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

Thornton Annex

FINAL

July 2019

Prepared for:

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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:** 1835
- **Current Population:** 2,419 as of the 2018 US Census population estimate.
- **Population Growth:** Based on the US Census, the total population of Thornton has decreased by approximately 25% since 1980. Yet, 2010-2016 growth estimates indicate an over 5% increase.
- **Location and Description:** The Village of Thornton is located seven miles south of Chicago, in Cook County, and has a population of 2,338 in a 3.35 square mile radius. Suburbs adjacent to Thornton include South Holland and Harvey to the north, Glenwood and Homewood to the South, Lansing to the east, and East Hazel Crest and Homewood to the west. Interstates 294 94, and 80 intersect 2 miles east of Thornton. The community is approximately 50% residential and 40% industrial occupancies. The residential population is comprised of mostly blue-collar residences with an average household income of $54,911. Thornton is best known for being home to the world's largest operating limestone quarry. The north lob of the quarry will soon be the spilling point for the south end of the Deep Tunnel Project.
- **Brief History:** Thornton is one of the oldest villages in the county, dating back to the early 1800s. Settlement began on the east side of Thorn Creek which was 40 feet wide and up to 10 feet deep at the time. The first quarry was dug in 1838, and in 1886, the larger quarries were purchased by R.E. Brownell, who owned them until 1938. Material Service Corp. purchased the quarries and has owned it until recently when it was taken over by Hanson Material Service.
- **Climate:** The climate of Thornton and the Chicago area is classified as humid continental, with all four seasons distinctly represented: wet springs; hot and humid summers; pleasant autumns; and cold winters. Annual precipitation is average and reaches its lowest points in the months of January and February, and peaks in the months of May and June. Winter proves quite variable. Seasonal snowfall in the Village has ranged from 9 – 90 inches. The daily average temperature in January at Midway Airport is 24.8 °F (−4.0°C), and temperatures often stay below freezing for several consecutive days or even weeks in January and February. Temperatures drop to or below 0 °F (−18 °C) on 5.5 nights annually at Midway and 8.2 nights at O'Hare. Spring in the Chicago area is perhaps the areas wettest and unpredictable season. Winter-like conditions can persist well into April and even occasionally into May. Thunderstorms are especially prevalent in the springtime as the area's lakeside location makes it a center of conflicts between large volumes of warmer and colder air, triggering many kinds of severe weather. Temperatures vary tremendously in the springtime: March is the month with the greatest span between the record highs and lows. On a typical summer day, humidity is usually moderately high and temperatures ordinarily reach anywhere between 78 and 92 °F (26 and 33 °C). The extreme heat that the Chicago area is capable of experiencing during the height of the summer season can persist into autumn. Temperatures have reached 100 °F 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 November 19.

- **Governing Body Format:** Thornton is a Village governed by a Village President and Board of Trustees consisting of six trustees. This body of Government will assume the responsibility for the adoption and implementation of this plan. The Village is managed by a Village Administrator and has a Fire Department, Police Department, Department of Public Works, Parks and Recreation Department, Building, Zoning & Health department, and Emergency Management Agency.
- **Development Trends:** Thornton is fully built out. Accordingly, development has consisted of the redevelopment of current industrial and residential areas. Thornton's Comprehensive Community Plan (2003) outlines goals and objectives for development within the confines of the built environment. Depending on location, the Village offers various incentives for businesses. All available properties are listed on the Village of Thornton's website. One of the current Plan's land use goals was to "Encourage the development of a variety of housing types, at various economic levels, which can satisfy the needs for a variety of lifestyles and living expenses within the community." A development group recently finished building a 46-unit senior housing living structure in early 2016. The project received funding from the State and County as it was built for senior citizens with varying socioeconomic statuses. The building is currently full with a waiting list. Additionally, one transportation goal was to "Encourage the development of a variety of modes of travel to meet the needs of all citizens." Thornton bought land for a future commuter train station and train parking. In the last five years, the Village increased the number of PACE bus stops. Unfortunately, the new Senior Housing building was constructed after the PACE stops were in place and the closest stop to the facility is two blocks away.

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 2015 IBC & IRC adopted: 2016
Zonings	Yes	No	No	Yes	(65 ILCS 5/) Illinois Municipal Code. Thornton Zoning Code adopted: 1983
Subdivisions	Yes	No	No	No	Thornton Subdivision Regulations adopted: 1983
Stormwater Management	Yes	No	Yes	Yes	State regulates industrial activity from Construction sites 1 acre or larger under section 402 CWA. Post Construction Storm Water Management Ord. Adopted: 2006

Post Disaster Recovery	No	No	No	No	
Real Estate Disclosure	No	No	Yes	Yes	(765 ILCS 77/) Residential Real Property Disclosure Act.
Growth Management	No	No	No	No	
Site Plan Review	Yes	No	No	No	IBC adopted: 2016
Public Health and Safety	Yes	No	Yes	Yes	Cook County Board of Health. Thornton Municipal Code adopted: 1983
Environmental Protection	No	No	No	No	
Planning Documents					
General or Comprehensive Plan	Yes	No	No	No	Village of Thornton Comprehensive Community Plan/2003
Is the plan equipped to provide linkage to this mitigation plan?					Unknown
Floodplain or Basin Plan	Yes	No	No	No	Local Ord. based on Fed. Regulation. Adopted: 2008
Stormwater Plan	No	No	MWRD	No	Regional stormwater impacts are managed by MWRD. The Village lies within the Litter Calumet River watershed planning area on MWRD's comprehensive Stormwater Master Planning Program

Capital Improvement Plan	Yes	No	No	No	Adopted: 2013
What types of capital facilities does the plan address?					Water and sewer infrastructure, municipal building and equipment.
How often is the plan revised/updated?					5 years
Habitat Conservation Plan	No	No	No	No	
Economic Development Plan	No	No	Yes	Yes	The Economic Development Commission is charged with reviewing all economic development related programs and incentives including tax incentives offered through the Cook County 6b program.
Shoreline Management Plan	No	No	No	No	
Response/Recovery Planning					
Comprehensive Emergency Management Plan	No	No	Yes	Yes	Cook County DHSEM
Threat and Hazard Identification and Risk Assessment	No	No	Yes	No	Cook County DHSEM Preparing THIRA
Terrorism Plan	No	No	Yes	Yes	Cook County DHSEM
Post-Disaster Recovery Plan	No	No	No	No	
Continuity of Operations Plan	No	No	Yes	No	Cook County DHSEM
Public Health Plans	No	No	Yes	No	Cook County DPH

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	No
State Sponsored Grant Programs	Yes
Development Impact Fees for Homebuyers or Developers	Yes

TABLE: ADMINISTRATIVE AND TECHNICAL CAPABILITY		
Staff/Personnel Resources	**Available?**	**Department/Agency/Position**
Planners or engineers with knowledge of land development and land management practices	Yes	Contracted Engineering Firm
Engineers or professionals trained in building or infrastructure construction practices	Yes	Contracted Engineering Firm
Planners or engineers with an understanding of natural hazards	Yes	Contracted Engineering Firm
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	Fire Chief
Grant writers	No	

TABLE: NATIONAL FLOOD INSURANCE PROGRAM COMPLIANCE	
What department is responsible for floodplain management in your jurisdiction?	Building Department
Who is your jurisdiction's floodplain administrator? (department/position)	Building Commissioner
Are any certified floodplain managers on staff in your jurisdiction?	No
What is the date of adoption of your flood damage prevention ordinance?	07/2008
When was the most recent Community Assistance Visit or Community Assistance Contact?	Have not had a Community Assistance Visit
Does your jurisdiction have any outstanding NFIP compliance violations that need to be addressed? If so, please state what they are.	No
Do your flood hazard maps adequately address the flood risk within your jurisdiction? (If no, please state why)	Yes
Does your floodplain management staff need any assistance or training to support its floodplain management program? If so, what type of assistance/training is needed?	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; Undecided

TABLE: COMMUNITY CLASSIFICATIONS			
	Participating?	**Classification**	**Date Classified**
Community Rating System	No	N/A	N/A
Building Code Effectiveness Grading Schedule	Yes	4/4	08/2018
Public Protection/ISO	Yes	4	2015
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: 0
- Number of FEMA-Identified Severe Repetitive Loss Properties: 0
- Number of Repetitive Flood Loss/Severe Repetitive Loss Properties That Have Been Mitigated: 0

TABLE: NATURAL HAZARD EVENTS

Type of Event	FEMA Disaster Number (if applicable)	Date	Preliminary Damage Assessment
Severe Winter Storm	-	12/2013	-
Severe Winter Storm	-	3/2013	-
Severe Winter Storm	-	2/2013	-
Severe Winter Storm	DR-1960	2/2011	-
Wind Storm	-	2/2003	-

Jurisdiction-Specific Hazards and Impacts

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

Flood: Patchy areas in neighborhoods throughout the Village experience basement seepage during periods of heavy rain due to aging storm sewer infrastructure.

Severe Weather: High winds affected Thornton

Extreme Heat/Cold: The Village Hall and Fire Department is a designated warming/cooling center for the Village. Risk is related below to possible power outages.

Widespread Power Outage: Current Village hall back-up generator is 20 years old and only provide power for the Village side of the building. The addition of a secondary power supply would ensure power supply to critical public safety agency and cooling/warming facilities for the citizenry of the Village.

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	*54*
4	Flood	45
5	Drought	27
6	Earthquake	18
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 T1.1—Where appropriate, support retrofitting, purchase, or relocation of structures in hazard-prone areas to prevent future structure damage. Give priority to properties with exposure to repetitive losses.						
Ongoing	All	7, 13	Village of Thornton	High	FEMA Hazard Mitigation Grants	Long-term (depending on funding)
Action T1.2—Continue to support the countywide actions identified in this plan.						
Ongoing	All	All	Village of Thornton	Low	General Fund	Short - and long-term
Action T1.3—Actively participate in the plan maintenance strategy identified in this plan.						
Ongoing	All	3, 4, 6	DHSEM, Village of Thornton	Low	General Fund	Short-term
Action T1.4—Consider participation in incentive-based programs such as the Community Rating System, Tree City, and StormReady.						

Ongoing	All	3, 4, 5, 6, 7, 9, 10, 11, 13	Village of Thornton	Low	General Fund	Long-term
Action T1.5—Maintain good standing under the National Flood Insurance Program by implementing programs that meet or exceed the minimum NFIP requirements. Such programs include enforcing an adopted flood damage prevention ordinance, participating in floodplain mapping updates, and providing public assistance and information on floodplain requirements and impacts.						
Ongoing	Flooding	4, 6, 9	Village of Thornton	Low	General Fund	Short-term and ongoing
Action T1.6—Where feasible, implement a program to record high water marks following high-water events.						
Ongoing	Flooding, Severe Weather	3, 6, 9	Village of Thornton	Medium	General Fund; FEMA Grant Funds (Public Assistance)	Long-term
Action T1.7—Integrate the hazard mitigation plan into other plans, programs, or resources that dictate land use or redevelopment.						
Ongoing	All	3, 4, 6, 10, 13	Contracted Village Engineer	Low	General Fund	Short-term
Action T1.8—Continue participation and improve class rating in ISO programs (Building Code Effectiveness Grading Schedule & PP).						
Completed	All	2, 3, 5, 10	Village of Thornton	Moderate	General Fund	Completed
Action T1.9—Participate in programs which address emergency preparedness.						
Ongoing	All	1, 2, 3, 4, 5, 6, 8, 10, 12	Village of Thornton	Moderate	General Fund	Long-term, ongoing
Action T1.10—Promote "self-sustainability" and disaster preparedness within the Village.						
Ongoing	All	1, 6, 8	Village of Thornton	Low	General Fund	Long-term, ongoing
Action T1.11—Provide a back-up generator for the fire department and replace the old generator at the Village Hall side of the building.						
New	Extreme Heat, Extreme Cold, Widespread	2	Thornton Fire Department	$100,000; Medium	Local Funds	2022

	Power Outage					
Action T1.12—Thornton School District 154 Wolcott School Playground Equipment						
New	Flood	12	MWRD	Unknown	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	High	Yes	Yes	No	Medium	
2	13	Medium	Low	Yes	No	Yes	High	
3	3	Medium	Low	Yes	Yes	Yes	High	
4	9	Medium	Low	Yes	No	Yes	Medium	
5	3	Medium	Low	Yes	No	Yes	High	
6	3	Medium	Medium	Yes	Yes	No	Medium	
7	5	Medium	Low	Yes	No	Yes	High	
8	4	High	Moderate	Yes	No	Yes	High	
9	9	High	Moderate	Yes	No	Yes	High	
10	3	High	Low	Yes	Yes	No	High	
11	1	Medium	Medium	Yes	Yes	Unknown	High	
12	1	Low	Unknown	Unknown	Yes	Unknown	Low	

(a) See Chapter 1 for explanation of priorities.

New Mitigation Actions

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

Action T1.11

Mitigation Action	Provide a back-up generator for the fire department and replace the old generator at the Village Hall side of the building
Year Initiated	2019
Applicable Jurisdiction	Village of Thornton/Fire Department
Lead Agency/Organization	Thornton Fire Department
Supporting Agencies/Organizations	
Applicable Goal	• Protect public services and critical facilities, including infrastructure, from loss of use during natural hazard events.
Applicable Objective	• Increase the resilience of (or protect and maintain) infrastructure and critical facilities.
Potential Funding Source	Local Funds
Estimated Cost	$100,000
Benefits (loss avoided)	Ensure power supply to critical public safety agency and cooling/warming facilities for the citizenry of the Village
Projected Completion Date	2022
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)	Medium—The project could be implemented with existing funding but would require a re-apportionment of the budget or a budget amendment, or the cost of the project would have to be spread over multiple years.
Actual Completion Date	

Recommended Mitigation Action/Implementation Plan and Project Description	
Action/Implementation Plan and Project Description:	The Village Hall and the Fire Department are in the same building. The current back-up generator is old and only provides power to the Village side of the building. An addition to the Fire Department was built in 2009 and funding was not available to either increase the size of the generator or provide a second generator to cover the fire department side of the building. Because the fire department has a separate source of power, the installation of a second generator would be prudent. The Village Hall generator is 20 years old and should be replaced at the same time. The Village Hall and Fire Department is a designated warming/cooling center for the Village.

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

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

Action T1.12

Mitigation Action	Thornton School District 154 Wolcott School Playground Equipment
Year Initiated	2019
Applicable Jurisdiction	Village of Thornton
Lead Agency/Organization	MWRD
Supporting Agencies/Organizations	Village of Thornton
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	• Reduce natural hazard-related risks and vulnerability to potentially isolated populations within the planning area.
Potential Funding Source	MWRD
Estimated Cost	N/A
Benefits (loss avoided)	
Projected Completion Date	TBD
Priority and Level of Importance (Low, Medium, High)	Low
Benefit Analysis (Low, Medium, High)	Low
Cost Analysis (Low, Medium, High)	Unknown
Actual Completion Date	

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

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

Mitigated Hazards	
	All Hazards

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

Ongoing Mitigation Actions

The following are ongoing actions with no definitive end or that are still in progress. During the 2019 update, these "ongoing" mitigation actions and projects were modified and/or amended, as needed.

Action T1.1

TABLE: ACTION PLAN MATRIX		
Action Number Action Taken Y/N	Action Item Description	Status (X, O, C, R, N)
# T1—1	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: No	Long-term, dependent on 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 T1.2

TABLE: ACTION PLAN MATRIX		
Action Number Action Taken Y/N	Action Item Description	Status (X, O, C, R, N)
# T1—2	Continue to support the countywide actions identified in this plan.	
Status Description: Yes		O
Completion status legend: **N** = New **O** = Action Ongoing toward Completion **C**= Project Completed **R** = Want Removed from Annex **X** = No Action Taken		

Action T1.3

TABLE: ACTION PLAN MATRIX		
Action Number Action Taken Y/N	Action Item Description	Status (X, O, C, R, N)
# T1—3	Actively participate in the plan maintenance strategy identified in this plan.	
Status Description: Yes		O
Completion status legend: **N** = New **O** = Action Ongoing toward Completion **C** = Project Completed **R** = Want Removed from Annex **X** = No Action Taken		

Action T1.4

TABLE: ACTION PLAN MATRIX		
Action Number Action Taken Y/N	Action Item Description	Status (X, O, C, R, N)
# T1—4	Consider participation in incentive-based programs such as the Community Rating System, Tree City, and StormReady.	
Status Description: No	Taking consideration	X
Completion status legend: **N** = New **O** = Action Ongoing toward Completion **C** = Project Completed **R** = Want Removed from Annex **X** = No Action Taken		

Action T1.5

TABLE: ACTION PLAN MATRIX		
Action Number Action Taken Y/N	Action Item Description	Status (X, O, C, R, N)
# T1— 5	Maintain good standing under the National Flood Insurance Program by implementing programs that meet or exceed the minimum NFIP requirements. Such programs include enforcing an adopted flood damage prevention ordinance, participating in floodplain mapping updates, and providing public assistance and information on floodplain requirements and impacts.	
Status Description: No	Work under MWRD	X
Completion status legend: **N** = New **O** = Action Ongoing toward Completion **C** = Project Completed **R** = Want Removed from Annex **X** = No Action Taken		

Action T1.6

TABLE: ACTION PLAN MATRIX		
Action Number Action Taken Y/N	Action Item Description	Status (X, O, C, R, N)
# T1—6	Where feasible, implement a program to record high water marks following high-water events.	
Status Description: No	Work under MWRD	X
Completion status legend: **N** = New **O** = Action Ongoing toward Completion **C** = Project Completed **R** = Want Removed from Annex **X** = No Action Taken		

Action T1.7

TABLE: ACTION PLAN MATRIX		
Action Number Action Taken Y/N	Action Item Description	Status (X, O, C, R, N)
# T1—7	Integrate the hazard mitigation plan into other plans, programs, or resources that dictate land use or redevelopment.	
Status Description: No	Contracted Villager Engineer	X
Completion status legend: **N** = New **O** = Action Ongoing toward Completion **C** = Project Completed **R** = Want Removed from Annex **X** = No Action Taken		

Action T1.9

TABLE: ACTION PLAN MATRIX		
Action Number Action Taken Y/N	Action Item Description	Status (X, O, C, R, N)
# T1—9	Participate in programs which address emergency preparedness.	
Status Description: Yes	Continue to work on emergency operation plans, etc.	O
Completion status legend: **N** = New **O** = Action Ongoing toward Completion **C** = Project Completed **R** = Want Removed from Annex **X** = No Action Taken		

Action T1.10

TABLE: ACTION PLAN MATRIX		
Action Number Action Taken Y/N	Action Item Description	Status (X, O, C, R, N)
# T1—10	Promote "self-sustainability" and disaster preparedness within the Village.	
Status Description: Yes	Continue to work on self-sustainability and disaster preparedness within the Village	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 T1.8

TABLE: ACTION PLAN MATRIX		
Action Number Action Taken Y/N	Action Item Description	Status (X, O, C, R, N)
# T1—8	Continue participation and improve class rating in ISO programs (Building Code Effectiveness Grading Schedule & PP).	
Status Description: Yes	Recently went through re-evaluation for ISO PP	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

THORNTON EXISTING CONDITIONS	
2010 Population	2,338
Total Assessed Value of Structures and Contents	$1,743,118,289
Area in 100-Year Floodplain	27.71 acres
Area in 500-Year Floodplain	31.21 acres
Number of Critical Facilities	17

HAZARD EXPOSURE IN THORNTON

	Number Exposed		Value Exposed to Hazard			% of Total Assessed Value Exposed
	Population	Buildings	Structure	Contents	**Total**	
Dam Failure						
Bufffalo 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	0	0	$0	$0	**$0**	0.0%

500-Year	7	2	$13,053,254	$13,044,127	**$26,097,381**	1.50%
Tornado						
100-Year	—	—	$569,467,432	$566,611,312	**$1,136,078,744**	65.18%
500-Year	—	—	$711,087,993	$681,154,716	**$1,392,242,709**	79.87%

ESTIMATED PROPERTY DAMAGE VALUES IN THORNTON

	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	$5,416,681	$1,851,032	**$7,267,713**	0.42%
Flood				
10-Year	$0	$0	**$0**	0.00%
100-Year	$0	$0	**$0**	0.00%
500-Year	$94,612	$189,224	**$283,836**	0.02%

Tornado				
100-Year	$56,946,743	$56,661,131	**$113,607,874**	6.52%
500-Year	$103,818,847	$99,448,589	**$203,267,436**	11.66%

Hazard Mapping

VILLAGE OF THORNTON

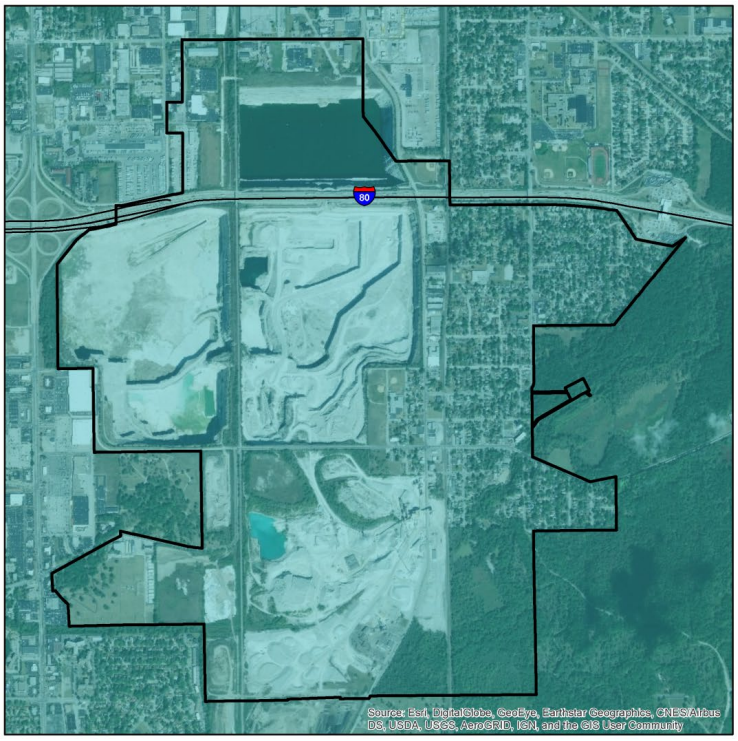
CRITICAL INFRASTRUCTURE

- 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 0.075 0.15 0.3 0.45 0.6 Miles



VILLAGE OF THORNTON

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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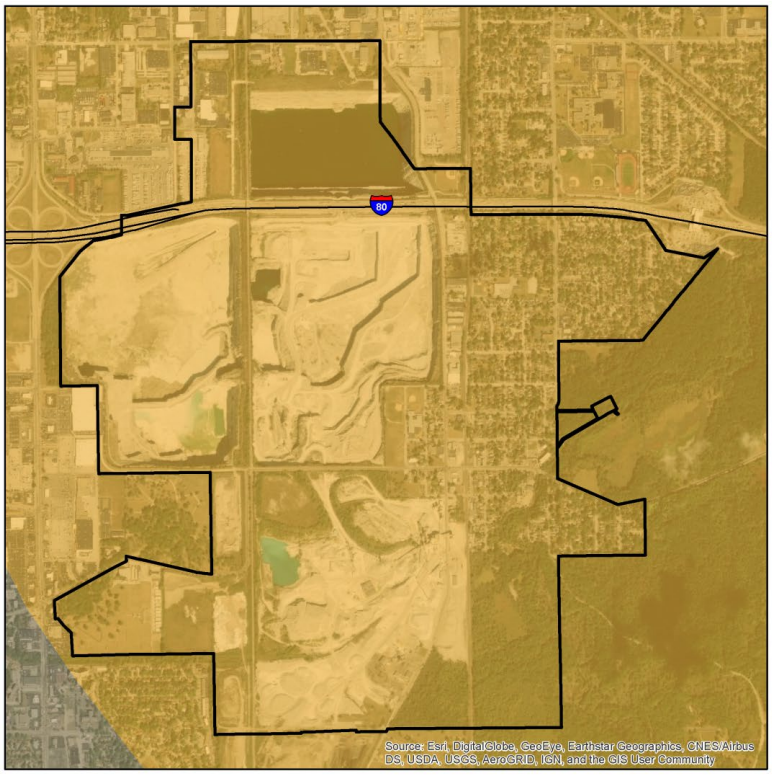
N W E S

0 0.075 0.15 0.3 0.45 0.6 Miles



VILLAGE OF THORNTON

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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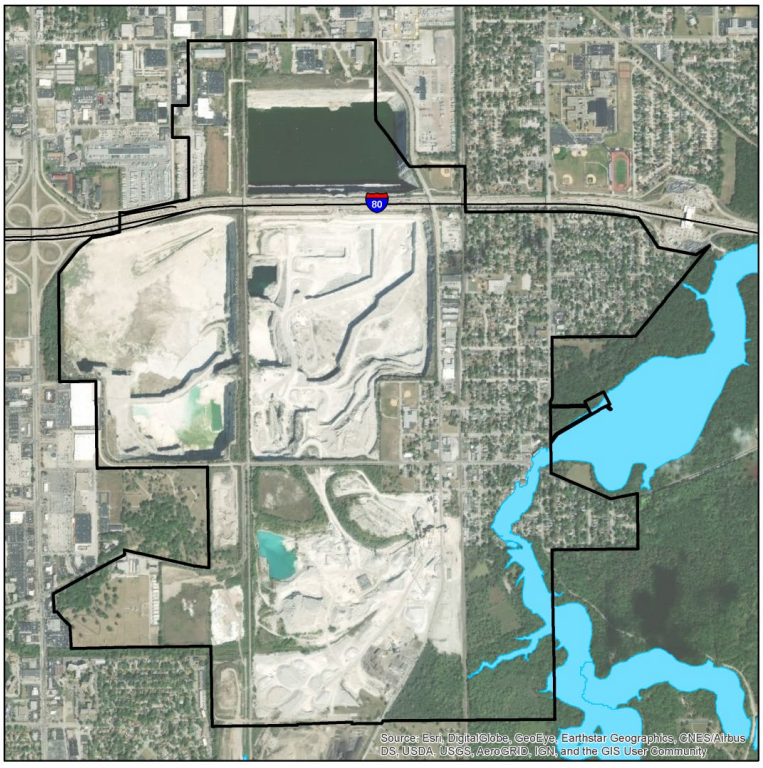

VILLAGE OF THORNTON

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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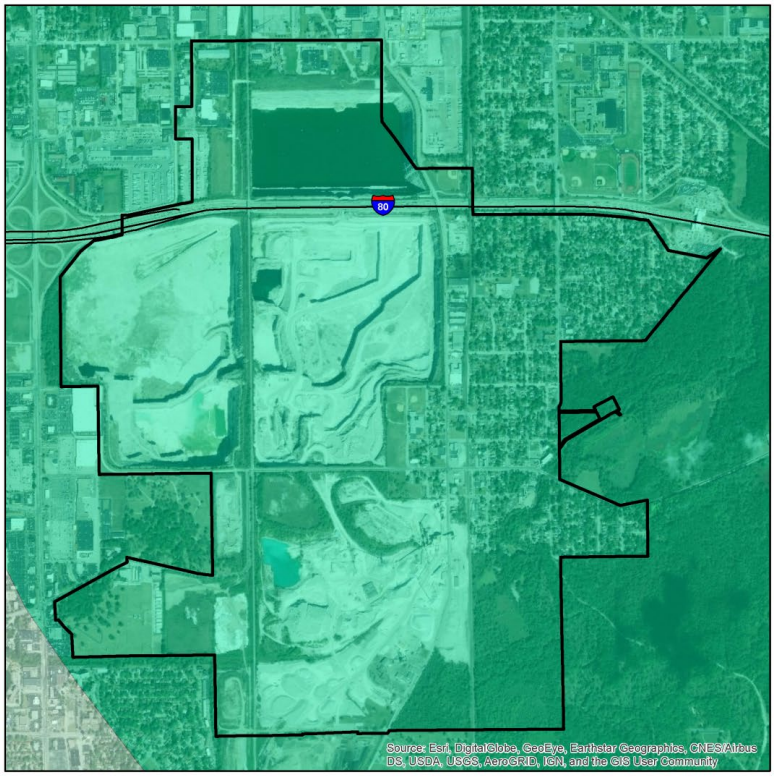

VILLAGE OF THORNTON

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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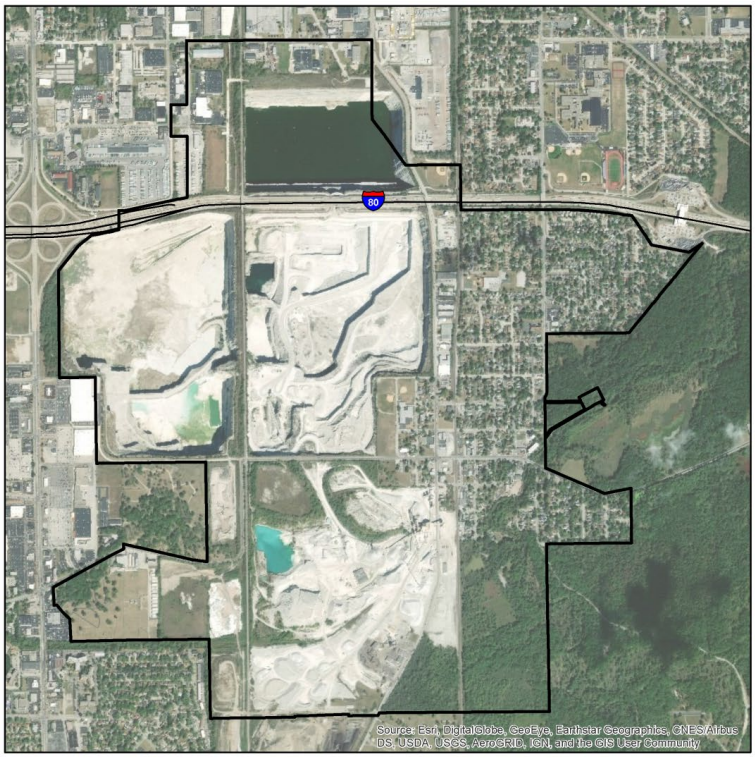
N W E S

0 0.075 0.15 0.3 0.45 0.6 Miles



VILLAGE OF THORNTON

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 0.075 0.15 0.3 0.45 0.6 Miles