

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

Harvey Annex

FINAL

July 2019

Prepared for:



Cook County
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Hazard Mitigation Point of Contact

Primary Point of Contact	Alternate Point of Contact
Tim Williams, Mayor Assistant Telephone: 708-243-3653 Email Address: TPWilliams@cityofharvey.org	Willie Buie, Deputy Fire Chief Telephone: 708-331-7720 Email Address: sspolo2@aol.com

Jurisdiction Profile

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

- **Date of Incorporation:** 1891
- **Current Population:** The 2018 US Census population estimate indicated the population estimate for Harvey is 24,641 for 2018.
- **Population Growth:** As of the census of 2000, there were 30,000 people, 8,990 households, and 6,760 families residing in the city. This would reflect a decrease in population by 16.2% from 2000 to 2010. From 2010 to 2016, the population continued to decrease with a rate of 1.4 percent.
- **Location and Description:** Harvey is a city in Cook County, Illinois, United States, near Chicago. Harvey is bordered by Dixmoor and Riverdale to the north, Dolton, Phoenix, and South Holland to the east, East Hazel Crest to the south, and Hazel Crest, Markham and Posen to the west. Interstate 57 runs along the western border of the City, and the Metra Electric District Line runs through the middle of the City. According to the 2010 census, the city has a total area of 6.30 square miles (16.3 km²), all land.
- **Brief History:** In 1889, Turlington Harvey, a wealthy Chicago lumberman and banker, organized a real-estate syndicate to promote the industrial suburb of Harvey, Illinois. The founders envisioned Harvey as a model town, a blend of capitalism and Christianity. The investors provided residents with a high quality of city services, similar to nearby Pullman. But unlike Pullman, Harvey encouraged home ownership by offering potential residents a variety of house plans. By 1900 the town contained 5,395 residents, a bank, and 11 industries. However, in 1895 residents voted by a slight majority to license saloons, ending the temperance experiment. Throughout the first decades of the twentieth century, industrialists and local merchants functioned in tandem. By their efforts, Harvey acquired a fine public school system with Thornton Township High School as its centerpiece. In the 1920s, industrialist Frederick Ingalls endowed a community hospital whose board brought together the prestigious members of the community. The development of a Young Men's Christian Association also united the interests of industrial outsiders and the local community.
- **Climate:** The climate in Harvey is classified as humid continental, with all four seasons distinctly represented: wet springs; hot/often humid summers; pleasant autumns; and cold winters. Annual precipitation is average - reaching its lowest points in the months of January and February and peaks in the months of May and June. Snowfall in the City has ranged from 9.8 inches (1920–21) up to 89.7 inches (1978–79). Winter conditions can persist well into April and even occasionally into May. Thunderstorms are especially prevalent in the spring as the City's proximity to Chicago's lakeside location makes it a center of conflicts between large volumes of warmer and colder air, triggering many kinds of severe weather. In the summer humidity is usually moderately high and temperatures ordinarily reach anywhere between 78 and 92 °F (26 and 33 °C). Overnight temperatures in summer usually drop to around 65–70 °F (18–21 °C). Although in July and August, there are usually several nights where the temperature drops below 60 °F (16 °C). The community's yearly precipitation is on average 36 inches; however, during the summer, rain arises from short-lived, hit-or-miss rain rather than actual prolonged

rainfalls as thunderstorms also occur with regularity at night. In a normal summer, temperatures exceed 90 °F (32 °C) on 23 days. Summer is both the rainiest and sunniest season. The extreme heat that Harvey is capable of experiencing during the height of the summer season can persist into the autumn season. Temperatures have reached 100 degrees as late as September 7 (with 99 °F or 37 °C occurring as late as September 29), and temperatures have reached the lower-to-mid 90s Fahrenheit (low 30s Celsius) as late as October 6. Conversely, temperatures have dropped below freezing overnight as early as September 23, and subzero temperatures (below –18 °C) have arrived as early as November 23. Therefore, autumn in Harvey, in some ways, is calmer than the other three seasons.

- **Governing Body Format:** The City of Harvey is governed by an elected Mayor and City Council. In 1991, the municipal government began operating under the aldermanic system of government. Under this system, the City is divided into six wards. Each ward is represented by an alderman who serves as a legislator in the City Council. This body will assume the responsibility for the adoption and implementation of this plan. Working in concert with the Clerk's and Treasurer's Offices, the Mayor serves as the City's chief executive officer, responsible for the administration, direction and implementation of all city services and functions. All city services are administered by eleven City departments, led by appointed department heads, under the direction of the Mayor.
- **Development Trends:** The City of Harvey offers both new and continuing businesses a wealth of opportunities. Harvey used to be a large manufacturing center, however factories have closed and businesses have left the city. In recent years, a developer built a subdivision of housing and the library where I used to study looks brand new. There are separate spaces for teenagers and preschoolers, plenty of computers and charging stations, even a café and fireplace. The library underwent a complete renovation. The current pulse is dependent upon the shoulders of entrepreneurs interested in expanding the community.

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	Ord. 1850; 5-26-69
Zonings	No	No	No	Yes	(65 ILCS 5/) Illinois Municipal Code.
Subdivisions	No	No	No	No	
Stormwater Management	No	No	Yes	Yes	
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	No	No	No	No	
Public Health and Safety	Yes	No	Yes	Yes	Cook County Board of Health. Ord. 1669; 2-10-64
Environmental Protection	No	No	No	No	
Planning Documents					

General or Comprehensive Plan	No	No	No	No	
<i>Is the plan equipped to provide linkage to this mitigation plan?</i>					N/A
Floodplain or Basin Plan	No	No	Yes	No	
Stormwater Plan	No	No	MWRD	No	
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	No	No	
Continuity of Operations Plan	No	No	Yes	No	Cook County DHSEM

Public Health Plans	No	No	Yes	No	Cook County DPH
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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	Yes
Withhold Public Expenditures in Hazard-Prone Areas	Yes
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	Engineering Consultant, Public Works, Department of Buildings
Engineers or professionals trained in building or infrastructure construction practices	Yes	Engineering Consultant, Public Works Department
Planners or engineers with an understanding of natural hazards	Yes	Engineering Consultant
Staff with training in benefit/cost analysis	Yes	Engineering Consultant
Surveyors	Yes	Engineering Consultant
Personnel skilled or trained in GIS applications	Yes	Engineering Consultant, Cook County GIS Consortium
Scientist familiar with natural hazards in local area	No	
Emergency manager	Yes	Fire Chief

Grant writers	Yes	Grant Administrator
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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
Are any certified floodplain managers on staff in your jurisdiction?	No
What is the date of adoption of your flood damage prevention ordinance?	Unknown
When was the most recent Community Assistance Visit or Community Assistance Contact?	Have not received a Community Assistance Visit
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?	Yes
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; Undecided

TABLE: COMMUNITY CLASSIFICATIONS			
	Participating?	Classification	Date Classified
Community Rating System	No	N/A	N/A
Building Code Effectiveness Grading Schedule	Yes	Unknown	Unknown
Public Protection/ISO	Yes	Unknown	Unknown
StormReady	Yes	Gold (Countywide)	2014
Tree City USA	No	N/A	N/A

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: 28
- Number of FEMA-Identified Severe Repetitive Loss Properties: 0
- Number of Repetitive Flood Loss/Severe Repetitive Loss Properties That Have Been Mitigated: Unknown

TABLE: NATURAL HAZARD EVENTS			
Type of Event	FEMA Disaster Number (if applicable)	Date	Preliminary Damage Assessment
Severe Weather	-	6/30/2014	-
Severe Storms, Straight-Line Winds, Flooding	DR-4116	4/26/2013	-
Severe Winter Snowstorm	DR-1960	1/31/2011	-
Severe Storms and Flooding	DR-1935	7/19/2010	-
Severe Storms and Flooding	DR-1800	9/13/2008	-
Severe Storms and Flooding	DR-1729	8/20/2007	-
Illinois Flooding	DR-1188	8/16/1997	-
Illinois Flooding	DR-1129	7/17/1996	-

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: 147th to 159th and Wood St. within the central area of the City is flood-prone.

Severe Weather: Multiple large tree branches, 6 to 8 inches in diameter, were blown down south of 155th Street between Wood Street and Halstead Ave.

Severe Winter Weather: Powerful severe thunderstorms moved southeast across far northeast Illinois during the late evening hours of June 30th 2011. Thousands of trees were blown down in eastern Lake County Illinois. Hail as large as baseballs fell across many areas of the city of Chicago.

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.

Rank	Hazard Type	Risk Rating Score (Probability x Impact)
1	Severe Weather	54
2	Severe Winter Weather	54
3	Tornado	36
4	Earthquake	32
5	Flood	30
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 H2.1 —Educate property owners about flood mitigation techniques including using outreach activities to facilitate technical assistance program that address measures that citizens can take or facilitate funding for mitigation measures.						
Ongoing	Flood, Severe Weather	1, 12	City of Harvey	Low	General Fund, Grant	Short-term
Action H2.2 —Improve stormwater drainage capacity by increasing the capacity of the City’s storm sewer drainage system						
Ongoing	Flood, Severe Weather	1, 2, 9, 13	City of Harvey	High	Grant	Long-term
Action H2.3 —Assess vulnerability to severe wind using GIS to map areas that are at risk to the wind hazard associated with straight-line wind conditions.						
Ongoing	Severe Weather	3, 4, 10	City of Harvey	High	Grant	Long-term
Action H2.4 —Incorporate a GIS system/management plan for tracking permitting, land use patterns, tracking hazard data, and mapping risk for various hazards.						

Ongoing	All	3, 4, 10	City of Harvey	Medium	Grant	Long-term
Action H2.5 —Develop and maintain a database to track community vulnerability to known hazard areas						
Ongoing	All	1, 5, 6	City of Harvey	Medium	General Fund, Grant	Short-term
Action H2.6 —Protecting infrastructure and critical facilities from damage by engineering and/or retrofitting roads to withstand hazards.						
Ongoing	All	1, 2, 9, 13	City of Harvey	High	Grant	Long-term
Action H2.7 —Improve sewer capacity for stormwater and snowmelt by separating the combined sewer system.						
Ongoing	Flood, Severe Weather, Severe Winter Weather	1, 2, 9, 13	City of Harvey	High	IEPA, Grants	Ongoing
Action H2.8 —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	City of Harvey	High	FEMA Hazard Mitigation Grants	Long-term (depending on funding)
Action H2.9 —Continue to support the countywide actions identified in this plan.						
Ongoing	All	All	City of Harvey	Low	General Fund	Short- and long-term
Action H2.10 —Actively participate in the plan maintenance strategy identified in this plan.						
Ongoing	All	3, 4, 6	DHSEM, City of Harvey	Low	General Fund	Short-term
Action H2.11 —Consider participation in incentive-based programs such as the Community Rating System, Tree City, and StormReady.						
Ongoing	All	3, 4, 5, 6, 7, 9, 10, 11, 13	City of Harvey	Low	General Fund	Long-term
Action H2.12 —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	City of Harvey	Low	General Fund	Short-term and ongoing
Action H2.13 —Where feasible, implement a program to record high water marks following high-water events.						
Ongoing	Flooding, Severe Weather	3, 6, 9	City of Harvey	Medium	General Fund; FEMA Grant Funds (Public Assistance)	Long term
Action H2.14 —Integrate the hazard mitigation plan into other plans, programs, or resources that dictate land use or redevelopment.						
Ongoing	All	3, 4, 6, 10, 13	Engineering Consultant, Public Works, Department of Buildings	Low	General Fund	Short-term
Action H2.15 —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 H2.16 —Storm sewer replacement, green infrastructure, and permeable pavement.						
New	Flood	9	MWRD/Cook County	\$5,000,000; High	MWRD/Cook County	2022
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	Yes	Yes	Medium
2	4	High	High	Yes	Yes	No	High

3	3	High	High	Yes	Yes	No	Medium	
4	3	High	Medium	Yes	Yes	No	Medium	
5	3	High	Medium	Yes	Yes	No	Medium	
6	4	High	High	Yes	Yes	No	High	
7	4	High	High	Yes	Yes	No	High	
8	2	High	High	Yes	Yes	No	Medium	
9	13	Medium	Low	Yes	No	Yes	High	
10	3	Medium	Low	Yes	Yes	Yes	High	
11	9	Medium	Low	Yes	No	Yes	Medium	
12	3	Medium	Low	Yes	No	Yes	High	
13	3	Medium	Medium	Yes	Yes	No	Medium	
14	5	Medium	Low	Yes	No	Yes	High	
15	3	High	High	Yes	No	No	Medium	
16	1	High	High	Yes	Yes	No	High	

a. See Chapter 1 for explanation of priorities

New Mitigation Actions

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

Action H-2.16

Mitigation Action	Storm sewer replacement, green infrastructure, and permeable pavement
Year Initiated	2019
Applicable Jurisdiction	City of Harvey
Lead Agency/Organization	MWRD/Cook County
Supporting Agencies/Organizations	MWRD/Cook County
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"> • Provide or improve flood protection on a watershed basis with flood control structures and drainage maintenance plans.
Potential Funding Source	MWRD/Cook County
Estimated Cost	5,000,000
Benefits (loss avoided)	Flood mitigation
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)	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:	

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 H-2.1

TABLE: ACTION PLAN MATRIX						
Status	Hazards Mitigated	Objectives Met	Lead Agencies	Estimated Cost	Sources of Funding	Timeline/Projected Completion Date (a)
Action H2.1 —Educate property owners about flood mitigation techniques including using outreach activities to facilitate technical assistance program that address measures that citizens can take or facilitate funding for mitigation measures.						
Ongoing	Flood, Severe Weather	1, 12	City of Harvey	Low	General Fund, Grant	Short-term
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.						

Action H-2.2

TABLE: ACTION PLAN MATRIX						
Status	Hazards Mitigated	Objectives Met	Lead Agencies	Estimated Cost	Sources of Funding	Timeline/Projected Completion Date (a)
Action H2.2 —Improve stormwater drainage capacity by increasing the capacity of the City’s storm sewer drainage system						
Ongoing	Flood, Severe Weather	1, 2, 9, 13	City of Harvey	High	Grant	Long-term
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.						

Action H-2.3

TABLE: ACTION PLAN MATRIX						
Status	Hazards Mitigated	Objectives Met	Lead Agencies	Estimated Cost	Sources of Funding	Timeline/Projected Completion Date (a)
Action H2.3 —Assess vulnerability to severe wind using GIS to map areas that are at risk to the wind hazard associated with straight-line wind conditions.						
Ongoing	Severe Weather	3,4,10	City of Harvey	High	Grant	Long-term
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.						

Action H-2.4

TABLE: ACTION PLAN MATRIX						
Status	Hazards Mitigated	Objectives Met	Lead Agencies	Estimated Cost	Sources of Funding	Timeline/Projected Completion Date (a)
Action H2.4 —Incorporate a GIS system/management plan for tracking permitting, land use patterns, tracking hazard data, and mapping risk for various hazards.						
Ongoing	All	3,4,10	City of Harvey	Medium	Grant	Long-term
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.						

Action H-2.5

TABLE: ACTION PLAN MATRIX						
Status	Hazards Mitigated	Objectives Met	Lead Agencies	Estimated Cost	Sources of Funding	Timeline/Projected Completion Date (a)
Action H2.5 —Develop and maintain a database to track community vulnerability to known hazard areas						
Ongoing	All	1,5,6	City of Harvey	Medium	General Fund, Grant	Short-term
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.						

Action H-2.6

TABLE: ACTION PLAN MATRIX						
Status	Hazards Mitigated	Objectives Met	Lead Agencies	Estimated Cost	Sources of Funding	Timeline/Projected Completion Date (a)
Action H2.6 —Protecting infrastructure and critical facilities from damage by engineering and/or retrofitting roads to withstand hazards.						
Ongoing	All	1, 2, 9, 13	City of Harvey	High	Grant	Long-term
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.						

Action H-2.7

TABLE: ACTION PLAN MATRIX						
Status	Hazards Mitigated	Objectives Met	Lead Agencies	Estimated Cost	Sources of Funding	Timeline/Projected Completion Date (a)
Action H2.7 —Improve sewer capacity for stormwater and snowmelt by separating the combined sewer system.						
Ongoing	Flood, Severe Weather, Severe Winter Weather	1, 2, 9, 13	City of Harvey	High	IEPA, Grants	Ongoing
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.						

Action H-2.8

TABLE: ACTION PLAN MATRIX						
Status	Hazards Mitigated	Objectives Met	Lead Agencies	Estimated Cost	Sources of Funding	Timeline/Projected Completion Date (a)
Action H2.8 —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	City of Harvey	High	FEMA Hazard Mitigation Grants	Long-term (depending on funding)
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.						

Action H-2.9

TABLE: ACTION PLAN MATRIX						
Status	Hazards Mitigated	Objectives Met	Lead Agencies	Estimated Cost	Sources of Funding	Timeline/Projected Completion Date (a)
Action H2.9 —Continue to support the countywide actions identified in this plan.						
Ongoing	All	All	City of Harvey	Low	General Fund	Short- and long-term
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.						

Action H-2.10

TABLE: ACTION PLAN MATRIX						
Status	Hazards Mitigated	Objectives Met	Lead Agencies	Estimated Cost	Sources of Funding	Timeline/Projected Completion Date (a)
Action H2.10 —Actively participate in the plan maintenance strategy identified in this plan.						
Ongoing	All	3,4,6	DHSEM, City of Harvey	Low	General Fund	Short-term
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.						

Action H-2.11

TABLE: ACTION PLAN MATRIX						
Status	Hazards Mitigated	Objectives Met	Lead Agencies	Estimated Cost	Sources of Funding	Timeline/Projected Completion Date (a)
Action H2.11 —Consider participation in incentive-based programs such as the Community Rating System, Tree City, and StormReady.						
Ongoing	All	3, 4, 5, 6, 7, 9, 10, 11, 13	City of Harvey	Low	General Fund	Long-term
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.						

Action H-2.12

TABLE: ACTION PLAN MATRIX						
Status	Hazards Mitigated	Objectives Met	Lead Agencies	Estimated Cost	Sources of Funding	Timeline/Projected Completion Date (a)
Action H2.12 —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	City of Harvey	Low	General Fund	Short-term and ongoing
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.						

Action H-2.13

TABLE: ACTION PLAN MATRIX						
Status	Hazards Mitigated	Objectives Met	Lead Agencies	Estimated Cost	Sources of Funding	Timeline/Projected Completion Date (a)
Action H2.13 —Where feasible, implement a program to record high water marks following high-water events						
Ongoing	Flooding, Severe Weather	3, 6, 9	City of Harvey	Medium	General Fund; FEMA Grant Funds (Public Assistance)	Long-term
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.						

Action H-2.14

TABLE: ACTION PLAN MATRIX						
Status	Hazards Mitigated	Objectives Met	Lead Agencies	Estimated Cost	Sources of Funding	Timeline/Projected Completion Date (a)
Action H2.14 —Integrate the hazard mitigation plan into other plans, programs, or resources that dictate land use or redevelopment.						
Ongoing	All	3, 4, 6, 10, 13	Engineering Consultant, Public Works, Department of Buildings	Low	General Fund	Short-term
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.						

Action H-2.15

TABLE: ACTION PLAN MATRIX						
Status	Hazards Mitigated	Objectives Met	Lead Agencies	Estimated Cost	Sources of Funding	Timeline/Projected Completion Date (a)
Action H2.15 —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
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.						

Completed Mitigation Actions

Harvey has no completed actions at this time.

Future Needs to Better Understand Risk/Vulnerability

No needs have been identified at this time.

Additional Comments

Storm sewer replacement, green infrastructure, and permeable pavement has been added as a new mitigation action in 2019.

HAZUS-MH Risk Assessment Results

HARVEY EXISTING CONDITIONS	
2010 Population	25,282
Total Assessed Value of Structures and Contents	\$17,999,478,271
Area in 100-Year Floodplain	541.27 acres
Area in 500-Year Floodplain	852.96 acres
Number of Critical Facilities	70

HAZARD EXPOSURE IN HARVEY						
	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	4,755	1,463	\$1,017,071,349	\$934,006,146	\$1,951,077,496	10.84%

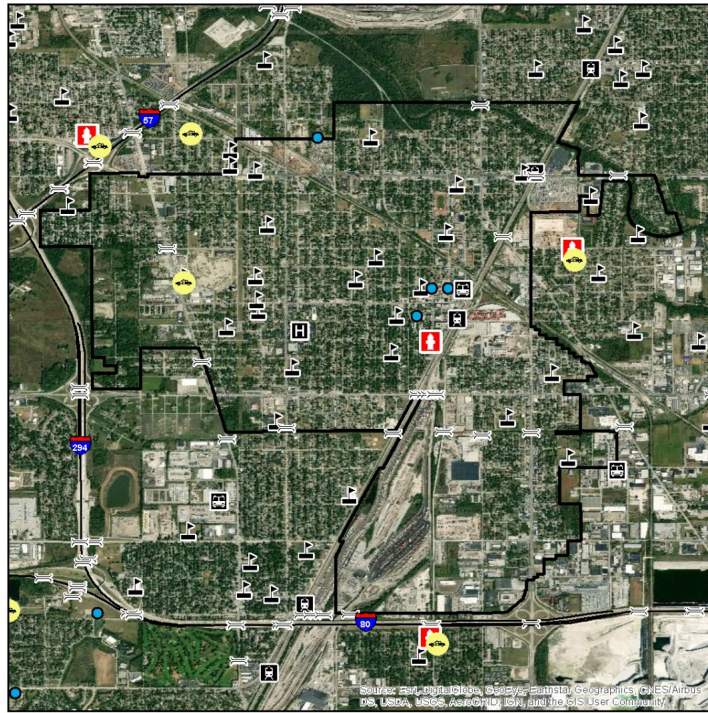
500-Year	7,400	2,277	\$2,040,010,319	\$1,895,996,634	\$3,936,006,953	21.87%
Tornado						
100-Year	—	—	\$970,676,680	\$869,448,467	\$1,840,125,147	10.22%
500-Year	—	—	\$2,858,721,825	\$2,465,460,375	\$5,324,182,200	29.58%

ESTIMATED PROPERTY DAMAGE VALUES IN HARVEY

	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	\$117,092,889	\$36,943,240	\$154,036,129	0.86%
Flood				
10-Year	\$217,070	\$194,186	\$411,257	0.00%
100-Year	\$27,962,449	\$25,450,558	\$53,413,007	0.30%
500-Year	\$78,114,496	\$103,285,261	\$181,399,757	1.01%

Tornado				
100-Year	\$97,067,668	\$86,944,847	\$184,012,515	1.02%
500-Year	\$417,373,387	\$359,957,215	\$777,330,601	4.32%

Hazard Mapping

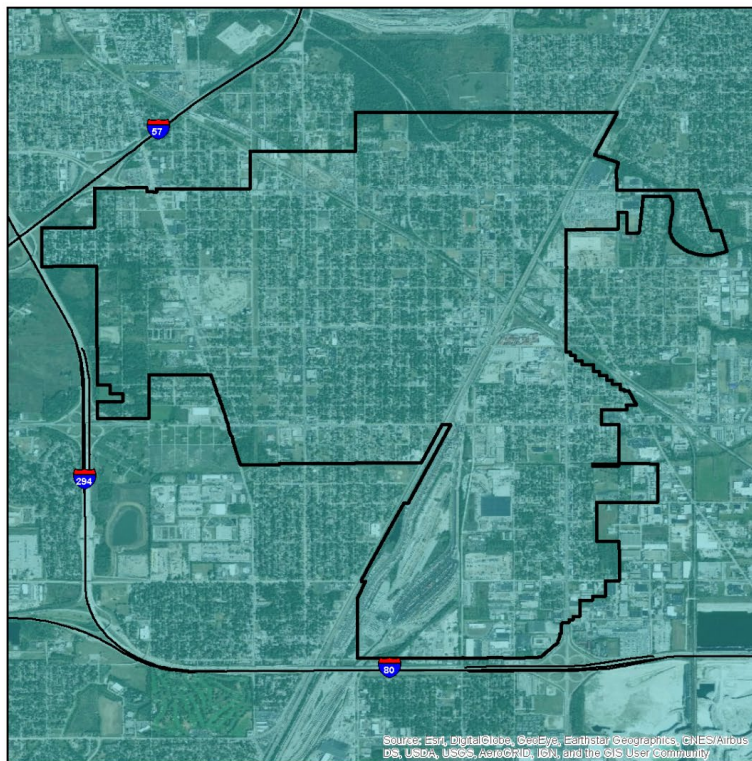
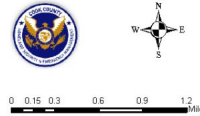


CITY OF HARVEY

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



CITY OF HARVEY

PEAK GROUND ACCELERATION FOR A 100 YEAR EARTHQUAKE EVENT

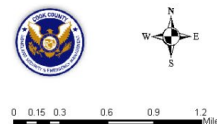
Mercalli Scale, Potential Shaking

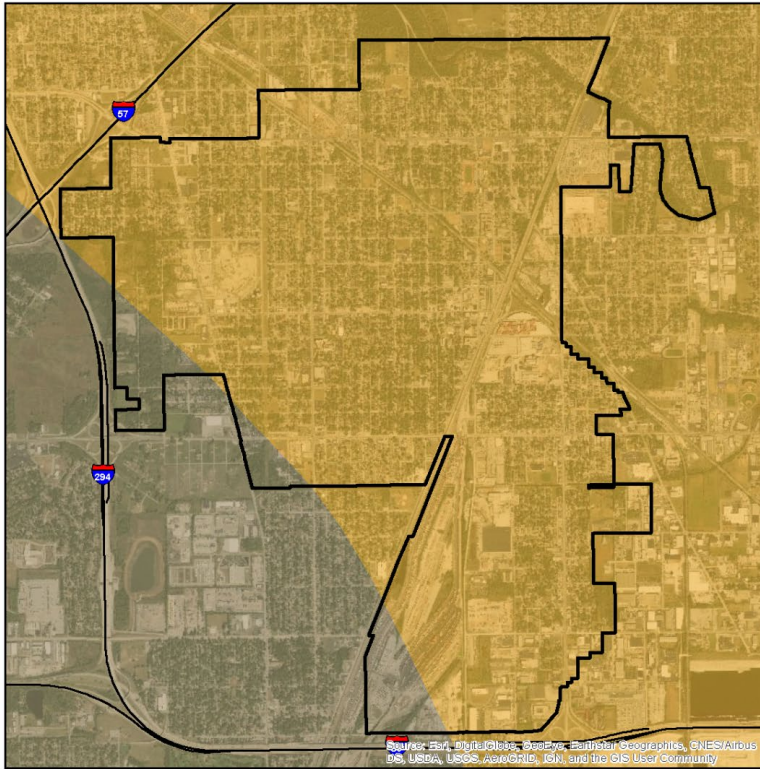
II-III Weak

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 spectra 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 750 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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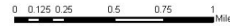
CITY OF HARVEY
NATIONAL EARTHQUAKE HAZARD REDUCTION PROGRAM (NEHRP) SOIL CLASSIFICATION

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

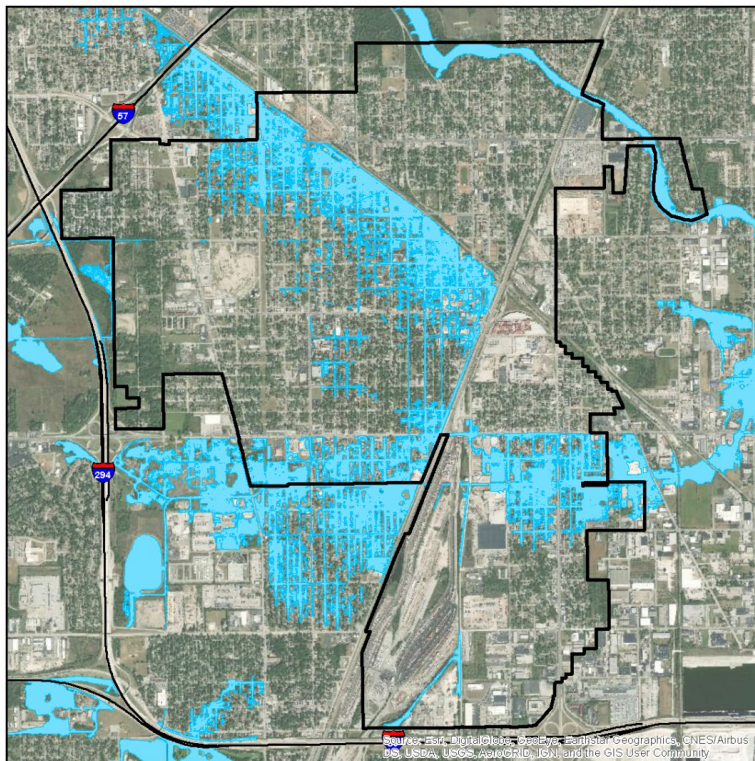
Data provided by the Illinois State Geological Survey and Cook County.

The Central United States Earthquake Consortium (CUSEC) State Geologists produced a regional Soil Site Class map (NEHRP Soil Profile Type M ap), 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-2769 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 N. Penneil (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

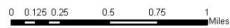


CITY OF HARVEY
COOK COUNTY MWRDGC 100-YEAR INUNDATION AREA

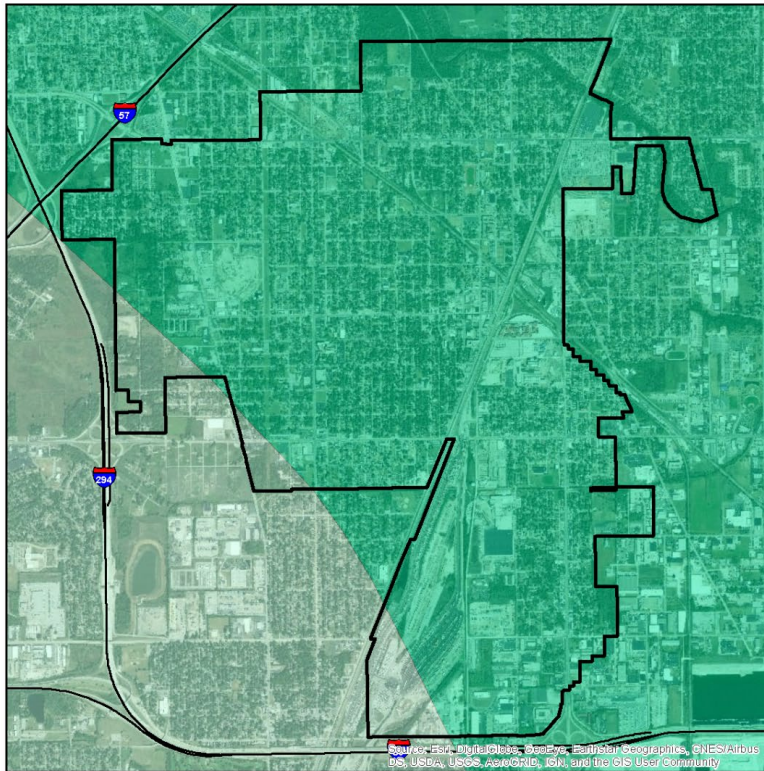
- 100-year Inundation Area

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

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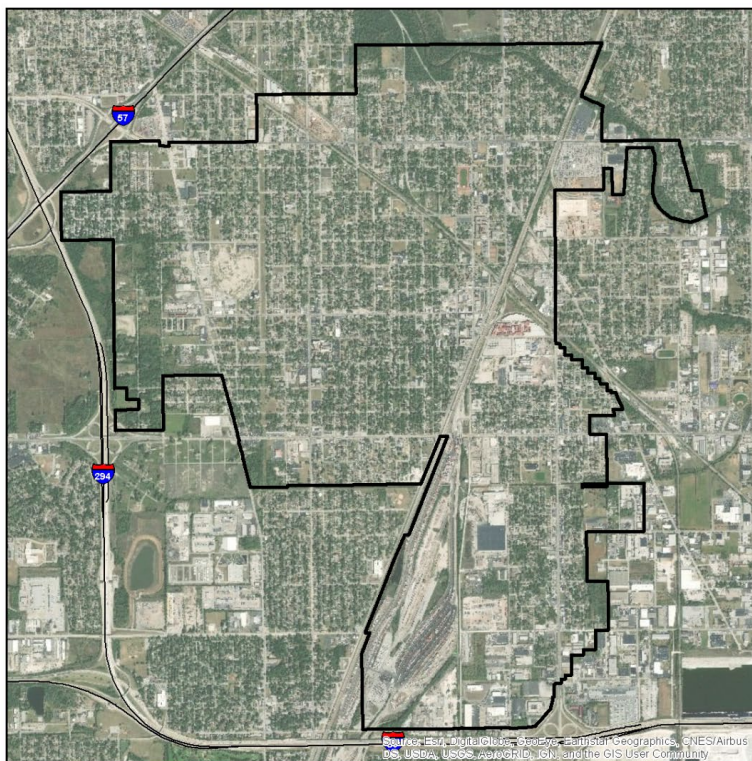
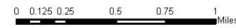
CITY OF HARVEY
LIQUEFACTION SUSCEPTIBILITY

LIQUEFACTION SUSCEPTIBILITY
 high
 low
 very low

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 N. Fennell (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, 2003) 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 in 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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CITY OF HARVEY
100- AND 500- YEAR TORNADO EVENTS

Magnitude
 4 (100 year event)
 5 (500 year event)

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

