

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

Riverdale Annex

FINAL

July 2019

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
Mick Smith, Fire Chief 725 W 138th St Riverdale, IL 60827 708-849-2122; 708-325-6932 msmith@villageofriverdale.net	Jerome Russell, Director of Public Works 14101 S Halsted St Riverdale, IL 60827 708-896-7600 jrussell@villageofriverdale.net

Jurisdiction Profile

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

- **Date of Incorporation:** 1892.
- **Current Population:** 13,205 as of 2018 U.S. Census population estimate.
- **Population Growth:** The Village of Riverdale has seen a 10% reduction in population since its 2000 census. The 2000 census had a population of 15,055 residents, of which 31.8% were under 18 years of age. The current population is less than the reported population back in 1990. From 2010 to 2016 the population estimates indicated a drop of around 1 percent.
- **Location and Description:** The Village of Riverdale is located along the southern border of the City of Chicago, 21 miles south of the Chicago Loop. Riverdale is located within Southeast Cook County, and is situated between Blue Island to the north and west, Harvey to the south, and Dolton to the east and has close proximity to both I-57 and I-94. The total square mileage of the village is 3.7.
- **Brief History:** The first settlers came to the area in 1835, and the areas of Riverdale and Dolton were practically one community until each incorporated in 1892. Riverdale was developed as a farming community by the 1850s and industries of distilleries, lumber yards, ice houses, cattle pens, barrel makers, and sugar refineries followed. Acme Steel Company became a major force in the local economy in 1918. After World War II, many of the soldiers came to Riverdale, which played a role in the expansion of the village. The railroads became a big part of the village's progression into the mid-1900s. Today the CSX and IHB make up two of the village's largest railroad yards.
- **Climate:** The climate of Riverdale 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 Riverdale is governed by a Mayor and Board of Trustees. The Board of Trustees is made up of 6 members elected on a 4 year cycle. This body of Government will assume the responsibility for the adoption and implementation of this plan. There are several departments that make up the Village of Riverdale. These include; Fire Department, Police Department, Public Works, Inspectional Services, Clerk and Administration Offices, and the Resource Center.
- **Development Trends:** The Village of Riverdale anticipates a low level of development for the future and has seen a downward trend with the housing market. The village relies heavy on property taxes, being a mostly industrial land locked village. In recent years, tax collections have fallen short of the levy due to foreclosures, reductions through appeals and other reasons. Internally, decline in commercial businesses, housing values, and heavy industry has caused challenges within the community that was further exacerbated by the lingering effects of the recession, flooding from Hurricane Ike in 2008, and high property taxes. In 2013 Riverdale sought to reverse these trends and strategize for community revitalization. Riverdale developed a Comprehensive Plan focusing on positioning the community for success by providing the community with implementable, market-based strategies such as the reorganization of the TIF districts, concentration of density around TOD sites, and assembling and marketing available rail industrial sites.

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	2012 ed. ICC 10/8/2013
Zonings	Yes	No	No	Yes	Chapter 17.01.010: 1980
Subdivisions	Yes	No	No	Yes	1994, last update 2009
Stormwater Management	No	No	Yes	Yes	State regulates industrial activity from Construction sites 1 acre or larger under section 402 CWA.
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	Chapter 17.03.120: 1980
Public Health and Safety	Yes	No	Yes	No	Cook County Board of Health.

					Ord. 86-11,12§1: 1986
Environmental Protection	No	No	No	No	
Planning Documents					
General or Comprehensive Plan	No	No	No	No	In development stage
<i>Is the plan equipped to provide linkage to this mitigation plan?</i>					N/A
Floodplain or Basin Plan	Yes	No	No	No	Updated 2008
Stormwater Plan	No	No	Yes	No	Regional stormwater impacts are managed by MWRD. The Village lies within the Little Calumet River watershed planning area of MWRD's comprehensive Stormwater Master Planning Program
Capital Improvement Plan	No	No	No	No	
<i>What types of capital facilities does the plan address?</i>					N/A
<i>How often is the plan revised/updated?</i>					N/A
Habitat Conservation Plan	No	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	No	No	Yes	Yes	Cook County DHSEM
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	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	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	No
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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	Municipal Engineer
Engineers or professionals trained in building or infrastructure construction practices	Yes	Municipal Engineer
Planners or engineers with an understanding of natural hazards	Yes	Municipal Engineer
Staff with training in benefit/cost analysis	Yes	Municipal Engineer
Surveyors	Yes	Municipal Engineer
Personnel skilled or trained in GIS applications	Yes	Cook County GIS Consortium
Scientist familiar with natural hazards in local area	No	
Emergency manager	No	Cook County DHSEM
Grant writers	Yes	Municipal Engineer and Village Staff

TABLE: NATIONAL FLOOD INSURANCE PROGRAM COMPLIANCE	
What department is responsible for floodplain management in your jurisdiction?	Building and Zoning
Who is your jurisdiction’s floodplain administrator? (department/position)	Director of Building and Zoning
Are any certified floodplain managers on staff in your jurisdiction?	No
What is the date of adoption of your flood damage prevention ordinance?	2008
When was the most recent Community Assistance Visit or Community Assistance Contact?	4/06/2004
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?	No, Yes we would be interested in the program.

TABLE: COMMUNITY CLASSIFICATIONS			
	Participating?	Classification	Date Classified
Community Rating System	No	N/A	N/A
Building Code Effectiveness Grading Schedule	Yes	5	10/08/2013
Public Protection/ISO	Yes	5	7/29/2013
StormReady	Yes	Gold (Countywide)	2014
Tree City USA	Yes	2012	Have been awarded each year since 2000

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

Type of Event	FEMA Disaster Number (if applicable)	Date	Preliminary Damage Assessment
Winter Weather	-	2/2014	-
Winter Weather	-	1/2014	-
Extreme Cold	-	1/2014	-
Severe Weather	-	11/2013	-
Flooding	-	4/2013	-
Heat Wave	-	6/2012	-
Flooding	-	5/2012	-
Blizzard	-	2/2011	-
Severe Weather	-	8/2010	-
Winter Weather	-	1/2008	-
Blizzard	-	1/1999	-
Extreme Heat	-	6/1995	-

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: In the Village, areas north of 138th St. and east of School St. have flooding issues. There is also seepage/sewage in basements. In addition, homes in the northeast side of Town experience sewage backups.

High Winds: The Village of Riverdale has many trees; the majority are old, diseased, and fall over during high winds.

Snow: One of the factors of the Village's vulnerability to snow is that the Halsted Street Bridges are difficult to clear.

Ice Storms: Similar to the challenges snow poses to the Halsted Street Bridges, these bridges are also vulnerable to ice accumulations.

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	Earthquake	32
4	Tornado	27
5	Flood	16
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 R2.1— Northeast sewer separation project.						
Ongoing	Flooding	1, 3, 4, 5, 6, 8, 10, 12, 13	Public Works	High	Grant	Short Term
Action R2.2— Replacement of roof over the Michigan Ave. pumping station						
Completed	Severe Weather	1, 2, 7	Public Works	High	Grant	Completed
Action R2.3— Retrofit above ground water storage tank						
Ongoing	Earthquake, Severe Weather, Tornado	1, 2, 7	Public Works	High	Grant	Short Term
Action R2.4— Additional weather alert siren						
Ongoing	All	1, 8, 12	Police Dept.	High	Grant	Short term

Action R2.5 —Consider participation in incentive-based programs such as CRS, Tree City, and StormReady.						
Ongoing	Flood, Severe Weather, Severe Winter Weather, Tornado	3, 4, 5, 6, 7, 9, 10, 11, 13	Village	Low	General Fund	Long-term
Action R2.6 —Staff training on disaster response and post damage assessments.						
Ongoing	All	1, 4, 6, 8, 10	All Departments	Medium	General Revenue	Short Term
Action R2.7 —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 R2.8 —Continue to support the countywide actions identified in this plan.						
Ongoing	All	All	Village	Low	General Fund	Short- and long-term
Action R2.9 —Actively participate in the plan maintenance strategy identified in this plan.						
Ongoing	All	3, 4, 6	DHSEM, Village	Low	General Fund	Short-term
Action R2.10 —Maintain good standing under the National Flood Insurance Program by implementing programs that meet or exceed the minimum NFIP requirements.						
Ongoing	Flooding	4, 6, 9	Building and Zoning	Low	General Fund	Short-term and ongoing
Action R2.11 —Where feasible, implement a program to record high water marks following high-water events.						
Removed	Flooding, Severe Weather	3, 6, 9	Village	Medium	General Fund; FEMA Grant Funds (Public Assistance)	Removed
Action R2.12 —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 R2.13—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	Village	High	CIP component of general fund (if implemented)	Long term
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Action R2.14—Stormwater/Sewer Assessment

New	Flood, Snow, Blizzard, Ice Storms	1	Riverdale Public Works	Estimated \$300,000; High	Local funding is unavailable	12 months from award of contract
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(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	9	High	High	Yes	Yes	No	High
2	3	High	High	Yes	Yes	No	High
3	3	High	High	Yes	Yes	No	High
4	3	High	High	Yes	Yes	No	High
5	4	Medium	Low	Yes	Yes	Maybe	High
6	5	Medium	Medium	Yes	Yes	Yes	High
7	2	High	High	Yes	Yes	No	Medium
8	13	Medium	Low	Yes	No	Yes	High
9	3	Medium	Low	Yes	Yes	Yes	High
10	3	Medium	Low	Yes	No	Yes	High
11	3	Medium	Medium	Yes	Yes	No	Medium
12	5	Medium	Low	Yes	No	Yes	High
13	3	High	High	Yes	No	No	Medium

14	1	High	High	Yes	Unknown	Unknown	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-2.14

Mitigation Action	Stormwater/Sewer Assessment
Year Initiated	2019
Applicable Jurisdiction	Village of Riverdale
Lead Agency/Organization	Riverdale Public Works
Supporting Agencies/Organizations	Riverdale Fire Department
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. • Involve stakeholders to enhance the local capacity to mitigate, prepare for, and respond to 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"> • Eliminate or minimize disruption of local government operations caused by natural hazards through all phases of emergency management.
Potential Funding Source	Local funding is unavailable
Estimated Cost	Estimated \$300,000
Benefits (loss avoided)	Capacity is in question, ongoing issue
Projected Completion Date	12 months from award of contract
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)	High—Existing funding will not cover the cost of the project; implementation would require new revenue through an alternative source (for example, bonds, grants, and fee increases).
Actual Completion Date	

Recommended Mitigation Action/Implementation Plan and Project Description

Action/Implementation Plan and Project Description:	Based on increased service demand and responses we need to assess our current infrastructure
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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
X	Snow
X	Blizzard
	Extreme Cold
X	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-2.1

TABLE: ACTION PLAN MATRIX		
Action Number Action Taken Y/N	Action Item Description	Status (X, O, C, R, N)
# R—2.1	Northeast sewer separation project	
Status Description: Yes	This project is 90% complete.	O
Completion status legend: N = New O = Action Ongoing toward Completion C = Project Completed R = Want Removed from Annex X = No Action Taken		

Action R-2.3

TABLE: ACTION PLAN MATRIX		
Action Number Action Taken Y/N	Action Item Description	Status (X, O, C, R, N)
# R—2.3	Retrofit above ground water storage tank	
Status Description: No	Looking at funding sources including grants to complete project.	X
Completion status legend: N = New O = Action Ongoing toward Completion C = Project Completed R = Want Removed from Annex X = No Action Taken		

Action R-2.4

TABLE: ACTION PLAN MATRIX		
Action Number Action Taken Y/N	Action Item Description	Status (X, O, C, R, N)
# R—2.4	Additional weather alert siren	
Status Description: No	Looking at funding sources including grants to complete project.	X
Completion status legend: N = New O = Action Ongoing toward Completion C = Project Completed R = Want Removed from Annex X = No Action Taken		

Action R-2.5

TABLE: ACTION PLAN MATRIX		
Action Number Action Taken Y/N	Action Item Description	Status (X, O, C, R, N)
# R—2.5	Consider participation in incentive-based programs such as CRS, Tree City, and StormReady.	
Status Description: Yes	We are currently a Tree City USA village.	O
Completion status legend: N = New O = Action Ongoing toward Completion C = Project Completed R = Want Removed from Annex X = No Action Taken		

Action R-2.6

TABLE: ACTION PLAN MATRIX		
Action Number Action Taken Y/N	Action Item Description	Status (X, O, C, R, N)
# R—2.6	Staff training on disaster response and post damage assessments.	
Status Description: Yes	All new employees are conducting their required NIMS training as set forth by job classifications. Review with existing employees to make sure they have the required trainings.	O
Completion status legend: N = New O = Action Ongoing toward Completion C = Project Completed R = Want Removed from Annex X = No Action Taken		

Action R-2.7

TABLE: ACTION PLAN MATRIX		
Action Number Action Taken Y/N	Action Item Description	Status (X, O, C, R, N)
# R—2.7	Where appropriate, support retrofitting, purchasing, or relocating of structures in hazard prone areas to prevent structure damage. Give priority to properties with exposure to repetitive losses.	
Status Description: Yes	The sewer separation project has prevented sewer backups from heavy rain. This project was completed in October of 2017.	O
Completion status legend: N = New O = Action Ongoing toward Completion C = Project Completed R = Want Removed from Annex X = No Action Taken		

Action R-2.8

TABLE: ACTION PLAN MATRIX		
Action Number Action Taken Y/N	Action Item Description	Status (X, O, C, R, N)
# R—2.8	Continue to support the countywide actions in the plan.	
Status Description: Yes	We will continue to support the actions of the plan.	O
Completion status legend: N = New O = Action Ongoing toward Completion C = Project Completed R = Want Removed from Annex X = No Action Taken		

Action R-2.9

TABLE: ACTION PLAN MATRIX		
Action Number Action Taken Y/N	Action Item Description	Status (X, O, C, R, N)
# R—2.9	Actively participate in the plan maintenance identified in this plan.	
Status Description: Yes	We have been working towards meeting all of the objectives and the completion of the required reports.	O
Completion status legend: N = New O = Action Ongoing toward Completion C = Project Completed R = Want Removed from Annex X = No Action Taken		

Action R-2.10

TABLE: ACTION PLAN MATRIX		
Action Number Action Taken Y/N	Action Item Description	Status (X, O, C, R, N)
# R—2.10	Maintain good standing under the National Flood Insurance Program by implementing programs that meet or exceed the minimum NFIP requirements.	
Status Description: No		X
Completion status legend: N = New O = Action Ongoing toward Completion C = Project Completed R = Want Removed from Annex X = No Action Taken		

Action R-2.12

TABLE: ACTION PLAN MATRIX		
Action Number Action Taken Y/N	Action Item Description	Status (X, O, C, R, N)
# R—2.12	Integrate the hazard mitigation plan into other plans, programs, or resources that dictate land use or development.	
Status Description: No	We have a comprehensive plan and zoning code that the village follows when it comes to land use.	X
Completion status legend: N = New O = Action Ongoing toward Completion C = Project Completed R = Want Removed from Annex X = No Action Taken		

Action R-2.13

TABLE: ACTION PLAN MATRIX		
Action Number Action Taken Y/N	Action Item Description	Status (X, O, C, R, N)
# R—2.13	Consider the development and implementation of a capital improvement program to increase the Village's regulatory, financial, and technical capacity to implement mitigation programs.	
Status Description: No	This is a long term plan for the village.	X
<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>		

Completed Mitigation Actions

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

Action R-2.2

TABLE: ACTION PLAN MATRIX		
Action Number Action Taken Y/N	Action Item Description	Status (X, O, C, R, N)
# R—2.2	Replacement of roof over the Michigan Ave. pumping station	
Status Description: Yes	Was completed, need to remove off annex.	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

No needs have been identified at this time.

Additional Comments

No additional comments at this time

HAZUS-MH Risk Assessment Results

RIVERDALE EXISTING CONDITIONS	
2010 Population	13,549
Total Assessed Value of Structures and Contents	\$3,305,764,759
Area in 100-Year Floodplain	101.85 acres
Area in 500-Year Floodplain	104.45 acres
Number of Critical Facilities	44

HAZARD EXPOSURE IN RIVERDALE						
	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	3	1	\$3,240,000	\$4,860,000	\$8,100,000	0.25%

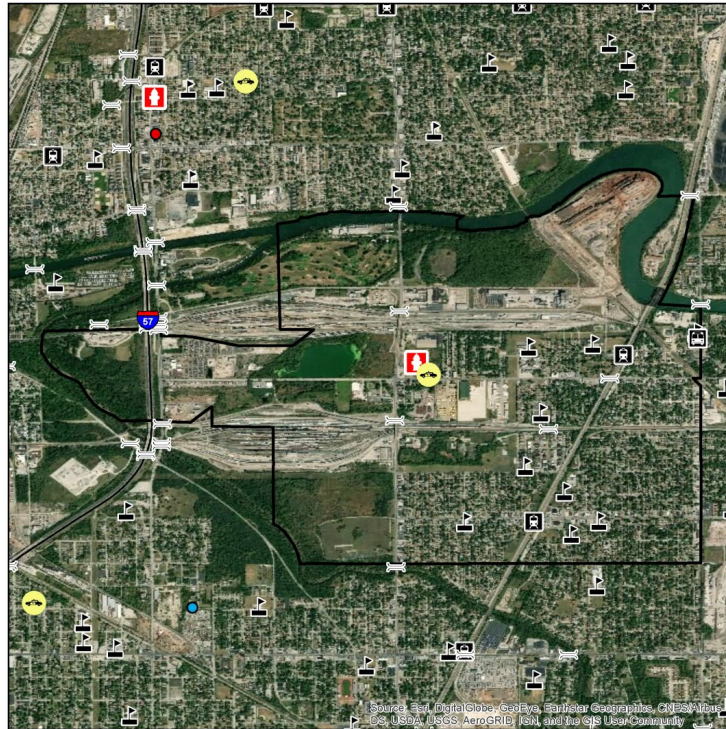
500-Year	3	1	\$3,240,000	\$4,860,000	\$8,100,000	0.25%
Tornado						
100-Year	—	—	\$491,706,173	\$343,226,418	\$834,932,590	25.26%
500-Year	—	—	\$1,118,810,832	\$801,631,535	\$1,920,442,367	58.09%

ESTIMATED PROPERTY DAMAGE VALUES IN RIVERDALE

	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	\$29,510,665	\$8,231,217	\$37,741,882	1.14%
Flood				
10-Year	\$0	\$0	\$0	0.00%
100-Year	\$0	\$0	\$0	0.00%
500-Year	\$0	\$0	\$0	0.00%

Tornado				
100-Year	\$49,170,617	\$34,322,642	\$83,493,259	2.53%
500-Year	\$163,346,381	\$117,038,204	\$280,384,586	8.48%

Hazard Mapping



VILLAGE OF RIVERDALE

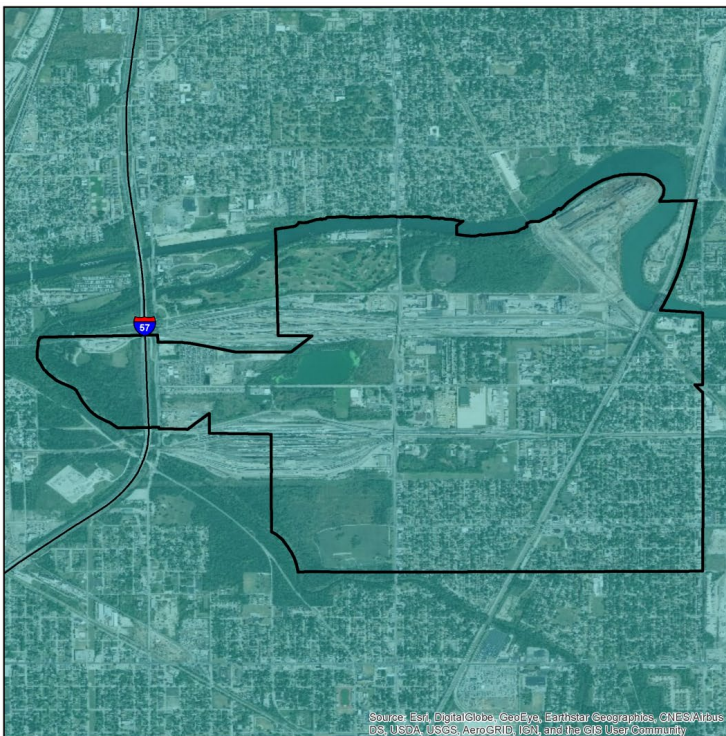
CRITICAL INFRASTRUCTURE

- Oil Facilities
- Transit Centers
- Military Facilities
- Police Stations
- Fire Stations
- Hazardous Waste
- Airports
- Hospitals
- Highway Bridges
- Warming Centers
- Cooling Centers
- Schools
- Railroad Stations

Base Map Data Sources:
Cook County, ESRI



0 0.125 0.25 0.5 0.75 1 Miles



VILLAGE OF RIVERDALE

PEAK GROUND ACCELERATION FOR A 100 YEAR EARTHQUAKE EVENT

Mercalli Scale, Potential Shaking
II-III Weak

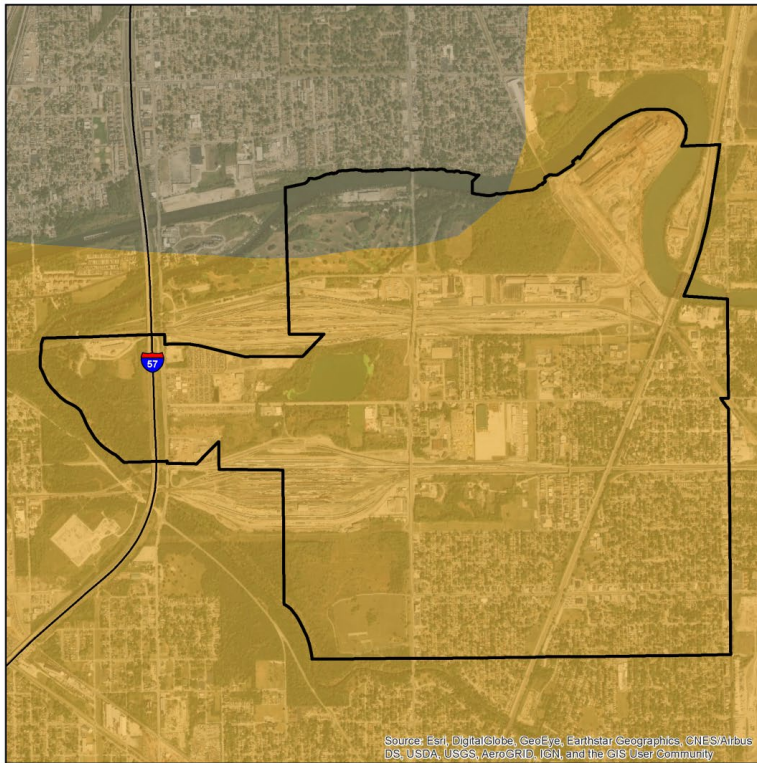
Data provided by the USGS Earthquake Hazards Program and Cook County.

Probabilistic seismic hazard maps were prepared for the conterminous United States for 2014 portraying peak horizontal acceleration and horizontal spectral response acceleration for 0.2- and 1.0-second periods with probabilities of exceedance of 10 percent in 50 years and 2 percent in 50 years. All of the maps were prepared by combining the hazard derived from spatially smoothed historical seismicity with the hazard from fault-specific sources. The acceleration values contoured are the random horizontal component. The reference site condition is firm rock, defined as having an average shear-wave velocity of 760 m/s in the top 30 meters corresponding to the boundary between NEHRP (National Earthquake Hazards Reduction Program) site classes B and C.

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0 0.125 0.25 0.5 0.75 1 Miles



VILLAGE OF RIVERDALE

NATIONAL EARTHQUAKE HAZARD REDUCTION PROGRAM (NEHRP) SOIL CLASSIFICATION

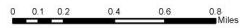
TYPE

- C - Very Dense Soil, Soft Rock
- D - Stiff Soil
- F - Site Specific Evaluation

Data provided by the Illinois State Geological Survey and Cook County

The Central United States Earthquake Consortium (CUSEC) State Geologists produced a regional Soil Class map (NEHRP Soil Profile Type Map), a Liquefaction Susceptibility Map and a Soil Response Map for the 8 states to be used in the FEMA New Madrid Catastrophic Planning Initiative Phase I work. The USGS Geologic Investigation Series I-2789 Map of Surficial Deposits and Materials in the Eastern and Central United State (East of 102 degrees West Longitude) by David S. Fullerton, Charles A. Bush and Jean H. Pennell (2003) was the base map used for this work. Each State Geological Survey produced its own state map version of the Soil Site Class and Liquefaction Susceptibility maps. The procedures outlined in the NEHRP provisions (Building Seismic Safety Council, 2004) and the 2003 International Building Codes (International Code Council, 2002) were followed to produce the soil site class maps. CUSEC State Geologists used the entire column of soils material down to bedrock and did not include any bedrock in the calculation of the average shear wave velocity for the column, since it is the soil column and the difference in shear wave velocity of the soils in comparison to the bedrock which influences much of the amplification.

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Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community



VILLAGE OF RIVERDALE

COOK COUNTY MWRDGC 100-YEAR INUNDATION AREA

- 100-year Inundation Area

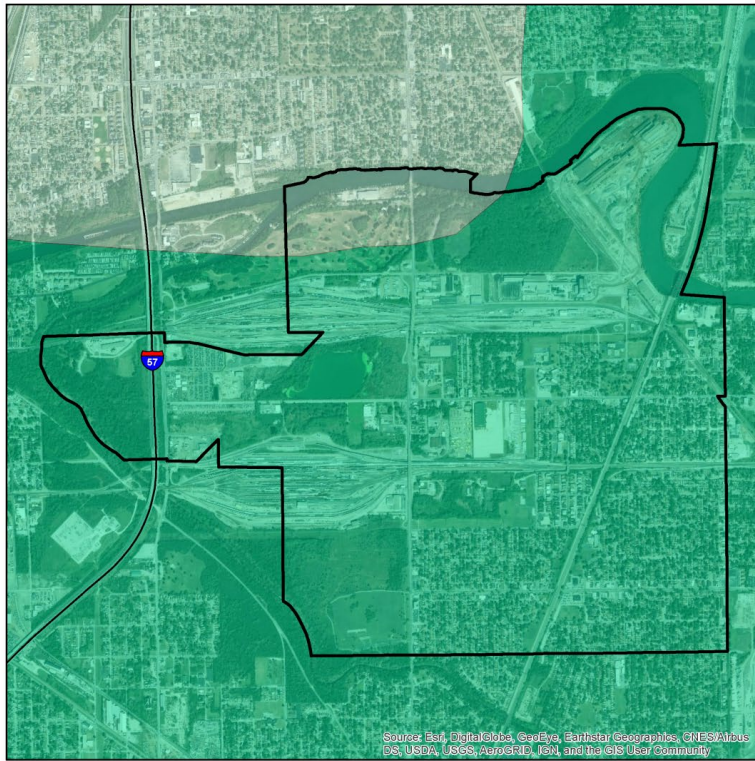
MWRDGC Data provided by Metropolitan Water Reclamation District of Greater Chicago and Cook County.

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DISCLAIMER: The Cook County MWRDGC 100-year Inundation Map is provided to show general flood risk information regarding floodplains and inundation areas. This map is not regulatory. Official FEMA Flood Insurance Study information and regulatory maps can be obtained from <http://www.fema.gov>.



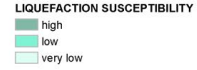
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community



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VILLAGE OF RIVERDALE

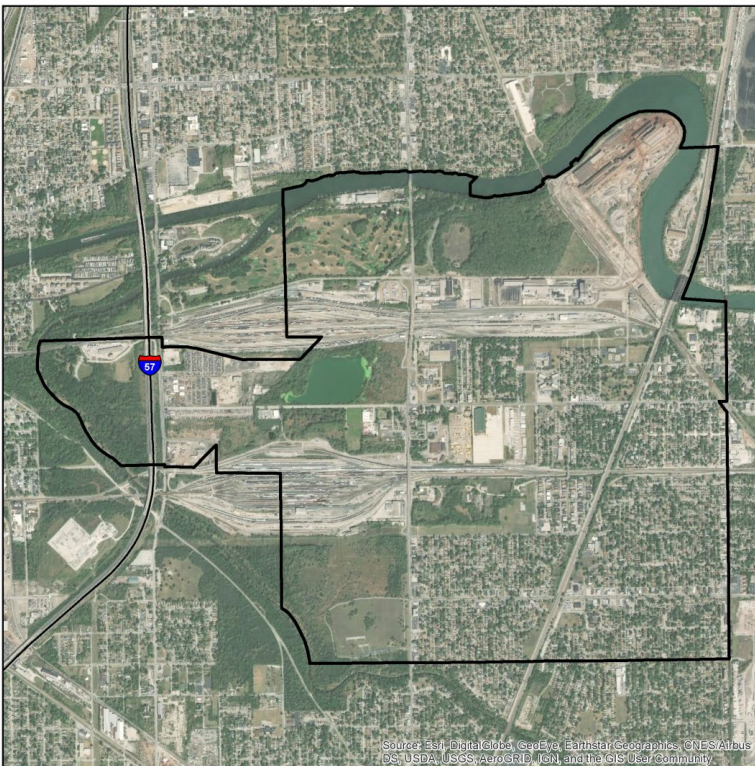
LIQUEFACTION SUSCEPTIBILITY



Data provided by the Illinois State Geological Survey and Cook County.

The Central United States Earthquake Consortium (CUSEC) State Geologists produced a regional Soil Site Class map (NEHRP Soil Profile Type Map), a Liquefaction Susceptibility Map and a Soil Response Map for the 8 states to be used in the FEMA New Madrid Catastrophic Planning Initiative Phase II work. The USGS Geologic Investigation Series I-2789 Map of Surficial Deposits and Materials in the Eastern and Central United States (East of 102 degrees West Longitude) by David S. Fullerton, Charles A. Bush and Jean H. Pennell (2003) was the base map used for this work. Each State Geological Survey produced its own state map version of the Soil Site Class and Liquefaction Susceptibility maps. The procedures outlined in the NEHRP provisions (Building Seismic Safety Council, 2004) and the 2003 International Building Codes (International Code Council, 2002) were followed to produce the soil site class maps. CUSEC State Geologists used the entire column of soils material down to bedrock and did not include any bedrock in the calculation of the average shear wave velocity for the column, since it is the soil column and the difference in shear wave velocity of the soils in comparison to the bedrock which influences much of the amplification.

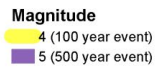
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VILLAGE OF RIVERDALE

100- AND 500- YEAR TORNADO EVENTS



Historic tornado data provided by NOAA/NWS showing the initial points and paths of all F4 and F5 events observed from 1950 to 2017.

