

**COOK COUNTY
MULTI-JURISDICTIONAL
HAZARD MITIGATION PLAN
VOLUME 2 - Municipal Annexes**

River Forest Annex

FINAL

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Prepared for:



Cook County
Department of Homeland Security and Emergency Management
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Hazard Mitigation Point of Contact

Primary Point of Contact	Alternate Point of Contact
Kurt Bohlmann, Fire Chief 400 Park Avenue River Forest, Illinois 60305 Telephone: 708-714-3560 Email Address: kbohlmann@vrf.us	John Anderson, Public Works Director 400 Park Avenue River Forest, Illinois 60305 Telephone: 708-714-3550 Email Address: janderson@vrf.us

Jurisdiction Profile

The following is a summary of key information about the jurisdiction and its history:

- **Date of Incorporation:** 1880
- **Current Population:** 10,903 as of the 2018 U.S. Census population estimate.
- **Population Growth:** The population of River Forest has declined 4.8% from 2000 to 2016. The Village does not expect a population increase in the foreseeable future.
- **Location and Description:** River Forest is located on the west boundary of the City of Chicago, 12 miles from the Chicago Loop. The Village is landlocked in a 2.5 square mile area. The Village boundaries include the Des Plaines River on the west, North Avenue to the north, Harlem Avenue on the east and Madison Street to the south. Twenty-nine percent of the village is forest preserve and fifty percent of the village is tax exempt, including schools, churches, universities (Concordia & Dominican) and government properties (village, park district, library district etc.). River Forest is an affluent community with significant architectural structures, predominately designed by Frank Lloyd Wright. River Forest is in Mutual Aid Box Alarm System Division XI that encompasses 23.59 square miles, protecting a population of 234,560 from 13 stations, with 13 engines, 16 ambulances, 7 aerials and 339 firefighter personnel, responding to 32,153 emergencies in 2012. The Village is also a member of WEDGE that investigates and handles major criminal activity involving drugs and or gangs, in a 10 town area, with approximately 200,000 population. The Village also is a member of the Illinois Public Works Mutual Aid Network with a mission to provide resources (Public Works equipment) in the event of a major disaster. River Forest is home to Cook County Forest Preserve Headquarters, Trailside Museum, Concordia University, Dominican University (formerly Rosary College) and Trinity High School.
- **Brief History:** First non-native settler was Ashbelle Steele, who established a sawmill in 1836. He also built the first brick school house “Harlem School” at Lake and Park Avenues in 1859 (remains as River Forest District 90 Administration Building). Mr. Steele served as Cook County Sheriff (1840), then coroner, and the postmaster of western Cook County.
- **Climate:** The climate of River Forest and the Chicago area is classified as humid continental, with all four seasons distinctly represented: wet springs; hot and humid summers; pleasant autumns; and cold winters. Annual precipitation is average, and reaches its lowest points in the months of January and February, and peaks in the months of May and June. Winter proves quite variable. Seasonal snowfall in the Village has ranged from 9 – 90 inches. The daily average temperature in January at Midway Airport is 24.8 °F (-4.0 °C), and temperatures often stay below freezing for several consecutive days or even weeks in January and February. Temperatures drop to or below 0 °F (-18 °C) on 5.5 nights annually at Midway and 8.2 nights at O’Hare. Spring in the Chicago area is perhaps the areas wettest and unpredictable season. Winter like conditions can persist well into April and even occasionally into May. Thunderstorms are especially prevalent in the spring time as the areas lakeside location makes it a center of conflicts between large volumes of warmer and colder air, triggering many kinds of severe weather. Temperatures vary tremendously in the springtime; March is the month with the greatest span between the record highs and lows. On a typical summer day, humidity is usually moderately high and temperatures ordinarily reach anywhere between 78 and 92 °F (26 and 33 °C). The extreme heat that the

Chicago area is capable of experiencing during the height of the summer season can persist into the autumn season. Temperatures have reached 100 degrees high and subzero lows below -18 °C. Fall can bring heavy thunderstorms, many of which are capable of producing flooding. The average first accumulating snow occurs around Nov 19.

- **Governing Body Format:** The Village of River Forest operates with a President/Administrator form of government which includes six Trustees, one Clerk one President and five department heads (Fire, Police, Public Works, Finance and Administration). This body of Government will assume the responsibility for the adoption and implementation of this plan in conjunction with Cook County.
- **Development Trends:** The North Avenue, Harlem Avenue, and Madison Street corridors, and Des Plaines River help form the Village's borders and Lake Street passes though the heart of River Forest's historic "Village Center" and lays adjacent to Metra's Union Pacific West line. The Village of River Forest is committed to fostering economic development and working with developers, potential business owners and current businesses to provide a flexible and predictable development environment. River Forest is predominantly a residential community with a mix of moderate and very high-end properties that see about 6 -10 renovations each year. Last major commercial development was Town Center I & II in the mid-1990s with several single developments since. Additions to both Universities, small developments on North Avenue, Madison Street and Lake Street are the extent of current development. Active development is consistent with regional trend. There are proposal's for residential and retail spaces within River Forest.

Capability Assessment

The assessment of the jurisdiction’s legal and regulatory capabilities is presented in the *Legal and Regulatory Capability Table* below. The assessment of the jurisdiction’s fiscal capabilities is presented in the *Fiscal Capability Table* below. The assessment of the jurisdiction’s administrative and technical capabilities is presented in the *Administrative and Technical Capability Table* below. Information on the community’s National Flood Insurance Program (NFIP) compliance is presented in the *National Flood Insurance Program Compliance Table* below. Classifications under various community mitigation programs are presented in the *Community Classifications Table* below.

TABLE: LEGAL AND REGULATORY CAPABILITY					
	Local Authority	State or Federal Prohibitions	Other Jurisdictional Authority	State Mandated	Comments
Codes, Ordinances & Requirements					
Building Code	Yes	No	No	No	River Forest Municipal Code Title 4, Chapter 1 Building Codes (4-1-1-12). 1981
Zonings	Yes	No	No	Yes	River Forest Municipal Code Title 10, Chapter 1-24 Zoning. 1981
Subdivisions	Yes	No	No	No	River Forest Municipal Code Title 10, Chapter 6 Zoning Districts (10-6-1). 1981
Stormwater Management	Yes	No	Yes	Yes	State regulates industrial activity from Construction sites 1 acre or larger under section 402 CWA. Title 4, Chapter 13 River Forest Municipal Code (4-13-1). 7/14/1986
Post Disaster Recovery	No	No	No	No	

Real Estate Disclosure	No	No	Yes	Yes	(765 ILCS 77/) Residential Real Property Disclosure Act.
Growth Management	No	No	No	No	
Site Plan Review	Yes	No	No	No	River Forest Municipal Code Title 10, Chapter 17 Site Plan Review (10-17-2). 5/23/1995
Public Health and Safety	Yes	No	Yes	Yes	Cook County Board of Health. River Forest Municipal Code Title 6, Chapters 1-9 Health & Sanitation, Title 7, Chapter 1-8 Fire Regulation
Environmental Protection	No	No	No	No	
Planning Documents					
General or Comprehensive Plan	Yes	No	No	No	2003
<i>Is the plan equipped to provide linkage to this mitigation plan?</i>					Yes by amendment
Floodplain or Basin Plan	Yes	No	Village of River Forest	No	River Forest Municipal Code Title 4, Chapter 17 (4-12-1) Flood Plain Regulations. 2-10-1992 Amended 6/23/08
Stormwater Plan	Yes	No	MWRD & Village of Forest	No	Regional stormwater impacts are managed by MWRD. The Village lies within

					the Lower Des Plaines River watershed planning area of MWRD’s comprehensive Stormwater Master Planning Program. River Forest works in conjunction with MWRD on permits. River Forest Municipal Code Title 4, Chapter 17 Grading Permits (4- 17-1). 10/8/2012
Capital Improvement Plan	Yes	No	No	No	River Forest CIP to include Municipal facilities
<i>What types of capital facilities does the plan address?</i>					Municipal complex, Public Works bldg., Water facility (Pump Station & Water Tower), streets, Water mains & Sewer lines.
<i>How often is the plan revised/updated?</i>					Revised Annually
Habitat Conservation Plan	No	No		No	
Economic Development Plan	No	No	Yes	Yes	The Economic Development Commission is charged with reviewing all economic development related programs and incentives including tax incentives offered

					through the Cook County 6b program.
Shoreline Management Plan	No	No	No	No	
Response/Recovery Planning					
Comprehensive Emergency Management Plan	Yes	No	Yes	Yes	River Forest EOP
Threat and Hazard Identification and Risk Assessment	No	No	Yes	No	Cook County DHSEM Preparing THIRA
Terrorism Plan	No	No	Yes	Yes	Cook County DHSEM
Post-Disaster Recovery Plan	No	No	Yes	Yes	Cook County DHSEM
Continuity of Operations Plan	No	No	Yes	No	Cook County DHSEM
Public Health Plans	Yes	No	Yes	No	Tripcom Pharmaceutical Distribution & Cook County DPH

TABLE: FISCAL CAPABILITY	
Financial Resources	Accessible or Eligible to Use?
Community Development Block Grants	Yes
Capital Improvements Project Funding	Yes
Authority to Levy Taxes for Specific Purposes	Yes
User Fees for Water, Sewer, Gas or Electric Service	Yes
Incur Debt through General Obligation Bonds	Yes
Incur Debt through Special Tax Bonds	Yes
Incur Debt through Private Activity Bonds	No
Withhold Public Expenditures in Hazard-Prone Areas	No

State Sponsored Grant Programs	Yes
Development Impact Fees for Homebuyers or Developers	Yes

TABLE: ADMINISTRATIVE AND TECHNICAL CAPABILITY

Staff/Personnel Resources	Available?	Department/Agency/Position
Planners or engineers with knowledge of land development and land management practices	Yes	Building & Zoning Inspector
Engineers or professionals trained in building or infrastructure construction practices	Yes	Village Engineer, Building Inspector & Public Works Superintendent
Planners or engineers with an understanding of natural hazards	Yes	Village Engineer
Staff with training in benefit/cost analysis	Yes	Finance Director
Surveyors	No	
Personnel skilled or trained in GIS applications	Yes	GIS Consultant
Scientist familiar with natural hazards in local area	No	
Emergency manager	Yes	Fire Chief
Grant writers	No	

TABLE: NATIONAL FLOOD INSURANCE PROGRAM COMPLIANCE

What department is responsible for floodplain management in your jurisdiction?	Public Works
Who is your jurisdiction’s floodplain administrator? (department/position)	Public Works- Village Engineer
Are any certified floodplain managers on staff in your jurisdiction?	Yes
What is the date of adoption of your flood damage prevention ordinance?	February 10, 1992, Flood Plain Regulations
When was the most recent Community Assistance Visit or Community Assistance Contact?	5/23/2001

Does your jurisdiction have any outstanding NFIP compliance violations that need to be addressed? If so, please state what they are.	No
Do your flood hazard maps adequately address the flood risk within your jurisdiction? (If no, please state why)	Yes
Does your floodplain management staff need any assistance or training to support its floodplain management program? If so, what type of assistance/training is needed?	No
Does your jurisdiction participate in the Community Rating System (CRS)? If so, is your jurisdiction seeking to improve its CRS Classification? If not, is your jurisdiction interested in joining the CRS program?	Yes (7), not at this time.

TABLE: COMMUNITY CLASSIFICATIONS

	Participating?	Classification	Date Classified
Community Rating System	Yes	7	6/15/2012
Building Code Effectiveness Grading Schedule	No	Unknown	-
Public Protection/ISO	Yes	(IOS)3	9/15/2009
StormReady	Yes	Gold (Countywide)	2014
Tree City USA	Yes		Annually since 1999

Jurisdiction-Specific Natural Hazard Event

The information provided below was solicited from the jurisdiction and supported by NOAA and other relevant data sources.

The *Natural Hazard Events Table* lists all past occurrences of natural hazards within the jurisdiction. Repetitive flood loss records are as follows:

- Number of FEMA-Identified Repetitive Loss Properties: None
- Number of FEMA-Identified Severe Repetitive Loss Properties: None
- Number of Repetitive Flood Loss/Severe Repetitive Loss Properties That Have Been Mitigated: None

TABLE: NATURAL HAZARD EVENTS			
Type of Event	FEMA Disaster Number (if applicable)	Date	Preliminary Damage Assessment
Flash Flood	-	6/15/2015	-
Hail	-	8/1/2014	-
Flood	DR-4116	4/26/2013	-
Severe Winter Storm	DR-1960	1/31/2011	\$100,000
Flood	DR-1935	7/19/2010	\$500,000
Flood	DR-1800	9/13/2008	\$2,000,000
Flood	DR-1729	8/20/2007	\$1,250,000
Flood	DR-1188	8/16/1997	-
Flood	DR-798	8/13/1987	-
Flood	DR-776	9/21/1986	-

Jurisdiction-Specific Hazards and Impacts

Hazards that represent a county-wide risk are addressed in the Risk Assessment section of the 2019 Cook County Multi-Jurisdictional Hazard Mitigation Plan Update. This section only addresses the hazards and their associated impacts that are **relevant** and **unique** to the municipality.

Flood: Previously, heavy rain has caused flooding on Keystone Ave between Division St. and Thomas St. Des Plaines River overflows banks and floods neighborhoods along Chicago Ave. and Lake St. In 2008, Heavy rainfall caused major flooding of the Des Plaines River at Des Plaines and Riverside. The

river crested at the second highest level on record at both locations. The crest was 10.00 feet at Des Plaines and 9.86 feet at Riverside. Officials in Des Plaines urged residents along the Des Plaines River to evacuate as waters rose to near record levels. Many roads in River Forest were closed. In 2015, both directions of I-290 were flooded and closed between Harlem Avenue and Desplaines Avenue due to urban flooding. In 2009, standing water was reported on right the side of Interstate 290 at Austin Blvd after severe thunderstorms and rain.

Extreme Heat: The Village is particularly susceptible to the impacts of extreme heat because of the large elderly population ([17.9% of the population are 62 or over](#)). While no recorded extreme heat events have occurred, the summers have continually become hotter.

High Winds: The heavy density of mature trees throughout the Village are susceptible to damage from high winds. In 2008, trees and large tree limbs were blown down along Wenonah Avenue. A large tree was uprooted along Clinton Avenue and fell onto a house causing damage to the roof and gutters. In 2011, a one-foot diameter branch was blown down with numerous smaller branches on Harvard Street between Clarence Avenue and East Avenue.

Extreme Cold: The Village's large elderly population is vulnerable to extreme cold.

Ice Storms: Large mature trees and overhead power lines throughout the Village are vulnerable to damage from the weight of ice from ice storms. In 2006, quarter size hail was reported in River Forest and lasted 10 minutes. The hail caused damage to cars and windows.

Earthquake: While no earthquake has hit the Village, the Village wants to be prepared given the potential widespread impact an earthquake can have.

Hazard Risk Ranking

The *Hazard Risk Ranking Table* below presents the ranking of the hazards of concern. Hazard area extent and location maps are included at the end of this chapter. These maps are based on the best available data at the time of the preparation of this plan, and are considered to be adequate for planning purposes.

TABLE: HAZARD RISK RANKING		
Rank	Hazard Type	Risk Rating Score (Probability x Impact)
1	Flooding	54
2	Tornado	54
3	Severe Weather	39
4	Severe Winter Weather	39
5	Earthquake	15
6	Drought	2
7	Dam Failure	0

Mitigation Strategies and Actions

The heart of the mitigation plan is the mitigation strategy, which serves as the long-term blueprint for reducing the potential losses identified in the risk assessment. The mitigation strategy describes how the community will accomplish the overall purpose, or mission, of the planning process. In this section, mitigation actions/projects were updated/amended, identified, evaluated, and prioritized. This section is organized as follows:

- New Mitigation Actions - New actions identified during this 2019 update process
- Ongoing Mitigation Actions - Ongoing actions with no definitive end or that are still in progress. During the 2019 update, these "ongoing" mitigation actions and projects were modified and/or amended, as needed.
- Completed Mitigation Actions - An archive of all identified and completed projects, including completed actions since 2014.

The *Hazard Mitigation Action Plan Matrix Table* below lists the actions that make up the jurisdiction’s hazard mitigation plan. The *Mitigation Strategy Priority Schedule Table* identifies the priority for each action.

TABLE: HAZARD MITIGATION ACTION PLAN MATRIX						
Status	Hazards Mitigated	Objectives Met	Lead Agencies	Estimated Cost	Sources of Funding	Timeline/Projected Completion Date (a)
Action R3.1 —Property Protection – Acquire 5 parcels in a flood area along the 8200 block of Lake St., due to repetitive loss. Demolish and preserve for open space.						
Ongoing	Flood	1, 7	Admin	\$2.1 million; High	FEMA Hazard Mitigation Grant	Short-term Dependent upon funding
Action R3.2 —Property Protection – Assist residents in flood prone areas with the cost of retro-fitting an overhead sewer system.						
Ongoing	Flood	1, 7, 11, 12	Public Works	\$65,000; Low	River Forest General Fund	Annual, ongoing
Action R3.3 —Public Education – Perform Community outreach through the use of mass notification. Alerting residents of potential natural hazards such as heavy snow events and floods, how to prepare, and steps to take to reduce loss of property through proper pre-event planning.						

Ongoing	All Hazards	6	Admin, Fire, Police, Public Works	\$10,000	River Forest General Fund	Annual, ongoing
Action R3.4 —Structural Projects – Encourage use of permeable pavers for new driveways or parking lots.						
Ongoing	Flood, Severe Weather	3, 4, 9, 13	Plan	Low	General Fund	Short-term
Action R3.5 —Structural Projects – Increase height & length of earthen berm along Lake St. near Des Plaines River to reduce overflow of river and channel excess water away from homes in the area.						
Ongoing	Flood	1, 2, 9, 12	Public Works	\$10,000; Low	River Forest, General Fund	Short-term
Action R3.6 —Structural Projects – Construction of a new separate storm sewer system, North of Division Street, reducing potential for flooding by improving storm water drainage.						
Completed	Flood	2, 9	Public Works	\$15 million; High	IEPA Loan, Paid with increase to water & sewer rates	Completed
Action R3.7 —Prevention – Modify building code to include specific grading requirements to reduce storm water run-off onto adjacent properties.						
Completed	Flood	3, 4, 10	Building	Low	River Forest	Completed
Action R3.8 —Emergency Services – Conduct pre-event planning meeting including all village public safety entities, to plan for and mitigate significant natural hazard events. Perform function tests on essential equipment such as pumps, generators and other equipment. Advance preparation of artificial berms, sandbags and pre-placement of barricades, initiate call-out of volunteer groups.						
Ongoing	All Hazards	2, 8	Admin, Fire, Police, Public Works	Low	River Forest CIP & General Fund	Short-term
Action R3.9 —Prevention – Provide sandbags and plastic sheeting to residents in anticipation of heavy rains with Des Plaines River at high levels. Provide public information to residents on where and how to secure materials.						
Ongoing	Flood	2, 9, 12	Public Works	Low	River Forest	Short-term

					Emergency Plan	
Action R3.10 —Emergency Services – Continue to participate in mutual aid agreement, but also in agreements with contiguous municipalities for cooperative response to all hazards and disasters.						
Ongoing	All Hazards	1, 8	Fire, Police, Public Works	Low	River Forest CIP & General Fund	Short-term
Action R3.11 —Prevention – Develop and implement ‘Damage Assessment’ program and take structural inventory during assessment baseline to determine where unreinforced masonry buildings exist in our community.						
Ongoing	Earthquake	2, 6	Public Works	Low	Grant funding	Short-term
Action R3.12 —Prevention – Acquire 4’ X 10’ concrete barriers to contain flood waters at Chicago Ave in an effort to prevent residential flooding in the Thatcher Woods area (Trailside Museum)						
Completed	Flood	1, 9, 12	Public Works	\$25,000; Low	Grant funding River Forest General Fund	Completed
Action R3.13 —Prevention – Maintain Village ‘Emergency Notification’ system (Blackboard Connect)						
Ongoing	All Hazards	5, 6	Admin	\$10,000; Low	River Forest General Fund	Short-term
Action R3.14 —Prevention – Upgrade severe weather warning system						
Completed	Tornado	5, 6	Public Works	\$30,000; Low	Grant funding	Short-term
Action R3.15 —Education – Public education program that teaches home and business owners how to ‘Harden’ structures by securing water heaters, furnaces and other fossil fuel appliances.						
Ongoing	Earthquake	6	CERT	\$10,000; Low	Grant funding River Forest General Fund	Short-term
Action R3.16 —Continue to support the county-wide actions identified in this plan.						

Ongoing	All	All	Village	Low	General Fund	Short-and Long-term
Action R3.17 —Actively participate in the plan maintenance strategy identified in this plan.						
Ongoing	All	3, 4, 6	DHSEM, Village	Low	General Fund	Short-term
Action R3.18 —Purchase properties on 8200 block of Lake St. and preserve as open space due to repetitive loss from flooding						
New	Flood	3, 7	TBD	\$1,500,000; Medium	Local Funds	2025
Action R3.19 —Implement the River Forest – Gale Avenue Green Alley Improvement						
New	Flood	12, 13	MWRD	\$193,740	MWRD	TBD
(a) Ongoing indicates continuation of an action that is already in place. Short-term indicates implementation within five years. Long-term indicates implementation after five years.						

TABLE: MITIGATION STRATEGY PRIORITY SCHEDULE

Action Number	Number of Objectives Met	Benefits	Costs	Do Benefits Equal or Exceed Costs?	Is Project Grant-Eligible?	Can Project Be Funded Under Existing Programs/Budgets?	Priority (a)
1	2	High	High	Yes	Yes	No	High
2	4	High	Low	Yes	Yes	Yes	High
3	1	Medium	Low	Yes	No	Yes	Medium
4	4	Medium	Low	Yes	No	Yes	High
5	4	High	Low	Yes	Yes	No	High
6	2	High	High	Yes	Yes	No	High
7	3	Medium	Low	Yes	No	Yes	High
8	2	Medium	Low	Yes	No	Yes	High
9	3	High	Low	Yes	No	Yes	High
10	2	High	Low	Yes	No	Yes	High
11	2	High	Low	Yes	No	No	Medium
12	3	High	Low	Yes	No	Yes	High

13	2	High	Low	Yes	No	Yes	High
14	2	High	Low	Yes	Yes	No	High
15	1	Medium	Low	Yes	No	Yes	Medium
16	1	Medium	Low	Yes	No	Yes	High
17	1	Low	Low	Yes	Yes	Yes	High
18	2	Medium	Medium	Yes	Unknown	Yes	Low
19	2	Medium	Low	Yes	Yes	Yes	High

(a) See Chapter 1 for explanation of priorities.

New Mitigation Actions

The following are new mitigation actions created during the 2019 update.

Action R-3.18

Mitigation Action	Purchase properties on 8200 block of Lake St. and preserve as open space due to repetitive loss from flooding
Year Initiated	2018
Applicable Jurisdiction	Village of River Forest
Lead Agency/Organization	
Supporting Agencies/Organizations	
Applicable Goal	<ul style="list-style-type: none"> • Develop and implement sustainable, cost-effective, and environmentally sound risk-reduction (mitigation) projects. • Protect the lives, health, safety, and property of the citizens of Cook County from the impacts of natural hazards. • Develop, promote, and integrate mitigation action plans. • Promote public understanding of and support for hazard mitigation.
Applicable Objective	<ul style="list-style-type: none"> • Consider the impacts of natural hazards on future land uses in the planning area, including possible impacts from climate change. • Retrofit, purchase, or relocate structures in high hazard areas, including those known to be repetitively damaged.
Potential Funding Source	Local Funds
Estimated Cost	\$1,500,000
Benefits (loss avoided)	Repetitive loss from flooding
Projected Completion Date	2025
Priority and Level of Importance (Low, Medium, High)	Low Priority
Benefit Analysis (Low, Medium, High)	Medium—Project will have a long-term impact on the reduction of risk exposure for life and property, or project will provide an immediate reduction in the risk exposure for property.
Cost Analysis (Low, Medium, High)	Medium—The project could be implemented with existing funding but would require a re-apportionment of the budget or a budget amendment, or the cost of the project would have to be spread over
Actual Completion Date	

Recommended Mitigation Action/Implementation Plan and Project Description	
Action/Implementation Plan and Project Description:	Long-term plan to purchase 5 properties on the south side of 8200 block of Lake Street. All 5 properties routinely incur flood damage when the Des Plaines River floods. The Project would convert properties to green space and provide a barrier to prevent flood damage to neighboring properties. One property already purchased and converted to green space. Remaining properties to be acquired as they become reasonably available.

Mitigation Action and Project Maintenance

Year	Status	Comments
2019	New	
2020		
2021		
2022		
2023		

Mitigated Hazards	
	All Hazards
	Dam/Levee Failure
	Drought
	Earthquake
X	Flood
	Extreme Heat
	Lightning
	Hail
	Fog
	High Wind
	Snow
	Blizzard
	Extreme Cold
	Ice Storms
	Tornado
	Epidemic or pandemic
	Nuclear Power Plant Incident
	Widespread Power Outage
	Coastal Erosion
	Secondary Impacts from Mass Influx of Evacuees
	Hazardous Materials Incident

Action R-3.19

Mitigation Action	Implement the River Forest - Gale Avenue Green Alley Improvement
Year Initiated	2019
Applicable Jurisdiction	Village of River Forest
Lead Agency/Organization	MWRD
Supporting Agencies/Organizations	Village of River Forest
Applicable Goal	<ul style="list-style-type: none"> • Develop and implement sustainable, cost-effective, and environmentally sound risk-reduction (mitigation) projects. • Protect the lives, health, safety, and property of the citizens of Cook County from the impacts of natural hazards. • Develop, promote, and integrate mitigation action plans.
Applicable Objective	<ul style="list-style-type: none"> • Reduce natural hazard-related risks and vulnerability to potentially isolated populations within the planning area. • Encourage hazard mitigation measures that result in the least adverse effect on the natural environment and that use natural processes.
Potential Funding Source	MWRD
Estimated Cost	\$193,740; MWRD Contribution: \$75,000
Benefits (loss avoided)	N/A
Projected Completion Date	TBD
Priority and Level of Importance (Low, Medium, High)	High
Benefit Analysis (Low, Medium, High)	Medium
Cost Analysis (Low, Medium, High)	Low
Actual Completion Date	

Recommended Mitigation Action/Implementation Plan and Project Description	
Action/Implementation Plan and Project Description:	ID: River Forest Contract: 18-IGA-16 Watershed: Lower Des Plaines Location: River Forest, IL Reconstructed a 10,000 sq. ft. alley with permeable pavers in the Village of River Forest. MWRD provided funding for 38.7% of the total \$193,740 construction cost. Project provides 26,490 gallons of design retention capacity in a flood-prone area. The Village is to provide long term maintenance per the intergovernmental agreement.

Mitigation Action and Project Maintenance

Year	Status	Comments
2019	New	Substantially completed in 2018
2020		
2021		
2022		
2023		

Mitigated Hazards	
	All Hazards
	Dam/Levee Failure
	Drought
	Earthquake
X	Flood
	Extreme Heat
	Lightning
	Hail
	Fog
	High Wind
	Snow
	Blizzard
	Extreme Cold
	Ice Storms
	Tornado
	Epidemic or pandemic
	Nuclear Power Plant Incident
	Widespread Power Outage
	Coastal Erosion
	Secondary Impacts from Mass Influx of Evacuees
	Hazardous Materials Incident

Ongoing Mitigation Actions

The following are ongoing actions with no definitive end or that are still in progress. During the 2019 update, these "ongoing" mitigation actions and projects were modified and/or amended, as needed.

Action R-3.1

TABLE: ACTION PLAN MATRIX		
Action Number Action Taken Y/N	Action Item Description	Status (X, O, C, R, N)
# R-3.1	Property Protection – Acquire 5 parcels in a flood area along the 8200 block of Lake St., due to repetitive loss. Demolish and preserve for open space.	
Status Description: Yes	Acquired one property at 8241 Lake Street. Structure was demolished and green space is used as a buffer at this time. Four more properties remain for acquisition.	O
<p style="text-align: center;">Completion status legend: N = New O = Action Ongoing toward Completion C = Project Completed R = Want Removed from Annex X = No Action Taken</p>		

Action R-3.2

TABLE: ACTION PLAN MATRIX		
Action Number Action Taken Y/N	Action Item Description	Status (X, O, C, R, N)
# R-3.2	Property Protection – Assist residents in flood prone areas with the cost of retro-fitting an overhead sewer system.	
Status Description: Yes	Expenditure of \$20,250 from Water/Sewer Fund to install 5 over-head sewer lines in residents homes.	O
<p style="text-align: center;">Completion status legend: N = New O = Action Ongoing toward Completion C = Project Completed R = Want Removed from Annex X = No Action Taken</p>		

Action R-3.3

TABLE: ACTION PLAN MATRIX		
Action Number Action Taken Y/N	Action Item Description	Status (X, O, C, R, N)
# R-3.3	Public Education – Perform Community outreach through the use of mass notification. Alerting residents of potential natural hazards such as heavy snow events and floods, how to prepare, and steps to take to reduce loss of property through proper pre-event planning.	
Status Description: Yes	Blackboard Connect utilized for notification to residents and business owners of potentially dangerous conditions.	O
<p style="text-align: center;">Completion status legend: N = New O = Action Ongoing toward Completion C = Project Completed R = Want Removed from Annex X = No Action Taken</p>		

Action R-3.4

TABLE: ACTION PLAN MATRIX		
Action Number Action Taken Y/N	Action Item Description	Status (X, O, C, R, N)
# R-3.4	Structural Projects – Encourage use of permeable pavers for new driveways or parking lots.	
Status Description: Yes	Encourage residents when building or replacing drives to use permeable paver. Used Village funds to install permeable paver in Gale Avenue Alley.	O
<p style="text-align: center;">Completion status legend: N = New O = Action Ongoing toward Completion C = Project Completed R = Want Removed from Annex X = No Action Taken</p>		

Action R-3.5

TABLE: ACTION PLAN MATRIX		
Action Number Action Taken Y/N	Action Item Description	Status (X, O, C, R, N)
# R-3.5	Structural Projects – Increase height & length of earthen berm along Lake St. near Des Plaines River to reduce overflow of river and channel excess water away from homes in the area.	
Status Description: Yes	Berm along Lake Street increased with only a small section remaining to improve.	O
<p align="center">Completion status legend: N = New O = Action Ongoing toward Completion C = Project Completed R = Want Removed from Annex X = No Action Taken</p>		

Action R-3.8

TABLE: ACTION PLAN MATRIX		
Action Number Action Taken Y/N	Action Item Description	Status (X, O, C, R, N)
# R-3.8	Emergency Services – Conduct pre-event planning meeting including all village public safety entities, to plan for and mitigate significant natural hazard events. Perform function tests on essential equipment such as pumps, generators and other equipment. Advance preparation of artificial berms, sandbags and pre-placement of barricades, initiate call-out of volunteer groups.	
Status Description: Yes	Regular testing of pumps, generators and other equipment. Procedures in place for preparation of artificial berms, sandbags and barricades. Regular communication with Citizens' Corps.	O
<p align="center">Completion status legend: N = New O = Action Ongoing toward Completion C = Project Completed R = Want Removed from Annex X = No Action Taken</p>		

Action R-3.9

TABLE: ACTION PLAN MATRIX		
Action Number Action Taken Y/N	Action Item Description	Status (X, O, C, R, N)
# R-3.9	Prevention – Provide sandbags and plastic sheeting to residents in anticipation of heavy rains with Des Plaines River at high levels. Provide public information to residents on where and how to secure materials.	
Status Description: Yes	Sandbags, plastic sheeting and de-watering pumps are available at the Village and information is sent out in newsletters, emergency notification system and direct public education sessions.	O
<p style="text-align: center;">Completion status legend: N = New O = Action Ongoing toward Completion C = Project Completed R = Want Removed from Annex X = No Action Taken</p>		

Action R-3.10

TABLE: ACTION PLAN MATRIX		
Action Number Action Taken Y/N	Action Item Description	Status (X, O, C, R, N)
# R-3.10	Emergency Services – Continue to participate in mutual aid agreement, but also in agreements with contiguous municipalities for cooperative response to all hazards and disasters.	
Status Description: Yes	Mutual aid agreements are developed and signed for public safety (Fire - MABAS, Police - ILEAS and Public Works - IPWMAN). We remain working on agreements with contiguous municipalities on Public Works equipment.	O
<p style="text-align: center;">Completion status legend: N = New O = Action Ongoing toward Completion C = Project Completed R = Want Removed from Annex X = No Action Taken</p>		

Action R-3.11

TABLE: ACTION PLAN MATRIX		
Action Number Action Taken Y/N	Action Item Description	Status (X, O, C, R, N)
# R-3.11	Prevention – Develop and implement ‘Damage Assessment’ program and take structural inventory during assessment baseline to determine where unreinforced masonry buildings exist in our community.	
Status Description: No		X
<p align="center">Completion status legend: N = New O = Action Ongoing toward Completion C = Project Completed R = Want Removed from Annex X = No Action Taken</p>		

Action R-3.13

TABLE: ACTION PLAN MATRIX		
Action Number Action Taken Y/N	Action Item Description	Status (X, O, C, R, N)
# R-3.13	Prevention – Maintain Village ‘Emergency Notification’ system (Blackboard Connect)	
Status Description: Yes	The Village notification system is being upgraded from voice to voice, email & text messages. Further social media is in the process of review.	O
<p align="center">Completion status legend: N = New O = Action Ongoing toward Completion C = Project Completed R = Want Removed from Annex X = No Action Taken</p>		

Action R-3.15

TABLE: ACTION PLAN MATRIX		
Action Number Action Taken Y/N	Action Item Description	Status (X, O, C, R, N)
# R-3.15	Education – Public education program that teaches home and business owners how to ‘Harden’ structures by securing water heaters, furnaces and other fossil fuel appliances.	
Status Description: Yes	Working with our Emergency Operation Plan in securing appliance to walls. Using media outlets and our Citizen Corp. Council to bring information to our community. 'Central Great ShakeOut' campaign and the facts about the New Madrid Seismic Zone.	O
<p align="center">Completion status legend: N = New O = Action Ongoing toward Completion C = Project Completed R = Want Removed from Annex X = No Action Taken</p>		

Action R-3.16

TABLE: ACTION PLAN MATRIX		
Action Number Action Taken Y/N	Action Item Description	Status (X, O, C, R, N)
# R-3.16	Continue to support the county-wide actions identified in this plan.	
Status Description: Yes	We support the on-going county-wide plans for hazard mitigation.	O
<p align="center">Completion status legend: N = New O = Action Ongoing toward Completion C = Project Completed R = Want Removed from Annex X = No Action Taken</p>		

Action R-3.17

TABLE: ACTION PLAN MATRIX		
Action Number Action Taken Y/N	Action Item Description	Status (X, O, C, R, N)
# R-3.17	Actively participate in the plan maintenance strategy identified in this plan.	
Status Description: Yes	Working toward the compliance of a strategic maintenance plan for our community.	O
Completion status legend: N = New O = Action Ongoing toward Completion C = Project Completed R = Want Removed from Annex X = No Action Taken		

Completed Mitigation Actions

The following section represents completed mitigation actions, and serves as an archive of identified and completed projects.

Action R-3.6

TABLE: ACTION PLAN MATRIX		
Action Number Action Taken Y/N	Action Item Description	Status (X, O, C, R, N)
# R-3.6	Structural Projects—Construction of a new separate storm sewer system, North of Division Street, reducing potential for flooding by improving storm water drainage.	
Status Description: Yes	Entire project Completed	C
<p style="text-align: center;">Completion status legend: N = New O = Action Ongoing toward Completion C = Project Completed R = Want Removed from Annex X = No Action Taken</p>		

Action R-3.7

TABLE: ACTION PLAN MATRIX		
Action Number Action Taken Y/N	Action Item Description	Status (X, O, C, R, N)
# R-3.7	Prevention—Modify building code to include specific grading requirements to reduce storm water run-off onto adjacent properties.	
Status Description: Yes	Grading ordinance in place for the reduction storm-water runoff.	C
<p style="text-align: center;">Completion status legend: N = New O = Action Ongoing toward Completion C = Project Completed R = Want Removed from Annex X = No Action Taken</p>		

Action R-3.12

TABLE: ACTION PLAN MATRIX		
Action Number Action Taken Y/N	Action Item Description	Status (X, O, C, R, N)
# R-3.12	Prevention – Acquire 4' X 10' concrete barriers to contain flood waters at Chicago Ave in an effort to prevent residential flooding in the Thatcher Woods area (Trailside Museum).	
Status Description: Yes	Barriers are purchased and stored at Public Works facility for deployment to Chicago Ave & Thatcher Ave and Lake St & the Des Plaines River in an attempt to slow the flow of river water into the community.	C
<p align="center">Completion status legend: N = New O = Action Ongoing toward Completion C = Project Completed R = Want Removed from Annex X = No Action Taken</p>		

Action R-3.14

TABLE: ACTION PLAN MATRIX		
Action Number Action Taken Y/N	Action Item Description	Status (X, O, C, R, N)
# R-3.14	Prevention – Upgrade severe weather warning system	
Status Description: Yes	Upgraded server weather sirens at Village Hall & Village water pump station. Installation of 'Weather Bug' weather station on Roosevelt Middle School. Installation of NOAA/USGS 'Advanced Hydrologic Prediction Service' gauge in the Des Plaines River at River Forest.	C
<p align="center">Completion status legend: N = New O = Action Ongoing toward Completion C = Project Completed R = Want Removed from Annex X = No Action Taken</p>		

Future Needs to Better Understand Risk/Vulnerability

No needs have been identified at this time.

Additional Comments

No additional comments at this time

HAZUS-MH Risk Assessment Results

RIVER FOREST EXISTING CONDITIONS	
2010 Population	11,172
Total Assessed Value of Structures and Contents	\$2,259,060,703
Area in 100-Year Floodplain	206.32 acres
Area in 500-Year Floodplain	237.21 acres
Number of Critical Facilities	25

HAZARD EXPOSURE IN RIVER FOREST						
	Number Exposed		Value Exposed to Hazard		Total	% of Total Assessed Value Exposed
	Population	Buildings	Structure	Contents		
Dam Failure						
Buffalo Creek	0	0	\$0	\$0	\$0	0.00%
U. Salt Cr. #2	0	0	\$0	\$0	\$0	0.00%
Touhy	0	0	\$0	\$0	\$0	0.00%
U. Salt Cr. #3	0	0	\$0	\$0	\$0	0.00%
U. Salt Cr. #4	0	0	\$0	\$0	\$0	0.00%
Flood						
100-Year	16	5	\$1,720,290	\$860,145	\$2,580,434	0.11%

500-Year	127	39	\$13,522,958	\$6,761,479	\$20,284,437	0.90%
Tornado						
100-Year	—	—	\$533,782,221	\$324,267,033	\$858,049,255	37.98%
500-Year	—	—	\$733,461,773	\$414,075,778	\$1,147,537,55	50.80%

ESTIMATED PROPERTY DAMAGE VALUES IN RIVER FOREST				
	Estimated Damage Associated with Hazard			% of Total Assessed Value Damaged
	Building	Contents	Total	
Dam Failure				
Buffalo Creek	\$0	\$0	\$0	0.00%
U. Salt Cr. #2	\$0	\$0	\$0	0.00%
Touhy	\$0	\$0	\$0	0.00%
U. Salt Cr. #3	\$0	\$0	\$0	0.00%
U. Salt Cr. #4	\$0	\$0	\$0	0.00%
Earthquake				
1909 Historical Event	\$12,492,023	\$2,626,073	\$15,118,096	0.67%
Flood				
10-Year	\$0	\$0	\$0	0.00%
100-Year	\$276,063	\$122,413	\$398,476	0.02%
500-Year	\$2,459,032	\$1,095,206	\$3,554,237	0.16%

Tornado				
100-Year	\$53,378,222	\$32,426,703	\$85,804,925	3.80%
500-Year	\$107,085,419	\$60,455,064	\$167,540,482	7.42%

Hazard Mapping





