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

Lansing Annex

FINAL

July 2019

Prepared for:

Cook County
Department of Homeland Security and Emergency Management
69 W. Washington St., Suite 2600
Chicago, Illinois 60602

Toni Preckwinkle
President
Cook County Board of Commissioners

William Barnes
Executive Director
Cook County Department of Homeland Security & Emergency Management

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Hazard Mitigation Point of Contact

Primary Point of Contact	Alternate Point of Contact
Scott Bailey, Lieutenant 2710 170th Street Lansing, IL 60438 Telephone: 708-895-7130 Email Address: sbailey@villageoflansing.org	Steve Roberts, Deputy Chief 2710 170th Street Lansing, IL 60438 Telephone: 708-895-7126 Email Address: sroberts@villageoflansing.org

Jurisdiction Profile

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

- **Date of Incorporation:** 1893
- **Current Population:** 27,657 as of 2018 US Census population estimate.
- **Population Growth:** Based on the U.S. Census data, the Village of Lansing has experienced little growth over the past 18 years.
- **Location and Description:** The Village of Lansing is a south suburb of Chicago and is located approximately 24 miles south of the Chicago Loop. It is on the Indiana/Illinois border with Lake Michigan approximately 15 miles away. Interstate 80/94 travels through the Village. Lansing is bordered by Glenwood and Thornton to the west, Calumet City and South Holland to the north, Lynwood to the south, and by Munster and Hammond in Indiana to the east.
- **Brief History:** The first family to settle in Lansing was that of August Hildebrandt in 1843. Henry, George, and John Lansing settled the area in 1846, which was incorporated in 1893. Early settlement in the village was primarily by Dutch and German immigrants. Industrial development of the surrounding Calumet region attracted immigrants from Ireland and Eastern Europe to the village in the 20th century.
- **Climate:** The climate of Lansing 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 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. 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 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 Lansing operates under Home Rule. There is an elected Mayor who appoints a Village Manager, and there are six trustees who are elected. This body of Government will assume the responsibility for the adoption and implementation of this plan. There are 7 operating departments in Lansing that include the Building Department, Clerk's

Office, Fire Department, Human Resources Department, Planning Department, Police Department, and Public Works Department.

- **Development Trends:** Economic development is slow to moderate in Lansing. An economic development committee has been formed to build on the existing businesses and to create new opportunities. Residential development is slow in Lansing. The community is almost fully developed with little room for new home construction. The village developed a Comprehensive Plan to serve as a Village's official guide for land use, physical improvement and development. The Comprehensive Plan provides a foundation for decision-making based on community consensus, community vision, existing conditions and future potentials. The Plan serves as a "road map" for 10 to 15 years into the future by guiding policy decisions and helping the community achieve its long-term objectives. The 2014 Comprehensive Plan for the Village of Lansing addresses many issues including, land use and development, transportation and circulation, community facilities, infrastructure, environmental features and open space, community character and urban design. The Comprehensive Plan provides community-wide plans for land use & development, transportation and mobility, open space and environmental features, community facilities and infrastructure, image, identify and community character and sustainability. In addition to the community-wide plans, the Comprehensive Plan provides more detailed plans for several key areas in the community, including the Torrence Avenue Corridor, Downtown, and the area surrounding the Lansing Municipal Airport.

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	Ch. 46-24 1969 5-21-2013
Zonings	Yes	No	No	Yes	Ch. 56 May 2003
Subdivisions	Yes	No	No	No	Ch. 55 August 1981
Stormwater Management	Yes	No	Yes	Yes	State regulates industrial activity from Construction sites 1 acre or larger under section 402 CWA. Ord. 8-13 June 2008
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. 4-32 Sep. 2004
Environmental Protection	No	No	No	No	
Planning Documents					
General or Comprehensive Plan	Yes	No	No	No	Code 1969 Code 1982, Adopted 2003
Is the plan equipped to provide linkage to this mitigation plan?					Yes – Land Use
Floodplain or Basin Plan	Yes	No	No	No	Ord. 85-29 Aug 1985
Stormwater Plan	Yes	No	No	No	Ord. 8-13 June 2008
Capital Improvement Plan	Yes	No	No	No	
What types of capital facilities does the plan address?					Village owned facilities and infrastructure
How often is the plan revised/updated?					6-year CIP, updated annually
Habitat Conservation Plan	No	No	No	No	
Economic Development Plan	Yes	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 The Village Plan should be

					completed in May 2014
Shoreline Management Plan	No	No	No	No	
Response/Recovery Planning					
Comprehensive Emergency Management Plan	Yes	No	Yes	Yes	Cook County DHSEM Ord. 84-02 Apr 1984
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	Yes
Authority to Levy Taxes for Specific Purposes	Yes
User Fees for Water, Sewer, Gas or Electric Service	Yes
Incur Debt through General Obligation Bonds	Yes
Incur Debt through Special Tax Bonds	Yes
Incur Debt through Private Activity Bonds	No
Withhold Public Expenditures in Hazard-Prone Areas	No
State Sponsored Grant Programs	Yes
Development Impact Fees for Homebuyers or Developers	No

TABLE: ADMINISTRATIVE AND TECHNICAL CAPABILITY		
Staff/Personnel Resources	**Available?**	**Department/Agency/Position**
Planners or engineers with knowledge of land development and land management practices	Yes	Planning and Development
Engineers or professionals trained in building or infrastructure construction practices	Yes	Planning and Development
Planners or engineers with an understanding of natural hazards	Yes	Planning and Development
Staff with training in benefit/cost analysis	No	
Surveyors	No	
Personnel skilled or trained in GIS applications	Yes	Cook County GIS Consortium
Scientist familiar with natural hazards in local area	No	
Emergency manager	Yes	Village Administrator
Grant writers	Yes	Police Department

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)	Superintendent
Are any certified floodplain managers on staff in your jurisdiction?	Yes
What is the date of adoption of your flood damage prevention ordinance?	June 2008
When was the most recent Community Assistance Visit or Community Assistance Contact?	05/11/1998
Does your jurisdiction have any outstanding NFIP compliance violations that need to be addressed? If so, please state what they are.	No
Do your flood hazard maps adequately address the flood risk within your jurisdiction? (If no, please state why)	Yes
Does your floodplain management staff need any assistance or training to support its floodplain management program? If so, what type of assistance/training is needed?	No

Does your jurisdiction participate in the Community Rating System (CRS)? If so, is your jurisdiction seeking to improve its CRS Classification? If not, is your jurisdiction interested in joining the CRS program?	Yes Village is not looking to improve its classification at this time.

TABLE: COMMUNITY CLASSIFICATIONS

	Participating?	Classification	Date Classified
Community Rating System	Yes	Rating 7	11/13/2013
Building Code Effectiveness Grading Schedule	Yes	Commercial = 6 Residential = 6	08/02/2013
Public Protection/ISO	Yes	ISO 4	2011
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: 33
- Number of FEMA-Identified Severe Repetitive Loss Properties: 0
- Number of Repetitive Flood Loss/Severe Repetitive Loss Properties That Have Been Mitigated: 12

TABLE: NATURAL HAZARD EVENTS

Type of Event	FEMA Disaster Number (if applicable)	Date	Preliminary Damage Assessment
Severe Weather	-	6/30/2014	-
Hail	-	5/20/2014	-
Severe Storm	DR-4116	4/26/2013	-
Severe Winter Storm	DR-1960	1/31/2011	$74,537.71
Severe Storm and Flooding	DR-1935	7/19/2010	$24,130.71
Severe Storm and Flooding	DR-1800	9/13/2008	$106,815.84
Severe Storm and Flooding	DR-1729	8/20/2007	No data available. Minor damage.
Severe Winter Storm	EM-3161	12/11/2000	No data available. Minor damage.
Winter Snow Storm	EM-3134	1/1/1999	No data available. Minor damage.
Severe Storm and Flooding	DR-798	8/13/1987	No data available. Major damage.
Severe Storm and Flooding	DR-776	9/21/1986	No data available. Major damage.
Severe Storm (Micro-burst)	-	8/2004	No data available. Moderate damage.

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.

Earthquake: On 4/18/2008 at 09:36:59, a magnitude 5.4 (Depth: 8.9 mi) earthquake occurred 216.1 miles away from Lansing center.

Drought: The village promotion of water conservation programs Village wide indicates impacts.

Flood: Severe thunderstorms formed across far northern Illinois during the afternoon hours of July 17th 2003 and moved south across the Chicago Metro area through the evening. Minor flooding of some streets and low lying areas was reported across southern Cook county.

Severe Weather: Extensive damage was sustained from two separate lines of thunderstorms on Monday, June 30th 2014 which was officially determined to be from two separate derecho events. During these two events, 80 to 110 MPH straight line winds along with several tornadoes of up to EF-1 intensity produced wind damage from Central Iowa east into Michigan and Ohio. Thunderstorms developed over Iowa during the early afternoon and organized into a forward-propagating quasi-linear convective system (QLCS) and tracked across lake Michigan by early to mid evening. Meanwhile, a second complex of intense thunderstorms developed over central and eastern Iowa and also evolved into a QLCS, tracking across northern Illinois and northwest Indiana late in the evening into the overnight hours.

Tornadoes: A brief tornado touched down near 179th street, east of Burnham Road and ended near the Indiana State line and 177th Street. Several tree limbs were blown down. One tree limb fell onto a car. (6/7/2008)

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	Tornado	54
2	Flood	51
3	Severe Weather	48
4	Severe Winter Weather	48
5	Earthquake	28
6	Drought	8
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 #1—Improve communications with purchase of mass notification system.						
Completed	All	5, 6	Village	$18,000/year; Low	911 Funds	Completed
Action #2—Raise public awareness about regional hazards.						
Ongoing	All	5, 6	Village	$5000; Low	Grants/Gen Revenue	Ongoing
Action #3—Maintain political support for hazard mitigation and response programs.						
Ongoing	All	1, 6	Village	Low	Gen Revenue	Ongoing
Action #4—Maintain and improve infrastructure throughout the Village of Lansing.						
Ongoing	All	1, 2, 5, 6, 7, 10	Village	High	CIP, Bonds, Grants	Long-term
Action #5—Promote water conservation programs Village wide.						

Completed	Drought	3, 8, 9	Village	Low	Gen Revenue	Completed
Action #6—Evaluate critical facilities and retrofit as needed.						
Ongoing	Earthquake	1, 2, 7, 10	Village	Medium	Gen Revenue, Grants	Long-term
Action #7—Promote purchase of earthquake insurance.						
Ongoing	Earthquake	1, 2	Village	Low	General funds	General funds
Action #8—Maintain/enhance Community Rating System (CRS) classification to reduce flood insurance rates.						
Ongoing	Flood	7, 9, 11	Village	Low	Grants/General funds	Ongoing
Action #9—Maintain in "Good Standing" within the National Flood Insurance Program by implementing programs that meet or exceed the minimum NFIP requirements. This includes enforcing an adopted flood damage prevention ordinance, updating floodplain maps, and providing public assistance and information on floodplain requirements and impacts.						
Ongoing	Flood	4, 6, 9	Village	Low	General funds	Ongoing
Action #10—Upgrade/retrofit pump stations at 170th Street.						
Ongoing	Flood	1, 2, 9,11	Village	$200,000; Medium	General funds	Long-term
Action #11—Tree removal and erosion control						
Ongoing	Flood	1, 2, 9, 11	Village	$500,000; Medium	General funds/Grants	Short-term
Action #12—Replace two existing lift stations at Paxton Ave and Fernwood.						
Completed	Flood	1, 2, 9, 11	Village, MWRD	$1,150,000; High	CIP, Bonds, MWRD-phase-II, Grants	Completed
Action #13—Address encroachment areas along river.						
Ongoing	Flood	1, 2, 9, 11	Village	$90,000; Medium	General funds/Grants	Short-term
Action #14—Sewer separation project.						
Ongoing	Flood	1, 2, 9, 11	Village, MWRD	$7,000,000; High	CIP, Bonds, MWRD-phase-II, Grants	Long-term

Action #15—Address failing culvert in North Creek.						
Ongoing	Flood	1, 2, 9, 11	Village, MWRD	$8,000,000; High	CIP, Bonds, MWRD-phase-II, Grants	Long-term
Action #16—Replace Erfert Park pump station.						
Completed	Flood	1, 2, 9, 11	Village, MWRD	$150,000; Medium	General funds/Grants	Completed
Action #17—Bury utility cables to reduce the possibility of power outages.						
Ongoing	Severe Weather	1, 2, 5, 7, 8, 10	Com-Ed	$20,000,000; High	Grants/Gen funding	Long-term
Action #18—Improve early warning systems with sirens and mass notification system						
Completed	All	1, 2, 5, 6	Village	$20,000/year; Medium	911 fund/Grants	Completed
Action #19—Improve on current procedures for treating roads during winter storms.						
Completed	Severe Winter Weather	1, 2, 3, 5,	Village	Medium	Grants/Gen funding	Completed
Action #20—Reinforce current structures to withstand minimum wind speeds.						
Ongoing	Tornadoes	1, 2, 3, 6, 7	Village	High	Grants/Gen funding	Long-term
Action #21—Promote the building of safe rooms in schools and new construction.						
Ongoing	Tornadoes	2, 3, 7, 10	Village	High	Grants	Long-term
Action #22—Integrate the hazard mitigation plan into other plans, programs, or resources that dictate land use or redevelopment.						
Ongoing	All	1, 4, 6, 8	Village	Low	Gen Revenue	Ongoing
Action #23—When appropriate, support retrofitting, purchase, or relocation of structures in hazard-prone areas to prevent future structure damage.						
Ongoing	All	7, 13	Village	High	FEMA Hazard Mitigation Grants	Long-term (depending on funding)
Action #24—Continue to support the countywide actions identified in this plan.						
Ongoing	All	All	Village	Low	General Fund	Short- and long-term

Action #25—Actively participate in the plan maintenance strategy identified in this plan.						
Ongoing	All	3, 4, 6	DHSEM, Village	Low	General Fund	Short-term
Action #26—Back-up generators						
New	All	1, 2, 13	Lansing Police Departmen t	$350,000; Medium	Local Funds	2021
Action #27—Village of Lansing Parking Lot Improvements						
New	Flood	13	MWRD	TBD	MWRD	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.						

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

14	4	High	High	Yes	Yes	No	Medium	
15	4	High	High	Yes	Yes	No	Medium	
16	4	High	High	Yes	Yes	No	Medium	
17	5	High	High	Yes	Yes	No	Medium	
18	4	Medium	Medium	Yes	No	Yes	High	
19	4	Medium	Medium	Yes	No	Yes	High	
20	4	High	High	Yes	No	Yes	High	
21	4	High	High	Yes	Yes	No	Medium	
22	4	Medium	Low	Yes	No	Yes	High	
23	2	High	High	Yes	Yes	No	Medium	
24	13	Medium	Low	Yes	No	Yes	High	
25	3	Low	Low	Yes	Yes	Yes	High	
26	3	High	Medium	Yes	Yes	Yes	High	
27	1	Low	Unknown	Unknown	Yes	Yes	Low	

(a) See Chapter 1 for explanation of priorities.

New Mitigation Actions

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

Action #26

Mitigation Action	Back-up Generators
Year Initiated	2019
Applicable Jurisdiction	Lansing Police Department
Lead Agency/Organization	Lansing Police Department
Supporting Agencies/Organizations	Lansing Police Department
Applicable Goal	• 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	• 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. • 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	$350,000.00
Benefits (loss avoided)	Will allow clean drinking water to be dispersed into the community in the event of a disaster
Projected Completion Date	2021
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:	Current backup generator for clean drinking water is over 30 years old.

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

Mitigated Hazards	
X	**All Hazards**
	Dam/Levee Failure
X	Drought
X	Earthquake
X	Flood
X	Extreme Heat
	Lightning
X	Hail
	Fog
X	High Wind
	Snow
X	Blizzard
	Extreme Cold
X	Ice Storms
X	Tornado
X	Epidemic or pandemic
	Nuclear Power Plant Incident
X	Widespread Power Outage
	Coastal Erosion

	Secondary Impacts from Mass Influx of Evacuees
X	Hazardous Materials Incident

Action #27

Mitigation Action	Village of Lansing Parking Lot Improvements
Year Initiated	2019
Applicable Jurisdiction	City of Chicago
Lead Agency/Organization	MWRD
Supporting Agencies/Organizations	City of Chicago
Applicable Goal	• 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.
Applicable Objective	• Encourage hazard mitigation measures that result in the least adverse effect on the natural environment and that use natural processes.
Potential Funding Source	MWRD
Estimated Cost	TBD
Benefits (loss avoided)	TBD
Projected Completion Date	TBD
Priority and Level of Importance (Low, Medium, High)	Low
Benefit Analysis (Low, Medium, High)	Low
Cost Analysis (Low, Medium, High)	TBD
Actual Completion Date	

Recommended Mitigation Action/Implementation Plan and Project Description	
Action/Implementation Plan and Project Description:	Village of Lansing Washington Street GI Parking Lot Improvements

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 #2

TABLE: ACTION PLAN MATRIX		
Action Number Action Taken Y/N	Action Item Description	Status (X, O, C, R, N)
# 2	Raise public awareness about regional hazards.	
Status Description: Yes	Awareness via annual letters sent to residents on flood plains along with quarterly notices/information on a Village wide new letter.	O
Completion status legend: **N** = New **O** = Action Ongoing toward Completion **C** = Project Completed **R** = Want Removed from Annex **X** = No Action Taken		

Action #3

TABLE: ACTION PLAN MATRIX		
Action Number Action Taken Y/N	Action Item Description	Status (X, O, C, R, N)
# 3	Maintain political support for hazard mitigation and response program.	
Status Description: Yes	The Village of Lansing's Mayor, Trustees, and Administrators continue to support the Hazard Mitigation 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 #4

TABLE: ACTION PLAN MATRIX		
Action Number Action Taken Y/N	Action Item Description	Status (X, O, C, R, N)
# 4	Maintain and improve infrastructure throughout the Village of Lansing.	
Status Description: Yes	The Village continues to work on upgrading sewers, streets, and waterlines as needed.	O
Completion status legend: **N** = New **O** = Action Ongoing toward Completion **C** = Project Completed **R** = Want Removed from Annex **X** = No Action Taken		

Action #6

TABLE: ACTION PLAN MATRIX		
Action Number Action Taken Y/N	Action Item Description	Status (X, O, C, R, N)
# 6	Evaluate critical facilities and retrofit as needed.	
Status Description: No	No action. No funding.	X
Completion status legend: **N** = New **O** = Action Ongoing toward Completion **C** = Project Completed **R** = Want Removed from Annex **X** = No Action Taken		

Action #7

TABLE: ACTION PLAN MATRIX		
Action Number Action Taken Y/N	Action Item Description	Status (X, O, C, R, N)
# 7	Promote the purchase of earthquake insurance.	
Status Description: No	Earthquake insurance has not been discussed by Village Officials. No action taken.	X
Completion status legend: **N** = New **O** = Action Ongoing toward Completion **C** = Project Completed **R** = Want Removed from Annex **X** = No Action Taken		

Action #8

TABLE: ACTION PLAN MATRIX		
Action Number Action Taken Y/N	Action Item Description	Status (X, O, C, R, N)
# 8	Maintain/Enhance Community Rating System (CRS) classification to reduce flood insurance rates.	
Status Description: Yes	The Village continues to work with mortgage companies and insurance companies in this matter.	O
Completion status legend: **N** = New **O** = Action Ongoing toward Completion **C** = Project Completed **R** = Want Removed from Annex **X** = No Action Taken		

Action #9

TABLE: ACTION PLAN MATRIX		
Action Number Action Taken Y/N	Action Item Description	Status (X, O, C, R, N)
# 9	Maintain in "Good Standing" within the National Flood Insurance Program by implementing that meet/exceed the minimum NFIP requirements. This includes enforcing an adopted flood damage prevention ordinance, updating floodplain maps, provide public assistance and information on floodplain requirements/impacts.	
Status Description: Yes	The Village continues to research flood damage prevention ordinances and annually sends out fliers notifying residents about Village floodplains and insurance requirements.	O
Completion status legend: **N** = New **O** = Action Ongoing toward Completion **C** = Project Completed **R** = Want Removed from Annex **X** = No Action Taken		

Action #10

TABLE: ACTION PLAN MATRIX		
Action Number Action Taken Y/N	Action Item Description	Status (X, O, C, R, N)
# 10	Upgrade/retrofit pump stations at 170th Street	
Status Description: Yes	The Village has been replacing pumps as needed.	O
Completion status legend: **N** = New **O** = Action Ongoing toward Completion **C** = Project Completed **R** = Want Removed from Annex **X** = No Action Taken		

Action #11

TABLE: ACTION PLAN MATRIX		
Action Number Action Taken Y/N	Action Item Description	Status (X, O, C, R, N)
# 11	Tree removal and erosion control.	
Status Description: Yes	The Village has been removing trees and keeping the landscaping around the flood walls under control to maintain a strong wall structure.	O
Completion status legend: **N** = New **O** = Action Ongoing toward Completion **C** = Project Completed **R** = Want Removed from Annex **X** = No Action Taken		

Action #13

TABLE: ACTION PLAN MATRIX		
Action Number Action Taken Y/N	Action Item Description	Status (X, O, C, R, N)
# 13	Address encroachment areas along river.	
Status Description: Yes	No issues since the implementation of this plan. The Village continues to monitor areas.	O
Completion status legend: **N** = New **O** = Action Ongoing toward Completion **C** = Project Completed **R** = Want Removed from Annex **X** = No Action Taken		

Action #14

TABLE: ACTION PLAN MATRIX		
Action Number Action Taken Y/N	Action Item Description	Status (X, O, C, R, N)
# 14	Sewer separation project.	
Status Description: No	Nothing in place at this time.	X
Completion status legend: **N** = New **O** = Action Ongoing toward Completion **C** = Project Completed **R** = Want Removed from Annex **X** = No Action Taken		

Action #15

TABLE: ACTION PLAN MATRIX		
Action Number Action Taken Y/N	Action Item Description	Status (X, O, C, R, N)
# 15	Address failing culvert in North Creek.	
Status Description: No	No issues since the implementation of this plan. The Village continues to monitor areas.	O
Completion status legend: **N** = New **O** = Action Ongoing toward Completion **C** = Project Completed **R** = Want Removed from Annex **X** = No Action Taken		

Action #17

TABLE: ACTION PLAN MATRIX		
Action Number Action Taken Y/N	Action Item Description	Status (X, O, C, R, N)
# 17	Bury utility cables to reduce power outages.	
Status Description: Yes	Some new construction in town consists of under ground cables.	O
Completion status legend: **N** = New **O** = Action Ongoing toward Completion **C** = Project Completed **R** = Want Removed from Annex **X** = No Action Taken		

Action #20

TABLE: ACTION PLAN MATRIX		
Action Number Action Taken Y/N	Action Item Description	Status (X, O, C, R, N)
# 20	Reinforce current structures to withstand minimum wind speeds.	
Status Description: No	No implementation of a more strict ordinance. No action taken at this time.	X
Completion status legend: **N** = New **O** = Action Ongoing toward Completion **C** = Project Completed **R** = Want Removed from Annex **X** = No Action Taken		

Action #21

TABLE: ACTION PLAN MATRIX		
Action Number Action Taken Y/N	Action Item Description	Status (X, O, C, R, N)
# 21	Promote the building of safe rooms in schools and new construction.	
Status Description: Yes	The Village and School District 171 combined efforts to install a safe room in the new Coolidge School.	O
Completion status legend: **N** = New **O** = Action Ongoing toward Completion **C** = Project Completed **R** = Want Removed from Annex **X** = No Action Taken		

Action #22

TABLE: ACTION PLAN MATRIX		
Action Number Action Taken Y/N	Action Item Description	Status (X, O, C, R, N)
# 22	Integrate the hazard mitigation plan into other plans, programs, or resources that dictate land use or redevelopment.	
Status Description: Yes	The Village is researching an ordinance on the rebuilding of homes on floodplain areas which have been destroyed by flooding.	O
Completion status legend: **N** = New **O** = Action Ongoing toward Completion **C** = Project Completed **R** = Want Removed from Annex **X** = No Action Taken		

Action #23

TABLE: ACTION PLAN MATRIX		
Action Number Action Taken Y/N	Action Item Description	Status (X, O, C, R, N)
# 23	When appropriate, support retrofitting, purchase, or relocation of structures in hazard prone areas to prevent future structure damage.	
Status Description: No	No structures needed retrofitting or relocated during this action plan.	X
Completion status legend: **N** = New **O** = Action Ongoing toward Completion **C** = Project Completed **R** = Want Removed from Annex **X** = No Action Taken		

Action #24

TABLE: ACTION PLAN MATRIX		
Action Number Action Taken Y/N	Action Item Description	Status (X, O, C, R, N)
# 24	Continue to support the county wide actions identified in this plan.	
Status Description: Yes	The Village continues to support the Hazard Mitigation Plan by completing and progressing in the action plans listed above.	O
Completion status legend: **N** = New **O** = Action Ongoing toward Completion **C** = Project Completed **R** = Want Removed from Annex **X** = No Action Taken		

Action #25

TABLE: ACTION PLAN MATRIX		
Action Number Action Taken Y/N	Action Item Description	Status (X, O, C, R, N)
# 25	Actively participate in the plan maintenance strategy identified in this plan.	
Status Description: Yes	The Village continues to plan maintenance strategies as explained in 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

Completed Mitigation Actions

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

Action #1

TABLE: ACTION PLAN MATRIX		
Action Number Action Taken Y/N	Action Item Description	Status (X, O, C, R, N)
# 1	Improve communications with purchase of mass notification system.	
Status Description: Yes	Mass notification system in place for the Village of Lansing	C
Completion status legend: **N** = New **O** = Action Ongoing toward Completion **C** = Project Completed **R** = Want Removed from Annex **X** = No Action Taken		

Action #5

TABLE: ACTION PLAN MATRIX		
Action Number Action Taken Y/N	Action Item Description	Status (X, O, C, R, N)
# 5	Promote water conservation programs Village wide.	
Status Description: Yes	Ordinance put in place to limit water usage during extreme heat / droughts. The Village implemented a Rain Barrel Program for residents to conserve water around their residences. Program is completed.	C
Completion status legend: **N** = New **O** = Action Ongoing toward Completion **C** = Project Completed **R** = Want Removed from Annex **X** = No Action Taken		

Action #12

TABLE: ACTION PLAN MATRIX		
Action Number Action Taken Y/N	Action Item Description	Status (X, O, C, R, N)
# 12	Replace 2 existing lift stations at Paxton and Fernwood.	
Status Description: Yes	Complete necessary repairs to lift stations.	C
Completion status legend: **N** = New **O** = Action Ongoing toward Completion **C** = Project Completed **R** = Want Removed from Annex **X** = No Action Taken		

Action #16

TABLE: ACTION PLAN MATRIX		
Action Number Action Taken Y/N	Action Item Description	Status (X, O, C, R, N)
# 16	Replace Erfert Park pump station.	
Status Description: Yes	The Village replaced 2 pumps over a year ago.	C
Completion status legend: **N** = New **O** = Action Ongoing toward Completion **C** = Project Completed **R** = Want Removed from Annex **X** = No Action Taken		

Action #18

TABLE: ACTION PLAN MATRIX		
Action Number Action Taken Y/N	Action Item Description	Status (X, O, C, R, N)
# 18	Improve early warning systems with sirens and mass notification systems.	
Status Description: Yes	Early warning systems with sirens and mass notification systems are in place.	C
Completion status legend: **N** = New **O** = Action Ongoing toward Completion **C** = Project Completed **R** = Want Removed from Annex **X** = No Action Taken		

Action #19

TABLE: ACTION PLAN MATRIX		
Action Number Action Taken Y/N	Action Item Description	Status (X, O, C, R, N)
# 19	Improve on current procedures for treating roads for winter storms.	
Status Description: Yes	The Village installed a salt dome at Public Works.	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

LANSING EXISTING CONDITIONS	
2010 Population	28,331
Total Assessed Value of Structures and Contents	$9,662,660,811
Area in 100-Year Floodplain	754.90 acres
Area in 500-Year Floodplain	1,334.20 acres
Number of Critical Facilities	54

HAZARD EXPOSURE IN LANSING

	Number Exposed		Value Exposed to Hazard			% of Total Assessed Value Exposed
	Population	Buildings	Structure	Contents	**Total**	
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	332	102	$37,115,376	$25,129,027	**$62,244,404**	0.64%

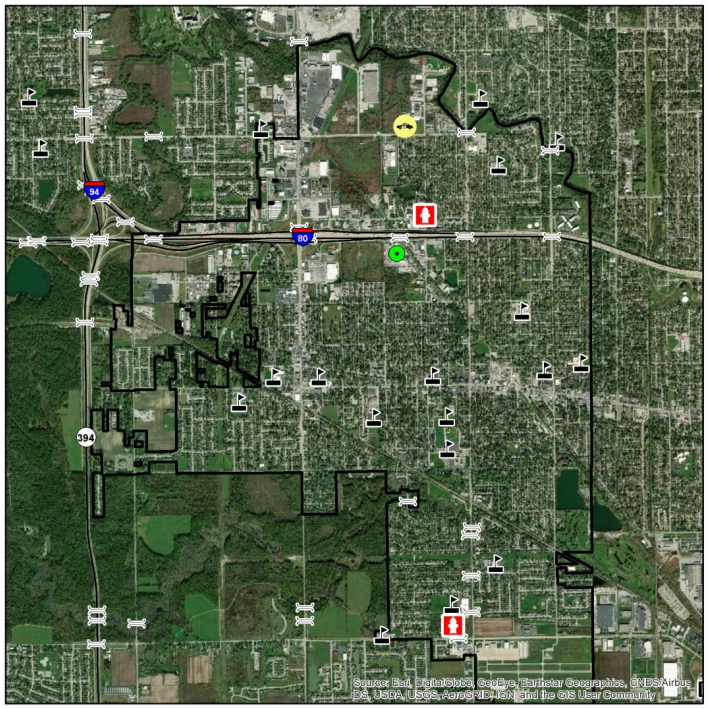
500-Year	5,496	1,691	$571.540,046	$431,674,643	**$1,003,214,689**	10.38%
Tornado						
100-Year	—	—	$854,267,179	$645,730,509	**$1,499,997,688**	15.52%
500-Year	—	—	$1,586,558,475	$1,141,786,990	**$2,728,345,465**	28.24%

ESTIMATED PROPERTY DAMAGE VALUES IN LANSING

	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	$32,822,948	$8,706,900	**$41,529,848**	0.43%
Flood				
10-Year	$2,219,081	$7,952,598	**$10,171,679**	0.11%
100-Year	$3,120,072	$10,052,633	**$13,172,706**	0.14%
500-Year	$33,801,730	$32,133,746	**$65,935,477**	0.68%

Tornado				
100-Year	$85,426,718	$64,573,051	**$149,999,769**	1.55%
500-Year	$231,637,537	$166,700,901	**$398,338,438**	4.12%

Hazard Mapping



VILLAGE OF LANSING

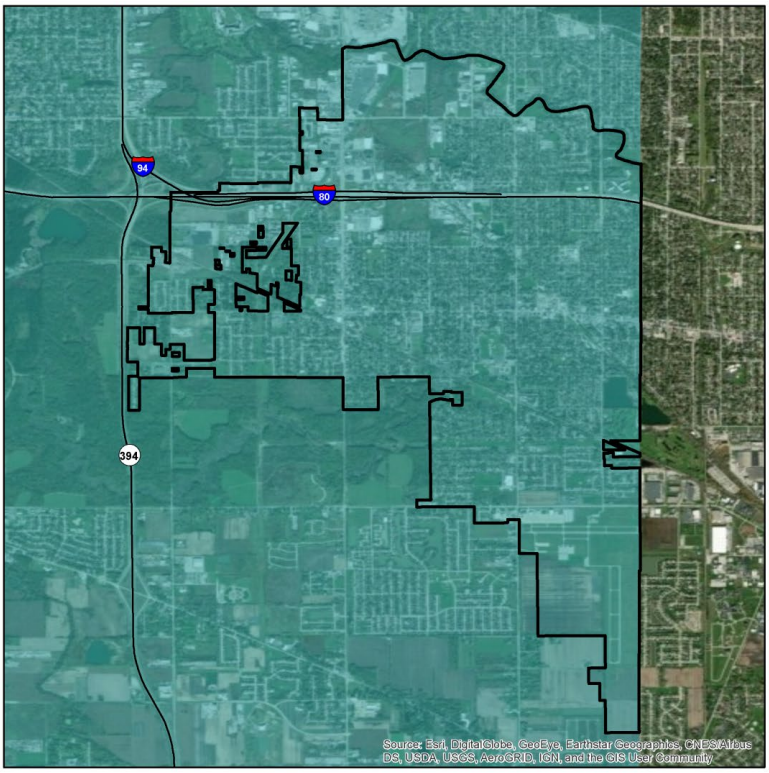
CRITICAL INFRASTRUCTURE

- 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

N W E S

0 0.125 0.25 0.5 0.75 1 Miles



VILLAGE OF LANSING

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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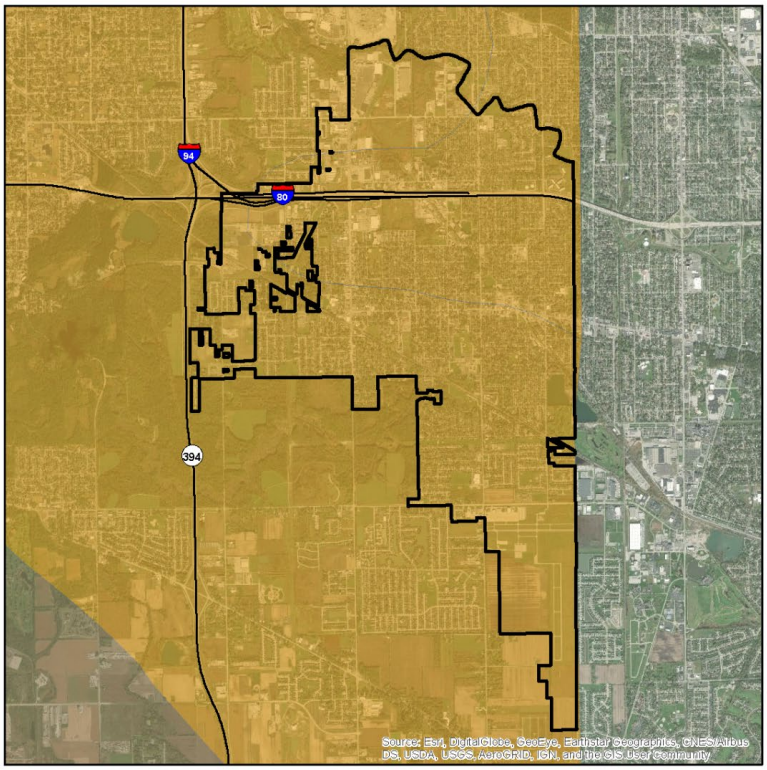
N W E S

0 0.2 0.4 0.8 1.2 1.6 Miles



VILLAGE OF LANSING

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 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 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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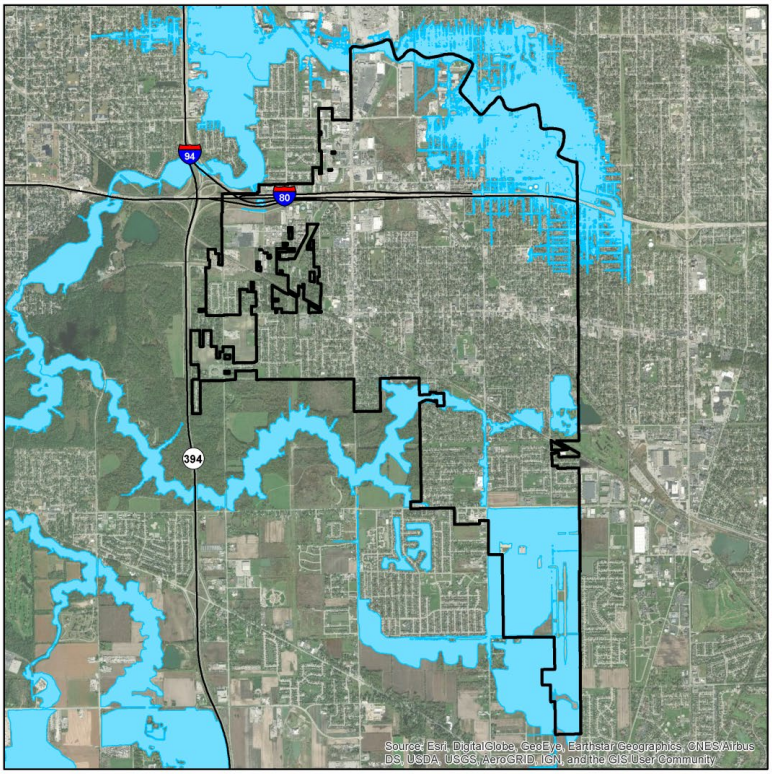
N W E S

0 0.2 0.4 0.8 1.2 1.6 Miles



VILLAGE OF LANSING

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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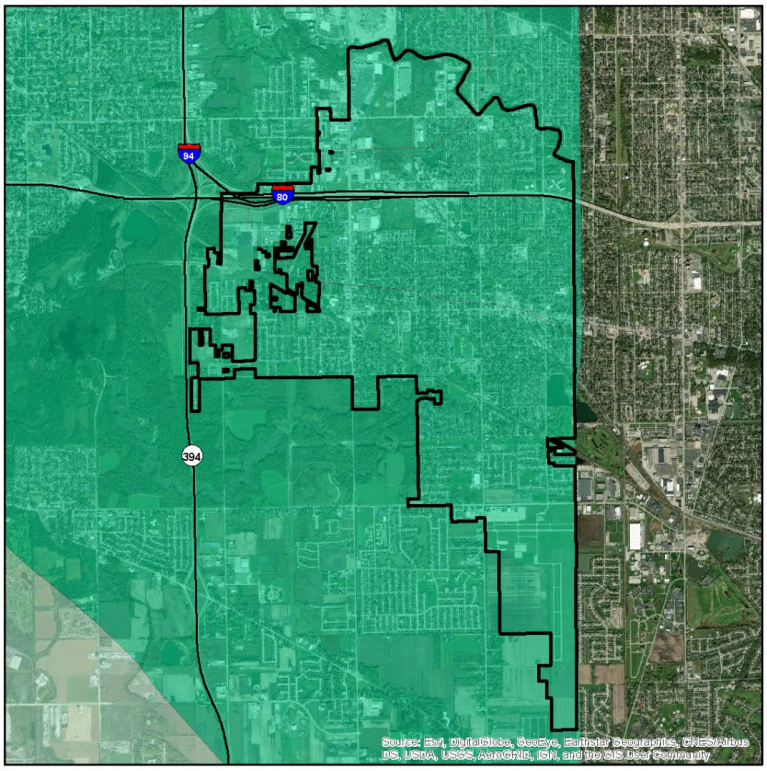
N W E S

0 0.2 0.4 0.8 1.2 1.6 Miles



VILLAGE OF LANSING

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 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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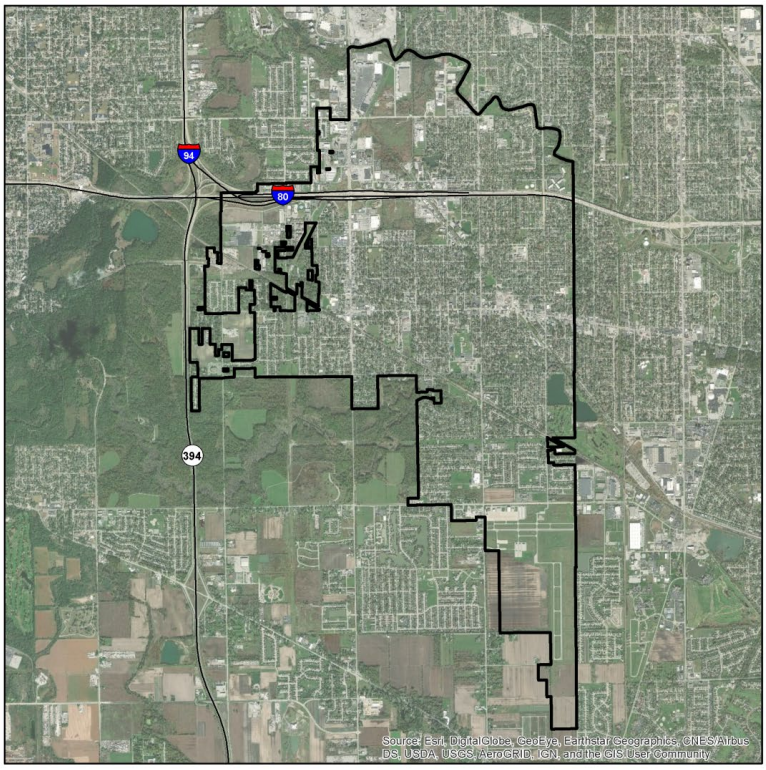
N W E S

0 0.2 0.4 0.8 1.2 1.6 Miles



VILLAGE OF LANSING

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.

N W E S

0 0.2 0.4 0.8 1.2 1.6 Miles