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

Chicago 2019 MJ-HMP Jurisdictional Annex

FINAL

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Prepared for:

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Jurisdiction Profile

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

- **Date of Incorporation:** 1837
- **Current Population:** 2,705,994 as of 2018
- **Population Growth:** While Chicago experienced a population decline of over 200,000 persons between 2000 and 2010, the City's population has increased by .003% from 2010 to 2016.
- **Location and Description:** The City of Chicago is located in northeastern Illinois at 41°59 N and 86°54 W, and at an altitude of 578.5 feet above sea level. It is the third-most populous city in the United States and is the county seat of Cook County. Chicago has often been called a global architecture capital and is considered one of the most important business centers in the world. Positioned along Lake Michigan, the City is an international hub for finance, commerce, industry, technology, telecommunications, and transportation. O'Hare International Airport is the second-busiest airport in the world when measured by aircraft traffic; the region also has the largest number of U.S. highways and railroad freight. In 2012, Chicago was listed as an alpha global city by the Globalization and World Cities Research Network, and ranked seventh in the world in the 2016 Global Cities Index. Chicago has the third-largest gross metropolitan product in the United States—about $640 billion according to 2015 estimates. The City has one of the world's largest and most diversified economies, with no single industry employing more than 14% of the workforce.
- **Brief History:** Chicago's recorded history begins with the arrival of French explorers, missionaries and fur traders in the late 17th century and their interaction with the local Potawatomi Native Americans. The modern city was incorporated in 1837 by Northern businessmen and grew rapidly from real estate speculation and the realization that it had a commanding position in the emerging inland transportation network, based on lake traffic and railroads, controlling access from the Great Lakes into the Mississippi River basin. Despite the Great Chicago Fire in 1871, the city grew exponentially, becoming the nation's rail center and the dominant Midwestern center for manufacturing, commerce, finance, higher education, religion, broadcasting, sports, jazz, and high culture. Chicago is now a highly urbanized area and much of its natural environment has been altered since its early development.
- **Climate:** The climate of Chicago is classified as humid continental, with all four seasons distinctly represented: wet springs; variably hot, humid summers; pleasantly mild autumns; and cold winters. Temperatures are at the lowest in the months of January and February, and the highest during the months of July and August. Chicago's weather has the presence of Lake Michigan which influences the weather throughout the year. The highest official temperature ever recorded in Chicago was 105°F on July 24, 1934. The coldest official temperature ever recorded was -27°F on January 20, 1985. The yearly precipitation average is 36.89 inches. Chicago is prone to thunderstorms from spring to early fall. Heavy rainfall events can occur with thunderstorms and occasional prolonged systems. The average Chicago winter season produces 36.7 inches of snow, but these tend to vary.

- **Governing Body Format:** Chicago City government is divided into executive and legislative branches. The mayor is the chief executive while the City Council, elected from 50 wards, is the legislative body. Government priorities and activities are established in a budget ordinance usually adopted in November of each year. The City takes official action through the passage of ordinances and resolutions. In addition to the Mayor, Chicago's two other city-wide elected officials are the City Clerk and the City Treasurer. The Chicago Police Department provides law enforcement and the Chicago Fire Department provides fire suppression and emergency medical services for the City and its residents. Civil and criminal law cases are heard in the Cook County Circuit Court of the State of Illinois court system, or in the Northern District of Illinois, in the federal system. In the state court, the public prosecutor is the Illinois State's Attorney; and, in the Federal court, it is the United States Attorney.
- **Development Trends:** Chicago is a heavily urbanized city, with only 7.1% of its total land area classified as open space. The City has seen a large increase in its Central Business District (CBD) population over the last 20 years. The CBD and adjacent neighborhoods are currently undergoing a building boom, with over $20 billion in “megaprojects” currently underway or in the planning stages. The Chicago Sustainable Development Policy has been continuously implemented since 2004. The goal of the policy is to enhance the sustainable performance of projects receiving City assistance. It requires development projects that are receiving financial assistance or special approvals from the City to include sustainable elements. The Policy has been a driving force in making Chicago a global leader in the green roof movement as well as the number of LEED certified projects. As of 2013, the City of Chicago had more than 500 green roofs totaling nearly 5.6 million square feet. More than 500 development projects have been LEED certified, which equates to roughly 180 million square feet. The City and its surrounding metropolitan area contain the third-largest labor pool in the United States with about 4.63 million workers. Illinois is home to 66 Fortune 1000 companies, including those in Chicago. The City of Chicago also hosts 12 Fortune Global 500 companies and 17 Financial Times 500 companies. The City claims three Dow 30 companies: aerospace giant, Boeing, which moved its headquarters from Seattle to the Chicago Loop in 2001, McDonald's, and Kraft Heinz. According to Site Selection magazine, the Chicago area has seen the most corporate headquarters relocation or expansion projects in the U.S. for each of four consecutive years from 2013 to 2016.

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	Municipal Code of Chicago – adopted 1939 In accordance with Public Act 096-0704, Illinois has adopted the IBC as its state Building Code
Zonings	Yes	No	No	Yes	Municipal Code of Chicago – adopted 1939 65 ILCS 5/ Illinois Municipal Code.
Subdivisions	Yes	No	No	Yes	765 ILCS 205/PLAT ACT as passed by Illinois State General Assembly
Stormwater Management	Yes	No	Yes	Yes	Municipal Code of Chicago, Chapter 11- 18 (Stormwater Ordinance) – adopted 1939 State regulates industrial activity from Construction sites 1 acre or larger under section 402 CWA.
Post Disaster Recovery	No	No	No	No	

Real Estate Disclosure	No	No	Yes	Yes	(765 ILCS 77/) Residential Real Property Disclosure Act.
Growth Management	Yes	No	No	No	Municipal Code of Chicago – adopted 1939 (Chicago Zoning Ordinance, MCC § 17- 1-0100 et seq., controls development in Chicago)
Site Plan Review	Yes	No	No	No	Municipal Code of Chicago – adopted 1939
Public Health and Safety	Yes	No	Yes	Yes	Municipal Code of Chicago – adopted 1939
Environmental Protection	Yes	No	No	No	Municipal Code of Chicago – adopted 1939
Planning Documents					
General or Comprehensive Plan	Yes	No	No	No	Chicago Central Area Action Plan Chicago Sustainable Development Policy CMAP ON TO 2050 Comprehensive Regional Plan
Is the plan equipped to provide linkage to this mitigation plan?					Yes
Floodplain or Basin Plan	No	No		No	
Stormwater Plan	Yes	No	MWRD	No	Regional stormwater planning is managed by MWRD.
Capital Improvement Plan	Yes	No	No	No	Chicago Capital Improvement Program
What types of capital facilities does the plan address?					Transportation, parkland, lakefront/shoreline, municipal facilities, neighborhood infrastructure, sewer infrastructure, water infrastructure
How often is the plan revised/updated?					Annually

Habitat Conservation Plan	Yes	No	Chicago Mayor's Office	No	2011 Chicago Nature and Wildlife Plan; Chicago Wilderness Biodiversity Recovery Plan
Economic Development Plan	Yes	No	Yes	Yes	The Chicago City Council reviews economic development related programs and incentives including tax incentives offered through the Cook County 6b Program
Shoreline Management Plan	Yes	No	No	No	Lake Michigan and Chicago Lakefront Protection Ordinance, Municipal Code of Chicago § 16-4-010, et seq. and the Municipal Code of Chicago— adopted 1939 (Chicago Zoning Ordinance, MCC § 17-1-0100 et seq.)
Response/Recovery Planning					
Comprehensive Emergency Management Plan	Yes	No	Yes	Yes	2018 City of Chicago Emergency Operations Plan
Threat and Hazard Identification and Risk Assessment	Yes	No	Yes	No	2018 Chicago Urban Area THIRA/SPR
Terrorism Plan	No	No	No	No	2018 City of Chicago EOP – Human-Caused Hazards Annex
Post-Disaster Recovery Plan	No	No	No	No	
Continuity of Operations Plan	No	No	Yes	No	
Public Health Plans	Yes	No	Yes	No	Chicago Public Health Emergency Operations Plan

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	

TABLE: ADMINISTRATIVE AND TECHNICAL CAPABILITY		
Staff/Personnel Resources	**Available?**	**Department/Agency/Position**
Planners or engineers with knowledge of land development and land management practices	Yes	Planning and Development
Engineers or professionals trained in building or infrastructure construction practices	Yes	Buildings
Planners or engineers with an understanding of natural hazards	Yes	Transportation, Buildings, Water Management
Staff with training in benefit/cost analysis	Yes	Budget and Management
Surveyors	Yes	Transportation
Personnel skilled or trained in GIS applications (a)	Yes	Innovation and Technology, Police Department, Planning and Development
Scientist(s) familiar with natural hazards in the local area	Yes	

Emergency manager (b)	Yes	Office of Emergency Management and Communications
Grant writers	Yes	Office of Emergency Management and Communications

a. All partners have access to Cook County GIS Consortium as a technical resource.
b. If your jurisdiction does not have an emergency manager, Cook County DHSEM acts as your emergency manager.

TABLE: NATIONAL FLOOD INSURANCE PROGRAM COMPLIANCE	
What department is responsible for floodplain management in your jurisdiction?	Dept of Buildings
Who is your jurisdiction's floodplain administrator? (department/position)	Andrew Billing, PE, CFM, consultant to Dept of Buildings
Are any certified floodplain managers on staff in your jurisdiction?	Yes
What is the date of adoption of your flood damage prevention ordinance?	6/28/1991
When was the most recent Community Assistance Visit or Community Assistance Contact?	8/5/2014
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. Chicago is interested in joining the CRS program.

TABLE: COMMUNITY CLASSIFICATIONS			
	Participating?	**Classification**	**Date Classified**
Community Rating System	No		
Building Code Effectiveness Grading Schedule	No		

Public Protection/ISO	Yes	1	2017
StormReady	Yes	Gold (Countywide)	2014
Tree City USA	Yes		1982

Jurisdiction-Specific Natural Hazard Event

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: 60 (Non-Mitigated): 37 (Single- Family), 15 (Other Residential), 8 (2-4 Family)
- Number of FEMA-Identified Severe Repetitive Loss Properties: 0
- Number of Repetitive Flood Loss/Severe Repetitive Loss Properties That Have Been Mitigated: 2 (1 Other Residential, 1 Single-Family)

TABLE: NATURAL HAZARD EVENTS

Type of Event	FEMA Disaster Number (if applicable)	Date	Preliminary Damage Assessment
Severe Weather	-	7/24/2016	-
Flash Flood	-	7/24/2016	-
Severe Weather	-	6/22/2016	-
Hail	-	4/25/2016	-
Severe Storms, Straight-Line Winds and Flooding	DR-4116	4/16/2013	-
Extreme heat	-	7/4/2012	-
Severe Winter Storm and Snowstorm	DR-1960	2/1/2011	-
Severe Storms and Flooding	DR-1935	7/19/2010	-
Severe Storms and Flooding	DR-1800	9/13/2008	-
Severe Storms and Flooding	DR-1729	8/20/20007	-
Severe Winter Storm	EM-3161	12/11/2000	-
Winter Snow Storm	EM-3134	1/1/1999	-
Flooding	DR-1188	8/16/1997	-
Flooding	DR-1129	7/17/1996	-

Extreme Heat	-	7/12/1995	-
Flooding and Severe Storms	DR-997	4/13/1993	-
Severe Storms and Flooding	DR-798	8/13/1987	-
Severe Storms and Flooding	DR-776	9/21/1986	-
Severe Storms, Flooding, and Tornadoes	DR-643	6/30/1981	-
Blizzards and Snowstorms	EM-3068	1/16/1979	-
Severe Storms, Flooding, and Tornadoes	DR-509	6/18/1976	-

Jurisdiction-Specific Hazards and Impacts - Chicago Dept. of Aviation

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:*** Dam failure concerns at Touhy Ave.
- ***Flood:*** Tunnels and I-90 are susceptible to flooding.

The following capabilities may be needed to further mitigate the impacts of these hazards:

- ***Lightning:*** Lightning detection system
- ***Hail:*** Emergency notifications
- ***Extreme Cold:*** Back up of all heating systems
- ***Tornado:*** Siren system updates. P.A. system upgrade. Visual alert system.

Jurisdiction-Specific Hazards and Impacts - CDPH

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:*** Limitations with sewer system size and capacity for water runoff. Lakefront erosion, and potential loss of East N/S evacuation road (LSD).
- ***Extreme Heat:*** Long-term care and senior living facilities lack electric panel conversions to receive external power source/generator power.
- ***Drought:*** There may be a need to enhance water distribution networks.

- ***Extreme Cold:*** Lack of overnight housing for the homeless population or sustained sheltering.
- ***Disease Transmission:*** Chicago has a very transient visitor population. There is a greater need for a global early warning system to mitigate/prevent infectious disease transfer (Aviation, Rail, etc). Lack of isolation/quarantine housing for patients under investigation (PUI) for high consequence disease exposures (SARS, Pandemic, Ebola, etc.).

Jurisdiction-Specific Hazards and Impacts - DWM

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:*** Flooding certainly has been a problem and most likely will continue in the future. DWM resources have been maximized to provide mitigation for communities that are flooded.
- ***Extreme Heat:*** Historically, prolonged extreme heat incidents has severely impacted the senior/elderly population in the City.
- ***High Winds:*** High winds have made many households vulnerable to power outages.
- ***Snow:*** Snow and extreme cold have historically affected the City; and depending on the severity, has even shut down the City.
- ***Extreme Cold:*** Extreme cold incidents uniquely impact the City. Recent extreme cold incidents resulted in water services being frozen throughout the City. DWM and private contractors continued to abate the problem.

Jurisdiction-Specific Hazards and Impacts - Dept. of Water Management 1

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:*** The wards in the southeast side of the City often struggle to recover from property damage. Non-English speakers have a harder time getting information regarding basement flooding initiatives or "Alert Chicago". Sewers can be impacted by urban flooding and overflow.
- ***Extreme Heat:*** Hydrants being utilized during an extreme heat incident could adversely affect the City from suppressing and managing fires.
- ***Snow, Blizzards, Extreme Cold, Ice Storms:*** Those dependent on public transportation are at greatest risk (food, work, appointments, medical, etc.). Senior citizens in the City are also very vulnerable. Residents in Chicago may be susceptible to frozen pipes during an extreme cold incident. Response times for maintenance crews might be longer.
- ***Hail and High Winds***: These incidents will result in damaged facilities
- ***Lightning and Severe Storms***: Loss of power could affect the operational viability of pumping stations.

Jurisdiction-Specific Hazards and Impacts - PWM

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.

- ***Extreme Cold:*** During an Extreme Cold incident, many in the City may not have access to water if water services are adversely impacted by the cold (i.e. frozen lines, etc.).
- ***Tornado:*** During a tornado or other severe events that result in a loss of power, may be unable to treat and pump water to citizens.

Hazard Risk Ranking

The *Hazard Risk Ranking Table* below presents the ranking of the hazards of concern. Hazard area extent and location maps are included at the end of this chapter. These maps are based on the best available data at the time of the preparation of this plan, and are considered to be adequate for planning purposes.

TABLE: HAZARD RISK RANKING

Rank	Hazard Type	Risk Rating Score (Probability x Impact)
1	Severe Weather	54
2	Severe Winter Weather	54
3	Tornado	36
4	Earthquake	18
5	Flood	18
6	Drought	18
7	Dam Failure	6

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 C.1—Where appropriate, support retrofitting, purchase, or relocation of structures in hazard-prone areas to prevent future structural damage. Give priority to properties with exposure to repetitive losses.						
Ongoing	All	7, 13	Dept. of Buildings	Low	FEMA Haz Mitigation Grants	Long-term
Action C.2—Continue to support the countrywide actions identified in this plan.						
Ongoing	All	All	City of Chicago	Low	General Fund	Short- and long-term
Action C.3—Actively participate in the plan maintenance strategy identified in this plan.						
Ongoing	All	3, 4, 6	Chicago OEMC	Low	General Fund	Short-term
Action C.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	City of Chicago	Low	General Fund	Long-term
Action C.5—Continue to maintain the minimum National Flood Insurance Program participation requirement for communities with no mapped Special Flood Hazard Area.						
Ongoing	Flooding	4, 6, 9	Dept. of Buildings	Low	General Fund	Short-term and Ongoing
Action C.6—Integrate the hazard mitigation plan into other plans, programs, or resources that dictate land use or redevelopment.						
Ongoing	All	3, 4, 6, 10, 13	City of Chicago	Low	General Fund	Short-term
Action C.7—Complete construction and implementation of the Albany Park Stormwater Diversion Tunnel.						
Complete	Flooding	3, 4, 9	CDOT	Medium		Complete
Action C.8—Implement the Green Infrastructure Project: Barbara Vick Outdoor Classrooms						
New	Flood	13	MWRD	TBD	TBD	TBD
Action C.9—Continue implementation of the Chicago Sustainable Development Policy, which enhances the sustainable performance of projects receiving City assistance.						
Ongoing	Flooding, Severe Weather	3, 4, 7, 10, 13	Buildings, Planning & Development	Low	Grants/General Fund	Long-term and Ongoing
Action C.10—Continue implementation of the Green Stormwater Infrastructure Policy, which guides City's efforts in renewing water infrastructure, conserving water, greening water operations, and sustainably managing stormwater.						
Ongoing	Flooding	2, 4, 10, 13	Buildings, Water Management	Low	N/A	Long-term/Ongoing
Action C.11— Continue implementation of the Inlet Control System (Rainblocker) program, which installs restrictors to slow the flow of stormwater into the sewer system.						
Ongoing	Flooding	4, 9, 13	Dept. of Water Management	Low		Long-term/Ongoing
Action C.12—Continue implementation of the Chicago Shoreline Protection Project, which provides storm damage protection to the Lake Michigan shoreline and Lake Shore Drive.						
Ongoing	Flooding	2, 3, 4, 8, 9, 13	USACE, Park District	Medium	USCAE, IL Dept of Natural Resources	Long-term/Ongoing

Action C.13—Continue implementation of the RainReady Program, which provides individualized services to help homes and communities reduce their flood risks.						
Ongoing	Flooding	2, 3, 6, 8, 9, 10	Center for Neighborhood Technology	Low	CNT	Long-term/Ongoing
Action C.14—Continue construction and implementation of the Metropolitan Water Reclamation District of Greater Chicago's Tunnel and Reservoir Plan (TARP).						
Ongoing	Flooding	1, 2, 3, 6, 9, 12, 13	MWRDGC	Medium	MWRDGC, ACOE	Long-term/Ongoing
Action C.15—Continue to expand the usage and capabilities of the City's NotifyChicago public notification system.						
Ongoing	All	4, 5, 6, 12	OEMC	Low	Corporate	Long-term/Ongoing
Action C.16—Continue to expand the usage and capabilities of the City's Reverse 9-1-1 public notification system.						
Ongoing	All	4, 5, 6, 12	OEMC	Low	Corporate	Long-term/Ongoing
Action C.17—Continue to expand the usage and capabilities of the City's Digital Sign Network public notification system.						
Ongoing	All	4, 5, 6, 12	OEMC	Low	Corporate	Long-term/Ongoing
Action C.18—Develop local capabilities for implementation of FEMA's Integrated Public Alert & Warning System (IPAWS).						
Ongoing	All	4, 5, 6, 12	OEMC	Low	Corporate	Long-term/Ongoing
Action C.19—Continue the installation and maintenance of Green Alleys, which results in rainwater being allowed to infiltrate into the soils through permeable pavement or infiltration basins.						
Ongoing	Flooding	2, 3, 4, 9, 12, 13	CDOT	Low	General Obligation Bond	Long-term/Ongoing
Action C.20—Continue the installation and maintenance of biofiltration systems and rain gardens throughout the city, which promote the absorption and infiltration of stormwater runoff.						
Ongoing	Flooding	2, 3, 4, 9, 12, 13	DMW/CDOT	Low	Corporate	Long-term/Ongoing
Action C.21—Continue development and maintenance of the City of Chicago Flood Operations Guidance Document.						
Ongoing	All	2, 4, 8, 12	OEMC	Low	Corporate	Long-term/Ongoing

Action C.22—Chicago Ward Green Alley Project.						
New	Flooding	9	MWRD	TBD	TBD	TBD
Action C.23—Continue implementation of Chicago's Basement Flooding Partnership, where the Dept of Water Management works with neighborhoods to reduce flooding impacts.						
Ongoing	Flooding	2, 3, 6, 8, 9, 10	DWM	Low	Corporate	Long-term/Ongoing
Action C.24—Encourage the development of continuity planning for Chicago departments and the Chicago area's largest employers and companies headquartered in Chicago.						
Ongoing	All	1	OEMC	Low	Corporate	Long-term/Ongoing
Action C.25—Ensure continued compliance with the National Flood Insurance Program (NFIP).						
Ongoing	Flooding	2, 3, 4, 9, 10, 11, 12	Buildings	Low	Corporate	Long-term/Ongoing
Action C.26—Evaluate existing notification systems for airport coverage and integrate all systems into single deployment method.						
New	All	5	Aviation	$250,000 per year; Low	Aviation Funding	2021
Action C.27—Implement Long-term Care and Senior Housing Retrofits to Electric Panels to Allow for Exterior Power Connection/Generators.						
New	Extreme heat, lightning, fog, high wind, widespread power outage	13	City of Chicago, Chicago Department of Public Health	High	Grants	TBD
Action C.28—Utilize ILWARN utility-to-utility network for flooding emergencies.						
New	Flood	8	Illinois Section AWWA	Low	Existing budget, TBD	Ongoing
Action C.29—Build a new backup generator facility for Jardine Water Plant.						
New	Widespread Power Outage	2	DWM	Low	Capital funding	2019/2020

Action C.30—Enhance Storm Water Management through the installation of bioinfiltration systems.						
New	Flooding	2	Chicago Housing Authority	Varies per project; Low	Grants, capital budget	2020
Action C.31—Install a solar PV system connected to ComEd's Bronzeville Microgrid.						
New	Widespread power outage	1, 2, 12	Chicago Housing Authority	$3,000,000; Low	Grants	2019
Action C.32—Implement a Green Infrastructure program for the County as a whole.						
New	Flood	9, 13	DHSEM	TBD; Medium	Grant Funds	TBD
Action C.33—Purchase deployable portable generators that could provide power to firehouses that fall victim to long-term power outages. Should include quick connect hookups at each fire house.						
New	All	1, 2, 12	Chicago Fire Department	$250,000 or more; High	Grants	2021
Action C.34—Purchase Portable High Capacity Air Conditioners.						
New	Extreme Heat, Widespread Power Outage	12	Chicago Fire Department	Less than $100,000; High	Grants	Unsure
Action C.35—Purchase high capacity portable heaters.						
New	Hail, High Wind, Snow, Blizzard, Extreme Cold, Ice Storms, Widespread Power Outage	12	Chicago Fire Department	Above $100,000; High	Grants	2021
Action C.36—Purchase Mass Decontamination Apparatus.						
New	All	1, 2	Chicago Fire Department	Greater than $300,000; High	Grants	2019

Action C.37—Implement Albany Park Stormwater Diversion Tunnel.						
Completed	Flood	9	MWRD	$70,655,320	MWRD Contribution: $25,920,000	Completed 4/25/18
Action C.38—Implement Green Infrastructure at Chicago Public Schools, Space 2 Grow.						
New	Flood	13	MWRD	MWRD Max Contribution (through 2022); $16,000,000	TBD	TBD
Action C.39—Launch Pilot Study for Investigating Technology to Address Basement Backups.						
New	Widespread Power Outage	8	MWRD	MWRD Contribution; $400,000	MWRD	TBD
Action C.40—Space to grow partnered schools.						
New	Flood	13	MWRD	TBD; MWRD (Max Contribution: $16,000,000)	MWRD, Chicago Public Schools, City of Chicago Department of Water Management	2022
Action C.41—Prevent Stormwater Infiltration through the Establishment of Native Habitat at 3 Chicago Parks.						
New	Flood	13	MWRD	TBD	TBD	TBD
(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	5	High	Medium	Yes	No	Yes	High
9	4	High	Low	Yes	No	Yes	High
10	3	Medium	Low	Yes	No	Yes	Medium
11	6	High	High	Yes	Yes	Yes	Medium
12	6	Medium	Low	Yes	No	No	Low
13	7	High	High	Yes	Yes	Yes	High
14	4	Medium	Low	Yes	Yes	Yes	Medium
15	4	Medium	Low	Yes	Yes	Yes	Medium
16	4	Medium	Low	Yes	Yes	Yes	Medium
17	4	Medium	Low	Yes	Yes	Yes	Medium
18	6	Medium	Low	Yes	Yes	Yes	Medium
19	6	Medium	Low	Yes	No	Yes	Medium
20	4	Medium	Low	Yes	No	Yes	Medium
21	6	Medium	Low	Yes	No	Yes	Medium
22	1	TBD	TBD	TBD	TBD	TBD	TBD
23	7	Medium	Low	Yes	No	Yes	Medium
24	1	TBD	Low	TBD	TBD	TBD	TBD
25	7	TBD	Low	TBD	TBD	TBD	TBD
26	1	High	Low	Yes	No	Yes	High
27	1	High	High	Yes	Yes	No	High
28	1	Medium	Low	Yes	No	Yes	Low
29	1	Low	Low	Yes	No	Yes	High
30	1	Medium	Low	Yes	No	Yes	Low
31	3	Medium	Low	Yes	No	Yes	High
32	2	Medium	Medium	Yes	No	Yes	Medium
33	3	High	High	Yes	Yes	No	Medium

34	1	Medium	High	Yes	Yes	No	Medium	
35	1	High	High	Yes	Yes	No	Medium	
36	2	Medium	High	Yes	Yes	No	High	
37	1	TBD	TBD	TBD	TBD	TBD	TBD	
38	1	TBD	TBD	TBD	TBD	TBD	TBD	
39	1	TBD	TBD	TBD	TBD	TBD	TBD	
40	1	TBD	TBD	TBD	TBD	TBD	TBD	
41	1	TBD	TBD	TBD	TBD	TBD	TBD	
(a) See Chapter 1 for explanation of priorities.								

New Mitigation Actions

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

Action C.8

Mitigation Action	Implement the Green Infrastructure Project: Barbara Vick Outdoor Classrooms
Year Initiated	2019
Applicable Jurisdiction	City of Chicago
Lead Agency/Organization	MWRD
Supporting Agencies/Organizations	Chicago Public Schools - Barbara Vick Early Childhood and Family Center
Applicable Goal	• Develop and implement sustainable, cost-effective, and environmentally sound risk-reduction (mitigation) projects.
Applicable Objective	• Encourage hazard mitigation measures that result in the least adverse effect on the natural environment and that use natural processes.
Potential Funding Source	TBD
Estimated Cost	TBD
Benefits (loss avoided)	TBD
Projected Completion Date	TBD
Priority and Level of Importance (Low, Medium, High)	TBD
Benefit Analysis (Low, Medium, High)	TBD
Cost Analysis (Low, Medium, High)	TBD
Actual Completion Date	TBD

Recommended Mitigation Action/Implementation Plan and Project Description	
Action/Implementation Plan and Project Description:	ID: CPS-Barbara Vick

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

Mitigated Hazards	
	All Hazards

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

Action C.22

Mitigation Action	Implement the Chicago Ward Green Alley Project
Year Initiated	2019
Applicable Jurisdiction	City of Chicago (18th, 28th, and 47th Ward)
Lead Agency/Organization	MWRD
Supporting Agencies/Organizations	City of Chicago
Applicable Goal	• Involve stakeholders to enhance the local capacity to mitigate, prepare for, and respond to the impacts of natural hazards.
Applicable Objective	• Provide or improve flood protection on a watershed basis with flood control structures and drainage maintenance plans.
Potential Funding Source	TBD
Estimated Cost	TBD
Benefits (loss avoided)	TBD
Projected Completion Date	TBD
Priority and Level of Importance (Low, Medium, High)	TBD
Benefit Analysis (Low, Medium, High)	TBD
Cost Analysis (Low, Medium, High)	TBD
Actual Completion Date	TBD

Recommended Mitigation Action/Implementation Plan and Project Description	
Action/Implementation Plan and Project Description:	Project Title: Chicago-18th Ward City of Chicago - 18th Ward 8000 S Homan Green Alley Chicago-28th Ward City of Chicago - 28th Ward 725 S. Laflin Green Alley Chicago-47th Ward City of Chicago - 47th Ward 1900 W Eddy-Addison Green Alley

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

2023		

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

Action C.26

Mitigation Action	Evaluate existing notification systems for airport coverage and integrate all systems into single deployment method
Year Initiated	2019
Applicable Jurisdiction	City of Chicago
Lead Agency/Organization	Aviation
Supporting Agencies/Organizations	
Applicable Goal	• Protect the lives, health, safety, and property of the citizens of Cook County from the impacts of natural hazards.
Applicable Objective	Objective 5: Develop, improve, and protect systems that provide early warnings, emergency response communications, and evacuation procedures.
Potential Funding Source	Aviation Funding
Estimated Cost	$250,000 per year
Benefits (loss avoided)	Integrated emergency notification to simultaneously warn the public on multiple methods
Projected Completion Date	2021
Priority and Level of Importance (Low, Medium, High)	High Priority
Benefit Analysis (Low, Medium, High)	High - Project will provide an immediate reduction of risk exposure for life and property.
Cost Analysis (Low, Medium, High)	Low - The project could be funded under the existing budget. The project is part of or can be part of an ongoing existing program.
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		

Mitigated Hazards	
X	All Hazards
	Dam/Levee Failure
	Drought
	Earthquake
	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 C.27

Mitigation Action	Implement Long-term Care and Senior Housing Retrofits to Electric Panels to Allow for Exterior Power Connection/Generators
Year Initiated	2019
Applicable Jurisdiction	City of Chicago
Lead Agency/Organization	City of Chicago, Chicago Department of Public Health
Supporting Agencies/Organizations	
Applicable Goal	• 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	Objective 13: Reduce natural hazard-related risks and vulnerability to potentially isolated populations within the planning area.
Potential Funding Source	Grants
Estimated Cost	TBD
Benefits (loss avoided)	Avoid the necessity of evacuating this vulnerable population during power failures.
Projected Completion Date	Long-term
Priority and Level of Importance (Low, Medium, High)	High
Benefit Analysis (Low, Medium, High)	High - Project will provide an immediate reduction of risk exposure for life and 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	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		

Mitigated Hazards	
	All Hazards
	Dam/Levee Failure
	Drought
	Earthquake
	Flood
X	Extreme Heat
X	Lightning
	Hail
X	Fog
X	High Wind
	Snow
	Blizzard
	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 C.28

Mitigation Action	Utitlize ILWARN utility-to-utility network for flooding emergencies
Year Initiated	2019
Applicable Jurisdiction	Chicago
Lead Agency/Organization	Illinois Section AWWA
Supporting Agencies/Organizations	DWN, IL water utilities
Applicable Goal	• Protect the lives, health, safety, and property of citizens of Cook County from the impacts of natural hazards.
Applicable Objective	Objective 8: Establish partnerships among all levels of local government, the private sector, and/or nongovernmental organizations to improve and implement methods to protect people and property.
Potential Funding Source	TBD
Estimated Cost	Low
Benefits (loss avoided)	Increased coordination and partnerships
Projected Completion Date	Ongoing
Priority and Level of Importance (Low, Medium, High)	Low 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)	Low—The project could be funded under the existing budget. The project is part of or can be part of an ongoing existing program.
Actual Completion Date	Ongoing

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

Action C.29

Mitigation Action	Build a new backup generator facility for Jardine Water Plant
Year Initiated	2019
Applicable Jurisdiction	Chicago
Lead Agency/Organization	DWM
Supporting Agencies/Organizations	
Applicable Goal	• Protect the lives, health, safety, and property of the citizens of Cook Couty from the impacts of natural hazards.
Applicable Objective	Objective 2: Increase resilience of (or protect and maintain) infrastructure and critical facilities.
Potential Funding Source	Capital funding
Estimated Cost	Low
Benefits (loss avoided)	Increased redundancy of a key lifeline
Projected Completion Date	2019/2020
Priority and Level of Importance (Low, Medium, High)	High Priority
Benefit Analysis (Low, Medium, High)	Low—Project will provide an immediate reduction of risk exposure for life and property.
Cost Analysis (Low, Medium, High)	Low—The project could be funded under the existing budget. The project is part of or can be part of an ongoing existing program.
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		

Mitigated Hazards	
	All Hazards
	Dam/Levee Failure

	Drought
	Earthquake
	Flood
	Extreme Heat
	Lightning
	Hail
	Fog
	High Wind
	Snow
	Blizzard
	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 C.30

Mitigation Action	Enhance Storm Water Management through the installation of bioinfiltration systems
Year Initiated	2019
Applicable Jurisdiction	Chicago Housing Authority
Lead Agency/Organization	Chicago Housing Authority
Supporting Agencies/Organizations	
Applicable Goal	• Develop and implement sustainable, cost-effective, and environmentally sound risk-reduction (mitigation) projects.
Applicable Objective	Objective 2: Increase resilience of (or protect and maintain) infrastructure and critical facilities.
Potential Funding Source	Grants, capital budget
Estimated Cost	Varies per project
Benefits (loss avoided)	Decreases combined sewer system overflow.
Projected Completion Date	2020
Priority and Level of Importance (Low, Medium, High)	Low 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)	Low—The project could be funded under the existing budget. The project is part of or can be part of an ongoing existing program.
Actual Completion Date	TBD

Recommended Mitigation Action/Implementation Plan and Project Description	
Action/Implementation Plan and Project Description:	The Chicago Housing Authority (CHA) will install bioinfiltration systems that promote the absorption and infiltration of stormwater runoff, where applicable, on CHA-owned properties throughout the City.

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

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

Action C.31

Mitigation Action	Install a solar PV system connected to ComEd's Bronzeville Microgrid.
Year Initiated	2019
Applicable Jurisdiction	Chicago Housing Authority
Lead Agency/Organization	Chicago Housing Authority
Supporting Agencies/Organizations	ComEd
Applicable Goal	• Protect public services and critical facilities, including infrastructure, from loss of use during natural hazard events.
Applicable Objective	• Objective 1: Eliminate or minimize disruption of local government operations caused by natural hazards through all phases of emergency management. • Objective 2: Increase resilience of (or protect and maintain) infrastructure and critical facilities. • Objective 12: Reduce natural hazard-related risks and vulnerability to potentially isolated populations within the planning area.
Potential Funding Source	Grants
Estimated Cost	$3,000,000
Benefits (loss avoided)	Redundant power source, job creation, and reduced utility cost
Projected Completion Date	2019
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)	Low—The project could be funded under the existing budget. The project is part of or can be part of an ongoing existing program.
Actual Completion Date	TBD

Recommended Mitigation Action/Implementation Plan and Project Description	
Action/Implementation Plan and Project Description:	The CHA had a unique opportunity to pilot the first smart renewable energy system in public housing at Dearborn Homes. Connecting Dearborn Homes to ComEd's Bronzeville Microgrid will provide resiliency to Dearborn Homes residents by alleviating the impacts of disruptive events to the existing

	electrical grid. The Bronzeville Microgrid will sectionalize power delivery into smaller segments and use localized control to provide continuous energy supply to critical facilities and customers.

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

Mitigated Hazards	
	All Hazards
	Dam/Levee Failure
	Drought
	Earthquake
	Flood
	Extreme Heat
	Lightning
	Hail
	Fog
	High Wind
	Snow
	Blizzard
	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 C.32

Mitigation Action	Implement a Green Infrastructure program for the County as a whole
Year Initiated	2019
Applicable Jurisdiction	County
Lead Agency/Organization	DHSEM
Supporting Agencies/Organizations	MWRD
Applicable Goal	• Develop and implement sustainable, cost-effective, and environmentally sound risk-reduction (mitigation) projects.
Applicable Objective	• Objective 9 - Provide or improve flood protection on a watershed basis with flood control structures and drainage maintenance plans. • Objective 13 - Encourage hazard mitigation measures that result in the least adverse effect on the natural environment and that use natural processes.
Potential Funding Source	Grant Funds
Estimated Cost	TBD
Benefits (loss avoided)	Mitigation of water flow to reduce urban flooding
Projected Completion Date	TBD
Priority and Level of Importance (Low, Medium, High)	Medium Priority
Benefit Analysis (Low, Medium, High)	Medium—Project will have a long-term impact on the reduction of risk exposure for life and property, or project will provide an immediate reduction in the risk exposure for property.
Cost Analysis (Low, Medium, High)	Medium—The project could be implemented with existing funding but would require a re-apportionment of the budget or a budget amendment, or the cost of the project would have to be spread over multiple years.
Actual Completion Date	

Recommended Mitigation Action/Implementation Plan and Project Description	
Action/Implementation Plan and Project Description:	Develop a Countywide program to educate and assist municipalities in the use of green infrastructure to mitigate flooding and potential grant opportunities.

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

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

Action C.33

Mitigation Action	Purchase deployable portable generators that can provide power to firehouses that are impacted by long-term power outages. Should include quick connect hookups at each fire house.
Year Initiated	2019
Applicable Jurisdiction	Chicago Fire Department
Lead Agency/Organization	Chicago 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	• Objective 1: Eliminate or minimize disruption of local government operations caused by natural hazards through all phases of emergency management. • Objective 2: Increase resilience of (or protect and maintain) infrastructure and critical facilities. • Objective 12: Reduce natural hazard-related risks and vulnerability to potentially isolated populations within the planning area.
Potential Funding Source	Grants
Estimated Cost	Moderate ($250,000 or more)
Benefits (loss avoided)	Allow doors to open and close and refrigeration units to work. Provide heating and cooling of the building.
Projected Completion Date	2021
Priority and Level of Importance (Low, Medium, High)	Medium Priority
Benefit Analysis (Low, Medium, High)	High—Project will provide an immediate reduction of risk exposure for life and property.
Cost Analysis (Low, Medium, High)	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	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		

Mitigated Hazards	
X	**All Hazards**
	Dam/Levee Failure
	Drought
	Earthquake
	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 C.34

Mitigation Action	Portable High Capacity Air Conditioners
Year Initiated	2019
Applicable Jurisdiction	Chicago Fire Department
Lead Agency/Organization	Chicago Fire Department
Supporting Agencies/Organizations	
Applicable Goal	• 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.
Applicable Objective	• Objective 12: Reduce natural hazard-related risks and vulnerability to potentially isolated populations within the planning area
Potential Funding Source	Grants
Estimated Cost	Less than $100,000
Benefits (loss avoided)	Provide CFD cooling units for extreme heat emergencies
Projected Completion Date	Ongoing/TBD
Priority and Level of Importance (Low, Medium, High)	Medium Priority
Benefit Analysis (Low, Medium, High)	Medium—Project will have a long-term impact on the reduction of risk exposure for life and property, or project will provide an immediate reduction in the risk exposure for property.
Cost Analysis (Low, Medium, High)	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	TBD

Recommended Mitigation Action/Implementation Plan and Project Description	
Action/Implementation Plan and Project Description:	Units can provide additional cooling capabilities that can be deployed or used by CFD buildings, rehab units, high rise buildings, or other sites in case of an exteme heat emergency or when there are power outages.

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
	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 C.35

Mitigation Action	Purchase high capacity portable heaters
Year Initiated	2019
Applicable Jurisdiction	Chicago Fire Department
Lead Agency/Organization	Chicago Fire Department
Supporting Agencies/Organizations	
Applicable Goal	• 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.
Applicable Objective	• Objective 12: Reduce natural hazard-related risks and vulnerability to potentially isolated populations within the planning area.
Potential Funding Source	Grants
Estimated Cost	Above $100,000
Benefits (loss avoided)	Provide heating units to protect structures, First Responder vehicles, and equipment from damage due to excessive cold weather
Projected Completion Date	2021
Priority and Level of Importance (Low, Medium, High)	Medium Priority
Benefit Analysis (Low, Medium, High)	High—Project will provide an immediate reduction of risk exposure for life and property.
Cost Analysis (Low, Medium, High)	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	TBD

Recommended Mitigation Action/Implementation Plan and Project Description	
Action/Implementation Plan and Project Description:	This project would allow the CFD to be able to deploy or use these heaters to protect CFD structures and to protect their vehicles. Also, they can be used in rehab areas for first responders during cold weather events. They can also be deployed to protect citizens during cold weather-related power outages. Nursing homes, etc.

Mitigation Action and Project Maintenance			
Year	**Status**	**Comments**	

2019	New	
2020		
2021		
2022		
2023		

Mitigated Hazards	
	All Hazards
	Dam/Levee Failure
	Drought
	Earthquake
	Flood
	Extreme Heat
	Lightning
X	Hail
	Fog
X	High Wind
X	Snow
X	Blizzard
X	Extreme Cold
X	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 C.36

Mitigation Action	Purchase Mass Decontamination Apparatus
Year Initiated	2019
Applicable Jurisdiction	Chicago Fire Department
Lead Agency/Organization	Chicago Fire Department
Supporting Agencies/Organizations	
Applicable Goal	• Protect the lives, health, safety, and property of the citizens of Cook County from the impacts of natural hazards. • Involve stakeholders to enhance the local capacity to mitigate, prepare for, and respond to the impacts of natural hazards.
Applicable Objective	• Objective 1: Eliminate or minimize disruption of local government operations caused by natural hazards through all phases of emergency management. • Objective 2: Increase resilience of (or protect and maintain) infrastructure and critical facilities.
Potential Funding Source	Grants
Estimated Cost	Greater than $300,000
Benefits (loss avoided)	Removal of contaminants for large amounts of people
Projected Completion Date	2019
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	TBD

Recommended Mitigation Action/Implementation Plan and Project Description	
Action/Implementation Plan and Project Description:	Mass Decontamination units are designed to provide a solution to removing hazardous materials from large amounts of contaminated people. This would be from chemical releases, sewage, etc. We need to have them staged on

	various sides of the city to be most effective. The current vehicle is aged and falling into disrepair.

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

Mitigated Hazards	
X	**All Hazards**
	Dam/Levee Failure
	Drought
	Earthquake
	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 C.38

Mitigation Action	Implement Green Infrastructure at Chicago Public Schools, Space 2 Grow
Year Initiated	2018
Applicable Jurisdiction	City of Chicago
Lead Agency/Organization	MWRD
Supporting Agencies/Organizations	City of Chicago
Applicable Goal	• 1. Develop and implement sustainable, cost-effective, and environmentally sound risk-reduction (mitigation) projects.
Applicable Objective	• Objective 13. Encourage hazard mitigation measures that result in the least adverse effect on the natural environment and that use natural processes.
Potential Funding Source	TBD
Estimated Cost	MWRD Max Contribution (through 2022): $16,000,000
Benefits (loss avoided)	TBD
Projected Completion Date	TBD
Priority and Level of Importance (Low, Medium, High)	TBD
Benefit Analysis (Low, Medium, High)	TBD
Cost Analysis (Low, Medium, High)	TBD
Actual Completion Date	TBD

Recommended Mitigation Action/Implementation Plan and Project Description	
Action/Implementation Plan and Project Description:	ID: Multiple Locations Contract: 15-IGA-20 Watershed: Chicago Location: Multiple Locations MWRD, the Chicago Department of Water Management, and the Chicago Public Schools are partnering to design and install playgrounds at various Chicago Elementary Schools utilizing Green Infrastructure. The projects will reduce flooding, reduce the load on the combined sewer system, and educate students and neighbors about Green Infrastructure techniques and purpose.

Mitigation Action and Project Maintenance			
Year	**Status**	**Comments**	

2018	New	6 playgrounds were transformed in 2018. The 6 schools along with their design retention capacity are as follows: John W. Cook Elementary School 8150 S. Bishop Street 217,978 Gal Nathan S. Davis Elementary School 3014 W. 39th Place 197,422 Gal Fernwood Elementary School 10041 S. Union Avenue 138,222 Gal Eugene Field Elementary School 7019 N. Ashland Avenue 422,169 Gal Morton School of Excellence 431 N. Troy Street. 155,783 Gal James B. Farnsworth Elementary School 5414 N. Linder Avenue 156,077 Gal Total Design Retention Capacity for 2018 CPS Schools 1,287,651 Gal.
2019	Ongoing	
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 C.39

Mitigation Action	Launch Pilot Study for Investigating Technology to Address Basement Backups
Year Initiated	2019
Applicable Jurisdiction	City of Chicago
Lead Agency/Organization	MWRD
Supporting Agencies/Organizations	City of Chicago
Applicable Goal	• 2. Protect the lives, health, safety, and property of the citizens of Cook County from the impacts of natural hazards.
Applicable Objective	• Objective 8 - Establish partnerships among all levels of local government, the private sector, and/or nongovernmental organizations to improve and implement methods to protect people and property.
Potential Funding Source	MWRD Contribution: $400,000
Estimated Cost	TBD
Benefits (loss avoided)	TBD
Projected Completion Date	TBD
Priority and Level of Importance (Low, Medium, High)	TBD
Benefit Analysis (Low, Medium, High)	TBD
Cost Analysis (Low, Medium, High)	TBD
Actual Completion Date	TBD

Recommended Mitigation Action/Implementation Plan and Project Description	
Action/Implementation Plan and Project Description:	ID: N/A Contract: 16-IGA-20 Watershed: Chicago Location: Chicago, IL Description: Intergovernmental agreement with the City of Chicago to share the cost of a research pilot study on the south side of Chicago to gain insight into the effectiveness of various technologies aimed at reducing basement backups.

Mitigation Action and Project Maintenance		
Year	**Status**	**Comments**
2019	New	Intergovernmental agreement being executed.
2020		

2021		
2022		
2023		

Mitigated Hazards	
	All Hazards
	Dam/Levee Failure
	Drought
	Earthquake
	Flood
	Extreme Heat
	Lightning
	Hail
	Fog
	High Wind
	Snow
	Blizzard
	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 C.40

Mitigation Action	Space to grow partnered schools
Year Initiated	2018
Applicable Jurisdiction	City of Chicago
Lead Agency/Organization	MWRD
Supporting Agencies/Organizations	City of Chicago
Applicable Goal	1. Develop and implement sustainable, cost-effective, and environmentally sound risk-reduction (mitigation) projects.
Applicable Objective	Objective 13. Encourage hazard mitigation measures that result in the least adverse effect on the natural environment and that use natural processes.
Potential Funding Source	MWRD (Max Contribution: $16,000,000), Chicago Public Schools, and the City of Chicago Department of Water Management
Estimated Cost	TBD
Benefits (loss avoided)	Unkown
Projected Completion Date	2022
Priority and Level of Importance (Low, Medium, High)	TBD
Benefit Analysis (Low, Medium, High)	TBD
Cost Analysis (Low, Medium, High)	TBD
Actual Completion Date	TBD

Recommended Mitigation Action/Implementation Plan and Project Description	
Action/Implementation Plan and Project Description:	ID: Multiple Locations Contract: 15-IGA-20 Watershed: Chicago Location: Multiple Locations Description: MWRD, the Chicago Department of Water Management, and the Chicago Public Schools are partnering to design and install playgrounds at various Chicago Elementary Schools utilizing green infrastructure. The projects will reduce flooding, reduce the load on the combined sewer system, and educate students and neighbors about green Infrastructure techniques and purpose. The existing intergovernmental agreement between MWRD and Chicago Public Schools will be amended to extend the timeline for the remaining projects through 2022. MWRD plans to invest $1 million to fund ten school designs, with the remaining school designs to be funded by Chicago Public Schools and the City of Chicago Department of Water Management.

Mitigation Action and Project Maintenance		
Year	**Status**	**Comments**
2018	New	Status: 15 of a total up to 30 schools have been completed through 2018. 6 playgrounds were transformed in 2018.
2019	Ongoing	An additional 5 schools have been designed and are planned for construction in 2019. They are as follows: Arthur R. Ashe Elementary School 8505 S. Ingleside Avenue Ninos Heroes Elementary Academic Center 8344 S. Commercial Avenue Henry H. Nash Elementary School 4837 W. Erie Street Daniel Webster Elementary School 4055 W. Arthington Street Oliver S. Wescott Elementary School 409 W. 80th Street
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 C.41

Mitigation Action	Prevent Stormwater Infiltration through the Establishment of Native Habitat at 3 Chicago Parks
Year Initiated	2019
Applicable Jurisdiction	City of Chicago
Lead Agency/Organization	MWRD
Supporting Agencies/Organizations	City of Chicago
Applicable Goal	• 1. Develop and implement sustainable, cost-effective, and environmentally sound risk-reduction (mitigation) projects.
Applicable Objective	• Objective 13. Encourage hazard mitigation measures that result in the least adverse effect on the natural environment and that use natural processes.
Potential Funding Source	TBD
Estimated Cost	TBD
Benefits (loss avoided)	TBD
Projected Completion Date	TBD
Priority and Level of Importance (Low, Medium, High)	TBD
Benefit Analysis (Low, Medium, High)	TBD
Cost Analysis (Low, Medium, High)	TBD
Actual Completion Date	TBD

Recommended Mitigation Action/Implementation Plan and Project Description	
Action/Implementation Plan and Project Description:	Project Title CPD 18-IGA-04

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 C.1

HAZARD MITIGATION ACTION PLAN MATRIX						
Status	**Hazards Mitigated**	**Objectives Met**	**Lead Agencies**	**Estimated Cost**	**Sources of Funding**	**Timeline/Projected Completion Date (a)**
Action C.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	Dept. of Buildings	Low	FEMA Haz Mitigation Grants	Long-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.						

Action C.2

HAZARD MITIGATION ACTION PLAN MATRIX						
Status	**Hazards Mitigated**	**Objectives Met**	**Lead Agencies**	**Estimated Cost**	**Sources of Funding**	**Timeline/Projected Completion Date (a)**
Action C.2—Continue to support the countrywide actions identified in this plan.						
Ongoing	All	All	City of Chicago	Low	General Fund	Short- and long-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.						

Action C.3

HAZARD MITIGATION ACTION PLAN MATRIX						
Status	**Hazards Mitigated**	**Objectives Met**	**Lead Agencies**	**Estimated Cost**	**Sources of Funding**	**Timeline/Projected Completion Date (a)**
Action C.3—Actively participate in the plan maintenance strategy identified in this plan.						
Ongoing	All	3, 4, 6	Chicago OEMC	Low	General Fund	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.						

Action C.4

HAZARD MITIGATION ACTION PLAN MATRIX						
Status	**Hazards Mitigated**	**Objectives Met**	**Lead Agencies**	**Estimated Cost**	**Sources of Funding**	**Timeline/Projected Completion Date (a)**
Action C.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	City of Chicago	Low	General Fund	Long-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.						

Action C.5

HAZARD MITIGATION ACTION PLAN MATRIX						
Status	**Hazards Mitigated**	**Objectives Met**	**Lead Agencies**	**Estimated Cost**	**Sources of Funding**	**Timeline/Projected Completion Date (a)**
Action C.5—Continue to maintain the minimum National Flood Insurance Program participation requirement for communities with no mapped Special Flood Hazard Area.						
Ongoing	Flooding	4, 6, 9	Dept. of Buildings	Low	General Fund	Short-term and 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.						

Action C.6

HAZARD MITIGATION ACTION PLAN MATRIX						
Status	**Hazards Mitigated**	**Objectives Met**	**Lead Agencies**	**Estimated Cost**	**Sources of Funding**	**Timeline/Projected Completion Date (a)**
Action C.6—Integrate the hazard mitigation plan into other plans, programs, or resources that dictate land use or redevelopment.						
Ongoing	All	3, 4, 6, 10, 13	City of Chicago	Low	General Fund	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.						

Action C.9

HAZARD MITIGATION ACTION PLAN MATRIX						
Status	**Hazards Mitigated**	**Objectives Met**	**Lead Agencies**	**Estimated Cost**	**Sources of Funding**	**Timeline/Projected Completion Date (a)**
Action C.9—Continue implementation of the Chicago Sustainable Development Policy, which enhances the sustainable performance of projects receiving City assistance.						
Ongoing	Flooding, Severe Weather	3, 4, 7, 10, 13	Buildings, Planning & Development	Low	Grants/General Fund	Long-term and 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.						

Action C.10

HAZARD MITIGATION ACTION PLAN MATRIX						
Status	**Hazards Mitigated**	**Objectives Met**	**Lead Agencies**	**Estimated Cost**	**Sources of Funding**	**Timeline/Projected Completion Date (a)**
Action C.10—Continue implementation of the Green Stormwater Infrastructure Policy, which guides City's efforts in renewing water infrastructure, conserving water, greening water operations, and sustainably managing stormwater.						
Ongoing	Flooding	2, 4, 10, 13	Buildings, Water Management	Low	N/A	Long-term/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.						

Action C.11

HAZARD MITIGATION ACTION PLAN MATRIX						
Status	**Hazards Mitigated**	**Objectives Met**	**Lead Agencies**	**Estimated Cost**	**Sources of Funding**	**Timeline/Projected Completion Date (a)**
Action C.11—Continue implementation of the Inlet Control System (Rainblocker) program, which installs restrictors to slow the flow of stormwater into the sewer system.						
Ongoing	Flooding	4, 9, 13	Dept. of Water Management	Low		Long-term/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.						

Action C.12

HAZARD MITIGATION ACTION PLAN MATRIX						
Status	**Hazards Mitigated**	**Objectives Met**	**Lead Agencies**	**Estimated Cost**	**Sources of Funding**	**Timeline/Projected Completion Date (a)**
Action C.12—Continue implementation of the Chicago Shoreline Protection Project, which provides storm damage protection to the Lake Michigan shoreline and Lake Shore Drive.						
Ongoing	Flooding	2, 3, 4, 8, 9, 13	USACE, Park District	Medium	USCAE, IL Dept of Natural Resources	Long-term/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.						

Action C.13

HAZARD MITIGATION ACTION PLAN MATRIX						
Status	**Hazards Mitigated**	**Objectives Met**	**Lead Agencies**	**Estimated Cost**	**Sources of Funding**	**Timeline/Projected Completion Date (a)**
Action C.13—Continue implementation of the RainReady Program, which provides individualized services to help homes and communities reduce their flood risks.						
Ongoing	Flooding	2, 3, 6, 8, 9, 10	Center for Neighborhood Technology	Low	CNT	Long-term/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.						

Action C.14

HAZARD MITIGATION ACTION PLAN MATRIX						
Status	**Hazards Mitigated**	**Objectives Met**	**Lead Agencies**	**Estimated Cost**	**Sources of Funding**	**Timeline/Projected Completion Date (a)**
Action C.14—Continue construction and implementation of the Metropolitan Water Reclamation District of Greater Chicago's Tunnel and Reservoir Plan (TARP).						
Ongoing	Flooding	1, 2, 3, 6, 9, 12, 13	MWRDGC	Medium	MWRDGC, ACOE	Long-term/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.						

Action C.15

HAZARD MITIGATION ACTION PLAN MATRIX						
Status	**Hazards Mitigated**	**Objectives Met**	**Lead Agencies**	**Estimated Cost**	**Sources of Funding**	**Timeline/Projected Completion Date (a)**
Action C.15—Continue to expand the usage and capabilities of the City's NotifyChicago public notification system						
Ongoing	All	4, 5, 6, 12	OEMC	Low	Corporate	Long-term/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.						

Action C.16

HAZARD MITIGATION ACTION PLAN MATRIX						
Status	**Hazards Mitigated**	**Objectives Met**	**Lead Agencies**	**Estimated Cost**	**Sources of Funding**	**Timeline/Projected Completion Date (a)**
Action C.16—Continue to expand the usage and capabilities of the City's Reverse 9-1-1 public notification system.						
Ongoing	All	4, 5, 6, 12	OEMC	Low	Corporate	Long-term/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.						

Action C.17

HAZARD MITIGATION ACTION PLAN MATRIX						
Status	**Hazards Mitigated**	**Objectives Met**	**Lead Agencies**	**Estimated Cost**	**Sources of Funding**	**Timeline/Projected Completion Date (a)**
Action C.17—Continue to expand the usage and capabilities of the City's Digital Sign Network public notification system.						
Ongoing	All	4, 5, 6, 12	OEMC	Low	Corporate	Long-term/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.						

Action C.18

HAZARD MITIGATION ACTION PLAN MATRIX						
Status	**Hazards Mitigated**	**Objectives Met**	**Lead Agencies**	**Estimated Cost**	**Sources of Funding**	**Timeline/Projected Completion Date (a)**
Action C.18—Develop local capabilities for implementation of FEMA's Integrated Public Alert & Warning System (IPAWS).						
Ongoing	All	4, 5, 6, 12	OEMC	Low	Corporate	Long-term/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.						

Action C.19

HAZARD MITIGATION ACTION PLAN MATRIX						
Status	**Hazards Mitigated**	**Objectives Met**	**Lead Agencies**	**Estimated Cost**	**Sources of Funding**	**Timeline/Projected Completion Date (a)**
Action C.19—Continue the installation and maintenance of Green Alleys, which results in rainwater being allowed to infiltrate into the soils through permeable pavement or infiltration basins.						
Ongoing	Flooding	2, 3, 4, 9, 12, 13	CDOT	Low	General Obligation Bond	Long-term/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.						

Action C.20

HAZARD MITIGATION ACTION PLAN MATRIX						
Status	**Hazards Mitigated**	**Objectives Met**	**Lead Agencies**	**Estimated Cost**	**Sources of Funding**	**Timeline/Projected Completion Date (a)**
Action C.20—Continue the installation and maintenance of bioinfiltration systems and rain gardens throughout the city, which promote the absorption and infiltration of stormwater runoff.						
Ongoing	Flooding	2, 3, 4, 9, 12, 13	DMW/CDOT	Low	Corporate	Long-term/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.						

Action C.21

HAZARD MITIGATION ACTION PLAN MATRIX						
Status	**Hazards Mitigated**	**Objectives Met**	**Lead Agencies**	**Estimated Cost**	**Sources of Funding**	**Timeline/Projected Completion Date (a)**
Action C.21—Continue development and maintenance of the City of Chicago Flood Operations Guidance Document						
Ongoing	All	2, 4, 8, 12	OEMC	Low	Corporate	Long-term/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.						

Action C.23

HAZARD MITIGATION ACTION PLAN MATRIX						
Status	**Hazards Mitigated**	**Objectives Met**	**Lead Agencies**	**Estimated Cost**	**Sources of Funding**	**Timeline/Projected Completion Date (a)**
Action C.23—Continue implementation of Chicago's Basement Flooding Partnership, where the Dept of Water Management works with neighborhoods to reduce flooding impacts.						
Ongoing	Flooding	2, 3, 6, 8, 9, 10	DWM	Low	Corporate	Long-term/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.						

Action C.24

HAZARD MITIGATION ACTION PLAN MATRIX						
Status	**Hazards Mitigated**	**Objectives Met**	**Lead Agencies**	**Estimated Cost**	**Sources of Funding**	**Timeline/Projected Completion Date (a)**
Action C.24—Encourage the development of continuity planning for Chicago departments and the Chicago area's largest employers and companies headquartered in Chicago.						
Ongoing	All	1	OEMC	Low	Corporate	Long-term/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.						

Action C.25

HAZARD MITIGATION ACTION PLAN MATRIX						
Status	**Hazards Mitigated**	**Objectives Met**	**Lead Agencies**	**Estimated Cost**	**Sources of Funding**	**Timeline/Projected Completion Date (a)**
Action C.25—Ensure continued compliance with the National Flood Insurance Program (NFIP)						
Ongoing	Flooding	2, 3, 4, 9, 10, 11, 12	Buildings	Low	Corporate	Long-term/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.						

Completed Mitigation Actions

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

Action C.7

TABLE: ACTION PLAN MATRIX						
Status	**Hazards Mitigated**	**Objectives Met**	**Lead Agencies**	**Estimated Cost**	**Sources of Funding**	**Timeline/Projected Completion Date (a)**
Action C.7—Complete construction and implementation of the Albany Park Stormwater Diverson Tunnel.						
Complete	Flooding	3, 4, 9	CDOT	Medium		Complete
(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.						

Action C.37

Mitigation Action	Albany Park Stormwater Diversion Tunnel
Year Initiated	
Applicable Jurisdiction	City of Chicago
Lead Agency/Organization	MWRD
Supporting Agencies/Organizations	City of Chicago
Applicable Goal	• Develop and implement sustainable, cost-effective, and environmentally sound risk-reduction (mitigation) projects.
Applicable Objective	• Objective 9 - Provide or improve flood protection on a watershed basis with flood control structures and drainage maintenance plans.
Potential Funding Source	MWRD and Unknown
Estimated Cost	$70,655,320; MWRD Contribution: $25,920,000
Benefits (loss avoided)	Unknown
Projected Completion Date	Unknown
Priority and Level of Importance (Low, Medium, High)	Unknown
Benefit Analysis (Low, Medium, High)	Unknown
Cost Analysis (Low, Medium, High)	Unknown
Actual Completion Date	4/25/18

Recommended Mitigation Action/Implementation Plan and Project Description	
Action/Implementation Plan and Project Description:	ID: MS-07 Contract: 14-066-3F Watershed: North Branch Location: Albany Park, IL A cost sharing agreement with the City of Chicago. Constructed by the Chicago Department of Transportation. 5,800 feet of 18-foot diameter rock tunnel with inlet and out shaft facilities protecting approximately 336 structures from overbank flooding in the Albany Park neighborhood in Chicago.

Mitigation Action and Project Maintenance		
Year	**Status**	**Comments**
2019		
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

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

CHICAGO EXISTING CONDITIONS	
2010 Population	2,704,958
Total Assessed Value of Structures and Contents	$579,392,639,428
Area in 100-Year Floodplain	5,223.88 acres
Area in 500-Year Floodplain	5,664.46 acres
Number of Critical Facilities	3,642

HAZARD EXPOSURE IN CHICAGO						
	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%
Plum Grove	0	0	$0	$0	**$0**	0.00%
Touhy	3	1	$13,035,000	$13,035,000	**$26,070,000**	0.00%
St. Michael	0	0	$0	$0	**$0**	0.00%
Twin Lakes	0	0	$0	$0	**$0**	0.00%
Flood						
100-Year	653	201	$452,655,425	$455,142,279	**$907,797,704**	0.16%

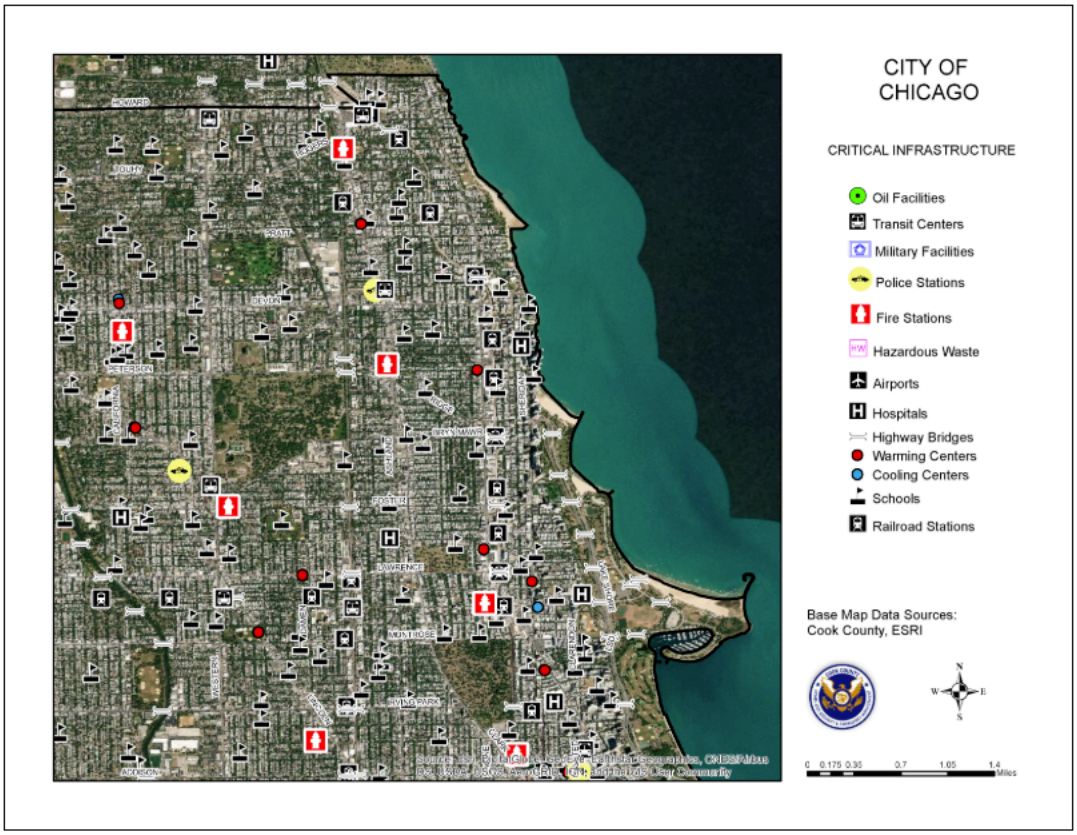
500-Year	991	305	$485,870,440	$471,749,787	**$957,620,226**	0.17%
Tornado						
100-Year	—	—	$676,044,430	$515,681,760	**$1,191,726,200**	.21%
500-Year	—	—	$1,802,179,350	$1,570,940,430	**$3,373,119,780**	.58%

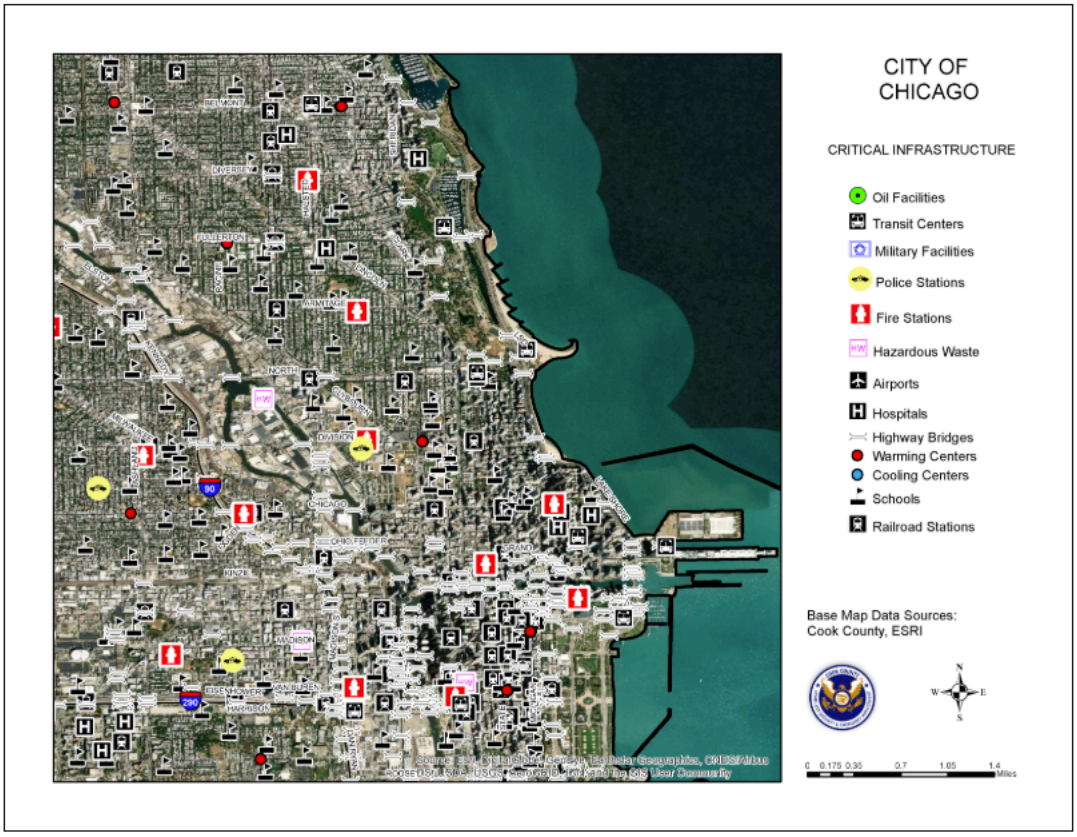
ESTIMATED PROPERTY DAMAGE VALUES IN CHICAGO

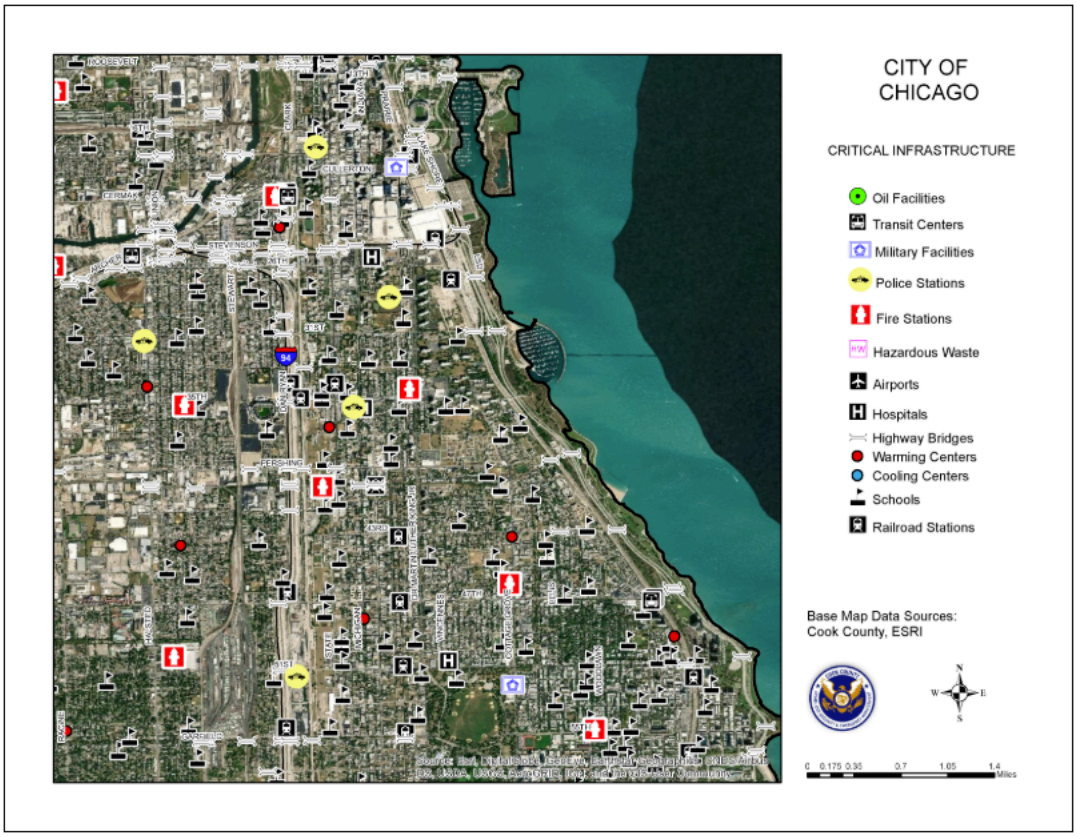
	Estimated Damage Associated with Hazard			% of Total Assessed Value Damaged
	Building	Contents	**Total**	
Dam Failure				
Buffalo Creek	$0	$0	**$0**	0.00%
Plum Grove	$0	$0	**$0**	0.00%
Touhy	$0	$0	**$0**	0.00%
St. Michael	$0	$0	**$0**	0.00%
Twin Lakes	$0	$0	**$0**	0.00%
Earthquake				
1909 Historical Event	$2,854,751,334	$759,966,776	**$3,614,718,109**	0.62%
Flood				
10-Year	$20,941,832	$52,361,673	**$73,303,505**	0.01%
100-Year	$31,363,512	$71,466,941	**$102,830,453**	0.02%
500-Year	$485,870,440	$471,749,787	**$957,620,226**	0.17%

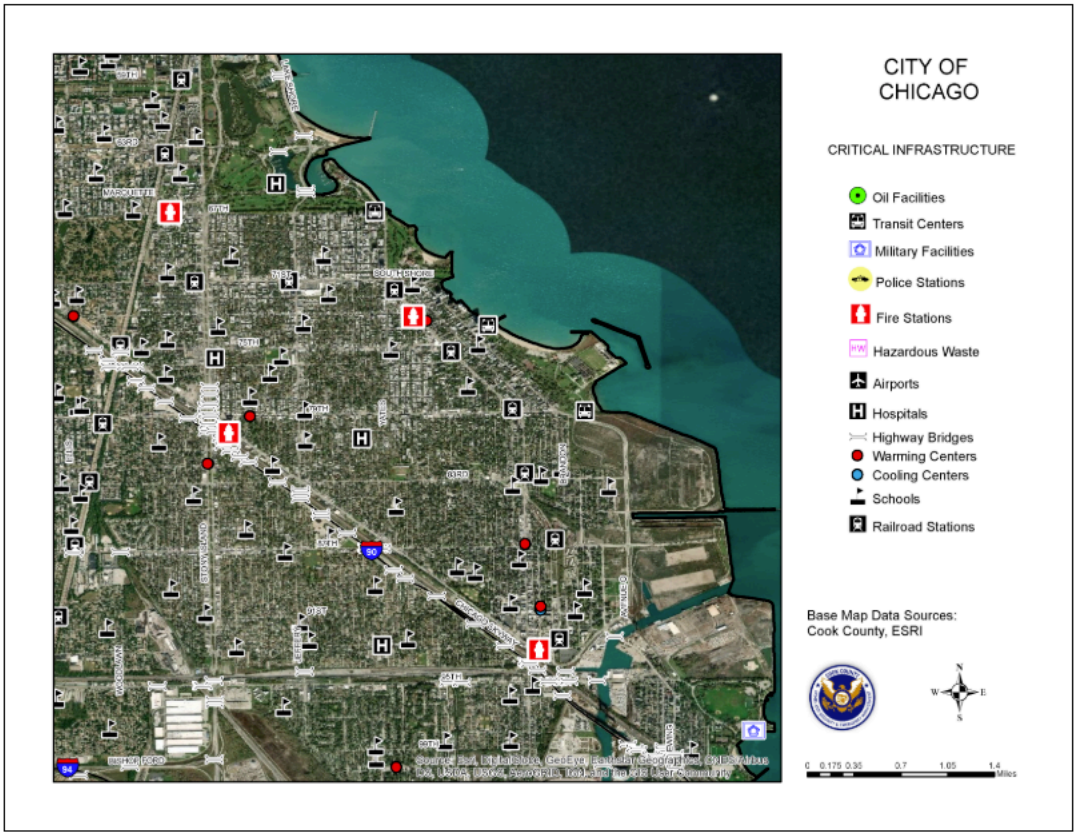
Tornado				
100-Year	$6,760,444,340	$5,156,817,620	**$11,917,261,960**	2.06%
500-Year	$12,343,694,180	$10,759,865,970	**$23,103,560,150**	3.99%

Hazard Mapping




CITY OF CHICAGO
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 0.175 0.35 0.7 1.05 1.4
Miles


CITY OF CHICAGO
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 0.175 0.35 0.7 1.05 1.4
Miles


CITY OF CHICAGO
CRITICAL INFRASTRUCTURE
Oil Facilities
Transit Centers
Military Facilities
Police Stations
Fire Stations
Hazardous Waste
Airports
Hospitals
Highway Bridges
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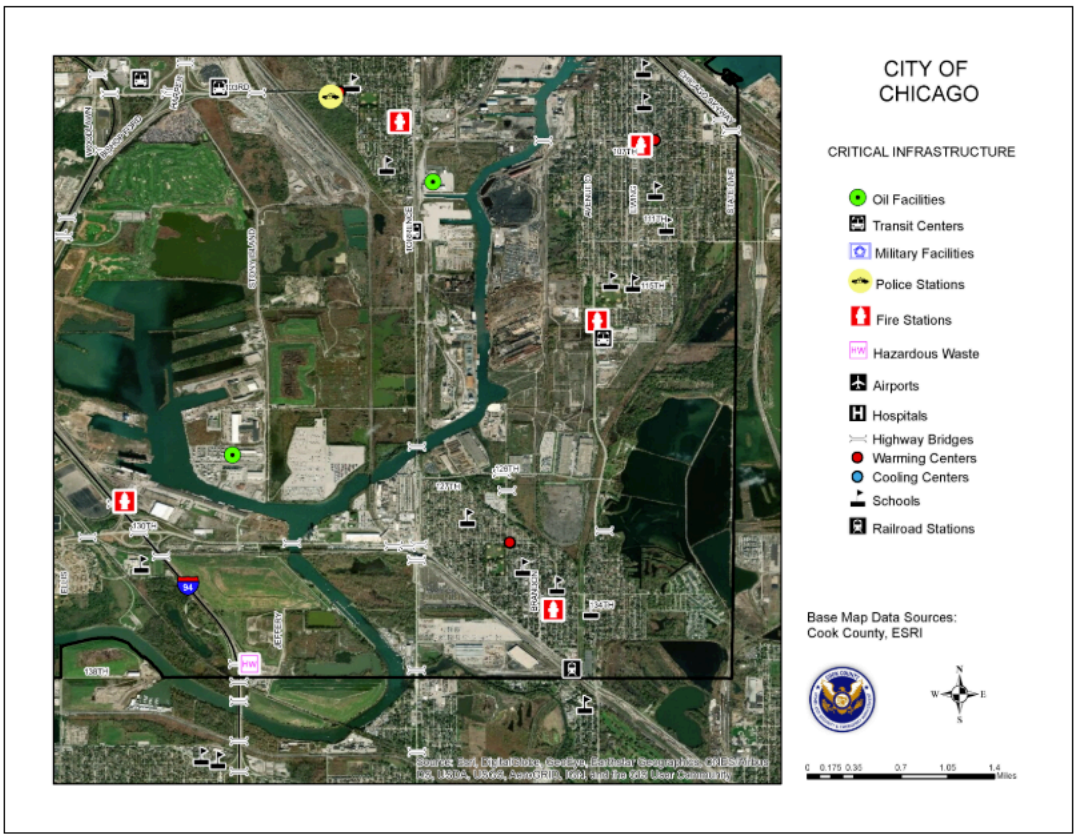
CITY OF CHICAGO
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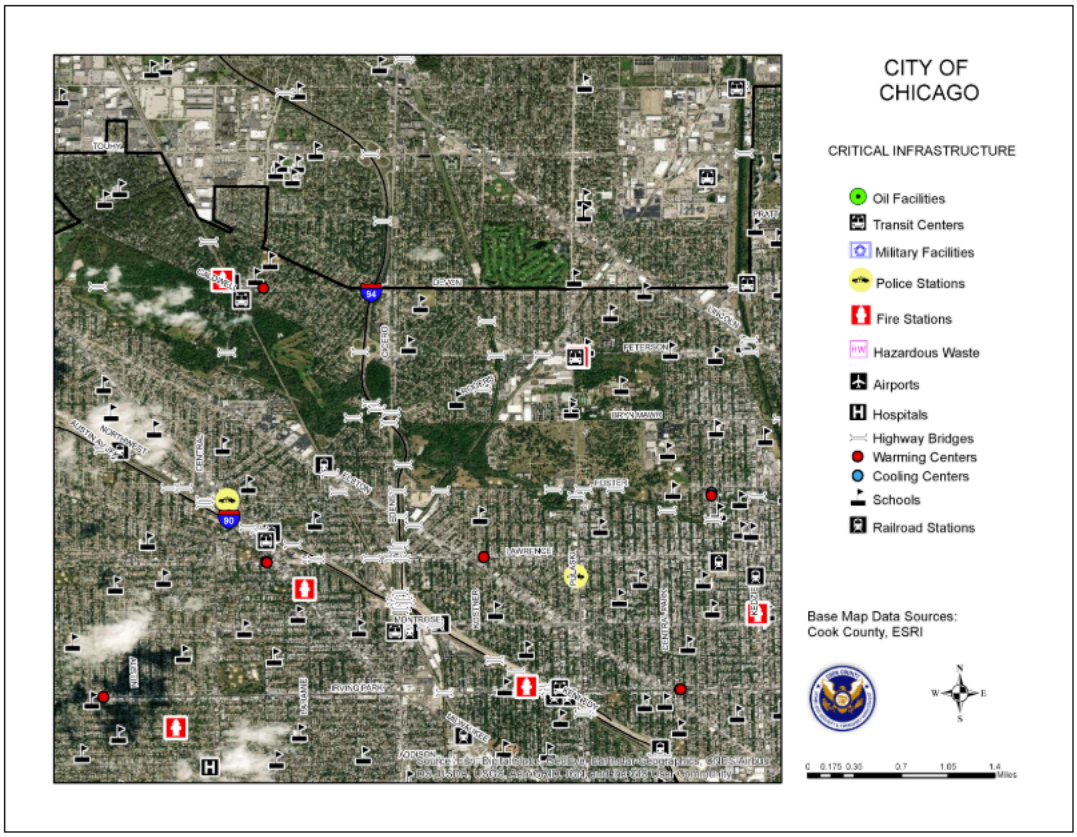
CITY OF CHICAGO
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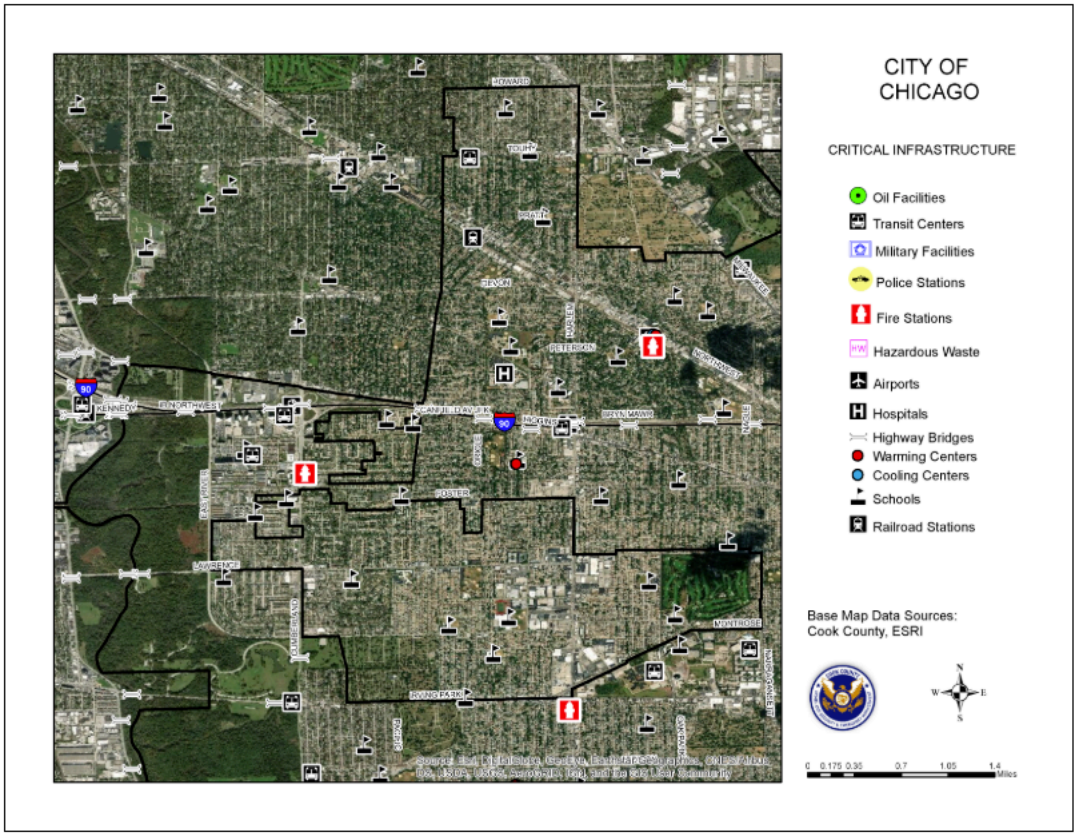
CITY OF CHICAGO
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Miles
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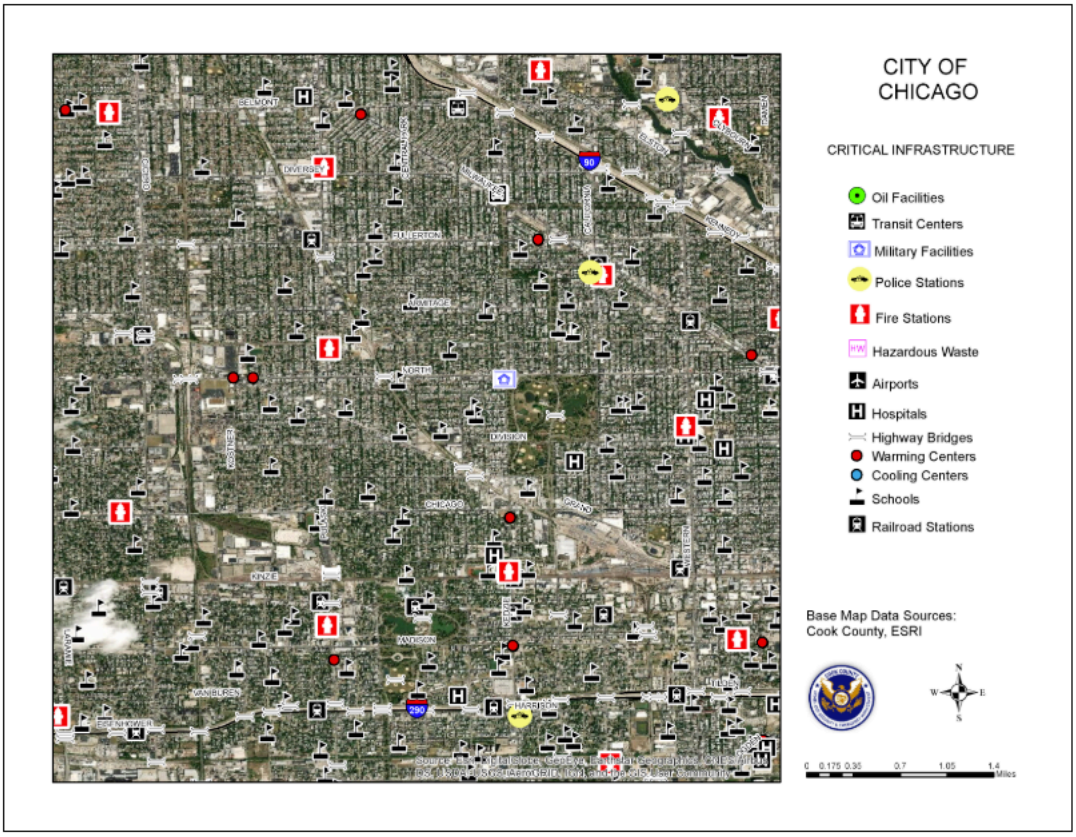
TOUHY
PRATT
FARGO
PETERSON
KENNEDY
FOSTER
LAWRENCE
WINTHROP
IRVING PARK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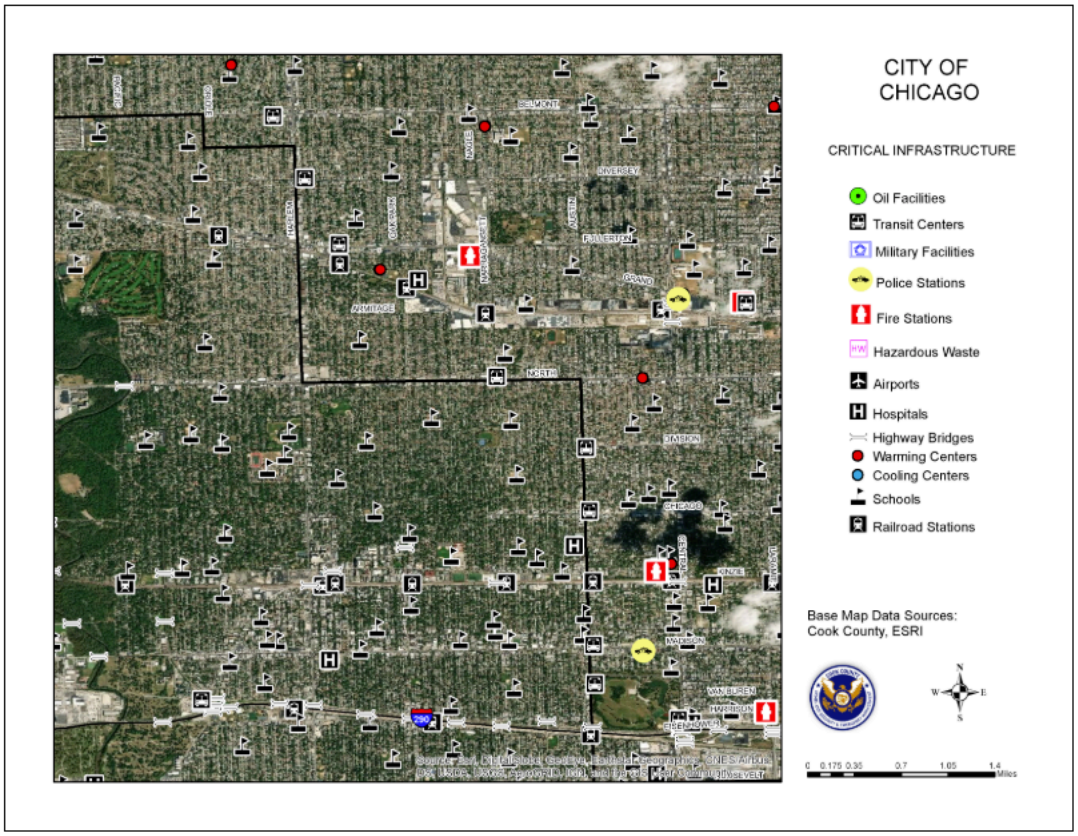
CITY OF CHICAGO
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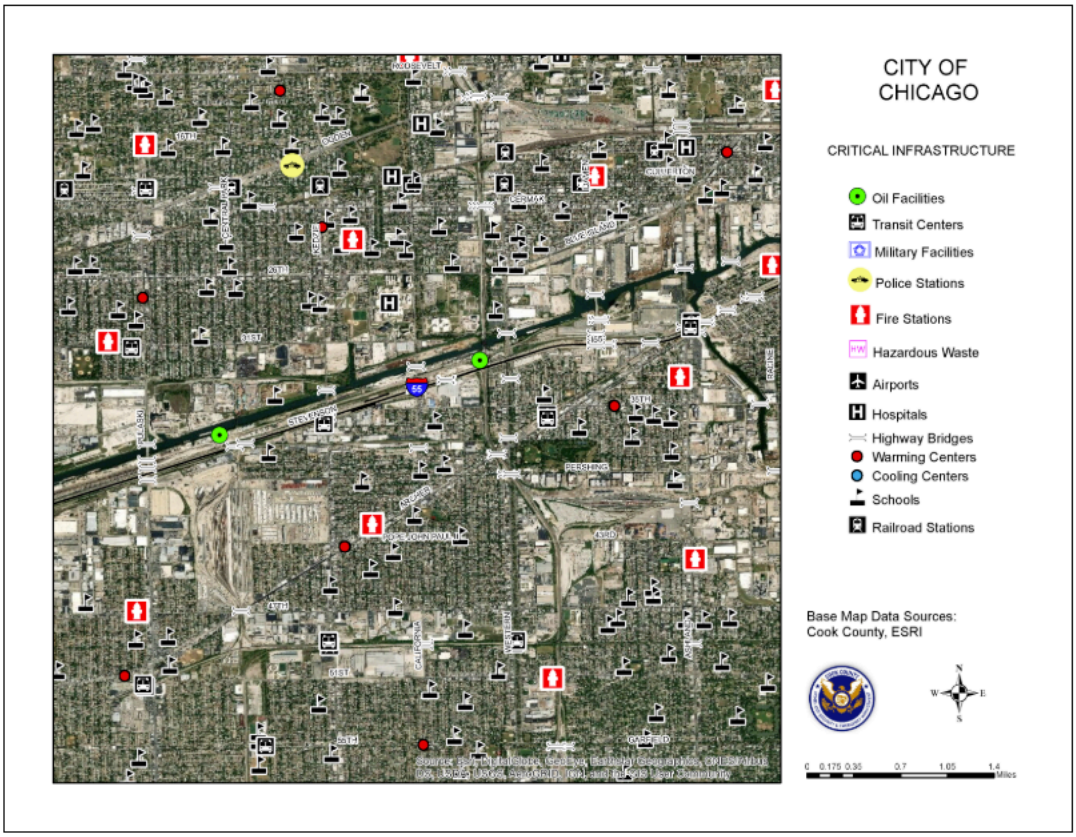
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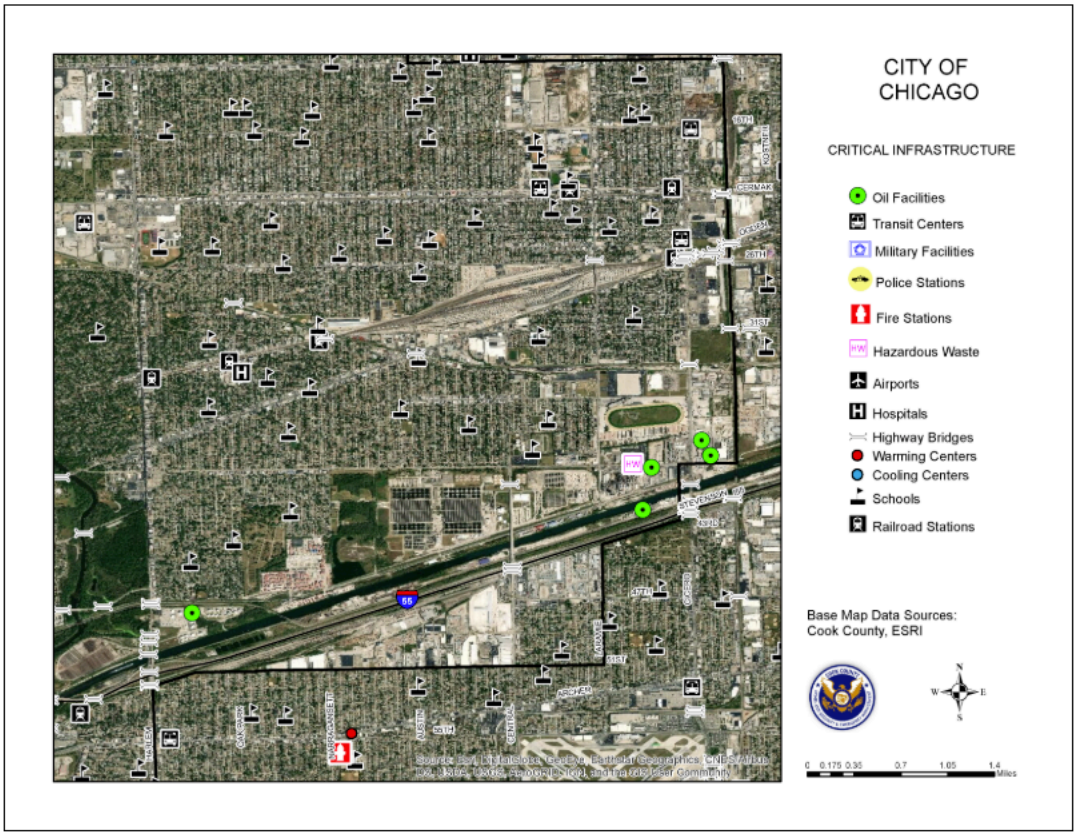
CITY OF CHICAGO
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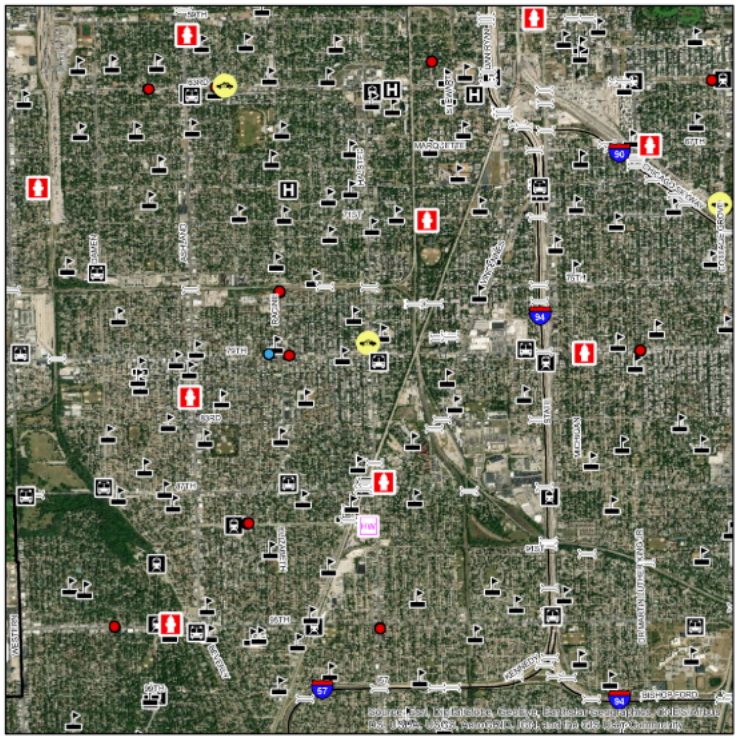

CITY OF CHICAGO

CRITICAL INFRASTRUCTURE

- Oil Facilities
- Transit Centers
- Military Facilities
- Police Stations
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- Airports
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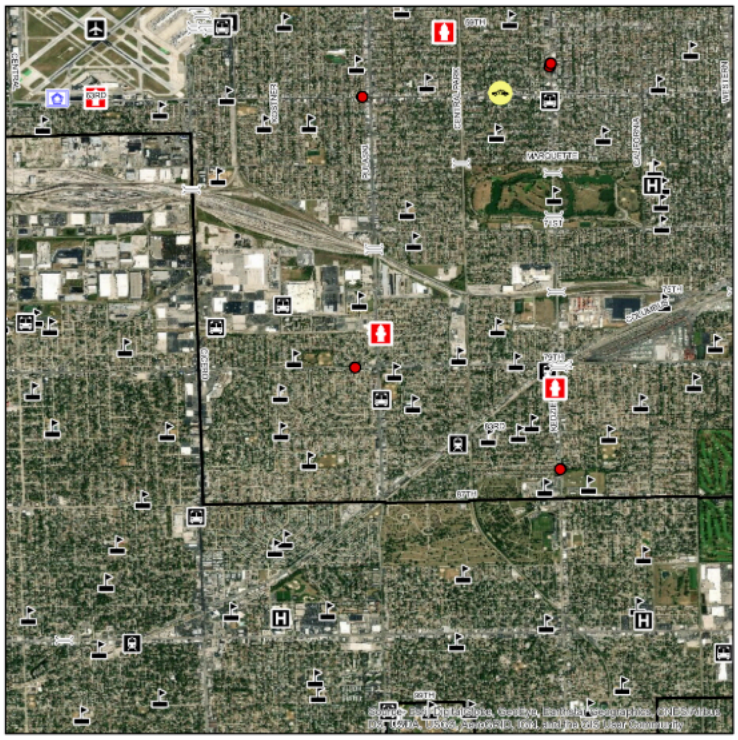

CITY OF CHICAGO

CRITICAL INFRASTRUCTURE

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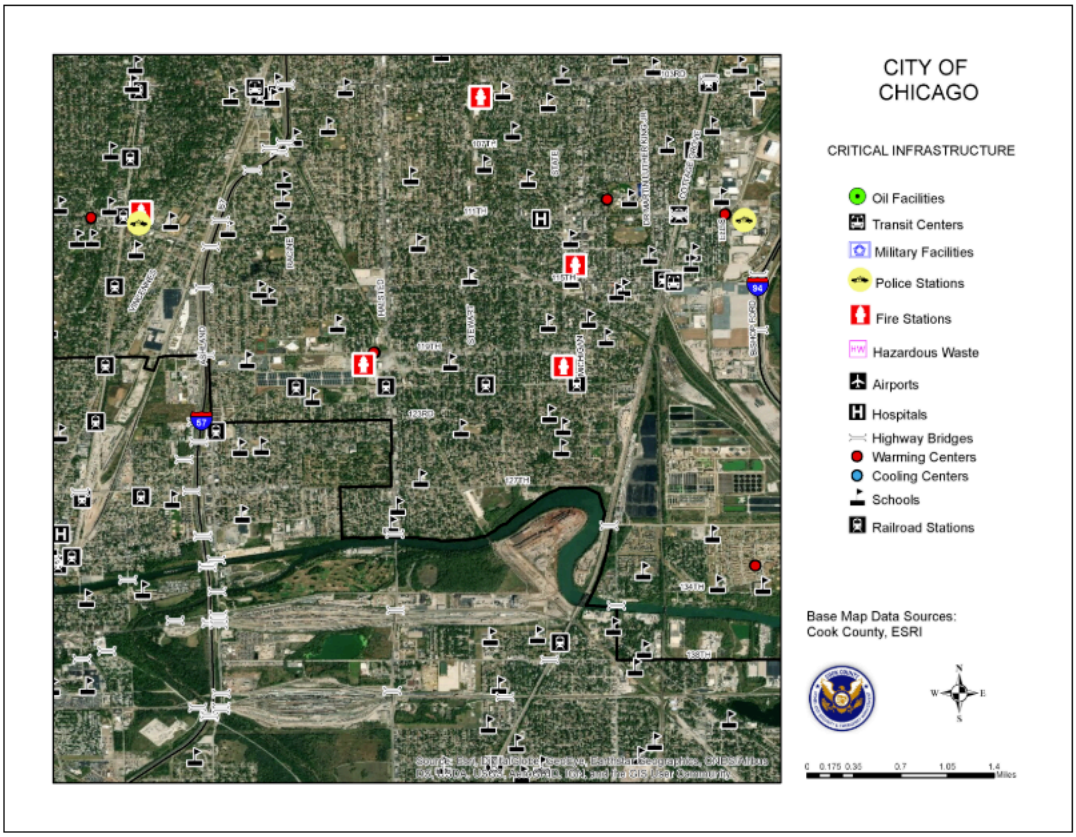
CITY OF CHICAGO
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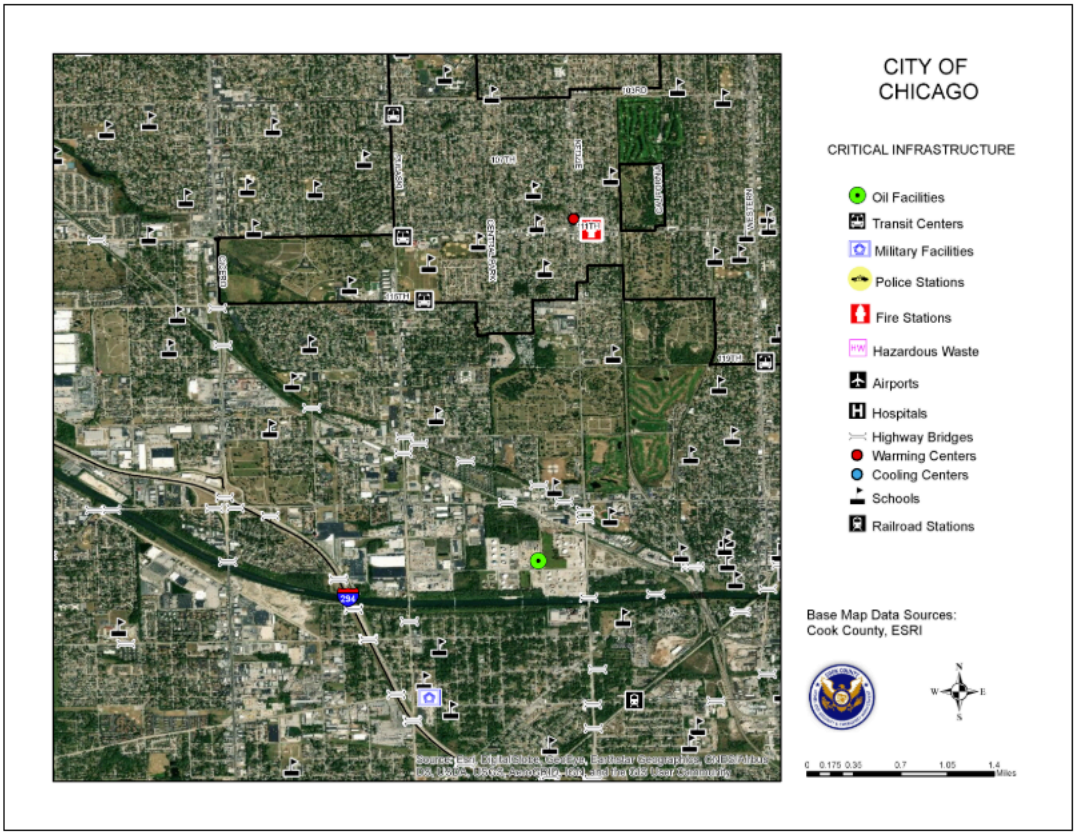
CITY OF CHICAGO
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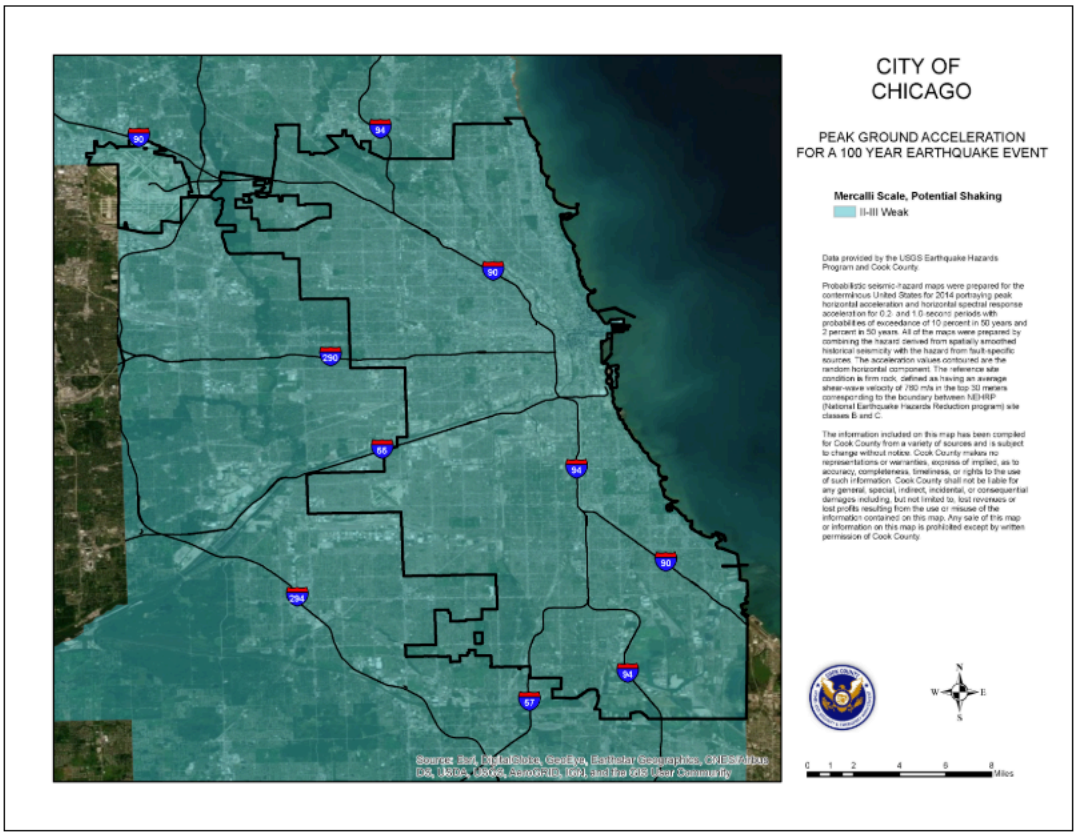
CITY OF CHICAGO
PEAK GROUND ACCELERATION FOR A 100 YEAR EARTHQUAKE EVENT
Mercalli Scale, Potential Shaking
II-III Weak
Data provided by the USGS Earthquake Hazards Program and Cook County.
Probabilistic seismic-hazard maps were prepared for the conterminous United States for 2014 portraying peak horizontal 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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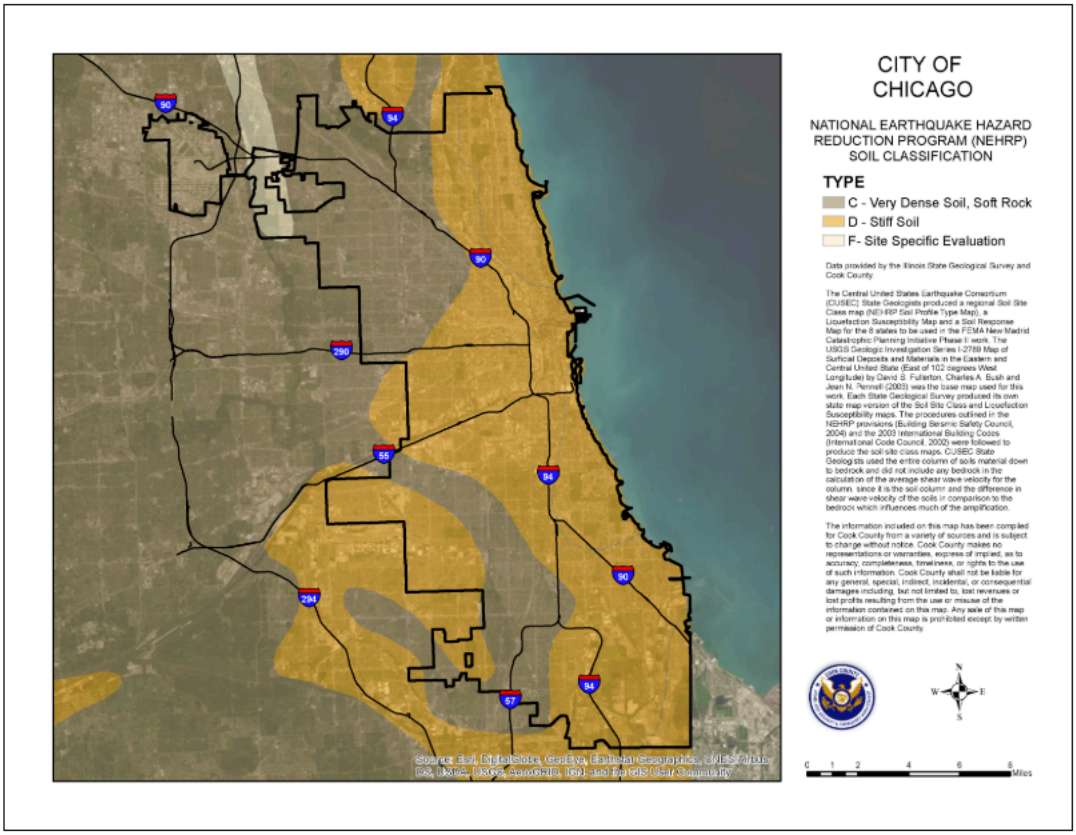
CITY OF CHICAGO
NATIONAL EARTHQUAKE HAZARD REDUCTION PROGRAM (NEHRP) SOIL CLASSIFICATION
TYPE
C - Very Dense Soil, Soft Rock
D - Stiff Soil
F- Site Specific Evaluation
Data provided by the Illinois State Geological Survey and Cook County.
The Central United States Earthquake Consortium (CUSEC) State 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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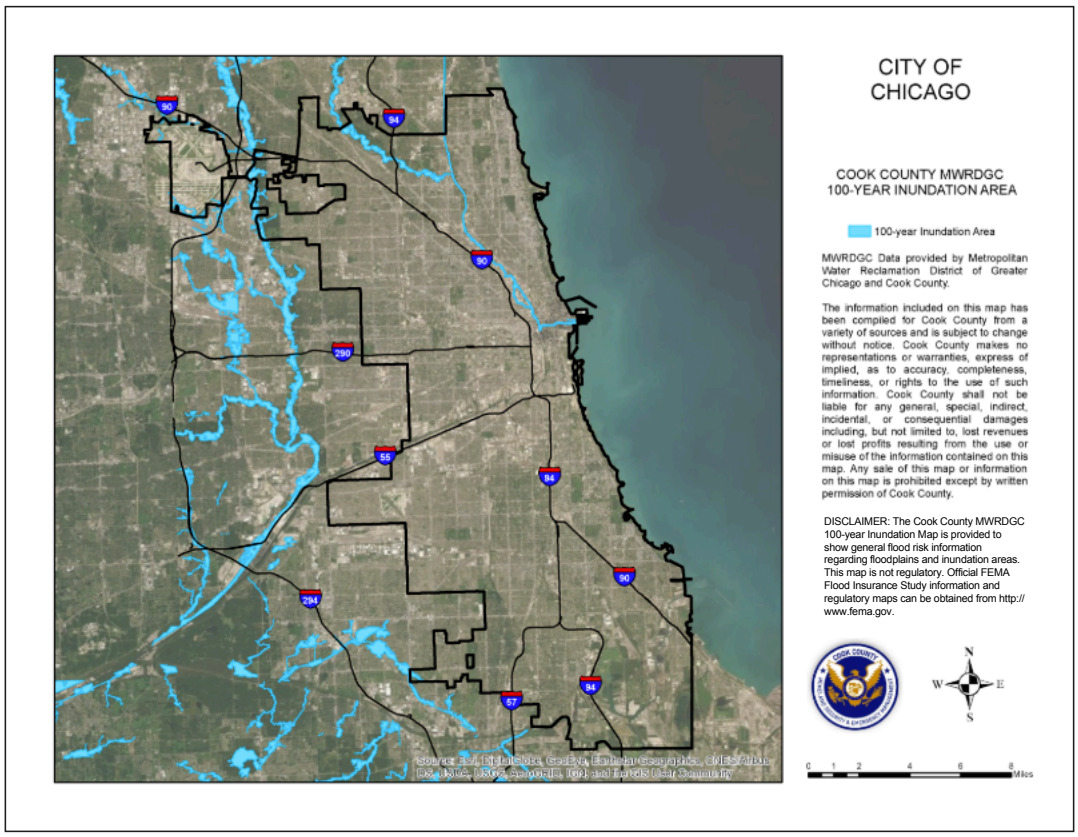
CITY OF CHICAGO
COOK COUNTY MWRDGC 100-YEAR INUNDATION AREA
100-year Inundation Area
MWRDGC Data provided by Metropolitan Water Reclamation District of Greater Chicago and Cook County.
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DISCLAIMER: The Cook County MWRDGC 100-year Inundation Map is provided 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.
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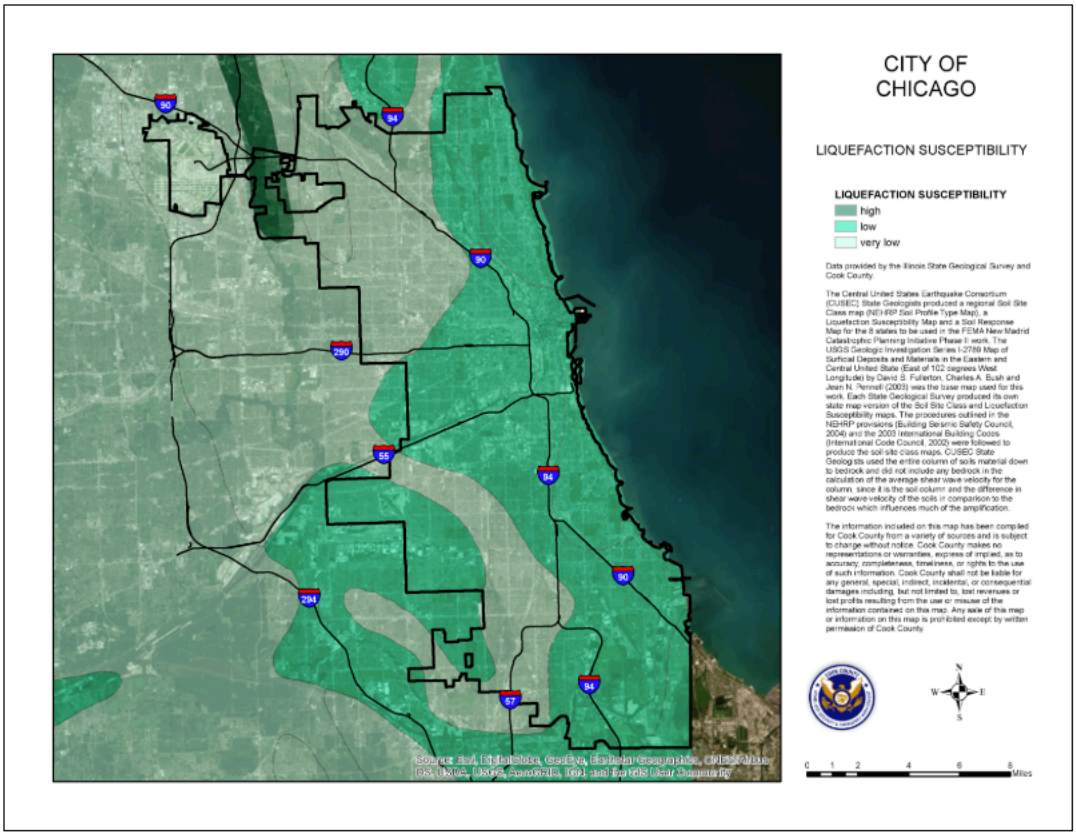
CITY OF CHICAGO
LIQUEFACTION SUSCEPTIBILITY
LIQUEFACTION SUSCEPTIBILITY
high
low
very low
Data provided by the Illinois State Geological Survey and Cook County.
The Central United States Earthquake Consortium (CUSEC) State Geologists produced a regional Soil Site Class map (NEHRP Soil Profile Type Map), 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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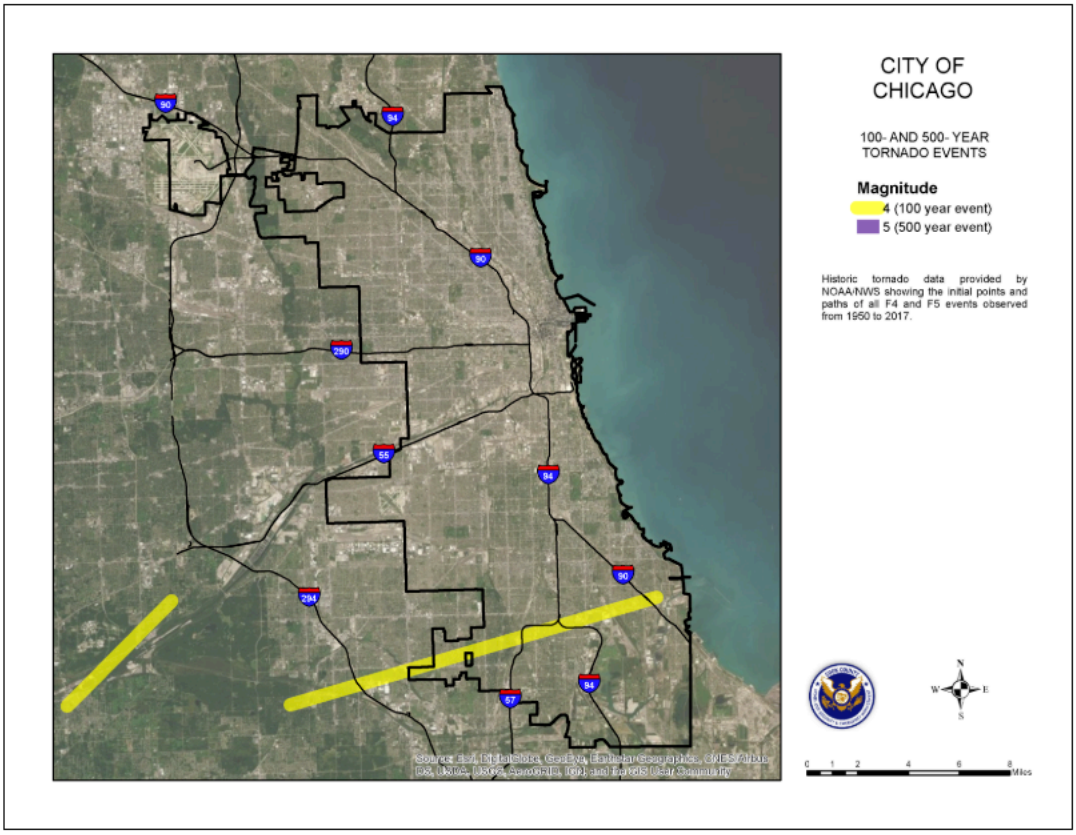
CITY OF CHICAGO
100- AND 500- YEAR TORNADO EVENTS
Magnitude
4 (100 year event)
5 (500 year event)
Historic tornado data provided by NOAA/NWS showing the initial points and paths of all F4 and F5 events observed from 1950 to 2017.
90
84
90
290
55
84
90
294
57
84
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Miles