

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

Orland Park Annex

FINAL

July 2019

Prepared for:



Cook County
Department of Homeland Security and Emergency Management
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Hazard Mitigation Point of Contact

Primary Point of Contact	Alternate Point of Contact
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Jurisdiction Profile

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

- **Date of Incorporation:** 1892
- **Current Population:** The 2018 US Census population estimate was 58,312.
- **Population Growth:** The Village of Orland Park’s population has increased 10% since 2000. It is predicted to continue by another 4% by the year 2017 which is similar to the 4.1% growth predicted for the United States.
- **Location and Description:** The Village of Orland Park is located 25 miles southwest of downtown Chicago. The Village is located north of Interstate 80, east of Interstate 355 and south of Interstate 55. Orland Park has an effective trade are of over 840,000 people. The Village’s planning area encompasses over 17,000 acres and 26 square miles. Neighboring communities include Palos Park, Tinley Park, Homer Glen, Orland Hills, Oak Forest, Palos Heights, and Mokena.
- **Brief History:** Most of Orland Park’s original settlement founders were of German and English descent. As a small agricultural community, Orland Park maintained this ethnicity throughout the early years, with a relatively steady population until the middle of the twentieth century. Orland Park began to grow in earnest during the 1950s, along with the general trend toward suburbanization in US cities. Many people moved to the Orland area from Chicago’s southwest side, inner ring southwest suburbs and other parts of the metro area. Orland Park’s biggest population growth surge began after World War II, when returning soldiers looked for homes and when it became more profitable to sell land to developers rather than farmers. Orland Park grew 651.9% between 1950 and 1970, 302.7% between 1970 and 1980 and 120.5% between 1980 and 2010. In the early 1800s, pioneers from the eastern U.S. and Europe migrated to the area creating homesteads in the woodlands, avoiding the prairies and wetlands. By the late 1800s and early 1900s, farmers plowed the prairie and drained wetlands to grow crops. Agriculture continued to dominate the character of the area through the mid-1940s. After World War II however, land value began to rise as returning soldiers sought housing. Village improvements to utilities further added value to the land for housing and the first formal subdivision in the area, Orland Park Hills, was constructed in 1957. Civic structures such as schools and churches were also constructed to serve the growing population. The development of housing subdivisions and their related community, commercial and industrial activities radically changed the character of the built environment in Orland Park. Orland Park is a safe, upscale suburb that draws new residents and visitors with its many strengths and amenities, and keeps successive generations of families around for the same reasons. In 2006 and 2008, the Village of Orland Park was ranked by Money Magazine as one of America’s Top 100 Best Places to Live.
- **Climate:** Orland Park has a humid continental climate with cold, snowy winters, hot, humid summers and frequent short fluctuations in temperature, humidity, cloudiness and wind direction. Average annual temperature is approximately 48°F, with winter averages ranging from the teens to the thirties and summer averages ranging from the sixties to the eighties. Average yearly precipitation is approximately 35 inches and average annual snowfall exceeds 38

inches. Orland Park averages approximately 50 days of thunderstorm activity a year, which accounts for 50-60 percent of annual precipitation. Tornadoes are also a concern for the Village.

- Governing Body Format:** Orland Park is a Home Rule community. Illinois municipalities with over 25,000 residents automatically qualify for Home Rule status. Enabled by Illinois State law, Home Rule allows municipal government to engage in local decision making, including the power to regulate for the protection of the public health, safety, morals and welfare; the power to license; and the power to tax and incur debt. Local legislation in the Village of Orland Park is provided by the elected Board of Trustees. The elected officials include the village president (mayor), village clerk, and six village trustees, each of whom is elected at large (village-wide) to a four-year term. There are 6 Committees that report to the Village Board. The Village of Orland Park operates under the council-manager form of government, which combines the strong political leadership of elected officials in the form of a governing body with the strong managerial experience of an appointed local government manager. The manager is hired to serve the board and the community and to bring to the local government the benefits of training and experience in administering local government projects and programs on behalf of the governing body. Orland Park operates 8 Village departments including: Development Services, Human Resources, Public Information, Public Works, Finance, Recreation & Parks, Police, and Village Clerk's Office.
- Development Trends:** The Department of Development Services oversees the planning, building, private engineering, and economic development functions of the Village. The Department is charged with providing design review, code enforcement, long-term strategic planning, and coordinated and balanced customer service to both residents and the business community. This Department also fosters and supports economic growth and an improved quality of life by encouraging business expansion, retaining existing business and industry, and supporting community revitalization and growth. With over 11 million square feet of commercial space, Orland Park is a regional draw for shopping and dining in the southwest suburbs. A 2012 Standard & Poor's rating report for general obligations bonds noted that the Village's retail base is a 'regional draw and solidifies its status as one of the largest generators of sales-tax revenue in the state. Growth via new development peaked in the early 2000s. In 2003, Orland Park issued 676 residential building permits and over 200 commercial building permits. After the economic downturn of 2008, these numbers decreased significantly. Commercial development held steady from 2008-2012 with redevelopment outpacing greenfield development. By land area, Orland Park is approximately 75% developed, with the majority of the available land planned for residential development. Current trends indicate that residential development is slowly increasing but not in the form of the 10,000 square foot lot subdivisions that dominated the rapid growth from the late 1990s to the early 2000s. The newest residential developments include senior housing, townhomes, smaller lot subdivisions and luxury apartment buildings. Additionally in early 2019, the Village of Orland Park's Downtown Triangle District Project was moving forward into the final phase of development. The community was invited to take part in a visioning and informational session introducing the executive development team from Structured Development, LLC.

Capability Assessment

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

TABLE: LEGAL AND REGULATORY CAPABILITY					
	Local Authority	State or Federal Prohibitions	Other Jurisdictional Authority	State Mandated	Comments
Codes, Ordinances & Requirements					
Building Code	Yes	No	No	Yes	In accordance with Public Act 096-0704, Illinois has adopted the IBC as its state Building Code Ord. 4786 Amended 2/4/13
Zonings	Yes	No	No	Yes	(65 ILCS 5/) Illinois Municipal Code. Ord. 4839 Amended 09/16/13
Subdivisions	Yes	No	No	No	Ord. 3281 Adopted 09/02/08
Stormwater Management	Yes	No	Yes	Yes	State regulates industrial activity from Construction sites 1 acre or larger under section 402 CWA. Ord. 3281 Adopted 08/16/99
Post Disaster Recovery	Yes	No	No	No	Village Disaster Plan September 2009

Real Estate Disclosure	No	No	Yes	Yes	(765 ILCS 77/) Residential Real Property Disclosure Act.
Growth Management	Yes	No	No	No	Comprehensive Plan August 2013
Site Plan Review	Yes	No	No	No	Ord. 4411 Adopted 09/02/08
Public Health and Safety	Yes	No	Yes	No	Cook County Board of Health. Title 6,8,5, and Chapter 4
Environmental Protection	Yes	No	No	No	Ord. 2570, 3837, 2796,3281, and 2570
Planning Documents					
General or Comprehensive Plan	Yes	No	No	No	Currently being updated
<i>Is the plan equipped to provide linkage to this mitigation plan?</i>					Yes
Floodplain or Basin Plan	Yes	No	No	No	Village Code Ord. 4390 July 2008
Stormwater Plan	Yes	No	Yes	No	Ord. 3261 Adopted 08/16/99
Capital Improvement Plan	Yes	No	No	No	Capital Improvement Plan, January 2014
<i>What types of capital facilities does the plan address?</i>					Buildings and Public Streets
<i>How often is the plan revised/updated?</i>					Annually-January
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. Village Comprehensive Plan August 2013
Shoreline Management Plan	No	No	No	No	
Response/Recovery Planning					
Comprehensive Emergency Management Plan	Yes	No	Yes	Yes	Disaster Plan. In accordance with IEMA, Section 301.210260
Threat and Hazard Identification and Risk Assessment	No	No	Yes	No	Cook County DHSEM Preparing THIRA
Terrorism Plan	Yes	No	Yes	Yes	Disaster Plan and G.O. 46-9
Post-Disaster Recovery Plan	Yes	No	No	No	Disaster Plan and G.O. 46-9. In accordance with IEMA, Section 301.210-260
Continuity of Operations Plan	Yes	No	Yes	No	Disaster Plan and G.O. 46-9
Public Health Plans	Yes	No	Yes	No	Disaster Plan. In accordance with IEMA, Section 301.210260

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	Yes
Withhold Public Expenditures in Hazard-Prone Areas	Yes
State Sponsored Grant Programs	Yes
Development Impact Fees for Homebuyers or Developers	Yes
Other	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	Development Services
Engineers or professionals trained in building or infrastructure construction practices	Yes	Development Services
Planners or engineers with an understanding of natural hazards	Yes	Development Services
Staff with training in benefit/cost analysis	Yes	Development Services
Surveyors	Yes	Contract Consultants
Personnel skilled or trained in GIS applications	Yes	Cook County GIS Consortium
Scientist familiar with natural hazards in local area	Yes	Contract Consultants
Emergency manager	Yes	Cook County DHSEM
Grant writers	Yes	Contract Consultants

TABLE: NATIONAL FLOOD INSURANCE PROGRAM COMPLIANCE

What department is responsible for floodplain management in your jurisdiction?	Development Services
Who is your jurisdiction’s floodplain administrator? (department/position)	Kevin Lehman
Are any certified floodplain managers on staff in your jurisdiction?	Yes- Consultant Contracted

What is the date of adoption of your flood damage prevention ordinance?	Ord. 1938; 11/27/89
When was the most recent Community Assistance Visit or Community Assistance Contact?	September 2013
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, not at this time

TABLE: COMMUNITY CLASSIFICATIONS

	Participating?	Classification	Date Classified
Community Rating System	No	N/A	N/A
Building Code Effectiveness Grading Schedule	Yes	5	2013
Public Protection/ISO	Yes	5/9	2013
StormReady	Yes	Gold (Countywide)	2014
Tree City USA	Yes	Active	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: 5
- Number of FEMA-Identified Severe Repetitive Loss Properties: 0
- Number of Repetitive Flood Loss/Severe Repetitive Loss Properties That Have Been Mitigated: 2

TABLE: NATURAL HAZARD EVENTS			
Type of Event	FEMA Disaster Number (if applicable)	Date	Preliminary Damage Assessment
Hail	-	2/28/2017	-
Hail	-	7/13/2015	-
Severe Winter Weather – Snow and Extreme Cold	-	1/2014	-
Severe Weather – High Winds	-	6/2013	-
Flood	-	4/2013	-
Severe Weather – High Heat	-	7/ 2012	-
Flood	-	7/2011	-
Flood	-	6/2011	-
Severe Weather – High Wind	-	6/2011	-
Snow	-	2/2011	-
Severe Weather – High Winds	-	10/2010	-
Flood	-	8/2010	-
Flood	DR-1935	7/2010	-
Flood	-	3/2009	-

Severe Winter Weather – Extreme Cold	-	1/2009	-
Flood – Hurricane Ike Remnants	-	9/2008	-
Severe Weather – High Winds	-	12/2007	-
Flood	-	8/2007	-
Flood	-	4/2007	-
Flood	-	20/2006	-
Flood	-	9/2006	-
Flood	-	8/2006	-
Drought	-	Summer 2005	-
Flood	-	7/2003	2 Repetitive Losses
Severe Weather – High Winds	-	5/2003	-
Flood	-	5/2002	-
Severe Weather – High Winds	-	3/2002	-
Flood	-	7/2001	-
Flood	-	2/1997	2 Repetitive Losses
Flood	DR-1129	7/1996	2 Repetitive Losses
Flood	-	7/1991	-
Flood	-	8/1986	-
Flood	-	2/1984	-
Flood	-	7/1983	-
Flood	-	1982	1 Repetitive Loss
Flood	DR-643	6/1981	-

Jurisdiction-Specific Hazards and Impacts

Hazards that represent a county-wide risk are addressed in the Risk Assessment section of the 2019 Cook County Multi-Jurisdictional Hazard Mitigation Plan Update. This section only addresses the hazards and their associated impacts that are **relevant** and **unique** to the municipality.

Dam/Levee Failure: Areas within the Village that are vulnerable to the impacts of dam/levee failure are 159th Street (Orland Basin Dam), the Railroad (Collete Highland), LaGrange Rd (Triangle Dam), Wolf Road (Brook Hills Dam).

Flood: In the Village, 143rd St. SW Highway, Wolf Road, Highland Ave, and residential areas are all prone to flooding.

Extreme Heat: The Village has a high elderly population, making the jurisdiction particularly vulnerable to the impacts of extreme heat. In the Village, 30 percent of the population is over 55 years old and 25 percent of the popular is over 60 years old.

Drought: In 2017 the Village joined the Illinois Public Works Mutual Aid Network (IPWMAN) and will continue to evaluate other options to expand mutual aid availability. Continuing participation and work to expand mutual-aid agreements with surrounding communities and agencies for hazard and disaster response.

Hail: The Village's farms (Boley and Stellwagen) and historical landmarks are vulnerable to the impacts of hail.

High Winds: The Village's farms (Boley and Stellwagen) and historical landmarks are vulnerable to the impacts of high winds.

Earthquake: Orland Square Mall and all other large retail centers in Orland are vulnerable to the impacts of an earthquake.

Snow: The Village's elderly and drivers are vulnerable to the impacts of snow. LaGrange Rd. which is the main thoroughfare for emergency vehicles is also vulnerable to heavy snow events. In addition, road access/plowing/removal of snow when reaching max storage capability poses issues for the Village.

Blizzards: The area's vulnerability to blizzards has led Orland to help State Rd as needed in emergency cases.

Extreme Cold: The Village has a high elderly population, making the jurisdiction particularly vulnerable to the impacts of extreme cold. In the Village, 30 percent of the population is over 55 years old and 25 percent of the popular is over 60 years old.

Ice Storms: The Village's farms (Boley and Stellwagen) and historical landmarks are vulnerable to the impacts of ice storms.

Tornado: Orland Square Mall and all other large retail centers in Orland are vulnerable to the impacts of a tornado.

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	24
4	Earthquake	20
5	Flood	15
6	Dam Failure	10
7	Drought	2

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 07.1 —Provide coordination of Hazard Mitigation Plan into local Village Plans.						
Ongoing	All	All	Village	Low	Village	Short-term
Action 07.2 —Continue the implementation of the Hazard Mitigation Plan and updating of all existing Village disaster and emergency response plans.						
Ongoing	All	All	Village	Low	Village	Ongoing
Action 07.3 —Maintain/upgrade municipal and other critical facilities and operations equipment.						
Ongoing	All	1, 2, 3, 5, 13	Village	High	HMGP, PDM Village	Ongoing
Action 07.4 —Upgrade/retrofit bridges to provide floodplain clearance and meet seismic design standards.						
Ongoing	Flood, Severe Weather, Earthquake	1, 2, 6, 8	Village	High	HMGP, PDM Village	Long-term

Action 07.5 —Evaluate dams for potential upgrades/retrofits.						
Ongoing	All	1, 2, 3, 5, 6, 8	Village	Medium	HMGP, PDM Village	Short-term
Action 07.6 —Continue and promote water conservation programs.						
Ongoing	Dam Failure, Flood	1, 6, 8, 10, 11	Village	Low	Village	Ongoing
Action 07.7 —Continue participation and work to expand mutual-aid agreements with surrounding communities and agencies for hazard and disaster response.						
Ongoing	Drought	1, 2, 5, 6, 11	Village	Low	Village	Short-term
Action 07.8 —Continue participation and compliance in the National Flood Insurance Program (NFIP) and consider participation in the Community Rating System (CRS).						
Completed	Flood, Severe Weather	1, 2	Village	Low	Village	Completed
Action 07.9 —Continue Village dam inspection program that includes updates to Operation and Maintenance Plans and Emergency Actions Plans for appropriate response.						
Ongoing	Dam Failure, Floods, Severe Weather	1, 2, 10, 12	Village	Low	Village	Short-term
Action 07.10 —Construct Parkview, Catalina, Caro Vista, Maycliff and other stormwater and flood control projects.						
Ongoing	Flood, Severe Weather	1, 2, 8, 9, 12	Village	High	HMGP, PDM, Village	Ongoing
Action 07.11 —Evaluate/relocate municipal storage capabilities for efficient response to hazards or disasters.						
Ongoing	All	1, 2	Village	Medium	HMGP, PDM, Village	Short-term
Action 07.12 —Where appropriate, support retrofitting, purchase, or relocation of structures in hazard-prone areas to prevent future structure damage. Give priority to properties with exposure to repetitive losses.						

Ongoing	Flood, Dam Failure, Severe Weather	13	Village	High	HMGP, PDM, Village, FEMA Hazard Mitigation Grants	Short- and long-term (depending on funding)
Action 07.13 —Enforce and update codes/ordinances as needed to reduce or eliminate hazard damage through proper design and planning standards.						
Ongoing	All	1, 2, 3, 4, 10	Village	High	HMGP, PDM Village	Long-term
Action 07.14 —Evaluate/upgrade existing stormwater management system.						
Ongoing	Dam Failure, Flood, Severe Weather, Severe Winter Weather	1, 2, 9, 12	Village	High	HMGP, PDM Village	Short- and long-term
Action 07.15 —Evaluate/upgrade transportation infrastructure for appropriate emergency access and evacuation capabilities.						
Ongoing	All	1, 2, 6, 8	Village	High	HMGP, PDM, Village	Short- and long-term
Action 07.16 —Raise public awareness regarding local natural hazards.						
Ongoing	All	1, 6, 8, 11, 13	Village	Low	HMGP, PDM, Village	Short- and long-term
Action 07.17 —Modify, relocate or bury infrastructure to reduce disruption or loss of service during hazards or disasters.						
Ongoing	All	1, 2, 4, 6, 8, 13	Village	High	HMGP, PDM, Village	Short- and long-term
Action 07.18 —Continue to support the countywide actions identified in this plan.						
Ongoing	All	All	Village	Low	General Fund	Short- and long-term
Action 07.19 —Actively participate in the plan maintenance strategy identified in this plan.						

Ongoing	All	3, 4, 6	DHSEM Village	Low	General Fund	Short-term
Action 07.20 —Consider or maintain participation in incentive-based programs such as Tree City and StormReady.						
Completed	All	3, 4, 5, 6, 7, 9	Village	Low	General Fund	Completed
Action 07.21 —Where feasible, implement a program to record high water marks following high-water events.						
Ongoing	Flooding, Severe Weather	3, 6, 9	Village	Medium	General Fund; FEMA Grant Funds (Public Assistance)	Long-term
Action 07.22 —Integrate the hazard mitigation plan into other plans, programs, or resources that dictate land use or redevelopment.						
Ongoing	All	3, 4, 6, 10, 13	Village Development Services	Low	General Fund	Short-term
Action 07.23 —Evaluate updated Bulletin 70 Rainfall Data and its impact on Village infrastructure (i.e. ponds, roadways, dams, storm sewers, and lift stations).						
New	Dam/Levee Failure, Flood	3, 10	Village of Orland Park	\$500,000 to \$1,000,000; High	State, Federal, Local agencies	12 months to 24 months
Action 07.24 —Streambank Stabilization & Flood Control Project along Tinley Creek						
New	Dam/Levee Failure, Flood	2, 9, 13	MWRD	\$664,000; High	MWRD	Unknown
Action 07.25 —Streambank Stabilization along Tinley Creek						
New	Dam/Levee Failure, Flood	2, 9, 13	MWRD	\$3,806,000; High	MWRD	Unknown
Action 07.26 —Expansion of Existing Detention Basin in Orland Park						
New	Flood	2, 7, 9, 13	MWRD	\$600,000; High	MWRD	Unknown
Action 07.27 —Green Infrastructure Project						

New	Flood	13	MWRD	Unknown; High	MWRD	Unknown
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(a) Ongoing indicates continuation of an action that is already in place. Short-term indicates implementation within five years. Long-term indicates implementation after five years.

TABLE: MITIGATION STRATEGY PRIORITY SCHEDULE

Action Number	Number of Objectives Met	Benefits	Costs	Do Benefits Equal or Exceed Costs?	Is Project Grant-Eligible?	Can Project Be Funded Under Existing Programs/Budgets?	Priority (a)
1	13	High	Low	Yes	No	Yes	High
2	13	High	Low	Yes	No	Yes	High
3	5	High	High	Yes	Yes	No	High
4	4	Medium	High	No	Yes	No	Medium
5	6	Medium	Medium	Yes	Yes	No	High
6	5	Low	Low	Yes	No	Yes	High
7	5	High	Low	Yes	No	Yes	High
8	2	Medium	Low	Yes	No	Yes	High
9	4	Medium	Low	Yes	Yes	Yes	High
10	5	High	High	Yes	Yes	Yes	High
11	2	Low	Medium	No	Yes	Yes	Medium
12	3	High	High	Yes	Yes	No	High
13	5	Medium	High	No	Yes	Yes	Medium
14	4	High	High	Yes	Yes	No	High
15	4	Medium	High	No	Yes	No	Medium
16	5	High	Low	Yes	Yes	No	High
17	6	Medium	High	No	Yes	No	Medium
18	13	Medium	Low	Yes	No	Yes	High
19	3	Medium	Low	Yes	Yes	Yes	High
20	9	Medium	Low	Yes	No	Yes	Medium
21	3	Medium	Medium	Yes	Yes	No	Medium

22	5	Medium	Low	Yes	No	Yes	High
23	2	Medium	High	Yes	Unknown	Unknown	High
24	3	Unknown	High	Yes	Unknown	Unknown	Unknown
25	3	Unknown	High	Yes	Unknown	Unknown	Unknown
26	3	Unknown	High	Yes	Unknown	Unknown	Unknown
27	1	Unknown	Unknown	Yes	Unknown	Unknown	Unknown

(a) See Chapter 1 for explanation of priorities.

New Mitigation Actions

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

Action O - 7.23

Mitigation Action	Evaluate updated Bulletin 70 Rainfall Data and its impact on Village infrastructure (i.e. ponds, roadways, dams, storm sewers, and lift stations).
Year Initiated	2019
Applicable Jurisdiction	Village, County, State, surrounding municipalities
Lead Agency/Organization	Village of Orland Park
Supporting Agencies/Organizations	Cook County, MWRD, IDOT, surrounding municipalities
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.
Applicable Objective	<ul style="list-style-type: none"> • Consider the impacts of natural hazards on future land uses in the planning area, including possible impacts from climate change. • Strengthen codes and land use planning and their enforcement, so that new construction or redevelopment can avoid or withstand the impacts of natural hazards.
Potential Funding Source	State, Federal, Local agencies
Estimated Cost	\$500,000 to \$1,000,000
Benefits (loss avoided)	Loss of life, loss of property
Projected Completion Date	12 months to 24 months
Priority and Level of Importance (Low, Medium, High)	High 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)	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
X	Dam/Levee Failure
	Drought
	Earthquake
X	Flood
	Extreme Heat
	Lightning
	Hail
	Fog
	High Wind
	Snow
	Blizzard
	Extreme Cold
	Ice Storms
	Tornado
	Epidemic or pandemic
	Nuclear Power Plant Incident
	Widespread Power Outage
	Coastal Erosion
	Secondary Impacts from Mass Influx of Evacuees
	Hazardous Materials Incident

Action O - 7.24

Mitigation Action	Streambank Stabilization & Flood Control Project along Tinley Creek
Year Initiated	2019
Applicable Jurisdiction	Village of Orland Park
Lead Agency/Organization	MWRD
Supporting Agencies/Organizations	Village of Orland Park
Applicable Goal	<ul style="list-style-type: none"> • Develop and implement sustainable, cost-effective, and environmentally sound risk-reduction (mitigation) projects. • Protect the lives, health, safety, and property of the citizens of Cook County from the impacts of natural hazards. • Protect public services and critical facilities, including infrastructure, from loss of use during natural hazard events and potential damage from such activities.
Applicable Objective	<ul style="list-style-type: none"> • Increase the resilience of (or protect and maintain) infrastructure and critical facilities. • Provide or improve flood protection on a watershed basis with flood control structures and drainage maintenance plans. • 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	\$664,000
Benefits (loss avoided)	N/A
Projected Completion Date	TBD
Priority and Level of Importance (Low, Medium, High)	N/A
Benefit Analysis (Low, Medium, High)	N/A
Cost Analysis (Low, Medium, High)	High
Actual Completion Date	N/A

Recommended Mitigation Action/Implementation Plan and Project Description

Action/Implementation Plan and Project Description:	ID: TICR-5 Contract: 10-882-DF Watershed: Cal-Sag Channel Location: Orland Hills; Orland Park, IL Provided naturalized channel stabilization/flood control on Tinley Creek, from Lake Lorin to 88th Avenue in Orland Hills.
--	---

Mitigation Action and Project Maintenance

Year	Status	Comments
2019	New	Construction substantially complete. Under maintenance & monitoring period.
2020		
2021		
2022		
2023		

Mitigated Hazards

	All Hazards
X	Dam/Levee Failure
	Drought
	Earthquake
X	Flood
	Extreme Heat
	Lightning
	Hail
	Fog
	High Wind
	Snow
	Blizzard
	Extreme Cold
	Ice Storms
	Tornado
	Epidemic or pandemic
	Nuclear Power Plant Incident
	Widespread Power Outage
	Coastal Erosion
	Secondary Impacts from Mass Influx of Evacuees
	Hazardous Materials Incident

Action O - 7.25

Mitigation Action	Streambank Stabilization along Tinley Creek
Year Initiated	2019
Applicable Jurisdiction	Village of Orland Park
Lead Agency/Organization	MWRD
Supporting Agencies/Organizations	Village of Orland Park
Applicable Goal	<ul style="list-style-type: none"> • Develop and implement sustainable, cost-effective, and environmentally sound risk-reduction (mitigation) projects. • Protect the lives, health, safety, and property of the citizens of Cook County from the impacts of natural hazards. • Protect public services and critical facilities, including infrastructure, from loss of use during natural hazard events and potential damage from such activities.
Applicable Objective	<ul style="list-style-type: none"> • Increase the resilience of (or protect and maintain) infrastructure and critical facilities. • Provide or improve flood protection on a watershed basis with flood control structures and drainage maintenance plans. • 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	\$3,806,000
Benefits (loss avoided)	N/A
Projected Completion Date	TBD
Priority and Level of Importance (Low, Medium, High)	N/A
Benefit Analysis (Low, Medium, High)	N/A
Cost Analysis (Low, Medium, High)	High
Actual Completion Date	TBD

Recommended Mitigation Action/Implementation Plan and Project Description	
Action/Implementation Plan and Project Description:	ID: TICR-7 Contract: 10-882-AF

	Watershed: Cal-Sag Channel Location: Orland Park, IL Stabilize approximately 2,200 LF of Tinley Creek between 86th Avenue and Crystal Creek Drive and 2,800 linear feet between 151st Street and Oriole Court.
--	--

Mitigation Action and Project Maintenance		
Year	Status	Comments
2019	New	Final Design. Working with the Village of Orland Park on finalizing terms of intergovernmental agreement.
2020		
2021		
2022		
2023		

Mitigated Hazards	
	All Hazards
X	Dam/Levee Failure
	Drought
	Earthquake
X	Flood
	Extreme Heat
	Lightning
	Hail
	Fog
	High Wind
	Snow
	Blizzard
	Extreme Cold
	Ice Storms
	Tornado
	Epidemic or pandemic
	Nuclear Power Plant Incident
	Widespread Power Outage
	Coastal Erosion
	Secondary Impacts from Mass Influx of Evacuees
	Hazardous Materials Incident

Action O - 7.26

Mitigation Action	Expansion of Existing Detention Basin in Orland Park
Year Initiated	2019
Applicable Jurisdiction	Village of Orland Park
Lead Agency/Organization	MWRD
Supporting Agencies/Organizations	Village of Orland Park
Applicable Goal	<ul style="list-style-type: none"> • Develop and implement sustainable, cost-effective, and environmentally sound risk-reduction (mitigation) projects. • Protect the lives, health, safety, and property of the citizens of Cook County from the impacts of natural hazards. • Protect public services and critical facilities, including infrastructure, from loss of use during natural hazard events and potential damage from such activities.
Applicable Objective	<ul style="list-style-type: none"> • Increase the resilience of (or protect and maintain) infrastructure and critical facilities. • Retrofit, purchase, or relocate structures in high hazard areas, including those known to be repetitively damaged. • Provide or improve flood protection on a watershed basis with flood control structures and drainage maintenance plans. • 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	\$600,000; MWRD Contribution: TBD
Benefits (loss avoided)	N/A
Projected Completion Date	TBD
Priority and Level of Importance (Low, Medium, High)	N/A
Benefit Analysis (Low, Medium, High)	N/A
Cost Analysis (Low, Medium, High)	High
Actual Completion Date	TBD

Recommended Mitigation Action/Implementation Plan and Project Description	
Action/Implementation Plan and Project Description:	ID: Orland Park Contract: 18-IGA-33 Watershed: Little Calumet River Location: Orland Park, IL Expansion of the Grasslands Regional Detention Basin in Orland Park.

Mitigation Action and Project Maintenance		
Year	Status	Comments
2019	New	Drafting intergovernmental agreement.
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 O - 7.27

Mitigation Action	Green Infrastructure
Year Initiated	2019
Applicable Jurisdiction	Village of Orland Park
Lead Agency/Organization	MWRD
Supporting Agencies/Organizations	Village of Orland Park
Applicable Goal	<ul style="list-style-type: none"> • Develop and implement sustainable, cost-effective, and environmentally sound risk-reduction (mitigation) projects. • Protect the lives, health, safety, and property of the citizens of Cook County from the impacts of natural hazards. • Protect public services and critical facilities, including infrastructure, from loss of use during natural hazard events and potential damage from such activities.
Applicable Objective	<ul style="list-style-type: none"> • 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	N/A
Benefits (loss avoided)	N/A
Projected Completion Date	TBD
Priority and Level of Importance (Low, Medium, High)	N/A
Benefit Analysis (Low, Medium, High)	N/A
Cost Analysis (Low, Medium, High)	High
Actual Completion Date	TBD

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

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

2023		
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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 O - 7.1

TABLE: ACTION PLAN MATRIX		
Action Number Action Taken Y/N	Action Item Description	Status (X, O, C, R, N)
# O—7.1	Provide coordination of Hazard Mitigation Plan into local Village Plans.	
Status Description: Yes	Internal planning and coordination.	O
Completion status legend: N = New O = Action Ongoing toward Completion C = Project Completed R = Want Removed from Annex X = No Action Taken		

Action O - 7.2

TABLE: ACTION PLAN MATRIX		
Action Number Action Taken Y/N	Action Item Description	Status (X, O, C, R, N)
# O—7.2	Continue the implementation of the Hazard Mitigation Plan and updating of all existing Village disaster and emergency response plans.	
Status Description: Yes	Ongoing integration of the plan into existing Village plans and documents and continued implementation.	O
Completion status legend: N = New O = Action Ongoing toward Completion C = Project Completed R = Want Removed from Annex X = No Action Taken		

Action O - 7.3

TABLE: ACTION PLAN MATRIX		
Action Number Action Taken Y/N	Action Item Description	Status (X, O, C, R, N)
# 000—7.3	Maintain/upgrade municipal and other critical facilities and operations equipment.	
Status Description: Yes	Evaluating and assessing current facilities and equipment for potential upgrade needs.	O
Completion status legend: N = New O = Action Ongoing toward Completion C = Project Completed R = Want Removed from Annex X = No Action Taken		

Action O - 7.4

TABLE: ACTION PLAN MATRIX		
Action Number Action Taken Y/N	Action Item Description	Status (X, O, C, R, N)
# O—7.4	Upgrade/retrofit bridges to provide floodplain clearance and meet seismic design standards.	
Status Description: Yes	Work on creating inventory of bridges, etc. in need of updating and/or retrofitting.	O
Completion status legend: N = New O = Action Ongoing toward Completion C = Project Completed R = Want Removed from Annex X = No Action Taken		

Action O - 7.5

TABLE: ACTION PLAN MATRIX		
Action Number Action Taken Y/N	Action Item Description	Status (X, O, C, R, N)
# O—7.5	Evaluate dams for potential upgrades/retrofits.	
Status Description: Yes	Work on creating inventory of dams in need of updating and/or retrofitting.	O
Completion status legend: N = New O = Action Ongoing toward Completion C = Project Completed R = Want Removed from Annex X = No Action Taken		

Action O - 7.6

TABLE: ACTION PLAN MATRIX		
Action Number Action Taken Y/N	Action Item Description	Status (X, O, C, R, N)
# O—7.6	Continue and promote water conservation programs.	
Status Description: Yes	The Village's water conservation program is ongoing.	O
Completion status legend: N = New O = Action Ongoing toward Completion C = Project Completed R = Want Removed from Annex X = No Action Taken		

Action O - 7.7

TABLE: ACTION PLAN MATRIX		
Action Number Action Taken Y/N	Action Item Description	Status (X, O, C, R, N)
# O—7.7	Continue participation and work to expand mutual-aid agreements with surrounding communities and agencies for hazard and disaster response.	
Status Description: Yes	In 2017 the Village joined the Illinois Public Works Mutual Aid Network (IPWMAN) and will continue to evaluate other options to expand mutual aid availability.	O
Completion status legend: N = New O = Action Ongoing toward Completion C = Project Completed R = Want Removed from Annex X = No Action Taken		

Action O - 7.9

TABLE: ACTION PLAN MATRIX		
Action Number Action Taken Y/N	Action Item Description	Status (X, O, C, R, N)
# O—7.9	Continue Village dam inspection program that includes updates to Operation and Maintenance Plans and Emergency Actions Plans for appropriate response.	
Status Description: Yes	The Village continues to inspect dams as required and perform updates to O&M plans 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 O - 7.10

TABLE: ACTION PLAN MATRIX		
Action Number Action Taken Y/N	Action Item Description	Status (X, O, C, R, N)
# O—7.10	Construct Parkview, Catalina, Caro Vista, Maycliff and other stormwater and flood control projects.	
Status Description: Yes	The Village has designed and constructed all the flood control projects listed and has others are that are slated for construction in 2018-2020.	O
Completion status legend: N = New O = Action Ongoing toward Completion C = Project Completed R = Want Removed from Annex X = No Action Taken		

Action O - 7.11

TABLE: ACTION PLAN MATRIX		
Action Number Action Taken Y/N	Action Item Description	Status (X, O, C, R, N)
# O—7.11	Evaluate/relocate municipal storage capabilities for efficient response to hazards or disasters.	
Status Description: Yes	This task has not yet been completed, but is anticipated to be in the next cycle.	O
Completion status legend: N = New O = Action Ongoing toward Completion C = Project Completed R = Want Removed from Annex X = No Action Taken		

Action O - 7.12

TABLE: ACTION PLAN MATRIX		
Action Number Action Taken Y/N	Action Item Description	Status (X, O, C, R, N)
# O—7.12	Where appropriate, support retrofitting, purchase, or relocation of structures in hazard-prone areas to prevent future structure damage. Give priority to properties with exposure to repetitive losses.	
Status Description: Yes	The Village purchased one flood prone home in 2016, razed the house and is evaluating passive uses for the property to allow for storage of stormwater.	O
Completion status legend: N = New O = Action Ongoing toward Completion C = Project Completed R = Want Removed from Annex X = No Action Taken		

Action O - 7.13

TABLE: ACTION PLAN MATRIX		
Action Number Action Taken Y/N	Action Item Description	Status (X, O, C, R, N)
# O—7.13	Enforce and update codes/ordinances as needed to reduce or eliminate hazard damage through proper design and planning standards.	
Status Description: Yes	The Village is continually evaluating and updating their Village Code and Land Development Code to meet new 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 O - 7.14

TABLE: ACTION PLAN MATRIX		
Action Number Action Taken Y/N	Action Item Description	Status (X, O, C, R, N)
# O—7.14	Evaluate/upgrade existing stormwater management system.	
Status Description: Yes	The Village has constructed multiple flood control projects and made many other improvements to the stormwater management system. The stormwater improvement program will continue in subsequent years.	O
<p>Completion status legend: N = New O = Action Ongoing toward Completion C = Project Completed R = Want Removed from Annex X = No Action Taken</p>		

Action O - 7.15

TABLE: ACTION PLAN MATRIX		
Action Number Action Taken Y/N	Action Item Description	Status (X, O, C, R, N)
# O—7.15	Evaluate/upgrade transportation infrastructure for appropriate emergency access and evacuation capabilities.	
Status Description: Yes	The Village is continually updating and enhancing their transportation network to meet emergency and life safety needs. This program will continue in subsequent years.	O
<p>Completion status legend: N = New O = Action Ongoing toward Completion C = Project Completed R = Want Removed from Annex X = No Action Taken</p>		

Action O - 7.16

TABLE: ACTION PLAN MATRIX		
Action Number Action Taken Y/N	Action Item Description	Status (X, O, C, R, N)
# O—7.16	Raise public awareness regarding local natural hazards.	
Status Description: Yes	The Village regularly hosts public meetings and provides many opportunities for their residents to learn about natural hazards. Meetings this year included open houses related to flooding and transportation issues.	O
Completion status legend: N = New O = Action Ongoing toward Completion C = Project Completed R = Want Removed from Annex X = No Action Taken		

Action O - 7.17

TABLE: ACTION PLAN MATRIX		
Action Number Action Taken Y/N	Action Item Description	Status (X, O, C, R, N)
# O—7.17	Modify, relocate or bury infrastructure to reduce disruption or loss of service during hazards or disasters.	
Status Description: Yes	As a part of an ongoing transpiration program, the Village agreed to bury overhead electrical lines to reduce service issues. The Village will continue to evaluate these types of opportunities in future years.	O
Completion status legend: N = New O = Action Ongoing toward Completion C = Project Completed R = Want Removed from Annex X = No Action Taken		

Action O - 7.18

TABLE: ACTION PLAN MATRIX		
Action Number Action Taken Y/N	Action Item Description	Status (X, O, C, R, N)
# O—7.18	Continue to support the countywide actions identified in this plan.	
Status Description: Yes	As a part of an ongoing transpiration program, the Village agreed to bury overhead electrical lines to reduce service issues. The Village will continue to evaluate these types of opportunities in future years.	O
Completion status legend: N = New O = Action Ongoing toward Completion C = Project Completed R = Want Removed from Annex X = No Action Taken		

Action O - 7.19

TABLE: ACTION PLAN MATRIX		
Action Number Action Taken Y/N	Action Item Description	Status (X, O, C, R, N)
# O—7.19	Actively participate in the plan maintenance strategy identified in this plan.	
Status Description: Yes	The Village has and will continue to be an active participant.	O
Completion status legend: N = New O = Action Ongoing toward Completion C = Project Completed R = Want Removed from Annex X = No Action Taken		

Action O - 7.21

TABLE: ACTION PLAN MATRIX		
Action Number Action Taken Y/N	Action Item Description	Status (X, O, C, R, N)
#—7.21	Where feasible, implement a program to record high water marks following high-water events.	
Status Description: Yes	The Village regularly documents and records high water marks as a part of their ongoing stormwater management program.	O
Completion status legend: N = New O = Action Ongoing toward Completion C = Project Completed R = Want Removed from Annex X = No Action Taken		

Action O - 7.22

TABLE: ACTION PLAN MATRIX		
Action Number Action Taken Y/N	Action Item Description	Status (X, O, C, R, N)
# O—7.22	Integrate the hazard mitigation plan into other plans, programs, or resources that dictate land use or redevelopment.	
Status Description: Yes	The Village is working to integrate the HMP into other municipal programs 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		

Completed Mitigation Actions

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

Action O - 7.8

TABLE: ACTION PLAN MATRIX		
Action Number Action Taken Y/N	Action Item Description	Status (X, O, C, R, N)
# O—7.8	Continue participation and compliance in the National Flood Insurance Program (NFIP) and consider participation in the Community Rating System (CRS).	
Status Description: Yes	The Village is a participant in the NFIP and had a Community Assistance Visit this year. The Village does not wish to participate in the CRS program at this time.	C
Completion status legend: N = New O = Action Ongoing toward Completion C = Project Completed R = Want Removed from Annex X = No Action Taken		

Action O - 7.20

TABLE: ACTION PLAN MATRIX		
Action Number Action Taken Y/N	Action Item Description	Status (X, O, C, R, N)
# O—7.20	Consider or maintain participation in incentive-based programs such as Tree City and StormReady.	
Status Description: Yes	The Village regularly documents and records high water marks as a part of their ongoing stormwater management program.	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

ORLAND PARK EXISTING CONDITIONS	
2010 Population	56,583
Total Assessed Value of Structures and Contents	\$11,523,928,409
Area in 100-Year Floodplain	989.16 acres
Area in 500-Year Floodplain	1,322.23 acres
Number of Critical Facilities	68

HAZARD EXPOSURE IN ORLAND PARK						
	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	169	52	\$89,138,703	\$84,072,964	\$173,211,667	1.50%

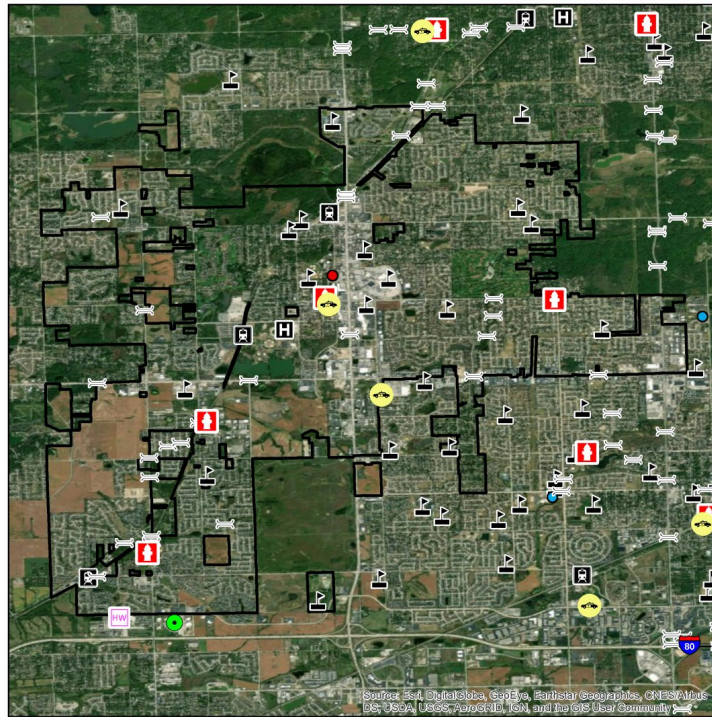
500-Year	01,245	383	\$221,197,273	\$160,204,233	\$381,401,506	3.31%
Tornado						
100-Year	—	—	\$1,462,877,628	\$929,420,083	\$2,392,297,711	20.76%
500-Year	—	—	\$1,507,912,624	\$898,061,495	\$2,405,974,119	20.88%

ESTIMATED PROPERTY DAMAGE VALUES IN ORLAND PARK

	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	\$141,029,966	\$43,255,618	\$184,285,584	1.60%
Flood				
10-Year	\$1,311,156	\$3,378,278	\$4,689,434	0.04%
100-Year	\$2,637,865	\$7,189,534	\$9,827,399	0.09%
500-Year	\$9,740,112	\$10,104,514	\$19,844,626	0.17%

Tornado				
100-Year	\$146,287,763	\$92,942,008	\$239,229,771	2.08%
500-Year	\$220,155,243	\$131,116,978	\$351,272,221	3.05%

Hazard Mapping



VILLAGE OF ORLAND PARK

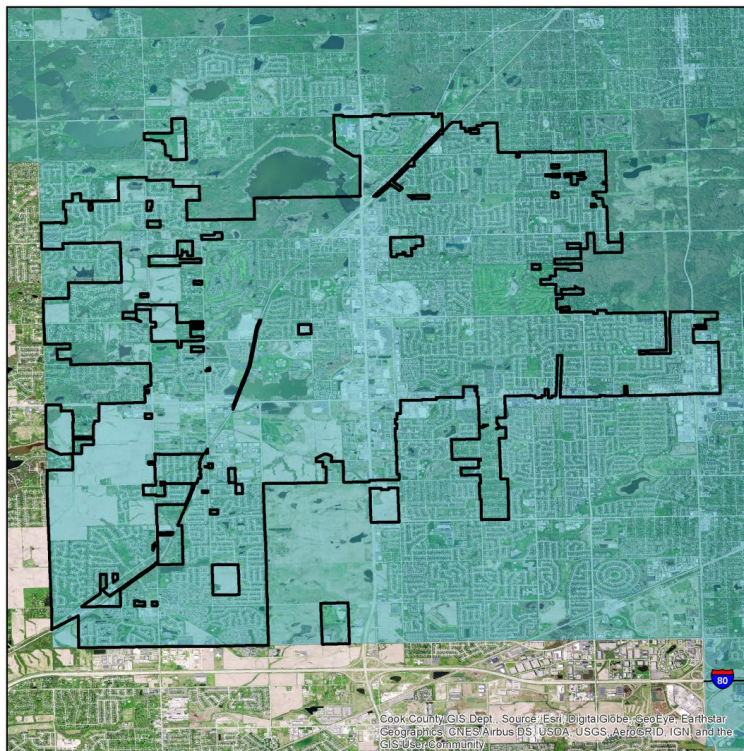
CRITICAL INFRASTRUCTURE

- 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



VILLAGE OF ORLAND PARK

PEAK GROUND ACCELERATION FOR A 100 YEAR EARTHQUAKE EVENT

- Mercalli Scale, Potential Shaking**
- II-III Weak

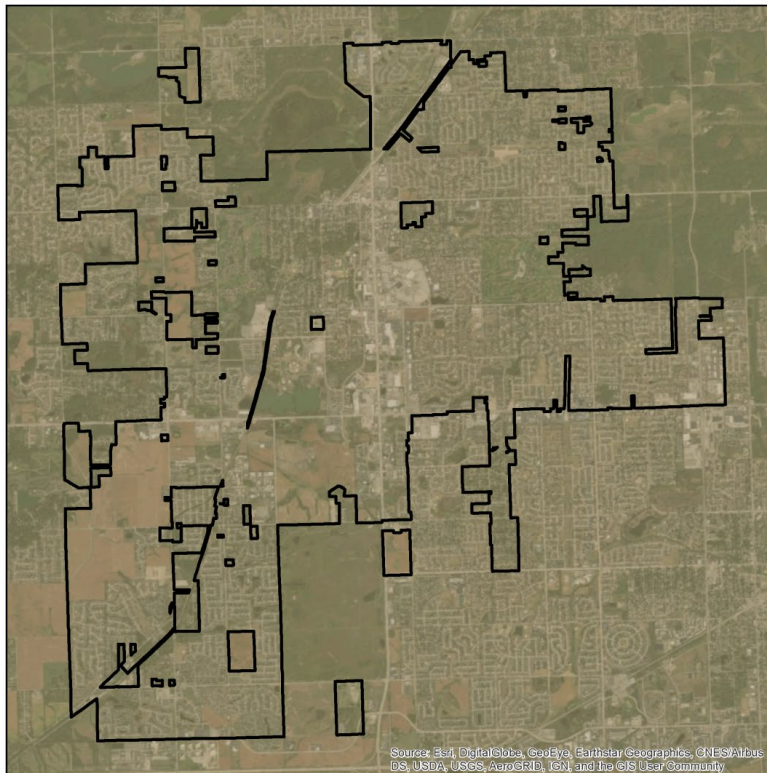
Data provided by the USGS Earthquake Hazards Program and Cook County.

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 750 m/s in the top 30 meters corresponding to the boundaries between NEHRP (National Earthquake Hazards Reduction Program) site classes B and C.

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



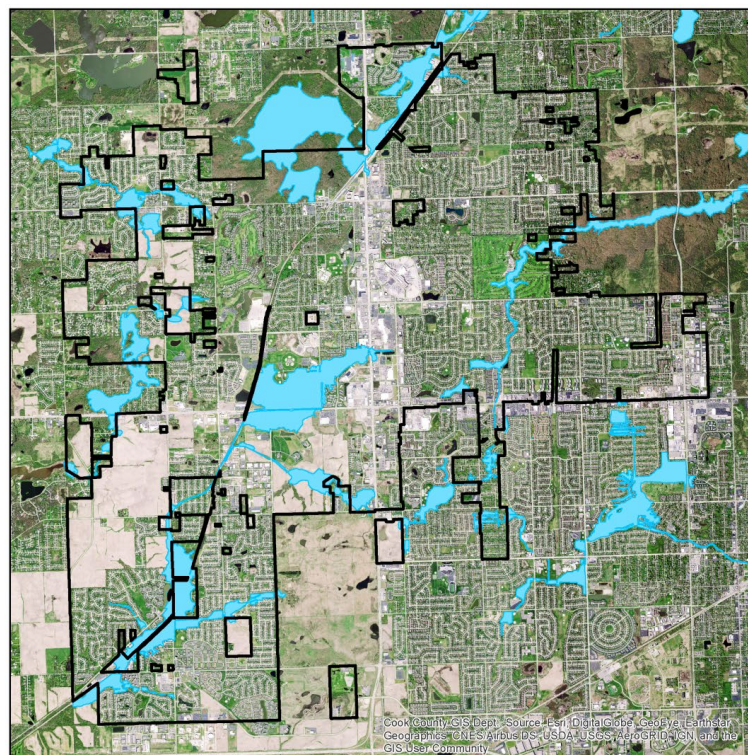
VILLAGE OF ORLAND PARK
NATIONAL EARTHQUAKE HAZARD REDUCTION PROGRAM (NEHRP) SOIL CLASSIFICATION

- 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 (758) 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, 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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VILLAGE OF ORLAND PARK
COOK COUNTY MWRDGC 100-YEAR INUNDATION AREA

COOK COUNTY MWRDGC 100-YEAR INUNDATION AREA

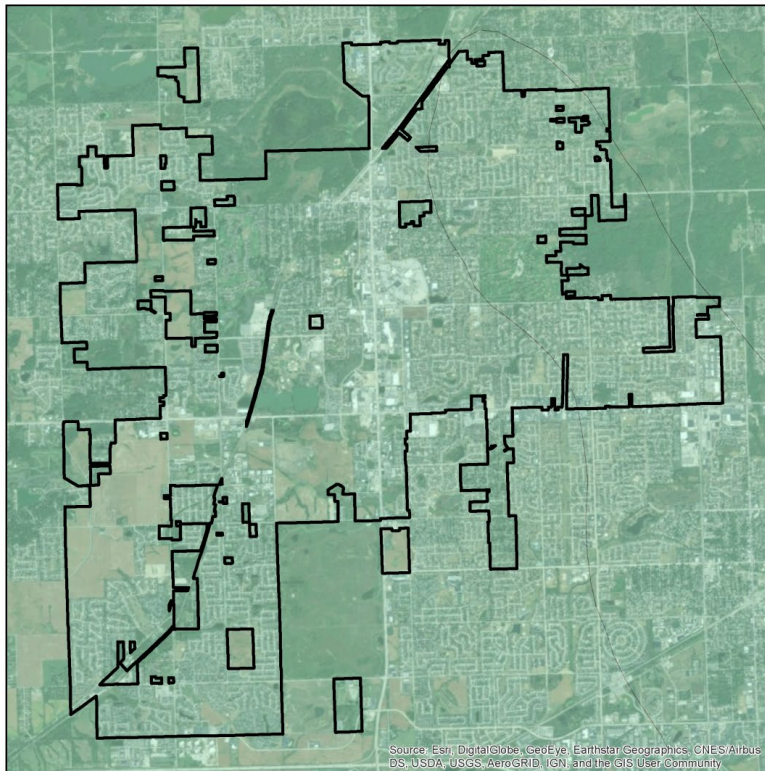
■ 100-year Inundation Area

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>.





VILLAGE OF ORLAND PARK

LIQUEFACTION SUSCEPTIBILITY

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

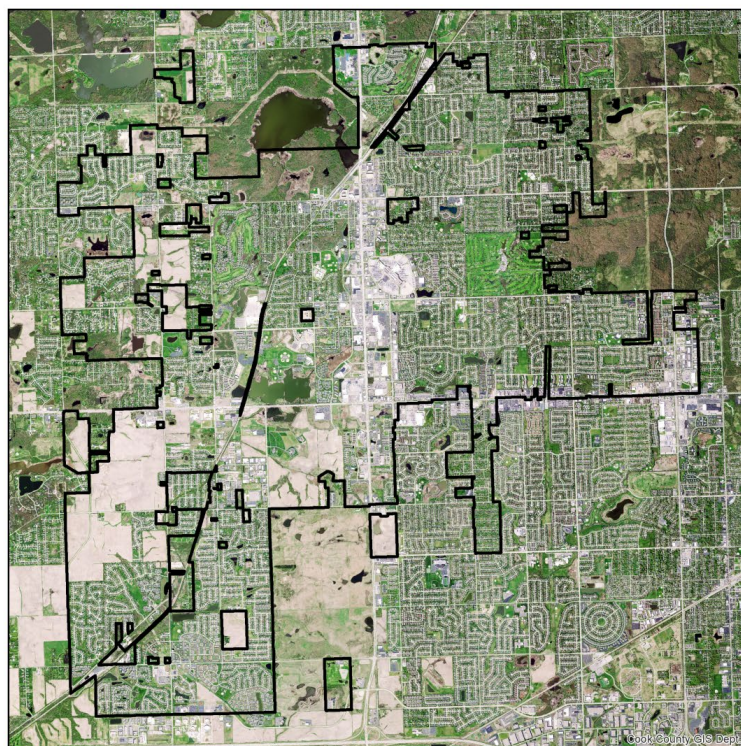
Data provided by the Illinois State Geological Survey and Cook County.

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 12789 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, 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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Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community



VILLAGE OF ORLAND PARK

100- AND 500- YEAR TORNA DO 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.



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