

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

Riverside Annex

FINAL

July 2019

Prepared for:



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Hazard Mitigation Point of Contact

| Primary Point of Contact | Alternate Point of Contact |
|---|---|
| Jessica Frances, Village Manager 27 Riverside Road Riverside, IL 60546 Telephone: 708-447-2700 Email Address: jfrances@riverside.il.us | Matt Buckley, Fire Chief 27 Riverside Road Riverside, IL 60546 Telephone: 708-447-2123 ext 206 Email Address: mbuckley@riverside.il.us |

Jurisdiction Profile

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

- **Date of Incorporation:** 1875
- **Current Population:** 8,645 as of the 2018 US Census population estimate.
- **Population Growth:** Over the past ten years Riverside has experienced a very slight drop in population since the 2010 census; overall growth is relatively stable.
- **Location and Description:** Riverside is a western suburb of Chicago in Cook County located 13 miles west of the Chicago Loop. Bordering suburbs include North Riverside to the north, Berwyn to the east, Stickney to the southeast, Lyons to the south, and Brookfield to the west. Interstate 290 immediately accessible 1.6 miles directly north of the Village. The Des Plaines River runs through the west half of the village. According to the 2010 census, the village has a total area of 2.00 square miles.
- **Brief History:** Riverside is arguably one of the first planned communities in the United States, designed in 1869 by Calvert Vaux and Frederick Law Olmsted. The Riverside Landscape Architecture District, an area bounded by 26th Street, Harlem and Ogden avenues, the Des Plaines River, and Golf Road, was designated a National Historic Landmark in 1970. The majority of Riverside homes were built before 1939 (app. 2,210), much later followed by a housing boom in 2005 or later (app. 2,006). Since 1970, Riverside has been a National Historic Landmark with expansive green parkways, curvilinear streets, and older architecture including Frank Lloyd Wright homes. Riverside was added to the U.S. National Register of Historic Places September 15, 1969.
- **Climate:** The climate of Riverside is controlled by many factors, but the two main factors that primarily account for shifts in temperature and precipitation are the sun and weather systems. Average annual temperatures range is approximately 48°F. Average winter highs range from the 30s to the low-40s, while average lows range from the teens to the upper 20s. Average summer highs are in the 80s, while lows are in the 60s. Both spring and fall have more moderate temperatures. Average spring highs are 57°F, while average lows are 36°F. Average fall highs are approximately 60°F, while average lows is approximately 40°F. On average, Riverside warmest month is July. Riverside averages 10 days at or above 90°F. Days at or above 100°F are quite rare, occurring about every other year. The average coolest month is January. Days at or below 0°F ranges is approximately 16 days annually. The highest recorded temperature was 107°F in 1934 and the lowest recorded temperature was -25°F in 1985. The maximum average precipitation occurs in May. The average precipitation is 39 inches, annually.
- **Governing Body Format:** The Village of Riverside operates under a council-manager form of government. The Village President and six Trustees are elected at-large and they do not represent particular wards or areas of the Village. A given term is four years and there are no term limits; Trustees may run for re-election as often as they choose. Village elections are held every two years in April. The President, with the concurrence of the Trustees, appoints the Village Manager. The Village Manager is responsible for implementing Board policies and handling day-to-day operations of the Village and is responsible for overseeing and regulating

different aspects of the Village. This body of Government will assume the responsibility for the adoption and implementation of this plan. Riverside operates 6 departments including the Police Department, Fire Department, Finance Department, Community Development, Public Works Department, and the Parks and Recreation Department. Riverside is mostly in Illinois' 4th congressional district, with a small portion in Illinois' 3rd congressional district.

- **Development Trends:** The Village of Riverside is a built out community with limited open space available for development. The type of development typical in Riverside is one in which existing single family structures are replaced with new single-family units. The Village does not anticipate any residential change in the near future. Riverside has small but growing retail, business and professional communities. These groups through the Riverside Township is working toward a viable, and prosperous business climate; to serve as a forum in which, business, government, civic, cultural and educational interests can work together to promote businesses and to attract new businesses to the community. On April 15, 2013, the Village of Riverside approved a Comprehensive Plan for the Riverside Central Business District Plan developed by the Chicago Metropolitan Agency for Planning (CMAP). Staff developed a Scope of Work for this project that include the Memorandum of Understanding setting program tasks, a timeline for the program and recommendations by community steering committees to assist CMAP staff in developing the final plan and recommendations. Per the direction of staff and the Village Board of Trustees, the committee was comprised of the chairs or designees of the following: Plan Commission, Economic Development Commission, Landscape Advisory Commission, Preservation Commission, Historical Commission, Parks & Recreation Commission and Chamber of Commerce

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 | Yes | In accordance with Public Act 096-0704, Illinois has adopted the IBC as its state Building Code Ordinance No. 1222 |
| Zonings | Yes | No | No | Yes | Ord. 2550, 12-19-2005 |
| Subdivisions | Yes | No | No | No | Ord. 2566, 6-5-2006 |
| Stormwater Management | Yes | No | Yes | Yes | State regulates industrial activity from Construction sites 1 acre or larger under section 402 CWA. Title 4-13-3 |
| 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 | Title 10-2-2-4 |
| Public Health and Safety | Yes | No | No | No | Ord. 2437, 1-21-2003 |
| Environmental Protection | No | No | No | No | |
| Planning Documents | | | | | |
| General or Comprehensive Plan | Yes | No | No | No | CMAP – 4/15/2013 |
| <i>Is the plan equipped to provide linkage to this mitigation plan?</i> | | | | | No |
| Floodplain or Basin Plan | Yes | No | No | No | |
| Stormwater Plan | Yes | No | Yes | No | Regional stormwater impacts are managed by MWRD. The Village lies within the lower Des Plaines watershed planning area of MWRD's comprehensive Stormwater Master Planning Program |
| Capital Improvement Plan | Yes | No | No | No | |
| <i>What types of capital facilities does the plan address?</i> | | | | | No facilities included in CIP at this time |
| <i>How often is the plan revised/updated?</i> | | | | | Annually |
| Habitat Conservation Plan | No | No | No | No | |
| Economic Development Plan | Yes | No | No | Yes | CMAP – 4/15/2013 |
| Shoreline Management Plan | No | No | No | No | |
| Response/Recovery Planning | | | | | |
| Comprehensive Emergency Management Plan | Yes | No | No | Yes | Local 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 | No | No | |
| Continuity of Operations Plan | No | No | Yes | No | Cook County DHSEM |
| Public Health Plans | No | No | Yes | No | Cook County DPH |

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

| 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 | Consulting Engineer |
| Engineers or professionals trained in building or infrastructure construction practices | Yes | Consulting Engineer |

| | | |
|--|-----|---|
| Planners or engineers with an understanding of natural hazards | Yes | Consulting Engineer |
| Staff with training in benefit/cost analysis | Yes | |
| Surveyors | Yes | Consulting Engineer |
| Personnel skilled or trained in GIS applications | Yes | GIS Consortium (minimum GIS staff) |
| Scientist familiar with natural hazards in local area | Yes | |
| Emergency manager | Yes | Fire Chief is designated as Emergency Manager |
| Grant writers | Yes | Consulting Engineer |

| TABLE: NATIONAL FLOOD INSURANCE PROGRAM COMPLIANCE | |
|---|--|
| What department is responsible for floodplain management in your jurisdiction? | Department of Public Works |
| Who is your jurisdiction’s floodplain administrator? (department/position) | Village Manager |
| Are any certified floodplain managers on staff in your jurisdiction? | Consulting Engineer |
| What is the date of adoption of your flood damage prevention ordinance? | Ordinance 2681, 8-18-2008 |
| When was the most recent Community Assistance Visit or Community Assistance Contact? | April 2013 |
| Does your jurisdiction have any outstanding NFIP compliance violations that need to be addressed? If so, please state what they are. | None to our knowledge |
| 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? | Yes, Assistance with FEMA’s Flood Insurance Premium Discounts Calculations program |
| 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? | Not yet, but notification has officially been requested to FEMA and IDNR Community Assistance Visit. |

TABLE: COMMUNITY CLASSIFICATIONS

| | Participating? | Classification | Date Classified |
|--|-----------------------|-----------------------|------------------------|
| Community Rating System | No | N/A | N/A |
| Building Code Effectiveness Grading Schedule | Yes | Unknown | N/A |
| Public Protection/ISO | Yes | Unknown | N/A |
| StormReady | Yes | Gold (Countywide) | 2014 |
| Tree City USA | Yes | Active | 2005 |

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: 36
- Number of FEMA-Identified Severe Repetitive Loss Properties: 2
- 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 |
| Severe Winter Weather | - | 12/2013 - 3/2014 | - |
| Severe Summer Weather | - | 6/24/2013 | - |
| Flood | DR-4116 | 4/17/2013 | \$67,690 |
| Severe Winter Weather | DR-1960 | 1/2011 - 3/2011 | - |
| Severe Summer Weather | - | 7/2011 | - |
| Severe Summer Weather | - | 6/2010 | - |
| Flood | DR-1935 | 8/19/2010 | - |
| Flood | DR-1800 | 9/13/2008 | - |
| Severe Weather | - | 10/2007 | - |

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.

Dam/Levee Failure: The Village of Riverside has experienced failure at the Groveland Levee (repetitive breaches of the levee), imperiling many residential and multi-family structures.

Flood: The Village has experienced flooding at the Des Plaines River. This repeated flooding impacts residential and multi-family structures, as well as 1st Avenue and Riverside Brookfield High School. 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.

Extreme Heat: The Village's elderly and disabled population are particularly susceptible to the impacts of extreme heat.

Lightning: Previously, severe lightning has caused the Village to be subject to loss of power and telecommunications.

Hail: The Village has experienced property damage from hail.

High Winds: Similar to lightning, the Village is subject to loss of power and telecommunications during high wind events. In 2006, A 500 foot to 1,000 foot wide path of tree damage was reported through much of Riverside. Power lines were also blown down. In 2008, Several trees and numerous tree limbs were blown down in Riverside. Part of a tree fell onto a house near Herrick Road. In 2013, winds were estimated to near 70 mph caused extensive tree damage in the communities of Western Springs, La Grange, and Riverside. Extensive tree damage was reported along the railroad. A six inch diameter tree was blown down at 55th Street and La Grange Road. A six inch diameter tree limb was blown down on the 2300 block of 1st Avenue. Multiple lanes were blocked.

Earthquake: The Village is vulnerable to infrastructure and building damage as a result of earthquakes.

Snow: Previously, as a result of severe snow, the Village has lost power and telecommunications and experienced limited access to roadways.

Blizzards: Through the impacts of blizzards, the Village has experienced loss of power and telecommunications, as well as access to roadways.

Extreme Cold: The community has been subject to water main breaks during extreme cold events.

Ice Storms: The Village has experienced loss of power and telecommunications and property damage as a result of ice storms.

Tornado: Based on past damages, the village has experienced loss of power and telecommunications and property damage from wind events.

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 | Severe Weather | 54 |
| 2 | Severe Winter Weather | 54 |
| 3 | Flood | 16 |
| 4 | Tornado | 27 |
| 5 | Earthquake | 32 |
| 6 | Drought | 2 |
| 7 | Dam Failure | 0 |

Note: Hazards have been subjectively ranked based on past experience.

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 R5.1—Test reverse 911 emergency notification system CodeRED | | | | | | |
| Ongoing | All Hazards | 1, 5 | Fire Dept. | Medium | General revenue | Short-term |
| Action R5.2—Implement FEMA CRS evaluation | | | | | | |
| Ongoing | Flood | 3, 4, 5, 6, 7, 9, 10, 11, 13 | Public Works | Low | General revenue | Short-term |
| Action R5.3—Join NOAA StormReady Program | | | | | | |
| Ongoing | Severe weather, Tornado | 3, 4, 5, 6, 7, 9, 10, 11, 13 | Fire Dept. | Low | Annual budget | Short-term |
| Action R5.4—Olmstead watershed plan (Improvement #7) | | | | | | |
| Ongoing | Flood | 1, 6, 9 | Public Works | \$960,000; Medium | Grant/sewer fees | Short-term |

| | | | | | | |
|--|-------|---------|--------------|-------------------------------|-------------------------------|----------------------------------|
| Action R5.5—Olmstead sewer separation plan (Improvement #8) | | | | | | |
| Ongoing | Flood | 1, 6, 9 | Public Works | \$1.6 million; Medium | Grant/sewer fees | Short-term |
| Action R5.6—Longcommon sewer separation & storage vault plan (Improvement #4) | | | | | | |
| Ongoing | Flood | 1, 6, 9 | Public Works | \$2.8 million; Medium | Grant/sewer fees | Short-term |
| Action R5.7—Nuttall sewer separation plan (Improvement #5) | | | | | | |
| Ongoing | Flood | 1, 6, 9 | Public Works | \$570,000; Medium | Grant/sewer fees | Short-term |
| Action R5.8—Scottswood sewer separation plan (Improvement #2) | | | | | | |
| Completed | Flood | 1, 6, 9 | Public Works | \$1.56 million; Medium | Grant/sewer fees | Completed |
| Action R5.9—Railroad watershed proposed outlet (Improvement #1) | | | | | | |
| Ongoing | Flood | 1, 6, 9 | Public Works | \$64,000; Medium | Grant/annual budget | Short-term |
| Action R5.10—Maplewood watershed proposed relief (Improvement #3) | | | | | | |
| Ongoing | Flood | 1, 6, 9 | Public Works | \$150,000; High | Grant/sewer fees | Long-term |
| Action R5.11—Rear yard storm sewer connections (Improvement # 6) | | | | | | |
| Ongoing | Flood | 1, 6, 9 | Public Works | \$75,000 per city block; High | Grant/sewer fees | Long-term |
| Action R5.12—Where appropriate, support retrofitting, purchase, or relocation of structures in hazard-prone areas to prevent future structure damage. Give priority to properties with exposure to repetitive losses. | | | | | | |
| Ongoing | All | 7, 13 | Village | High | FEMA Hazard Mitigation Grants | Long-term (depending on funding) |
| Action R5.13—Continue to support the countywide actions identified in this plan. | | | | | | |
| Ongoing | All | All | Village | Low | General Fund | Short- and long-term |
| Action R5.14—Actively participate in the plan maintenance strategy identified in this plan. | | | | | | |

| | | | | | | |
|---|--------------------------|-----------------|----------------------|------------------|--|------------------------|
| Ongoing | All | 3,4,6 | DHSEM, Village | Low | General Fund | Short-term |
| Action R5.15 —Maintain good standing under the National Flood Insurance Program by implementing programs that meet or exceed the minimum NFIP requirements. Such programs include enforcing an adopted flood damage prevention ordinance, participating in floodplain mapping updates, and providing public assistance and information on floodplain requirements and impacts. | | | | | | |
| Ongoing | Flooding | 4, 6, 9 | Public Works | Low | General Fund | Short-term and ongoing |
| Action R5.16 —Where feasible, implement a program to record high water marks following high-water events. | | | | | | |
| Ongoing | Flooding, Severe Weather | 3, 6, 9 | Village | Medium | General Fund; FEMA Grant Funds (Public Assistance) | Long-term |
| Action R5.17 —Integrate the hazard mitigation plan into other plans, programs, or resources that dictate land use or redevelopment. | | | | | | |
| Ongoing | All | 3, 4, 6, 10, 13 | Village | Low | General Fund | Short-term |
| Action R5.18 —Consider the development and implementation of a Capital Improvements Program (CIP) to increase the Village’s regulatory, financial and technical capability to implement mitigation actions. | | | | | | |
| Ongoing | All | 1, 2, 7 | Public Works | High | CIP component of general fund (if implemented) | Long-term |
| Action R5.19 —Install the Groveland flood wall | | | | | | |
| New | Flood | 2, 7 | Village of Riverside | Over \$7,000,000 | Funded through Army Corp. and MWRD | 2022 |
| Action R5.20 —Install the Railroad Drainage Outlet | | | | | | |
| New | Flood | 2, 3, 13 | MWRD | \$90,000 | Local funds; MWRD | Unknown |
| Action R5.21 —Implement the Groveland Avenue Levee Improvements | | | | | | |
| New | Dam/Levee Failure, Flood | 2, 3, 7 | MWRD | \$7,200,000 | Local funds; MWRD | Unknown |

| Action R5.22—Implement the Green Infrastructure Project | | | | | | |
|---|-------|----------|------|---------|----------------------|---------|
| New | Flood | 2, 3, 13 | MWRD | Unknown | Local funds; MWRD | Unknown |
| (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 | Medium | Low | Yes | No | Yes | High |
| 2 | 9 | High | Low | Yes | No | Yes | High |
| 3 | 9 | Medium | Low | Yes | No | Yes | Medium |
| 4 | 3 | High | Medium | Yes | Yes | Yes | Medium |
| 5 | 3 | Medium | High | Yes | Yes | No | Medium |
| 6 | 3 | Medium | High | Yes | Yes | No | Medium |
| 7 | 3 | Medium | High | Yes | Yes | No | Medium |
| 8 | 3 | Medium | High | Yes | Yes | No | Medium |
| 9 | 3 | Medium | Low | Yes | Yes | Yes | Medium |
| 10 | 3 | Medium | Low | Yes | Yes | No | Medium |
| 11 | 3 | Low | Low | Yes | Yes | No | Medium |
| 12 | 2 | High | High | Yes | Yes | No | Medium |
| 13 | 13 | Medium | Low | Yes | No | Yes | High |
| 14 | 3 | Medium | Low | Yes | Yes | Yes | High |
| 15 | 3 | Medium | Low | Yes | No | Yes | High |
| 16 | 3 | Medium | Medium | Yes | Yes | No | Medium |
| 17 | 5 | Medium | Low | Yes | No | Yes | High |
| 18 | 3 | High | High | Yes | No | No | Medium |
| 19 | 2 | High | High | Yes | Yes | Unknown | High |
| 20 | 3 | Unknown | Unknown | Unknown | Yes | Unknown | Unknown |

| | | | | | | | |
|----|---|---------|---------|---------|-----|---------|---------|
| 21 | 2 | Unknown | High | Unknown | Yes | Unknown | Unknown |
| 22 | 3 | Unknown | Unknown | Unknown | Yes | Unknown | Unknown |

(a) See Chapter 1 for explanation of priorities.

New Mitigation Actions

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

Action R5.19

| | |
|---|---|
| Mitigation Action | Install the Groveland flood wall |
| Year Initiated | 2019 |
| Applicable Jurisdiction | Village of Riverside |
| Lead Agency/Organization | Village of Riverside |
| Supporting Agencies/Organizations | Army Corp. of Engineers and MWRD |
| 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"> • Increase the resilience of (or protect and maintain) infrastructure and critical facilities. • Retrofit, purchase, or relocate structures in high hazard areas, including those known to be repetitively damaged. |
| Potential Funding Source | Funded through Army Corp. and MWRD |
| Estimated Cost | Over \$7,000,000 |
| Benefits (loss avoided) | Potential removal of homes from floodplain, significantly diminish flood damage/issues |
| Projected Completion Date | 2022 |
| Priority and Level of Importance (Low, Medium, High) | High Priority |
| Benefit Analysis (Low, Medium, High) | High - Project will provide an immediate reduction of risk exposure for life and property. |
| Cost Analysis (Low, Medium, High) | Funding secured |
| Actual Completion Date | TBD |

| Recommended Mitigation Action/Implementation Plan and Project Description | |
|---|--|
| Action/Implementation Plan and Project Description: | |

| 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 R5.20

| | |
|---|--|
| Mitigation Action | Install the Railroad Drainage Outlet |
| Year Initiated | 2019 |
| Applicable Jurisdiction | Village of Riverside |
| Lead Agency/Organization | MWRD |
| Supporting Agencies/Organizations | Village of Riverside |
| 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. • Protect public services and critical facilities, including infrastructure, from loss of use during natural hazard events and potential damage from such activities. |
| Applicable Objective | <ul style="list-style-type: none"> • Increase the resilience of (or protect and maintain) infrastructure and critical facilities. • Consider the impacts of natural hazards on future land uses in the planning area, including possible impacts from climate change. • Encourage hazard mitigation measures that result in the least adverse effect on the natural environment and that use natural processes. |
| Potential Funding Source | Local Funds/MWRD |
| Estimated Cost | \$90,000; MWRD Contribution: \$64,000 |
| Benefits (loss avoided) | N/A |
| Projected Completion Date | TBD |
| Priority and Level of Importance (Low, Medium, High) | N/A |
| Benefit Analysis (Low, Medium, High) | N/A |
| Cost Analysis (Low, Medium, High) | N/A |
| Actual Completion Date | TBD |

| Recommended Mitigation Action/Implementation Plan and Project Description | |
|---|---|
| Action/Implementation Plan and Project Description: | ID: Riverside 13 Contract: 16-IGA-03 |

| | |
|--|---|
| | Watershed: Lower Des Plaines Location: Riverside, IL Construction of a 24-inch storm sewer outlet to the Des Plaines River and blocking or restricting flow from the storm sewers of the railroad drainage area to the existing combined sewer. This is a cost-sharing agreement with the Village of Riverside. |
|--|---|

| Mitigation Action and Project Maintenance | | |
|---|--------|---|
| Year | Status | Comments |
| 2019 | New | Construction by Village tentatively planned for 2019. |
| 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 R5.21

| | |
|---|--|
| Mitigation Action | Implement the Groveland Avenue Levee Improvements |
| Year Initiated | 2019 |
| Applicable Jurisdiction | Village of Riverside |
| Lead Agency/Organization | MWRD |
| Supporting Agencies/Organizations | Village of Riverside |
| 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. • Protect public services and critical facilities, including infrastructure, from loss of use during natural hazard events and potential damage from such activities. |
| Applicable Objective | <ul style="list-style-type: none"> • Increase the resilience of (or protect and maintain) infrastructure and critical facilities. • 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/MWRD |
| Estimated Cost | \$7,200,000; MWRD Contribution: \$2,506,028 |
| Benefits (loss avoided) | N/A |
| Projected Completion Date | TBD |
| Priority and Level of Importance (Low, Medium, High) | N/A |
| Benefit Analysis (Low, Medium, High) | N/A |
| Cost Analysis (Low, Medium, High) | N/A |
| Actual Completion Date | TBD |

Recommended Mitigation Action/Implementation Plan and Project Description

| | |
|--|---|
| Action/Implementation Plan and Project Description: | <p>ID: Riverside 11 Contract: 18-IGA-20 Watershed: Lower Des Plaines Location: Riverside, IL</p> <p>The Groveland Avenue levee will be improved by raising the levee with a sheet pile floodwall. A pumping station will be built to drain the land side of the levee. An adjacent street will be raised or protected by additional flood walls. The village will enter a project partnership agreement with the Army Corps of Engineers as its local sponsor. MWRD will enter into an intergovernmental agreement with the Village to provide the non-federal share of the design and construction costs.</p> |
|--|---|

| Mitigation Action and Project Maintenance | | |
|---|--------|------------------------|
| Year | Status | Comments |
| 2019 | New | Currently under design |
| 2020 | | |
| 2021 | | |
| 2022 | | |
| 2023 | | |

| Mitigated Hazards | |
|-------------------|------------------------------|
| | All Hazards |
| X | 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 R5.22

| | |
|---|--|
| Mitigation Action | Implement the Green Infrastructure Project |
| Year Initiated | 2019 |
| Applicable Jurisdiction | Village of Riverside |
| Lead Agency/Organization | MWRD |
| Supporting Agencies/Organizations | Village of Riverside |
| 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. • Protect public services and critical facilities, including infrastructure, from loss of use during natural hazard events and potential damage from such activities. |
| Applicable Objective | <ul style="list-style-type: none"> • Increase the resilience of (or protect and maintain) infrastructure and critical facilities. • Consider the impacts of natural hazards on future land uses in the planning area, including possible impacts from climate change. • Encourage hazard mitigation measures that result in the least adverse effect on the natural environment and that use natural processes. |
| Potential Funding Source | Local funds/MWRD |
| Estimated Cost | N/A |
| Benefits (loss avoided) | N/A |
| Projected Completion Date | TBD |
| Priority and Level of Importance (Low, Medium, High) | N/A |
| Benefit Analysis (Low, Medium, High) | N/A |
| Cost Analysis (Low, Medium, High) | N/A |
| Actual Completion Date | TBD |

| Recommended Mitigation Action/Implementation Plan and Project Description | |
|---|--|
| Action/Implementation Plan and Project Description: | |

| 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 |

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 R5.1

| TABLE: ACTION PLAN MATRIX | | |
|---|--|------------------------------|
| Action Number Action Taken Y/N | Action Item Description | Status (X, O, C, R, N) |
| # R5.1— Y | Test reverse 911 emergency notification system CodeRED | |
| Status Description: Yes | The Village has upgrade their system to Everbridge. | O |
| Completion status legend: N = New O = Action Ongoing toward Completion C = Project Completed R = Want Removed from Annex X = No Action Taken | | |

Action R5.2

| TABLE: ACTION PLAN MATRIX | | |
|---|---|------------------------------|
| Action Number Action Taken Y/N | Action Item Description | Status (X, O, C, R, N) |
| # R5.2—Y | Implement FEMA CRS evaluation. | |
| Status Description: Yes | On 2/26/15 the Village received our compliance letter from IDNR. On 9/21/15 the Village met with IDNR to discuss joining the CRS program. No further action has been taken. | O |
| Completion status legend: N = New O = Action Ongoing toward Completion C = Project Completed R = Want Removed from Annex X = No Action Taken | | |

Action R5.3

| TABLE: ACTION PLAN MATRIX | | |
|---|--|------------------------------|
| Action Number Action Taken Y/N | Action Item Description | Status (X, O, C, R, N) |
| # R5.3—N | Join NOAA Storm Ready Program. | |
| Status Description: No | No action has been taken at this time. | X |
| Completion status legend: N = New O = Action Ongoing toward Completion C = Project Completed R = Want Removed from Annex X = No Action Taken | | |

Action R5.4

| TABLE: ACTION PLAN MATRIX | | |
|---|--|------------------------------|
| Action Number Action Taken Y/N | Action Item Description | Status (X, O, C, R, N) |
| # R5.4—O | Olmstead watershed plan (Improvement #7) | |
| Status Description: No | No further action at this time. | X |
| Completion status legend: N = New O = Action Ongoing toward Completion C = Project Completed R = Want Removed from Annex X = No Action Taken | | |

Action R5.5

| TABLE: ACTION PLAN MATRIX | | |
|--|---|------------------------------|
| Action Number Action Taken Y/N | Action Item Description | Status (X, O, C, R, N) |
| # R5.5 | Olmstead sewer separation plan (Improvement #8) | |
| Status Description: Yes | | 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 R5.6

| TABLE: ACTION PLAN MATRIX | | |
|--|--|------------------------------|
| Action Number Action Taken Y/N | Action Item Description | Status (X, O, C, R, N) |
| # R5.6 | Long common sewer separation & storage vault plan (Improvement #4) | |
| Status Description: Yes | | 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 R5.7

| TABLE: ACTION PLAN MATRIX | | |
|--|--|------------------------------|
| Action Number Action Taken Y/N | Action Item Description | Status (X, O, C, R, N) |
| # R5.7 | Nuttall sewer separation plan (Improvement #5) | |
| Status Description: No | | X |
| <p align="center">Completion status legend:</p> <p align="center"> N = New O = Action Ongoing toward Completion C = Project Completed R = Want Removed from Annex X = No Action Taken </p> | | |

Action R5.9

| TABLE: ACTION PLAN MATRIX | | |
|--|---|------------------------------|
| Action Number Action Taken Y/N | Action Item Description | Status (X, O, C, R, N) |
| # R5.9 | Railroad watershed proposed outlet (Improvement #1) | |
| Status Description: No | | X |
| <p align="center">Completion status legend:</p> <p align="center"> N = New O = Action Ongoing toward Completion C = Project Completed R = Want Removed from Annex X = No Action Taken </p> | | |

Action R5.10

| TABLE: ACTION PLAN MATRIX | | |
|---|--|------------------------------|
| Action Number Action Taken Y/N | Action Item Description | Status (X, O, C, R, N) |
| # R5.10 | Maplewood watershed proposed relief (Improvement #3) | |
| Status Description: Yes | | O |
| <p>Completion status legend: N = New O = Action Ongoing toward Completion C = Project Completed R = Want Removed from Annex X = No Action Taken</p> | | |

Action R5.11

| TABLE: ACTION PLAN MATRIX | | |
|---|--|------------------------------|
| Action Number Action Taken Y/N | Action Item Description | Status (X, O, C, R, N) |
| # R5.11 | Rear yard storm sewer connections (Improvement #6) | |
| Status Description: No | | X |
| <p>Completion status legend: N = New O = Action Ongoing toward Completion C = Project Completed R = Want Removed from Annex X = No Action Taken</p> | | |

Action R5.12

| TABLE: ACTION PLAN MATRIX | | |
|---|--|------------------------------|
| Action Number Action Taken Y/N | Action Item Description | Status (X, O, C, R, N) |
| # R5.12 | Where appropriate, support retrofitting, purchase, or relocation of structures in hazard-prone areas to prevent future structure damage. Give priority to properties with exposure to repetitive losses. | |
| Status Description: No | Working with Army Corps and IDNR as well as CCDHS for analysis. | 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 R5.13

| TABLE: ACTION PLAN MATRIX | | |
|---|---|------------------------------|
| Action Number Action Taken Y/N | Action Item Description | Status (X, O, C, R, N) |
| # R5.13 | Continue to support the countywide actions identified in this plan. | |
| Status Description: Yes | | 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 R5.14

| TABLE: ACTION PLAN MATRIX | | |
|---|--|------------------------------|
| Action Number Action Taken Y/N | Action Item Description | Status (X, O, C, R, N) |
| # R5.14 | Actively participate in the plan maintenance strategy identified in this plan. | |
| Status Description: Yes | | 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 R5.15

| TABLE: ACTION PLAN MATRIX | | |
|---|--|------------------------------|
| Action Number Action Taken Y/N | Action Item Description | Status (X, O, C, R, N) |
| #R5.15 | Maintain good standing under the National Flood Insurance Program by implementing programs that meet or exceed the minimum NFIP requirements. Such programs include enforcing an adopted flood damage prevention ordinance, participating in floodplain mapping updates, and providing public assistance and information on floodplain requirements and impacts. | |
| Status Description: Yes | | 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 R5.16

| TABLE: ACTION PLAN MATRIX | | |
|---|---|------------------------------|
| Action Number Action Taken Y/N | Action Item Description | Status (X, O, C, R, N) |
| #R5.16 | Where feasible, implement a program to record high water marks following high-water events. | |
| 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 R5.17

| TABLE: ACTION PLAN MATRIX | | |
|---|---|------------------------------|
| Action Number Action Taken Y/N | Action Item Description | Status (X, O, C, R, N) |
| #R5.17 | Integrate the hazard mitigation plan into other plans, programs, or resources that dictate land use or redevelopment. | |
| 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 R5.18

| TABLE: ACTION PLAN MATRIX | | |
|--|---|------------------------------|
| Action Number Action Taken Y/N | Action Item Description | Status (X, O, C, R, N) |
| #R5.18 | Consider the development and implementation of a Capital Improvements Program (CIP) to increase the Village’s regulatory, financial and technical capability to implement mitigation actions. | |
| Status Description: No | | X |
| <p align="center">Completion status legend:</p> <p align="center"> N = New O = Action Ongoing toward Completion C = Project Completed R = Want Removed from Annex X = No Action Taken </p> | | |

Completed Mitigation Actions

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

Action R5.8

| TABLE: ACTION PLAN MATRIX | | |
|--|---|------------------------------|
| Action Number Action Taken Y/N | Action Item Description | Status (X, O, C, R, N) |
| # R5.8 | Scottswood sewer separation plan (Improvement #2) | |
| Status Description: Yes | Project was completed in 2017/2018. | C |
| Completion status legend: N = New O = Action Ongoing toward Completion C = Project Completed R = Want Removed from Annex X = No Action Taken | | |

Future Needs to Better Understand Risk/Vulnerability

A future need is to review the Community Rating System evaluation.

Additional Comments

No additional comments at this time

HAZUS-MH Risk Assessment Results

| RIVERSIDE EXISTING CONDITIONS | |
|---|-----------------|
| 2010 Population | 8,875 |
| Total Assessed Value of Structures and Contents | \$1,956,021,157 |
| Area in 100-Year Floodplain | 239.22 acres |
| Area in 500-Year Floodplain | 262.26 acres |
| Number of Critical Facilities | 30 |

| HAZARD EXPOSURE IN RIVERSIDE | | | | | | |
|------------------------------|----------------|-----------|-------------------------|--------------|---------------------|-----------------------------------|
| | 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 | 182 | 56 | \$20,631,351 | \$10,315,675 | \$30,947,026 | 1.58% |

| | | | | | | |
|----------------|-----|----|---------------|---------------|----------------------|--------|
| 500-Year | 215 | 66 | \$23,418,497 | \$11,709,248 | \$35,127,745 | 1.80% |
| Tornado | | | | | | |
| 100-Year | — | — | \$450,093,104 | \$251,274,696 | \$701,367,799 | 35.86% |
| 500-Year | — | — | \$608,753,627 | \$386,174,616 | \$994,928,242 | 50.86% |

| ESTIMATED PROPERTY DAMAGE VALUES IN RIVERSIDE | | | | |
|--|---|-------------|---------------------|-----------------------------------|
| | 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 | \$16,266,225 | \$4,236,021 | \$20,502,246 | 1.05% |
| Flood | | | | |
| 10-Year | \$255,965 | \$113,554 | \$369,518 | 0.02% |
| 100-Year | \$2,010,520 | \$978,877 | \$2,989,396 | 0.15% |
| 500-Year | \$3,320,610 | \$1,623,198 | \$4,943,808 | 0.25% |

| Tornado | | | | |
|----------------|--------------|--------------|----------------------|-------|
| 100-Year | \$45,009,310 | \$25,127,470 | \$70,136,780 | 3.59% |
| 500-Year | \$88,878,029 | \$56,381,494 | \$145,259,523 | 7.43% |

Hazard Mapping





