

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

Berwyn Annex

FINAL

July 2019

Prepared for:



Cook County
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Hazard Mitigation Point of Contact

Primary Point of Contact	Alternate Point of Contact
Anthony Laureto, Director of Berwyn Emergency Management Agency 1338 Home Ave Berwyn, IL. 60402 Telephone: 708-935-3225 Email Address: alaureto@ci.berwyn.il.us	John J. Diebold, Deputy Director of Berwyn Emergency Management Agency 6700 W, 26th St Berwyn, IL 60402 Telephone: 708-788-2660 ext. 2195 Email Address: jdiebold@ci.berwyn.il.us

Jurisdiction Profile

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

- **Date of Incorporation:** 1908
- **Current Population:** The US Census estimated the 2016 population to be 55, 748.
- **Population Growth:** The US Census indicated the population change from 2010 to 2016 was - 1.60 percent. The 2012 Census indicated there were 18,910 households in the City of Berwyn. Berwyn is a very stable in population because it is land locked with no open spaces of land to develop.
- **Location and Description:** The City of Berwyn is located in Cook County, 10 miles directly east of the City of Chicago. Roosevelt Rd. (12th St. / Rt. 38) is the North Border, Pershing Rd. (39th St.) South, Lombard to the East and Harlem (Rt. 43) to the West. The city has a total area of 3.90 square miles (10.1 square km); all land no lakes or rivers.
- **Brief History:** On June 6, 1908, Berwyn became a city, receiving its official charter from the State of Illinois. The 1910 census recorded Berwyn’s population as 5,841. The first two decades of the twentieth century saw Berwyn develops in much the same way as other Chicago suburbs. It was a place in which, as “The WPA Guide to Illinois” states, “harried commuters relaxed in the evening, weeded gardens, set hens, and mowed their lawns.” In 1921, the central portion of the city began its rapid development. Large numbers of Czechs moved from the Pilsen area on Chicago’s near West Side to Berwyn and its neighbor on the east, Cicero. Literally thousands of new homes were built each year. The population growth and the infill of vacant land finally brought the two parts of Berwyn together. Berwyn’s construction boom continued into the Roaring Twenties, as farms and fields gave way overnight to new homes. Entire blocks were built at once, with contractors digging all basements simultaneously, then bringing in crews to lay foundations, followed by carpenters, bricklayers and plasterers. Block after block of bungalows rose as Berwyn’s population swelled; from 14,150 in 1920 to 47,027 in 1930 - an increase of 222% in just ten years. Today, Berwyn has the most significant collection of Chicago-style bungalows in the nation. Traditionally, Berwyn Bungalows are one-story buildings with basement and attic, two to three bedrooms, and a living and dining room.
- **Climate:** Berwyn’s climate is typical of suburban Chicago and the Midwest in general. Average rainfall is 32 inches per year and average snowfall is 24 inches. The average year round temperature is 48.2 degrees. In July the average high temperature is 83 degrees and in January the average low temperature is 11 degrees. The average humidity is 72.27%
- **Governing Body Format:** Berwyn is a City with a Mayor and a City Manager. This body will assume the responsibility for the adoption and implementation of this plan. The city is divided into 8 wards with the Aldermen form each ward forming the City Council. Berwyn also has a Township Board that is elected separately from the city including a Health Department. Berwyn Township was established by the Illinois Legislature in 1922 as one of the few coterminous townships in the state. The Berwyn Public Health District was established at the same time. Berwyn operates 18 departments including a Building Department, Community Development, Finance Department, Fire Department, Police Department, and Water Department.

- **Development Trends:** The city has the Berwyn Development Corporation (BDC), a separate entity of the city that operates in direct conjunction with the city. The BDC develops plans, manages Tax Increment Financing (TIF) districts and develops marketing plans for the City of Berwyn. Berwyn is a city of homes with no industry. There are 3 main commerce corridors in Berwyn, Roosevelt Road that borders Oak Park, Ogden Ave. or Route 66 and Cermak Road or 22nd Street. Many new restaurant and assemblies have been completed or are in the plans. Cermak Rd Gateway project is new construction of redeveloped (demolished) properties. Ogden and Roosevelt Rd. are primarily redeveloped properties, small business (stores), auto dealerships and some restaurants.

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	Yes	No	BMC, Part 14, Chapters 1420, 1428 1/9/07
Zonings	Yes	No	Yes	No	BMC, Part 12, Title 4, 1/12/2010
Subdivisions	Yes	No	No	No	220.01 022010
Stormwater Management	Yes	No	Yes	No	104 -1957, MWRD
Post Disaster Recovery	Yes	No	No	No	BMC Title 6, Chapter 240, 9/28/2010
Real Estate Disclosure	No	No	Yes	Yes	(765 ILCS 77/) Residential Real Property Disclosure Act.
Growth Management	Yes	No	No	No	Zoning Board and Berwyn Development Board
Site Plan Review	Yes	No	No	No	287.012002
Public Health and Safety	Yes	No	Yes	Yes	Ord. 98-02, 264.01 passed 1-13 -1998

Environmental Protection	No	No	No	No	
Planning Documents					
General or Comprehensive Plan	Yes	No	No	No	Comprehensive Plan adopted August 2012
<i>Is the plan equipped to provide linkage to this mitigation plan?</i>					Yes, Plan include land use and natural environment elements.
Floodplain or Basin Plan	No	No	No	No	
Stormwater Plan	No	No	No	No	
Capital Improvement Plan	Yes	No	No	No	In draft form
<i>What types of capital facilities does the plan address?</i>					Water, Transportation, sewer, Parks and rec
<i>How often is the plan revised/updated?</i>					6-year CIP, reviewed and approved annually
Habitat Conservation Plan	No	No	No	No	
Economic Development Plan	Yes	No	Yes	Yes	210.09 12, BDC
Shoreline Management Plan	No	No	No	No	
Response/Recovery Planning					
Comprehensive Emergency Management Plan	Yes	No	No	No	240.01 2010
Threat and Hazard Identification and Risk Assessment	No	No	Yes	No	Cook County DHSEM Preparing THIRA
Terrorism Plan	Yes	No	Yes	No	Cook County DHSEM

Post-Disaster Recovery Plan	No	No	No	No	
Continuity of Operations Plan	Yes	No	Yes	No	Cook County DHSEM
Public Health Plans	No	No	Yes	No	Cook County DPH

TABLE: FISCAL CAPABILITY	
Financial Resources	Accessible or Eligible to Use?
Community Development Block Grants	Yes
Capital Improvements Project Funding	Yes
Authority to Levy Taxes for Specific Purposes	Yes
User Fees for Water, Sewer, Gas or Electric Service	Yes
Incur Debt through General Obligation Bonds	Yes
Incur Debt through Special Tax Bonds	Yes
Incur Debt through Private Activity Bonds	No
Withhold Public Expenditures in Hazard-Prone Areas	No
State Sponsored Grant Programs	Yes
Development Impact Fees for Homebuyers or Developers	No
Other	

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	Public Works, City Engineer, Novotnev & Associates
Engineers or professionals trained in building or infrastructure construction practices	Yes	City Engineer, Novotnev & Associates
Planners or engineers with an understanding of natural hazards	Yes	City Engineer, Novotnev & Associates

Staff with training in benefit/cost analysis	Yes	Finance Director and City Adm.
Surveyors	Yes	Novotnev & Associates
Personnel skilled or trained in GIS applications	Yes	Cook County GIS Consortium
Scientist familiar with natural hazards in local area	Yes	N/A
Emergency manager	Yes	Tony Laureto, Brian Pabst
Grant writers	Yes	Nichole Campbell, All Department Heads, Brian Pabst, Evan Summers, BDC, Curtis Posgay

TABLE: NATIONAL FLOOD INSURANCE PROGRAM COMPLIANCE	
What department is responsible for floodplain management in your jurisdiction?	N/A
Who is your jurisdiction’s floodplain administrator? (department/position)	N/A
Are any certified floodplain managers on staff in your jurisdiction?	N/A
What is the date of adoption of your flood damage prevention ordinance?	N/A
When was the most recent Community Assistance Visit or Community Assistance Contact?	N/A
Does your jurisdiction have any outstanding NFIP compliance violations that need to be addressed? If so, please state what they are.	N/A
Do your flood hazard maps adequately address the flood risk within your jurisdiction? (If no, please state why)	N/A
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?	N/A
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?	N/A
Note: Berwyn does not currently participate in the NFIP, or have a mapped Special Flood Hazard Area by FEMA	

TABLE: COMMUNITY CLASSIFICATIONS			
	Participating?	Classification	Date Classified

Community Rating System	No	N/A	N/A
Building Code Effectiveness Grading Schedule	Yes	Unknown	Unknown
Public Protection/ISO	Yes	ISO 2	Unknown
StormReady	Yes	Gold (Countywide)	2014
Tree City USA	Yes	Tree City USA	1986

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: N/A

TABLE: NATURAL HAZARD EVENTS			
Type of Event	FEMA Disaster Number (if applicable)	Date	Preliminary Damage Assessment
Tornado	-	9/3/2018	-
Severe Weather	-	8/1/2017	-
Severe Winter Weather	-	12/13/2013	-
Severe Wind Storm	-	10/2013	Trees, Power lines down, minimal property damage
Severe Winter Weather	-	12/2012	-
Strong Winds	-	11/2012	Trees, Power lines down, minimal property damage
Severe Heat	-	7/2012	-
Severe Storms, Straight-Line Winds and Flooding	DR-4116	4/26/2012	Storm water flooding to residential basements
Severe Winter Storm and Snowstorm	DR-1960	1/31/2011	-
Severe Storms and Flooding	DR-1935	7/19/2010	Storm water flooding to streets and residential basements

Severe Storms and Flooding	DR-1800	9/13/2008	Storm water flooding to streets and residential basements
Severe Wind Storm	-	8/2008	Trees, Power lines down, minimal property damage
Severe Storms and Flooding	DR-1729	8/2007	Storm water flooding to streets and residential basements
Severe Winter Weather	-	12/2007	-
Severe Wind Storms	-	9/2006	Trees, Power lines down, minimal property damage
Excessive Heat	-	8/2005	-
Severe Storms and Flooding	-	3/2004	Storm water flooding to streets and residential basements
Severe Storms and Flooding	DR-1188	8/1997	-

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.

Flooding: In 2000, very heavy rains caused urban flooding throughout the community with all major intersections underwater for nearly four hours. Flooding continues to be a problem, especially as the result of heavy rains.

Severe Weather and Wind: In 1995, due to a thunderstorm two trees toppled over, one landed on the roof of a house. Another tree branch fell on a house and a van. Wind damage continues to be an issue, especially for above-ground powerlines and trees. Power Outages can occur and are especially a problem for critical facilities.

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	45
4	Earthquake	36
5	Flood	24
6	Drought	4
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 B4.1 —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	Berwyn	High	FEMA Hazard Mitigation Grants	Long-term (depending on funding)
Action B4.2 —Continue to support the countywide actions identified in this plane.						
Ongoing	All	All	Berwyn	Low	General Fund	Short- and long-term
Action B4.3 —Actively participate in the plan maintenance strategy identified in this plan.						
Ongoing	All	3, 4, 6	DHSEM, Berwyn	Low	General Fund	Short-term
Action B4.4 —Consider participation in incentive-based programs such as Tree City, and StormReady.						

Ongoing	All	3, 4, 5, 6, 7, 9, 10, 11, 13	Berwyn	Low	General Fund	Long-term
Action B4.5 —Consider participation in the National Flood Insurance program as non-mapped, participating community.						
Ongoing	Flooding	4, 6, 9	Berwyn	Low	General Fund	Short-term and ongoing
Action B4.6 —Where feasible, implement a program to record high water marks following high-water events.						
Ongoing	Flooding, Severe Weather	3, 6, 9	Berwyn	Medium	General Fund; FEMA Grant Funds (Public Assistance)	Long-term
Action B4.7 —Integrate the hazard mitigation plan into other plans, programs, or resources that dictate land use or redevelopment.						
Ongoing	All	3, 4, 6, 10, 13	Public Works, City Engineer, Novotney & Associates	Low	General Fund	Short-term
Action B4.8 —Consider having the City's building code enforcement program evaluated under the Building Code Effectiveness Grading Schedule.						
Ongoing	All Hazards	3, 10	Berwyn	Low	General Fund	Long term
Action B4.9 —Publicize, train, and maintain a Community Emergency Response Team (CERT).						
New	All	6	Berwyn Emergency Management Agency	\$10,000; Medium	Local Funds, Grants	Start up and training 2021
Action B4.10 —Publicize, train, and maintain Citizens Fire and Police Academies.						
New	All	6	Berwyn Fire and Police departments	\$10,000; Medium	Local Funds	Ongoing
(a) Ongoing indicates continuation of an action that is already in place. Short-term indicates implementation within five years. Long-term indicates implementation after five years.						

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	2	Medium	Low	Yes	No	Yes	Medium
9	1	Medium	Medium	Yes	Yes	Yes	High
10	1	Medium	Medium	Yes	No	Yes	High

(a) See Chapter 1 for explanation of priorities.

New Mitigation Actions

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

Action B-4.9

Mitigation Action	Publicize, train, and maintain a Community Emergency Response Team (CERT)
Year Initiated	2019
Applicable Jurisdiction	City of Berwyn
Lead Agency/Organization	Berwyn Emergency Management Agency
Supporting Agencies/Organizations	Berwyn Fire and Police Departments
Applicable Goal	<ul style="list-style-type: none"> • Develop and implement sustainable, cost-effective, and environmentally sound risk-reduction (mitigation) projects. • Protect the lives, health, safety, and property of the citizens of Cook County from the impacts of natural hazards. • Protect public services and critical facilities, including infrastructure, from loss of use during natural hazard events. • Involve stakeholders to enhance the local capacity to mitigate, prepare for, and respond to the impacts of natural hazards. • Develop, promote, and integrate mitigation action plans. • Promote public understanding of and support for hazard mitigation.
Applicable Objective	<ul style="list-style-type: none"> • Use the best available data, science and technologies to educate the public and to improve understanding of the location and potential impacts of natural hazards, the vulnerability of building types and community development patterns, and the measures needed to protect life safety.
Potential Funding Source	Local Funding, Grants
Estimated Cost	\$10,000
Benefits (loss avoided)	Extra personnel in the event of disaster or emergency and to aiding preparedness.
Projected Completion Date	Startup and training 2021
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	2021

Recommended Mitigation Action/Implementation Plan and Project Description	
Action/Implementation Plan and Project Description:	CERT would create greater awareness and preparedness in the community. Along with trained personnel and some would bring in their level training or job-related expertise.

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

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

X	Secondary Impacts from Mass Influx of Evacuees
X	Hazardous Materials Incident

Action B-4.10

Mitigation Action	Publicize, train, and maintain Citizens Fire and Police Academies
Year Initiated	2019
Applicable Jurisdiction	City of Berwyn
Lead Agency/Organization	Berwyn Fire and Police Departments
Supporting Agencies/Organizations	BEMA
Applicable Goal	<ul style="list-style-type: none"> • Develop and implement sustainable, cost-effective, and environmentally sound risk-reduction (mitigation) projects. • Protect the lives, health, safety, and property of the citizens of Cook County from the impacts of natural hazards. • Protect public services and critical facilities, including infrastructure, from loss of use during natural hazard events. • Involve stakeholders to enhance the local capacity to mitigate, prepare for, and respond to the impacts of natural hazards. • Develop, promote, and integrate mitigation action plans. • Promote public understanding of and support for hazard mitigation.
Applicable Objective	<ul style="list-style-type: none"> • Use the best available data, science and technologies to educate the public and to improve understanding of the location and potential impacts of natural hazards, the vulnerability of building types and community development patterns, and the measures needed to protect life safety.
Potential Funding Source	Local Funds
Estimated Cost	\$10,000
Benefits (loss avoided)	Engaging the citizens in the duties and responsibilities of Police and Paramedic/Firefighters
Projected Completion Date	Ongoing
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	Ongoing

Recommended Mitigation Action/Implementation Plan and Project Description	
Action/Implementation Plan and Project Description:	This is a program that we have had in the past and was very successful. We plan on expanding on this by recommending that graduates of the academy continue with the CERT program.

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

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

X	Widespread Power Outage
	Coastal Erosion
X	Secondary Impacts from Mass Influx of Evacuees
X	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 B-4.1

TABLE: ACTION PLAN MATRIX		
Action Number Action Taken Y/N	Action Item Description	Status (X, O, C, R, N)
# B-4.1	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	Berwyn has no structures that are considered hazard-prone or that have had repetitive losses	X
<p align="center">Completion status legend: N = New O = Action Ongoing toward Completion C = Project Completed R = Want Removed from Annex X = No Action Taken</p>		

Action B-4.2

TABLE: ACTION PLAN MATRIX		
Action Number Action Taken Y/N	Action Item Description	Status (X, O, C, R, N)
# B-4.2	Continue to support the countywide actions identified in this plan.	
Status Description: Yes		O
<p align="center">Completion status legend: N = New O = Action Ongoing toward Completion C = Project Completed R = Want Removed from Annex X = No Action Taken</p>		

Action B-4.3

TABLE: ACTION PLAN MATRIX		
Action Number Action Taken Y/N	Action Item Description	Status (X, O, C, R, N)
# B-4.3	Actively participate in the plan maintenance strategy Identified in this plan.	
Status Description: Yes		O
<p align="center">Completion status legend: N = New O = Action Ongoing toward Completion C = Project Completed R = Want Removed from Annex X = No Action Taken</p>		

Action B-4.4

TABLE: ACTION PLAN MATRIX		
Action Number Action Taken Y/N	Action Item Description	Status (X, O, C, R, N)
# B-4.4	Consider participation in incentive-based programs such as Tree City, and StormReady.	
Status Description: Yes		O
<p align="center">Completion status legend: N = New O = Action Ongoing toward Completion C = Project Completed R = Want Removed from Annex X = No Action Taken</p>		

Action B-4.5

TABLE: ACTION PLAN MATRIX		
Action Number Action Taken Y/N	Action Item Description	Status (X, O, C, R, N)
# B-4.5	Consider participation in the National Flood Insurance program as non-mapped, participating community	
Status Description: No	Berwyn has no floodplains in its jurisdiction.	X
<p align="center">Completion status legend: N = New O = Action Ongoing toward Completion C = Project Completed R = Want Removed from Annex X = No Action Taken</p>		

Action B-4.6

TABLE: ACTION PLAN MATRIX		
Action Number Action Taken Y/N	Action Item Description	Status (X, O, C, R, N)
# B-4.6	Where feasible, implement a program to record high water marks following high-water events.	
Status Description: No	Berwyn has no flood plain areas and is not adjacent to to rivers or streams or water retention	X
<p align="center">Completion status legend: N = New O = Action Ongoing toward Completion C = Project Completed R = Want Removed from Annex X = No Action Taken</p>		

Action B-4.7

Table 2 ACTION PLAN MATRIX		
Action Number Action Taken Y/N	Action Item Description	Status (X, O, C, R, N)
# B-4.7	Integrate the hazard mitigation plan into other plans, programs, or resources that dictate land use or redevelopment.	
Status Description: Yes	New ordinances have be passed that require impermeable paving, water retention and green space use	O
Completion status legend: N = New O = Action Ongoing toward Completion C = Project Completed R = Want Removed from Annex X = No Action Taken		

Action B-4.8

TABLE: ACTION PLAN MATRIX		
Action Number Action Taken Y/N	Action Item Description	Status (X, O, C, R, N)
# B-4.8	Consider having the City’s building code enforcement program evaluated under the Building Code Effectiveness Grading Schedule.	
Status Description: Yes	Changes have been made to the Electric and plumbing codes and adopted by city council. New changes have been made in the zoning regarding setbacks on buildings and structure height, creating more stable building construction and roof lines.	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

Berwyn has no completed actions at this time.

Future Needs to Better Understand Risk/Vulnerability

No needs have been identified at this time.

Additional Comments

No additional comments at this time

HAZUS-MH Risk Assessment Results

BERWYN EXISTING CONDITIONS	
2010 Population	56,657
Total Assessed Value of Structures and Contents	\$12,649,897,456
Area in 100-Year Floodplain	0.00 acres
Area in 500-Year Floodplain	0.00 acres
Number of Critical Facilities	45

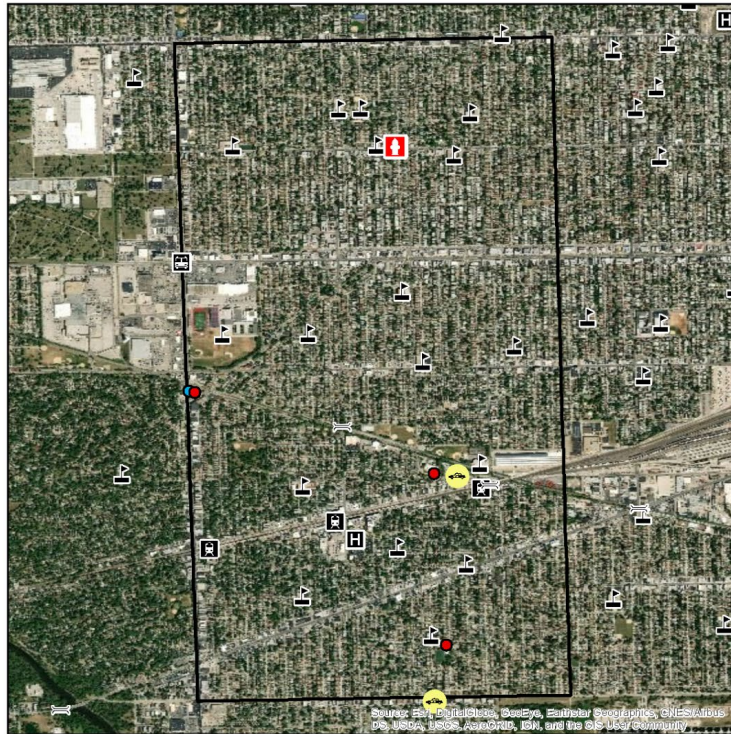
HAZARD EXPOSURE IN BERWYN						
	Number Exposed		Value Exposed to Hazard			% of Total Assessed Value Exposed
	Population	Buildings	Structure	Contents	Total	
Dam Failure						
Buffalo Creek	0	0	\$0	\$0	\$0	0.00%
U. Salt Cr. #2	0	0	\$0	\$0	\$0	0.00%
Touhy	0	0	\$0	\$0	\$0	0.00%
U. Salt Cr. #3	0	0	\$0	\$0	\$0	0.00%
U. Salt Cr. #4	0	0	\$0	\$0	\$0	0.00%
Flood						
100-Year	0	0	\$0	\$0	\$0	0.0%

500-Year	0	0	\$0	\$0	\$0	0.0%
Tornado						
100-Year	—	—	\$2,155,532,848	\$1,781,126,184	\$3,936,659,032	31.12%
500-Year	—	—	\$2,274,239,247	\$1,826,624,959	\$4,100,864,206	32.42%

ESTIMATED PROPERTY DAMAGE VALUES IN BERWYN				
	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	\$79,031,922	\$20,314,656	\$99,346,578	0.79%
Flood				
10-Year	\$0	\$0	\$0	0.00%
100-Year	\$0	\$0	\$0	0.00%
500-Year	\$0	\$0	\$0	0.00%
Tornado				

100-Year	\$215,553,285	\$178,112,618	\$393,665,903	3.11%
500-Year	\$332,038,930	\$266,687,244	\$598,726,174	4.73%

Hazard Mapping



CITY OF BERWYN

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



0 0.1 0.2 0.4 0.6 0.8 Miles

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



CITY OF BERWYN

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.

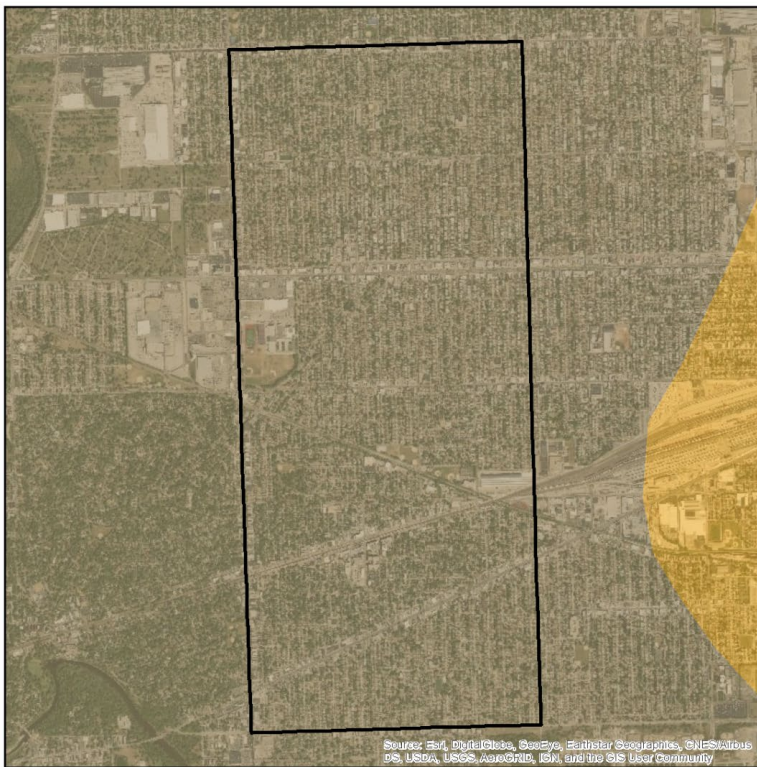
Probabilistic seismic-hazard maps were prepared for the conterminous United States for 2014 portraying peak horizontal acceleration and horizontal spectral response acceleration for 0.2- and 1.0-second periods with probabilities of exceedance of 10 percent in 50 years and 2 percent in 50 years. All of 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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0 0.1 0.2 0.4 0.6 0.8 Miles

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



CITY OF BERWYN
NATIONAL EARTHQUAKE HAZARD REDUCTION PROGRAM (NEHRP) SOIL CLASSIFICATION

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

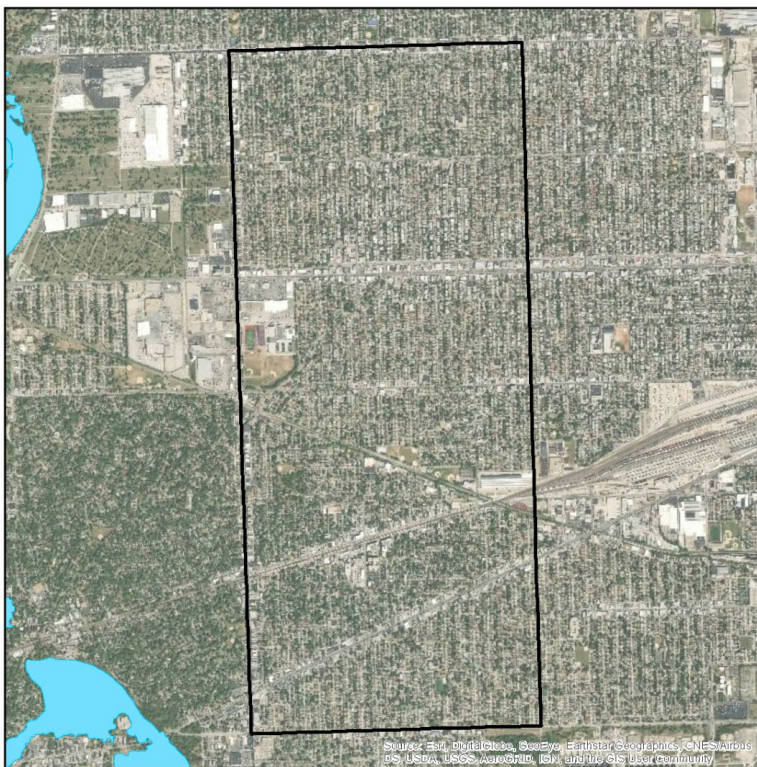
Data provided by the Illinois State Geological Survey and Cook County

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 I work. The USGS Geologic Investigation Series I-2789 Map of Surficial Deposits and Materials in the Eastern and Central United States (East of 102 degrees West Longitude) by David S. Fullerton, Charles A. Butz and Juan N. Perotti (2003) was the base map used for this work. Each State Geological Survey produced its own state map version of the Soil Site Class and Liquefaction Susceptibility maps. The procedures outlined in the NEHRP provisions (Building Seismic Safety Council, 2004) and the 2003 International Building Codes (International Code Council, 2002) were followed to produce the soil site class maps. CUSEC State Geologists used the entire column of soils material down to bedrock and did not include any bedrock in the calculation of the average shear wave velocity for the column, since it is the soil column and the difference in shear wave velocity of the soils in comparison to the bedrock which influences much of the amplification.

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CITY OF BERWYN
COOK COUNTY MWRDGC 100-YEAR INUNDATION AREA

- 100-year Inundation Area

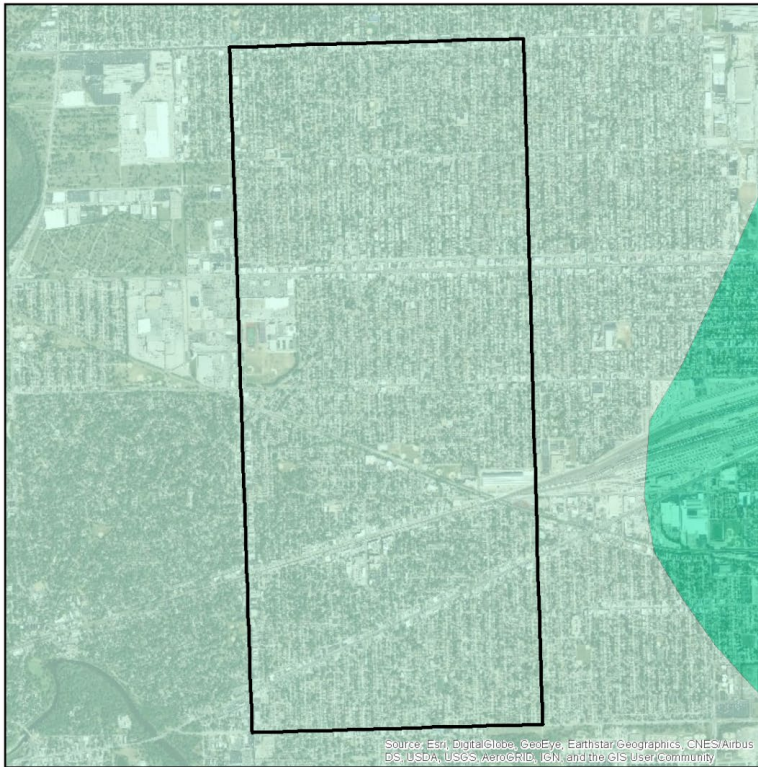
MWRDGC Data provided by Metropolitan Water Reclamation District of Greater Chicago and Cook County

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DISCLAIMER: The Cook County MWRDGC 100-year Inundation Map is provided to show general flood risk information regarding floodplains and inundation areas. This map is not regulatory. Official FEMA Flood Insurance Study information and regulatory maps can be obtained from <http://www.fema.gov>.



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



CITY OF BERWYN

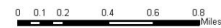
LIQUEFACTION SUSCEPTIBILITY

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

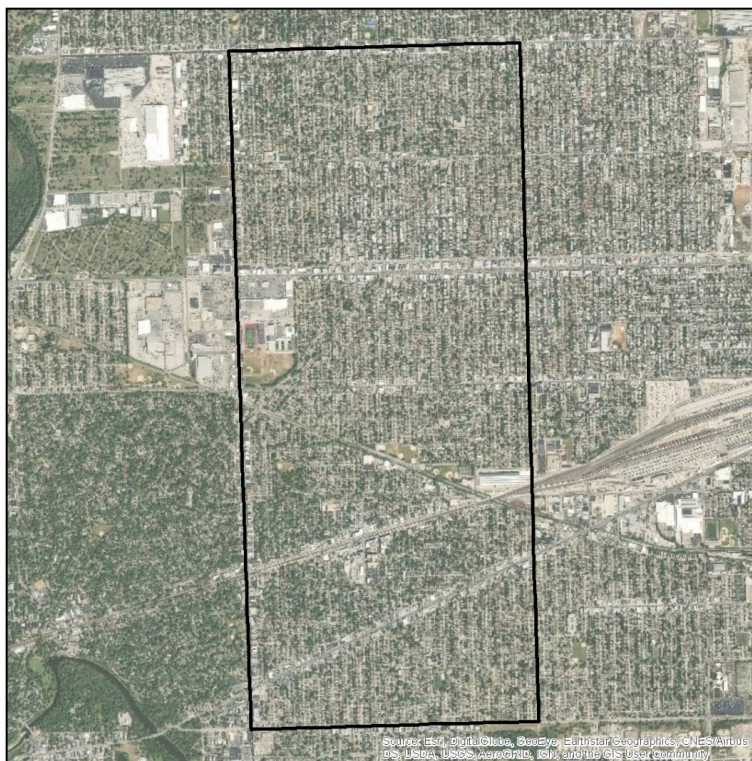
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CITY OF BERWYN

100- AND 500- YEAR TORNADO EVENTS

Magnitude

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

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



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