

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

Hickory Hills Annex

FINAL

July 2019

Prepared for:



Cook County
Department of Homeland Security and Emergency Management
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Table of Contents

Hazard Mitigation Point of Contact	2
Jurisdiction Profile.....	3
Capability Assessment	5
Jurisdiction-Specific Natural Hazard Event	10
Hazard Risk Ranking.....	12
Mitigation Strategies and Actions.....	13
New Mitigation Actions	17
Ongoing Mitigation Actions	25
Completed Mitigation Actions	32
Future Needs to Better Understand Risk/Vulnerability	33
Additional Comments.....	34
HAZUS-MH Risk Assessment Results	35
Hazard Mapping.....	38

Hazard Mitigation Point of Contact

Primary Point of Contact	Alternate Point of Contact
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Jurisdiction Profile

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

- **Date of Incorporation:** 1951
- **Current Population:** The 2018 US Census population estimate for Hickory Hills was 13,834.
- **Population Growth:** From 1990 to 2010 there was some increase in population, however 2010 to 2016 saw a slight decline in the population.
- **Location and Description:** Hickory Hills is located 15 miles southwest from the Chicago loop and borders Justice to the north, Palos Hills to the south, Oak Lawn to the east, and the Cook County Forest Preserve to the west.
- **Brief History:** Hickory Hills was originally known as North Palos. It had a substantial population of Native Americans before the arrival of European settlers. Growth was slow in the initial years because farming was difficult on the hills of the area. The area started developing after World War II when cheap dwelling units were built along the southern edges of Hickory Hills. It was officially incorporated in 1951, and achieved cityhood in 1966. The name Hickory Hills was chosen because of the rolling hills that dominate the area, along with stands of Hickory trees.
- **Climate:** The climate of Hickory Hills 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. Winter proves quite variable as seasonal snowfall in the city 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, on average. Spring in the Chicago area is perhaps the city’s 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 city’s 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 autumn. Temperatures have reached as high as 100 degrees lower than -18 °C. Fall can bring heavy thunderstorms, many of which are capable of producing flooding. On average, the first accumulating snow occurs around Nov 19.
- **Governing Body Format:** Hickory Hills is run with a Strong Mayor form of government consisting of four wards and eight aldermen that form the city council. This body of Government will assume the responsibility for the adoption and implementation of this plan. The City operates 3 departments including the Building Department, Public Works Department, and Police Department. The Roberts Park Fire District serves as the City’s Fire Department.

- **Development Trends:** Development within the city consists of replacing old homes and businesses due to being landlocked on all sides. There are a few parcels of land available for development. The proximity of two expressways within the city has caused a heavy volume of traffic which is dealt with on a regular basis by improving roadways within the city limits and surrounding areas. The local school district continues improvement projects on an ongoing basis and is planning to construct a new Junior High School. The City of Hickory Hills has been defined as the highest point in Cook County and the Public works department has been continuing work on a continuing basis over the past several years through currently, to set up several detention areas throughout the city to help alleviate flooding issues in the Village. The village website encourages residents to support local businesses when buying items or looking for services.

Capability Assessment

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

TABLE: LEGAL AND REGULATORY CAPABILITY					
	Local Authority	State or Federal Prohibitions	Other Jurisdictional Authority	State Mandated	Comments
Codes, Ordinances & Requirements					
Building Code	Yes	No	No	No	In accordance with Public Act 096-0704, Illinois has adopted the IBC as its state Building Code, 01-2014
Zonings	Yes	No	No	Yes	(65 ILCS 5/) Illinois Municipal Code., 2011
Subdivisions	Yes	No	No	No	2011
Stormwater Management	Yes	No	Yes	Yes	State regulates industrial activity from Construction sites 1 acre or larger under section 402 CWA. 2008
Post Disaster Recovery	Yes	No	No	No	On file at city hall and director of the Emergency Management Agency, 11-2007
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	1-2014
Public Health and Safety	No	No	Yes	Yes	Cook County Board of Health.
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? N/A</i>					
Floodplain or Basin Plan	Yes	No	Yes	No	Ordinance 89-20 On file at city hall, Revised 1-2008
Stormwater Plan	Yes	No	Yes	No	Ordinance 89-20. On file at city hall, Revised 1-2008
Capital Improvement Plan	No	No	No	No	
<i>What types of capital facilities does the plan address? N/A</i>					
<i>How often is the plan revised/updated? N/A</i>					
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	Yes	No	Yes	Yes	Hickory Hills Emergency Management Agency, 11-2007 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

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	Yes

TABLE: ADMINISTRATIVE AND TECHNICAL CAPABILITY

Staff/Personnel Resources	Available?	Department/Agency/Position
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Planners or engineers with knowledge of land development and land management practices	Yes	Robinson Engineering Public work
Engineers or professionals trained in building or infrastructure construction practices	Yes	Robinson Engineering Public Works, Building Department
Planners or engineers with an understanding of natural hazards	Yes	Robinson Engineering Public Works
Staff with training in benefit/cost analysis	Yes	Finance Department
Surveyors	Yes	Robinson Engineering
Personnel skilled or trained in GIS applications	Yes	Cook County GIS Consortium
Scientist familiar with natural hazards in local area	Yes	Robinson Engineering
Emergency manager	Yes	Cook County DHSEM
Grant writers	Yes	Each department head is responsible for writing grants

TABLE: NATIONAL FLOOD INSURANCE PROGRAM COMPLIANCE

What department is responsible for floodplain management in your jurisdiction?	Public Work
Who is your jurisdiction’s floodplain administrator? (department/position)	Public Work
Are any certified floodplain managers on staff in your jurisdiction?	Robinson Engineering Public Works
What is the date of adoption of your flood damage prevention ordinance?	May 7, 1980
When was the most recent Community Assistance Visit or Community Assistance Contact?	4/16/2008
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 Further information would be needed to address the city council

TABLE: COMMUNITY CLASSIFICATIONS

	Participating?	Classification	Date Classified
Community Rating System	No	N/A	N/A
Building Code Effectiveness Grading Schedule	Unknown	Unknown	Unknown
Public Protection/ISO	Unknown	Unknown	Unknown
StormReady	Yes	Gold (Countywide)	2014
Tree City USA	Yes	Recognized	March 2013

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

TABLE: NATURAL HAZARD EVENTS			
Type of Event	FEMA Disaster Number (if applicable)	Date	Preliminary Damage Assessment
Severe Winter Weather	-	2013-2014	Snow removal, broken water mains, and school closings
Sever Summer Storms	-	2013	Tree removal
Severe Winter Storms	DR-1960	2011	Snow removal, school closings. Extra manpower used
Severe Summer Storms	-	2006	Straight line winds, micro burst, substantial debris removal
Severe Summer Storms	-	1995	Flooding
Severe Summer Storms	-	1993	Flooding
Severe Summer Storms	-	1992	Flooding
Severe Summer Storms	-	1990	Wind damage; Debris removal required.

The City of Hickory Hills has a history of severe storms that goes back before 1990.

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.

Severe Weather: The roof of a junior high school was blown off in Hickory Hills near the intersection of 97th Street and Roberts Road. The roof landed on a service van in a parking lot next to the school. Two occupants in the van were trapped and injured. Numerous trees, tree limbs and power lines were blown down. Several homes along 97th Street received damage from falling trees and tree limbs.

Flooding: Several miles of storm sewers in the city limits are in need of replacement due to age.

Drought: Hickory Hills continues to regulate days/hours that households are able to water outside during the summer months.

Extreme Cold: Annual leak survey suggests precautions of water system in the case of infrastructure damage.

Earthquake: On 4/18/2008 at 09:36:59, a magnitude 5.4 (Depth: 8.9 mi) earthquake occurred 226.3 miles away from the city center.

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	Tornado	36
4	Earthquake	32
5	Flood	12
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 H5.1 —Continue to service and upgrade the severe weather alert system that is currently in place within the city limits.						
Ongoing	Severe Weather	5, 6	Emergency Management Agency (EMA)	Medium	EMA, Grants	Ongoing
Action H5.2 —Continue to review and change as needed the Emergency Operations Guide so that it fits the needs of the city.						
Ongoing	All	1, 8	EMA, Police, Fire Dept., Public Works	Low	EMA	Ongoing
Action H5.3 —Improve Storm water management by increasing the size of the retention ponds within the city limits that would also help surrounding communities. (This plan sent to FEMA on 09-20-2013.)						
Ongoing	Flooding	3, 9	Public works	High	IDNR, MWRD, FEMA	Long-term
Action H5.4 —Have all new subdivisions constructed in the area bury the service lines to the home to prevent loss of services during storms.						

Ongoing	Severe Weather	3, 10	Building Department	Low	General Fund	Ongoing
Action H5.5 —Consider participation in the Community Rating System (CRS).						
Ongoing	Flood	3, 4, 5, 6, 7, 9, 10, 11, 13	Public Works, Building Department	Low	General Fund	Short-Term
Action H5.6 —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, 3	Building Department, Public Works	High	FEMA Hazard Mitigation Grants General Fund	Long-term (depending on funding)
Action H5.7 —Continue with partnerships among all levels of local government, the private sector and/or nongovernmental organizations to improve and implement methods to protect people and property.						
Ongoing	All	8, 13	City of Hickory Hills	Low	General Fund	Ongoing
Action H5.8 —Continue to regulate the days/hours that households are able to water outside during the summer months.						
Ongoing	Drought	3, 13	Public Works, Fire Department	Low	General Fund	Ongoing
Action H5.9 —Continue to support the countywide actions identified in this plan.						
Ongoing	All	All	City of Hickory Hills	Low	General Fund	Short and Long-term
Action H5.10 —Actively participate in the plan maintenance strategy identified in this plan.						
Ongoing	All	3, 4, 6	DHSE, City of Hickory Hills	Low	General Fund	Short-term
Action H5.11 —The City enforces outside watering every year and post this information in locations around the City.						
Removed	All	3, 4, 5, 6, 7, 9, 10, 11, 13	City of Hickory Hills	Low	General Fund	Removed
Action H5.12 —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.						
Remove d	Flooding	4, 6, 9	City of Hickory Hills	Medium	General Fund	Removed
Action H5.13 —Where feasible, implement a program to record high water marks following high-water events.						
Remove d	Flooding, Severe Weather	3, 6, 9	City of Hickory Hills	Medium	General Fund, FEMA Grant Funds (Public Assistance)	Removed
Action H5.14 —Integrate the hazard mitigation plan into other plans, programs, or resources that dictate land use or redevelopment.						
Ongoing	All	3, 4, 6, 10, 13	Robinson Engineering, Public Works	Low	General Funds	Short-term
Action H5.15 —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 H5.16 —Storm Sewer Replacement.						
New	Flood	1, 2, 7, 12, 13	Public Works	\$850,000; Medium	Local Funds	2025
Action H5.17 —Catch Basin Cleaning.						
New	Flood, Snow	12, 13	Public Works	Medium	Local Funds	2024
Action H5.18 —Annual Leak Survey of water system.						
New	Earthquake, Extreme Cold	13	Public Works	Medium	Local Funds	Ongoing Annually
(a) Ongoing indicates continuation of an action that is already in place. Short-term indicates implementation within five years. Long-term indicates implementation after five years.						

TABLE: MITIGATION STRATEGY PRIORITY SCHEDULE

Action Number	Number of Objectives Met	Benefits	Costs	Do Benefits Equal or Exceed Costs?	Is Project Grant-Eligible?	Can Project Be Funded Under Existing Programs/Budgets?	Priority (a)
1	2	High	Med	Yes	No	Yes	High
2	2	High	Low	Yes	No	Yes	High
3	2	High	High	Yes	Yes	No	Medium
4	2	Medium	Low	Yes	No	Yes	High
5	9	Medium	Low	Yes	No	Yes	Medium
6	2	High	High	Yes	Yes	No	Medium
7	2	High	Low	Yes	Yes	Yes	High
8	2	Medium	Low	Yes	No	Yes	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	5	High	Medium	Yes	Unknown	Unknown	High
17	2	Medium	Medium	Yes	Unknown	Unknown	Medium
18	1	Medium	Medium	Yes	Unknown	Unknown	Medium

(a) See Chapter 1 for explanation of priorities.

New Mitigation Actions

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

Action H5.16

Mitigation Action	Storm Sewer Replacement
Year Initiated	2019
Applicable Jurisdiction	Hickory Hills
Lead Agency/Organization	Public Works
Supporting Agencies/Organizations	
Applicable Goal	<ul style="list-style-type: none"> • 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. • Develop, promote, and integrate mitigation action plans.
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. • 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. • Reduce natural hazard-related risks and vulnerability to potentially isolated populations within the planning area. • Encourage hazard mitigation measures that result in the least adverse effect on the natural environment and that use natural processes.
Potential Funding Source	Local Funds
Estimated Cost	\$850,000
Benefits (loss avoided)	Provide better drainage of rain water
Projected Completion Date	2025
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)	Medium—The project could be implemented with existing funding but would require a re-apportionment of the budget or a budget

	amendment, or the cost of the project would have to be spread over multiple years.
Actual Completion Date	

Recommended Mitigation Action/Implementation Plan and Project Description

Action/Implementation Plan and Project Description:	Several miles of storm sewer in the city limits will be replaced due to age. This project will allow for rain water to drain more effectively as the size of the pipe is being increased
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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
	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 H5.17

Mitigation Action	Catch Basin Cleaning
Year Initiated	2019
Applicable Jurisdiction	Hickory Hills
Lead Agency/Organization	Public Works
Supporting Agencies/Organizations	
Applicable Goal	<ul style="list-style-type: none"> • Develop and implement sustainable, cost-effective, and environmentally sound risk-reduction (mitigation) projects. • Protect the lives, health, safety, and property of the citizens of Cook County from the impacts of natural hazards. • 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.
Applicable Objective	<ul style="list-style-type: none"> • Reduce natural hazard-related risks and vulnerability to potentially isolated populations within the planning area. • Encourage hazard mitigation measures that result in the least adverse effect on the natural environment and that use natural processes.
Potential Funding Source	Local Funds
Estimated Cost	TBD
Benefits (loss avoided)	Removing debris from basis will allow for better drainage of the storm sewer drains
Projected Completion Date	2024
Priority and Level of Importance (Low, Medium, High)	Medium Priority
Benefit Analysis (Low, Medium, High)	Medium—Project will have a long-term impact on the reduction of risk exposure for life and property, or project will provide an immediate reduction in the risk exposure for property.
Cost Analysis (Low, Medium, High)	Medium—The project could be implemented with existing funding but would require a re-apportionment of the budget or a budget

	amendment, or the cost of the project would have to be spread over multiple years.
Actual Completion Date	

Recommended Mitigation Action/Implementation Plan and Project Description	
Action/Implementation Plan and Project Description:	The city has started a 5 year plan to clean all of the catch basin located within the city limits; 20% of the basins will be cleaned each year and this will take 5 years to complete.

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
	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 H5.18

Mitigation Action	Annual Leak Survey of water system
Year Initiated	2015
Applicable Jurisdiction	Hickory Hills
Lead Agency/Organization	Public Works
Supporting Agencies/Organizations	
Applicable Goal	<ul style="list-style-type: none"> • Develop and implement sustainable, cost-effective, and environmentally sound risk-reduction (mitigation) projects. • Protect the lives, health, safety, and property of the citizens of Cook County from the impacts of natural hazards. • 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.
Applicable Objective	<ul style="list-style-type: none"> • 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
Estimated Cost	TBD
Benefits (loss avoided)	Checking the integrity of the water system will ensure that the system is in good working order and if an issue is detected it can be fixed right away. This will help with down time of the system and costly repairs in the future
Projected Completion Date	Ongoing Annually
Priority and Level of Importance (Low, Medium, High)	Medium Priority
Benefit Analysis (Low, Medium, High)	Medium—Project will have a long-term impact on the reduction of risk exposure for life and property, or project will provide an immediate reduction in the risk exposure for property.
Cost Analysis (Low, Medium, High)	Medium—The project could be implemented with existing funding but would require a re-apportionment of the budget or a budget

	amendment, or the cost of the project would have to be spread over multiple years.
Actual Completion Date	

Recommended Mitigation Action/Implementation Plan and Project Description	
Action/Implementation Plan and Project Description:	The city does an annual leak survey which is preformed by a 3rd party. Every mile of the water system is checked to make sure that the system is able to preform with little to no interruption. Also the city has purchased acoustical sounding equipment to check smaller areas if a problem is detected during daily flow monitoring

Mitigation Action and Project Maintenance		
Year	Status	Comments
2019	New	
2020		
2021		
2022		
2023		

Mitigated Hazards	
	All Hazards
	Dam/Levee Failure
	Drought
X	Earthquake
	Flood
	Extreme Heat
	Lightning
	Hail
	Fog
	High Wind
	Snow
	Blizzard
X	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
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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 H5.1

TABLE: ACTION PLAN MATRIX		
Action Number Action Taken Y/N	Action Item Description	Status (X, O, C, R, N)
# H5.1	Continue to service and upgrade the severe weather alert system that is currently in place within the city limits	
Status Description: Yes	Upgrades were made to the computer system this year. Annual maintenance is performed.	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 H5.2

TABLE: ACTION PLAN MATRIX		
Action Number Action Taken Y/N	Action Item Description	Status (X, O, C, R, N)
# H5.2	Continue to review and change as needed the Emergency Operations Guide so that it fits the needs of the city.	
Status Description: Yes	An updated plan was adopted this year by the City Council. The plan is now reviewed annually to make the necessary changes.	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 H5.3

TABLE: ACTION PLAN MATRIX		
Action Number Action Taken Y/N	Action Item Description	Status (X, O, C, R, N)
# H5.3	Improve Storm water management by increasing the size of the retention ponds within the city limits that would also help surrounding communities. (This plan sent to FEMA on 09-20-2013)	
Status Description: Yes	There has been ongoing improvements to the drainage system and it is constantly evaluated.	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 H5.4

TABLE: ACTION PLAN MATRIX		
Action Number Action Taken Y/N	Action Item Description	Status (X, O, C, R, N)
# H5.4	Have all new subdivisions constructed in the area bury the service lines to the home to prevent loss of services during storms.	
Status Description: Yes	A large parcel of land is in the early stages of being developed but the systems are all being buried.	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 H5.5

TABLE: ACTION PLAN MATRIX		
Action Number Action Taken Y/N	Action Item Description	Status (X, O, C, R, N)
# H5.5	Consider participation in the Community Rating System (CRS)	
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 H5.6

TABLE: ACTION PLAN MATRIX		
Action Number Action Taken Y/N	Action Item Description	Status (X, O, C, R, N)
# H5.6	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: Yes	Over the past few years the City has been able to take care of the need for this and evaluates as needed.	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 H5.7

TABLE: ACTION PLAN MATRIX		
Action Number Action Taken Y/N	Action Item Description	Status (X, O, C, R, N)
# H5.7	Continue with partnerships among all levels of local government, the private sector and/or nongovernmental organizations to improve and implement methods to protect people and property	
Status Description: Yes	The City is always looking for ways to protect the people and property of the City.	O
<p style="text-align: center;">Completion status legend: N = New O = Action Ongoing toward Completion C = Project Completed R = Want Removed from Annex X = No Action Taken</p>		

Action H5.8

TABLE: ACTION PLAN MATRIX		
Action Number Action Taken Y/N	Action Item Description	Status (X, O, C, R, N)
# H5.8	Continue to regulate the days/hours that households are able to water outside during the summer months.	
Status Description: Yes	The City enforces outside watering every year and post this information in locations around the City.	O
<p style="text-align: center;">Completion status legend: N = New O = Action Ongoing toward Completion C = Project Completed R = Want Removed from Annex X = No Action Taken</p>		

Action H5.9

TABLE: ACTION PLAN MATRIX		
Action Number Action Taken Y/N	Action Item Description	Status (X, O, C, R, N)
# H5.9	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 H5.10

TABLE: ACTION PLAN MATRIX		
Action Number Action Taken Y/N	Action Item Description	Status (X, O, C, R, N)
# H5.10	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 H5.14

TABLE: ACTION PLAN MATRIX		
Action Number Action Taken Y/N	Action Item Description	Status (X, O, C, R, N)
# H5.14	Integrate the hazard mitigation plan into other plans, programs, or resources that dictate land use or redevelopment.	
Status Description: Yes	Utilizing the plan for flood and drainage as to the new development in the City.	O
<p style="text-align: center;">Completion status legend: N = New O = Action Ongoing toward Completion C = Project Completed R = Want Removed from Annex X = No Action Taken</p>		

Action H5.15

TABLE: ACTION PLAN MATRIX		
Action Number Action Taken Y/N	Action Item Description	Status (X, O, C, R, N)
# H5.15	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.	
Status Description: No		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

There are no completed mitigation actions at this time.

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

HICKORY HILLS EXISTING CONDITIONS	
2010 Population	14,049
Total Assessed Value of Structures and Contents	\$2,774,405,316
Area in 100-Year Floodplain	38.79 acres
Area in 500-Year Floodplain	51.17 acres
Number of Critical Facilities	26

HAZARD EXPOSURE IN HICKORY HILLS						
	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	\$116,228	\$174,342	\$290,570	0.01%

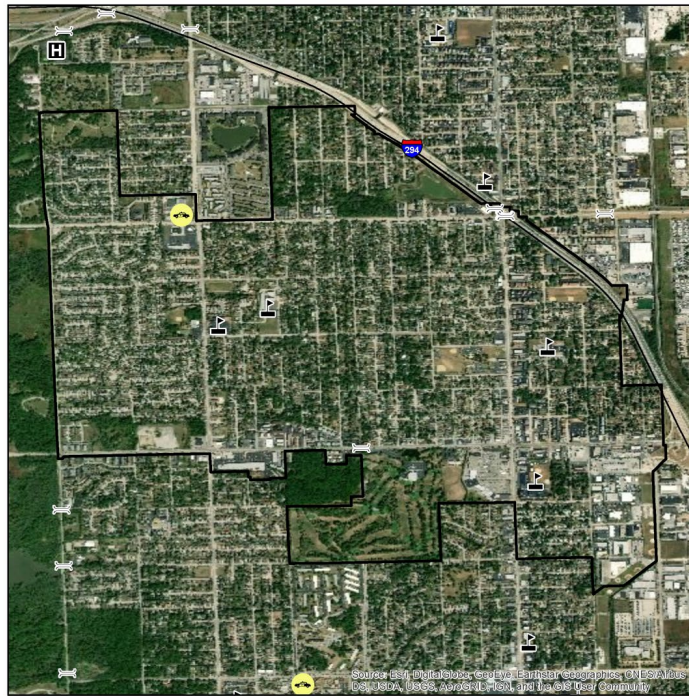
500-Year	23	7	\$954,822	\$1,204,628	\$2,159,450	0.08%
Tornado						
100-Year	—	—	\$331,248,886	\$182,367,423	\$513,616,309	18.51%
500-Year	—	—	\$895,946,723	\$671,348,774	\$1,567,295,498	56.49%

ESTIMATED PROPERTY DAMAGE VALUES IN HICKORY HILLS

	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	\$28,416,295	\$8,978,263	\$37,394,559	1.35%
Flood				
10-Year	\$0	\$0	\$0	0.00%
100-Year	\$0	\$0	\$0	0.00%
500-Year	\$1,510	\$587	\$2,097	0.00%

Tornado				
100-Year	\$33,124,889	\$18,236,742	\$51,361,631	1.85%
500-Year	\$130,808,222	\$98,016,921	\$228,825,143	8.25%

Hazard Mapping

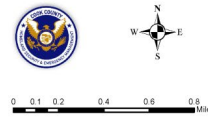


CITY OF HICKORY HILLS

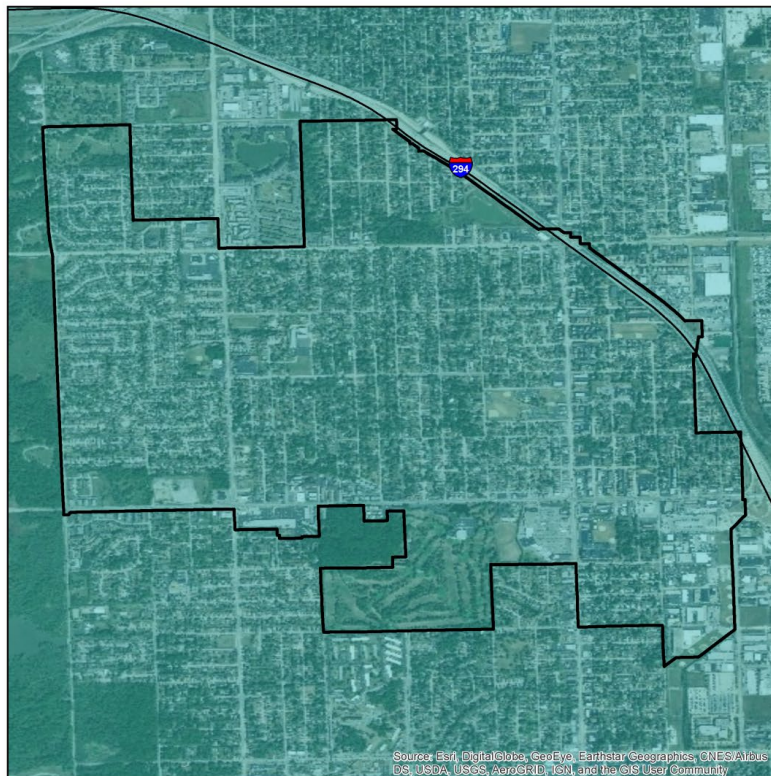
CRITICAL INFRASTRUCTURE

- 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



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



CITY OF HICKORY HILLS

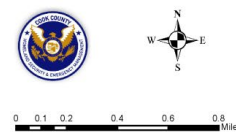
PEAK GROUND ACCELERATION FOR A 100 YEAR EARTHQUAKE EVENT

Mercalli Scale, Potential Shaking
II-III Weak

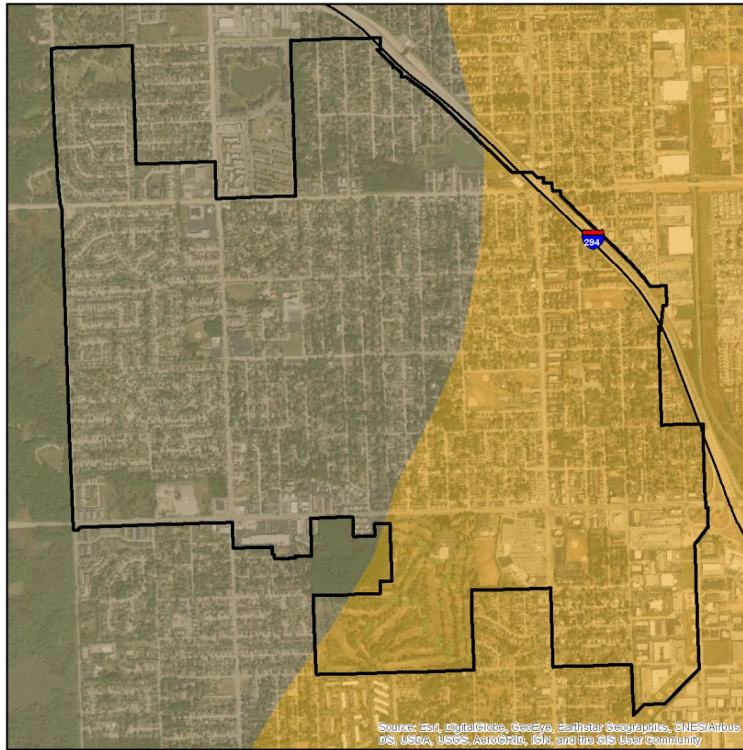
Data provided by the USGS Earthquake Hazards Program and Cook County

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



**CITY OF
HICKORY HILLS**
NATIONAL EARTHQUAKE HAZARD
REDUCTION PROGRAM (NEHRP)
SOIL CLASSIFICATION

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

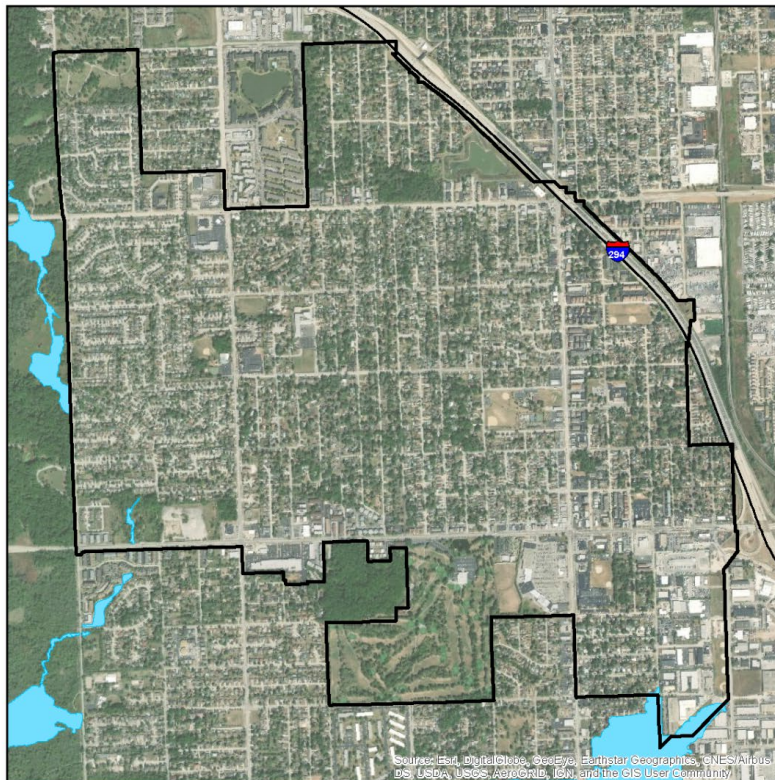
Data provided by the Illinois State Geological Survey and Cook County.

The Central United States Earthquake Consortium (CUSEC) State Geologists produced a regional Soil Site Class map (NEHRP Soil Profile Type 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 1-2789 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, 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 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
HICKORY HILLS**

**COOK COUNTY MWRDGC
100-YEAR INUNDATION AREA**

- 100-year Inundation Area

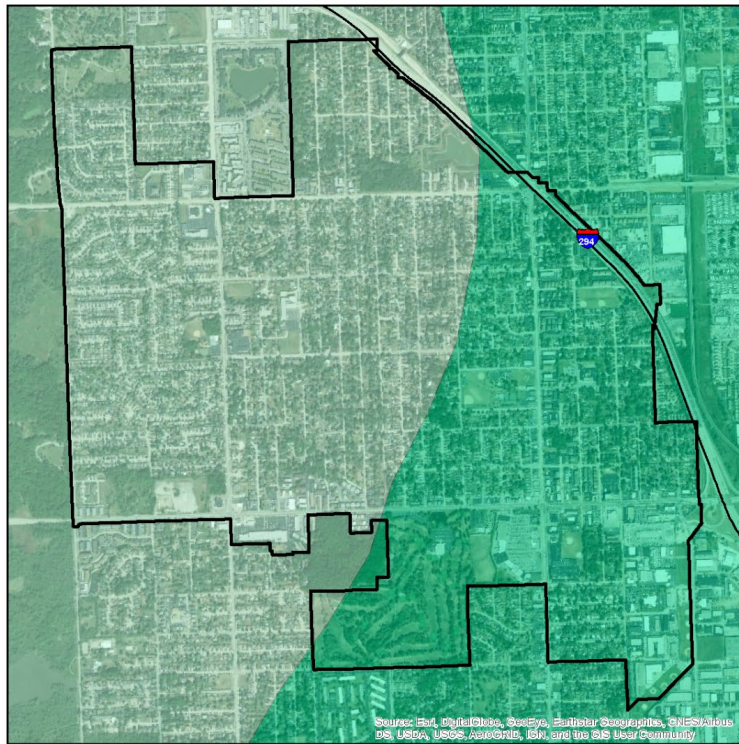
MWRDGC Data provided by Metropolitan Water Reclamation District of Greater Chicago and Cook County.

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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



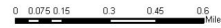
**CITY OF
HICKORY HILLS**
LIQUEFACTION SUSCEPTIBILITY

- LIQUEFACTION SUSCEPTIBILITY**
- high
 - low
 - very low

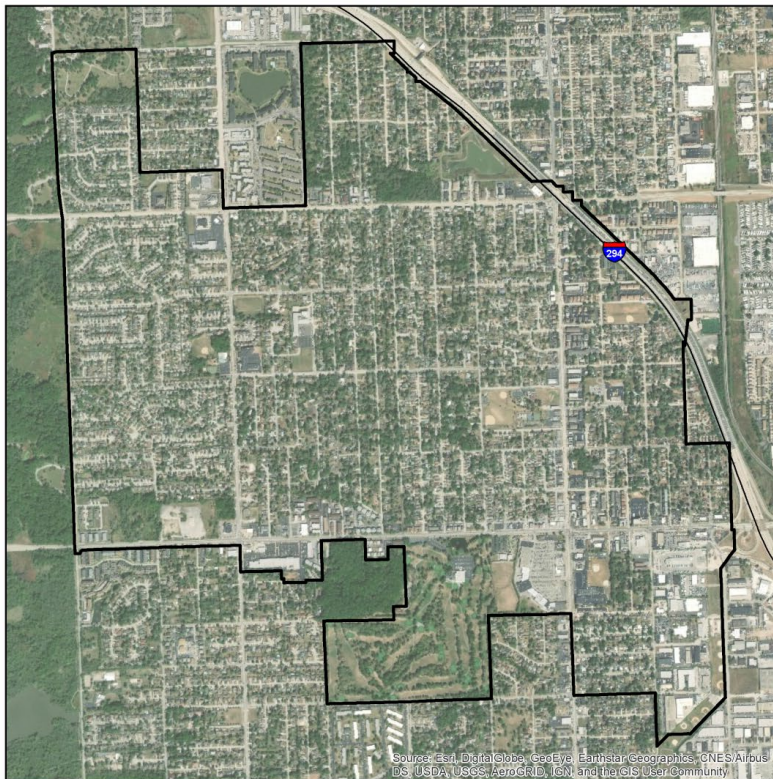
Data provided by the Illinois State Geological Survey and Cook County.

The Central United States Earthquake Consortium (CUSEC) State Geologists produced a regional Soil Site Class map (NEHRP Soil Profile Type M₀), 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-2788 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 N. 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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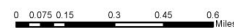


**CITY OF
HICKORY HILLS**
**100- AND 500- YEAR
TORNADO EVENTS**

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.



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