintendent	847.634.3650
4	Adlai Stevenson High School	Eric Twadell, Superintendent	847.415.4101
5	Lincolnshire Village Hall & Police Department	Bradly Burke, Village Manager	847.913.2335
6	Lincolnshire Public Works Facility	Bradly Burke, Village Manager	847.913.2335
7	Lincolnshire-Riverwoods Fire Protection District	Fred Kruger, Fire Chief	847.634.2512
8	Sedgebrook Retirement Community	Deann Daniel, Executive Director	847.876.2199
9	Riverside Foundation	Deborah Rogers, Executive Director	847.634.3973
10	iRhythm Technologies	Robbie Shoop, Manager	224.543.4212

Chapter 2.
Planning Process

2.1 Plan Approach and Committee Organization

The Village of Lincolnshire Natural Hazards Mitigation Plan utilizes the ten step floodplain management planning approach recommended by FEMA through the Community Rating System (CRS) program (shown to the right). The 10-step planning process was also used with the Lake County ANHMP.



The Village of Lincolnshire Natural Hazards Mitigation Plan was developed with the participation of the Village of Lincolnshire Natural Hazards Mitigation Planning Committee. Participating members of the Planning Committee are shown in Table 2-1. The Committee was established through a resolution passed by the Village of Lincolnshire Board of Trustees on August 6, 2013(see Appendix A).

The Committee met four times from October 2013 to May 2014. The efforts of the Committee were coordinated by the Village of Lincolnshire Department of Public Works. Technical support was provided by Molly O'Toole & Associates, Ltd. (MO&A). MO&A is an engineering consulting firm specializing in hazard mitigation.

Organization (Step 1) began with the Village and MO&A in May 2013. The effort included other Village departments and individuals, including the Village Manager and the Director of Community Development.

Table 2-1 Village of Lincolnshire Natural Hazards Mitigation Planning Committee

Name	Representing
Ramesh Gulatee	Residents
Jamie Godshalk	Residents
Larry Barnhart	Wood Creek Courts EPA
Mark Cohen	State Farm Insurance
Deann Daniel	Sedgebrook Retirement Community
Wendy Kritt	Residents
Marj Lundy	Residents
Ann Maine	Residents
Judy Mankus	Residents
Jeff Merwin	Residents
Rev. Douglas Meyer	Lutheran Church of the Holy Spirit
Andy Muzik	Residents
Joseph Pratt	Residents
Stan Reznik	Residents
William Rubinstein	Residents
David Schaper	Residents
Rob Sturrus	Residents
Rob Weinberg	Westgate HOA
Brett Blomberg	Mayor
Mara Grujanac	Village Trustee
Brad Burke	Village Manager
Rob Horne	Public Works
Steve Robles	Village Planner
Mike Tiemens	Bank Financial
Jennifer Lugo	Residents
Roger Mankus	Residents
Stancia Kalmus	Residents
Craig Parcells	Residents
Molly O'Toole	Planning Consultant

2.2 Public Involvement

Step 2 of the planning process was to obtain input from the public, particularly property owners that have been affected by natural hazards. The public was invited to participate through several concurrent means, including:

- Public meeting held at the beginning of the planning process at the Village Hall on June 20, 2013
- Property owner survey made available online and on paper at the Village Hall
- All meetings made open to the public (provided on Village website)
- Press releases provided to local newspapers
- Public meeting held prior to Mitigation Plan adoption by the Village Board on September 25, 2014

The Village of Lincolnshire meetings were publicized through media and the Village of Lincolnshire website. Examples of public involvement efforts are provided in Appendix A.

June 20, 2013 Public Meeting: This public meeting, held at the beginning of the planning process, kicked off the Village's mitigation planning effort. Ten families attended the public meeting. The Village used the meeting to explain flood mitigation plans to be developed, to collect input from residents who were flooded in April 2013, and to request volunteers for the Planning Committee. See Appendix B for copy of Village's website homepage.

Public Input Survey: The Village of Lincolnshire developed a 28 question public input survey for the development of this Mitigation Plan and for the development of the "Village of Lincolnshire Plan for Flood Mitigation Public Information and Flood Insurance Coverage Improvement."

The survey was available online and printed copies of the survey were also made available at the Village Hall. The survey was open from July to August, 2013. Ten questions were presented and results were used to evaluate and prioritize natural hazards and to develop a sense of citizens' understanding of their mitigation needs.

Fifty residents participated in the survey. Results of the survey are summarized in Appendix B of this Mitigation Plan.

Public meeting: A public meeting was held regarding the Village of Lincolnshire Natural Hazard Mitigation Plan on September 25, 2014.

2.3 Agency Coordination

Coordination (Step 3) with agencies and organizations was accomplished through meetings, phone conversations, e-mail exchanges, and/or through participation on the Planning Committee. At the end of the planning process, agencies were also sent a notice requesting their review of the draft Mitigation Plan. They were asked to provide any comments in time for the public meeting.

The agencies included the Federal Emergency Management Agency (FEMA) and the Lake County Stormwater Management Commission. Neighboring communities were also informed of the Village's planning efforts. See sample letter in Appendix B.

Existing plans and programs were reviewed throughout the planning process. Plans reviewed and incorporated are discussed further in Chapters 3 - 5.

2.4 Plan Adoption and Implementation

The Village of Lincolnshire Board of Trustees adopted this Mitigation Plan and will implement the action plan. The Village will also continue to implement the applicable action items in the adopted Lake County ANHMP. Maintenance of this Mitigation Plan is discussed in Chapter 7.

Chapter 3.
Risk Assessment

Chapter 3 of the Lake County ANHMP presents a natural hazards risk assessment for Lake County. This Mitigation Plan relies on the Lake County ANHMP risk assessment. A summary of the risk assessment, as it applies to the Village of Lincolnshire is presented in this Chapter.

3.1 Natural Hazards in Lake County and Lincolnshire

Table 3-1 presents a list of all disaster and emergency declarations that have occurred in Lake County, according to the FEMA. This list presents the foundation for identifying what hazards pose the greatest risk within Lake County.

Table 3-1 Presidential Disaster (DR) And Emergency Declarations (EM) In Lake County

Declaration Number	Date	Event Details
194-DR	April 25, 1965	Tornadoes, Severe Storms, Flooding
OEP 227-DR	April 25, 1967	Tornadoes
OEP 373-DR	April 26, 1973	Severe Storms, Flooding
FEMA 3068-EM	January 16, 1979	Blizzards and Snowstorms
FEMA 776-DR	October 7, 1986	Severe Storms, Flooding
FEMA 997-DR	July 9, 1993	Severe Storms, Flooding
FEMA 1110-DR	April 23, 1996	Tornadoes, Severe Storms
FEMA 3134-EM	January 8, 1999	Winter Snow Storm
FEMA 3161-EM	January 17, 2001	Severe Winter Storm
FEMA 3230-EM	September 7, 2005	Hurricane Katrina Evacuation
FEMA 1729-DR	September 25, 2007	Severe Storms, Flooding
FEMA 3283-EM	March 13, 2008	Snow
FEMA 1771-DR	June 24, 2008	Severe Storms, Flooding
FEMA 1960-DR	March 17, 2011	Severe Winter Storm and Snowstorm
FEMA 4116-DR	April 13, 2013	Severe Storms, Flooding
(no declaration)	June 2013	Additional Flooding

Also, while Lake County was not included, Cook County to the south of Lake County had two disasters declared: DR 1800 for flooding on September 13, 2008 and DR 1935 for flooding in July-August 2010. Lake County was impacted by these events, but damage did not warrant the county being included in the declaration.

Two additional floods along the Des Plaines River occurred since the Village of Lincolnshire adopted the 2012 Lake County ANHMP in 2013.

Based on the input from the LPC and the record of hazard events in Lake County, the priority hazards for this 2012 Lake County ANHMP update include:

- Flood
- Tornado
- Severe Summer Storms
- Severe Winter Storms
- Dam Failure
- Temperature
- Extreme Drought
- Earthquake

The Village of Lincolnshire Hazard Mitigation Planning Committee reconsidered the hazards and identified the following list:

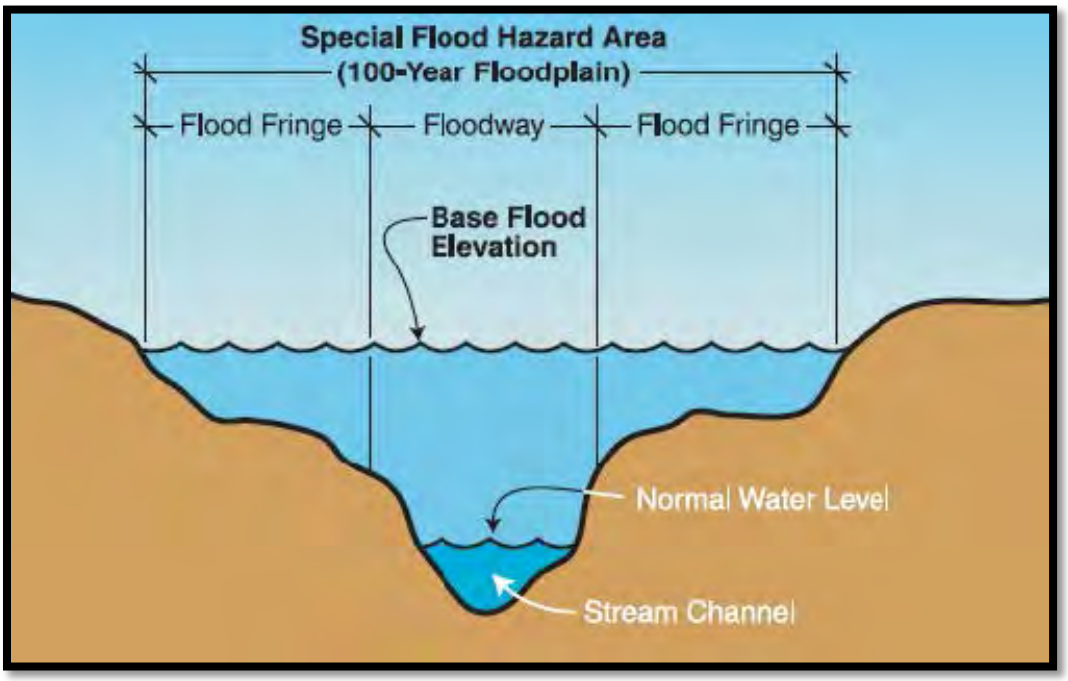
- Flood
- Severe Summer Storms
- Severe Winter Storms
- Tornado
- Dam Failure
- Erosion
- Extreme Temperatures
- Drought
- Wildfire

Note wildfire was added to the above list, but a risk assessment of the hazard is not included in this Mitigation Plan. It is the intention of the Village to examine wildfire in the next update of this Mitigation Plan.

3.2 Flood

A flood is a natural event for rivers and streams and occurs when a normally dry area is inundated with water. Excess water from snowmelt or rainfall accumulates and overflows onto the stream banks and adjacent floodplains. As illustrated in Figure 3-1, floodplains are lowlands, adjacent to rivers, streams and creeks subject to recurring floods. Flash floods, usually resulting from heavy rains or rapid snowmelt, can flood areas not typically subject to flooding, including urban areas. Extreme cold temperatures can cause streams and rivers to freeze, causing ice jams and creating flood conditions.

Figure 3-1 Description of a Floodplain



Floods are considered hazards when people and property are affected. In Illinois, flooding occurs commonly and can occur during any season of the year from a variety of sources. Pipelines, bridges, and other infrastructure can be damaged when high water combines with flood debris. Basement flooding can cause extensive damage. Flooding can cause extensive damage to crop lands. Several factors determine the severity of floods, including rainfall intensity and duration, topography and ground cover.

Riverine flooding originates from a body of water, typically a river, creek, or stream, as water levels rise onto normally dry land. Water from snowmelt, rainfall, freezing streams, ice flows, or a combination thereof, causes the river or stream to overflow its banks into adjacent floodplains. Winter flooding usually occurs when ice in the rivers creates dams or streams freeze from the bottom up during extreme cold spells. Spring flooding is usually the direct result of melting winter snow pack, heavy spring rain, or a combination of the two.

Flash floods can occur anywhere when a large volume of water flows or melts over a short time period, usually from slow moving thunderstorms or rapid snowmelt. Because of the localized nature of flash floods, clear definitions of hazard areas do not exist. These types of floods often occur rapidly with significant impacts. Rapidly moving water, only a few inches deep, can lift people off their feet, and only a depth of a foot or two of water, is needed to sweep cars away. Most flood deaths result from flash floods.

Urban flooding or local drainage problems can occur anywhere in Lake County. Most local drainage problems result in shallow flooding on roads, yards and, sometimes in buildings.

In some areas, a development is actually located in a drainageway or in a depressional ponding area. Inadequately maintained drainage ditches, undersized storm sewers, and failing tile drains or storm sewers are common causes of local flooding.

Local drainage problems have the greatest damage impact on homes with drive-down basement garages and split-level homes in low lying areas. In the case of drive-down garages, water accumulating on the street finds a low driveway and fills a home's basement. Split-level homes provide easy access for surface floodwaters to enter through the ground level windows.

Houses with drive-down garages are susceptible to street flooding and local drainage problems

Since much of Lake County was once tiled to provide drainage for farmland, failed or inadequate drain tiles are a large problem in the developing areas of the county. Many tiles are old and were not designed to handle the stormwater loads development produces. The same is also true for older storm sewer systems. Most storm drains and road culverts are not designed to carry more than the 10-year storm.

Depressional flooding is common in Lake County. Lake County has a gently rolling landscape including many depressional areas left from the Wisconsin Glacial Period. The common problem with development in many of these depressional areas is there is no natural outlet for runoff. Some depressions are former wetlands drained with field tiles originally installed to make them farmable. In many cases the tiles are old, in disrepair, and often have limitations for handling the increased volumes of runoff resulting from development. When the drainage system for depressional areas becomes overloaded, runoff simply fills up a depression. Without an adequate outlet, floodwater will remain until it evaporates, seeps into the ground or trickles through a tile.

Sanitary Sewer Backups. There are few combined sewers in Lake County where stormwater and wastewater discharges are transported in the same pipe system. Therefore, most of the sanitary sewer backups are caused by infiltration of stormwater into the sanitary sewer pipes, leaky manholes and inappropriate connections from residential storm drains, roof drains and sump pumps to sanitary sewer lines. In some places excess stormwater in sanitary sewers causes manhole covers to lift off, and sewage finds its way into rivers and lakes via the storm drainage system. The contamination of surface waters with sewage degrades water quality by adding fecal coliform and excess nutrients that reduce dissolved oxygen in the water and can lead to the spread of communicable diseases. Beach closures and swimming bans are a common result.

Erosion and Sedimentation. Areas prone to the most erosion damage are the bluffs and ravines, lake shores, and high energy flow streams. Channelized stream reaches are less stable and more erosive than meandering sections. Erosion will be discussed in Section 3.11.

3.2.1 Lake County-Lincolnshire Watersheds

There are four major watersheds in Lake County, shown in Exhibit 3-1 along with 26 subwatersheds. The Village of Lincolnshire is part of two major watersheds:

The **Upper Des Plaines River** watershed is located in northeastern Illinois, Lake and Cook Counties, and Kenosha and Racine Counties in southeastern Wisconsin. A summary of the watershed is presented in Table 3-2. The Upper Des Plaines is subject to significant flooding caused by lack of channel capacity of the mainstem of the Des Plaines River and tributaries to carry major flows during storms. Historical flooding in 1986 and 1987 resulted in over $100 million in damages.

The main stems of the Fox and Des Plaines Rivers have flood characteristics very different from the other major watershed of the county. The Fox and Des Plaines Rivers experience their worst floods from rain events lasting a few days, or from a series of small rain events over a longer duration. The greatest flooding along the Fox and Des Plaines Rivers occurs following longer rain events. The floods of 1960 and 1986 resulted from long steady rains which eventually overwhelmed the available floodplain storage and set new flood stage records on the Fox and Des Plaines Rivers respectively.

Table 3-2 Des Plaines River Watershed in Lake County

Des Plaines River Watershed				
Area:	202 mi^2	**Municipalities:**		
	42% of County	Antioch	Indian Creek	Mundelein
Public Land:	11,730 acres	Beach Park	Kildeer	Old Mill Creek
Wetlands:	20,595 acres	Buffalo Grove	Lake Villa	Riverwoods
		Deer Park	Lake Zurich	Round Lake Beach
		Grayslake	Libertyville	Round Lake Park
		Green Oaks	Lincolnshire	Third Lake
Subwatersheds:	**Area (mi^2):**	Gurnee	Lindenhurst	Vernon Hills
North Mill Creek	21.5	Hainesville	Long Grove	Wadsworth
Newport Drain	8.4	Hawthorn Woods	Mettawa	Wheeling
Mill Creek	31			
Upper Des Plaines	53	**Townships:**		
Bull Creek/Bull's Brook	12.3	Antioch	Lake Villa	Warren
Indian Creek	37.7	Avon	Libertyville	Waukegan
Lower Des Plaines	18.2	Benton	Newport	West Deerfield
Buffalo Creek	13.7	Ela	Vernon	Zion
Aptakisic Creek	6.3	Freemont		

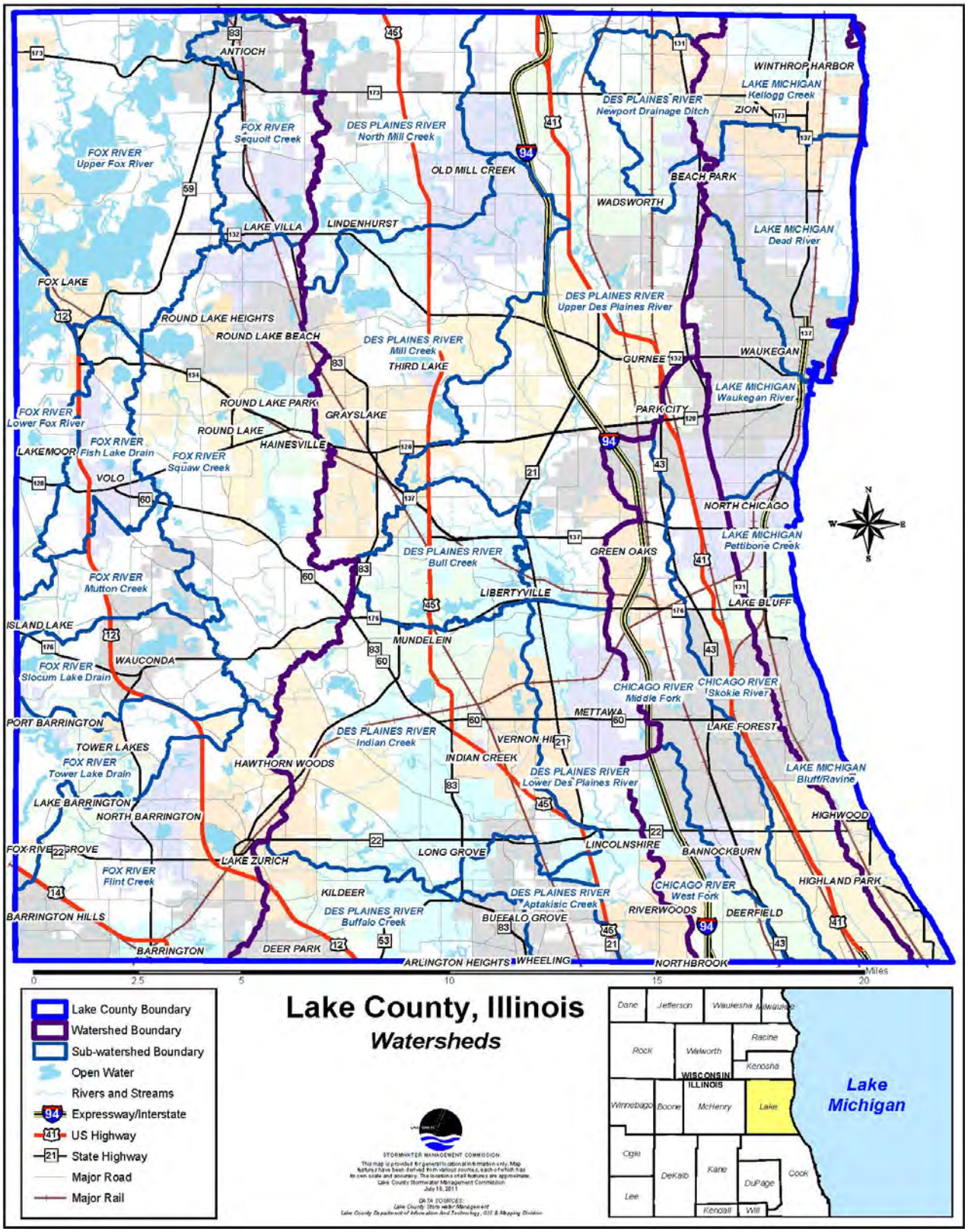


Exhibit 3-1 Lake County Watersheds and Subwatersheds
This map can be downloaded at the Lake County SMC website

The 1986 event resulted from 10 days of widespread steady rain. It took the Des Plaines 4 weeks to pass this floodwater. For the larger Fox River, the time to pass this flood was 6 weeks. In comparison, the smaller watershed of the Skokie River drained down to normal only a few days after the rains ended. Long-duration rain events or snow pack can also cause major flooding on the larger rivers.

Exhibit 3-1 show the lakes located within the Fox River and Des Plaines River Watersheds. The lakes are a resource and also a concern when the Fox River and Des Plaines Rivers are at flood stage for extended periods and lake levels are elevated as a result.

The **North Branch Chicago River Watershed** is noted for three long and narrow subwatersheds surrounding the 3 forks of the North Branch of the river. A summary of the watershed is presented in Table 3-3. Floods on these long and narrow watersheds are affected by the direction taken by a storm. On the three forks, the worst flooding is caused by storms moving from north to south. The runoff moves under the storm front and concentrates as it goes downstream. Storms passing east to west produce smaller floods, and storms passing south to north produce the smallest floods.

The worst floods are caused by day-long rain events, but, because the watershed is so narrow, short intense rain events can also cause severe local flooding.

For more information on the North Branch Chicago River Watershed, see the "North Branch Chicago River Watershed-Based Plan," 2008, for Lake and Cook Counties, Illinois, which is available at the Lake County SMC website:
http://www.lakecountyil.gov/Stormwater/LakeCountyWatersheds/.

Table 3-3 North Branch of the Chicago River Watershed in Lake County

North Branch Chicago River Watershed				
Area:	202 square miles	**Municipalities:**		
	11% of County	Bannockburn	Highwood	North Chicago
Public Land:	1,655 acres	Deerfield	Lake Bluff	Park City
Wetlands:	4,390 acres	Green Oaks	Lake Forest	Riverwoods
		Gurnee	Lincolnshire	Waukegan
		Highland Park	Mettawa	
Subwatersheds:	**Area (mi^2):**	**Townships:**		
West Fork	8.6	Deerfield	Vernon	Waukegan
Middle Fork	19.8	Libertyville	Warren	West Deerfield
Skokie River	21.9	Shields		

3.2.2 Flood Insurance Coverage

An examination of National Flood Insurance Policies and Flood Insurance claims highlights the number of communities impacted by past flooding. Table 3-4 shows the Village of Lincolnshire flood insurance coverage and flood insurance claims since 1978. Policies are shown for an entire community, including portions of communities located in other counties.

Table 3-4 Lake County Flood Insurance Active Policies and Claims, FEMA 2014

Community	Number of Active Policies	Total Premium	Total Coverage	Number of Claims*	Total Paid
Village of Lincolnshire	121	$ 131,422	$34,296,300	27	$ 1,167,989

* Since 1978

3.3.3 Repetitive Flood Loss Properties

FEMA defines a "repetitive loss structure" as a flood-insured structure that has received two or more flood insurance claim payments of more than 25% of the market value within any 10-year period. Lake County currently has 86 repetitive loss structures on the FEMA list. Of the 86 properties, 18 have been mitigated (acquired, elevated or otherwise protected). The remaining 68 properties are located in 14 municipalities and unincorporated Lake County, as presented in Table 3-5.

Table 3-5 Lake County Repetitive Loss Structures

Community	Number of Repetitive Loss Properties as of 6/30/2004*	Number of Repetitive Loss Properties as of 3/31/2011	Mitigated	Mitigation Status	Remaining Repetitive Losses
Village of Lincolnshire	1	1	0	unmitigated	1

The repetitive flood loss structures are located throughout the county, but are more concentrated in the Fox River Watershed. They are nearly all single family residences. Two repetitive loss properties are commercial properties.

The repetitive loss properties were examined and new repetitive flood loss areas were identified for the 2012 Lake County ANHMP. The repetitive loss areas are shown in Exhibit 3-4 of the Lake County ANHMP. Repetitive flood loss areas include 1 or more repetitive loss properties and the neighboring or nearby properties subject to similar flood damage. The repetitive loss area for the Village of Lincolnshire in the Lake County ANHMP is Repetitive Loss Area 27.

3.2.4 Past Floods and Future Flood Frequency

The National Climate Data Center (NCDC), maintained by the National Oceanic and Atmospheric Administration, records weather events as they are submitted. The NCDC has a record of flooding in Lake County from 1996 to 2010, and this data is shown in Table 3-18 of the Lake County ANHMP. Other small floods most likely occurred but did not get recorded. The NCDC data recorded no injuries or deaths with these events.

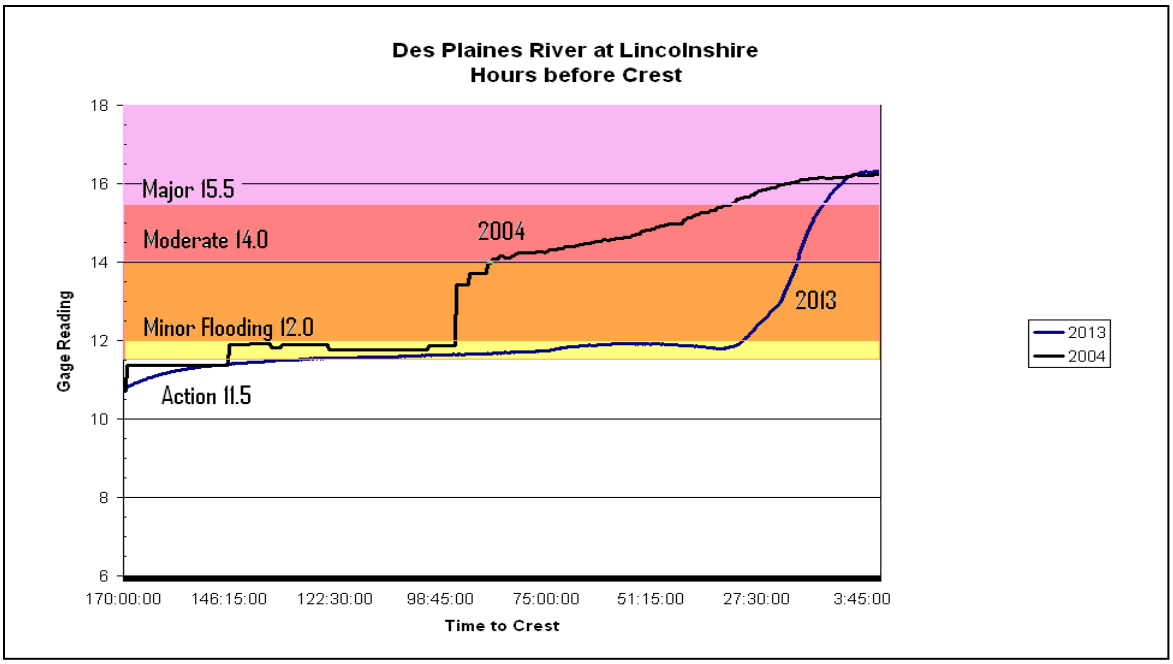
2004 Flood: The May 2004 event attracted national attention and was destructive on a wide scale. River flooding was recorded across Lake County and portions of Cook County and Lake County, as well as local flash flooding from individual storms that occurred during this month. River flooding, mainly on the Des Plaines River, had some of its origin in southern Wisconsin, but affected the river channel through Lake County and into Cook County. Monthly rainfall totals peaked over 10 inches across Lake and Cook Counties, while 6 inches or more were common further south including northwest Indiana.

Throughout Lake County, overbank flooding is most extensive along the Des Plaines River with the highest historical floods occurring in 1938, 1960, 1979, 1986 and 2004.

1986 Flood: Northeastern Illinois received almost one inch of rain daily from September 21 through October 4, 1986. On some days, there was as much as three inches. Over this two-week period, the Des Plaines watershed received up to 12.9 inches of rain compared to the normal monthly amount of 3 inches. The flooding in Lake County killed four people. One person drowned when his boat capsized and three people had heart attacks fighting the flood.

On September 25, 1986 the Des Plaines River was two feet over flood stage and high enough to reach buildings. This flooding, along with flooding in the Fox River/Chain of Lakes watershed, resulted in a disaster declaration by the President on October 7, 1986 for Cook, Kane, and Lake Counties. The worst flooding in Lake County was in the Village of Gurnee, where approximately 100 buildings were flooded. Based on the flood insurance claims, they suffered an average of $10,000 in damage.

April 2013: Very heavy rains in the early morning hours on April 18, 2013 brought flooding to much of northeastern Illinois. The Des Plaines River rapidly rose, exceeded the 12.8 foot stage predicted by the National Weather Service to 16.33 feet. As show on the chart below, major flood damage begins at 15.5 feet on the Des Plaines River at Lincolnshire river gage.



In the Village of Lincolnshire ten houses were evacuated. Six of those houses had water over the first floor. Over 30 homes were not accessible by vehicle. Exhibit 3-2 shows a map complied by the Village of Lincolnshire of known flood issues from the April 2013

Reported flood events over the past 25 years provide an acceptable framework for determining future occurrences in terms of frequency for such events. The probability of the County and its municipalities experiencing a flood event can be difficult to quantify, but based on historical record of 28 flood events since 1986, it can reasonably be assumed this type of event has occurred once every 1.12 years from 1986 through 2011.

[(Current Year) 2011] subtracted by [(Historical Year) 1986] = 25 Years on Record

[(Years on Record) 25] divided by [(Number of Historical Events) 28] = 1.12

Furthermore, the historic frequency calculates there is an 89% chance of this type of event occurring each year.

3.2.5 Vulnerability - Impacts of Flooding

Lake County's population is expected to continue to grow and development will continue. Lake County is currently susceptible to flooding, and it should be anticipated flood risk will continue to grow. Lake County has been implementing a number of mitigation actions to abate this potential increase in flood risk, including the enforcement of the Lake County Watershed Development Ordinance and comprehensive watershed planning to protect against new flood damages (these efforts are summarized in Chapter 4). However, Lake County is part of two large watersheds and cannot regulate development in Wisconsin. Life, health and safety, buildings, critical facilities, infrastructure and the economy are all affected by flooding in Lake County.

Health and safety: Safety during a flood, whether from overbank flooding or groundwater flooding (basements), is a concern. If clean-up after a flood is not properly done, then health problems can develop due to mold. Flooding roads and viaducts are dangerous. People continue to be at risk when driving through floodwaters; fast moving waters are a hazard to people in and out of cars. The highest flood depths are at the Fox River, but stormwater flooding away from the floodplain in Lake County can also threaten lives, as emphasized in the death during the 1986 flood event.

Impact to health and safety due to flooding is considered **moderate**.

Damage to Buildings: The Lake County estimate of structures located in the floodplain and floodway is shown in Table 3-6. These numbers are from the 2006 Lake County ANHMP and are based on earlier FEMA maps. These numbers will be updated for the new FEMA flood maps that became effective for Lake County on September 18, 2013.

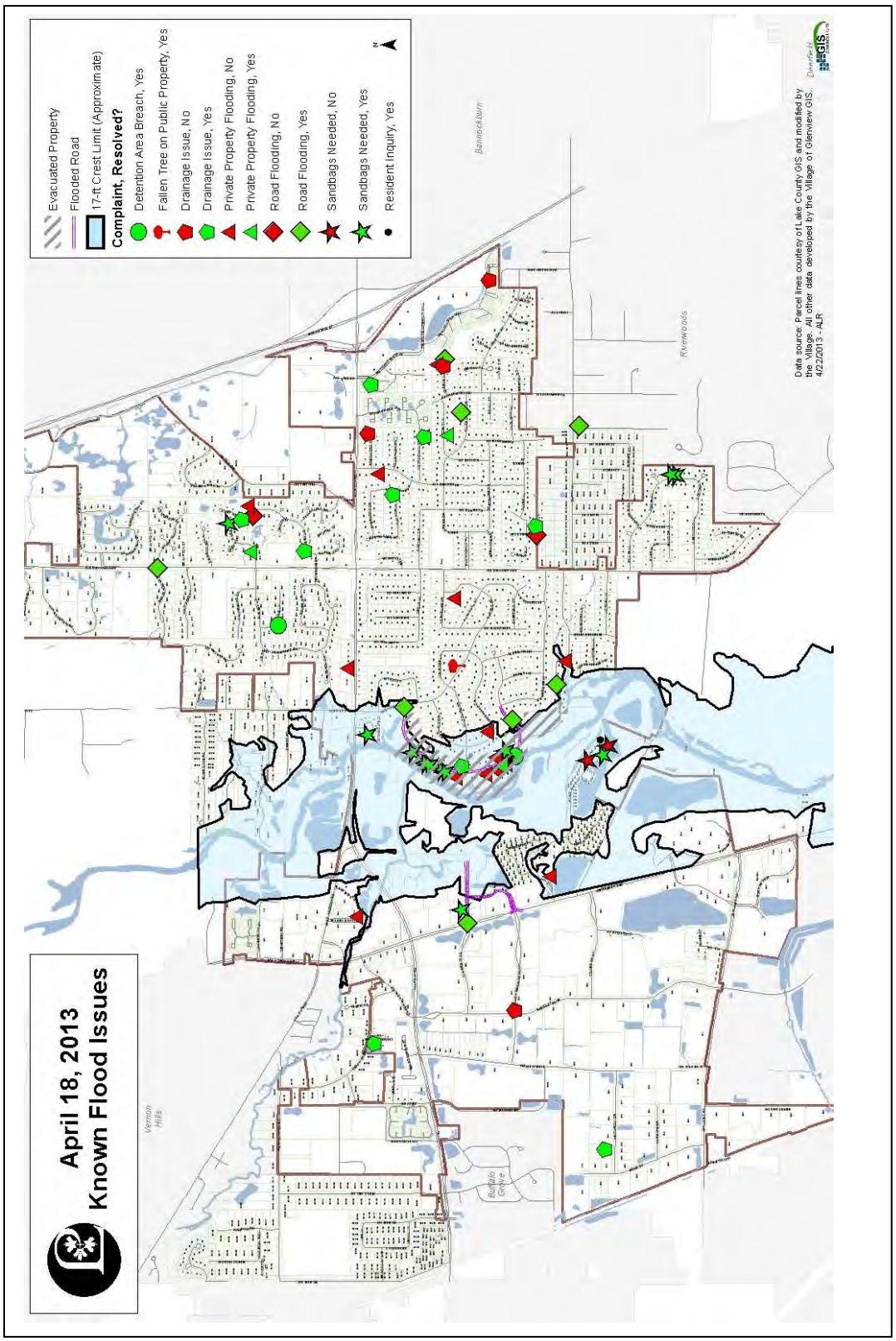


Exhibit 3-2 Village of Lincolnshire April 2013 Known Flood Issues

Table 3-6 Structures Located in Lake County Floodplains

Watershed	Number of Structures in Floodplain	Number of Structures in Floodway
Fox River	6,420	219
Des Plaines River	2,547	695
North Branch Chicago River	1,332	431
Lake Michigan	604	103
Total:	10,903	1,448

* Source: SMC GIS

Among the 10,903 structures located in the floodplain are at least 60 of the 68 FEMA repetitive flood properties in Lake County that have not been mitigated. The value of these structures is estimated in Table 3-7.

Table 3-7 Estimated Market Value of Structures Located in Lake County Floodplains

Land Use	Estimated Market Value
Residential	$1,072 million
Commercial	$494 million
Industrial	$137 million
Agricultural	$6 million
Total Estimated Value:	$1,709 million

The range of flood damage to buildings is likely to be 5% to 50%, or a range $85 million to $850 million. Impact to buildings due to flooding is considered high.

Critical Facilities and Infrastructure: SMC data shows approximately 20 critical facilities could be closed or subject to flooding. As the County's GIS is expanded, a more accurate count of critical facilities in the floodplain will be developed.

Impact to critical facilities due to flooding is considered moderate.

Economic Impact: Flood damage to businesses is difficult to estimate. Businesses disrupted by floods often have to be closed. They lose inventories, customers cannot reach them, and employees are often busy protecting or cleaning up flooded homes. Business can be disrupted, regardless of whether or not the business is located in the floodplain, when customers and clients cannot reach their location. As with flooded roads, public expenditures on flood fighting, sandbags, fire department calls, clean-up and repairs to damaged public property affect all residents of the County, not just those in the floodplain.

Therefore, overall economic impact to businesses is high.

3.2.6 Flood Focus Areas

The Village of Lincolnshire Natural Hazard Mitigation Planning Committee identified several areas from past floods they recommend be focus areas of flood mitigation. The focus areas are shown in Exhibit 3-3, and they include:

Area 1 – Lincolnshire - Londonderry

Area 2 – Rivershire

Area 3 – Westminster – Sutton Place

Area 4 – Indian Creek

These areas may be referred to within this Mitigation Plan and CRS plans developed by the Village.

3.3 Summary of Natural Hazards Risk Assessment

This risk assessment examines natural hazards that could impact Lake County. Section 3.12 in the 2012 Lake County ANHMP summarized the impact of the hazards on Lake County and presents conclusions drawn from the assessment. That section is repeated here.

3.3.1 Impact of the Hazards

The impacts of the hazards are summarized according to the four major concerns:

- Health and safety,
- Damage to buildings,
- Damage to critical facilities and infrastructure, and
- Economic impact.

After the conclusion of the hazard assessments and vulnerability assessments of the priority hazards, the LPC discussed findings to determine overall impact the hazard has on the County and the municipalities. The hazards and their impact are shown in Table 3-8, "Lake County Summary of the Hazards." The different columns in the table represent the following:

Annual Chance or Frequency: The annual chance column in the table shows the likelihood of occurrence in any given year. These numbers are discussed in the "Frequency" section of each hazard.

Impact Location: The location and area affected by a single occurrence is shown.

Square Miles Impacted: The portion of the County vulnerable to the hazard.

Value of vulnerable property: The property damage exposure computed in Section 3.2 of this Chapter.

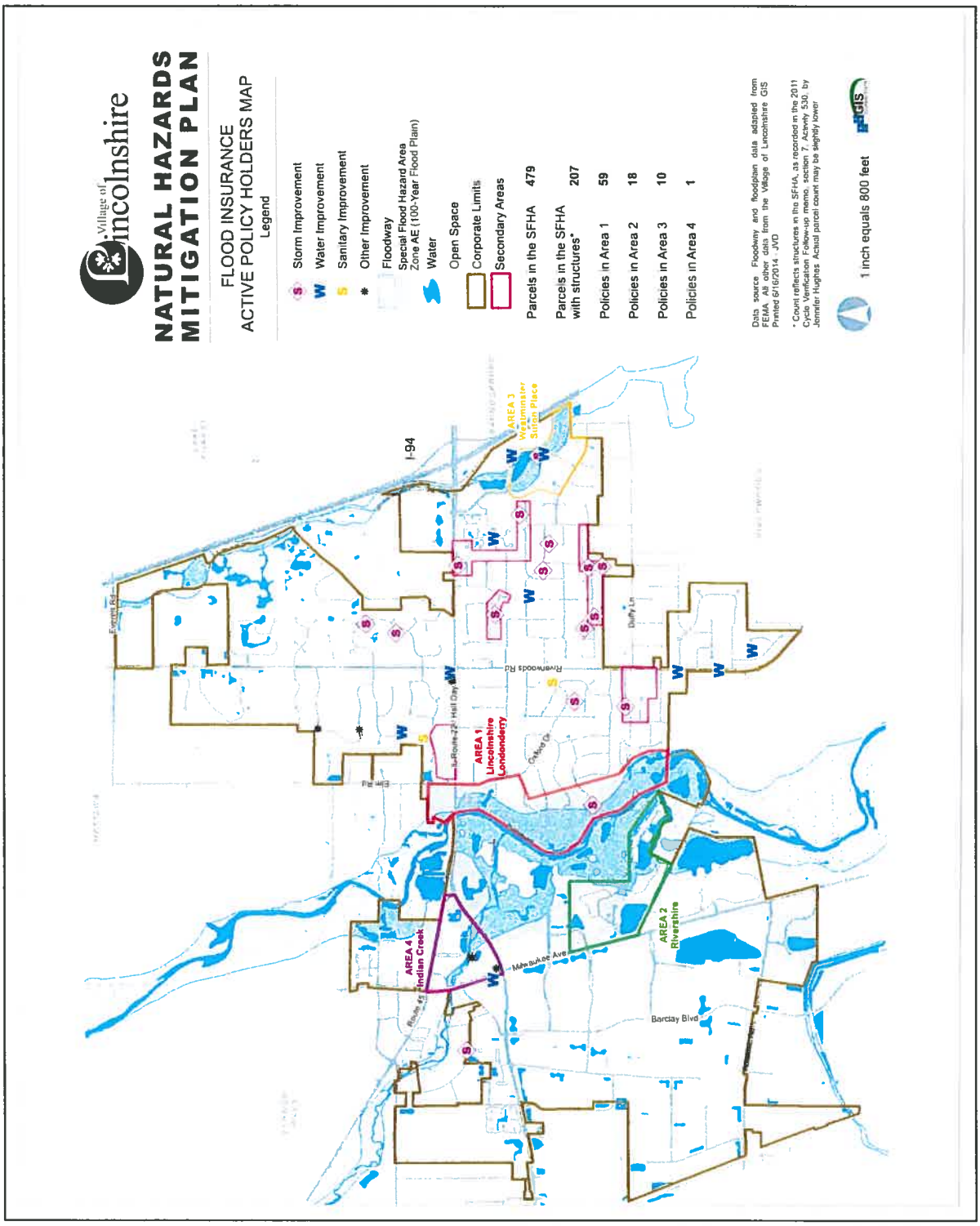


Exhibit 3-3 Village of Lincolnshire Flood Focus Area

Potential Damage: The range of potential damage related to the square miles impacted and the value of exposed property.

Impact on Health and Safety: This category relates to health and safety hazards. Ratings of high, medium, or low are shown.

Impact on Buildings: The vulnerability of structural damage to buildings or other property damage.

Critical Facilities: The types of critical facilities and infrastructure affected are listed.

Economic Impact: Typical impacts on businesses and utilities are listed in this column.

The County, all municipalities, other agencies and institutions involved in this Lake County ANHMP are exposed to all identified hazards. This is due to the relatively flat topography of the County. While much of the County is still in agricultural use, the residents and business are equally impacted by the identified natural hazards as the urban areas. Flooding in the floodplain has been considered but it is understood flooding is not limited to floodplain areas. Community impact does vary by degree between larger and smaller communities based on population and number of buildings.

Table 3-8 Summary of Lake County Natural Hazards from the Lake County ANHMP

Hazard	Annual Chance	Impact Location	Square miles Affected	Value of Vulnerable Property	Potential Damage	Impact on Health and Safety	Impact on Buildings	Impact on Critical Facilities	Economic Impact
Floods	1%	Floodplains	80	$1.7 billion	$85-$850 million	Moderate	High	Moderate	High
Floods	10%	(Local Drainage)	448	---	---	Moderate	Moderate	Moderate	Moderate
Tornado	0.01%	Countywide	10	$58 billion	$872 million	High	High	Moderate	Moderate
Tornado	30.00%	Community	5	$58 billion	$419 million	High	High	Moderate	Moderate
Severe Summer Storms	100%	Communities	448	$58 billion	---	Moderate	Moderate	Moderate	Low
Severe Winter Storms	100%	Countywide	448	$58 billion	---	Moderate	Moderate	Moderate	Low
Drought	1%	Countywide	448	$58 billion	---	High	Moderate	Low	Moderate
Earthquake	100%	Countywide	448	$58 billion		Low	Low	Moderate	Low
Dam Failure	0%	Countywide	448	$58 billion		--	--	--	--
Extreme Temperatures	18%	Countywide	448	$58 billion	---	High	Low	Low	Low
Erosion	--	Countywide	448	$58 billion		--	--	--	--

As mentioned earlier, the Village of Lincolnshire Natural Hazard Mitigation Planning Committee added wildfire to their list.

3.3.2 Comparison to State of Illinois 2013 Natural Hazard Mitigation Plan

The 2013 Illinois Natural Hazard Mitigation Plan prepared by the Illinois Emergency Management Agency (IEMA) hazard rating system has five levels: low, guarded, elevated, high and severe. Lake County's hazard ratings for identified natural hazards are in the 2013 Plan are shown in Table 3-9.

Table 3-9 IEMA Hazard Ratings for Lake County

Hazard	IEMA Rating
Floods	Elevated
Tornado	High
Severe Summer Storms	Severe
Severe Winter Storms	Severe
Drought	Guarded
Earthquake	Guarded
Extreme Heat	Elevated

Chapter 4.
Mitigation Goals

Chapter 4 of the Lake County ANHMP established hazard mitigation goals and objectives for the County. The County went through an exercise to examine priorities and other factors for establishing the goals. At the October 17, 2013 meeting, the Lincolnshire Mitigation Planning Committee went through the same exercise. Planning Committee members then modified the Lake County goals and guidelines to reflect the Village's needs and priorities.

4.1 Community Priorities and Plan Direction

To better understand, community priorities, Planning Committee members selected their top five choices for a list of potential priorities. For community priorities, the top four selected responses were:

- Provide a safe place to live and work
- Improve schools and education programs
- Improve/ get more business
- Improve/get more open space

Other responses included improve employment opportunities, water quality habitat, roads and highways and public transportation opportunities. and preserve historic and cultural resources.

For the exercise "What to Focus On," the Planning Committee was asked what the Village's hazard mitigation effort should focus on. The top five responses included:

- Protecting people's lives
- Protecting public health
- Protecting public services
- Protecting critical facilities
- Protecting wetlands, Illinois Nature Preserve area and other special areas

Other choices included giving attention to the elderly and special populations, and protecting future development.

For the exercise "How to Fund and Implement," the Planning Committee chose from a list of funding and implementation options for accomplishing hazard mitigation efforts. The top six responses included:

- Inform people of how they can protect themselves
- Make people aware of the hazards they face
- Help people protect themselves
- Develop public/private partnerships

- Protect life/safety regardless of cost
- Use county/municipal agencies to implement mitigation activities

Other choices included, only fund projects where it's proven the benefits exceed the costs, new developments should pay full cost of protection measures, and protect critical facilities regardless of the cost.

4.2 Goals and Guidelines

From the above responses, the goals and guidelines for the Village of Lincolnshire's hazard mitigation efforts are:

Goal 1. Protect the lives, health, and safety of the people of the Village of Lincolnshire from the impact and effects of natural hazards.

Goal 2. Protect public services, utilities and critical facilities from potential damage from natural hazard events.

Goal 3: Mitigate existing buildings to protect against damage from natural hazard events.

Goal 4. Ensure new developments do not create new exposures of people and property to damage from natural hazards.

Goal 5. Mitigate to protect against economic and transportation losses, including the loss of wetlands and other natural resources due to natural hazards.

The following guidelines are for the purpose of achieving the goals and to facilitate the development of hazard mitigation action items:

Guideline 1. Focus natural hazards mitigation efforts on floods, severe summer and winter storms, tornadoes, erosion, extreme temperatures, drought, and wildfires.

Guideline 2. Make people aware of the hazards they face, and focus mitigation efforts on measures allowing property owners and service providers to help themselves.

Guideline 3. Identify specific projects to protect lives

Guideline 4 Identify specific projects to mitigate damage where cost-effective and affordable.

Guideline 5. Use available local funds, when necessary, to protect public services, critical facilities, lives, health and safety from natural hazards.

Guideline 6. Develop and foster public agency and private property owner partnerships to fund and implement mitigation measures, and examine equitable approaches for local mitigation costs, such as user fees.

Guideline 7. Strive to improve and expand business, transportation and education opportunities in the Village of Lincolnshire in conjunction with planned mitigation efforts.

4.3 Consistent with Other Plans

The developed goals and guidelines were compared to the goals included in the Village of Lincolnshire's Comprehensive Land Use Plan and the Village of Lincolnshire Emergency Operations Plan. At the November 2013 meeting the Planning Committee had an opportunity to review these plans and other plans adopted by the Village.

[This page intentionally left blank.]

Chapter 5.
Mitigation Strategies and Capability Assessment

Chapter 5 of the Lake County ANHMP examines hazard mitigation activities currently being implemented by Lake County and the Lake County municipalities, and examines various hazard mitigation strategies that can be undertaken in the future. The Village of Lincolnshire will use Chapter 5 of the Lake County ANHMP as a resource to understand various hazard mitigation strategies for the priority natural hazards identified in Chapter 3 of the Village of Lincolnshire Mitigation Plan.

Mitigation Strategies

- Preventative Measures
- Property Protection
- Natural Resource Protection
- Emergency Services
- Structural Measures
- Public Information

This Chapter presents a list of hazard mitigation recommendations for the Village of Lincolnshire with a focus on flood hazards. The recommendations in this chapter and in the Lake County ANHMP provide a menu of options for the development of the action plan presented in Chapter 6 of this Mitigation Plan. The recommendations are consistent with the Village of Lincolnshire's mitigation goals and guidelines presented in Chapter 4.

Six basic strategies, shown in the box above and in Table 5-1, may be applied to mitigate potential damage to property and impact to health and safety from natural hazards. Each strategy includes mitigation measures appropriate for different conditions, as shown in Table 5-1. For instance, planning and regulation measures, as a preventative strategy, are more appropriate for developing areas, while property protection strategies are approaches for existing development and buildings.

Table 5-1 Natural Hazard Mitigation Activities

Natural Hazards:	Preventive	Property Protection	Emergency	Resource Protection	Structural Measures	Public Information
Floods (100-year/10-year)	X	X	X	X	X	X
Tornado/High Wind	X	X	X			X
Severe Summer Storms/Hail	X	X	X	X	X	X
Severe Winter Storms	X		X			X
Dam Failure	X		X	X	X	X
Wildfire	X	X	X	X		X
Erosion	X	X		X	X	X
Extreme Heat						X
Extreme Cold		X	X			X
Sewer Backup	X			X		X
Drought	X			X		X
Groundwater	X			X		X

A significant number of hazard mitigation measures are already being implemented by the Village of Lincolnshire. For example, the administration and enforcement of building codes provides protection of buildings from wind, flood and earthquake events, higher watershed standards through the Lake County Watershed Development Ordinance, and the Village drainage system maintenance efforts.

The following sections provide a brief summary of the six hazard mitigation strategies applicable to flood hazards, and recommendations made by the Mitigation Planning Committee for the Village of Lincolnshire. Mitigation strategies pertaining to the Village's other priority hazards are contained in the Lake County ANHMP. Note future updates of the Village of Lincolnshire Mitigation Plan can be expanded to further examine natural hazards other than floods. The recommendations from the Lake County ANHMP are also shown within each section. As mentioned above, the Chapter 5 of the Lake County ANHMP should be used as a resource document to further explain strategies and recommendations discussed here.

5.1 Preventive Measures

Preventive measures are intended to keep flooding problems from getting worse. They help insure future development does not increase flood damage, and include actions that maintain the drainage system's capacity to carry away floodwaters. The cost of implementing most prevention measures is relatively low in comparison to most remedial measures to reduce future damage. Preventive measures include activities such as:

- Planning and Zoning
- Watershed Regulations
- Building Codes
- Standards for Manufactured Homes
- Critical Facility Construction Requirements

Planning and Zoning: "Planning" can cover a variety of community plans including, but not limited to, comprehensive plans, land use plans, transportation plans, capital improvement plans, and economic development plans. While plans generally have limited authority, they reflect what the community would like to see happen in the future. Plans also guide other local measures such as capital improvements and the development of ordinances.

The 2002 *Lake County Comprehensive Stormwater Management Plan* adopted by the Lake County Stormwater Management Commissions (SMC) was developed to address county-wide stormwater planning needs and watershed regulations. The first countywide *County Comprehensive Stormwater Management Plan* was adopted in 1990 in response to worsening flooding, drainage and water quality problems. SMC has developed a number of watershed-based plans for four major watersheds of the county including North Mill Creek, Bull Creek and Indian Creek within the Des Plaines River Watershed.

A number of Lake County communities have incorporated floodplain development restrictions into their zoning ordinance.

Watershed Regulations: The Lake County Watershed Development Ordinance (WDO) has been in place in Lake County since 1992. The goal of the WDO is to ensure new development does not increase existing stormwater problems or create new ones. The WDO establishes minimum countywide standards for stormwater management, including floodplains, detention, soil erosion/sediment control, water quality treatment, and wetlands.

The National Flood Insurance Program (NFIP) sets the minimum floodplain regulation requirements for local floodplain ordinances. The State of Illinois enforces floodway standards exceeding NFIP minimum standards. Standards in the WDO reflect state and federal requirements for floodplain regulation and address specific Lake County flooding problems occuring in depressional storage areas and in unmapped floodplains/floodways.

To address flooding in unmapped floodplains, the WDO definition of a regulatory floodplain includes smaller tributaries subject to more than one square mile of drainage, and depressional areas, not associated with streams, having a storage volume of .75 acre feet or more when inundated by the base flood.

Building Codes: The administration and enforcement of building codes is one of the most effective approaches for addressing natural hazard mitigation. Current building codes protect new structures from damage by tornadoes, high winds, floods, snow storms, and earthquakes.

Other Preventive Measures: Many times after a flood, victims say they would have taken steps to protect themselves if only they had known they had a floodprone property. Three regulations, one federal and two state, require potential buyers of a parcel be told of any flood hazard.

Federal law: Federally regulated lending institutions must advise applicants for a mortgage or other loan to be secured by an insurable building that the property is in a floodplain as shown on the Flood Insurance Rate Map (FIRM). Flood insurance is required for buildings located within the 100-year floodplain if the mortgage or loan is federally insured. This program does not apply to flood prone areas not mapped on the FIRMs. Floodprone areas that are frequently not mapped include the floodplains of smaller channels and many depressional areas. Depressional area flooding is significant. The use of older flood studies in rapidly developing areas also results in outdated floodplain maps that do not reflect the actual flood risk.

Illinois Compiled Statutes: Chapter 55, Section 5/3-5029 requires subdivision plats must show whether any part of the subdivision is located in a Special Flood Hazard Area.

Illinois Residential Real Property Disclosure Act: This law, which went into effect on October 1, 1994, requires a seller to tell a potential buyer if the seller is aware of any flooding or basement leakage problem, if the property is located in a floodplain, or if the seller has flood insurance. The law is not wholly reliable because the seller must be aware of a problem and willing to state it on the disclosure form. Due to the sporadic occurrence of

flood events, a property owner may legitimately not be aware of potential flooding problems with a property being sold or purchased.

Lincolnshire Preventive Measure Conclusions and Recommendations

1. Current Village of Lincolnshire regulations for construction in the floodplain and stormwater management are effective.
2. The Village of Lincolnshire should continue to administer and enforce regulations and building codes to protect property from damage due to natural hazards (flood, tornado, severe storms and wind).
3. The Village should continue to coordinate with ComEd and other utility providers for the protection of utility service during and after extreme weather events.

Lake County ANHMP Preventive Measure Recommendations

1. Complete current and accurate floodplain maps for all Lake County watersheds and submit to FEMA for adoption.
2. The County and municipalities that participation in the NFIP should ensure that they fully and properly administer and enforce the requirements of the NFIP.
3. Complete current and accurate floodplain maps for all Lake County watersheds and submit to FEMA for adoption.
4. The County and municipalities that participation in the NFIP should ensure that they fully and properly administer and enforce the requirements of the NFIP.
5. The County and municipalities should ensure that they fully enforce all provisions of the WDO and the forthcoming amendments.
6. Communities that have not adopted the International Series of Codes should do so, and on a regional basis, municipal and County code enforcement staffs should work together to develop building code language to strengthen new buildings against damage by high winds, tornadoes and hail,
7. All communities should work to improve code administration and enforcement, and should also be trained on implementing the codes that are applicable to hazard mitigation.
8. The adequacy or current requirements for manufactured home and recreational vehicle parks for protection from natural hazards should be examined, especially concerns pertaining to placement in flood prone areas, tie downs and sheltering.
9. On a regional basis, municipal and county planning and engineering staff should develop example subdivision ordinance language that requires new infrastructure to have hazard mitigation provisions, such as secondary access to subdivisions.
10. Offices responsible for design, construction or permitting critical facilities should ensure that the design accounts for natural hazards and adjacent land uses.
11. Communities (certified and non-certified) need to understand and consistently enforce the WDO, the TAC should continue their efforts in these areas.
12. Communities should consider joining the NFIP’s CRS program. For the municipalities already involved in CRS, they should work to improve their CRS class.

5.2 Property Protection

Property protection measures are used to modify or remove buildings subject to flood damage rather than to keep floodwaters away. Because of the widespread extent of flood damage caused by shallow, low velocity flooding in Lake County, traditional flood control structures such as levees and reservoirs are generally not economically justifiable in most areas. Individual property protection measures are usually the most preferred and cost-effective flood mitigation measures in these circumstances. Many property protection measures do not affect a building's appearance or uses, making them particularly appropriate for historical sites and landmarks.

Although most property protection measures are paid for and implemented by individual property owners, there is increasing government interest and cost-share funding available for building relocation and acquisition, which are seen as permanent solutions to flood damage. While property protection is viewed as the property owner's responsibility, local governments can actively support and promote private efforts by providing technical assistance and incentives. Property protection measures include activities such as:

- Building Acquisition/Relocation
- Building Elevation, Floodproofing or Barriers
- Building Structural Retrofitting
- Insurance

Building Acquisition/Relocation: Acquisition ensures buildings in a floodprone area will cease to be subject to damage. The major difference is acquisition is undertaken by a government agency, so the cost is not borne by the property owner, and the land is converted to an appropriate public use such as a park. Acquiring and clearing buildings from the floodplain is not only the best long-term flood protection measure, it also is a way to convert a problem area into a community asset providing environmental and recreational benefits.

This home was acquired by the SMC and the site was cleared for open space.

Moving a building to higher ground is the surest and safest way to protect it from flooding. While almost any building can be moved, the cost goes up for heavier structures, such as those made of brick, and for large or irregularly shaped buildings. Building relocation is generally cost-effective where flooding is relatively severe and/or frequent. Buildings that have suffered structural damage or contamination from frequent or long duration flooding should not be considered for relocation.

Elevation: Raising or elevating a house above the flood level protects the structure and contents from flood damage. When flooding occurs, water levels stay below the main floor, causing no damage to the structure or its contents. Raising a building above the flood level is less expensive than acquiring it or moving it, and can be less disruptive to a neighborhood. Commonly practiced in floodprone areas nationwide, this protection technique is required by law for new and substantially damaged residences located in a 100-year floodplain.

This house was elevated one foot above the base flood elevation of the Des Plaines River (prior to the adoption of the WDO).

Although flood damage can be reduced significantly or eliminated through building elevation, there are some limitations to remaining in a flood prone location. While the building itself is elevated sufficiently to be protected from flood damage, flooding may isolate the building making it inaccessible. In addition, flood waters can result in a loss of utility service in flooded areas making the building uninhabitable even though it isn't damaged, and pollutant contamination in floodwaters will still threaten health and safety.

Barriers: Constructing barriers, such as floodwalls and berms, can keep floodwaters from reaching a building. Berms are commonly used in areas subject to shallow flooding. Not considered engineered structures, berms are made by regrading or filling an area. Low floodwalls may be built around stairwells to protect the basement and lower floor of a split-level home.

Floodwall on Lincolnshire Drive (1990 photo).

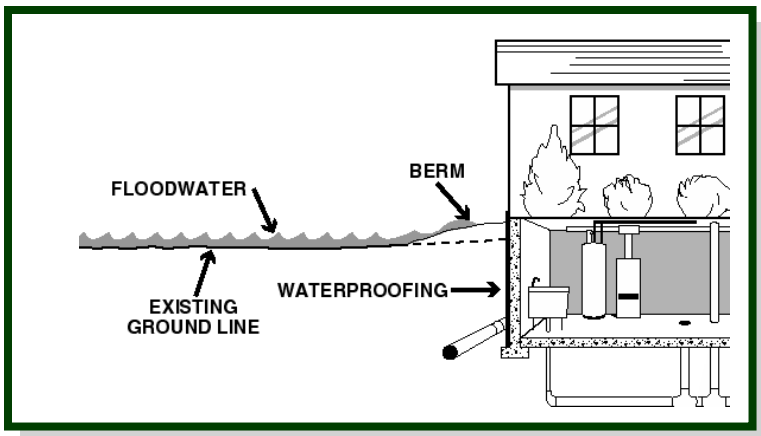
By keeping water away from the building walls, the problems of seepage and hydrostatic pressure are reduced.

Use of floodwalls and berms must also include a plan to install drain pipes and/or sump pumps to handle leaks and water seepage through or under the barrier, and to get rid of water that may collect inside the barrier. Care must be taken in the design, location and installation of berms or floodwalls to insure floodwaters are not inadvertently pushed onto an adjacent property.

Floodproofing: Floodproofing covers measures that provide either wet floodproofing or dry floodproofing. In areas where there is shallow flooding, dry floodproofing measures can be used to prevent water from entering some buildings. A wet floodproofing strategy will allow

water to enter the building, but moves damageable belongings, appliances and utilities out of harm's way

Dry Floodproofing: Dry floodproofing is a combination of practices used to seal a building against floodwaters. Walls, floors and all openings must be sealed and made watertight. Buildings with crawlspaces generally cannot be dry floodproofed because water can seep under walls into the crawlspace.



Dry Floodproofing - Buildings on slab

- Walls are coated with waterproofing compounds or plastic sheeting.
- Openings, such as doors, windows, sewer lines and vents, are closed either permanently, with removable shields, or with sandbags.

Dry Floodproofing - Buildings with basements

- Waterproofing compound is applied to the walls before fill is placed against the side of the house.
- Installation of a subsurface drain tile and sump pumps is a must to handle water that will naturally seep through the fill.
- Surface water is kept away from the walls with backfill (see illustration).

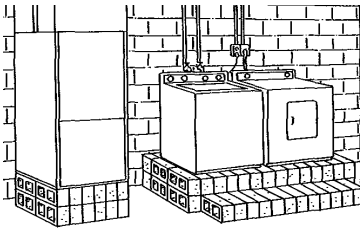
However, buildings on slabs and buildings with basements can benefit from dry floodproofing.

A structural engineer should be consulted to design the dry floodproofing measures due to the need to address hydrostatic pressure against foundation walls that occur during floods.

Wet Floodproofing: Wet floodproofing provides damage protection from floodwaters that cannot be kept out of a building. It is a relatively simple means of making sure nothing gets damaged when floodwaters enter the building. Wet floodproofing includes some of the least expensive and easiest mitigation practices to install.

Wet floodproofing approaches range from moving valuable items to a higher floor; to rebuilding the floodable area. At the very least, several low-cost steps can be taken to wet floodproof a structure. Simply moving furniture and electrical appliances out of the floodprone area of the building can prevent

- Wet Floodproofing
- Everything subject to damage by water or sediment is moved to a higher level or out of the building. For example, the electrical panel and the furnace should be relocated to an upper floor.
- Where flooding is not expected to be deep, items needing protection may be placed on platforms or blocks.

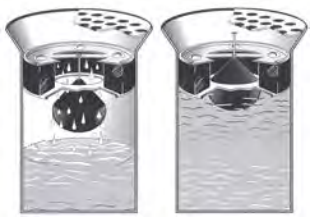


- Lighter items, such as lawn furniture or bicycles, are evacuated after a flood warning is issued.

thousands of dollars in damage.

Wet floodproofing measures work wherever there is a level above the flood zone to which items can be relocated; in general wet floodproofing does not work for one-story houses where living areas get flooded.

Sewer backup protection: Basement flooding can occur when the sanitary system overloads with stormwater and backs sewage up into the basement through the sanitary line. Even when sanitary and storm waters are carried in separate pipes, and they are through nearly all of Lake County, sewer backup can occur when cross connections between the storm and sanitary sewers exist, or if there are infiltration or inflow problems into the lines.



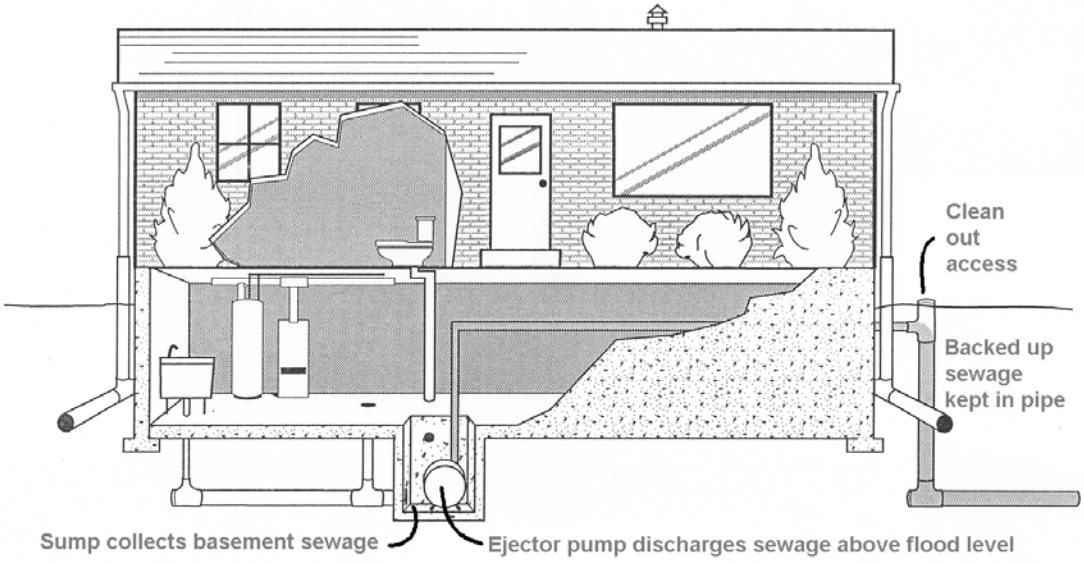
Automatic floor drain plug

Houses which have downspouts, footing drain tile, and/or a sump pump connected to the sanitary sewer service may be inundated when heavy rains overload the system. In addition to these sources, sanitary lines can also be inundated by stormwater by way of runoff infiltration into old leaky pipes or where the sanitary manholes are not properly sealed. Several Lake County communities experience very high sewage flows following heavy rain events. As in the case of Wauconda, some wastewater treatment plants cannot adequately treat the heavy volume of combined stormwater and sewage, so the plant is by-passed and sewage is discharged directly to surface waters untreated.

If allowed by the local code, sump pumps, downspouts and footing drains should be disconnected from the sanitary sewer line and the rain and groundwater directed out onto the ground, away from the building. The solution to stormwater overload of the sanitary system also includes the need for timely maintenance of sanitary lines, repairing or replacing pipe where it leaks, and upgrading old waste water treatment facilities that are inadequate for the existing level of use.

Until sanitary infiltration is fixed, a property owner may use four approaches to protect sanitary sewer openings from backup. Floor drain plugs or floor drain standpipes can be installed to keep water from flowing out of the floor drain into the building. However, these may not be effective if water gets deep enough in the sewer system to flow out of the next lowest opening, which is likely to be a toilet or utility sink.

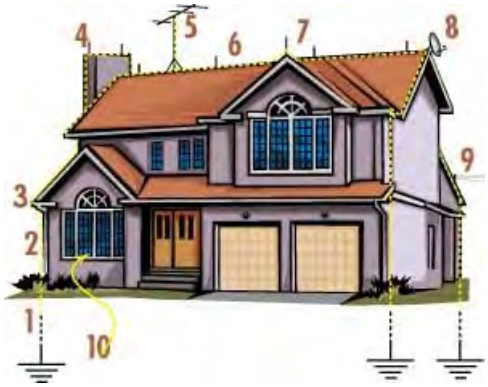
Overhead sewers and backup valves are more expensive, but more secure for this circumstance. An overhead sewer keeps water in the sewer line during a backup. A backup valve allows sewage to flow out, while preventing backups from entering the building.



Overhead sewer arrangement

Severe Storm Retrofitting: Retrofitting approaches to protect private or public buildings from the effects of **thunderstorms** include:

- Shelters
- Storm shutters
- Lightning rods
- Strengthening connections and tie-downs (similar to tornado retrofitting)
- Impact-resistant glass in window panes
- Surge protectors at electrical outlets



Lightning protection measures

Source: State Farm Insurance

Also, roofs can be replaced with materials less susceptible to damage by hail, such as modified asphalt or formed steel shingles.

Winter Storm Retrofitting: Winter storm retrofitting measures include improving insulation on older buildings and relocating water lines from outside walls to interior spaces. Windows can be sealed or covered with an extra layer of glass (storm windows) or plastic sheeting. Roofs can be retrofitted to shed heavy loads of snow and prevent ice dams that form when snow melts.

Insurance: Insurance does not prevent flooding or flood damage; it helps an owner protect his/her property investment by paying for repairs and replacement of items damaged in a flood. While a typical homeowner's insurance policy does not cover a property for flood

damage, flood insurance coverage is available through the National Flood Insurance Program (NFIP). The NFIP will cover flooding above the first floor of buildings. Flood insurance also covers basement flooding provided there is a general condition of flooding in the area that was the proximate cause of the basement getting wet. Several insurance companies offer coverage for damage incurred should a sump pump fail or sewer line back up. Most exclude damage from surface flooding covered by the NFIP. Insurance is also available for earthquakes and other hazards such as sinkholes. Most of these coverages are included to a property policy as a policy rider.

Community Rating System (CRS): FEMA created the NFIP's CRS program in 1990. It is designed to recognize floodplain management and other watershed management activities exceeding NFIP minimum requirements. Communities participating in the NFIP can apply for the CRS. When appropriate applications and reviews are completed, a community is awarded a CRS class rating. Residents and property owners of that community then qualify for a flood insurance premium rate reduction ranging from 5 to 45 percent. CRS credit is provided for 19 creditable activities, organized under four categories:

- Public Information
- Mapping and Regulations
- Flood Damage Reduction
- Flood Preparedness

The CRS is a voluntary program and is modeled after the fire insurance rating system. Insurance premiums are adjusted based on the rating of the community. The Village of Lincolnshire is currently a CRS Class 5 community.

The CRS class rating and insurance premium reductions are shown in the table below. Properties in the FEMA Special Flood Hazard Areas (SFHAs), or the 100-year floodplain, receive a 5 percent premium reduction for every improvement in the CRS class. Properties outside the SFHA already have a reduced premium (since they are outside the floodplain), and therefore have a lower premium reduction than properties in the SFHA.

CRS		Premium Reduction	
Class	Credit Points	SFHA*	Non-SFHA
1	4,500+	45%	10%
2	4,000 – 4,499	40%	10%
3	3,500 – 3,999	35%	10%
4	3,000 – 3,499	30%	10%
5	2,500 – 2,999	25%	10%
6	2,000 – 2,499	20%	10%
7	1,500 – 1,999	15%	5%
8	1,000 – 1,499	10%	5%
9	500 – 999	5%	5%
10	0 – 499	0	0

*SFHA = Special Flood Hazard Area

Credit points are then earned from the following categories, listed by activity number:

Public Information		**Flood Damage Reduction**	
310	Elevation Certificates	510	Floodplain Management Planning
320	Map Information	520	Acquisition and Relocation
330	Outreach Projects	530	Flood Protection
340	Hazard Disclosure	540	Drainage System Maintenance
350	Flood Protection Library		
360	Flood Protection Assistance		
370	Flood Insurance Promotion		
Mapping and Regulations		**Warning and Response**	
410	Floodplain Mapping	610	Flood Warning and Response
420	Open Space Preservation	620	Levees
430	Higher Regulatory Standards	630	Dams
440	Flood Data Maintenance		
450	Stormwater Management		

The Village currently receives credit in Activities 310, 320, 330, 340, 350 and 360; Activities 410, 420, 430, 440 and 450; Activities 510, 530 and 540 and Activity 610.

Repetitive Flood Loss Properties: Chapter 3 and Chapter 5 of the Lake County ANHMP discuss the Lake County and Lake County community repetitive loss properties (properties with two federal flood insurance claims of at least $1,000 in any ten year period) designated by FEMA. Currently, FEMA has identified one repetitive loss property within the Village of Lincolnshire.

Lincolnshire Property Protection Conclusions and Recommendations

1. Properties of Concern:
   - Lincolnshire/Londonderry
   - Rivershire
   - Sedgebrook Community
   - Stonegate Circle
   - Marriott
2. Information and resources should be provided to residents for potential property flood damage protection measures.
3. Technical advice is needed to assist property owners in determining appropriate alternatives.
4. Obtain technical advice from agencies such as the U.S. Army Corps of Engineers.
5. Investigate sewer back-up prevention measures.
6. The treatment plant has been floodproofed.
7. The Village should consider acquisition of properties in the floodplain, as opportunities arise, to convert to floodplain open space.

Lake County ANHMP Property Protection Recommendations

1. All buildings and critical facilities in the floodplain, SMC problem areas and depressional storage areas, with priority given to buildings or facilities in the floodway, should be mitigated, to the extent that the measures are cost effective and feasible.
2. Identified repetitive flood loss areas should be further investigated through flood audits, and flood prone structures should be mitigated.
3. SMC should continue to conduct flood audits and to pursue hazard mitigation grants for the acquisition of properties that are cost effective and have interested property owners.
4. Investigate property-owner incentives for elevations, barriers and floodproofing.
5. Establish and disseminate guidelines for local officials for determining what mitigation measures are appropriate to protect property for various circumstances for floods, severe storms, tornadoes and other priority hazards in Lake County.
6. Available property protection public education materials for all priority hazards should be consolidated and tailored for Lake County. Materials should address measures that can help owners reduce their exposure to damage by natural hazards and the various types of insurance coverage that are available.
7. Critical facilities should be audited to determine their vulnerability and hazard mitigation needs.
8. Mitigation projects should be pursued for vulnerable critical facilities, including public facilitates and health-care related facilities. Each public entity should protect its own publicly-owned facilities with appropriate mitigation measure(s), except where efficiencies allow for joint funding and joint projects.
9. The availability of tornado shelters or safe rooms in Lake County should be investigated
10. Safe rooms should be constructed wherever needed in Lake County with priority given to schools and critical faculties.
11. Develop action plan to identify and remedy illicit hook ups and sewer infiltration that maps and prioritizes problem areas for remediation. This can be done as county coordinated community program in conjunction with NPDES Phase 2 requirements.
12. Encourage business recovery plans.
13. Feasible mitigation projects should be funded through grants or through capital funding.
14. All property owners should be encouraged to determine if they are adequately insured for natural hazards.
15. Each public entity (county, community, schools and other agencies) should evaluate its own properties, with a priority given to critical facilities, to determine vulnerabilities to damage from natural hazards.

5.3 Resource Protection

Natural resource protection measures serve to restore or preserve the natural functions of the floodplain and other components of the watershed storage and drainage system. These measures are implemented by a variety of public and private parties ranging from forest preserves and regulatory agencies to land developers and farmers. Resource protection measures include activities such as:

- Open space preservation
- Wetland protection
- Erosion and sediment control
- Streambank restoration
- Groundwater protection
- Urban forestry
- Historic and natural area protection

Open Space Preservation: Open space preservation throughout a watershed is important for a variety of natural hazard and environmental reasons. Preserving floodplains and natural sites of water storage, such as wetlands and low-lying areas maintains the existing stormwater storage capacities of an area. These sites can also serve as recreational areas, greenway corridors, provide habitat for local flora and fauna, and improve water quality. Open space may also be maintained as a park, golf course, or in agricultural use.

Upland areas within a watershed may be key to limiting runoff that will worsen flooding problems, important for water quality and groundwater recharge. Purchase of land is the most common approach to open space preservations; however, other methods can be considered in addition. Several more affordable examples of open space preservation practices include the purchase or dedication of easements limiting use of the parcel in exchange for a tax abatement or as a condition of development approval, and the purchase of development rights for a property.

Wetland Protection Regulations & Soil Erosion and Sediment Control: Wetlands are usually found in floodplains or depressional areas. They provide numerous natural and beneficial functions warranting protection. Wetlands located in the Waters of the U.S. (WOUS) are regulated by the U.S. Army Corps of Engineers (Corps). Local wetland programs are important for addressing gaps in the federal regulations, particularly for smaller wetlands, unregulated activities, and indirect hydrologic impacts. Local wetland programs can require undisturbed buffers be maintained around wetlands.

Wetlands

- Store large amounts of floodwater
- Reduce downstream flood peaks
- Reduce flood velocities
- Protect shorelines from erosion
- Filter water making it cleaner
- Are groundwater recharge and discharge sites
- Provide habitat for species that cannot live or breed anywhere else

The WDO provides standards for the isolated wetlands no longer under the jurisdiction of the Corps.

Stream Restoration: Our understanding of the need for stream, streambank and riparian environment protection has grown significantly in past decades. Eroding streambanks negatively impact our infrastructure (bridges and culvert blockages), impact property, and degrade the water quality. Terminology for "stream restoration" can differ, but the objective is to return streams, streambanks and adjacent land to a more natural condition, including the natural meanders. Terms such as "ecological restoration" encourage the restoration of native indigenous plants and animals to an area.

A key component of these efforts is to use appropriate native plantings along the banks that resist erosion. This may involve retrofitting the shoreline with willow cuttings, wetland plants, and/or rolls of landscape material covered with a natural fabric that decomposes after the banks are stabilized with plant roots.

Groundwater Protection: Groundwater concerns in Lake County pertain to both groundwater quantity (or groundwater availability) and groundwater quality. The quantity of groundwater and groundwater recharge, depends on the ability of runoff to reach a pervious surface where it can become seepage. Urban runoff reaching a storm sewer, for example, which discharges into a stream is effectively lost from the groundwater system.

All groundwater was at one time surface water. Rain and snow melt seeps or infiltrates into the ground. The quantity and the rate water seeps into the ground, and becomes stored groundwater, varies based on land use, soils, season, temperature, and more. Water infiltrating through the soil can eventually reach aquifers where groundwater is stored.

Urban Forestry: The majority of damage caused by wind, ice and snow storms is to trees. Downed trees and branches break utility lines and damage buildings, parked vehicles and anything else that was under them. A forestry program (urban or rural) can reduce the damage potential of trees.

Urban foresters or arborists can select hardier trees which can better withstand high wind and ice accumulation. Only trees attaining a height less than the utility lines should be allowed along the power and telephone line rights-of-way

By having stronger trees, programs of proper pruning, and ongoing evaluation of the trees, communities can prevent serious damage to their tree population. A properly written and enforced urban forestry plan can reduce liability, alleviate the extent of fallen trees and limbs caused by wind and ice build-up, and provide guidance on repairs and pruning after a storm. Such a plan helps a community qualify to be a Tree City USA. The Village of Lincolnshire participates in Tree City USA.

To qualify as a Tree City USA, a community must meet four standards established by The Arbor Day Foundation and the National Association of State Foresters:

1. A Tree Board or Department
2. A Tree Care Ordinance
3. A Community Forestry Program With an Annual Budget of at Least $2 Per Capita
4. An Arbor Day Observance and Proclamation

Historic and Natural Area Protection: Lake County has over 90 homes, hotels, other buildings and districts included on the National Register of Historic Places. Additional sites are maintained by the Lake Forest/Lake Bluff Historical Society , the Fox Lake-Grant Township Historical Society, the Grayslake Historical Society and the Waukegan Historical Museum. The historic sites are vulnerable to hazards. It is difficult to protect the structures from hazards due to their historic nature, but it is important to consider should any mitigation opportunities be presented.

There are also ten historic bridges in Lake County listed in the "Historic Bridges of the U.S." list.

Lincolnshire Resource Protection Conclusions and Recommendations

1. The Village does a good job towards natural resource protection within the Village.
2. Look for opportunities to preserve flood storage.
3. Encourage activities such as rain gardens.

Lake County ANHMP Resource Protection Recommendations

1. Municipal comprehensive plans, land use plans and zoning ordinances should incorporate open space provisions protecting properties from flooding and preserve wetlands, groundwater quality and recharge, and farmland.
2. An open space network should be designated and mapped based on the information collected in data layers for the area-wide conservation and development map. Soils, historic, archeological or cultural sites and recreation potential should also be added as considerations for designation of land in the open space network.
3. Communities should implement an urban forestry program that qualifies them to become a Tree City, USA.
4. The public and decision makers should be informed about the hazard mitigation benefits of restoring rivers, wetlands and other natural areas.
5. Better monitoring and enforcement of best management practice performance.
6. Complete watershed assessments and plans that incorporate specific BMPs based on watershed conditions for all 26 of Lake County's subwatersheds.

5.4 Emergency Services

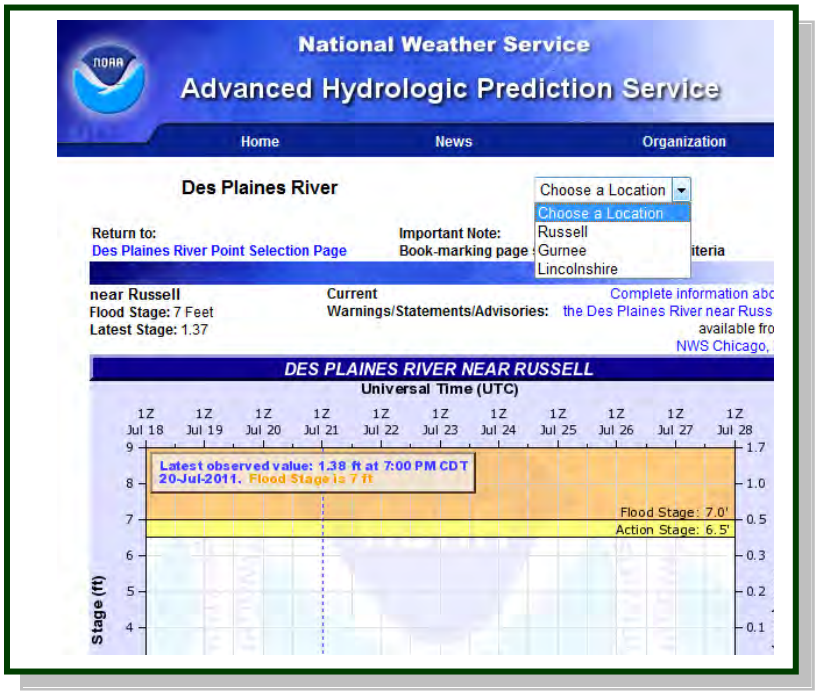
Emergency services measures protect people during and after a flood. Emergency management programs include activities such as:

- Emergency Planning
- Threat recognition
- Warning
- Response
- Recovery and mitigation
- Critical facility protection

Emergency Planning: An emergency operations plan (EOP) ensures all response needs are addressed and all response activities are appropriate for the expected threat. EOPs require frequent reviews to keep contact names and telephone numbers current and to make sure supplies and equipment needed are still available. EOPs should be critiqued and revised after disasters and exercises to take advantage of the lessons learned and changing conditions. The end result is a coordinated effort implemented by people who have experience working together so available resources will be used in the most efficient manner.

Threat Recognition: The first step in responding to a flood, tornado, storm or other natural hazard is to know when weather conditions are such an event could occur. With a proper and timely threat recognition system, adequate warnings can be disseminated. Effective threat recognition is key for emergency managers and local officials in order to protect life, health, safety and property from the impact of natural hazards.

Floods: A complete flood threat recognition system measures rainfall, snow conditions, soil moisture, and stream flows upstream in order to calculate the time and height of the flood crest downstream.



The National Weather Service (NWS) tracks precipitation, monitors river stages and issues flood crest forecasts during potential flood situations. The NWS continuously relays weather information through radio transmissions, and flood forecasts are also available via the Internet. A system of stream and rain gages jointly operated by the United States Geological Survey (USGS) and the SMC supplement data available to the NWS.

Figure 5-1 Flood Forecast and Rain and Stream Gage Links

Illinois Department of Natural Resources (IDNR)
http://dnr.state.il.us/owr/surveilance.htm

National Weather Service (NWS)
http://www.crh.noaa.gov/crh/

United States Geological Service (USGS)
http://waterdata.usgs.gov/il/nwis/rt

Table 5-2 shows NWS prediction locations for the Des Plaines and Fox Rivers. Stages are unique to a particular location and sometime difficult to relate to upstream or downstream locations. The creation of flood stage maps is one alternative to understanding a predicted flood stage and the extent of a flood inundation area.

Table 5-2 NWS Flood Forecast Points

River/Location	Action Stage	Flood Stage
Des Plaines River		
Russell	6.5 feet	7.0 feet
Gurnee	6.5 feet	7.0 feet
Lincolnshire	11.5 feet	12.5 feet
Des Plaines	4.5 feet	5.0 feet
Fox River		
Antioch	--	739 feet
Stratton L&D	3.5 feet	4.0 feet
Algonquin	2.5 feet	3.0 feet

Warning: Earlier and accurate warning leads to better response. Warning notifications may be disseminated by the community in a variety of ways, and multiple or redundant systems are most effective. Systems include:

- Outdoor warning sirens
- Sirens on public safety vehicles
- Commercial or public radio or TV stations
- The Weather Channel
- Cable TV emergency news inserts
- Reverse 911 or telephone trees/mass telephone notification
- NOAA Weather Radio
- Tone-activated receivers in key facilities
- Door-to-door contact
- Mobile public address systems
- Cellular phone text messages
- E-mail or social media notifications

StormReady: The National Weather Service established the StormReady program to help local governments improve the timeliness and effectiveness of hazardous weather-related warnings for the public. To be officially StormReady, a community must:

- Establish a 24-hour warning point and emergency operations center (EOC)

- Have more than one way to receive severe weather warnings and forecasts and to alert the public
- Create a system monitoring weather conditions locally
- Promote the importance of public readiness through community seminars
- Develop a formal hazardous weather plan, which includes training severe weather spotters and holding emergency exercises.

Being designated as a StormReady community by the NWS is a good measure of a community's emergency warning program for weather hazards.

Response: The protection of life and property is the goal of effective emergency response. Concurrent with threat recognition and issuing warnings, a community should respond with actions to prevent or reduce damage and injuries. Typical actions and responding parties include the following:

- Activating the emergency operations center (emergency management)
- Closing streets or bridges (police or public works)
- Shutting off power to threatened areas (utility company)
- Passing out sand and sandbags (public works)
- Ordering an evacuation (chief elected official)
- Holding children at school/releasing children from school (school district)
- Opening evacuation shelters (Red Cross)
- Monitoring water levels (engineering)
- Security and other protection measures (police)

Once a threat is recognized, the first priority is to alert others through the warning system. The second priority is to respond with actions to prevent or reduce damage or injury.

Critical Facility Protection: Protecting critical facilities during a hazard event is a vital part of any emergency service effort. If a critical facility is flooded, for example, workers and resources may be unnecessarily drawn away from protecting the rest of the community. If such a facility is prepared, it will be better able to support the community's flood response efforts.

Lincolnshire critical facilities are shown in Exhibit 1-[x]. All Lincolnshire critical facilities have backup power sources, and the Londonderry Lane lift station has been elevated and fitted with backup power.

Recovery and Mitigation: Preventing dangers to health and safety is critical after a hazard event. Recovery plans should identify appropriate measures various community departments should undertake.

Appropriate post-disaster mitigation actions include, but are not limited to:

- Conducting a public information effort to advise residents about mitigation measures they can incorporate into their reconstruction work
- Evaluating damaged public facilities to identify mitigation measures that can be included during repairs
- Evaluating substantially or repeatedly damaged buildings
- Post-disaster debrief to determine response improvements
- Planning for long-term mitigation activities
- Applying for post-disaster mitigation funds

Lincolnshire Emergency Services Conclusions and Recommendations

1. All Village-owned critical facilities have back-up power for storm events.
2. Additional work can be done for preparation and staging of berm sandbag effort.
3. Post-event communication from the Village to property owners can be improved.

Lake County ANHMP Emergency Services Recommendations

1. All communities should strive to obtain a StormReady designation.
2. Continue to update emergency operations plans for the County, and continue to develop municipal emergency operations plans with a NIMS compliant template.
3. Continue work for NIMS compliance for the County and all municipalities, and provide training on NIMS and ICS for all first responders and other identified personnel for compliance.
4. Improve information sharing between Lake County, municipal/township agencies and services providers, such as ComEd, during and after natural hazard events. Systems should be put in place to help ensure that response and recovery efforts are coordinating and well communicated.
5. Add a “Flood Annex” to the *Lake County Emergency Operations & Preparedness Plan*.
6. Establish an emergency response assessment teams, including a mitigation team and a health department team.
7. Response procedures for severe storm and high wind hazards should be incorporated in all emergency operations planning and response where appropriate.
8. Incorporate more proactive flood response activities in emergency plans. (i.e. identify and closely monitor known problem constrictions in drainage system; system of monitoring lake levels by lake associations for lakes with associated flood problem areas; guidance to property owners on when and how to turn off utilities during flood)
9. Standardize and improve system of flood damage reporting by the county, townships and municipalities in computerized database format.
10. The County and communities should ensure that alternative power sources are available at critical structures and shelters.

11. Establish a You are not alone program for seniors and the handicapped.
12. Install and maintain lightning detection systems for population and/or active sites.
13. Emergency operations centers at the County and in municipalities should be evaluated for effectiveness and functionality, and modified appropriately. The County and all municipalities should have a fully operational emergency operations center and a secondary location.
14. Conduct annual emergency response training exercises and table-top exercises. Look for multi-jurisdiction training opportunities.
15. Develop a disaster recovery strategy for the County and municipalities that includes the identification of mitigation efforts.
16. Investigate adequacy and research funding opportunities for emergency warning and response equipment, including outdoor weather warning sirens, generators for critical facilities, and other warning systems.
17. Develop flood stage maps for the County's major streams to make use of gaging networks, warning systems and GIS mapping capabilities.
18. Research funding for additional rainfall and river gages. Also the County and community should look to expand the National Weather Service observer's network.
19. Continue use and funding of the County's Reverse-911 system and utilize other applications of that system for natural hazard warning and response.
20. Develop emergency transportation plans that allow for emergency coordination and evacuation (routing).
21. Maintain and update snow removal plans

5.5 Structural Measures

Structural projects are projects constructed to protect people, buildings and infrastructure from damage due to natural hazards. Preventing damage due to flooding is the primary focus of structural projects. Structural projects are usually funded by public agencies. Structural measures include activities such as:

- Watershed Planning
- Regional Flood Control
- Management Of Existing Dams
- Improving Crossings/Roadways
- Drainage And Storm Sewer Improvements

Watershed Planning: A watershed is an area of land draining to a river or stream. It includes rivers, streams, lakes and wetlands. Everyone lives in a watershed and everyone contributes to the health of the watershed. Communities are often situated in more than one watershed. In the 1970s and 1980s the watersheds were studied by state and federal agencies (IDNR-OWR, the Corps and NRCS) for purposes of FEMA floodplain mapping and for purposes of identifying flood control projects to address existing flooding. Watershed

studies are based on hydrologic (rainfall-runoff) models and hydraulic (extent and depth of flooding) models. As development expands throughout Lake County, these models have become less and less reliable for depicting full extent of the 100-year flood, for example.

As funds become available, SMC has been remodeling watershed subbasins and developing watershed plans. Completed and underway watershed studies in Lake County include:

- Indian Creek Watershed-Based Plan (Des Plaines River) *(Adopted March 2009)*

Watershed studies conducted in the 1970s and 1980s did not examine wetlands, critical environmental areas or water quality. Current watershed plans examine these issues as well as flood issues.

Regional Flood Control: Structural flood control measures are used to prevent floodwaters from reaching properties, thus preventing damage. These measures generally involve construction of man-made structures to control water flows. Because of their size and cost, structural projects typically are implemented with the help of state or federal flood control agencies such as the IDNR-OWR, the Corps, and the NRCS.

Since structural flood control is generally the most expensive type of mitigation measure in terms of installation costs, maintenance requirements and environmental impacts, a thorough alternative assessment should be conducted before choosing a structural flood control measure. In some circumstances smaller structural flood control measures may be included in a package of several recommended measures for a project area where non-structural measures would not be practical or effective.

Because larger structural flood control projects have regional or watershed-wide implications, they are often planned at a regional level by the state and federal agencies that provide the majority of project funding. Nonetheless, communities should participate in and coordinate with regional flood control studies to insure they are practical, effective and have community acceptance.

Riparian Area Management

A CITIZEN'S GUIDE

From the Lake County Stormwater Management Commission
Prepared with funds authorized by section 104(b)(3) of the Clean Water Act

Successful Stream Management Practices

Taking care of your property

Inside:

The shoreline of a lake or stream and the immediate adjacent area is called the *riparian zone*. As a riparian landowner, you reap benefits daily from the lake or stream's natural attributes. Not only is your property value enhanced, but wildlife and fish habitat, recreation use and water quality, important to us all, are dependent upon this zone. Proper management of riparian areas can enhance the economic, social, and

In Lake County, over 420 miles of streams drain into some 170 lakes and rivers through out 480 square miles of the county. But, nearly every stream and lake has been affected to some degree by shoreline erosion and water quality degradation, often the result of urbanization.

Urbanization results in the addition of land, or impervious, surface including roofs, roadways and parking lots, causing greater

and volume increases, streambanks erode, water becomes turbid, and sensitive habitats are degraded. Changes to the natural shape of the stream, or channelization, often accompanies urbanization further disrupting habitat and increasing erosion. Adding to the problem is the removal of native stabilizing vegetation along banks and shorelines and replacement with invasive, less protective species.

Flood control studies have been done by federal and state agencies on the North Branch of the Chicago and Des Plaines Rivers. Some recommendations from these studies for reservoirs and levees have been constructed, others have not.

Drainage System Maintenance and Improving Crossings and Roadways: The drainage system may include detention ponds, stream channels, swales, ditches and culverts. Drainage system maintenance is an ongoing program to clean out blockages caused by an accumulation of sediment or overgrowth of weedy, non-native vegetation or debris, and remediation of streambank erosion sites.

"Debris" refers to a wide range of blockage materials including tree limbs and branches that accumulate naturally, or large items of trash or lawn waste accidentally or intentionally dumped into channels, drainage swales or detention basins. In addition to sediment, debris and weedy vegetation removal, drainage maintenance can also involve using best management practices (BMPs) to stabilize eroding shorelines or streambanks. Maintenance of detention ponds may also require revegetation or repairs of the restrictor pipe, berm or overflow structure.

There is currently no coordinated program or maintenance standards established at the county level to consistently perform on-going drainage maintenance. Maintenance is typically done on an as-needed basis in response to problems or complaints about blockages or erosion. In many cases, property owners must consent to the maintenance program. This may require legal negotiations to obtain maintenance easements.

In Illinois, the responsibility for drainageway maintenance on private property, when no easements have been granted, is with the individual private property owner. This generally results in very little maintenance being accomplished.

The Lake County Stormwater Management Commission (SMC) has developed "A Citizen's Guide for Riparian Area Management" educating landowners about debris removal and riparian landscaping. SMC anticipates adopting stream maintenance standards in the future to provide guidance and consistency for maintenance in Lake County.

In some cases buildings may be elevated above floodwaters but access to the building is lost when floodwaters overtop local roadways, driveways, and culverts or ditches. Depending on the recurrence interval between floods, the availability of alternative access, and the level of need for access, it may be economically justifiable to elevate some roadways and improve crossing points.

For example, if there is sufficient downstream channel capacity, a too small culvert serving as a constrictor creating backwater and causing localized flooding may be replaced with a larger culvert to eliminate flooding at the waterway crossing point. The potential for worsening adjacent or downstream flooding needs to be considered before implementing any crossing or roadway drainage improvements.

Lincolnshire Structural Measure Conclusions and Recommendations

1. Examine berm maintenance issues.
2. Londonderry Lift Station has been elevated and includes a backup generator.
3. The Village should continue to work with Lake County and other agencies to identify additional structural measures (regional approaches) to protect homes from flood damage.
4. The Village should look for any opportunities to provide additional flood storage in the Des Plaines River or North Branch watersheds.

Lake County ANHMP Structural Measure Recommendations

1. Develop, adopt and implement protocol for drainage system maintenance standards countywide (waterways, swales, detention basins, levees, reservoirs).
2. Study the feasibility of structural flood control projects within Lake County watersheds and pursue funding from IDNR-OWR and the Corps for feasible projects.
3. SMC and communities should investigate the need and ability to improve the capacity of drainage systems.
4. Communities should undertake steps to reduce inflow and infiltration into sewer system to reduce sewer backups
5. Provide preventative maintenance for susceptible landslide areas.

5.6 Public Information

Mitigation of all natural hazards can be accomplished through effective public information activities. This is also true for addressing health issues and pandemics. Public information activities advise property owners, renters, businesses, and local officials about hazards and ways to protect people and property. A successful hazard mitigation program involves a public information strategy and involves both the public and private sectors. Public information includes activities such as:

- Library and website resources
- Outreach projects
- Technical assistance

Individual property owners usually implement property protection measures; therefore, a community mitigation program should include measures to encourage and assist owners in protecting their property from flood damage.

A community has passive and active ways to inform residents about flood hazards and damage mitigation. Passive ways to provide information include providing reference materials and map information in the public library, at government agency offices and on a web page. Active approaches include outreach projects and providing technical assistance. Developing a Village of Lincolnshire Plan for Public Information is considered in this Mitigation Plan.

In one-on-one sessions with property owners, community officials such as code enforcement staff or building inspectors can provide technical advice and information on identifying flood hazards at the site, correcting local drainage problems, floodproofing, dealing with contractors, and funding.

Lincolnshire Public Information Conclusions and Recommendations

1. The Village utilizes a number of ways to communicate with residents, yet Village's public information efforts can be improved before, during and after natural hazard events.

2. Public information efforts should be expanded for resources information to property owner for activities such as building rain gardens.
3. The Village should develop a CRS Plan for Public Information and a Flood Insurance Coverage Improvement Plan.

Lake County ANHMP Public Information Recommendations

1. LCEMA, SMC and other county agencies should build a county-wide partnership for coordinated delivery of public information materials and activities.
2. Communities in the NFIP should provide floodplain information for property owners.
3. Develop and implement a system to coordinate the distribution of flood mitigation and response guidance materials for pre-flood outreach to at risk property owners.
4. Increase outreach to community plan departments and commissions to strengthen local understanding and review of development proposals and their compliance with WDO standards.
5. Educate property owners on safe rooms. Prepare informational material how to construct safe rooms in homes and other buildings
6. Develop a method that helps identifies safe rooms and encourages their use.
7. Education property owners and residents about safety during severe summer and winter storms .
8. Provide information to property owners and residents about safe use of generators and safe cooking during power outages.
9. Provide information that identifies location of cooling and warming shelters.

5.7 Capability Assessment Summary

Village of Lincolnshire has existing capabilities to minimize future vulnerabilities to hazards. Section 5.1 discusses the plans, ordinances, and programs to help prevent or minimize possible future impacts of hazards. The Lake County WDO addressed new development, but also strives to mitigate the impact of existing development.

Apparent to the development of this Mitigation Plan is the Village of Lincolnshire has the capability to bring together citizens and local officials to work closely together in crafting a better future for the community. That same cooperative effort, if joined with the appropriate technical and financial assistance from regional, state and federal resources, can be harnessed to implement the priority hazard mitigation actions described in Section 6 of this Mitigation Plan. A sustained effort by the citizens, staff, and local officials can create a more sustainable and disaster resistant future for the Village of Lincolnshire.

Chapter 6.
Action Plan

The Village of Lincolnshire action items presented in this Chapter were developed by the Village of Lincolnshire Hazard Mitigation Planning Committee.

6.1 Development of Action Plan

The Planning Committee used its prioritization of natural hazards, review of goals and guidelines and a review of possible mitigation approaches to develop the action items. The action items included in the 2012 Lake County ANHMP were also reviewed for the development of this Action Plan.

Prioritization: Action items are prioritized within this Chapter in the order presented. The prioritization was established based on the Planning Committee's discussion at the December 2013 meeting and review at the May 2014 meeting. The action items have been formulated around the priority hazards discussed in Chapter 3 and the goals and guidelines presented in the Chapter 4.

Action item format: Action items assign responsibilities and deadlines to the appropriate agencies. Each action item contains a short description and a section for the responsible agency, the deadline for accomplishing the action item, the costs (and potential funding sources), and the benefits. Potential funding sources include the FEMA Hazard Mitigation Assistance programs: the Hazard Mitigation Grant Program (HMGP), the Pre-Disaster Mitigation Grant Program (PDM), and the Flood Mitigation Assistance Program (FMA).

The action items are summarized in Table 6-1. While this Chapter provides action items in a priority order, any and all action items should be implemented if staff time and/or funding becomes available ahead of other action times. The relationship between action items and the goals and guidelines are shown in Table 6-2.

Please note, the Village of Lincolnshire may choose to implement a lower priority action prior to a higher priority action, or implement a recommendation included in Chapter 5 of this Mitigation Plan or the Lake County ANHMP not included in this action plan, based on a hazard event, opportunity, property owner interest or available funding. All mitigation opportunities should be considered.

6.2 Village of Lincolnshire Action Items

The Village of Lincolnshire will work to implement the following action items in the next five years as staff and funding resources allow:

Action Item 1: Plan Adoption

The Village of Lincolnshire will adopt this Natural Hazards Mitigation Plan (Mitigation Plan) by resolution.

Responsible Board or Department: Village Board.
Deadline: 6 months.
Cost: Staff time.
Benefits: Adoption of this Mitigation Plan is required for the CRS program.
Plan Reference: Chapters 2 and 7 of this Mitigation Plan.

Action Item 2: Plan Monitoring and Maintenance

The Village of Lincolnshire Natural Hazard Mitigation Planning Committee will continue to be an advisory group to the Village Board. The Planning Committee will meet at least once a year to evaluate and monitor progress on implementation of this Mitigation Plan, and to organize for the next update of this Mitigation Plan. An annual report should be submitted to the Village Board as an information item.

Responsible Board or Department: Public Works, CRS Coordinator and Planning.
Deadline: Planning Committee to meet each year. A five-year update is required for FEMA's mitigation funding programs.
Cost: Staff time.
Benefits: The Mitigation Plan should be evaluated in light of progress, changed conditions, and new opportunities. The annual report is a requirement of the CRS.
Plan Reference: Chapters 2 and 7 of this Mitigation Plan.

Action Item 3: Improve Natural Hazards Public Information Efforts

Education regarding natural hazards is important for protecting people and property. Messages need to be simple and repeated, and the information should tell the reader 'what to do.' A number of public information efforts (website and mailings) have been implemented by the Village, but these efforts can be improved to more effectively reach people and to provide effective messages regarding life, health and safety and property protection. Public information and education efforts should focus on severe summer and winter storms, floods and tornadoes and materials should be developed specifically for the Village of Lincolnshire's needs.

Responsible Board or Department: Administration, Public Works and Emergency Management.
Deadline: Ongoing.
Cost: Staff time and publication costs.

Benefits: Public information efforts can address nearly every natural hazard and more than on hazard can be discusses with an audience at one time.
Plan Reference: Chapter 5, Section 5.6 of the Lake County ANHMP, and Chapter 5 of this Mitigation Plan.

Action Item 4: Improve Village Communications Before, During and After Hazard Events

The Village should continue to improve communication to residents and other stakeholders of Lincolnshire. Village departments should work to ensure messages are consistent, provide the needed and correct information, and work to assist each other with dissemination. All forms of communication (written, website, social media) should continue to be used.

Responsible Board or Department: All departments.
Deadline: Ongoing.
Cost: Staff time and publication costs.
Benefits: These efforts serve to protect people and property.
Plan Reference: Chapter 5 of this Mitigation Plan.

Action Item 5: Property Protection Projects

Properties exposed to flood damage and severe storms throughout the Village of Lincolnshire can be protected through property protection measures where regional structural projects are not feasible. Property protection measures should include, but not be limited to elevation, floodproofing, or retrofitting. All flood prone properties (floodplain, depressional storage or SMC problem areas) including critical facilities should be included. The Village should also seek technical advice from available federal, state and regional agencies, such as the U.S. Army Corps of Engineers, the Illinois Department of Natural Resources, Office of Water Resources and the SMC.

Responsible Board or Department: Public Works and Building Department
Deadline: 5 years.
Cost: Identified per project. Potential grant funding sources may be available.
Benefits: Properties will be better protected from future flooding. Also the exposure of the NFIP will be reduced. There will also be a reduction in emergency response as structures are protected or removed from flood prone areas.
Plan Reference: Chapter 5 of this Mitigation Plan.

Action Item 6: Continue to Address Concerns with the Lincolnshire-Londonderry Berm

The earthen berm near the Des Plaines River along/following Lincolnshire Drive extends across a number of private residential properties. The Village has worked closely in the past with residents for flood fighting purposes, and has examined alternatives to improve the effectiveness of the berm. This action item does not call for any specific action, but recommends the Village continue to monitor the condition of the berm and to explore options for protecting the berm, as they arise.

Responsible Board or Department: Public Works.

Deadline: Annually.
Cost: Project specific.
Benefits: The berm protects the Lincolnshire-Londonderry neighborhood from smaller floods on the Des Plaines River.
Plan Reference: Chapter 5 of this Mitigation Plan.

Action Item 7: Continue Maintenance Programs for Drainage Systems

The Village should continue with its formal and regular drainage system maintenance programs. These efforts should include inspection of privately maintained drainage facilities. Streambank and shoreline stabilization efforts should also be evaluated and implemented. Public information should be provided to property owners on how best to protect streambanks and shorelines.

Responsible Board or Department: Public Works.
Deadline: 36 months.
Cost: Staff time and equipment.
Benefits: Regular maintenance can protect both structures and property. Regular maintenance can also be more cost effective than major maintenance efforts that are done on an as-needed basis.
Plan Reference: Chapter 5, Section 5.5 of the Lake County ANHMP.

Action Item 8: Continue Participation in the Community Rating System

The Village of Lincolnshire should continue to participate in the Community Rating System (CRS). Required for CRS participation is full compliance with the minimum requirements of the National Flood Insurance Program.

Responsible Board or Department: Lincolnshire CRS Coordinator and all departments.
Deadline: Ongoing.
Cost: Staff time.
Benefits: The CRS program saves property owners money on flood insurance premiums and it has been shown to be effective for both comprehensive watershed management and emergency response planning.
Plan Reference: Chapter 5 of this Mitigation Plan.

Action Item 9: Continue to Participate in Tree City USA

The Village of Lincolnshire should maintain its status in Tree City USA to enhance the community but to also monitor the health of the trees in the Village and protect property fromdowned trees or utility interruption during or after storms.

Responsible Board or Department: Public Works Department and Community and Economic Development Department.
Deadline: Annual.
Cost: $2 per capita, staff time.
Benefits: Urban forestry programs provide mitigation against severe winter and summer storms, and high wind events. The loss of trees is prevented along with the protection of

power, telephone and cable services. Damage to vehicles and buildings from falling limbs is also prevented.
Plan Reference: Chapter 5, Section 5.3 of the Lake County ANHMP.

Action Item 10: Participation in StormReady

The Village of Lincolnshire should consider joining the National Weather Service's StormReady program. The StormReady program has been developed to provide communities guidelines to improve the timeliness and effectiveness of hazardous weather-related warnings for the public.

Responsible Board or Department: Emergency Management.
Deadline: 24 months.
Cost: Staff time, and equipment purchases for some communities.
Benefits: By meeting StormReady requirements, the Village will be better able to detect impending weather hazards and disseminate warnings as quickly as possible. All efforts to prevent injury, save lives, and protect property are of high value.
Plan Reference: Chapter 5, Section 5.4 of the Lake County ANHMP.

Action Item 11: Continue to Implement Action Items in the Lake County ANHMP

Implementation of the action items listed in Chapter 6 of the Lake County ANHMP should continue by the Village of Lincolnshire.

Responsible Board or Department: Lincolnshire's representative to the Lake County LPC.
Deadline: Ongoing.
Cost: Staff time and any project costs.
Benefits: This effort supports the Village's adoption of the Lake County ANHMP in August 2012.
Plan Reference: Chapter 6 of the Lake County ANHMP.

Action Item 12: Encourage Homeowner Projects That Enhance the Village and Reduce Storm Runoff

Small efforts to reduce stormwater runoff and improve water quality by one property owner have a cumulative effect when they are done by many property owners. Rain gardens help to reduce flood runoff and they also enhance the environment. The Village should distribute information on activities such as rain gardens providing property owners an idea of what they can do to help address flood issues throughout Lincolnshire.

Responsible Board or Department: Planning
Deadline: Ongoing.
Cost: Identified per project.
Benefits: Small efforts may protect basements and crawl spaces, and all efforts contribute to the reduction of runoff.
Plan Reference: Chapter 5 of this Mitigation Plan.

Action Item 13: Provide Additional Stormwater and Floodwater Storage

The Lake County SMC continues to work with other agencies to consider regional approaches (large detention sites) to provide flood damage reduction. Small detention or storage sites may be all that is available, and when small sites or small opportunities for stormwater storage become available, the Village of Lincolnshire should consider exploring funding, design and construction.

Responsible Board or Department: Public Works Department and Community and Economic Development Department.
Deadline: Ongoing.
Cost: Identified per project. Potential funding sources include HMGP, PDM, and FMA.
Benefits: Smaller flood events may have less impact on the Village of Lincolnshire residents and property.
Plan Reference: Chapter 5 of this Mitigation Plan

Action Item 14: Consider Opportunities to Acquire Available Properties in the Floodplain

When properties located in the Village of Lincolnshire floodplains become available for purchase, the Village should consider whether acquisition of that property would be a benefit to the Village.

Responsible Board or Department: Public Works and Planning.
Deadline: Ongoing.
Cost: Identified per project. Potential funding sources include FEMA Hazard Mitigation Assistance grant programs.
Benefits: Property protection measures include the acquisition of floodplain properties, and floodplain properties that are kept as open space or returned to open space allow the floodplain to do its job of storing flood waters.
Plan Reference: Chapter 5 of this Mitigation Plan and Chapter 5, Section 5.2 of the Lake County ANHMP.

Action Item 15: Seek Mitigation Grant Funding for Cost Beneficial Projects

When appropriate for a mitigation project, the Village of Lincolnshire should apply for mitigation grant funding through available IEMA and FEMA programs for mitigation planning and mitigation projects. As required by IEMA and FEMA programs, projects must be cost beneficial. FEMA Hazard Mitigation Assistance program funding and Section 406 of the Stafford Act (for facilities and infrastructure damaged from an event which received a presidentially disaster declaration) should be considered.

Responsible Board or Department: Public Works, Planning, Administrator's Office.
Deadline: As needed.
Cost: 25% of plan or project cost (non-federal share). Potential funding sources include HMGP, PDM, and FMA.
Benefits: The Village of Lincolnshire, along with residents and property owners, would benefit from the available grant funding.

Plan Reference: Chapter 5 of this Mitigation Plan.

6.3 Implementation Strategy

The Village of Lincolnshire will pursue the action items listed in this Chapter as staff and funding resources allow. The Village of Lincolnshire will also continue to implement action items pertaining to municipalities in Chapter 6 of the Lake County ANHMP. However, as mentioned in Section 6.1, the other recommendations included in this Mitigation Plan and the Lake County ANHMP (i.e., in Chapter 5) are no less important and should be implemented as opportunities arise. Plan monitoring and maintenance are discussed in Chapter 7 of this Plan.

Table 6-1 Summary of Village of Lincolnshire Mitigation Plan Action Items

Action Item:	Action Item To Be Implemented By:						
	Village Board	Village Manager	Econ. Develop-ment	Public Works	Emerg. Mgmt.	Other Dept.	Property Owners/ Stake-holders
1. Plan Adoption	✓	✓					
2. Plan Monitoring and Maintenance			✓	✓			
3. Improve Natural Hazards Public Information Efforts		✓		✓	✓		
4. Improve Village Communications Before, During and After Hazard Events		✓	✓	✓	✓	✓	
5. Property Protection Projects				✓			✓
6. Concerns with the Lincolnshire-Londonderry Berm	✓	✓		✓			✓
7. Maintenance Programs for Drainage Systems				✓			
8. Community Rating System Participation		✓	✓	✓	✓	✓	
9. Participation in Tree City USA				✓			
10. Participation in StormReady					✓		
11. Lake County ANHMP Action Items				✓	✓		
12. Homeowner Projects to Reduce Runoff				✓			✓
13. Provide Additional Stormwater and Floodwater Storage			✓	✓			
14. Opportunities to Acquire Available Properties in the Floodplain	✓	✓	✓	✓			
15. Seek Mitigation Grant Funding	✓		✓				

Table 6-2 Summary of Village of Lincolnshire Mitigation Plan Goals

	Goals (Chapter 4)				
	Goal 1.	Goal 2.	Goal 3:	Goal 4.	Goal 5.
Action Item:	Protect the lives, health, and safety of people	Protect public services, utilities and critical facilities	Mitigate existing buildings	Ensure that new developments do not create new exposures	Mitigate to protect against economic and transportation losses
1. Plan Adoption	✓	✓	✓	✓	✓
2. Plan Monitoring and Maintenance	✓	✓	✓	✓	✓
3. Improve Natural Hazards Public Information Efforts	✓	✓	✓	✓	✓
4. Improve Village Communications Before, During and After Hazard Events	✓	✓	✓	✓	✓
5. Property Protection Projects	✓	✓	✓		✓
6. Concerns with the Lincolnshire-Londonderry Berm	✓	✓	✓		✓
7. Maintenance Programs for Drainage Systems	✓	✓	✓	✓	✓
8. Community Rating System Participation	✓	✓	✓	✓	✓
9. Participation in Tree City USA	✓	✓	✓	✓	✓
10. Participation in StormReady	✓	✓	✓	✓	✓
11. Lake County ANHMP Action Items	✓	✓	✓	✓	✓
12. Homeowner Projects to Reduce Runoff	✓	✓	✓	✓	✓
13. Provide Additional Stormwater and Floodwater Storage	✓	✓	✓	✓	✓
14. Opportunities to Acquire Available Properties in the Floodplain	✓	✓	✓		✓
15. Seek Mitigation Grant Funding	✓	✓	✓		✓

Table 6-3 Summary of Lake County ANHMP Action Items

Action Item:	Action Item To Be Implemented By:						
	Village Board	Lake County SMC	Lake County EMA	Lake County PB&D	Municipal Boards & Councils	Village Staff	Other Stakeholders
1. Plan Adoption	✓				✓		
2. Plan Monitoring and Maintenance		✓	✓			✓	
3. Improve Natural Hazards Public Information Efforts		✓	✓	✓		✓	✓
4. SMC Flood Mitigation Projects		✓				✓	
5. Development of Flood Stage Maps		✓				✓	
6. Property Protection Checklist		✓	✓				
7. Improve Emergency Response and Develop Assessment Teams		✓	✓			✓	
8. Incorporate Lake County ANHMP into Other County and Municipal Plans	✓	✓	✓	✓	✓	✓	✓
9. Property Protection Projects		✓	✓			✓	✓
10. Continue to map natural hazard impacts and continue vulnerability assessments		✓	✓				
11. Review and Mitigation of Critical Facilities		✓	✓			✓	✓
12. Seek Mitigation Grant Funding for Additional Mitigation Planning and Cost Beneficial Projects		✓				✓	
13. Continued Implementation of the WDO and NFIP Requirements		✓		✓		✓	
14. Improve Capacity of Drainage Systems		✓				✓	
15 Implement Maintenance Programs for Drainage Systems		✓				✓	
16. Improve Response & Recovery Information Sharing and Collaboration	✓		✓			✓	✓
17. Continue Work for NIMS Compliance	✓		✓			✓	✓
18. Alternate Power Sources for Critical Facilities and Shelters			✓			✓	✓
19. Improve Building Codes and Building Code Enforcement				✓		✓	
20. Community Rating System Participation				✓		✓	
21. Reduce Inflow and Infiltration to Protect Against Sewer Backups						✓	
22. Urban Forestry - Participation in Tree City USA						✓	
23. Participation in StormReady			✓			✓	

Chapter 7.
Plan Maintenance

Maintenance of the Village of Lincolnshire Natural Hazard Mitigation Plan and the monitoring of its implementation will follow the same approach outlined in the Lake County ANHMP, and outlined in this Chapter.

The Lake County Local Planning Committee is responsible for the monitoring and maintenance of the 2012 Lake County ANHMP and the Village is responsible for implementing action items from the Lake County ANHMP and participating in the annual LPC meeting and providing needed information pertaining to the Village for the Lake County ANHMP annual reports. The membership of the LPC includes representatives from the participating communities. The LPC is coordinated by the Lake County SMC and the LCEMA.

7.1 Plan Adoption

Action Item 1 calls for the Village Board to adopt this Mitigation Plan. Adoption of the Mitigation Plan is required for the National Flood Insurance Program's Community Rating System. The adopted 2012 Lake County ANHMP will continue to be the plan that allows the Village to remain eligible for FEMA mitigation grants.

7.2 Maintenance and Monitoring

Maintenance and monitoring of the *Village of Lincolnshire Natural Hazards Mitigation Plan* are addressed in Action Item 2. This action item explains how and when this Mitigation Plan will be reviewed, revised, and updated. Action Item 2 calls for the Village of Lincolnshire Mitigation Planning Committee to meet at least once a year to prepare an annual progress report for this Mitigation Plan for the CRS. Annual meeting should:

- Act as a forum for hazard mitigation issues
- Allow for continued public participation in the implementation and future revisions
- Investigate mitigation opportunities.
- Report on progress and recommended changes to the Village Board

Written annual reports on progress should be presented to the Village Board and made available to the public. The annual reports will facilitate the 5-year update of this Mitigation Plan. Mitigation plans, and CRS floodplain management plans, are required by FEMA to be updated every five years

7.3 Continued Public Participation

The adopted Village of Lincolnshire Mitigation Plan and annual reports will be posted on the Village's website. Public input and participation will be welcome at the Mitigation Committee annual meetings. Other public information materials will be distributed and posted on the website to support this Mitigation Plan, and for the various outreach projects developed for the CRS. Also, a public meeting will precede any amendments or updates to this Mitigation Plan.

7.4 Evaluating the Plan's Success

Evaluation of the Village of Lincolnshire Mitigation Plan will include checking whether mitigation actions are implemented or not, and assessing their degree of effectiveness. The costs to the Village will also be evaluated. The Village staff and the Mitigation Committee will also evaluate whether mitigation actions need to be discontinued, or modified in any way in light of new developments in the community.

Appendix A.

Village of Lincolnshire Resolutions

This Appendix include the Village of Lincolnshire's resolution to create the Village of Lincolnshire Hazard Mitigation Planning Committee, and the resolution adopting this Mitigation Plan.

VILLAGE OF LINCOLNSHIRE

A RESOLUTION APPROVING THE ESTABLISHMENT OF THE VILLAGE OF LINCOLNSHIRE ALL-NATURAL HAZARDS MITIGATION PLANNING COMMITTEE

Passed by the Board of Trustees, August 5, 2013

VILLAGE OF LINCOLNSHIRE
LAKE COUNTY, ILLINOIS

RESOLUTION #732
Approving the Establishment of the Village of Lincolnshire
All-Natural Hazards Mitigation Planning Committee

Whereas the Village of Lincolnshire participates in the National Flood Insurance Program's Community Rating System (CRS) and is striving to improve the Village's CRS rating to provide additional flood insurance discounts to residents and property owners; and

Whereas the Village of Lincolnshire participated with Lake County, Illinois in the development of the Lake County All-Natural Hazards Mitigation Plan (ANHMP) and adopted the ANHMP on August 13, 2012; and

Whereas the adopted ANHMP allows the Village to be eligible for grants under the Robert T. Stafford Disaster Relief and Emergency Assistance Act, Public Law 93-288, as amended by the Disaster Mitigation Act of 2000, Public Law 106-39, and provides the Village with certain CRS credit; and

Whereas the Village of Lincolnshire desires earn additional CRS credit by developing a flood and other natural hazard mitigation plan specific to the needs of the Village, particularly with a focus of reducing potential flood damage; and

Whereas the Village of Lincolnshire also desires to pursue a plan for public information relating to floods and desires to do so with the involvement of residents and businesses.

NOW, THEREFORE, BE IT RESOLVED BY THE MAYOR AND BOARD OF TRUSTEES OF LINCOLNSHIRE, LAKE COUNTY, ILLINOIS, as follows:

Section 1 The Village of Lincolnshire All-Natural Hazards Mitigation Planning Committee (the "COMMITTEE") is hereby established as an advisory body of Village of Lincolnshire for the purpose of developing a Village of Lincolnshire flood and natural hazard mitigation plan and other plans for the CRS;

Section 2 The COMMITTEE will be comprised of Village staff, Village residents and business owners and representatives of other interested agencies, organizations and associations.

Section 3 The following persons are appointed to the COMMITTEE:

Larry Barnhart	4 Court of Connecticut River Valley (Wood Creek Courts EPA)
Mark Cohen	State Farm Insurance, 275 Parkway Dr., Suite 213
Deann Daniel	Sedgebrook, 960 Audubon Way
Jamie Godshalk	57 Lincolnshire Drive
Ramesh Gulatee	4 Dukes Lane
Wendy Kritt	58 Lincolnshire Drive
Marj Lundy	57 Lincolnshire Drive
Ann Maine	23 Berkshire Lane
Judy Mankus	95 Lincolnshire Drive

Jeff Merwin	14826 W. Mayland Villa Road
Rev. Douglas Meyer	30 Riverwoods Road Lutheran Church of the Holy Spirit
Andy Muzik	8 Stonegate Circle
Joseph Pratt	5 Exeter Court
Stan Reznik	79 Lincolnshire Drive
William Rubinstein	211 Rivershire Lane
David Schaper	11 Oxford Drive
Rob Sturrus	1 Stonegate Circle
Rob Weinberg	10 Sommerset Lane (Westgate HOA)
Brett Blomberg	Mayor
Mara Grujanac	Trustee
Jennifer Hughes	Village Engineer, Chair
Steve Robles	Village Planner

Other persons may be added to the COMMITTEE as necessary and as recognized by the COMMITTEE Chair.

Section 4 The COMMITTEE shall meet as often as necessary to prepare the CRS-related plan. The schedule of Committee meetings shall be posted in appropriate places. All meetings of the COMMITTEE shall be open to the public

Section 5 When the COMMITTEE has completed its work and presents its recommended CRS-related plan, this Board will review them with the intention of adopting all or parts of the plan. It is understood that this resolution of commitment to participate in the planning process does not constitute a commitment to enact the recommended plan.

Section 6: This Resolution shall be in full force and effect from and after its adoption as provided by law.

SO RESOLVED this 6th day of August, 2013, at Lincolnshire, Lake County, Illinois.

AYES: Feldman, Grujanac, McAllister, McDonough, Servi
NAYS: None
ABSENT: Brandt

APPROVED:

Brett Blomberg

Brett Blomberg, Mayor

ATTEST:

Barbara Mastandrea

Barbara Mastandrea, Village Clerk

[To be inserted: The Village of Lincolnshire's resolution to resolution adopt this Mitigation Plan.]

Appendix B.

Public Involvement

This Appendix includes the public involvement and agency coordination efforts for the development of the Village of Lincolnshire Natural Hazard Mitigation Plan.

Lincolnshire Flood Mitigation Planning Committee

Thursday, June 20, 2013, 7:00 p.m.

Village Hall Board Room

Public Meeting Agenda

1. Welcome and Introductions
2. Why Are We Here? Flooding in Lincolnshire
3. What is Flood Mitigation and What is CRS?
4. What is the Purpose of the Planning Committee?
    a. Flood Mitigation Plan
    b. Program for Public Information
    c. Flood Insurance Promotion
5. Planning Step 1 – Organize
    a. Committee Role and Participation
    b. Expected Meetings
6. Planning Step 2 – Involve the Community and Public Information Needs
    a. Lincolnshire's Current Efforts
    b. Other Methods To Encourage Input
    c. Community Survey
7. Planning Step 3 – Agency & Organization Coordination
8. Public Comment
9. Next Steps
10. Adjourn

Notes:

_____
_____
_____
_____
_____
_____
_____

Village of Lincolnshire Promotion of June 20, 2013 Public Meeting and Participation in Planning Committee

Village of
Lincolnshire
Incorporated 1957

Lincolnshire is a village with winding roads and luxurious homes. The community was planned around its mature trees giving it a distinct rural charm.

Home | About | Government | Departments/Services | Community | Business | News/Updates | Contact Us

Search GO

Text size + Reset -

Quick Links

- Applications, Permits, and Policies
- E-Mail Updates
- Employment
- Flood Protection Information
- Freedom of Information Act
- Lincolnshire Community Guide
- Meeting Agendas and Minutes
- News and Tips

Click on the photo to get details for the June 20, 2013 Flood Hazard Mitigation Meeting

Village News/Information

Volunteers Needed to Develop Flood Hazard Mitigation Plan

The Village is seeking volunteers to assist in developing a plan to prepare for and respond to fu... Read on

- Lincolnshire Implements New Water Meter Reading System
- ComEd System Improvements
- National Night Out
- Flood Recovery Resources
- Village Updates Economic Development Plan

Village of
Lincolnshire
Incorporated 1957

Lincolnshire is a village with winding roads and luxurious homes. The community was planned around its mature trees giving it a distinct rural charm.

SIGN UP NOW
Blackboard connect
Village Emergency Notification

LINCOLNSHIRE Link
resident information & resource portal

Volunteers Needed to Develop Flood Hazard Mitigation Plan

The Village is seeking volunteers to assist in developing a plan to prepare for and respond to future floods. If you have experienced a flood, whether related to the Des Plaines River, Indian Creek, Lincolnshire Creek, Chicago River, or just backyard flooding, this is your chance to shape the way the Village addresses these issues.

The kickoff meeting for the flood mitigation and planning effort will be held on June 20, 2013 at 7:00 p.m. at the Village Hall Board Room, One Olde Half Day Road, Lincolnshire. This public meeting is open to all Lincolnshire residents and business owners. A planning committee will be formed and future meetings will be planned. All meeting will be open to the public.

The Village of Lincolnshire will be developing a flood hazard mitigation plan that will incorporate the Lake County All Natural Hazards Mitigation Plan. The Lincolnshire flood mitigation plan will focus on flood issues specific to Village residents and business owners. This plan will identify activities that can be undertaken by the Village and property owners to reduce property damage that result from flooding and to increase the safety of the community for all natural hazards.

In conjunction with the flood mitigation plan, the Village will also develop a program for public information to better inform people of steps they can take to protect themselves before during and after a flood, and a flood insurance promotion strategy to protect homes and businesses.

These efforts will contribute to the Village's Community Rating System (CRS) rating. Owner's of property located in the Special Flood Hazard Area already receive 25% discounts on their flood insurance premiums through the National Flood Insurance Program. One of the goals of these meetings is to identify areas where the Village can improve its service to the residents and become eligible for even greater discounts.

Last Updated on Friday, May 17, 2013

Lincolnshire Flood and Other Hazards Survey

The floods in mid-April and June impacted residents in many different ways. For Village officials, the events lead us to evaluate the Village's past performance and seek ways to improve service. One way the Village can help is by taking steps which reduce flood insurance costs. The Village participates in a voluntary program, the Community Rating System, administered by the Federal Emergency Management Agency. This program rewards property owners with discounts on flood insurance premiums based upon efforts by the Village which exceed FEMA's minimum requirements. In an effort to increase the amount of the discount, the Village is developing an All-Natural Hazards Mitigation Plan. This plan will address natural hazards likely to impact the Village including floods, tornadoes, and winter storms. The plan will identify areas susceptible to these hazards and explore measures to minimize the impacts of future natural disasters. The Village has developed the attached survey to gather community input to help shape the plan.

This survey is only 28 questions long and should take only 5 to 10 minutes to complete. Your feedback is important to the Village in working to assist the Village with planning and responding to potential disasters. The deadline to complete this survey is July 31, 2013.

This survey can be completed online at the Village's website: www.village.lincolnshire.il.us or you may answer the questions below.

1. Please tell us a little about you.
   - ☐ Property owner
   - ☐ Renter
   - ☐ Business owner

2. How long have you lived or operated a business at your current location?

   - ☐ < 1 year
   - ☐ 1 year but less than 5 years
   - ☐ 5 years but less than 10 years
   - ☐ 10 years +

3. What river or stream in Lincolnshire is closest to your property?

   - ☐ Des Plaines River
   - ☐ Indian Creek
   - ☐ Lincolnshire Creek
   - ☐ West Branch of North Fork of Chicago River
   - ☐ Other
   - ☐ I Do not know

4. In the past 10 years, have you or someone in your household or business experienced flood problems at your current location? (Check all that apply.)

- ☐ Flooding On or Above First Floor of House or Building (above the basement or crawlspace)
- ☐ Flooding in Basement
- ☐ Sewer Backup
- ☐ Yard Flooding
- ☐ Street Flooding
- ☐ No Problems (If no problems, proceed to Question # 10)
- ☐ Other

If other, please explain: _____

5. If you have had flood problems, please indicate what you think may be the source or cause of the flood water (Check all that apply.)

- ☐ The river or creek level rising and coming onto my property
- ☐ Heavy rain that can't drain away
- ☐ The sewer backing up
- ☐ Debris in the street or stream that created a problem
- ☐ A levee or earthen berm failed
- ☐ A detention basin or lake overflowed
- ☐ Other

If other, please describe: _____

6. Did you need assistance to deal with the flood?

- ☐ Yes
- ☐ No

7. If you answered yes to Question # 6, please indicate the type of assistance you received (Check all that apply)

- ☐ Hired a private contractor for restoration
- ☐ Hired a private contractor to make drainage improvements
- ☐ Contacted my insurance agent
- ☐ Contacted the Village for advice/assistance
- ☐ Other

If other, please describe: _____

8. During a disaster, where do you go for information updates? (Check all that apply.)

- ☐ Television news
- ☐ Radio
- ☐ Newspapers
- ☐ Village Websites
- ☐ Lincolnshire Twitter/Facebook Page
- ☐ Local School Districts
- ☐ Direct Mail Correspondence from Village
- ☐ Village Fact Sheet/Brochure
- ☐ Public Workshops/Meetings
- ☐ Fire Department/Law Enforcement
- ☐ Public Health Department (Not Village)
- ☐ Lake County Government
- ☐ Village E-newsletter
- ☐ Village Blackboard Connect Emergency Notification Service (for more info: http://www.village.lincolnshire.il.us/news-updates/connect-cty)
- ☐ Other

If other, please describe: _____

9. Did you receive communications from the Village during recent flood events?

- ☐ Yes
- ☐ No

10. If you answered yes to Question # 9, how did you keep informed of the Village's flood response activities during the recent flood events?

- ☐ Emergency Telephone System – Blackboard Connect
- ☐ Checked Village Website for Updates
- ☐ Received Village Electronic Newsletters
- ☐ Called the Village Directly to Inquire About Situation

11. Prior to a disaster, what are the best ways for you to receive information from the Village about how to protect your family, home or business from damage due to floods or other natural hazards? (Check all that apply.)

- ☐ Village Websites
- ☐ Lincolnshire Twitter/Facebook Page
- ☐ Local School Districts
- ☐ Direct Mail Correspondence from Village
- ☐ Village Fact Sheet/Brochure
- ☐ Public Workshops/Meetings
- ☐ Fire Department/Law Enforcement
- ☐ Public Health Department (Not Village)
- ☐ Lake County Government
- ☐ Village E-newsletter
- ☐ Village quarterly print newsletter
- ☐ Village Blackboard Connect Emergency Notification Service
- ☐ Other

If other, please describe: _____

12. During the April 2013 flood, the Village received inquiries from families seeking information about loved ones evacuated from their homes. Do you know someone in Lincolnshire who evacuated?

- ☐ Yes, someone in my immediate family
- ☐ Yes, my neighbor
- ☐ Yes, someone I know
- ☐ No

13. Do you have flood insurance?

- ☐ Yes, I was required to purchase flood insurance
- ☐ Yes, I am not required to have insurance but have experienced flood damage previously
- ☐ Yes, I am not required to have insurance and **have not** experienced flood damage
- ☐ No, I am not required to have flood insurance
- ☐ No, I do not think flood insurance is a good investment for me
- ☐ No, I do not understand why I might need flood insurance
- ☐ I do not know

14. If you do not have flood insurance, would you like the Village to send you information about it?

- ☐ Yes. If yes, please provide your email or mailing address in Question 25.
- ☐ No

15. Do you think the Village should maintain a list of evacuees and their intended temporary location?

- ☐ Yes
- ☐ No

16. Based upon your recent experience with flood events in Lincolnshire, what do you think the Village could do to improve its response and service to residents during such a disaster?

_____

_____

_____

_____

_____

17. What hazards, besides floods, concern your family or business? (Check all that apply.)

- ☐ Dam Failure
- ☐ Drought
- ☐ Earthquake
- ☐ Extreme cold
- ☐ Extreme heat
- ☐ Groundwater
- ☐ Hail
- ☐ Ice storm
- ☐ High wind/microburst
- ☐ Lightning
- ☐ Severe shoreline erosion
- ☐ Sewer backup
- ☐ Snow storm
- ☐ Thunderstorm
- ☐ Tornado
- ☐ Wildfire
- ☐ Other

If other, please describe: _____

18. How prepared are you for natural hazards likely to occur within our community?

- ☐ Not at all prepared
- ☐ Somewhat prepared
- ☐ Adequately prepared
- ☐ Well prepared
- ☐ Very well prepared

19. What steps have you taken to prepare your home or business for natural hazards? (Check all that apply.)

- ☐ Created a family/business disaster plan and discussed it with my family/co-workers
- ☐ Established a family/business communication plan
- ☐ Constructed a family/business disaster kit which includes water, food, flashlight and batteries
- ☐ Purchased a battery-powered emergency radio
- ☐ Created a First Aid Kit
- ☐ Received First Aid/CPR training
- ☐ Practiced a fire escape plan
- ☐ Installed a fire extinguisher in my house or business
- ☐ Installed smoke/Carbon Monoxide detectors
- ☐ Discussed utility shutoffs
- ☐ Purchased flood insurance
- ☐ Purchased sewer backup rider on insurance policy
- ☐ Other

If other, please describe: _____

20. How do you feel Lincolnshire is doing in creating awareness of the natural hazards faced by residents and businesses?

- ☐ Excellent
- ☐ Good
- ☐ Fair
- ☐ Poor

21. Please list any suggestions you have for Lincolnshire to improve its service to you when dealing with natural hazards:

_____

_____

If you property abuts the Des Plaines River, please answer the following questions. Otherwise, proceed to Question # 24 on the next page.

22. Does the berm on your property require any maintenance work?

- ☐ Yes
- ☐ No

If yes, please describe the work required. _____

23. Are you willing to grant easement to the Village for future maintenance?

- ☐ Yes
- ☐ No

Comments: _____

24. Lincolnshire is establishing a Hazards Mitigation Committee to review how the community responds to natural hazards, including flooding. Members will review the Village's communication plan, insurance plan, and suggest projects to deal with problem areas. This committee will meet approximately 3 times in the evenings for a few hours over the next few months. Please indicate your willingness to serve on such a committee.

    - ☐ Yes
    - ☐ No
    - ☐ Maybe

25. If you are willing to serve on a committee, please provide your name, address, telephone number and email address below:

26. Please indicate if you would like to receive follow-up information regarding this survey from the Village.

    - ☐ Yes
    - ☐ No

27. Please provide any other information you think the Village should know about hazards, including flooding, that may impact your family or business.

_____

_____

_____

28. Please provide your name, street address and e-mail address below (Optional). The Village may utilize this information for the following purposes: to contact you in the event of future floods; to contact you if you volunteer to serve on the Hazards Mitigation Committee; to provide you information regarding flood insurance, or to ask you questions about your responses to this survey.

_____

_____

_____

Please return your completed survey by July 31, 2013 to:

Public Works Department
Village of Lincolnshire
One Olde Half Day Road
Lincolnshire, IL 60069

Thank you for taking this survey!

SurveyMonkey

lulibarri

Home My Surveys Survey Services Plans & Pricing + Create Survey

Lincolnshire Flood and Other Hazards Survey

Design Survey | Collect Responses | Analyze Results

Need to use the classic Analyze tool? Switch back

Current View

+ Filter + Compare + Show

- Filter by Question and Answer
- Filter by Collector
- Filter by Completeness
- Filter by Time Period
- Filter by Respondent Metadata

Cancel

FILTER BY QUESTION AND ANSWER

Choose...

OR

Cancel

Back

Back

COMPARE BY QUESTION AND ANSWER

Choose...

OR

Cancel

Back

No rules applied

Rules allow you to **FILTER**, **COMPARE** and **SHOW** results to see trends and patterns. Learn more »

Saved Views (1)

Original View (No rules applied)

+ Save as...

Exports

RESPONDENTS: 20 of 20 Export All

Question Summaries | Individual Responses

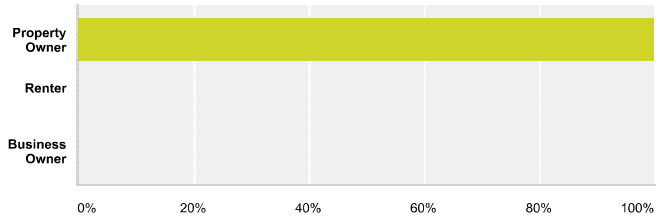
All Pages

PAGE 1

Q1 Chart Type Display Options Export Chart

Please tell us a little about you.

Answered: 20 Skipped: 0

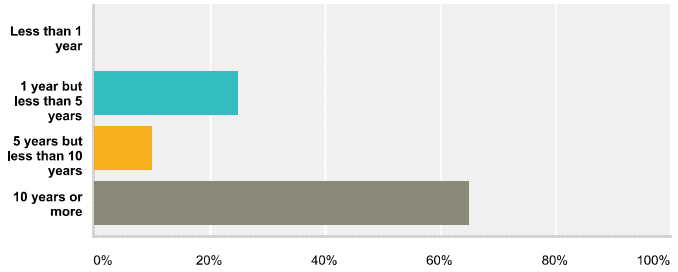


Answer Choices	Responses	
Property Owner	100%	20
Renter	0%	0
Business Owner	0%	0
Total		20

Q2 Chart Type Display Options Export Chart

How long have you lived or operated a business at your current location?

Answered: 20 Skipped: 0

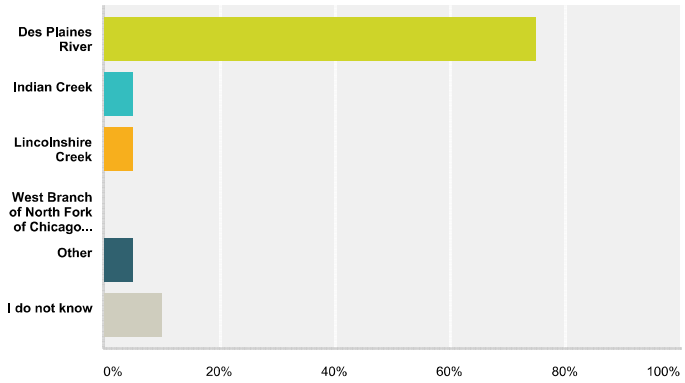


Answer Choices	Responses	
Less than 1 year	0%	0
1 year but less than 5 years	25%	5
5 years but less than 10 years	10%	2
10 years or more	65%	13
Total		20

Q3 Chart Type Display Options Export Chart

What river or stream in Lincolnshire is closest to your property?

Answered: 20 Skipped: 0



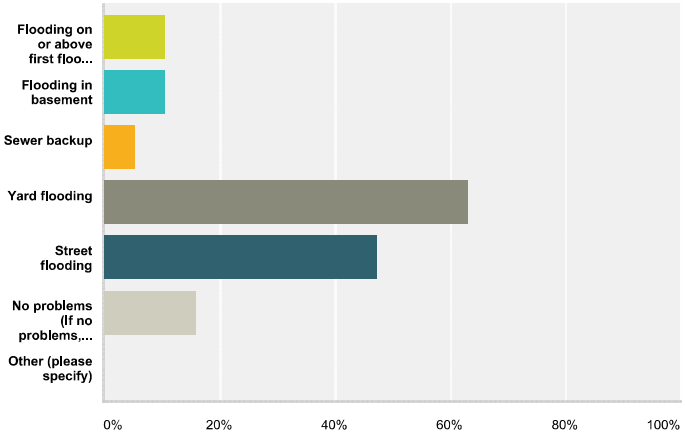
Answer Choices	Responses	
Des Plaines River	75%	15
Indian Creek	5%	1
Lincolnshire Creek	5%	1
West Branch of North Fork of Chicago River	0%	0
Other	5%	1
I do not know	10%	2
Total		20

PAGE 2

Q4 Chart Type Display Options Export Chart

In the past 10 years, have you or someone in your household or business experienced flood problems at your current location (Check all that apply)?

Answered: 19 Skipped: 1



Answer Choices	Responses	
Flooding on or above first floor of house or building (above the basement or crawlspace)	10.53%	2
Flooding in basement	10.53%	2
Sewer backup	5.26%	1
Yard flooding	63.16%	12
Total Respondents: 19		

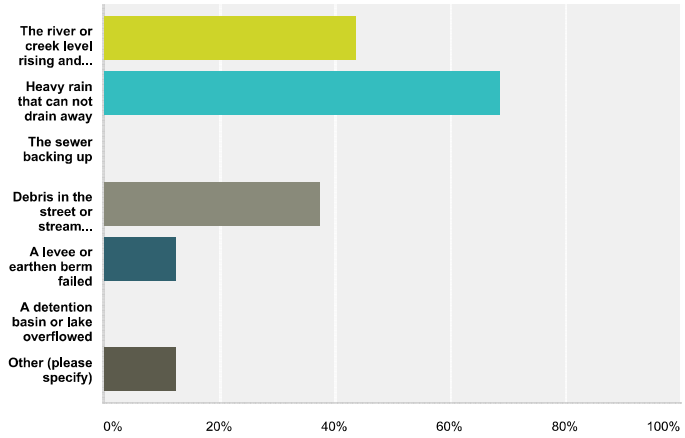
Answer Choices	Responses	
Street flooding	**47.37%**	9
No problems (If no problems, proceed to Question #10)	**15.79%**	3
Other (please specify)	**0%**	0
Total Respondents: 19		

Q5

Chart Type | Display Options | Export Chart

If you have had flood problems, please indicate what you think may be the source or cause of the flood water (Check all that apply)?

Answered: 16 Skipped: 4



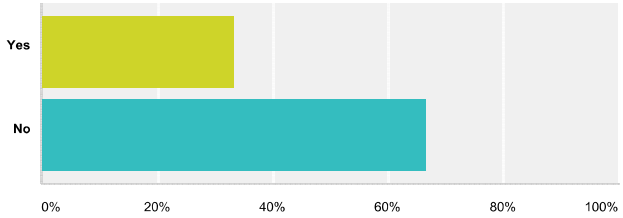
Answer Choices	Responses	
The river or creek level rising and coming onto my property	**43.75%**	7
Heavy rain that can not drain away	**68.75%**	11
The sewer backing up	**0%**	0
Debris in the street or stream created the problem	**37.50%**	6
A levee or earthen berm failed	**12.50%**	2
A detention basin or lake overflowed	**0%**	0
Other (please specify) **Responses**	**12.50%**	2
Total Respondents: 16		

Q6

Chart Type | Display Options | Export Chart

Did you need assistance to deal with the flood?

Answered: 15 Skipped: 5



Answer Choices	Responses	
Yes	**33.33%**	5
Total		15

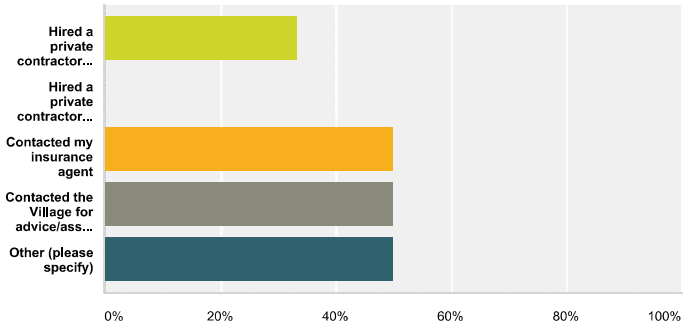
Answer Choices	Responses	
No	**66.67%**	10
Total		15

Q7

Chart Type Display Options Export Chart

If you answered yes to Question #6, please indicate the type of assistance you received (Check all that apply)?

Answered: 6 Skipped: 14



Answer Choices	Responses	
Hired a private contractor for restoration	**33.33%**	2
Hired a private contractor to make drainage iprovements	**0%**	0
Contacted my insurance agent	**50%**	3
Contacted the Village for advice/assistance	**50%**	3
Other (please specify) **Responses**	**50%**	3
Total Respondents: 6		

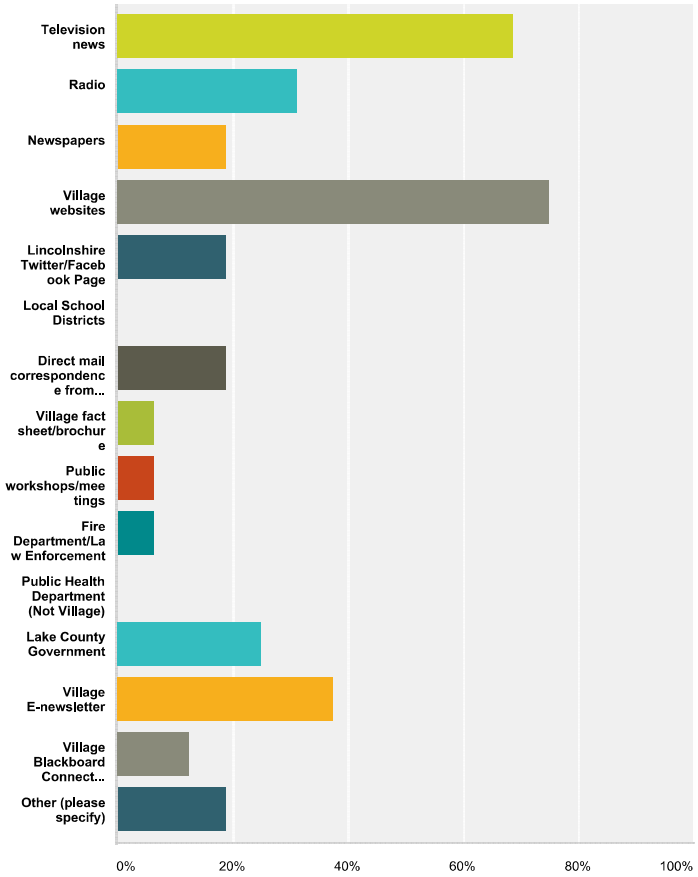
PAGE 3

Q8

Chart Type Display Options Export Chart

During a disaster, where do you go for information updates (Check all that apply)?

Answered: 16 Skipped: 4

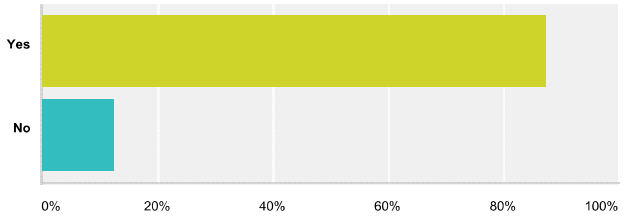


Answer Choices	Responses	
Television news	68.75%	11
Radio	31.25%	5
Newspapers	18.75%	3
Village websites	75%	12
Lincolnshire Twitter/Facebook Page	18.75%	3
Local School Districts	0%	0
Direct mail correspondence from Village	18.75%	3
Village fact sheet/brochure	6.25%	1
Public workshops/meetings	6.25%	1
Fire Department/Law Enforcement	6.25%	1
Public Health Department (Not Village)	0%	0
Lake County Government	25%	4
Village E-newsletter	37.50%	6
Village Blackboard Connect Emergency Notification Service	12.50%	2
Other (please specify) Responses	18.75%	3
Total Respondents: 16		

Q9 Chart Type Display Options Export Chart

Did you receive communications from the Village during recent flood events?

Answered: 16 Skipped: 4

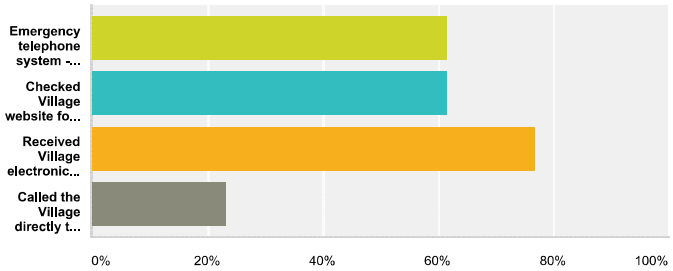


Answer Choices	Responses	
Yes	87.50%	14
No	12.50%	2
Total		16

Q10 Chart Type Display Options Export Chart

If you answered yes to Question #9, how did you keep informed of the Village's flood response activities during the recent flood events?

Answered: 13 Skipped: 7

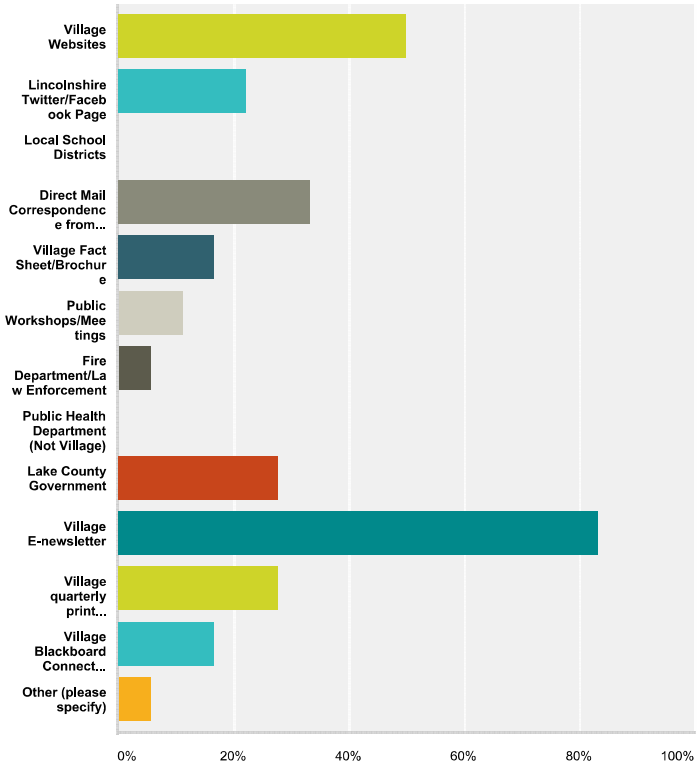


Answer Choices	Responses	
Emergency telephone system - Blackboard Connect	61.54%	8
Checked Village website for updates	61.54%	8
Received Village electronic Newsletters	76.92%	10
Called the Village directly to inquire about the situation	23.08%	3
Total Respondents: 13		

Q11 Chart Type Display Options Export Chart

Prior to a disaster, what are the best ways for you to receive information from the Village about how to protect your family, home or business from damage due to floods or other natural hazards (Check all that apply)?

Answered: 18 Skipped: 2



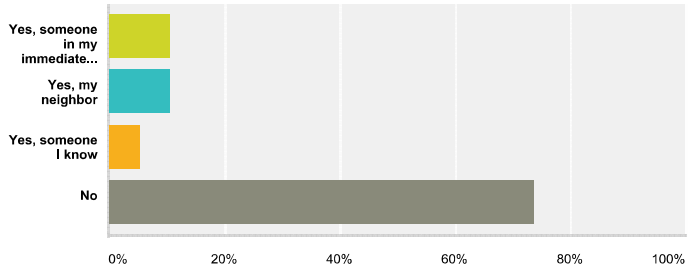
Answer Choices	Responses	
Village Websites	50%	9
Lincolnshire Twitter/Facebook Page	22.22%	4
Local School Districts	0%	0
Direct Mail Correspondence from Village	33.33%	6
Village Fact Sheet/Brochure	16.67%	3
Public Workshops/Meetings	11.11%	2
Fire Department/Law Enforcement	5.56%	1
Public Health Department (Not Village)	0%	0
Lake County Government	27.78%	5
Village E-newsletter	83.33%	15
Village quarterly print newsletter	27.78%	5
Village Blackboard Connect Emergency Notification Service	16.67%	3
Other (please specify) Responses	5.56%	1
Total Respondents: 18		

Q12

Chart Type Display Options Export Chart

During the April 2013 flood, the Village received inquiries from families seeking information about loved ones evacuated from their homes. Do you know someone in Lincolnshire who evacuated?

Answered: 19 Skipped: 1



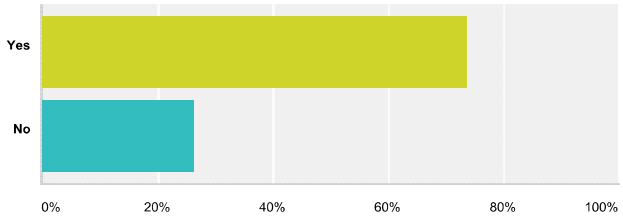
Answer Choices	Responses	
Yes, someone in my immediate family	**10.53%**	2
Yes, my neighbor	**10.53%**	2
Yes, someone I know	**5.26%**	1
No	**73.68%**	14
Total		19

PAGE 4

Q13 Chart Type Display Options Export Chart

Do you think the Village should maintain a list of evacuees and their intended temporary location?

Answered: 19 Skipped: 1



Answer Choices	Responses	
Yes	**73.68%**	14
No	**26.32%**	5
Total		19

Follow Us: Facebook Twitter LinkedIn Our Blog Google+ YouTube
About Us: Management Team Board of Directors Partners Newsroom Contact Us Jobs Sitemap Help
Policies: Terms of Use Privacy Policy Anti-Spam Policy Security Statement Survey Opt-Out

Dansk Deutsch English Español Français □□□ Italiano Nederlands □□□ Norsk Português Русский Suomi Svenska □□(□□)

Copyright © 1999-2013 SurveyMonkey

Lincolnshire Letterhead

Mailing List – See "CRS Coordination Agencies_10-1-2013.xlsx::

County: Lake County SMC
Villages: Buffalo Grove, Riverwoods, Vernon Hills,Lake Forest and Bannockburn
Vernon Township (optional)
Agencies: IDNR/OWR, Lake County Forest Preserve,

[Date]

[Address Block]

Dear [ ]:

The purpose of this letter is to let you know that the Village of Lincolnshire has established the All-Hazards Mitigation Planning Committee (Planning Committee) for the purpose of developing a Village of Lincolnshire flood and natural hazard mitigation plan and other plans for the Community Rating System (CRS). The CRS provides the Village with flood insurance premium discounts and the work of the Planning Committee will help the Village improve their CRS rating.

The Planning Committee will meet on the following dates for the purpose of drafting the Village's CRS plans:

Thursday, October 17, 2013 at 7:00 p.m.
Thursday, November 14, 2013 at 7:00 p.m.
Thursday, December 5, 2013 at 7:00 p.m.

The meetings are open to the public. The meetings will at the Village Hall at One Olde Half Day Road. At the meetings we will work to develop hazard mitigation actions and public information strategies, and to conduct a flood insurance assessment.

We would be happy to share draft copies of the plans that we are developing and would welcome your comments.

If you would like to attend a meeting, please let us know, and if you have any questions please feel free to contact Rob Horne of the Public Works Department at Rhorne@village.lincolnshire.il.us or at 847-883-8600.

Sincerely,

[signature block]

Attachment

July 2014

"Public Meeting to Be Held on the Village of Lincolnshire Natural Hazards Mitigation Plan"

The Village of Lincolnshire Natural Hazards Mitigation Planning Committee has completed the development of the Village of Lincolnshire Natural Hazards Mitigation Plan. A public meeting will be held on Monday, August 25, 2014 at _____ at the Village Hall to review the Plan.

The public is invited to attend this meeting and to provide comments on the Plan. The Plan will identifies activities that can be undertaken by both the government and the residents and property owners to reduce the safety hazards, health hazards, and property damage caused by floods, severe summer and winter storms, tornadoes, and other natural hazards.

The Village of Lincolnshire Natural Hazards Mitigation Plan will be considered by the Village Board for adoption. The Plan will assist the Village in improving its CRS class rating for the Federal Emergency Management Agency's Community Rating System (CRS) Program. The Village is currently a CRS Class 5 and residents and property owners purchasing flood insurance receive a 25% flood insurance premium discount.

Written comments on the Plan will be accepted through _____. A copy of the Plan can be downloaded at the Village's website _____.
*****
For more information, contact _____.

Village of Lincolnshire Natural Hazards Mitigation Plan

Frequently Asked Questions (Mitigation Plan FAQs)

July 2014

1. What is the Village of Lincolnshire Natural Hazards Mitigation Plan?
The Village of Lincolnshire Natural Hazards Mitigation Plan (Mitigation Plan) is a plan that addresses natural hazards that may impact the Village, such as floods, severe summer storms, winter storms and tornadoes, by identifying activities to be considered by the community, residents or property owners to protect life and safety hazards and reduce property damage caused by natural hazards. The Mitigation Plan is currently a draft plan that will be recommended to the Village Board for adoption.

2. Why was the Mitigation Plan developed?
There are two purpose to the Village of Lincolnshire Natural Hazards Mitigation Plan. The first is to examine the Villages specific flood concerns and to recommend flood mitigation actions to be considered by the Village Board and recommended for residents and property owners. The second purpose is for the Village to receive additional credits provided by Federal Emergency Management Agency's (FEMA) Community Rating System (CRS). The Village participates in the CRS and people purchasing flood insurance through FEMA receive a 25% discount. The Village is striving to increase the CRS discount to 30% through efforts such as the development of the Mitigation Plan.

3. Who developed the Mitigation Plan?
The Village's Mitigation Plan was developed through a Village of Lincolnshire Natural Hazard Mitigation Planning Committee (Planning Committee), which was created through a resolution passed by the Village Board in August 2013. The Planning Committee includes Village Board members, Village Staff, residents and other community stakeholders. The Planning Committee met in 2013 and 2014 to create the Mitigation Plan with assistance from a planning consultant.

4. The Village's Mitigation Plan references the Lake County ANHMP. What is the Lake County ANHMP?
The Lake County All Natural Hazards Mitigation Plan (Lake County ANHMP) was developed the Lake County Local Planning Committee (LPC) in 2012 to meet FEMA planning requirements for hazard mitigation grant eligibility. The LPC included Lake County and most all Lake County municipalities including the Village of Lincolnshire. The Village adopted the Lake County ANHMP in August 2012, and the hazard risk assessment and examination of hazard mitigation strategies are used within the Village's Mitigation Plan.

5. Is the Village required to have both mitigation plans?
No, only the Lake County ANHMP is required. The Village's Mitigation Plan is an additional effort undertaken but the Village. To be eligible for FEMA mitigation grants, the Village adopted the Lake County ANHMP. The Lake County ANHMP was reviewed and approved by FEMA and adoption by the County and municipalities was required. The Village of Lincolnshire Natural Hazards Mitigation Plan is a not required

plan and was developed to benefit the Village in flood loss reduction and for Village's CRS class rating for flood insurance discounts.

6. What are the next steps for the Village's Mitigation Plan?
Village of Lincolnshire residents are encouraged to comment on the Mitigation Plan. Comments will be accepted through _____, 2014. Written comments may be mailed, faxed or e-mailed to _____. All comments will be considered by the Planning Committee and the Village Board, then the Village Board will adopt the Mitigation Plan as an official plan of the Village.

7. How can I learn more about the flood insurance or the CRS?
Information on the flood insurance and CRS can be found at www.FloodSmart.gov.

8. How do I get a copy of the draft Village of Lincolnshire Natural Hazards Mitigation Plan?
Visit the home page of the Village's website. [Could promote the Facebook and twitter efforts of the Village.]

Appendix C.

Planning Committee Materials

Included in this Appendix are copies of the Village of Lincolnshire Hazard Mitigation Planning Committee meeting agendas and sign in sheets.

Lincolnshire Flood Mitigation Planning Committee

Thursday, October 17, 2013, 7:00 p.m.

Village Hall Board Room

Agenda

1. Welcome and Introductions
2. Lincolnshire Flood Mitigation Plan
   a. Outline/Chapters
   b. Review of Lincolnshire Hazards from Lake County Plan
   c. Review of Goals and Guidelines from Lake County Plan
3. Lincolnshire Problem Areas
4. Lincolnshire Public Information Needs
   a. What are we doing well?
   b. What should we be doing?
5. Flood Insurance Assessment
   a. Coverage Map
   b. Structure and Contents Coverage/Claims
   c. Assessment
6. Public Comment
7. Next Steps/Next Meeting
8. Adjourn

Notes:

https://www.surveymonkey.com/s/FC9YW2P

_____

_____

_____

_____

_____

Village of Lincolnshire
One Olde Half Day Road, Lincolnshire, IL 60069
Ph: 847.883.8600 | Fax: 847.883.8608 | www.village.lincolnshire.il.us

Meeting Sign-In Sheet

Meeting: Flood Mitigation Planning Committee	Meeting Date: October 17, 2013	
Place/Room: Village Hall Meeting Room		
Name	**Organization or Resident Address**	**Signature if present**
Larry Barnhart	Wood Creek Courts Homeowners	
Mark Cohen	State Farm Insurance	
Deann Daniel	Sedgebrook of Lincolnshire	
Jamie Godshalk	57 Lincolnshire Dr	
Ramesh Gulatee	4 Dukes Ln	
Stancia Kalmus	10 Anglican Ln	
Wendy Kritt	58 Lincolnshire Dr	
Marj Lundy	57 Lincolnshire Dr	Marj Lundy
Jennifer Lugo	38 Plymouth Ct	
Ann Maine	Lake Country Board	
Judy Mankus	95 Lincolnshire Dr	
Roger Mankus	95 Lincolnshire Dr	
Jeff Merwin	14826 W Mayland Villa Rd	
Rev. Douglas Meyer	Lutheran Church of the Holy Spirit	
Andy Muzik	8 Stonegate Circle	
Craig Parcells	65 Lincolnshire Dr	
Joseph Pratt	Westgate Homeowners	
Stan Reznik	79 Lincolnshire Dr	
William Rubinstein	Rivershire Homeowners Assoc.	
David Schaper	11 Oxford Dr	
Rob Sturrus	1 Stonegate Circle	
Mike Tiemens	Bank Financial, Lincolnshire	
Rob Weinberg	Sutton Place Homeowners	

Meeting: **Flood Mitigation Planning Committee**		**Meeting Date:** **October 17, 2013**
Brett Blomberg	Lincolnshire Mayor	
Mara Grujanac	Lincolnshire Trustee	
Brad Burke	Lincolnshire Village Manager	
Robert Horne	Lincolnshire Engineering Supervisor	
Steve Robles	Lincolnshire Village Planner	

Lincolnshire Natural Hazards Mitigation Planning Committee

Thursday, November 14, 2013, 7:00 p.m.

Village Hall Board Room

Agenda

1. Welcome and Introductions
2. Review of Last Meeting & Purpose of Tonight's Meeting
3. Lincolnshire Natural Hazards Mitigation Plan
   a. Review of Lincolnshire Goals and Guidelines*
   b. Examination of Mitigation Strategies

      Preventive, Property Protection, Structural Measures, Resource Protection, Emergency Services and Public Information
   c. Review of Drafted Chapters
4. Lincolnshire Plan for Public Information

   Identifying Topics, Formulating Messages and Possible Projects
5. Flood Insurance Assessment – Report on Progress
6. Public Comment
7. Next Steps/Next Meeting
8. Adjourn

* And homework assignment for next meeting.

Notes:

_____

_____

_____

_____

Village of Lincolnshire
One Olde Half Day Road, Lincolnshire, IL 60069
Ph: 847.883.8600 | Fax: 847.883.8608 | www.village.lincolnshire.il.us

Meeting Sign-In Sheet

Meeting: Natural Hazards Mitigation Planning Committee	Meeting Date: November 14, 2013	
Place/Room: Village Hall Meeting Room		
Name	**Organization or Resident Address**	**Signature if present**
Larry Barnhart	Wood Creek Courts Homeowners	
Mark Cohen	State Farm Insurance	
Deann Daniel	Sedgebrook of Lincolnshire	
Jamie Godshalk	57 Lincolnshire Dr	
Ramesh Gulatee	4 Dukes Ln	
Stancia Kalmus	10 Anglican Ln	
Wendy Kritt	58 Lincolnshire Dr	Wendy Kritt
Marj Lundy	57 Lincolnshire Dr	Marj Lundy
Jennifer Lugo	38 Plymouth Ct	
Ann Maine	Lake Country Board	
Judy Mankus	95 Lincolnshire Dr	
Roger Mankus	95 Lincolnshire Dr	
Jeff Merwin	14826 W Mayland Villa Rd	
Rev. Douglas Meyer	Lutheran Church of the Holy Spirit	
Andy Muzik	8 Stonegate Circle	
Craig Parcells	65 Lincolnshire Dr	
Joseph Pratt	Westgate Homeowners	
Stan Reznik	79 Lincolnshire Dr	
William Rubinstein	Rivershire Homeowners Assoc.	
David Schaper	11 Oxford Dr	
Rob Sturrus	1 Stonegate Circle	
Mike Tiemens	Bank Financial, Lincolnshire	

Meeting: **Natural Hazards Mitigation Planning Committee**		**Meeting Date:** **November 14, 2013**
Rob Weinberg	Sutton Place Homeowners	
Brett Blomberg	Lincolnshire Mayor	
Mara Grujanac	Lincolnshire Trustee	
Brad Burke	Lincolnshire Village Manager	
Robert Horne	Lincolnshire Engineering Supervisor	
Steve Robles	Lincolnshire Village Planner	

Lincolnshire Natural Hazards Mitigation Planning Committee

Thursday, December 5, 2013, 7:00 p.m.

Village Hall Board Room

Agenda

1. Welcome and Introductions
2. Review of Last Meeting & Purpose of Tonight's Meeting
3. Lincolnshire Natural Hazards Mitigation Plan
   a. Review of "Homework"
   b. Mitigation Strategies – Conclusions and Recommendations
      - From November Meeting
      - Additional Strategies
   c. Development of Action Items
      - Continued Actions by the Village
      - New Actions or Projects
4. Lincolnshire Plan for Public Information and Flood Insurance Coverage Improvement
   a. Review of Focus Areas
   b. Exercise - Identifying Topics and Messages
   c. Possible Projects
5. Public Comment
6. Next Steps/Next Meeting
7. Adjourn

Notes:

_____

_____

_____

_____

Village of Lincolnshire
One Olde Half Day Road, Lincolnshire, IL 60069
Ph: 847.883.8600 | Fax: 847.883.8608 | www.village.lincolnshire.il.us

Meeting Sign-In Sheet

Meeting: Flood Mitigation Planning Committee	Meeting Date: December 5, 2013	
Place/Room: Village Hall Community Room		
Name	**Organization or Resident Address**	**Signature if present**
Larry Barnhart	Wood Creek Courts Homeowners	
Mark Cohen	State Farm Insurance	
Deann Daniel	Sedgebrook of Lincolnshire	
Jamie Godshalk	57 Lincolnshire Dr	
Ramesh Gulatee	4 Dukes Ln	
Stancia Kalmus	10 Anglican Ln	
Wendy Kritt	58 Lincolnshire Dr	
Marj Lundy	57 Lincolnshire Dr	
Jennifer Lugo	38 Plymouth Ct	
Ann Maine	Lake Country Board	
Judy Mankus	95 Lincolnshire Dr	
Roger Mankus	95 Lincolnshire Dr	
Jeff Merwin	14826 W Mayland Villa Rd	
Rev. Douglas Meyer	Lutheran Church of the Holy Spirit	
Andy Muzik	8 Stonegate Circle	
Craig Parcells	65 Lincolnshire Dr	
Joseph Pratt	Westgate Homeowners	
Stan Reznik	79 Lincolnshire Dr	
William Rubinstein	Rivershire Homeowners Assoc.	
David Schaper	11 Oxford Dr	
Rob Sturrus	1 Stonegate Circle	
Mike Tiemens	Bank Financial, Lincolnshire	
Rob Weinberg	Sutton Place Homeowners	

Meeting: **Flood Mitigation Planning Committee**		**Meeting Date:** **December 5, 2013**
Brett Blomberg	Lincolnshire Mayor	
Mara Grujanac	Lincolnshire Trustee	
Brad Burke	Lincolnshire Village Manager	
Robert Horne	Lincolnshire Engineering Supervisor	
Steve Robles	Lincolnshire Village Planner	

Lincolnshire Natural Hazards Mitigation Planning Committee

Thursday, May 22, 2013, 7:00 p.m.

Village Hall Board Room

Agenda

1. Welcome
2. Review of Last Meeting & Purpose of Tonight's Meeting
3. Lincolnshire Natural Hazards Mitigation Plan
   a. Review of Action Items
   b. Overview of Draft Plan for Public Comment
4. Lincolnshire Plan for Public Information and Flood Insurance Coverage Improvement
   a. Status of Coverage Improvement Plan
   b. Review of Draft "PPI"
5. Public Comment
6. Next Steps/Next Meeting
   a. Public Meeting & Review Process
   b. Village Board Adoption
7. Adjourn

Notes:

_____

_____

_____

_____

VILLAGE OF LINCOLNSHIRE

Department of Public Works

SIGN-IN SHEET

PROJECT:	ALL NATURAL HAZARDS Mitigation COMMITTEE Meeting
DATE:	5/28/14
TIME:	7:00 PM.

NAME	REPRESENTING	ADDRESS/PHONE
Rob Hoerr	V. of Lincolnshire	—
BRAD BURKE	LINCOLNSHIRE	—
STEVE ROBLES	LINCOLNSHIRE	—
David Schaper	Resident	847-948-9048
Marj Lundy	Resident / Self	37 LINCOLNSHIRE DR. 847-317-0439
James Godshalk	Resident	847-317-0439