DUPAGE COUNTY

Multi-Jurisdictional

Natural Hazard Mitigation Plan

2023

DuPage County, Illinois
Multi-Jurisdictional Natural Hazard Mitigation Plan

July 19, 2023

Prepared for:

DuPage County
421 N. County Farm Road
Wheaton, IL 60187

Plan Adoption

U.S. Department of Homeland Security
FEMA Region 5
536 S. Clark St. 6th Floor
Chicago, IL 60605

FEMA

July 19, 2023

Mr. Sam AL-Basha
State Hazard Mitigation Officer
Illinois Emergency Management Agency
1035 Outer Park Drive
Springfield, IL 62704

Dear Mr. AL-Basha:

Thank you for submitting adoption documentation for the 2023 DuPage County Natural Hazard Mitigation Plan Update. The plan was reviewed based on the local plan criteria contained in 44 CFR Part 201, as authorized by the Disaster Mitigation Act of 2000. The plan met the required criteria for a multi-jurisdictional hazard mitigation plan, and the plan is now approved for the DuPage County.

The approval of this plan ensures continued availability of the full complement of Hazard Mitigation Assistance (HMA) Grants. All requests for funding, however, will be evaluated individually according to the specific eligibility and other requirements of the particular program under which the application is submitted.

We encourage the communities to follow the plan's schedule for monitoring and updating the plan and continue their efforts to implement the mitigation measures. The expiration date of the 2023 DuPage County Natural Hazard Mitigation Plan Update is five years from the date of this letter. The plan must be reviewed, revised as appropriate, resubmitted, and approved no later than the plan expiration date.

Please pass on our congratulations to the now approved communities for completing this significant action. If you or the communities have any questions, please contact Meghan Cuneo at (202) 615-5294 or Meghan.Cuneo@fema.dhs.gov.

Sincerely,

JOHN A WETHINGTON
Digitally signed by JOHN A WETHINGTON
Date: 2023.07.19 17:53:11 -05'00'

John Wethington
Chief, Risk Analysis Branch
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www.fema.gov

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Chapter 1: Introduction

1.1 Introduction

The DuPage County Natural Hazard Mitigation Plan (NHMP or Plan) was developed to guide the county in a risk-based approach to become more resilient to the impacts of natural hazards through mitigation planning. The plan documents historical disasters, assesses probabilistic disasters through Hazus-MH and GIS analyses, and addresses specific strategies to mitigate the potential impacts of these disasters.

This five-year update was a collaborative effort among the DuPage County planning team. The DuPage County NHMP:

- Identifies areas of risk and assesses the probability, extent, vulnerability, and impacts for each natural hazard
- Establishes strategies and priorities to mitigate risk from natural hazards
- Identifies specific mitigation projects to pursue for each identified natural hazard
- Guides the communities in their risk management activities and minimizes conflicts among agencies
- Establishes eligibility for future mitigation program funds

The 2023 NHMP includes the following key updates:

- **County profile**: Demographics, social, and economic data, as well as existing and future land use descriptions, are updated to reflect the current status of the county and its jurisdictions.
- **Historical hazards**: Each hazard section within this Plan documents NCDC-reported hazards within the past five years. Where data are available, historical hazards are graphed by decade, showing disaster trends over the past 50 years.
- **Planning process**: The new planning team and updated planning process are described and documented.
- **Risk assessment**: The updated risk assessment includes Hazus-MH and GIS analyses that utilize site-specific data from the county. The hazard ranking incorporates a new risk ranking methodology that addresses underserved populations and climate change impacts.
- **Mitigation Strategies**: The mitigation section addresses status of previous plan's strategies in addition to new mitigation projects. Goals were updated to reflect current priorities in the county.

1.2 Purpose of the Plan

This Plan identifies activities that can be undertaken by both the public and the private sectors to reduce risk to hazards, health hazards, and property damage caused by natural hazards. This Plan reviews mitigation activities and selects those that will work best for DuPage County.

A mitigation plan is a requirement for many pre- and post- disaster mitigation funds (FEMA, 2023b, P.1). In addition, communities that participate in FEMA's Community Rating System (CRS), a program that reduces National Flood Insurance Program (NFIP) premiums and are designated as a "Category C" repetitive loss community (as defined in Section 502), must prepare a Floodplain Management Plan (FMP) or a Repetitive Loss Area Analysis (RLAA). (FEMA, 2017c, p. 401). The CRS program allows multi-hazard and multi-jurisdictional plans to fulfill this requirement, as long as the planning process follows a process (outlined in Exhibit 1-1).

Exhibit 1-1. Planning Process

This Plan fulfills the federal requirements for mitigation funding outlined in 44 Code of Federal Regulations, section 201.6 (U.S. Government Publishing Office, 2021, P. 1), and U.S. Code 42, section 5165 (U.S. Government Publishing Office, 2022, P. 1), the CRS program, and provides the county with a blueprint for reducing the impacts of natural hazards. A list of municipalities with general information, including the community number for FEMA's NFIP and participation in CRS, are shown in Chapter 3: Community Profile.

1.3 Hazard Mitigation Program

Hazard mitigation is any sustainable action that reduces or eliminates long-term risk to people and property from future disasters. Mitigation planning breaks the cycle of disaster damage, reconstruction, and repeated damage. Hazard mitigation includes long-term solutions that reduce the impact of disasters in the future (FEMA, Hazard Mitigation Assistance Grants 2023a).

1. Keep the hazard away from people, property, and structures.
2. Keep people, property, or structures away from the hazard.
3. Reduce the impact of the hazard on victims (e.g., insurance).

DuPage County completed its initial Natural Hazard Mitigation Plan in 2012 and updated it in 2018. The planning team reviewed the previous plans prior to beginning this five-year updated process for 2023. Additionally, the county and the local communities utilized land use plans, emergency response plans, annual reports, ordinances, and building codes to direct community development.

1.4 Planning Area and Participating Jurisdictions

DuPage County, Illinois, includes 39 municipalities that partially or completely reside within county boundaries. All 39 jurisdictions were invited to participate in the planning process. The jurisdictions listed in the table below were represented by one or more municipal officials. Representatives not only attended meetings but also participated by gathering data and historical information, identified new mitigation actions and completed a hazard analysis, and participated by completing and/or sharing the community preparedness survey. DuPage County and the following 32 participating jurisdictions intend to adopt and implement the Plan with full coordination and participation (Table 1-1). Seven jurisdictions will not be participating or adopting DuPage County's Plan (Table 1-2).

Table 1-1. Participating Jurisdictions

Participating Jurisdictions		
DuPage County		
Addison	Glendale Heights	Villa Park
Bartlett	Hanover Park	Warrenville
Bensenville	Hinsdale	Wayne
Bloomingdale	Itasca	West Chicago
Burr Ridge	Lemont	Westmont
Carol Stream	Lisle	Wheaton
Clarendon Hills	Lombard	Willowbrook
Darien	Naperville	Winfield
Downers Grove	Oak Brook	Wood Dale
Elmhurst	Oakbrook Terrace	Woodridge
Glen Ellyn	Roselle	

Table 1-2. Jurisdictions not Participating

Jurisdictions Not Participating		
Aurora	Elk Grove	Schaumburg
Bolingbrook	Batavia	St. Charles
Chicago		

1.5 Hazards Addressed in the Plan

The Plan focuses on the nine (9) major natural hazards facing DuPage County: floods, winter storms, tornadoes, severe summer storms, earthquakes, drought, extreme heat, ground failure, and high-hazard dams.

1.6 Plan Approval and Adoption

This Plan represents a comprehensive description of DuPage County's commitment to significantly reduce or eliminate the potential impacts of disasters through planning and mitigation. Adoption by the local governing bodies within the county legitimizes the Plan

and authorizes responsible agencies to implement mitigation responsibilities and activities.

Following Federal review and approval, the participating jurisdictions in this Plan intend to formally adopt the plan by Resolution or Ordinance.

To be eligible for federal mitigation funding, each participating jurisdiction must adopt the plan. After thorough review, the DuPage County Board adopted the plan on June 27, 2023. Additional adoptions are included in Appendix F: Resolutions of Adoption.

References

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U.S. Government Publishing Office. (2022, January 3). *42 U.S.C. 5165 – Mitigation Planning*. Retrieved on March 28, 2023. Retrieved from: https://www.govinfo.gov/app/details/USCODE-2021-title42/USCODE-2021-title42-chap68-subchapIII-sec5165

U.S. Government Publishing Office. (2021, October 1). *44 CFR 201.6 – Local Mitigation Plans.* Retrieved on: March 28, 2023. Retrieved from: https://www.govinfo.gov/app/details/CFR-2021-title44-vol1/CFR-2021-title44-vol1-sec201-6

Chapter 2: Plan Process

The Plan was prepared to provide a basis for identifying and managing natural hazards and to meet federal, state, and local requirements for hazard mitigation and FEMA mitigation grant funding.

Updating the Plan began with an initial kickoff meeting between DuPage County OHSEM and the steering committee, which was held on January 5th, 2023. Following this meeting, the planning process involved a review of the existing Plan; updating DuPage County's hazard history and risk assessment; gathering information on local hazards from individual communities; gathering input on hazard priorities; identifying specific vulnerabilities, impacts, and desired mitigation strategies; evaluating the previous Plan goals, and mitigation strategies; determining the status of previous mitigation strategies and Action Plans; identifying repetitive loss properties; facilitating the activities of the steering committee and conducting multiple stakeholder and public meetings, including outreach activities.

Information regarding hazards in the county and applicable mitigation strategies were obtained from two workshops held throughout the county on February 27, 2023, and March 1, 2023.

In summary, the planning process consisted of the following key tasks:

Task 1: Organize Resources

The DuPage County OHSEM created a planning team to attend meetings, gather data and historical information, review drafts, and participate in mitigation brainstorming sessions. In addition to the core planning team, a steering committee was formed to provide overall guidance and direction throughout the mitigation planning process (see Steering Committee).

Task 2: Risk Assessment

The planning team identified the natural hazards to include in this Plan, as well as hazard profiles to address the probability, extent, vulnerabilities, and impacts associated with each hazard. The team then used local resources to inventory the county's assets and estimate losses. The core planning team, steering committee, and jurisdictional representatives provided input and subject-matter expertise throughout this process.

Task 3: Public Involvement

A comprehensive public survey was conducted and reached 586 residents. As part of this survey, steering committee members, community representatives, and the general public were asked to rate each of the hazards in terms of perceived risk. They were also asked to rate "mitigation importance" for each of the identified hazards in the Plan. Local jurisdictions shared the meeting information on their websites, Facebook pages, Twitter accounts, and community newsletters. Information from this survey was used to inform the hazard risk prioritization process and to ensure the Plan adequately addressed the public's concerns and priorities. A public forum was advertised and held in the county on March 21, 2023, which provided local residents with an opportunity to provide input into

the Plan. A dedicated hazard mitigation web page was utilized to inform stakeholders and the public regarding the status of the plan, key updates, and opportunities for participation. A draft of the Plan was made available on the web page for review and comment.

Task 4: Develop Mitigation Strategies

The planning team met with representatives of each participating community to develop and prioritize mitigation strategies and action items that would reduce the costs of disaster response and recovery, protect people and infrastructure, and minimize overall disruption to the county in the event of a disaster (see Chapter 7: Mitigation Action Plan). Seventeen countywide, all participating jurisdiction mitigation projects were identified and updated. Over 120 jurisdiction-specific mitigation projects are included in this Plan.

Task 5: Complete the Plan

The core planning team compiled all of the relevant sections of the Plan to produce a draft plan for review. The Plan was submitted to the Illinois Emergency Management Agency (IEMA) and FEMA for approval.

Task 6: Plan Adoption

The DuPage County OHSEM coordinated the effort to ensure the Plan was formally adopted by each participating jurisdiction.

DuPage County Natural Hazard Mitigation Plan History

The first iteration of the *Natural Hazards Mitigation Plan* was developed under the guidance of a Hazard Mitigation Workgroup, created by a resolution of the DuPage County Board on August 8, 2006. The municipalities within DuPage County were invited to participate. Interested municipalities passed a resolution stating their commitment to the plan development. The County updated the resolution formally recognizing the Workgroup in 2012, with the second iteration of the plan. The plan was again updated in 2023. The Plan was updated based on the 2023 Local Mitigation Planning Policy Guide (FEMA, 2022) and was formally approved on July 19, 2023.

2.1 Defining the Planning Area

The planning area was initially defined as all incorporated and unincorporated areas of DuPage County, as well as the incorporated areas that cross county boundaries. As noted in Chapter 1: Introduction, some communities opted not to participate because they are participating in another county's hazard mitigation plan (Cook County, Kane County, and Will County). As such, DuPage County, which includes the unincorporated areas in the County, and 32 participating jurisdictions intend to adopt and implement the Plan. All partners to this Plan have jurisdictional authority within this planning area.

2.2 Establishment of the Planning Partnership

Each jurisdiction participating in the Plan was asked to provide a "letter of intent to participate" that designated a point of contact for the jurisdiction and confirmed the

jurisdiction's commitment to the process and understanding of expectations. A list of the participating jurisdictions is provided in Chapter 1: Introduction.

2.3 Plan Participation

2.3.1 Core Planning Team

The core planning team consisted of key members of DuPage County OHSEM and Integrated Solutions Consulting. Meetings were held bi-weekly throughout the planning process. The core planning team also served on the steering committee and helped guide the process.

Table 2-3. Core Planning Team

Name	Title	Organization
Craig Dieckman	Director	DuPage County OHSEM
Mia Gerace	Emergency Management Specialist	DuPage County OHSEM

2.3.2 Steering Committee

Hazard mitigation planning enhances collaboration and support among diverse parties whose interests can be affected by hazard losses. A steering committee was formed to oversee all phases of the Plan.

During the 2023 update of the Plan, the steering committee agreed to meet as often as needed throughout the course of the plan's development. The core planning team facilitated each steering committee meeting, which addressed a set of objectives based on the work plan established for the Plan.

The steering committee was responsible for:

- The updating and prioritizing of natural hazards that impact DuPage County.
- Defining critical facilities and providing necessary updates.
- Updating the plan's mission, goals, and priorities.
- The overall planning area's capability assessment and consideration of mitigation alternatives.
- The identification of new mitigation actions and the update of past countywide mitigation action items.
- Coordination and outreach with key stakeholders and planning partners.

The steering committee that supported the 2023 DuPage County NHMP update is detailed in the following table:

Table 2-4. Steering Committee

Name	Title	Organization
Craig Dieckman	Director	DuPage County OHSEM
Mia Gerace	Emergency Management Specialist	DuPage County OHSEM

Sarah Hunn	Director	DuPage County Stormwater Management
Jim Stran	Building and Zoning Department Manager	DuPage County Building and Zoning
Paul Hoss	Building and Zoning/CRS Coordinator	DuPage County Building and Zoning
Sean Reese	Operations Manager	DuPage County Department of Public Works
Christopher Snyder	Director	DuPage County Division of Transportation
Mike Figuray	Manager of Highway Operations	DuPage County Division of Transportation
Tom Ricker	GIS Manager	Information Technology Department, GIS Division

2.3.3 Local Jurisdiction Participation

The following local jurisdictions participated in the 2023 NHMP (see Table 2-3). Local representatives, participation activities, and planning documents to facilitate the planning process are provided in Appendix A: Stakeholder Participation and Documents.

Table 2-5. Participating Jurisdictions

Jurisdiction	Letter of Intent / Participation for 2023 HMP Submitted	2022-2023 Hazard Mitigation Plan Workshop	Other Participating Activities	Hazard Analysis	New Mitigation Action(s)	Reviewed/ Updated Past Mitigation Project(s), as applicable
DuPage County	X	X	X	X	X	X
Addison	X	X	X	X	X	NA
Bartlett	X	X	X	X	X	NA
Bensenville	X	X	X	X	X	X
Bloomingdale	X	-	X	X	X	NA
Burr Ridge	X	X	X	X	X	NA
Carol Stream	X	X	-	X	X	NA
Clarendon Hills	X	X	-	X	X	NA
Darien	-	X	-	X	X	NA
Downers Grove	X	X	-	X	X	X
Elmhurst	X	X	-	X	X	NA
Glen Ellyn	X	X	X	X	X	NA
Glendale Heights	X	X	-	X	X	NA
Hanover Park	-	X	-	X	X	NA
Hinsdale	X	X	-	X	X	NA
Itasca	X	X	-	X	X	NA
Lemont	-	-	-	X	X	NA
Lisle	X	X	-	X	X	X
Lombard	X	X	-	X	X	NA

Naperville	X	X	-	X	X	NA
Oak Brook	X	-	X	X	X	NA
Oakbrook Terrace	X	X	X	X	X	NA
Roselle	X	X	X	X	X	NA
Villa Park	X		X		X	X
Warrenville	X	X	X	X	X	NA
Wayne	X	X	-	X	X	NA
West Chicago	X	X	-	X	X	NA
Westmont	X	X	X	X	X	NA
Wheaton	X	X	X	X	X	NA
Willowbrook	X	X	-	X	X	NA
Winfield	X	X	-	X	X	NA
Wood Dale	X	X	-	X	X	NA
Woodridge	X	X	X	X	X	NA

Table 2-6. Jurisdictions NOT Participating

Jurisdiction	Have Not Received Letter Declining Participation	Have Received Letter Declining Participation
Aurora	X	
Bolingbrook	X	
Chicago	X	
Elk Grove	X	
Batavia		X
Schaumburg		X
St. Charles		X

The following sections explain, in greater detail, the key activities and supporting documentation. More information about each of these activities is also provided in Appendix A: Stakeholder Participation and Documentation and Appendix D: NHMP Annual Reports.

2.3.4 Annual Reports

The 2018 DuPage County NHMP Annual Reports were completed and compiled for 2019, 2020, and 2021. The 2022 Annual Report was not necessary as the Plan was undergoing its mandatory 5-year update. Annual Reports are provided in Appendix D: NHMP Annual Reports.

2019 Annual Report Update

In 2020, DuPage County OHSEM requested all participating jurisdictions of the 2018 DuPage County NHMP to submit a 2019 Annual Report Update, which included any new hazards, status of their mitigation efforts, and any new mitigation projects. In total, 32 jurisdictions provided an update.

2020 Annual Report Update

In 2021, DuPage County OHSEM requested all participating jurisdictions of the 2018 DuPage County NHMP to submit a 2020 Annual Report Update, which included any new hazards, status of their mitigation efforts, and any new mitigation projects. In total, 33 jurisdictions provided an update.

2021 Annual Report Update

In 2022, DuPage County OHSEM requested all participating jurisdictions of the 2018 DuPage County NHMP to submit a 2021 Annual Report Update, which included any new hazards, status of their mitigation efforts, and any new mitigation projects. In total, 32 jurisdictions provided an update.

2.3.5 Mitigation Workshop

Two workshops were held in DuPage County to identify hazards and update and consider new mitigation strategies. In addition, individual meetings were held with jurisdictions who were unable to bring their local planning teams to these workshops or needed additional guidance and support. See Appendix A: Stakeholder Participation and Documentation for a list of the individuals who attended the Workshops and for copies of the sign-in sheets.

The purpose of the two workshops was to ensure local jurisdictions had the opportunity to identify their communities' risks and to identify/update their mitigation strategies and priorities. These workshops included local planning members from each of the communities. Participants validated the county's risk assessment findings, described specific hazard risks and concerns for their own communities, updated existing mitigation actions/strategies from the 2018 Plan, and worked with their local planning team to identify new mitigation initiatives.

2.3.6 Other Stakeholders and Organizations

Throughout the planning process, key stakeholders, departments, and community organizations were involved in providing key inputs, disseminating information about the Plan, and reviewing the draft of the plan. See Appendix A: Stakeholder Participation and Documentation for a list of those organizations.

2.3.7 Neighboring Jurisdictions

The neighboring counties were kept apprised of plan development milestones and were invited to review and comment on the draft plan.

Table 2-7. Neighboring Jurisdictions

Neighboring Jurisdiction	Organization	Participation Description
Cook County, IL	Department of Emergency Management and Regional Security	Invited to review and comment on the draft plan.
Will County, IL	Emergency Management	Invited to review and comment on the draft plan.
Kendall County, IL	Emergency Management Agency	Invited to review and comment on the draft plan.
Kane County, IL	Emergency Management	Invited to review and comment on the draft plan.

2.4 Public Involvement and Participation

Broad public participation in the planning process helps ensure that diverse points of view about the planning area's needs are considered and addressed. The public must have opportunities to comment on disaster mitigation plans during the drafting stages and prior to plan approval (44 CFR, Section 201.6(b)(1)). As such, a number of public

outreach activities were organized to ensure public participation and input were obtained. The following sections explain, in greater detail, the key activities and supporting documentation. More information about each of these activities is also provided in Appendix B: Public Involvement Activities and Documentation.

2.4.1 Community Preparedness and Mitigation Survey

Surveys were distributed through a variety of methods beginning on March 9, 2023, including e-mail blasts and social media platforms, such as Facebook and Twitter. The survey was available to the community until March 30, 2023. Community organizations were critical in connecting county and city residents with the survey, and the DuPage County OHSEM utilized their broad-based distribution lists of community stakeholders and partners to disseminate the survey to residents and leaders of underserved communities and organizations. In total, 586 residents participated in the 30-question survey. Results helped to validate the hazards included in the plan, the hazard ranking process, and areas where the county and municipalities could further improve outreach and education efforts.

2.4.2 Public Forum & Outreach

The public was invited to attend a public forum held at the DuPage County OHSEM office on March 21, 2023. The public meeting was advertised locally prior to the meeting, including the dedicated hazard mitigation web page, social media platforms, community newsletters, websites, and the local newspaper.

The purpose of the meeting was to provide an overview of the project, share and validate the hazard risk findings, receive public input on important mitigation initiatives, and to invite the public to review the draft of the plan. Attendees were given access to important information regarding the Plan, and an opportunity to provide input regarding the Plan and planning process.

2.4.3 DuPage County Website

A dedicated web page was utilized to update stakeholders and the general public regarding the Plan update. Social media and outreach activities directed participants to this site. Protect DuPage: Natural Hazard Mitigation Plan

2.4.4 Public Plan Review and Feedback on Draft of the Plan

At the conclusion of the planning process, the public was offered an opportunity to provide feedback to the draft Plan. The public version of the plan was made available at the following site: Protect DuPage: Natural Hazard Mitigation Plan

The draft Plan remained on the web page until the Plan was formally approved and adopted.

2.4.5 How Public Input was Incorporated into the Plan

Information and feedback gained from the survey and public forum provided valuable data to validate and confirm the risk assessment findings and potential mitigation strategies. Specifically, feedback from the public offered during the public forum on March 21, 2023, offered greater insights to the public's concerns regarding specific

hazards and their impacts. The public also offered specific initiatives they felt would create greater resiliency for the county and its residents.

Survey results helped to validate the hazards included in the plan, the hazard ranking process, and areas where the county and municipalities could further improve outreach and education efforts. Open-ended responses, specifically regarding their experience with damages from past hazards, helped to validate hazard-specific impact data in Chapter 4: Risk Assessment. These, and related findings, helped the planning team determine meaningful mitigation projects.

2.5 Equity Considerations for Underserved Communities and Socially Vulnerable Populations

Some disasters occur on larger scales and are more impacted by built environments and are most likely to continually impact those most at risk because of existing health conditions, lack of resources, being underserved by past mitigation planning work, facing historical disinvestment in their communities, or other factors. In this case, people in widely different locations can be the most harmed by repeating disaster cycles, so mitigation strategies should also work to break cycles of loss caused by social and economic disparities. Hazard mitigation strategies can reduce existing risk by, for example, relocating a building out of an area that frequently floods. In each case, an attempt has been made to lessen the harm of a future flood before the event happens. Strategies may also seek to make future development less vulnerable to hazards at the time it is built. Examples would be requiring new structures to be elevated above predicted flood levels or by building structures to better withstand future hazards. Hazard mitigation plans are designed to involve the input of stakeholders from different perspectives to ensure plans use the best available data, are aligned with the needs of the entire community, and are in alignment with other plans, such as comprehensive plans, capital improvement plans, and climate action plans.

This Plan continues to recognize that all members of the community are not impacted in the same way by natural disasters. Some community members are at more risk, for a number of possible reasons. A mitigation strategy that uses a ‘one size fits all’ approach, and does not recognize different levels of risk, will not adequately or efficiently support historically underserved populations; and, can actually make inequalities worse after a disaster.

This version of the Plan highlights equity as a key part of the overall plan vision. This Plan update seeks to continue to develop a shared understanding among participants of how hazard mitigation can be made more inclusive and be proactive in creating strategies that reduce existing disparities in risk and hazard recovery. Addressing the whole community requires an understanding that while a single solution for all seems fair, it does not address historical inequalities and current differences in age, financial resources, housing stability, neighborhood investment, health or ability, and access to government services. In mitigation planning, this means that successfully reducing risk in the most meaningful and efficient way requires understanding how the distribution of resources will actually reduce risk and for whom.

Equitable mitigation success should be measured by assessing who was most impacted in loss of life or financial harm by past and future disasters, quantifiable reductions of vulnerability to those most at risk, and increasing engagement with historically underserved populations and community organizations to better understand how plans and processes and natural hazard events are affecting different communities.

Chapter 3: Community Profile describes different demographic and economic factors in DuPage County. This section includes FEMA's National Risk Index scores for DuPage County for social vulnerability and community resilience. Social vulnerability is defined as the susceptibility of social groups to the adverse impacts of natural hazards, including disproportionate death, injury, loss, or disruption of livelihood (FEMA, 2023).

Community resilience is defined as the ability of a community to prepare for anticipated natural hazards, adapt to changing conditions, and withstand and recover rapidly from disruptions (FEMA, 2023).

The Community Profile section also included an analysis of the 17 (out of 216) census tracts in DuPage County which are identified as "disadvantaged" by the U.S. Council on Environmental Quality (ACEQ). According to the U.S. Council on Environmental Quality (ACEQ), a community is identified as "disadvantaged" if it is located in a census tract that is at or above the threshold for one or more environmental, climate, or other burdens, and at or above the threshold for associated socioeconomic burdens, including poverty and language barriers (U.S. Council on Environmental Quality, 2022). The total population of these 17 census tracts is 78,995 which is 8.50% of the total DuPage County population. Each census tract is further identified in Appendix C: Disadvantaged Communities, illustrating specific socioeconomic burdens to each census tract. This information was used as part of the hazard risk ranking process and to determine potential inequities and disparities regarding potential impacts from natural hazards.

Chapter 4: Risk Assessment includes a hazard ranking methodology that specifically assessed the impact of the natural hazard on underserved populations. Furthermore, each hazard profile included FEMA's Expected Annual Loss analysis and National Risk Index score for the county. The Risk Index score is based on the following components: Social Vulnerability, Community Resilience, and Estimate Annual Loss (EAL), with EAL based on Exposure, Annualized Frequency, and Historic Loss Ratio (HLR) factors, for a total of five risk factors (FEMA, 2023).

Mitigation goals were updated to encourage greater participation and engagement from underserved populations and groups, and aligns with the 2019 Strategic Plan, which prioritizes diversity, inclusion, and equity. During stakeholder meetings, in which new and ongoing mitigation strategies were discussed, jurisdictional representatives were encouraged to consider how the mitigation actions directly and/or indirectly resulted in equitable outcomes.

During the plan update process, a comprehensive community preparedness questionnaire was developed and disseminated. The questionnaire was developed with a specific focus to better understand the challenges and concerns related to access and functional needs, access to information, ability to recover, and services needed,

especially for those who may be underserved or lack access to key resources. Additionally, a public meeting was held and advertised for those who may need Spanish translation assistance, which is a key demographic in the county.

The county and participating jurisdictions have a responsibility to ensure equitable outcomes in the implementation of this Plan and to ensure that action is taken to reduce vulnerabilities to disasters experienced disproportionately by marginalized populations.

When conducting community engagement related to implementation of or update to this Plan, the county will ensure that the whole community has an opportunity to participate in the process and discussion. FEMA defines the "whole community" as "individuals and families, including those with access and functional needs, businesses, faith-based and community organizations, nonprofit groups, schools and academia, media outlets, and all levels of government, including state, local, tribal, territorial, and federal partners that have a shared responsibility in emergency preparedness and mitigation" (FEMA, 2011).

2.6 Existing Plans, Studies, and Reports

Hazard mitigation planning must include a review and incorporation, if appropriate, of existing plans, studies, reports, and technical information (44 CFR, Section 201.6(b)(3)). Chapter 5: Capabilities and Integration of Mitigation Measures provides a review of key studies, plans, laws, and ordinances in effect within the planning area that can affect hazard mitigation actions. All these documents were reviewed as part of the plan update process. Additionally, each chapter in this Plan includes its own reference section, which also acknowledges key plans, studies, and technical information utilized in this Plan.

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Chapter 3: Community Profile

3.1 Overview of the County

DuPage County is located in northeastern Illinois and is home to approximately 934,094 residents (U.S. Census Bureau, 2021). The county seat, Wheaton, is located near the center of the county's approximately 334 square miles. The county includes nine townships (Exhibit 3-3) and 39 municipalities that partially or completely reside within the County boundaries (Exhibit 3-2). DuPage County is the second most populated county in the State, bordered by Cook County (the largest county) to the east, Lake and McHenry counties to the north, Kane County to the west, and Will County to the south. Like most counties, DuPage County is vulnerable to natural hazards that threaten life safety, public health, business and economy, and critical infrastructure.

Exhibit 3-2. Map of Illinois

3.2 History of the County

DuPage County is among the fastest-growing counties in the nation. Located just 20 miles west of the City of Chicago in northeastern Illinois, DuPage County is a vital part of a major metropolitan area. At the same time, the county offers the benefits of small town living, with high-quality educational systems, vast recreational resources, and a safe, attractive environment.

Originally a part of neighboring Cook County, the County of DuPage was separated from Cook by legislative act on February 9, 1839. The new 332.1 square-mile county

was named after the DuPage River, which received its name from DuPahze, a French fur trader who built a trading post and home at the fork of the east and west branches of the river in 1800.

In 1830, the county's first settler was Bailey Hobson, who first lived near Naperville, DuPage's oldest town. Naperville was first settled by John and Joseph Naper in 1831. It is believed that there were four major Indian villages located in DuPage County, together with minor villages, camps, mounds, signals, and chipping stations. Many of today's roads and highways follow the old Indian trails. Among these are Ogden Avenue, Lake Street, Irving Park, and Warrenville Road.

DuPage County was initially an agricultural county dotted with acres of farmland. It developed from this into 39 municipalities and several unincorporated areas. Almost all the old farms have now given way to new residential subdivisions, industrial parks, commercial buildings, and shopping centers.

From the days of the original County Board of Supervisors to today's 18-member County Board, county government has changed to keep pace with this dynamic county. Foreseeing the tremendous population growth, the Board in 1933 was the first to adopt a county zoning ordinance to regulate the use of buildings and land in unincorporated areas of the county.

In more recent years, DuPage County was the first county in the nation to install a joint automation data processing system shared by the County Clerk and County Treasurer's offices; to devise and issue itemized tax bills for taxpayers' education; to install two-way radios in Sheriff's police cars; and the first to enact a countywide rural numbering system for enhanced fire protection.

Today, the goals of county government include planning and implementing a countywide stormwater management program; continuing to improve and expand the transportation infrastructure and working to provide the types of human resources necessary for its growing population.

3.3 Geology, Watersheds, and Topography

DuPage County has six major watershed areas: Salt Creek, the East Branch of the DuPage River, the West Branch of the DuPage River, Sawmill Creek, the Des Plaines River Tributaries, and the Fox River Tributaries. Additional information on watersheds can be found in 4.8 Floods. The northeastern part of the county is drained by Salt Creek, which flows to the south-southeast. The central part of the county is drained by the West and East Branches of the DuPage River, which generally flow south. The southeast corner of the county is drained by the Des Plaines Rivers, which flows to the southwest. The northwest and southwest corners of the county are drained by tributaries that flow to the Fox River.

Most of the county’s topography is relatively flat. The land surface elevation is highest in the northwestern part of the county and gradually slopes to the southeast. The highest natural elevation in the county is about 855 feet above sea level at Mt. Hoy. The lowest

elevation is about 585 feet above sea level in the Des Plaines River Valley in the southeast part of the county.

DuPage County soils are predominately silt loams and silty clay loams. Portions of the county are underlain by sand and gravel. Groundwater is available from one shallow and one deep aquifer system. The bedrock of DuPage County consists primarily of dolomites.

Exhibit 3-3. Map of DuPage County Municipalities

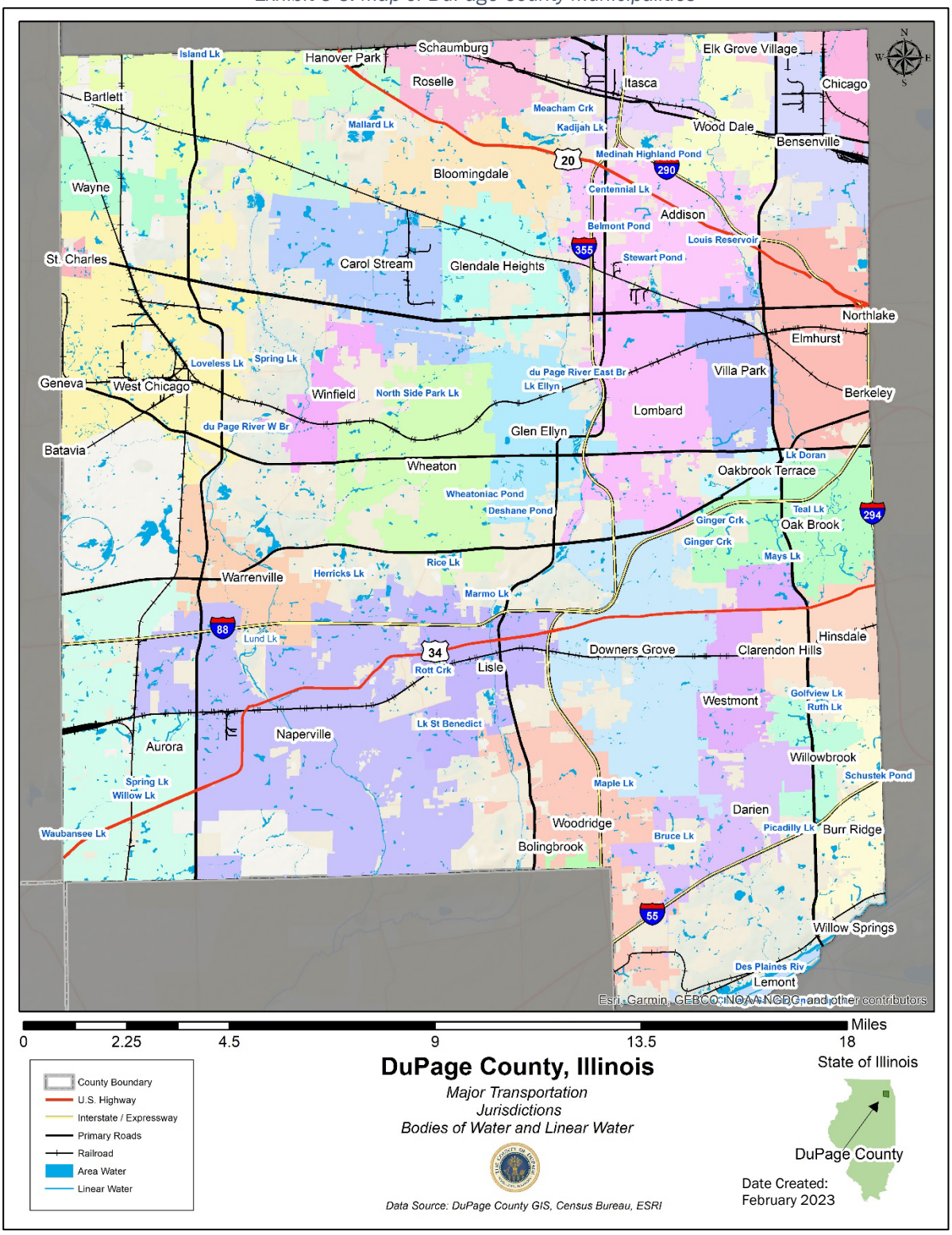


Exhibit 3-4. Map of DuPage County Townships

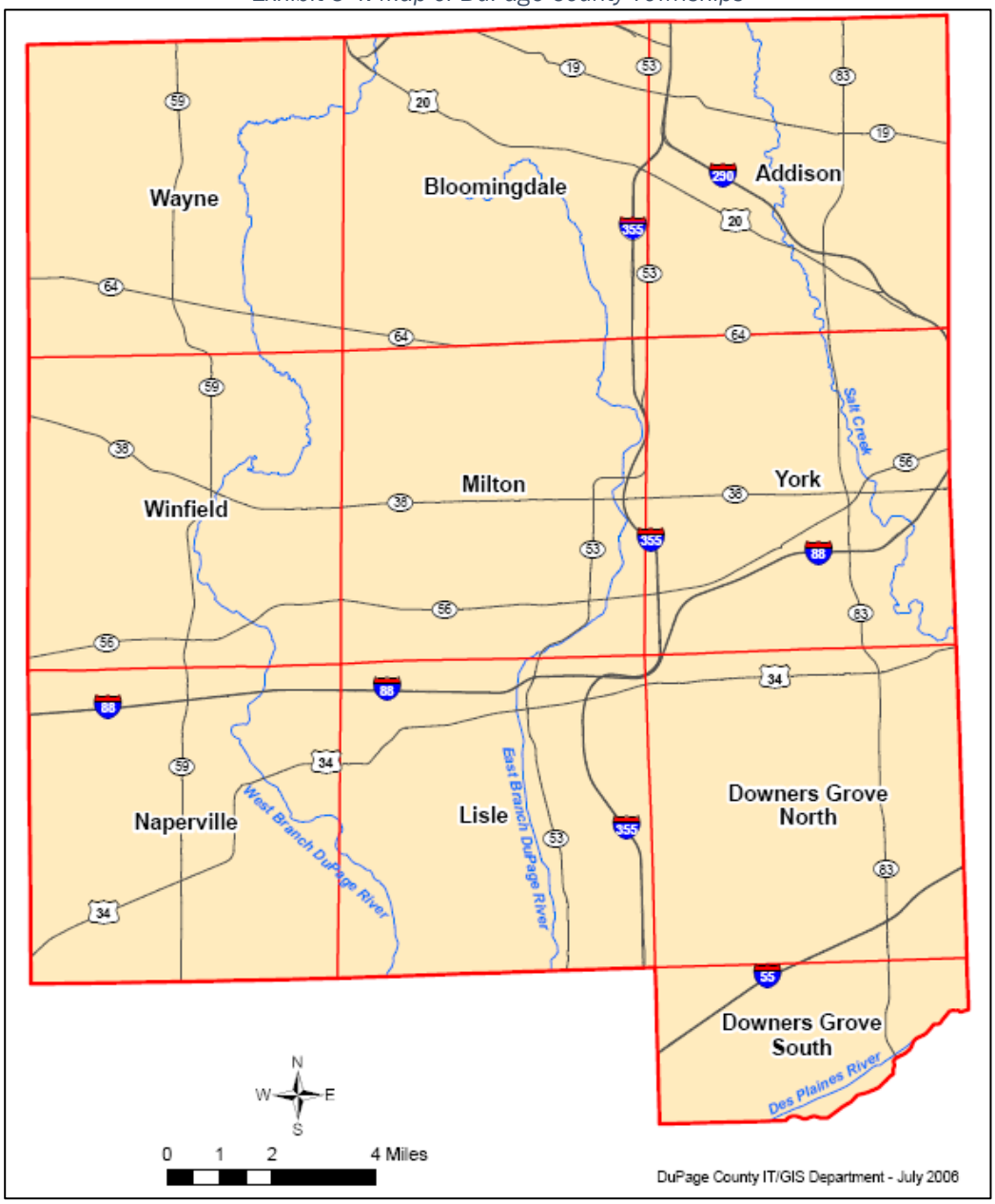


Table 3-8. DuPage County Community Information and NFIP Status

Community Name	Home Rule	NFIP Number	*CRS Participant / Flood Class	Incorporation Date	Area in square miles		
					Total area	DuPage Area	Area in Other Counties
Addison, Village of	Yes	170198	Yes (6)	1884	9.98	9.98	0
Aurora, City of	Yes	170320	Yes (7)	1857	45.80	19.65	26.15
Bartlett, Village of	Yes	170059	Yes (6)	1891	15.86	10.85	5.01
Batavia, Village of	No	170321	No (6)	1891	9.70	0.53	9.17
Bensenville, Village of	No	170200	No (6)	1884	5.62	5.41	0.21
Bloomingdale, Village of	Yes	170201	No (6)	1889	7.04	7.04	0
Bolingbrook, Village of	Yes	170812	No (6)	1965	24.26	3.88	20.38
Burr Ridge, Village of	No	170071	No (7)	1956	7.14	4.69	2.45
Carol Stream, Village of	Yes	170202	No (10)	1958	9.42	9.42	0
Chicago, City of	Yes	170074	--	1833	234.1	2.41	231.7
Clarendon Hills, Village of	No	170203	No (5)	1924	1.81	1.81	0
Darien, City of	No	170750	No (7)	1969	6.30	6.30	0
Downers Grove, Village of	Yes	170204	Yes (6)	1873	14.45	14.45	0
Elk Grove Village, Village of	Yes	170088	No (6)	1956	11.41	1.02	10.39
Elmhurst, City of	Yes	170205	No (6)	1881	10.31	10.28	0.03
Glendale Heights, Village of	Yes	170206	Yes (7)	1959	5.51	5.51	0
Glen Ellyn, Village of	Yes	170207	Yes (7)	1892	6.77	6.77	0
Hanover Park, Village of	Yes	170099	No (10)	1958	6.43	3.38	3.05
Hinsdale, Village of	No	170105	No (8)	1873	4.64	3.71	0.93
Itasca, Village of	No	170210	No (7)	1890	5.07	5.07	0
Lemont, Village of	No	170117	No (5)	1873	8.35	2.46	5.89
Lisle, Village of	No	170211	Yes (5)	1956	7.02	7.02	0
Lombard, Village of	No	170212	No (5)	1869	10.45	10.45	0
Naperville, City of	Yes	170213	No (6)	1857	39.32	29.01	10.31
Oak Brook, Village of	No	170214	No (7)	1958	8.28	8.27	0.01
Oakbrook Terrace, City of	No	170215	No (7)	1958	1.27	1.27	0
Roselle, Village of	No	170216	No (7)	1922	5.48	4.81	0.67
St. Charles, City of	Yes	170158	Yes (5)	1834	14.93	1.17	13.76
Schaumburg, Village of	Yes	170330	No (7)	1914	19.33	0.33	19
Villa Park, Village of	No	170217	No (6)	1915	4.75	4.75	0
Warrenville, City of	Yes	170218	No (6)	1967	5.62	5.62	0
Wayne, Village of	Yes	170865	No (8)	1958	5.87	3.16	2.71
West Chicago, City of	No	170219	No (8)	1873	15.14	15.14	0
Westmont, Village of	No	170220	No (7)	1922	5.14	5.14	0
Wheaton, City of	Yes	170221	Yes (6)	1859	11.44	11.44	0
Willowbrook, Village of	Yes	170222	Yes (6)	1960	2.75	2.75	0
Winfield, Village of	No	170223	No (6)	1921	3.03	3.03	0
Wood Dale, City of	No	170224	Yes (5)	1928	4.84	4.84	0
Woodridge, Village of	Yes	170737	No (5)	1959	9.58	8.94	0.64
Unincorporated DuPage Co.	--	170197	Yes (6)	1884	97.35	97.35	0
Totals:						**334**	

Source: FEMA (2023), Community Status Book

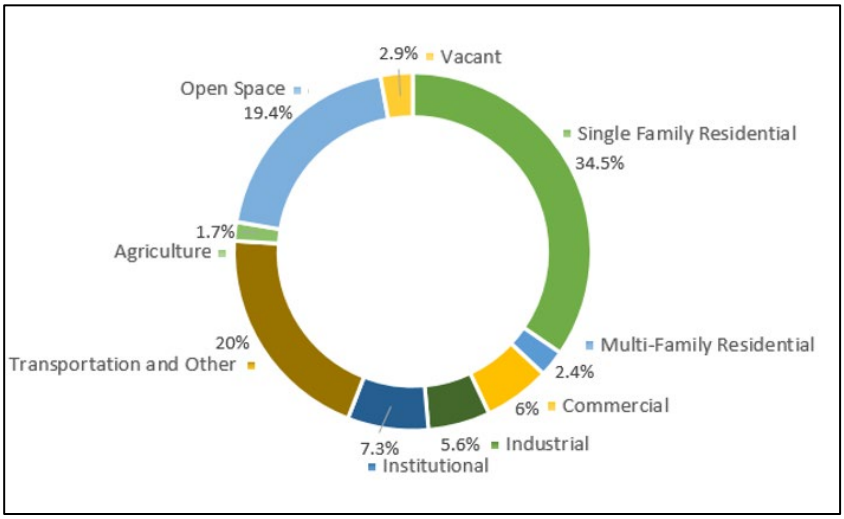
3.4 Climate

DuPage County experiences four seasons (winter, spring, summer, and fall), with an average of 189 sunny days per year (Best Places, N.D., P. 1), and occasionally sees large temperature changes from week to week. On average, the county receives 38 inches of rain and 31 inches of snow annually (Best Places, N.D., P. 1).

3.5 Land Use

Nearly 80% of DuPage County is developed (i.e., non-open space) (CMAP, 2017, P. 6), with a large amount of critical infrastructure. Exhibit 3-5 outlines how the county's land is used by sectors (CMAP, 2022, P. 10).

Exhibit 3-5. DuPage County Land Use



Agricultural land includes farmhouses, nurseries, agricultural businesses, and improved farmland. Open space includes the nearly 26,000 acres of land owned by the DuPage County Forest Preserve District (Forest Preserve District of DuPage County, 2019, P.3) and approximately 166 miles of recreational biking and walking trails.

3.6 Changes in Development

According to DuDOT's 2015-2040 Land Use Assumption estimates, only about 3% of the total land area remains to be developed. The focus in the future is likely going to be adapting and re-developing at higher densities. Between 2015 and 2040, over 21,000 new housing units and 40 million square feet of commercial development are expected to be built in DuPage County. In adjacent townships in Cook, Will, and Kane counties, another 23,000 residences and 58 million square feet of commercial space are projected to be added by 2040 (DuPage County LRTP, 2021).

One major development is the Long Range Transportation Plan (LRTP). The DuPage County Division of Transportation's (DuDOT) LRTP sets the stage for transportation infrastructure investment decisions over the next 20 years. This Plan provides the public

with a transparent view of expected revenues and how DuPage County plans to use those funds to accomplish the goals and objectives set forth in the LRTP (DuPage County LRTP, 2021).

3.7 Demographics

Population and Population Density: As of 2022, DuPage County has a total population of 932,877. While surrounding counties may be experiencing suburban sprawl, DuPage County is already considered to be primarily urban.

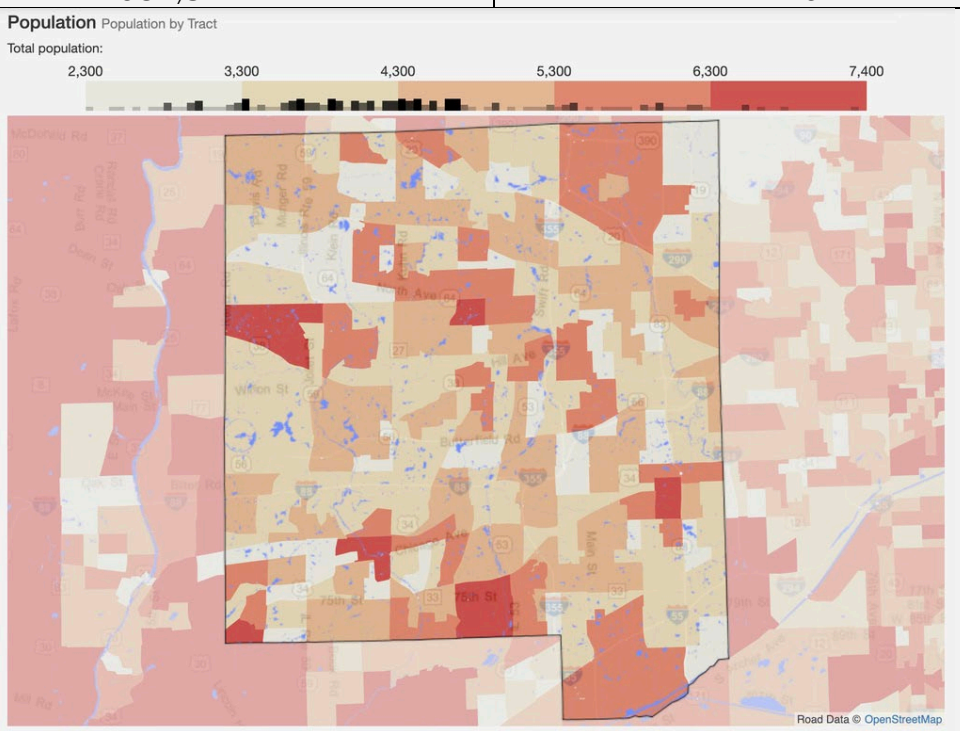
DuPage County also has a Day-Time (Commuter-Adjusted) Population of 1.54 million people (Choose DuPage, 2023).

As seen in Table 3-4, DuPage County's total population shows relatively no change between 2014 and 2022.

Exhibit 3-6 illustrates DuPage County's total population by census tract.

Exhibit 3-6. DuPage County Total Population by Census Tract

DUPAGE COUNTY, ILLINOIS	
TOTAL POPULATION BY CENSUS TRACT	
TOTAL POPULATION	TOTAL NUMBER OF CENSUS TRACTS
932,877	216



Source: Statistical Atlas – Population of DuPage County, Illinois (2023)

Table 3-9. DuPage County Population Estimates

Census Year	Population Estimate
2000	904,161
2010	916, 924
2011	924,245
2012	927,668
2013	931,296
2014	932,419
2015	930,412
2016	929,368
2022	932,877

Income and Socioeconomic Status: In 2021, the median income of households in DuPage County, Illinois, was $100,292. An estimated 3.2% of households had income below $10,000 a year, and 17.3% had income over $200,000 or more (U.S. Census Bureau, 2021).

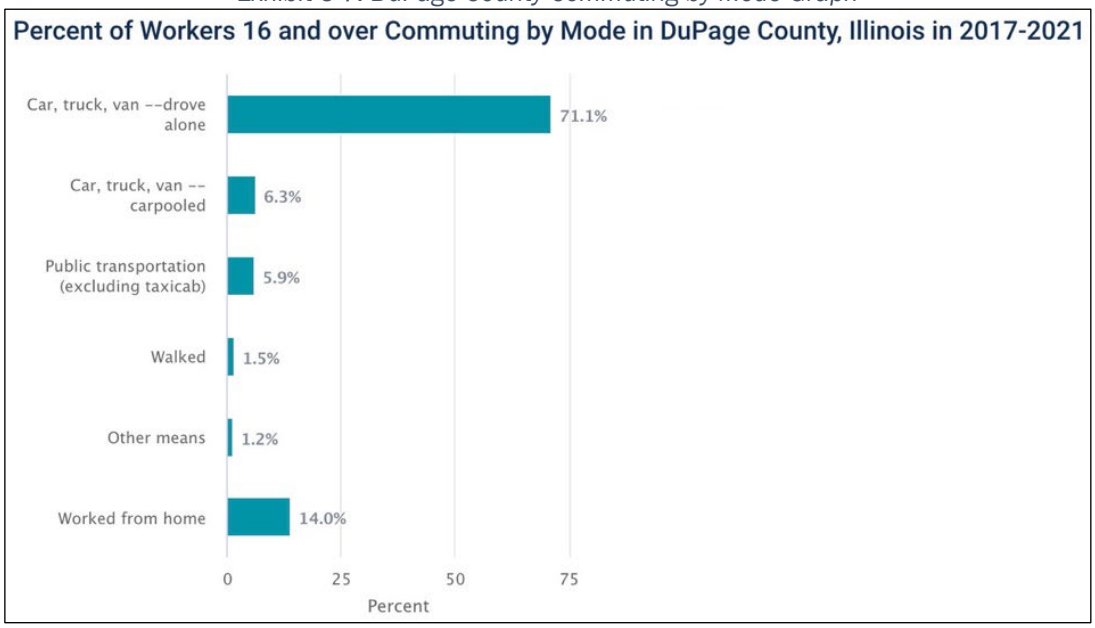
Race, Ethnicity: DuPage County consists of 73% white, 15% Black or African American, 15% Hispanic or Latino, 1% American Indian and Alaska Native, 6.6% Asian, 0.1% Native Hawaiian and Other Pacific Islander, and 9.7% Some other race (U.S. Census Bureau, 2021).

Note: Aggregate percentage does not equal 100% because some individuals, such as Hispanics, may be of any race, so they are included in applicable race categories.

Language: Among people at least five years old living in DuPage County in 2017-2021, 28.4% spoke a language other than English at home. Spanish was spoken by 10.6% of people at least five years old; 8.9% reported that they did not speak English "very well" (U.S. Census Bureau, 2021).

Commuters: An estimated 71.1% of DuPage County workers drove to work alone in 2017-2021, and 6.3% carpooled. Among those who commuted to work, it took them on average 29 minutes to get to work (U.S. Census Bureau, 2021).

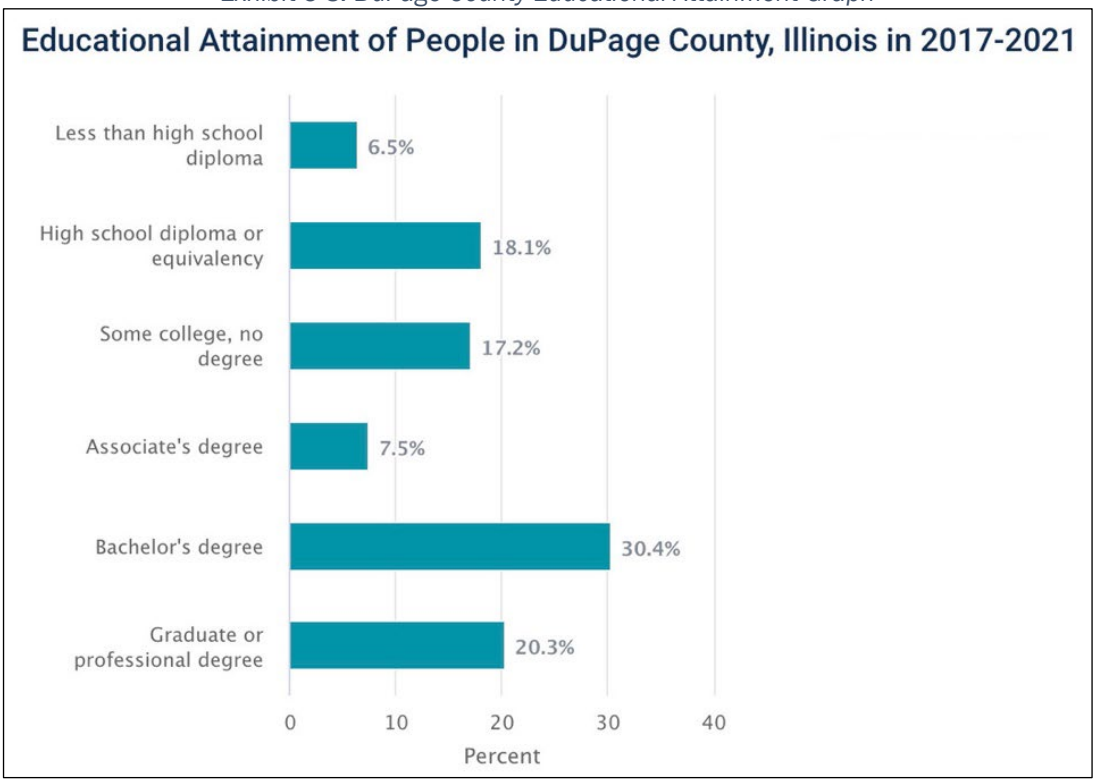
Exhibit 3-7. DuPage County Commuting by Mode Graph



Education:

In 2017-2021, 93.5% of people 25 years and over had at least graduated from high school and 50.7% had a bachelor's degree or higher. An estimated 6.5% did not complete high school (U.S. Census Bureau, 2021).

Exhibit 3-8. DuPage County Educational Attainment Graph



The total school enrollment in DuPage County was 240,067 in 2017-2021. Nursery school enrollment was 17,218 and kindergarten through 12th grade enrollment was 157,863. College or graduate school enrollment was 64,986 (U.S. Census Bureau, 2021).

3.8 FEMA Community Risk Index

According to FEMA, DuPage County has a Community Risk Index Rating of **"Relatively Low"** and a Community Risk Index Score of **"12.04"** (FEMA National Risk Index, 2023).

The Risk Index score is based on the following components: Social Vulnerability, Community Resilience, and Estimate Annual Loss (EAL), with EAL based on Exposure, Annualized Frequency, and Historic Loss Ratio (HLR) factors, for a total of five risk factors (National Risk Index, 2023).

Each risk factor contributes to either the likelihood or consequence aspect of risk and can be classified as one of two risk types: risk based on geographic location or risk based on the nature and historical occurrences of natural hazards. The five risk factors are summarized in Table 3-5. (National Risk Index, 2023).

Table 3-10. FEMA National Risk Index: Risk Components & Factors

FEMA NATIONAL RISK INDEX				
RISK COMPONENTS & FACTORS				
Risk Component	***Risk Factors***	***Risk Factor Description***	***Risk Contribution***	***Risk Type Assignment***
Social Vulnerability	Social Vulnerability	Consequence Enhancer	Consequence	Geographic Risk
Community Resilience	Community Resilience	Consequence Reducer	Consequence	Geographic Risk
Expected Annual Loss	Exposure	Expected Consequence	Consequence	Natural Hazard Risk
Expected Annual Loss	Annualized Frequency	Probability of Occurrence	Likelihood	Natural Hazard Risk
Expected Annual Loss	Historic Loss Ratio	Expected Consequence	Consequence	Natural Hazard Risk

3.9 Community Resilience

According to FEMA, DuPage County has a Community Resilience Rating of **"Relatively High"** and a Community Resilience Score of **"55.68"** out of 100 (FEMA National Risk Index, 2023).

Community resilience is defined as the ability of a community to prepare for anticipated natural hazards, adapt to changing conditions, and withstand and recover rapidly from disruptions. (FEMA National Risk Index, 2023).

The "Community Resilience Score" and "Community Resilience Rating" represent the relative level of a community's resilience compared to all other communities at the same level. The Community Resilience Score is inversely proportional to a community's risk. A

higher Community Resilience Score results in a lower Risk Index Score (FEMA National Risk Index, 2023).

3.10 Social Vulnerability and Underserved Populations

According to FEMA, DuPage County has a Social Vulnerability Rating of **"Very Low"** and a Social Vulnerability Score of "**18.17"** out of 100 (FEMA National Risk Index, 2023).

Social vulnerability is defined as the susceptibility of social groups to the adverse impacts of natural hazards, including disproportionate death, injury, loss, or disruption of livelihood. (FEMA National Risk Index, 2023).

The "Social Vulnerability Score" and "Rating" represent the relative level of a community's social vulnerability compared to all other communities at the same level. A community's Social Vulnerability Score is proportional to a community's risk. A higher Social Vulnerability Score results in a higher Risk Index Score (FEMA National Risk Index, 2023).

Social vulnerability is one of five components included in the formulation of the "National Risk Index Score" in addition to Community Resilience, Estimated Annual Loss (EAL) based on Exposure, Annualized Frequency, and Historic Loss Ratio (HLR) factors (FEMA National Risk Index, 2023).

Table 3-6 illustrates at-risk populations in DuPage County as compared to U.S. percentages and the differences thereof. As seen in Table 3-6, DuPage County demonstrates lower percentages of at-risk/disadvantaged individuals compared to average U.S. population percentages.

Table 3-11. DuPage County Neighborhoods At-Risk Table (2017-2021)

NEIGHBORHOODS AT-RISK TABLE				
DUPAGE COUNTY, IL (2017–2021)				
Indicators 2021*	**DuPage County Population**	**DuPage County Percentage**	**U.S. Percentage**	**Percent Difference (DuPage County vs. U.S.)**
People under 5 years	54,019	5.8%	5.9%	(-0.1%)
People over 65 years	146,886	15.7%	16.0%	(-0.3%)
People of color (including Hispanic)	322,801	34.6%	40.6%	(-6.0%)
People who don't speak English well	30,161	3.4%	4.1%	(-0.7%)
People without a high school degree	41,827	6.5%	11.1%	(-4.6%)
Families in poverty	10,511	4.3%	8.9%	(-4.6%)
Housing units that are rentals	93,049	26.8%	35.4%	(-8.6%)
Households with no car	14,170	4.1%	8.3%	(-4.2%)
People with disabilities	74,641	8.0%	12.6%	(-4.6%)

People without health insurance	48,915	5.3%	8.5%	(-3.2%)

High Reliability: Data with coefficients of variation (CVs) < 12% are in black to show that the sampling error is small.
Medium Reliability: Data with CVs between 12 & 40% are in orange. These values should be interpreted with caution.
Low Reliability: Data with CVs > 40% are displayed in red to indicate that the estimate is considered very unreliable.

*** ACS 5-year estimates: 2021 represents average characteristics from 2017-2021.**
CITATION: U.S. Department of Commerce. 2022. Census Bureau, American Community Survey Office, Washington D.C., reported by Headwaters Economics' Neighborhoods at Risk, headwaterseconomics.org/par.

Source: Neighborhoods At Risk (2021), U.S. Census Bureau (2021)

Table 3-7 illustrates 17 (out of 216) census tracts in DuPage County that are identified as "disadvantaged". According to the Council on Environmental Quality (ACEQ), a community is identified as "disadvantaged" if it is located in a census tract that is at or above the threshold for one or more environmental, climate, or other burdens *and* at or above the threshold for associated socioeconomic burdens, including poverty and language barriers.

The total population of these 17 census tracts is 78,995, which is 8.50% of the total DuPage County population (US Census Bureau, 2021). Each census tract is further identified in (Appendix C – Disadvantaged Communities), illustrating the specific socioeconomic burdens of each census tract.

Table 3-12. DuPage County Disadvantaged Census Tracts

DUPAGE COUNTY, IL		
CLIMATE & ECONOMIC JUSTICE SCREENING TOOL - DISADVANTAGED CENSUS TRACTS		
CENSUS TRACT 2010 ID	CENSUS TRACT POPULATION	LOW INCOME TRACT?
17043840000	2,812	NO
17043840101	5,516	NO
17043840104	5,690	YES
17043840303	3,779	NO
17043840704	3,152	NO
17043840801	2,592	YES
17043840802	5,739	NO
17043840904	4,302	YES
17043840910	5,051	YES
17043841501	6,323	YES
17043841603	4,249	YES
17043841605	4,091	NO
17043841703	6,999	YES
17043841706	4,368	NO
17043845803	5,576	YES
17043846603	4,159	YES
17043846701	4,597	NO
Total Population in Disadvantaged Census Tracts: 78,995		

The Climate and Economic Justice Screening Tool (CEJST) highlights disadvantaged census tracts across all 50 states, the District of Columbia, and the U.S. territories. Communities are considered disadvantaged:

- If they are in census tracts that meet the thresholds for at least one of the tool's categories of burden, or
- If they are on land within the boundaries of Federally Recognized Tribes.

The CEJST tool uses datasets as indicators of burdens. The burdens are organized into categories. A community is highlighted as disadvantaged if it is located in a census tract that is:

(1) At or above the threshold for one or more environmental, climate, or other burdens, and,
(2) At or above the threshold for an associated socioeconomic burden.

In addition, a census tract that is completely surrounded by disadvantaged communities and is at or above the 50% percentile for low income is also considered disadvantaged.

Source: U.S. Council on Environmental Quality - Climate & Economic Justice Screening Tool (2023)

3.11 Housing Trends

In 2021, the county had approximately 364,157 total housing units (347,385 owned and occupied; 93,049 rental units; 16,772 vacant housing units), with an average family size of 2.7 (U.S. Census Bureau, 2021).

3.12 Economy

Employment: In DuPage County, Illinois, 65.7% of the population 16 and over were employed; 30.9% were not currently in the labor force (U.S. Census Bureau, 2021).

An estimated 86.6% of the people employed were private wage and salary workers; 9.5% were federal, state, or local government workers; and 3.7% were self-employed in their own (not incorporated) business.

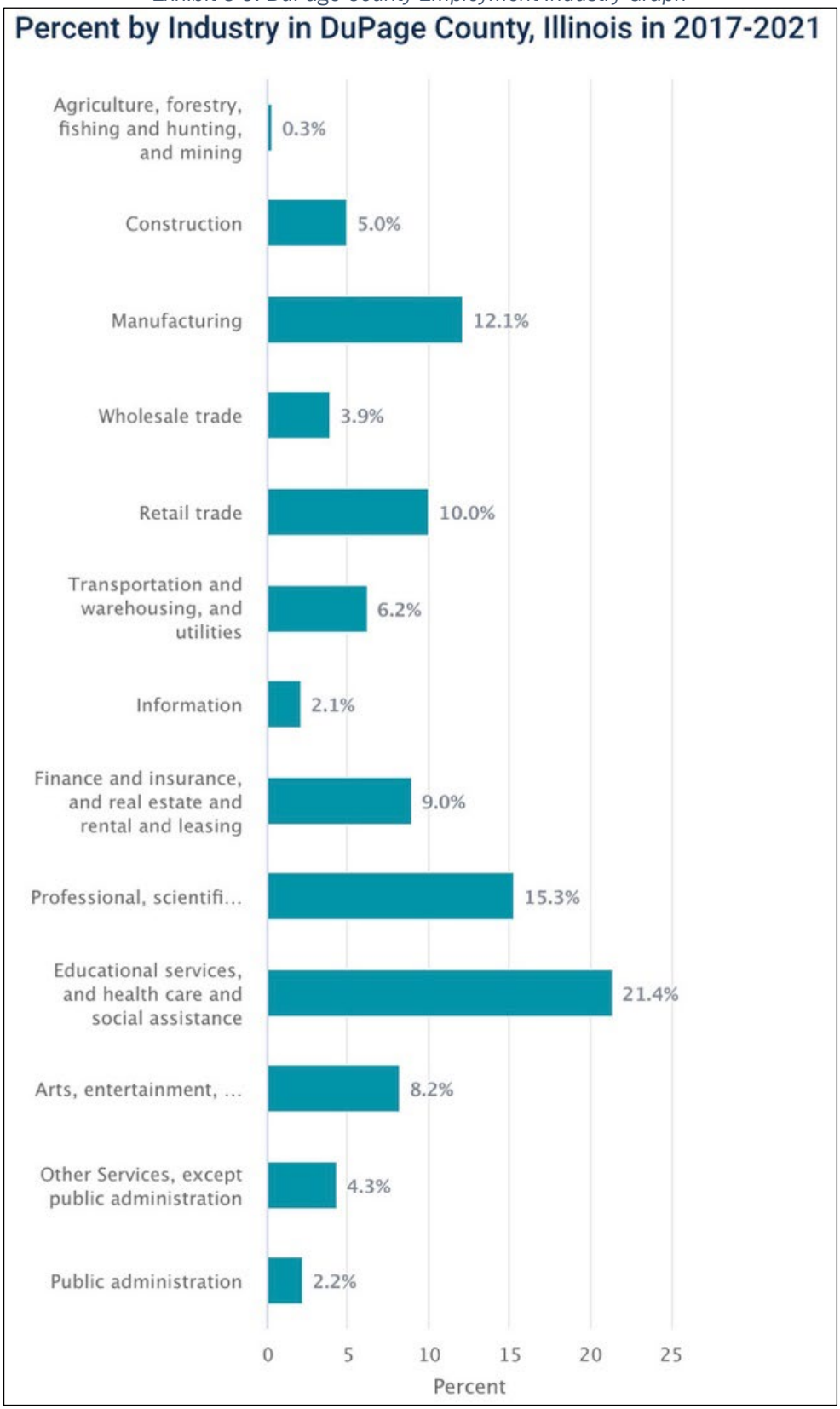
Table 3-13. DuPage County Employment Classification Table

Class of worker	Number	Percent
Private wage and salary workers	425,631	86.6
Federal, state, or local government workers	46,623	9.5
Self-employed workers in own not incorporated business	18,219	3.7

Economy and Industry: According to Choose DuPage "Nearly 700,000 jobs and 40,000 business locations make [the] county [a] proven and premier business location" (Choose DuPage, N.D.a, P. 1). Navistar, Ace Hardware, Blue Cross Blue Shield, Microsoft, McDonalds, Commonwealth Edison, Nicor Gas, and BP all have large corporate offices located within the county.

In 2017-2021, the civilian employed population 16 years and older in DuPage County, Illinois worked in the following industries as shown in Exhibit 3-9.

Exhibit 3-9. DuPage County Employment Industry Graph



3.13 Critical Infrastructure and Key Resources

Note that when the words “critical infrastructure” is used, this Plan is referring to the 16 sectors identified by the Department of Homeland Security (DHS). According to DHS, the definition of critical infrastructure is “assets, systems, and networks, whether physical or virtual, so vital to the United States that their incapacitation or destruction would have a debilitating effect on security, national economic security, national public health or safety, or any combination thereof” (Department of Homeland Security, 2023).

The county is served by 39 fire and emergency medical services (EMS) agencies, 37 law enforcement agencies, and 46 public works agencies. The county also has 22 wastewater facilities and 53 drinking water systems, with the DuPage Water Commission being the largest for the latter, with approximately 749,636 served annually (New York Times, N.D., P. 1). The county has 43 school districts, which are regularly rated among the best in the Country, and approximately 19 accredited Colleges and Universities. DuPage has eight hospitals (Adventist, Glen Oaks, Adventist Hinsdale, Advocate Good Samaritan, Northwestern Memorial Central DuPage, Edward, and Elmhurst), four public safety answering points (PSAP) (Addison Consolidated Dispatch (ACDC), DuPage Public Safety Communications (DU-COMM), Naperville, and NORCOMM), and two federal laboratories (Fermi National Accelerator Laboratory located in Warrenville and Batavia, and Argonne National Laboratory located in Lemont). The Federal Bureau of Investigation (FBI) operates an office out of Lisle, and a United States Postal Service (USPS) distribution center is located in Carol Stream.

Transportation within the county includes three interstates and toll roads, and nine other State and U.S. highways. Centerline miles for all roadways within DuPage County (excluding residential) totals 1,113.47; and the total number of vehicle miles traveled (excluding residential) per day for Cook County, DuPage County, Illinois Department of Transportation (IDOT), Illinois State Tollway Authority, and municipal roads equals 24,090,597. The county has approximately 321 bridges (pedestrian, road, and rail), two airports (DuPage and O’Hare International), four pipelines for refined petroleum products, one waterway for petroleum movement, and 329 miles of railroad track which run approximately 422 trains daily (DuPage County Office of Homeland Security and Emergency Management, 2017, P. 2). Approximately 50% of all U.S. freight cargo passes through DuPage County (Choose DuPage, N.D.b, P. 1). DuPage County is connected to the largest railroad hub in the nation, Chicago, extending its reach to every region of the United States. Freight service within the county is provided by the Union Pacific, Elgin Joliet and Eastern, Illinois Central, Milwaukee West, and Burlington Northern Santa Fe lines. The Chicago metro region is the only place where all seven Class-One North American Railroads interchange traffic, carrying 50% of all U.S. rail freight (Choose DuPage, N.D.b, P. 1).

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Chapter 4: Risk Assessment

Risk assessment is the process of measuring the potential loss of life, personal injury, economic injury, and property damage resulting from natural hazards. It allows emergency management personnel to establish early response priorities by identifying potential hazards and vulnerable assets.

The risk assessment for this hazard mitigation plan update evaluates the risk of natural hazards prevalent in the planning area and meets the requirements of the DMA (44 CFR, Section 201.6(c)(2)).

4.1 Identified Hazards

Some hazards are a threat to all geographic areas, while others (e.g., flooding) are more limited in their extent. A thorough analysis was conducted to determine which hazards are of concern in DuPage County as part of the plan update.

DuPage County hazards were identified using several resources, including:

- 2018 Illinois Natural Hazard Mitigation Plan
- 2018 DuPage County Natural Hazard Mitigation Plan
- Hazard planning documents developed by state, federal, and private agencies
- National Weather Service weather data from the past 50 years
- Data from the United States Geological Survey (USGS)

Hazards that have been identified as significant in this county and that will be considered in this Plan are listed below.

Natural Hazards

- Drought
- Earthquakes
- Extreme Heat
- Flood
    - Riverine Flooding
    - Urban/Flash Flooding
- Ground Failure
- High Hazard Dams
- Severe Summer Weather
    - Thunderstorms
    - Lightning
    - Hail
    - High Winds
    - Microbursts
- Severe Winter Weather
    - Winter Storms

  - Extreme Cold
  - Ice Storms
- Tornadoes

Per FEMA's mandate to address all natural hazards, the following natural hazards were not included because these hazards do not directly impact DuPage County due to geographic location. The State of Illinois does not consider DuPage County to be at risk for a wildfire (IEMA, 2018), and due to the county's high urban footprint, it has been excluded.

- Hurricane
- Sea Level Rise
- Storm Surge
- Tsunami
- Volcanic Eruption
- Snow Avalanche
- Landslide/Mudslide
- Wildfire

4.1.1 Presidential Disaster (DR) and Emergency Declarations (EM) in DuPage County

Table 4-14 presents a list of all disaster and emergency declarations in DuPage County according to FEMA. This list shows the foundation for identifying what hazards pose the most significant risk within DuPage County.

While flooding has been the most significant natural hazard DuPage has experienced, tornadoes, severe summer storms, and severe winter storms have all created damage that has received a federal disaster declaration over the past years. The table below lists the county's presidential or federal disaster declarations since 1967.

Table 4-14. State and Federal Disaster Declarations for DuPage County

Event	Fall	Winter	Spring	Summer	Declaration Date	FEMA Disaster Number	Location	Public Assistance*
Tornado			X		4/25/1967	227	Unknown	Unknown
Flood				X	9/5/1972	351	Unknown	Unknown
Flood				X	6/25/1974	438	Unknown	Unknown
Flood			X		9/13/2008	1800	Countywide	$2,328,929
Flood			X		7/24/2010	1935	Eastern DuPage	Unknown
Flood				X	8/21/1987	798	Eastern DuPage	Unknown
Severe Storms				X	6/18/1976	509	Unknown	Unknown
Severe Storms		X			1/16/1979	3068	Unknown	Unknown
Severe Storms			X		5/10/2013	4116	Countywide	Unknown
Severe Storms				X	7/25/1996	1129	Western DuPage	$2,460,000
Winter Storms		X			1/8/1999	3134	Countywide	$2,300,000

Winter Storms		X			1/18/2001	3161	Countywide	$1,880,000
Winter Storms		X			1/31/2011	1960	Countywide	$3,041,412
* Dollar amount of public assistance communities received. This estimate does not include individual assistance provided to individual property owners.								

4.2 Risk Assessment Methodology

4.2.1 Probability of Occurrence

The probability of occurrence of a hazard is indicated by a probability factor based on the likelihood of annual occurrence:

- **High**: Significant hazard event is likely to occur annually (Probability Factor = 3)
- **Medium**: Significant hazard event is likely to occur within 25 years (Probability Factor = 2)
- **Low**: Significant hazard event is likely to occur within 100 years (Probability Factor = 1)
- **Unlikely**: There is little to no probability of significant occurrence, or the recurrence interval is greater than every 100 years (Probability Factor = 0)

The assessment of hazard frequency is generally based on past hazard events in the area.

4.2.2 Extent

Extent was assessed in two categories: extent/intensity and catastrophic potential of the hazard. Numerical impact factors were assigned as follows:

Extent/Intensity: Extent is the range of anticipated intensities of the identified hazards. Extent is most commonly expressed using various scientific scales, such as the Enhanced Fujita scale.

- **High**: Historical and/or probabilistic models/studies for this hazard indicate the possibility of a high-intensity incident (Extent Factor = 3)
- **Medium**: Historical and/or probabilistic models/studies for this hazard indicate the possibility of a medium-intensity incident (Extent Factor = 2)
- **Low**: Historical and/or probabilistic models/studies for this hazard indicate the possibility of a low-intensity incident (Extent Factor = 1)
- **Unlikely**: Historical and/or probabilistic models/studies for this hazard indicate the possibility of little to no intensity (Extent Factor = 0)

Catastrophic Factor: The potential that an occurrence of this hazard could be catastrophic.

- **High**: High potential that this hazard could be catastrophic (Extent Factor = 3)
- **Medium**: Medium potential that this hazard could be catastrophic (Extent Factor = 2)

- **Low**: Low potential that this hazard could be catastrophic (Extent Factor = 1)
- **Unlikely**: Virtually no potential that this hazard could be catastrophic (Extent Factor = 0)

Each category was assigned a weighting factor to reflect its significance, consistent with those typically used for measuring the benefits of hazard mitigation actions: a weighting factor of 3 was assigned for *Extent/Intensity* and its potential for *Catastrophe*.

4.2.3 Vulnerability

Vulnerabilities were assessed in three categories: population exposure, property exposure, and exposure based on changes in development. Numerical impact factors were assigned as follows:

People: Values were assigned based on the percentage of the total population exposed to the hazard event.

- **High**: 30% or more of the population is exposed to this hazard (Vulnerability Factor = 3)
- **Medium**: 15% to 29% of the population is exposed to this hazard (Vulnerability Factor = 2)
- **Low**: 14% or less of the population is exposed to this hazard (Vulnerability Factor = 1)
- **No Vulnerability**: None of the population is exposed to this hazard (Vulnerability Factor = 0)

Property Exposed: Values were assigned based on the percentage of the total property value exposed to the hazard event.

- **High**: 25% or more of the total assessed property value is exposed to the hazard (Vulnerability Factor = 3)
- **Medium**: 10% to 24% of the total assessed property value is exposed to the hazard (Vulnerability Factor = 2)
- **Low**: 9% or less of the total assessed property value is exposed to the hazard (Vulnerability Factor = 1)
- **No Vulnerability**: None of the total assessed property value is exposed to the hazard (Vulnerability Factor = 0)

Changes in Development Factor: Changes in development since the previous plan was approved have increased or decreased the community's vulnerability/exposure to this hazard.

- **High**: Changes in development have significantly increased the vulnerability/exposure of the community to this hazard (Vulnerability Factor = 3)
- **Medium**: Changes in development have increased the vulnerability/exposure of the community to this hazard, but not significantly (Vulnerability Factor = 2)

- **Low**: Changes in development have minimally increased the vulnerability/exposure of the community to this hazard (Vulnerability Factor = 1)
- **No Vulnerability**: Changes in development have had no effect and/or have decreased the vulnerability/exposure of the community to this hazard (Vulnerability Factor = 0)

Each category was assigned a weighting factor to reflect its significance, consistent with those typically used for measuring the benefits of hazard mitigation actions: a weighting factor of 3 was assigned for *People*, and a weighting factor of 1 was assigned for *Property Exposed* and *Changes in Development*.

4.2.4 Impact

Hazard impacts were assessed in eight categories: population and life/safety, underserved/equity, property damages, economic, environmental, essential operations, future development, and climate change. Numerical impact factors were assigned as follows:

Population and Life/Safety: Values were assigned based on (1) best available historical and probabilistic data for individuals who are vulnerable to the hazard event and (2) the likelihood to experience adverse impacts in the event of its occurrence.

- **High**: Populations exposed to this hazard are likely to experience significant adverse impacts (Impact Factor = 3)
- **Medium**: Populations exposed to this hazard are likely to experience some adverse impacts (Impact Factor = 2)
- **Low**: Populations exposed to this hazard are likely to experience minimal adverse impacts (Impact Factor = 1)
- **No impact**: Populations exposed to this hazard are not likely to experience significant adverse impacts (Impact Factor = 0)

Underserved/Equity: Values were assigned based on the best available data for underserved populations that are vulnerable to the hazard event and are likely to experience adverse or disproportionate impacts. As a result of the hazard incident, these populations may suffer from greater disparities in equity.

- **High**: Underserved populations exposed to this hazard are likely to experience significant adverse/disproportionate impacts (Impact Factor = 3)
- **Medium**: Underserved populations exposed to this hazard are likely to experience some adverse/disproportionate impacts (Impact Factor = 2)
- **Low**: Underserved populations exposed to this hazard are likely to experience minimal adverse/disproportionate impacts (Impact Factor = 1)
- **No impact**: Underserved populations exposed to this hazard are not likely to experience significant adverse/disproportionate impacts (Impact Factor = 0)

Property Damages: Values were assigned based on the expected total property damages incurred from a hazard incident. It is important to note that values represent estimates of

the loss from a significant incident based on historical data or probabilistic models/studies.

- **High**: More than $5,000,000 in property damages is expected from a single major hazard event, or damages are expected to incur 15% or more of the property value within the jurisdiction (Impact Factor = 3)
- **Medium**: More than $500,000, but less than $5,000,000 in property damages is expected from a single major hazard event, or anticipated damages are expected to be more than 5% but less than 15% of the property value within the jurisdiction (Impact Factor = 2)
- **Low**: Less than $500,000 in property damages is expected from a single major hazard event, or less than 15% of the property value within the jurisdiction (Impact Factor = 1)
- **No impact**: Little to no property damage is expected from a single major hazard event (Impact Factor = 0)

Economic Factor: An estimation of the impact (in USD) on the local economy is based on projected loss of business revenue, crops, worker wages, and local tax revenues or the impact on the regional gross domestic product (GDP).

- **High**: Where the total economic impact is likely to be greater than $10 million (Impact Factor = 3)
- **Medium**: Where the total economic impact is likely to be greater than $100,000 but less than or equal to $10 million (Impact Factor = 2)
- **Low**: Where the total economic impact is not likely to be greater than $100,000 (Impact Factor = 1)
- **No Impact**: Where there is virtually no significant economic impact (Impact Factor = 0)

Environmental Factor: Environmental impact from a major hazard event requiring outside resources and support; and/or repair, clean-up, restoration, and/or preservation work.

- **High**: Environmental impact from a single major hazard event is likely to be significant, requiring extensive outside resources and support; and/or repair, clean-up, restoration, and/or preservation work (Impact Factor = 3)
- **Medium**: Environmental impact from a single major hazard event is likely to be localized, requiring some outside resources and support; and/or repair, clean-up, restoration, or preservation work (Impact Factor = 2)
- **Low**: Environmental impact from a single major hazard event is likely to be minimal, requiring little to no outside resources and support, and/or minimal repair, clean-up, restoration, or preservation work (Impact Factor = 1)
- **No impact**: No environmental impacts from a single major hazard event is likely (Impact Factor = 0)

Essential Operations Factor: Impact on the ability of the jurisdiction to meet the essential day-to-day operational demands and needs of the community from a single major hazard event.

- **High**: Significant impact on the ability of the jurisdiction to meet the essential day-to-day operational demands and needs of the community from a single major hazard event (Impact Factor = 3)
- **Medium**: Some impact on the ability of the jurisdiction to meet the essential day-to-day operational demands and needs of the community from a single major hazard event (Impact Factor = 2)
- **Low**: Minimal impact on the ability of the jurisdiction to meet the essential day-to-day operational demands and needs of the community from a single major hazard event (Impact Factor = 1)
- **No Impact**: No impact on the ability of the jurisdiction to meet the essential day-to-day operational demands and needs of the community from a single major hazard event (Impact Factor = 0)

Future Development Factor: The potential that future development will have on increasing or decreasing the impact/consequence of this hazard.

- **High**: Future development trends will significantly increase the impact/consequence of this hazard (Impact Factor = 3)
- **Medium**: Future development trends will increase the impact/consequence of this hazard, but not significantly (Impact Factor = 2)
- **Low**: Future development trends will minimally increase the impact/consequence of this hazard (Impact Factor = 1)
- **No Impact**: Future development trends will not increase the impact/consequence of this hazard and/or may even decrease the impact/consequence of this hazard (Impact Factor = 0)

Climate Change Factor: The potential that Climate Change will increase the risk of this hazard (i.e., type, location, and range of anticipated intensities of the identified hazard and impacts).

- **High**: Climate Change trends will significantly increase the risk of this hazard and its impacts (Impact Factor = 3)
- **Medium**: Climate Change trends will increase the risk of this hazard and its impacts, but not significantly (Impact Factor = 2)
- **Low**: Climate Change trends will minimally increase the risk of this hazard and its impacts (Impact Factor = 1)
- **No Impact**: Climate Change trends will not increase the risk of this hazard and its impacts (Impact Factor = 0)

Each category was assigned a weighting factor to reflect its significance, consistent with those typically used for measuring the benefits of hazard mitigation actions: a weighting factor of 3 was assigned for *Population and Life Safety* and *Underserved/Equity*, and a weighting factor of 2 was assigned for *Property Damages. In addition, a* weighting factor

of 1 was assigned for *Economic*, *Environmental, Essential Operations*, *Future Development,* and *Climate Change*.

4.3 FEMA NRI Risk Scores

The National Risk Index (NRI) is a dataset and online tool to help illustrate the United States communities most at risk for 18 natural hazards: Avalanche, Coastal Flooding, Cold Wave, Drought, Earthquake, Hail, Heat Wave, Hurricane, Ice Storm, Landslide, Lightning, Riverine Flooding, Strong Wind, Tornado, Tsunami, Volcanic Activity, Wildfire, and Winter Weather. Because not all hazards apply to the county, only those with a defined risk to the county are included.

The National Risk Index leverages available source data for Expected Annual Loss due to these 18 hazard types, Social Vulnerability and Community Resilience, to develop a baseline relative risk measurement for each United States county and census tract. These measurements are calculated using average past conditions but cannot be used to predict future outcomes for a community. The National Risk Index is intended to fill gaps in available data and analyses to better inform federal, state, local, tribal, and territorial decision-makers as they develop risk reduction strategies.

4.3.1 FEMA National Risk Index Score

Table 4-15. Overall FEMA NRI Score

FEMA OVERALL NRI SCORE FOR DUPAGE COUNTY, IL FEMA OVERALL NRI SCORE	
FEMA Overall NRI Score	**FEMA Overall NRI Rating**
12.04 / 100	Relatively Low
Risk Index scores are calculated using an equation that combines scores for Expected Annual Loss due to natural hazards, Social Vulnerability and Community Resilience. (Expected Annual Loss X Social Vulnerability / Community Resilience = Risk Index).	
Source: hazards.fema.gov/nri/determining-risk	

4.3.2 Social Vulnerability

Social Vulnerability measures the susceptibility of social groups to the adverse impacts of natural hazards, including disproportionate death, injury, loss, or disruption of livelihood.

Per the FEMA National Risk Index, DuPage County has a Social Vulnerability Rating of **"Very Low"** and a Social Vulnerability Score of **"18.17"** out of 100 (FEMA, 2023).

The "Social Vulnerability Score" and "Rating" represent the relative level of a community's social vulnerability compared to all other communities at the same level. A community's Social Vulnerability Score is also proportional to a community's risk. A higher Social Vulnerability Score results in a higher Risk Index Score (FEMA, 2023).

Social vulnerability is one of five components included in the formulation of the "National Risk Index Score" in addition to community resilience, estimated annual loss (EAL) based on exposure, annualized frequency, and Historic Loss Ratio (HLR) factors (FEMA, 2023).

Table 4-16. Social Vulnerability FEMA NRI Score

DUPAGE COUNTY, IL FEMA NRI SOCIAL VULNERABILITY SCORE	
Social Vulnerability Score	**Social Vulnerability Rating**
18.17 / 100	Very Low
Social Vulnerability is measured using the Social Vulnerability Index (SoVI) published by the University of South Carolina's Hazards and Vulnerability Research Institute (HVRI).	
Source: hazards.fema.gov/nri/social-vulnerability	

4.3.3 Community Resilience

Community Resilience measures a community's ability to prepare for anticipated natural hazards, adapt to changing conditions, and withstand and recover rapidly from disruptions.

Table 4-17. Community Resilience FEMA NRI Score

DUPAGE COUNTY, IL FEMA NRI COMMUNITY RESILIENCE SCORE	
Community Resilience Score	**Community Resilience Rating**
55.68 / 100	Relatively High
Community Resilience is measured using the Baseline Resilience Indicators for Communities (HVRI BRIC) published by the University of South Carolina's Hazards and Vulnerability Research Institute (HVRI).	
Source: hazards.fema.gov/nri/community-resilience	

4.3.4 Expected Annual Loss

Expected Annual Loss (EAL) represents the expected economic damage that is likely to occur each year as a result of hazard events.

Table 4-18. Expected Annual Loss FEMA NRI Score (All Natural Hazards)

EXPECTED ANNUAL LOSS FOR DUPAGE COUNTY, IL FEMA NRI EXPECTED ANNUAL LOSS SCORE	
Expected Annual Loss Score	**Expected Annual Loss Rating**
31.94 / 100	Relatively High
Expected Annual Loss scores are calculated using an equation that combines values for exposure, annualized frequency, and historic loss ratios (Expected Annual Loss = Exposure × Annualized Frequency × Historic Loss Ratio).	
Source: hazards.fema.gov/nri/expected-annual-loss	

4.4 Overall Risk Scores

The following tables represent the new overall risk scores for DuPage County based on the described methodology above. Following a data-driven quantitative assessment, the planning team utilized subject matter knowledge and expertise and further refined the scores. FEMA NRI Scores were used as appropriate and applicable to inform the analysis.

4.4.1 DuPage County Overall Risk Scores

Table 4-19. 2023 Hazard Risk Scores for DuPage County

Hazard Event	Probability	Consequence				Total Risk Score (Probability x Consequence)
	Probability Factor	Sum of Weighted Extent Factors	Sum of Weighted Vulnerability Factors	Sum of Weighted Impact Factors	Consequence Score	
Severe Summer Storms: High Winds	3	12	15	16	43	62
Flood: Urban/Flash Flooding	3	9	11	21	41	60
Severe Winter Storms: Blizzards	3	12	15	14	41	60
Flood: Riverine Flooding	2	15	7	27	49	49
Tornadoes	2	15	5	27	47	48
Severe Winter Storms: Ice Storms	2	15	15	15	45	46
Severe Summer Storms: Thunderstorms	3	3	13	13	29	45
Severe Winter Storms: Extreme Cold	2	12	11	13	36	38
Extreme Heat	2	9	9	17	35	37
Severe Summer Storms: Microbursts	2	12	8	14	34	36
Drought	2	9	9	13	31	33
Severe Summer Storms: Lightning	2	3	11	12	26	29
Severe Summer Storms: Hail	2	3	10	12	25	28
High Hazard Dams	1	12	5	17	34	20
Earthquakes	1	3	15	11	29	18
Ground Failure	1	3	5	12	20	13

Table 4-20. Hazard Risk Scores Legend

Probability Factor		Sum of Weighted Extent Factors		Sum of Weighted Vulnerability Factors		Sum of Weighted Impact Factors		Consequence Score		Total Risk Score	
1	Low (L)	0–6	Low (L)	0–6	Low (L)	0–12	Low (L)	0–25	Low (L)	0–24	Low (L)
2	Medium (M)	7–12	Medium (M)	7–12	Medium (M)	13–26	Medium (M)	26–50	Medium (M)	25–59	Medium (M)
3	High (H)	13–18	High (H)	13–18	High (H)	27–39	High (H)	51–75	High (H)	60–100	High (H)

** The **Legend** – specifically the assignment of low, medium, and high—provides an additional means to qualitatively assess the probability factor, sum of weighted factors, and the total risk scores for each hazard.*

*The **Consequence Score** represents the sum of the Extent, Vulnerability, and Impact Factors.*

*The **Total Risk Score** is a measure of Probability and Consequence.*

Note: If you are accessing the Microsoft Word version of this Plan, double-click on the icon below to access the entire assessment. The first tab includes the assessment, and the second includes the final scores. If you are using the PDF version of the Plan, please access the "Attachments" feature in Adobe PDF and click the corresponding file.

DuPageCounty.NHMP.HazardRankings

4.5 Drought

Hazard Description

A drought is a prolonged period when an area or community has a water shortage. This often occurs during an absence of precipitation for an extended period. According to (NOAA, 2023), there are four types of drought:

- Meteorological drought: This happens when dry weather patterns dominate an area.
- Hydrological drought: This occurs when low water supply becomes evident, especially in streams, reservoirs, and groundwater levels, usually after many months of meteorological drought.
- Agricultural drought: This happens when crops become affected.
- Socioeconomic drought: Relates the supply and demand of various commodities to drought.

Hazard Location

Drought could occur anywhere in DuPage County and would likely affect the entire county.

Hazard Extent/Intensity

Exhibit 4-11 displays the precipitation conditions for the United States using the Palmer Drought Severity Index (PDSI), taken from the National Weather Service (NWS). The PDSI quantifies drought in terms of prolonged and abnormal moisture deficiency or excess. This index indicates general conditions and not local variations caused by isolated rain. The PDSI is an important climatological tool for evaluating the scope, severity, and frequency of prolonged periods of abnormally dry or wet weather. In addition, it can help delineate disaster areas and indicate the availability of irrigation water supplies, reservoir levels, range conditions, amount of stock water, and potential intensity of forest fires (NCAR, 2023).

The PDSI compares moisture deficiency and excess on a numerical scale that usually ranges from positive five to negative five. Positive values reflect excess moisture supplies, while negative values indicate moisture demands in excess of supplies.

Exhibit 4-10. Palmer Drought Severity Index (PDSI)

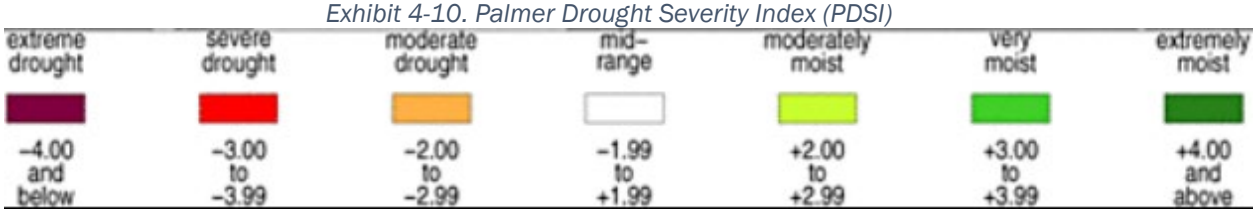
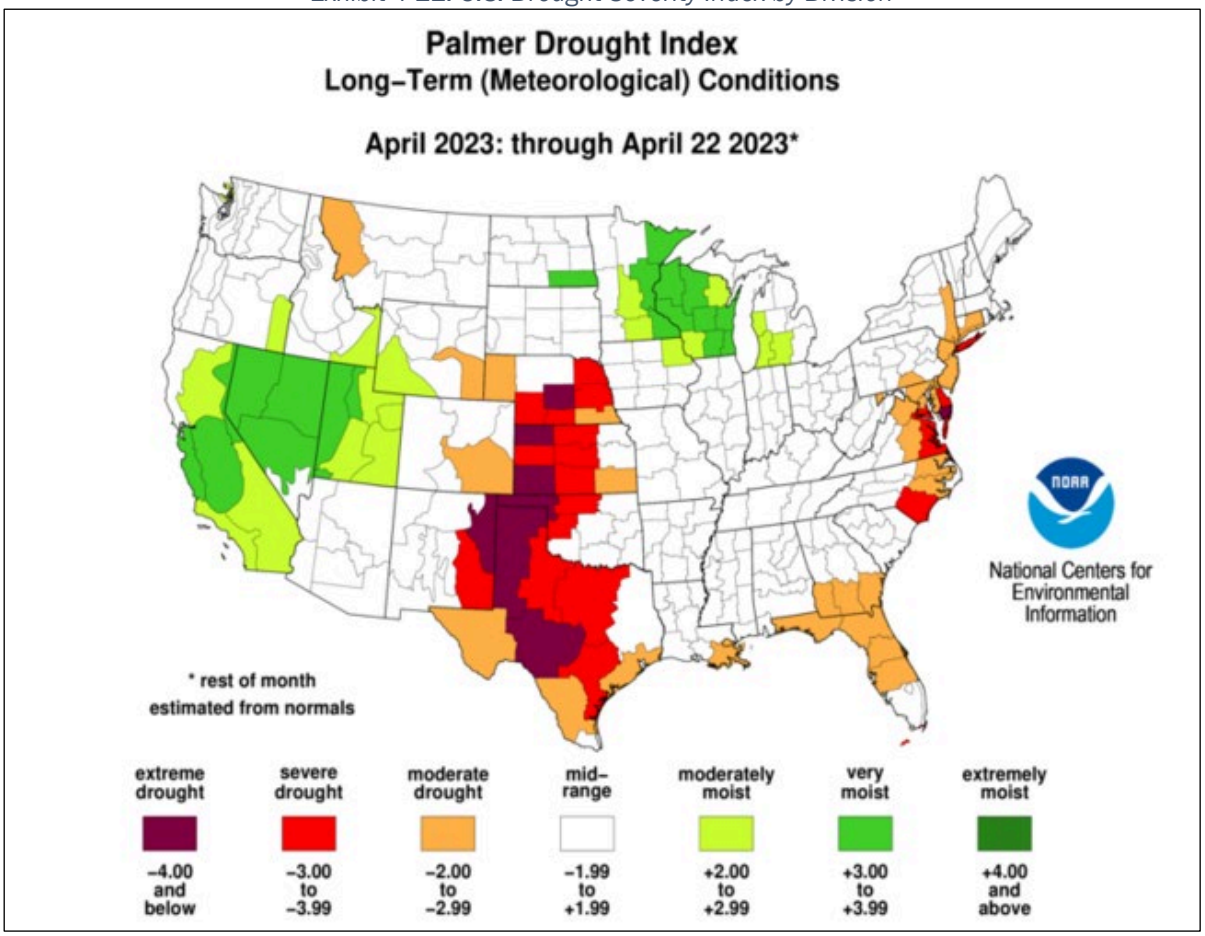


Exhibit 4-11. U.S. Drought Severity Index by Division



The National Drought Mitigation Center also rates drought nationwide by intensity using a D0 (Abnormally Dry) to D4 (Exceptional Drought) scale, as seen in Exhibit 4-12 in the map of Illinois.

Exhibit 4-12. U.S. Drought Monitor – Illinois (2023)

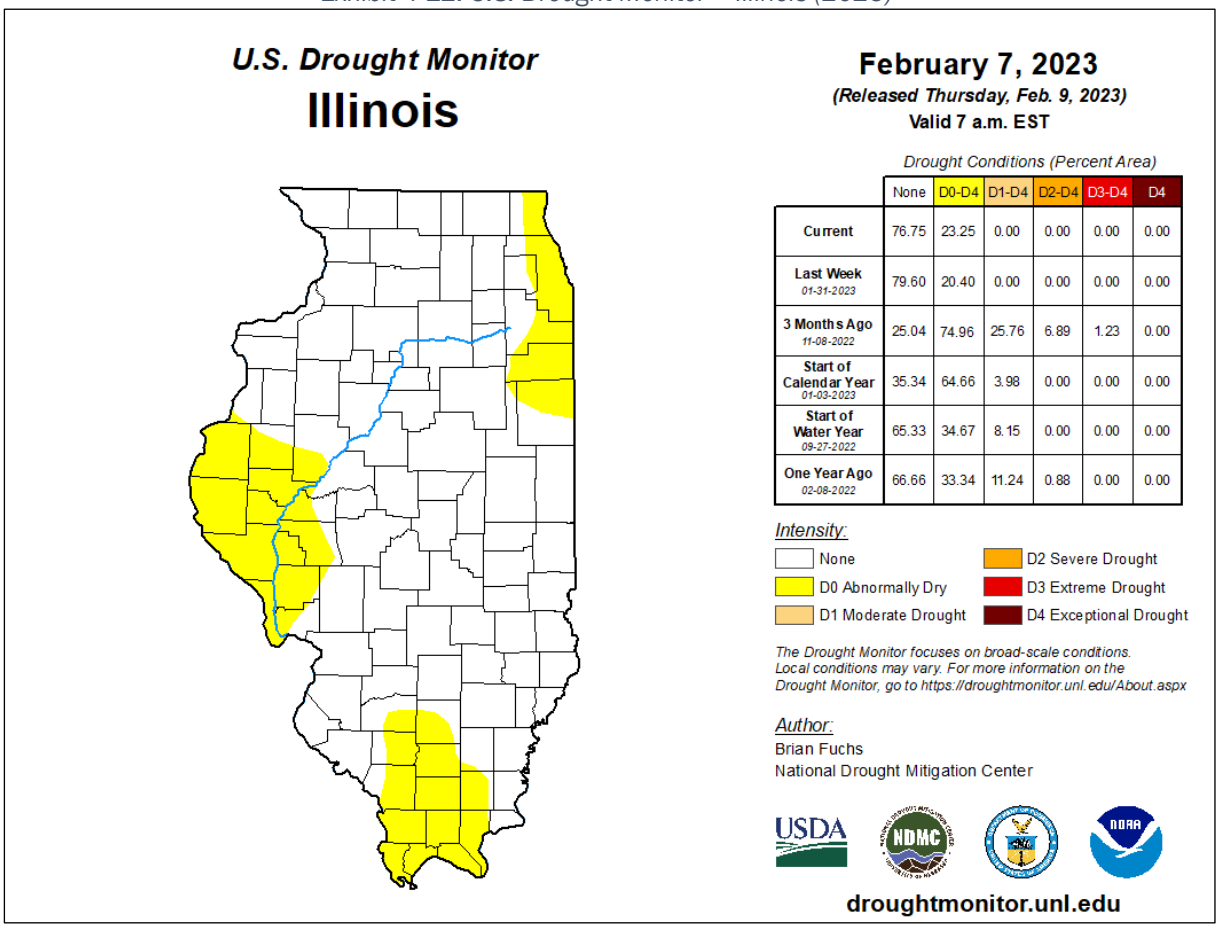
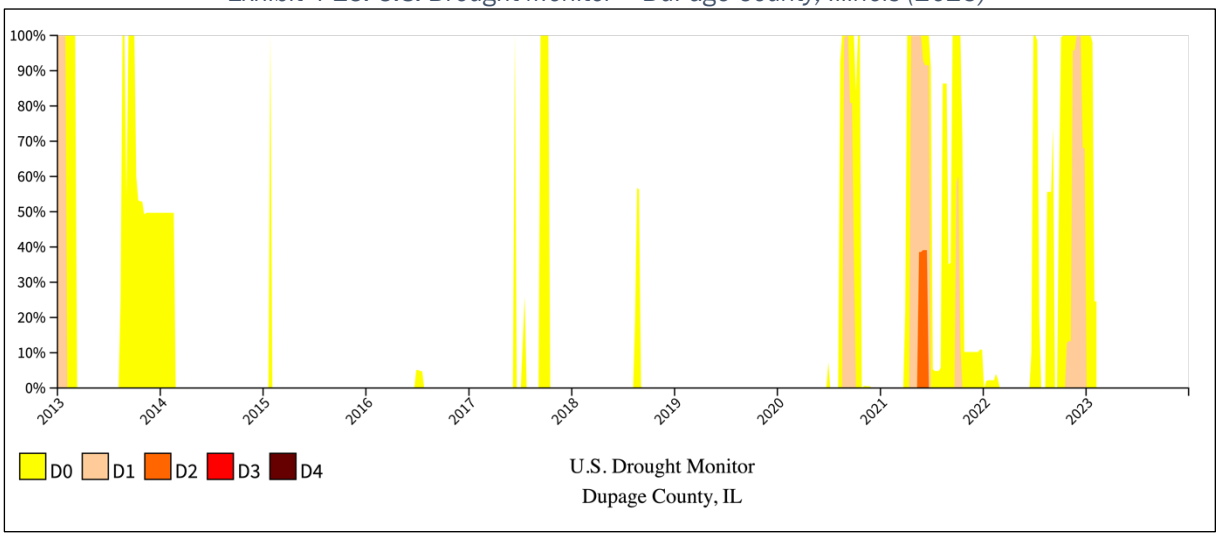


Exhibit 4-13. U.S. Drought Monitor – DuPage County, Illinois (2023)



Probability and Frequency

"Meteorological drought can begin and end rapidly, while hydrological drought takes much longer to develop and recover. Over the decades, many indices have been

developed to measure drought in these various sectors. The U.S. Drought Monitor depicts drought integrated across all time scales and differentiates between agricultural and hydrological impacts (NOAA, 2023)." The NOAA uses the Palmer Drought Severity Index to measure drought conditions. Exhibit 4-10 shows the steps of this index. The 2018 Illinois Hazard Mitigation Plan estimated that historically, moderate to severe drought occurs about 17% of the time in Illinois. However, Southern Illinois is generally more vulnerable to drought due to soils that hold less water and water supplies that are more likely to rely on shallow groundwater and surface water (IEMA, 2018, p. 121).

Past Events

According to NOAA, the nine months between March 1, 2005, and November 30, 2005, were the driest Spring, Summer, and Fall periods ever recorded at Chicago O'Hare International Airport (ORD) and Rockford Airport (NOAA, 2023). During the nine-month period, ORD measured 16.54 inches of rain. Normal rainfall during that same nine-month period is 30.46 inches. Rockford Airport measured 17.83 inches for nine months. Normal rainfall during that same nine-month period is 31.82 inches. Drought conditions developed within April 2005 across northern Illinois. By June, the conditions had been elevated to severe, water use restrictions and bans began to be implemented, and several counties began to declare agriculture disasters. By July, the drought level had been extreme, and most farmers estimated that half or more of their corn crops were lost, leading to an overall low in corn, soybean, and hay yields for the year. By August, most of Illinois declared an agriculture disaster, and water restrictions and bans were implemented. Kane County experienced wells running dry and high algae within water retrieved from the Fox River. In some areas, many fish died from increased temperatures and ecosystem imbalances. Some communities reported having lower than optimal or required emergency water supplies. Severe to extreme drought conditions continued across northern Illinois through February 2006.

In 2012, while other regions of the State experienced drought conditions, some even extreme, DuPage County remained below a D4 (Illinois State Climatologist, 2023).

Table 4-21 shows the recorded drought events for DuPage County from 2017 to 2022, as recorded by NOAA's National Climate Data Center. From 2017 to 2022, DuPage County recorded two events with no associated injuries or deaths.

Table 4-21. Drought Activity in DuPage County, Illinois (2017-2022)

Location	County/Zone	St.	Date	Time	T.Z.	Type	Dth	Inj	PrD	CrD
Totals:							**0**	**0**	**0.00K**	**0.00K**
DU PAGE (ZONE)	DU PAGE (ZONE)	IL	05/18/2021	00:00	CST-6	Drought	0	0	0.00K	0.00K
DU PAGE (ZONE)	DU PAGE (ZONE)	IL	06/01/2021	00:00	CST-6	Drought	0	0	0.00K	0.00K
Totals:							**0**	**0**	**0.00K**	**0.00K**

Vulnerability and Impacts

Life Safety and Health: Droughts affect life safety and public health in several ways. Health problems can arise from poor water quality, poor food quality, and increased dust in the air. In addition, droughts make fires more likely, spread more quickly, and make them more challenging to put out. In addition, poor air quality and a lack of water may reduce residents' engagement in recreational activities, reducing overall mental and physical well-being (NDMC, 2023).

Property Damage and Critical Infrastructure: Drought has a negligible impact on buildings. Possible losses/impacts to critical facilities include the loss of essential functions due to low water supplies. Severe droughts can negatively affect drinking water supplies. Should a public water system be involved, the losses could total millions if outside water is shipped. Possible losses to infrastructure include the loss of potable water.

Economy: Although no data demonstrate the economic impact of past drought events on DuPage County, the most significant economic effect of drought is on agriculture, which is not an essential economic driver.

Changes in Development and Impact of Future Development: No data exists demonstrating the impact of drought on future development in DuPage County. However, excessive drought can result in water shortages and increased competition for limited water resources, which can limit the ability of developers to expand projects within the county.

Effects of Climate Change on Severity of Impacts: According to University Corporation for Atmospheric Research (UCAR), climate change is causing more extreme weather events, including more extreme drought. UCAR explains that warmer temperatures cause more evaporation, turning water into vapor in the air and causing drought in some areas of the world. Places prone to drought are expected to become even drier over the following century (UCAR, 2023).

Climate Change Impact on Drought in DuPage County: Higher temperatures, increasing variation in precipitation patterns, and changes in lake levels are likely to increase the vulnerability of cities to extreme events (including flooding, drought, heat waves, and more intense urban heat island effects), compounding already existing stressors.

Exhibit 4-14. 25-Year Climate Projections for DuPage County

25-YEAR CLIMATE PROJECTIONS FOR DUPAGE COUNTY, IL
HIGHER EMISSIONS (RCP8.5)
DuPage County is expected to experience a 117% increase in extremely hot days within 25 years.
By 2048, DuPage County is expected to experience 11 more days that reach above 95°F (from 10 days to 21 days per year).
LOWER EMISSIONS (RCP4.5)
DuPage County is expected to experience a 79% increase in extremely hot days within 25 years.

By 2048, DuPage County is expected to experience 7 more days that reach above 95°F (from 9 days to 15 days per year).
Source: Neighborhoods at Risk (https://nar.headwaterseconomics.org/)

Table 4-22. Future Climate Indicators for DuPage County

FUTURE CLIMATE INDICATORS FOR DUPAGE COUNTY, IL							
Indicator	**Modeled History** (1976-2005)	**Early Century** (2015-2044)		**Mid Century** (2035-2064)		**Late Century** (2070-2099)	
		Lower Emissions	Higher Emissions	Lower Emissions	Higher Emissions	Lower Emissions	Higher Emissions
	Min-Max	Min-Max	Min-Max	Min-Max	Min-Max	Min-Max	Min-Max
Precipitation							
Average Annual Total Precipitation	35"	37"	37"	37"	38"	38"	39"
	34-36	34-41	33-41	34-42	33-44	34-43	34-45
Days Per Year With Precipitation	171 days	169 days	168 days	168 days	167 days	167 days	164 days
	167-175	157-177	153-177	156-178	148-180	157-178	129-183
Days Per Year With No Precipitation	194 days	196 days	197 days	197 days	198 days	198 days	201 days
	190-198	188-208	188-212	187-209	185-218	187-208	182-236
Maximum Number Of Consecutive Dry Days	13 days	14 days	14 days	14 days	14 days	14 days	15 days
	12-15	12-16	12-18	12-16	12-19	12-17	12-20
Temperature Thresholds							
Annual days with Maximum temperature > 90°	14 days	35 days	39 days	45 days	54 days	55 days	86 days
	14-20	22-58	25-55	25-74	36-80	30-90	52-117
Annual days with Maximum temperature > 100°	0 days	2 days	3 days	4 days	7 days	7 days	25 days
	0-0	0-7	0-8	0-16	1-24	1-16	2-69
Source: Climate Mapping for Resilience and Adaptation (2023)							

Jurisdiction-specific Hazard Impact/Vulnerability: *No jurisdictions are uniquely affected by drought and are adequately addressed at the county level. Jurisdictions completed the following form as part of the plan update:* https://integratedsolutions.wufoo.com/forms/dupage-county-natural-hazards/

FEMA NRI Expected Annual Loss Estimates

Table 4-23. DuPage County Expected Annual Loss Table

DUPAGE COUNTY, IL FEMA NRI EXPECTED ANNUAL LOSS TABLE FOR DROUGHT EVENTS							
Annualized Frequency	**Population**	**Population Equivalence**	**Building Value**	**Agriculture Value**	**Total Value**	**Expected Annual Loss Score**	**Expected Annual Loss Rating**
7.3	0.85	N/A	N/A	$1,566	$1,566	1.86	Very Low

Annualized Frequency: *The natural hazard annualized frequency is defined as the expected frequency or probability of a hazard occurrence per year. Annualized frequency is derived either from the number of recorded hazard occurrences each year over a given period or the modeled probability of a hazard occurrence each year.* ***Population:*** *Population exposure is defined as the estimated number of people determined to be exposed to a hazard according to a hazard type-specific methodology.* ***Expected Annual Loss*** *scores are calculated using an equation that combines values for exposure, annualized frequency, and historic loss ratios (Expected Annual Loss = Exposure × Annualized Frequency × Historic Loss Ratio). Source: hazards.fema.gov/nri/expected-annual-loss*
Source: FEMA National Risk Index (2023)

FEMA Hazard-Specific Risk Index Table

Table 4-24. DuPage County Hazard Specific Risk Index Table

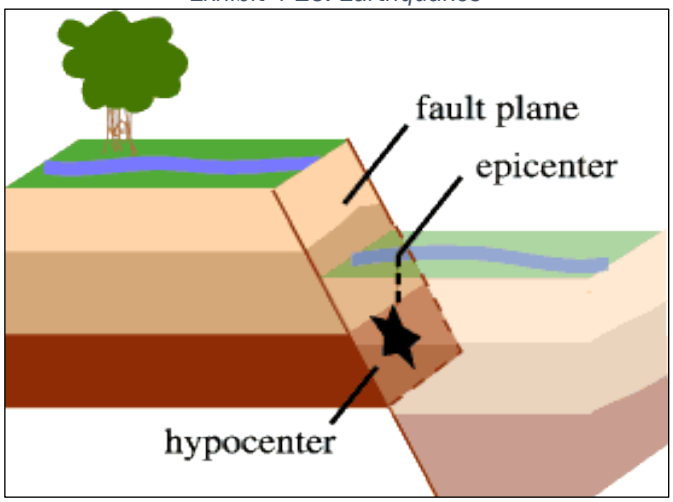
DUPAGE COUNTY, IL FEMA HAZARD SPECIFIC RISK INDEX - DROUGHT	
Risk Index Score	**Risk Index Rating**
0.85 / 100	Very Low
*FEMA Hazard-Type **Risk Index Scores** are calculated using data for only a single hazard type and reflect a community's relative risk for only that hazard type.* *FEMA Hazard-Type **Risk Index Ratings** are a qualitative rating that describe the community in comparison to all other communities at the same level, ranging from "Very Low" to "Very High."*	
Source: FEMA National Risk Index (2023)	

4.6 Earthquakes

Hazard Description

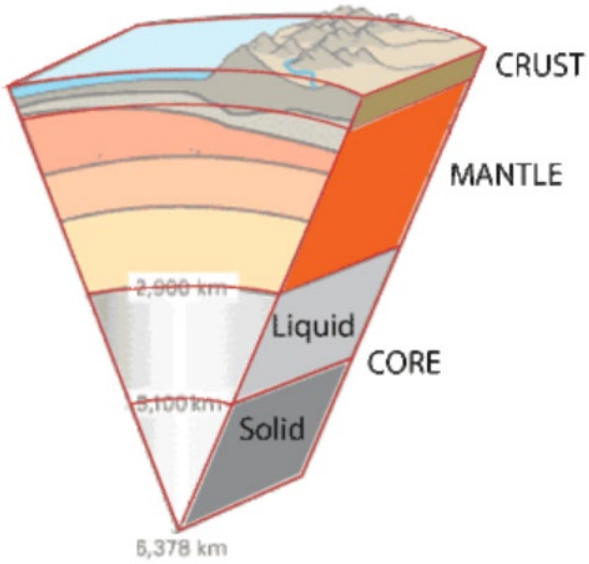
According to the U.S. Geological Survey (USGS), an earthquake happens when two blocks of the earth suddenly slip past one another. The surface where they slip is called the fault or fault plane. The location below the earth's surface where the earthquake starts is called the hypocenter, and the area directly above it on the surface of the earth is called the epicenter (USGS, 2023). Exhibit 4-15 illustrates how this phenomenon occurs.

Exhibit 4-15. Earthquakes



Sometimes an earthquake has foreshocks. These are smaller earthquakes that happen in the same place as the larger earthquake that follows. Scientists can't tell that an earthquake is a foreshock until the larger earthquake happens. The largest, main earthquake is called the mainshock. Mainshocks always have aftershocks that follow. These are smaller earthquakes that occur afterwards in the same place as the mainshock. Depending on the size of the mainshock, aftershocks can continue for weeks, months, and even years after the mainshock (USGS, 2023). The earth has four major layers: the inner core, outer core, mantle, and crust (also called the lithosphere). The crust and the top portion of the mantle make up a thin skin on the surface of our planet. This skin is made up of many pieces, like a puzzle covering the surface of the earth. These puzzle pieces are slowly and constantly moving around, sliding past one another, and bumping into each other. These puzzle pieces are called tectonic plates, and the edges of the plates are called the plate boundaries. The plate boundaries come together to make up fault lines. Most of the earthquakes around the world occur on these fault lines. Since the edges of the plates are rough, some parts get caught on each other while the rest of the plate keeps moving. When the plate has moved far enough, the edges unstick on one of the faults and the unsticking is what causes an earthquake (USGS, 2023). Exhibit 4-16 illustrates these layers.

Exhibit 4-16. Earthquake Layers



Hazard Location

An earthquake could occur anywhere in DuPage County, although the likelihood is very low.

Hazard Extent/Intensity

"Earthquakes are one of nature's most dangerous hazards. Earthquakes, and the potential damage from earthquakes, are more widespread than people realize. Earthquakes are caused by the release of strain between or within the Earth's tectonic plates. The severity of an earthquake depends on the amount of strain or energy released

along a fault or at the epicenter of an earthquake. The energy released by an earthquake is sent to the earth's surface and released (USGS, 2023)".

USGS maps and other earthquake resources were examined to determine DuPage County's exposure to earthquakes. A major earthquake near the New Madrid Fault or other fault areas in the Midwest will be felt in Chicago. However, IEMA concluded that DuPage County is not vulnerable to severe earthquake damage. Nevertheless, earthquakes are discussed here in the event that DuPage County was to put more emphasis on the potential earthquake hazard in the future.

Earthquake Measurements: There are several standard measures of earthquakes, including the Richter Scale and the Modified Mercalli Intensity (MMI) scale. The Richter Scale measures the magnitude or the amount of energy an earthquake releases. Magnitude is measured by seismographs. The Modified Mercalli Intensity is an observed measurement of the earthquake's intensity felt at the earth's surface. The MMI varies, depending on the observer's location at the earthquake's epicenter.

An earthquake's intensity depends on the area's geologic makeup and soil stability. The effects of earthquakes can be localized near its epicenter or felt significant distances away. For example, a 6.8-magnitude earthquake in the New Madrid Fault in Missouri would have a much broader impact than a similar event on the California Coast. The thick sandstone and limestone strata of the central United States behave as "conductors" of the earthquake's energy, and tremors can be felt hundreds of miles away.

Exhibit 4-17 correlates the MMI intensity with the Richter scale and the effects of ground shaking.

Exhibit 4-17. Modified Mercalli Scale vs. Richter Scale

MMI Category	Effects	Richter Scale (approximate)
I. Instrumental	Not felt	1-2
II. Just perceptible	Felt by only a few people, especially on upper floors of tall buildings	3
III. Slight	Felt by people lying down, seated on a hard surface, or in the upper stories of tall buildings	3.5
IV. Perceptible	Felt indoors by many, by few outside; dishes and windows rattle	4
V. Rather strong	Generally felt by everyone; sleeping people may be awakened	4.5
VI. Strong	Trees sway, chandeliers swing, bells ring, some damage from falling objects	5
VII. Very strong	General alarm; walls and plaster crack	5.5
VIII. Destructive	Felt in moving vehicles; chimneys collapse; poorly constructed buildings seriously damaged	6
IX. Ruinous	Some houses collapse; pipes break	6.5
X. Disastrous	Obvious ground cracks; railroad tracks bent; some landslides on steep hillsides	7
XI. Very disastrous	Few buildings survive; bridges damaged or destroyed; all services interrupted (electrical, water, sewage, railroad); severe landslides	7.5
XII. Catastrophic	Total destruction; objects thrown into the air; river courses and topography altered	8

Earthquakes can trigger other types of ground failures which could contribute to the damage. These include landslides, dam failures, and liquefaction. Liquefaction occurs when shaking mixes groundwater and soil, liquefying and weakening the ground that supports buildings and severing utility lines. This is especially a problem in floodplains where the water table is relatively high, and the soils are more susceptible to liquefaction (USGS, 2023).

Exhibit 4-19 outlines forecasted ground shaking from potential earthquakes.

Probability and Frequency

Illinois has recorded 364 earthquakes over the last two centuries. Most earthquakes have had epicenters in the state's Southern portion and have not been felt in DuPage County. Therefore, the probability of a seismic event with the epicenter within DuPage County is low. However, a large-magnitude event in southern Illinois could be felt in DuPage County, though the event would most likely cause minor structural damage. Primarily historic and masonry buildings would be damaged.

Exhibit 4-18. Forecast for Damage from Natural and Induced Earthquakes in 2017

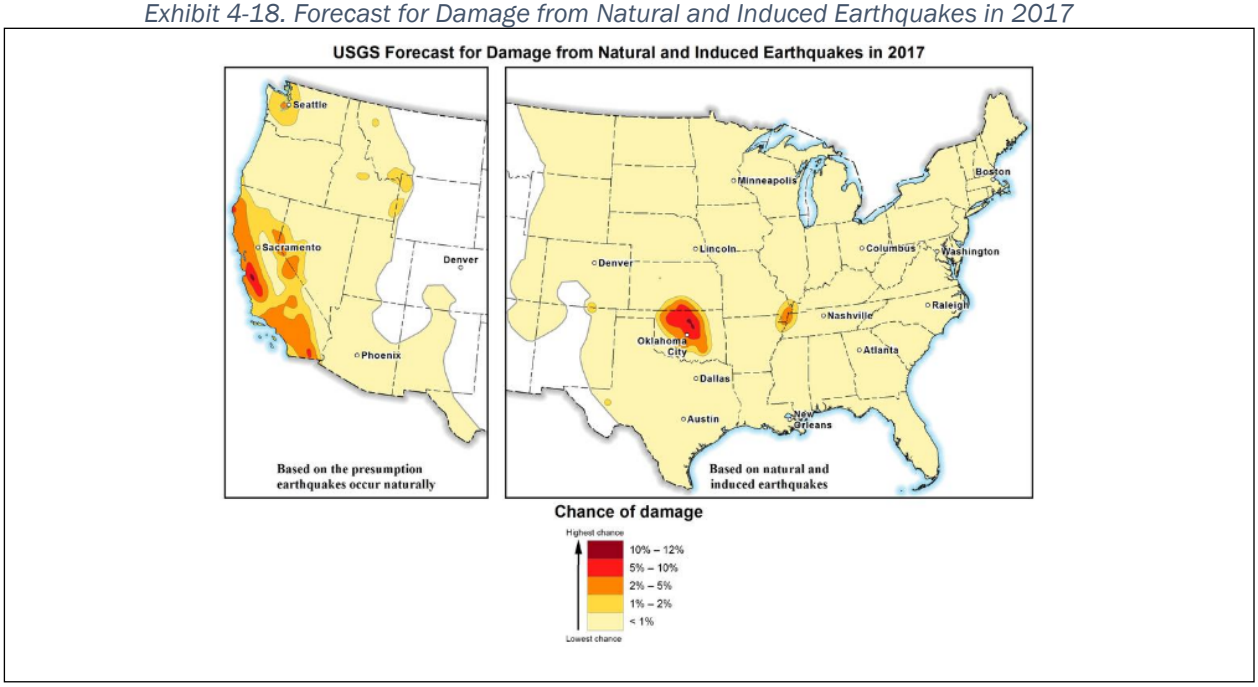


Exhibit 4-19. USGS Forecast for Ground Shaking Intensity from Natural / Induced Earthquakes – 2017

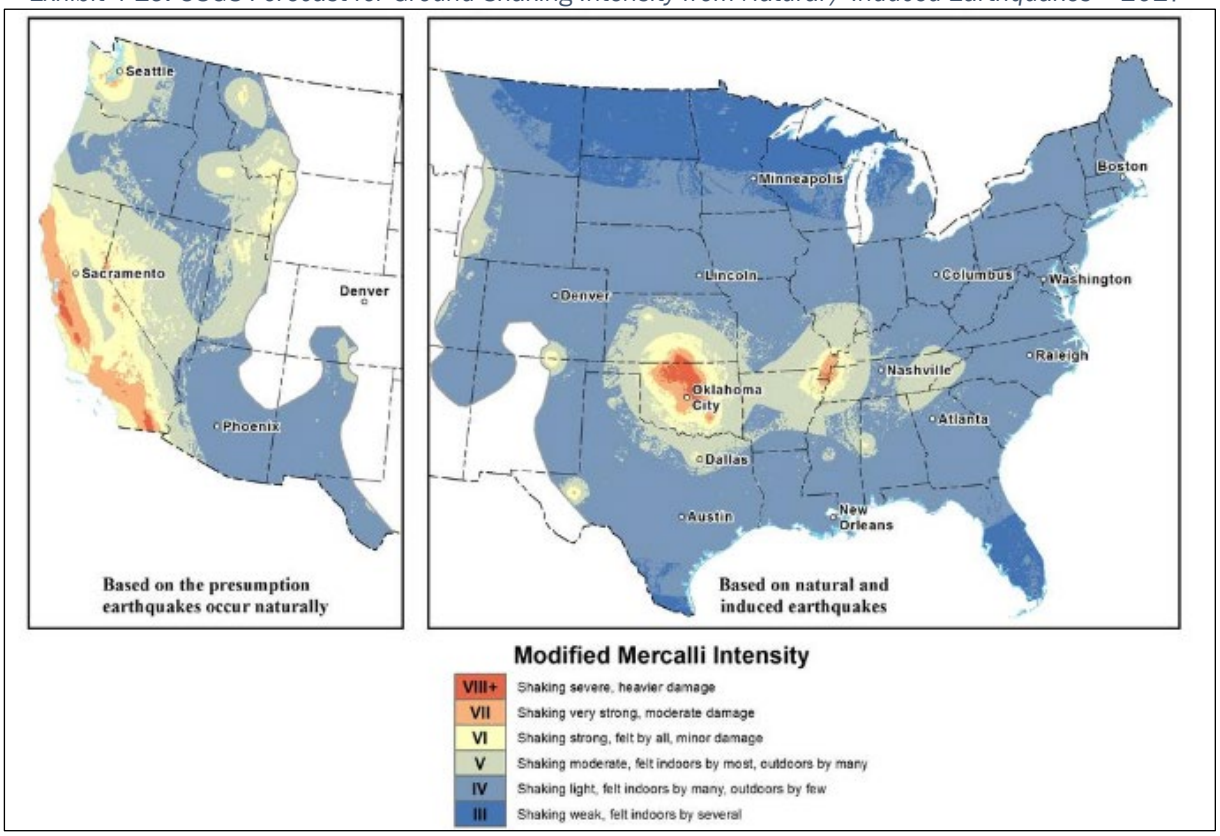
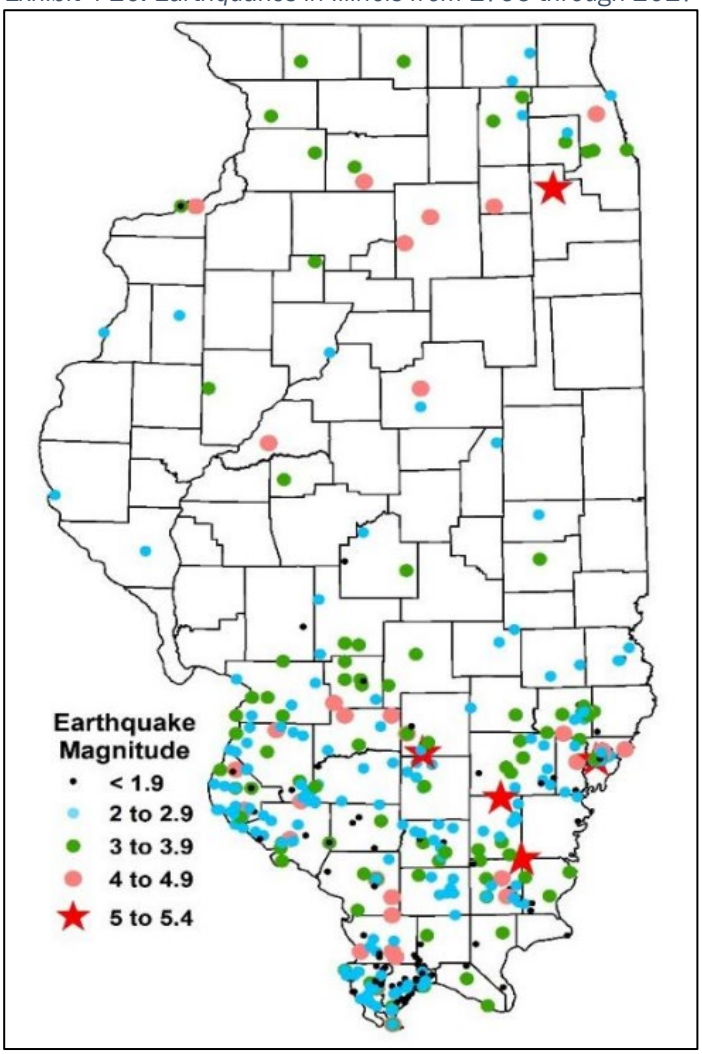


Exhibit 4-20. Earthquakes in Illinois from 1795 through 2017



Past Events

In the United States, the most frequent reports of earthquakes come from the West Coast, but the most significant earthquakes felt in the U.S. occurred in Missouri in 1811 and 1812 along the New Madrid Fault. The Great New Madrid Earthquakes are the benchmarks from which all earthquakes in the Midwest are measured. An important fact is that the earthquakes of 1811 and 1812 were not single events. Rather the earthquakes were a series of over 2,000 shocks in five months.

Five of these quakes were larger than a magnitude of 8.0 on the Richter Scale, which destroyed the town of New Madrid. The earthquakes caused the land to roll in visible waves that raised and sank land as much as 20 feet. The tremors of these earthquakes were undoubtedly felt throughout Illinois since the quakes are said to have rung church bells in New England.

Table 4-25 shows recorded earthquake events in Northern Illinois from 2013 to 2023, as recorded by USGS Earthquake Hazards Program (USGS, 2023). From 2013 to 2023, Northern Illinois has had two events with no associated injuries or deaths.

Table 4-25. Earthquake Events in Northern Illinois (2013-2023)

DUPAGE COUNTY, IL PAST EARTHQUAKE EVENTS IN NORTHERN ILLINOIS (2013-2023)							
Date	**Time**	**Location**	**Proximity to DuPage County**	**Latitude/ Longitude**	**Magnitude**	**Depth**	**Impact Summary**
2015-03-25	23:08:51 (UTC)	3 km WNW of Lake in the Hills, Illinois	70.8km	2.188°N 88.366°W	2.9mblg	6.0km	Felt (III) at Carpentersville, Cary, Crystal Lake, Fox River Grove, Huntley, Island Lake, Lake in the Hills, Machesney Park, Marengo, Orland Park, Rockton, Union, and Woodstock. Felt from South Beloit to Orland Park and from Chicago to Durand. Also felt at Hammond, Indiana and at Trevor, Wisconsin.
2013-06-10	12:29:39 (UTC)	4 km NNE of Virgil, Illinois	61.2km	41.990°N 88.509°W	2.6mblg	5.0km	Felt (III) at Elburn and Saint Charles and (II) at Geneva and Hampshire. Also felt at Batavia, Crystal Lake, Gilberts and South Elgin
Source: US Geological Survey (2023)							

Vulnerability and Impacts

Life Safety and Health: While injury and loss of life are essential factors in other parts of Illinois when assessing earthquakes, they are of low concern for DuPage County. During an earthquake, injuries are expected to be few. However, should a significant earthquake impact southern Illinois, the potential for damage to natural gas pipelines exists. This would be of most important concern in the winter in northeastern Illinois.

Property Damage and Critical Infrastructure: Generally, wood frame buildings and structures on solid ground fare best during an earthquake. Wood frame buildings are flexible enough to withstand ground shaking and swaying. Evaluations of recent earthquakes found that damage was primarily caused to:

- Unreinforced masonry structures.
- Older buildings with some degree of deterioration.
- Buildings without foundation ties.
- Multi-story structures with open or “soft” first floors.

Most building codes have standards related to the first three concerns. This means the most threatened buildings are older ones (built before current regulations), masonry ones, and taller ones with open first floors. Most other buildings, especially those made under a building code, would have little or no damage. However, some content damage can be expected if items fall from shelves.

In addition to the building type, the damage is related to the underlying soils. Buildings on solid ground fare better, while those on loose or sandy soils will suffer more from shaking. These can be found in floodplains. If enough water is present, the shaking can liquefy the underlying soils, removing the support under the foundation.

Economy: No data exists demonstrating the economic impact of earthquakes on DuPage County. However, past earthquakes have resulted in repair costs associated with

damaged infrastructure and buildings, lost productivity due to business disruptions, and increased demand for emergency services and supplies.

Changes in Development and Impact of Future Development: No data exists demonstrating the impact of earthquakes on future development in DuPage County. However, past earthquakes have been shown to impact zoning regulations and building codes requiring developers to build structures more resistant to seismic activity.

Effects of Climate Change on Severity of Impacts: The exact nature and extent of this impact still need to be studied and fully understood as it pertains to climate change.

Jurisdiction-specific Hazard Impact/Vulnerability: *Only those jurisdictions uniquely affected by earthquake events are included. If a jurisdiction was not included, it denotes the hazard impact or vulnerability to an earthquake is not significant and/or is adequately addressed at the county level. Jurisdictions completed the following form as part of the plan update:* https://integratedsolutions.wufoo.com/forms/dupage-county-natural-hazards/

Table 4-26. DuPage County Jurisdiction-specific Hazard Impact/Vulnerability

Jurisdiction	Affected Jurisdictions' Hazard Impact/Vulnerability Considerations
Village of Westmont	The village is 100 years old with several commercial buildings that were built with no building restrictions and/or earthquake vulnerability guidelines. This may make the village more vulnerable to damages if a large earthquake were to occur.

FEMA NRI Expected Annual Loss Estimates

Table 4-27. DuPage County Expected Annual Loss Table

DUPAGE COUNTY, IL FEMA NRI EXPECTED ANNUAL LOSS TABLE FOR EARTHQUAKE EVENTS							
Annualized Frequency	Population	Population Equivalence	Building Value	Agriculture Value	Total Value	Expected Annual Loss Score	Expected Annual Loss Rating
0.049% chance	0.01	$81,951	$1,699,712	N/A	$1,781,663	10.72	Relatively Low
Annualized Frequency: *The natural hazard annualized frequency is defined as the expected frequency or probability of a hazard occurrence per year. Annualized frequency is derived either from the number of recorded hazard occurrences each year over a given period or the modeled probability of a hazard occurrence each year.* ***Population:*** *Population exposure is defined as the estimated number of people determined to be exposed to a hazard according to a hazard type-specific methodology.* ***Expected Annual Loss*** *scores are calculated using an equation that combines values for exposure, annualized frequency, and historic loss ratios (Expected Annual Loss = Exposure × Annualized Frequency × Historic Loss Ratio). Source: hazards.fema.gov/nri/expected-annual-loss*							
Source: FEMA National Risk Index (2023)							

FEMA Hazard-Specific Risk Index Table

Table 4-28. DuPage County Hazard Specific Risk Index Table

DUPAGE COUNTY, IL FEMA HAZARD SPECIFIC RISK INDEX – EARTHQUAKE	
Risk Index Score	**Risk Index Rating**
4.04 / 100	Relatively Low
*FEMA Hazard-Type **Risk Index Scores** are calculated using data for only a single hazard type and reflect a community's relative risk for only that hazard type.* *FEMA Hazard-Type **Risk Index Ratings** are a qualitative rating that describe the community in comparison to all other communities at the same level, ranging from "Very Low" to "Very High."*	
Source: FEMA National Risk Index (2023)	

4.7 Extreme Heat

Hazard Description

"The definition of extreme heat varies based on many different factors, such as location, weather conditions (such as temperature, humidity, and cloud cover), and the time of year (US EPA, CDC, 2016)". In general, extreme heat is when the climate is 10 degrees hotter than average, usually above 90 degrees Fahrenheit.

"The heat index measures how hot it feels when relative humidity is factored in with the actual air temperature. The relative humidity is the percentage of moisture in the air compared with the maximum amount of moisture the air can hold. Humidity is an important factor in how hot it feels because when humidity is high, water doesn't evaporate as easily, so it's harder for your body to cool off by sweating (US EPA, CDC, 2016)".

Exhibit 4-21 Shows the NOAA's Heat Index (US EPA, CDC, 2016).

Hazard Location

Extreme heat could occur anywhere in DuPage County.

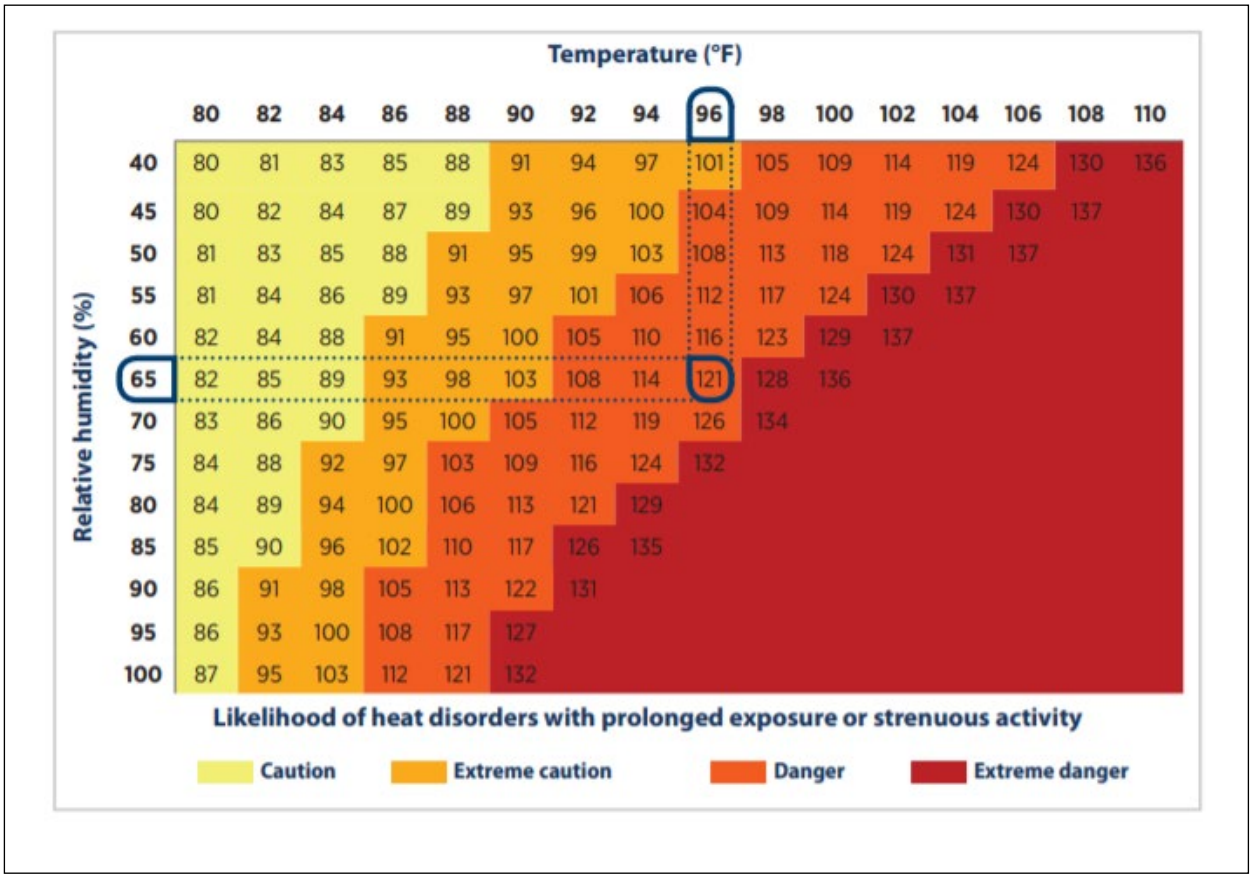
Hazard Extent/Intensity

When an extreme heat event occurs, the National Weather Service may issue an excessive heat warning, an excessive heat watch, a heat advisory, or a heat outlook. The NWS defines these as the following:

- Excessive Heat Warning: Take Action! An Excessive Heat Warning is issued within 12 hours of the onset of extremely dangerous heat conditions. The general rule of thumb for this Warning is when the maximum heat index temperature is expected to be 105° or higher for at least two days, and nighttime air temperatures will not drop below 75°; however, these criteria vary across the country, especially for areas not used to extreme heat conditions. If you don't take precautions immediately during extreme conditions, you may become seriously ill or die.

- Excessive Heat Watches: Be Prepared! Heat watches are issued when conditions are favorable for an extreme heat event in the next 24 to 72 hours. A Watch is used when the risk of a heat wave has increased, but its occurrence and timing are still uncertain.
- Heat Advisory: Take Action! A Heat Advisory is issued within 12 hours of the onset of extremely dangerous heat conditions. The general rule of thumb for this Advisory is when the maximum heat index temperature is expected to be 100° or higher for at least two days, and nighttime air temperatures will not drop below 75°; however, these criteria vary across the country, especially for areas that are not used to dangerous heat conditions. Take precautions to avoid heat illness. If you don't take precautions, you may become seriously ill or even die.
- Excessive Heat Outlooks are issued when the potential exists for an extreme heat event in the next three to seven days. An Outlook provides information to those needing considerable time to prepare for the event.

Exhibit 4-21. National Oceanic and Atmospheric Administration National Weather Service Heat Index



Probability and Frequency

On average, the U.S. has been experiencing warmer summers throughout the past decade. This warming is correlated to recent changes in climate. "Without big steps to reduce greenhouse gas emissions, the average number of extremely hot days in the

United States is projected to more than triple from the year 2050 to 2100 (US EPA, CDC, 2016, p. 6)".

Past Events

According to NOAA, northern Illinois experienced an intense heat wave during the first week of July 2012. High temperatures at ORD reached 102° on the 4th, 103° on the 5th and 6th, and 98° on the 7th. Low temperatures remained in the upper 70's to lower 80's during much of the heat wave, with a low temperature of just 82° on the morning of the 6th. As a result, maximum heat index values were mainly in the range of 105° to 115° each day across northeast Illinois. A cold front moved across the area during the late morning and early afternoon of July 7th, bringing several days of near-average temperatures for mid-July (NOAA, 2023).

The most severe event was in July 1995, which resulted in 583 fatalities. Most of the deaths occurred in Cook County. The temperatures soared to record highs in July, with the hottest weather occurring from July 12th to July 16th. The high of 106° on July 13th was the second warmest July temperature (the warmest being 110° set on July 23, 1934) since records began at Chicago Midway International Airport in 1928. Nighttime low temperatures were unusually high, in the upper 70's and lower 80's. Record humidity levels also accompanied the hot weather. The heat index reached 119° at Chicago O'Hare International Airport and 125° at Chicago Midway International Airport.

Table 4-29. Extreme Heat Events in Northern IL (1995-2017)

Location	Date	Fatalities	Injuries
Northeast Illinois	July 12, 1995	583	0
Northeast Illinois	July 21, 1999	13	0
Northeast Illinois	July 28, 1999	99	0
Northeast Illinois	July 04, 2012	0	0

Table 4-30 shows the recorded extreme heat events for DuPage County from 2017 to 2022, as recorded by NOAA's National Climate Data Center. From 2017 to 2022, DuPage County has had two events with no associated injuries or deaths.

Table 4-30. Extreme Heat Activity in DuPage County, Illinois (2017-2022)

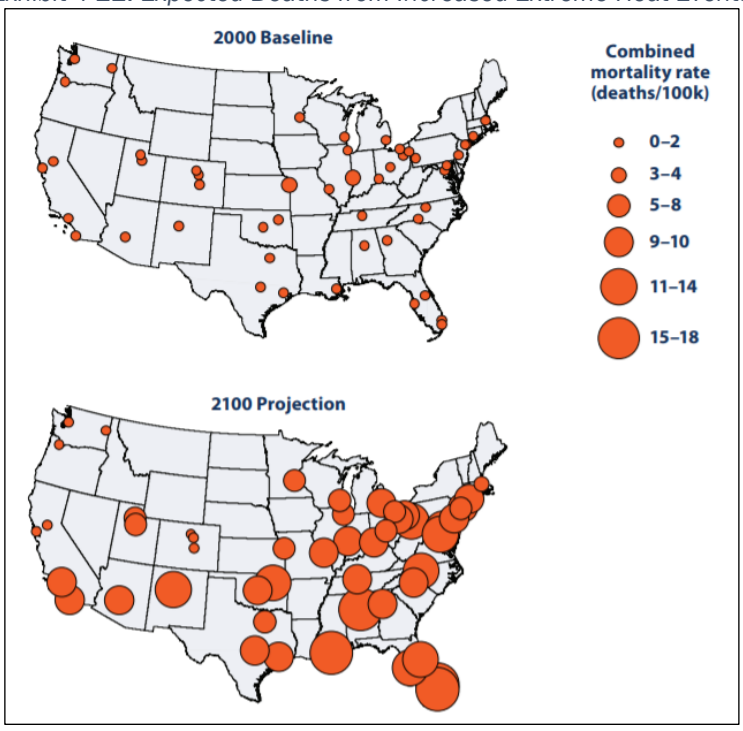
Location	County/Zone	St	Date	Time	Type	Dth	Inj	PrD	CrD
Totals:						0	0	0.00K	0.00K
DU PAGE (ZONE)	DU PAGE (ZONE)	IL	06/29/2018	14:52	Excessive Heat	0	0	0.00K	0.00K
DU PAGE (ZONE)	DU PAGE (ZONE)	IL	07/19/2019	16:00	Excessive Heat	0	0	0.00K	0.00K
Totals:						0	0	0.00K	0.00K

Vulnerability and Impacts

Life Safety and Health: According to the Centers for Disease Control and Prevention (CDC), extreme heat is a serious threat to life safety and health. The CDC provides extensive information on this topic and outlines some of the ways that extreme heat can affect health and safety. For instance, high temperatures can cause heat exhaustion, leading to heat stroke if left untreated. Symptoms of heat exhaustion include heavy sweating, weakness, dizziness, headache, nausea, and vomiting. Extreme heat can also cause dehydration, leading to kidney damage, seizures, and even coma. Furthermore, it can stress the heart and blood vessels, increasing the risk of heart attack and stroke, particularly in people with preexisting cardiovascular conditions. Heat can also worsen respiratory problems such as asthma and chronic obstructive pulmonary disease (COPD), increasing the risk of respiratory infections.

Additionally, extreme heat can exacerbate other health issues, including diabetes, mental health, and skin conditions. In some severe cases, heat can cause death, particularly in vulnerable populations such as the elderly, young children, and those with preexisting health conditions. To stay safe during extreme heat, the CDC recommends staying hydrated, avoiding outdoor activities during the hottest part of the day, wearing loose, lightweight clothing, and seeking out air-conditioned environments when possible.

Exhibit 4-22. Expected Deaths from Increased Extreme Heat Events



As extreme heat events become more common and more severe, the EPA and CDC estimate that deaths due to extreme heat events will increase. Exhibit 4-22 outlines the expected outcomes from increased events (US EPA, CDC, 2016, p. 8)". The U.S. EPA and CDC have also determined that those who live in primarily urban areas, like DuPage County, are also more at risk for experiencing adverse side effects of extreme heat

events. "Less vegetation means less shade and moisture to keep urban areas cool. In addition, conventional roofs and pavement reflect less and absorb more of the sun's energy, which leads to higher temperatures near these structures. Additionally, tall buildings and narrow streets can reduce airflow, trapping the heat absorbed during the day and heat generated by vehicles, factories, and air conditioning vents.

Property Damage and Critical Infrastructure: Heat has little or no impact on structures. The demand on electric utilities will be elevated due to an increased demand on cooling systems.

Economy: No data exists demonstrating the economic impacts of past extreme heat events on DuPage County. However, excessive heat can have significant implications for agricultural production.

Changes in Development and Impact of Future Development: Given that heat has little or no impact on structures, extreme heat has no anticipated impact on future development.

Effects of Climate Change on Severity of Impacts: Climate change has led to an overall increase in temperatures in DuPage County, with average temperatures rising by 1.5° over the past century. This increase in temperature means that heat waves are becoming more intense and lasting longer. Heatwaves can cause heat stress, dehydration, and other heat-related illnesses, particularly for vulnerable populations such as the elderly, young children, and those with chronic diseases.

Climate Change Related to Extreme Heat in DuPage County:

Exhibit 4-23. 25-Year Climate Projections for DuPage County

25-YEAR CLIMATE PROJECTIONS FOR DUPAGE COUNTY, IL
HIGHER EMISSIONS (RCP8.5)
DuPage County is expected to experience a 117% increase in extremely hot days within 25 years.
By 2048, DuPage County is expected to experience 11 more days that reach above 95°F (from 10 days to 21 days per year).
LOWER EMISSIONS (RCP4.5)
DuPage County is expected to experience a 79% increase in extremely hot days within 25 years.
By 2048, DuPage County is expected to experience 7 more days that reach above 95°F (from 9 days to 15 days per year).
Source: Neighborhoods at Risk (https://nar.headwaterseconomics.org/)

Table 4-31. Future Climate Indicators for DuPage County

FUTURE CLIMATE INDICATORS FOR DUPAGE COUNTY, IL							
Indicator	**Modeled History** (1976-2005)	**Early Century** (2015-2044)		**Mid Century** (2035-2064)		**Late Century** (2070-2099)	
		Lower Emissions	Higher Emissions	Lower Emissions	Higher Emissions	Lower Emissions	Higher Emissions
	Min-Max	Min-Max	Min-Max	Min-Max	Min-Max	Min-Max	Min-Max
Temperature Thresholds							

Annual Days With Maximum Temperature >90°	14 days	35 days	39 days	45 days	54 days	55 days	86 days
	14-20	22-58	22-55	25-74	36-80	30-90	52-117
Annual Days With Maximum Temperature >95°	3 days	11 days	13 days	17 days	24 days	24 days	53 days
	2-4	5-25	5-27	6-41	11-51	9-62	20-92
Annual Days With Maximum Temperature >100°	0 days	2 days	3 days	4 days	7 days	7 days	25 days
	0-0	0-7	0-8	0-16	1-24	1-16	2-69
Annual Days With Maximum Temperature >105°	0 days	0 days	0 days	1 day	1 day	1 day	9 days
	0-0	0-1	0-1	0-3	0-6	0-8	0-42
Annual Temperature							
Annual Single Highest Temperature °F	97°F	100°F	101°F	102°F	103°F	103°F	108°F
	96-98	98-105	97-104	98-108	99-108	99-111	101-115
Annual Highest Maximum Temperature Averaged Over a 5-Day Period	92°F	95°F	96°F	97°F	98°F	98°F	103°F
	91-92	93-99	93-98	93-102	95-103	94-104	96-110
Cooling Degree Days (CDD)	889 degree-days	1,238 degree-days	1,286 degree-days	1,408 degree-days	1,573 degree-days	1,590 degree-days	2,246 degree-days
	840-963	1,031-1,561	1,047-1,487	1,115-1,830	1,250-1,965	1,196-2,267	1,567-3,054
Source: Climate Mapping for Resilience and Adaptation (2023)							

Jurisdiction-specific Hazard Impact/Vulnerability: *Only those jurisdictions uniquely affected by extreme heat are included. If a jurisdiction was not included, it denotes the hazard impact or vulnerability to extreme heat is not significant and/or is adequately addressed at the county level. Jurisdictions completed the following form as part of the plan update:* https://integratedsolutions.wufoo.com/forms/dupage-county-natural-hazards/

Table 4-32. DuPage County Jurisdiction-specific Hazard Impact/Vulnerability

Jurisdiction	Affected Jurisdictions' Hazard Impact/Vulnerability Considerations
Village of Bartlett	The following is a list of establishments within Bartlett that may be uniquely vulnerable to this natural disaster: 1) Artis Senior Living

	2) The Oaks at Bartlett (Senior Living) 3) Victory Centre of Bartlett (Senior Living) 4) Maryville City Youth (Group home for troubled youths) The presence of backup generators for these facilities cannot be confirmed.
City of Wheaton	The following is a list of establishments within the city may be uniquely vulnerable to this natural disaster: elementary schools, high schools, Wheaton College Campus, and a number of apartment and condo buildings. Loss of power to any of these areas could be a problem for the affected population.
Village of Westmont	Retirement facilities and nursing homes are the most vulnerable to extreme heat if a power outage were to occur. The village has the capability to activate cooling shelters during the day.

FEMA NRI Expected Annual Loss Estimates

Table 4-33. DuPage County Expected Annual Loss Table

DUPAGE COUNTY, IL FEMA NRI EXPECTED ANNUAL LOSS TABLE FOR EXTREME HEAT EVENTS							
Annualized Frequency	**Population**	**Population Equivalence**	**Building Value**	**Agriculture Value**	**Total Value**	**Expected Annual Loss Score**	**Expected Annual Loss Rating**
0.6	0.09	$652,560	$352	$124	$653,035	21.03	Relatively Low
Annualized Frequency: *The natural hazard annualized frequency is defined as the expected frequency or probability of a hazard occurrence per year. Annualized frequency is derived either from the number of recorded hazard occurrences each year over a given period or the modeled probability of a hazard occurrence each year.* ***Population:*** *Population exposure is defined as the estimated number of people determined to be exposed to a hazard according to a hazard type-specific methodology.* ***Expected Annual Loss*** *scores are calculated using an equation that combines values for exposure, annualized frequency, and historic loss ratios (Expected Annual Loss = Exposure × Annualized Frequency × Historic Loss Ratio). Source: hazards.fema.gov/nri/expected-annual-loss*							
Source: FEMA National Risk Index (2023)							

FEMA Hazard-Specific Risk Index Table

Table 4-34. DuPage County Hazard Specific Risk Index Table

DUPAGE COUNTY, IL FEMA HAZARD SPECIFIC RISK INDEX – EXTREME HEAT	
Risk Index Score	**Risk Index Rating**
8.30 / 100	Relatively Low
FEMA Hazard-Type ***Risk Index Scores*** *are calculated using data for only a single hazard type and reflect a community's relative risk for only that hazard type.* *FEMA Hazard-Type* ***Risk Index Ratings*** *are a qualitative rating that describes the community in comparison to all other communities at the same level, ranging from "Very Low" to "Very High."*	
Source: FEMA National Risk Index (2023)	

4.8 Floods

Hazard Description

A flood is a natural event for rivers and streams and occurs when a normally dry area is inundated with water. Excess water from snowmelt or rainfall accumulates and overflows onto the stream banks and adjacent floodplains.

Floods are considered hazards when people and property are affected. In Illinois, flooding occurs commonly and can occur from various sources during any season of the year.

Riverine flooding originates from a body of water, typically a river, creek, or stream, as water levels rise onto normally dry land. Water from snowmelt, rainfall, freezing streams, ice flows, or a combination thereof causes the river or stream to overflow its banks onto adjacent floodplains. Winter flooding usually occurs when ice in the rivers creates dams or streams freeze from the bottom up during extreme cold spells. Spring flooding is usually the direct result of melting winter snowpacks, heavy spring rains, or a combination of the two.

According to the NOAA, a watershed is a land area that channels rainfall and snowmelt into creeks, streams, rivers, and eventually to outflow points such as reservoirs, bays, and the ocean (NOAA, 2023). DuPage County has six main watersheds: Salt Creek, the East Branch DuPage River, the West Branch DuPage River, Sawmill Creek, Des Plaines River Tributaries, and Fox River Tributaries. The watersheds associated with these streams encompass most of DuPage County.

Exhibit 4-24 shows the DuPage County watersheds, and Table 4-35 list DuPage County's watersheds and sub-watersheds. During high precipitation or rapid snowmelt, water may enter a watershed too quickly for the land to absorb, causing "surface runoff." This overflow can also cause water to run on and off impervious surfaces such as parking lots, roads, buildings, and other structures", causing urban flooding.

Urban/Depressional flooding, as defined in the Urban Flooding Awareness Act, is "the inundation of property in a built environment, particularly in more densely populated areas, caused by rainfall overwhelming the capacity of drainage systems, such as storm sewers. 'Urban flooding' does not include flooding in undeveloped or agricultural areas. 'Urban flooding' includes (i) situations in which stormwater enters buildings through windows, doors, or other openings, (ii) water backup through sewer pipes, showers, toilets, sinks, and floor drains, (iii) seepage through walls, and floors, and (iv) the accumulation of water on property or public rights-of-way. Urban flooding is characterized by its repetitive, costly, and systemic impacts on communities, regardless of whether or not these communities are located within formally designated floodplains or near any body of water. These impacts include damage to buildings and infrastructure, economic disruption, and adverse effects on the health and safety" (IL Department of Natural Resources, 2015, p. 2).

Exhibit 4-24. DuPage County Watershed Reference Map

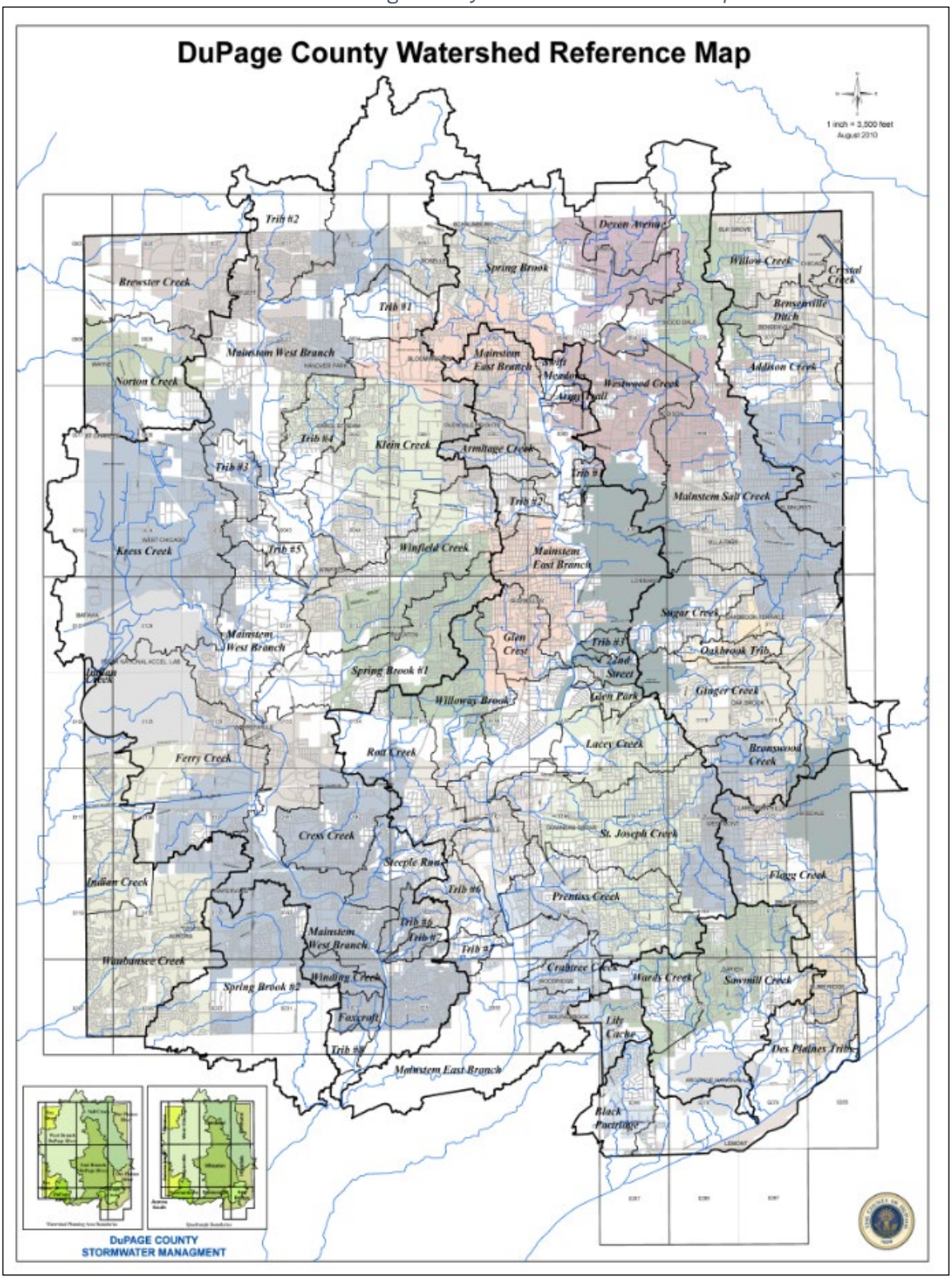


Table 4-35. DuPage County Watersheds

Watershed	Total Area	Area Within DuPage County
Sub-watershed	**Square Miles**	**Square Miles**
Des Plaines River Tributaries	**39.60**	**38.51**
Addison Creek	9.09	9.09
Bensenville Ditch	2.56	2.56
Black Partridge	2.73	2.43
Crystal Creek	0.42	0.42
Des Plaines Main Stem	7.82	7.79
Flagg Creek	11.89	11.14
Willow Creek	5.09	5.09
DuPage River Tributaries	**14.39**	**10.88**
Lily Cache	1.84	1.84
Spring Brook 2	12.55	9.03
East Branch DuPage River	**81.29**	**75.22**
Armitage Creek	2.13	2.13
Army Trail	0.44	0.44
Crabtree Creek	1.54	1.54
Tributary 1	0.67	0.67
Tributary 2	1.23	1.23
Tributary 3	0.49	0.49
Tributary 6	1.85	1.85
Tributary 7	0.86	0.86
DuPage River Main Stem	33.61	27.54
Glencrest Creek	2.72	2.72
Glen Park	0.71	0.71
Lacey Creek	4.62	4.62
Prentiss Creek	7.04	7.04
Rott Creek	5.99	5.99
St. Joseph Creek	11.26	11.26
Swift Meadows	0.87	0.87
22nd Street	0.77	0.77
Willoway Bay	4.50	4.50
Fox River Tributaries	28.08	28.08
Brewster Creek	7.00	7.00
Indian Creek	5.16	5.16
Norton Creek	6.56	6.56
Waubansee Creek	9.36	9.36

Watershed	Total Area	Area Within DuPage County
Sub-watershed	**Square Miles**	**Square Miles**
Salt Creek	**65.23**	**57.92**
Bronswood Creek	3.27	3.27
Devon Avenue	3.08	1.81
Ginger Creek	5.36	5.36
Oakbrook	1.20	1.20
Spring Brook	14.68	11.82
Salt Creek Main Stem	27.64	24.45
Sugar Creek	4.06	4.06
Westwood Creek	5.95	5.95
Sawmill Creek	**12.55**	**12.55**
Sawmill Creek Main Stem	9.48	9.48
Wards Creek	3.07	3.07
West Branch DuPage River	**127.64**	**113.15**
Cress Creek	4.21	4.21
Ferry Creek	12.38	12.35
South of Foxtrot	0.92	0.88
Klein Creek	12.65	12.65
Kress Creek	18.93	15.95
Spring Brook 1	7.69	7.69
Steeple Run	2.75	2.75
Tributary 1	2.69	2.69
Tributary 2	4.69	2.16
Tributary 3	1.69	1.69
Tributary 4	2.95	2.95
Tributary 5	1.37	1.37
Tributary 6	1.21	1.21
Tributary 7	0.59	0.59
South of 87th	0.77	0.04
West Branch Main Stem	42.54	34.36
Winfield Creek	8.47	8.47
Winding Creek	1.14	1.14

Hazard Location

Exhibit 4-25. DuPage County NFHL

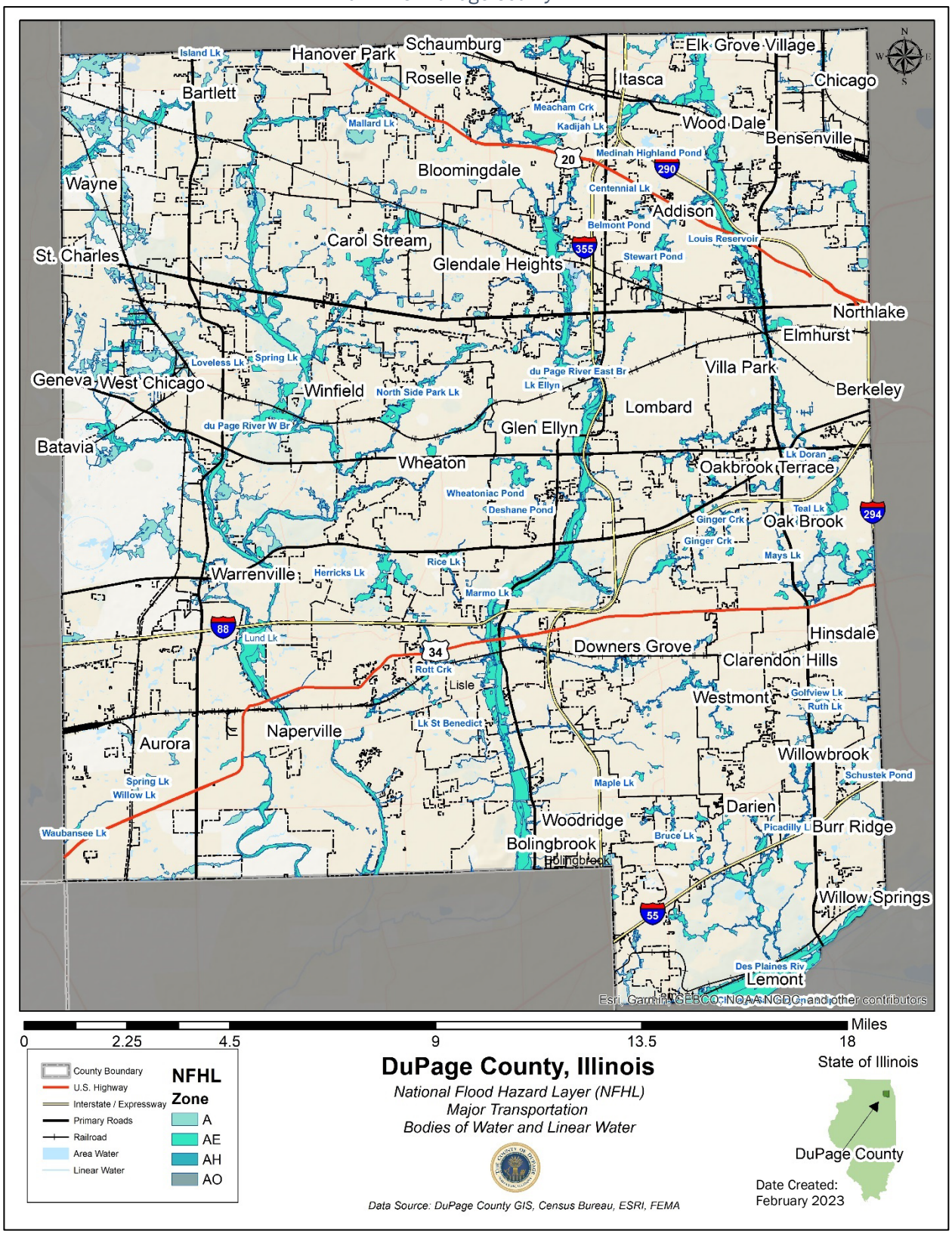
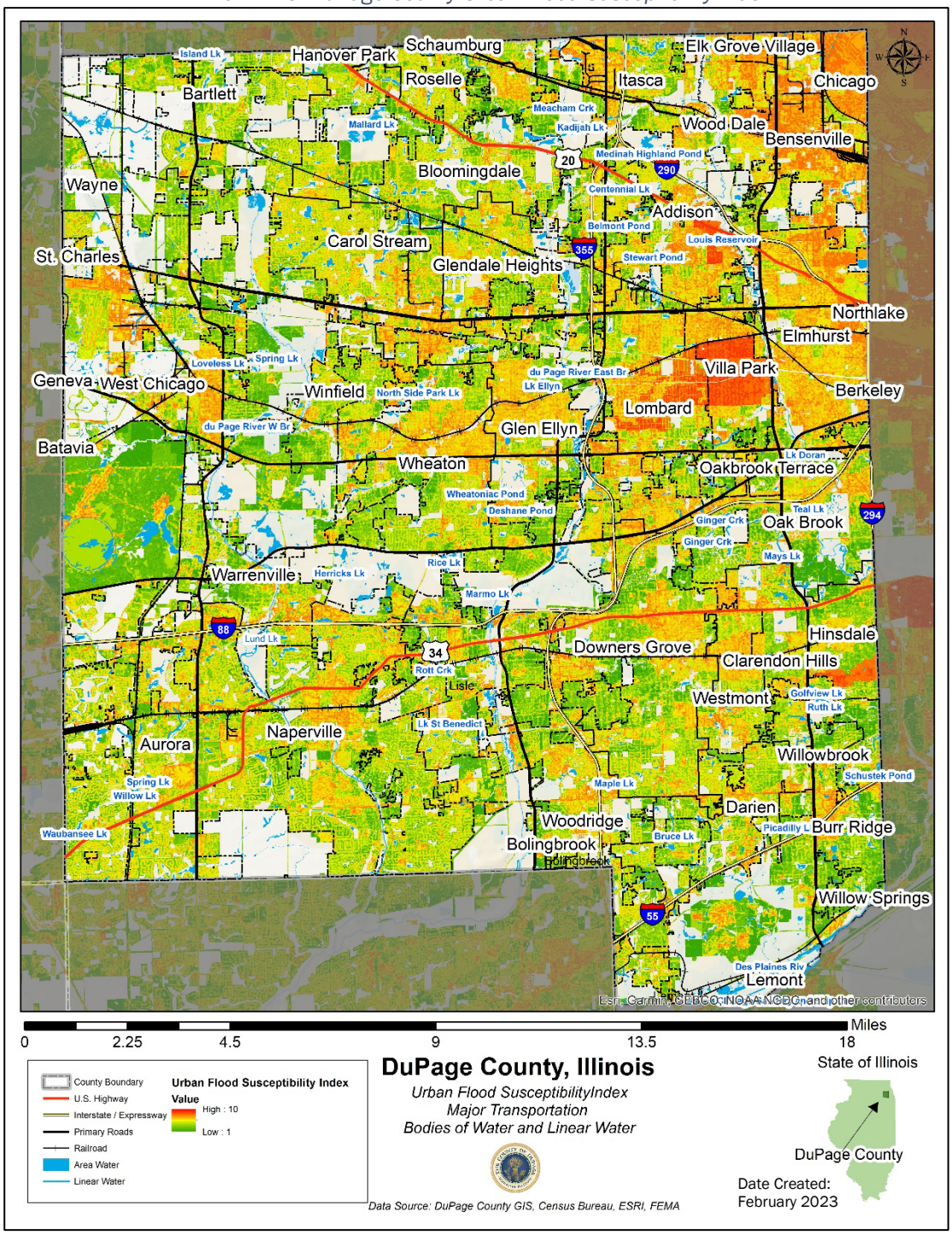


Exhibit 4-26 illustrates the DuPage County region's susceptibility to urban flooding. This map shows the risk for flooding outside of the FEMA-mapped floodplain. Instead of proximity to floodplain as the primary risk factor, this map uses the age of development, base flood elevation compared to parcel elevation, combined sewer service areas, impervious cover, and soils to determine how prevalent flooding – resulting from overwhelmed drainage systems – would be.

Exhibit 4-26. DuPage County Urban Flood Susceptibility Index



Hazard Extent/Intensity

Several factors determine the severity of floods, including rainfall intensity and duration, topography, and ground cover.

The NFIP classifies floods through recurrence intervals, as seen in Table 4-36.

Table 4-36. NFIP Flood Recurrence Intervals

Flood Recurrence Interval	Chance of occurrence during any given year
5 year	20%
10 year	10%
50 year	2%
100 year	1%
500 year	0.20%

The federal standard for floodplain management under the National Flood Insurance Plan (NFIP) is the "100-year floodplain." This area is chosen using historical data such that in any given year, there is a 1% chance of a "base flood" (also known as a "100-year flood" or "regulatory flood"). A base flood covers or exceeds the 100-year floodplain. A "500-year floodplain" is an area with at least a .2% chance of flood occurrence in any given year (HUD Exchange, 2023).

When surface water runoff introduced into streams and rivers exceeds the capacity of the natural or constructed channels to accommodate the flow, water overflows the stream banks, spilling out into adjacent low-lying areas (FEMA, 2023). Riverine flooding occurs as a consequence. Riverine flooding can cause two types of floods: overbank flooding and flash floods. "Overbank flooding is the increase in the volume of water within a river channel and the overflow of water from the channel onto the adjacent floodplain. Flash floods are the most dangerous because they combine a flood's destructive power with incredible speed and unpredictability. Flash floods occur when excessive water normally fills dry creeks or riverbeds along with currently flowing creeks and rivers, causing rapid water rises in a short amount of time. They can happen with little or no warning (FEMA, 2023)". Additionally, a levee or dam failure can also produce a flash flood. Flooding is one of the most common natural hazards within DuPage County and the country.

Probability and Frequency

On average, the County receives 37 inches of rain and 26 inches of snow annually (Best Places, 2023). In DuPage County, a 24-hour precipitation amount between 7 and 8 inches, depending on the location within the County, is considered to be a 100-year rainfall event (NOAA, 2006). For a relatively short, intense rainfall event of 3 hours, the 100-year rainfall amount is approximately 4.1 inches (NOAA, 2006).

"DuPage County has grown dramatically over the last half decade. From 1950 to 2002 DuPage County saw a 600% increase in population alone. This rapid urbanization from

what was mostly agricultural land to large residential, commercial, and industrial areas have had a profound impact on many of DuPage County's rivers and streams" (DuPage County, N.D.a). DuPage County has experienced several major flood events over the past 30 years. The most notable events where overbank flooding occurred and damages were documented are the following flood events: August 1987, July 1996, September 2008, and April 2013. All were declared state and/or federal disasters.

Overbank flooding occurs when water overflows over the edges of a river or stream and expands beyond the banks. This is the most severe type of flooding and can occur in any size channel — from small streams to large rivers.

Lower Salt Creek, the most urbanized watershed in DuPage County, is prone to overbank flooding, commonly referred to as "flashy" flooding. This occurs quickly due to the high percentage of impervious areas within the watershed, causing the water surface elevation to rise rapidly during storm durations. The intense rainfall events in the Salt Creek Watershed, such as 4.25 inches of rain in six hours, have had a significant impact.

The East Branch DuPage River watershed is less urbanized but the floodplain within this watershed is extremely flat. Therefore, elevation rise in the stream has a broad geographical expansion but is less likely to be impacted by the smaller, more extreme events the region has been experiencing due to climate change. Areas within this watershed experience flooding from both overbank flooding and depressional flooding. Because of the flatter topography within the East Branch DuPage River watershed, there often isn't a conveyance mechanism to move water from the topographical depression areas to the floodplains. Due to the poor conveyance, areas outside of the mapped floodplain are experiencing flooding. This type of flooding within the region is often termed "urban flooding" and has been documented to occur at a higher frequency than overbank flooding within the East Branch DuPage River watershed.

The West Branch DuPage River watershed has the largest land area of the County's three major watersheds. In addition to the large land area, it also has areas that are urbanized. Therefore, the watershed experiences urban flooding within the flatter areas outside of the floodplain. Overbank flooding also occurs during large events. Due to the large land area draining into the river, the more intense events result in a higher peak flow later in the event as the water takes more time to drain into the river. Because of this, there is more time for emergency assistance such as sandbagging, pumping, and (in some cases) evacuation.

In the late 1970s and early 1980s, the Federal Emergency Management Agency issued Flood Insurance Rate Maps (FIRM) that established the 1% annual chance (100-year) floodplains for DuPage County. These and other FIRMs have since been rendered obsolete due to changes in land use, topography, modeling standards and technologies (DuPage County, N.D.a). DuPage County Stormwater Management has been conducting new watershed studies that will conform to current topographical conditions and meet today's standards and practices in hydrologic and hydraulic analysis (DuPage County, N.D.a).

"The County is unique in its development of the hydrologic and hydraulic models used in its watershed planning and floodplain mapping and incorporating the County's flood control facilities]. Rather than using single event, steady state models such as HEC1 and HEC2, the Stormwater Management utilizes continuous simulation and dynamic routing models. The reasons DuPage County selected this methodology was (1) the continuous simulation hydrologic model is used to capture the effects of antecedent moisture on runoff volumes and peaks, and to account for a non-uniform precipitation distribution over the watershed; (2) the effects of backwater, floodplain storage, and complex urban stream systems have a significant impact on the hydraulics of DuPage County streams" (DuPage County, N.D.b). Utilization of this system allows for flood warnings to be distributed to communities and emergency operators to prepare for the potential flood event. This forecasting is posted to the County's public access webpage with stream height predictions and an updated blog to assist with data interpretation.

Table 4-37 shows DuPage County's current 100-year flood elevation calculations for specific points along major rivers, included in the FEMA Flood Insurance Studies. Table 4-38 provides additional measures to particular locations, including flood stage, 10-year flood, 50-year flood, and 100-year flood calculations.

Table 4-37. DuPage County 100-year Flood Elevations

River	Location	Approximate 100-year Flood Elevation
East Branch DuPage River	Butterfield Rd (Rte. 56)	677.3 feet
East Branch DuPage River (downstream)	DuPage-Will County Line	649.0 feet
Salt Creek	North Avenue (Rte. 64)	672.6 feet
Salt Creek (downstream)	DuPage-Cook County Line	643.5 feet
West Branch DuPage River	Lake Street (Rte. 20)	674.5 feet
West Branch DuPage River (downstream)	DuPage-Will County Line	646.2 feet

Table 4-38. DuPage County Comparison of Flood Elevations (In feet)

Stream	10-Year	50-year	100-Year
East Branch DuPage River at Rte. 34 in Lisle	665.6	667.0	668.5
Salt Creek at North Avenue in Addison	670.5	671.8	672.6
West Branch DuPage River at Lake Street near Bartlett	673.7	674.2	674.5

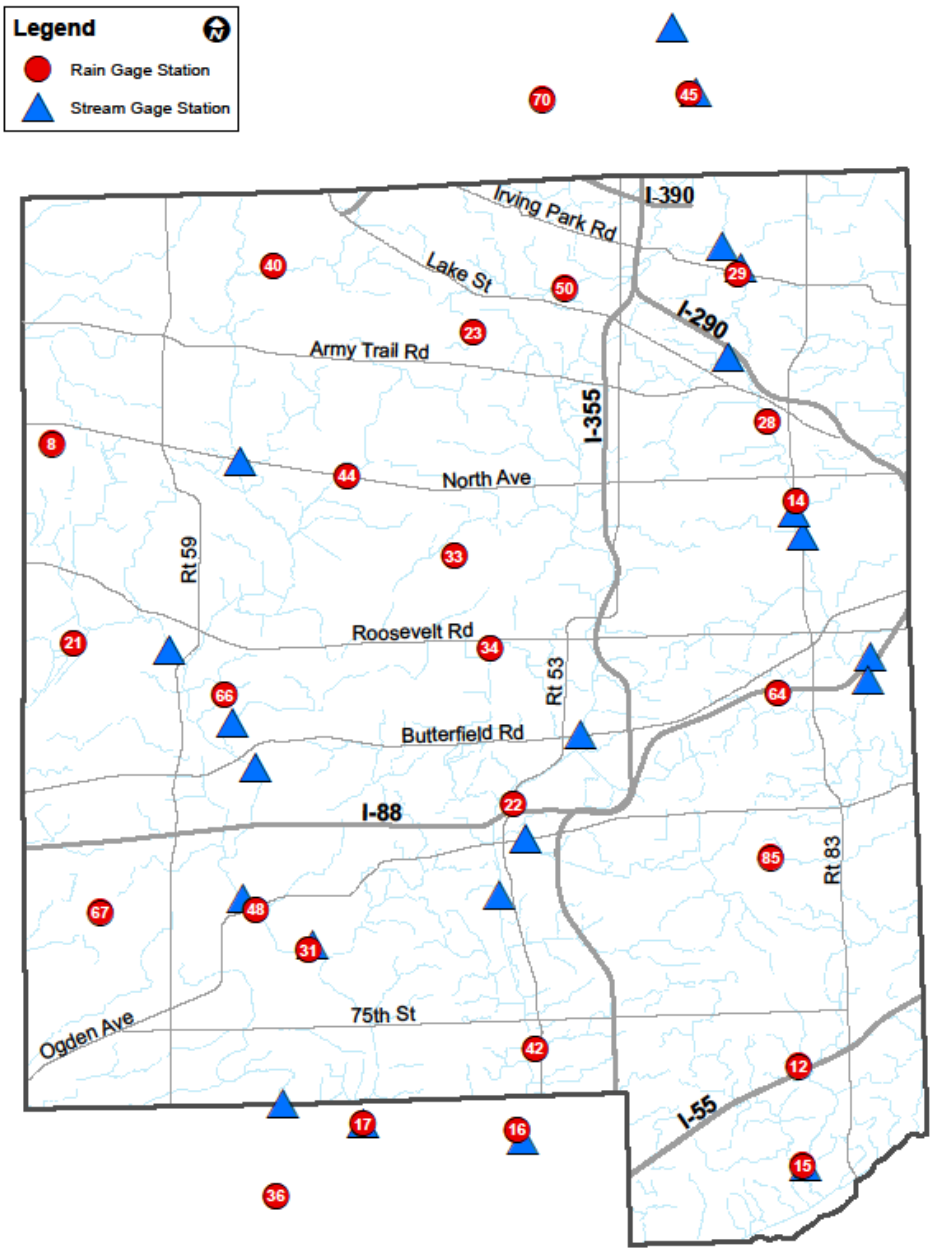
During a precipitation or snowmelt event, the county can use its hydrologic and hydraulic modeling statistics to predict when and where flooding will occur in coordination with its real-time monitoring of rain and stream gauges.

Exhibit 4-27 shows the locations of the county's gauges. Blue dots with numbers are rain gauge and stream gauge locations. Red dots with numbers are rain gauges only.

Past Events

Utilizing information from the National Weather Service and OHSEM report logs, Table 4-39 summarizes all flood events within the county (excluding localized flooding) from June 1967 to May 2016. Table 4-40 provides an overview of all flood events within the county (excluding localized flooding) from 2017 to 2022. A historical summary of damages from selected floods within Table 4-39 is provided immediately following the map.

Exhibit 4-27. DuPage County Rain and Stream Gauge Locations



BLUE dots with numbers are Rain gauge and Stream gauge locations
RED dots with numbers are Rain gauges **ONLY**.

Table 4-39. DuPage County Recorded Flood Event (1967-2016)

Location:	Date:	Time:	Description:
Western DuPage	6/10/1967	Unknown	Flooding in Winfield and West Chicago.
Central and Eastern DuPage	8/27/1972	Unknown	Flooding in Elmhurst. Residents in Glen Hill area in Glendale Heights were evacuated in boats.
West and Central DuPage	4/18/1975	Unknown	Flooding in Lisle, Winfield, and West Chicago.
Eastern DuPage	3/5/1976	Unknown	Flooding in Wood Dale.
Eastern DuPage	9/19/1977	Unknown	Flooding in Wood Dale.
Central DuPage	5/13/1978	Unknown	Flooding in Lisle.
Central and Eastern DuPage	3/4/1979	Unknown	Flooding in Lisle, Wood Dale.
Western DuPage	3/19/1979	Unknown	Flooding in Winfield and West Chicago.
Eastern DuPage	12/3/1982	Unknown	Flooding in Elmhurst at Route 83 and North Avenue. 23 businesses in the area received major damages; 3 with minor damage.
Western DuPage	12/2/1982	Unknown	Flooding in Winfield and West Chicago.
Central DuPage	7/2/1983	Unknown	Flooding in Lisle.
Countywide	8/14/1987	Unknown	Flooding through County.
South and Central DuPage	7/17/1996	6:00 PM	Damage estimates between $74 and $150 million.
South and Central DuPage	2/20/1997	6:00 PM	4 inches of rain in Aurora; 3.6 inches of rain in Wheaton. Woman died in Matteson after driving into a barricaded flooded railroad viaduct.
Northeast DuPage	8/16/1997	6:00 PM	3 to 9 inches of rain over northeast DuPage County into north-central Cook County.
Bolingbrook	8/3/1998	11:00 PM	5 inches of rain in Will County; 3.5 inches in Bolingbrook. Roads with underpasses flooded.
Southwest DuPage	8/4/1998	11:00 AM	6 inches of rain in Bolingbrook and 5 inches in Naperville. Lisle experienced flooding.
Wheaton	7/21/2001	7:35 PM	1 foot of water over Main Street in Wheaton.
Countywide	10/13/2001	3:25 PM	Numerous streets and major roads flooded and closed, including Route 53 where several motorists were trapped in their vehicles and had to be rescued.
Countywide	10/24/2001	1:30 PM	Minor street flooding in DuPage.
Wheaton and West Chicago	7/9/2002	2:00 AM	2.92 inches of rain in Wheaton 5.6 inches in Batavia. Street and basement flooding in Wheaton and West Chicago.
Carol Stream	8/22/2002	3:00 AM	Basement flooding in Carol Stream
Southeast DuPage	11/4/2003	7:30 PM	2.4 inches of rain in Westmont; 1.68 inches in Wheaton. Low areas in Clarendon Hills flooded.
Clarendon Hills	3/28/2004	5:00 PM	1.5 to 2 inches of rain in 3 hours in Clarendon Hills.
Lisle	5/13/2004	5:00 PM	Flooding on Route 53 south of Burlington railroad tracks in Lisle.
Naperville	5/21/2004	8:54 PM	Washington Avenue and Route 34 flooded in Naperville.
Central-west DuPage	5/30/2004	10:05 AM	Street flooding in Naperville, Winfield, Clarendon Hills, and Wheaton. Park and Main Streets in Wheaton closed.
Naperville	6/12/2004	12:25 AM	River Road and Wilshire Blvd., and Route 59 and North Aurora Road in Naperville flooded, along with 59th Street and Fairview Avenue in Downers Grove.
Glendale Heights	10/2/2005	2:30 PM	1 foot of water over North Avenue in Glendale Heights.
Countywide	10/2/2006	8:50pm	Underpasses were flooded and buildings took on water throughout the County.
Countywide	9/13/2008	5:00am	Lowell and hurricane Ike moved across the region. These two features combined to produce heavy rain and flash flooding across many areas of northern Illinois.
Central DuPage	12/27/2008	Unknown	Flooding in Glen Ellyn and Lisle resulting in flood insurance claims
Countywide	7/24/2010	12:13am	Thunderstorms developed in the late evening of July 23rd and lasted in the early morning hours of July 24th producing very heavy rain and widespread flash flooding in many parts of the Chicago Metro Area. Rainfall rates were as much as two to three inches per hour.
North Half of DuPage	7/1/2012	11:00AM	A Severe thunderstorm (equivalent to 4-F2 Tornadoes) struck causing 56% of the County to lose power for up to 7 days.
Countywide	4/18/2013	4:00PM	This was a massive flood that activated the DuPage EOC for (5) days and initiated a Presidentially declared disaster, with Public and Individual Assistance approval.
Countywide	8/22/2014	2:20AM	Widescale flooding was experienced across the County.
Central DuPage	5/25/2016	5:50PM	A severe thunderstorm struck Wheaton causing power outages.

Table 4-40. DuPage County Recorded Flood Events (2017-2022)

FLOOD EVENTS IN DUPAGE COUNTY, IL (2017-2022)							
Location	County	Date	Type	Deaths	Injuries	Property Damage	Crop Damage
BARTLETT	DuPage County	07/23/2017	Flood	0	0	0.00K	0.00K
NAPERVILLE	DuPage County	07/23/2017	Flood	0	0	0.00K	0.00K
FLOWERFIELD	DuPage County	10/14/2017	Flood	0	0	0.00K	0.00K
ELMHURST	DuPage County	05/02/2018	Flood	0	0	0.00K	0.00K
WILLOWBROOK	DuPage County	06/22/2018	Flood	0	0	0.00K	0.00K
GLENN ELLYN CNTRYSID	DuPage County	06/22/2018	Flood	0	0	0.00K	0.00K
ELMHURST	DuPage County	06/22/2018	Flood	0	0	0.00K	0.00K
GLENN ELLYN CNTRYSID	DuPage County	06/22/2018	Flood	0	0	0.00K	0.00K
SOUTH ADDISON	DuPage County	08/07/2018	Flood	0	0	0.00K	0.00K
NAPERVILLE	DuPage County	05/01/2019	Flood	0	0	0.00K	0.00K
WARRENVILLE	DuPage County	05/01/2019	Flood	0	0	0.00K	0.00K
FOX CROFT	DuPage County	05/01/2019	Flood	0	0	0.00K	0.00K
WHEATON	DuPage County	05/01/2019	Flood	0	0	0.00K	0.00K
FRONTEAC	DuPage County	05/27/2019	Flood	0	0	0.00K	0.00K
WILLOWBROOK	DuPage County	07/02/2019	Flood	0	0	0.00K	0.00K
NORTH LAKE	DuPage County	10/26/2019	Flood	0	0	0.00K	0.00K
BELMONT	DuPage County	04/30/2020	Flood	0	0	0.00K	0.00K
FOX CROFT	DuPage County	04/30/2020	Flood	0	0	0.00K	0.00K
WINFIELD	DuPage County	05/15/2020	Flood	1	0	0.00K	0.00K
FRONTEAC	DuPage County	05/17/2020	Flood	0	0	0.00K	0.00K
SOUTH ADDISON	DuPage County	05/17/2020	Flood	0	0	0.00K	0.00K
WESTMONT	DuPage County	05/17/2020	Flood	0	0	0.00K	0.00K
WOODRIDGE	DuPage County	05/17/2020	Flood	0	0	0.00K	0.00K
LOMBARD	DuPage County	06/22/2020	Flood	0	0	0.00K	0.00K
NAPERVILLE	DuPage County	10/22/2020	Flood	0	0	0.00K	0.00K
ELMHURST	DuPage County	06/20/2021	Flood	0	0	0.00K	0.00K

DARIEN	DuPage County	06/26/2021	Flood	0	0	0.00K	0.00K
DARIEN	DuPage County	08/25/2021	Flood	0	0	0.00K	0.00K
BUTTERFIELD WEST	DuPage County	04/30/2022	Flood	0	0	0.00K	0.00K
BUTTERFIELD WEST	DuPage County	04/30/2022	Flood	0	0	0.00K	0.00K
WHEATON	DuPage County	05/03/2022	Flood	0	0	0.00K	0.00K
ELMHURST	DuPage County	05/03/2022	Flood	0	0	0.00K	0.00K
ELMHURST	DuPage County	07/23/2022	Flood	0	0	0.00K	0.00K
NAPERVILLE	DuPage County	09/11/2022	Flood	0	0	0.00K	0.00K
DOWNERS GROVE	DuPage County	09/11/2022	Flood	0	0	0.00K	0.00K
Totals:				**0**	**0**	**0.00K**	**0.00K**

Table 4-41. DuPage County Recorded Flash Flood Event (2017-2022)

FLASH FLOOD EVENTS IN DUPAGE COUNTY, IL (2017-2022)							
Location	**County**	**Date**	**Type**	**Deaths**	**Injuries**	**Property Damage**	**Crop Damage**
FRONTEAC	DuPage County	10/14/2017	Flash Flood	0	0	0.00K	0.00K
ITASCA	DuPage County	05/30/2018	Flash Flood	0	0	300.00K	0.00K
CLARENDON HILLS	DuPage County	07/02/2019	Flash Flood	0	0	0.00K	0.00K
DOWNERS GROVE	DuPage County	07/02/2019	Flash Flood	0	0	0.00K	0.00K
SCHICK	DuPage County	05/14/2020	Flash Flood	0	0	0.00K	0.00K
FOX CROFT	DuPage County	05/15/2020	Flash Flood	0	0	0.00K	0.00K
NORTH LAKE	DuPage County	05/15/2020	Flash Flood	0	0	0.00K	0.00K
FOX CROFT	DuPage County	05/17/2020	Flash Flood	0	0	0.00K	0.00K
WHEATON	DuPage County	05/17/2020	Flash Flood	0	0	0.00K	0.00K
NAPERVILLE	DuPage County	06/26/2021	Flash Flood	0	0	0.00K	0.00K
CLARENDON HILLS	DuPage County	06/26/2021	Flash Flood	0	0	0.00K	0.00K
WESTMONT	DuPage County	09/11/2022	Flash Flood	0	0	0.00K	0.00K
Totals:				**0**	**0**	**300.00K**	**0.00K**

August 1987: On August 13 to 14, 1987, three inches to 9.4 inches of rain fell on DuPage and Cook Counties. Four deaths were attributed to the flood. An estimated 400 vehicles were stranded at depths as much as six feet. At least 30 intersections and

stretches of roadway were closed due to flooding. Three thousand homes were damaged. Total damage estimates range from $75 to $150 million.

DuPage County suffered the worst damage in the Salt Creek watershed. The Village of Addison estimated that 30% of the community was affected, and over 100 homes were damaged. In addition, businesses, and critical facilities, such as treatment plants, were significantly impacted. Damage totaled several million dollars.

The southwest third of the City of Elmhurst was impacted; 3,100 homes were damaged, their wastewater treatment facility was flooded, and 3,500 phones were lost due to submerged phone cables. Damage totaled over $33 million.

Flooding extended to the East Branch DuPage River watershed. In Glendale Heights, several businesses flooded at the intersection of North Avenue (Illinois State Route 64) and Glen Ellyn Road. In Wheaton, homes and businesses in the floodplain were flooded, and City Hall was damaged. Also impacted were two water mains, storm and sanitary sewers, and a bridge abutment. In addition, some businesses and schools were forced to close due to the impact of the flood in the region.

July 1996: Beginning on July 17, 1996, rain from thunderstorms began to fall across northeastern Illinois. Naperville reported that the first of the thunderstorms began around 10:00 a.m. By 7:00 p.m., Route 59 in Naperville was closed. The thunderstorms continued into the next day. Record rainfall came from several thunderstorms that tracked along a stalled west-to-east low-pressure front. On July 18, 1996, the National Weather Service issued a flash flood warning. By 6:00 a.m., the mayors of Naperville and Lisle declared a state of emergency. The county worked to evacuate portions of the Steeple Run subdivision in Lisle Township. The West Branch DuPage River crested around 6:00 p.m. on July 18th.

The heaviest rainfall was concentrated over southeastern Kane County and northeastern Kendall County. An Aurora rain gauge recorded 16.91 inches in 24 hours, a record for the state. In addition, peak flows were recorded at 19 stream flow gauges in the area. The U.S. Geological Survey estimated the flooding was more significant than a 100-year flood on Blackberry Creek near Yorkville and the Fox River at Dayton.

The severity of the July 1996 flood was due to a combination of wet conditions (July was the wettest month on record for Aurora) and heavy local rain. The Cities of Naperville and Aurora were hit the hardest. Naperville estimated total public damage at $2.2 million. Private property damage was estimated at $30.7 million. Many businesses were forced to close temporarily. Downtown businesses with basements were adversely affected.

The cost to the Village of Woodridge for response and clean-up was $256,061. The flooding was village-wide. Homes and cars were flooded throughout the village. Some businesses were closed temporarily. Woodridge also experienced streambank erosion, sewer back-ups and street flooding. Total damages were not recorded in the Village of Lisle, but the Village was reimbursed $28,590 by the Illinois Emergency Management Agency for emergency response and recovery costs. In Downers Grove, an estimated 180 homes were damaged. Damage was estimated at $1,020,000.

September 2008: On September 13, 2008, major flooding was experienced throughout DuPage County. The severe storm and flood event resulted from the remnants of Hurricane Ike that struck the Gulf Coast and traveled up through the Midwest of the United States. In addition, the Chicago area rainfall for September 13, 2008, set a new daily rainfall record. As a result, thirteen counties in Illinois, including DuPage County, received a federal disaster declaration on October 3, 2008 (FEMA 1800-DR, Illinois) for severe storms and flooding.

From a survey of municipalities (conducted for the 2009 Natural Hazard Mitigation Plan Annual Report), 30% of streets within several municipalities were impacted by the September 13, 2008 flooding. In addition, the entrance and exit ramps of Interstates 290 and 88 were affected, along with many significant intersections in the northern and eastern halves of the county. Eighteen communities reported residential flooding and nine reported flooding in downtown or commercial areas.

July and August 2010: From Monday, July 19th, 2010, through Saturday, August 7th, 2010, several severe rainstorms produced record rainfall totaling over 11 inches. This rainfall resulted in serious roadway and residential flooding throughout DuPage County. The heaviest rain fell across north central DuPage County during the early morning hours of July 24th, producing widespread flooding and flash flooding.

Widespread street and basement flooding was reported. North Avenue at Interstate 290 was flooded with a car stuck in the water. Lake Ellyn overflowed its banks, with six inches or more of water covering nearby streets. The Village Links Golf Course was flooded with waist-high water, and a mail truck was submerged in the flood waters. In Elmhurst, Interstate 290 was closed near York Street with two cars floating in the water at least four feet deep; Route 83 was flooded and closed under the Union Pacific tracks with several vehicles floating in the water; Robert Palmer Drive was flooded and closed below the railroad tracks, and all roads near Elmhurst Memorial Hospital were impassable. In Lombard, the Main Street viaduct was flooded with stranded cars in the flood waters, and 15 residents were evacuated by boat along Finley Road. In Villa Park, significant flooding occurred near Wildwood and Monterey Avenues. Salt Creek quickly rose out of its banks and flooded nearby areas. In the Graue Mill Condominiums, 250 residents were evacuated after four feet of water surrounded the community when Salt Creek overflowed its banks. Storm total rainfall amounts included 7.26 inches one-mile northwest of Villa Park; 7.19 inches near Carol Stream; 7.08 inches one-mile northwest of Glen Ellyn; 7.01 inches two miles west of Elk Grove Village; 6.98 inches in Oak Brook; 6.92 inches one-mile northwest of Lombard; 6.52 inches near Wheaton; 5.57 inches two and a half miles north of West Chicago; 4.51 inches two miles southwest of Burr Ridge; 4.40 inches one-mile southeast of Westmont and 3.45 inches in Lisle.

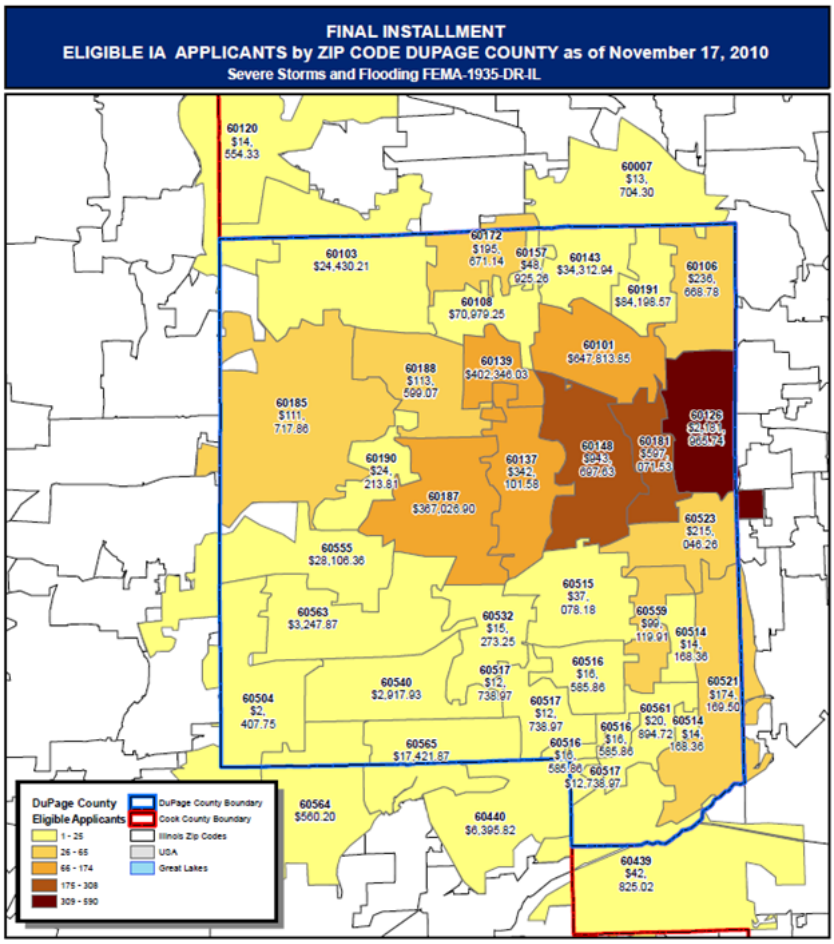
Throughout the event (including response and recovery), the DuPage County Emergency Operations Center (EOC) conducted and facilitated conference call briefings with subject matter experts, including the National Weather Service, DuPage County Stormwater Department, FEMA, and IEMA, to over 121 DuPage County stakeholders. Additionally, during the ongoing recovery phase of the disaster, the OHSEM facilitated individual community damage assessment tours with FEMA, IEMA, and Small Business Association

(SBA). As a result of these meetings, DuPage County residents were able to recover $17.5 million. Additional data can be found in Table 4-42 and Exhibit 4-28.

Table 4-42. DuPage County 2010 Flood Federal Reimbursement Totals

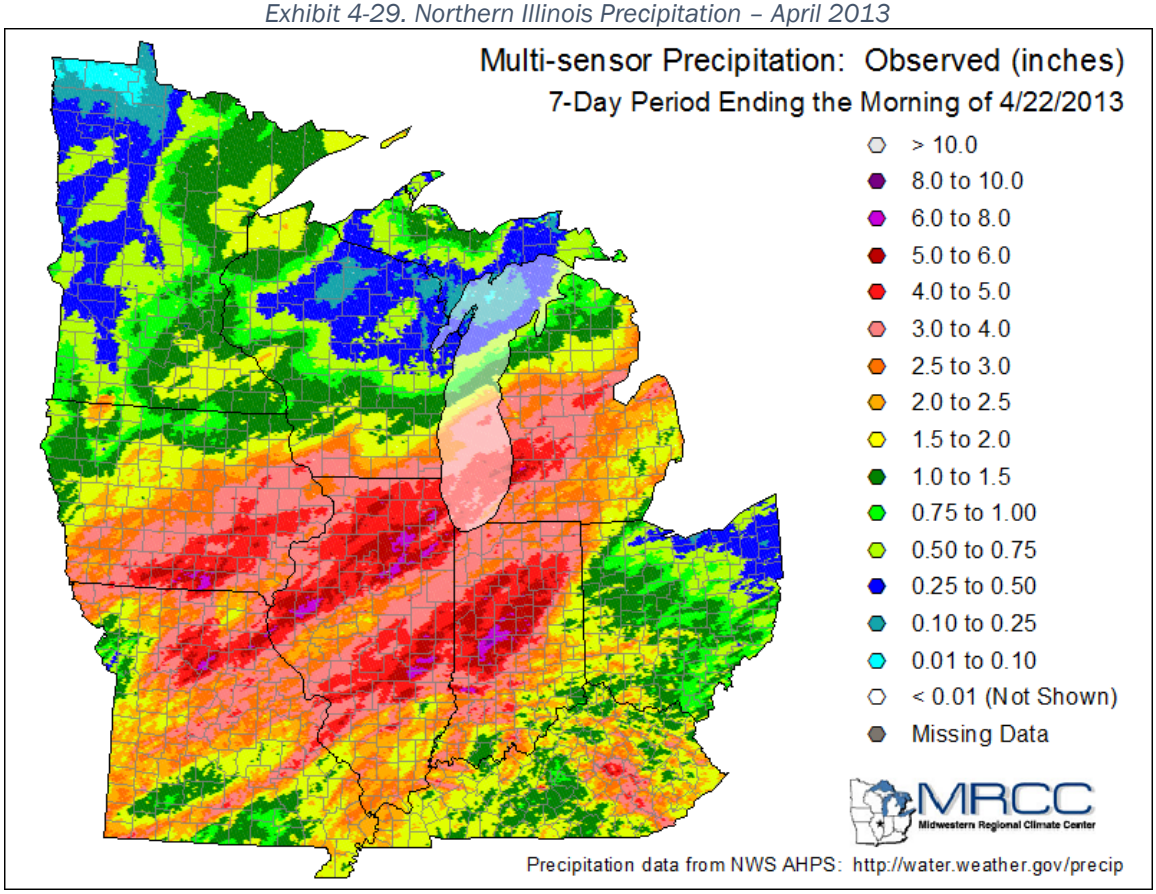
Individual Assistance:	$7,228,007.12
Housing Assistance:	$6,717,179.88
Other Needs Assistance:	$510,827.24
Small Business Loans Approved:	$3,116,400.00
Total Assistance Granted for DuPage County:	$17,572,414.24

Exhibit 4-28. DuPage County 2010 Flood Federal Individual Assistance Applications



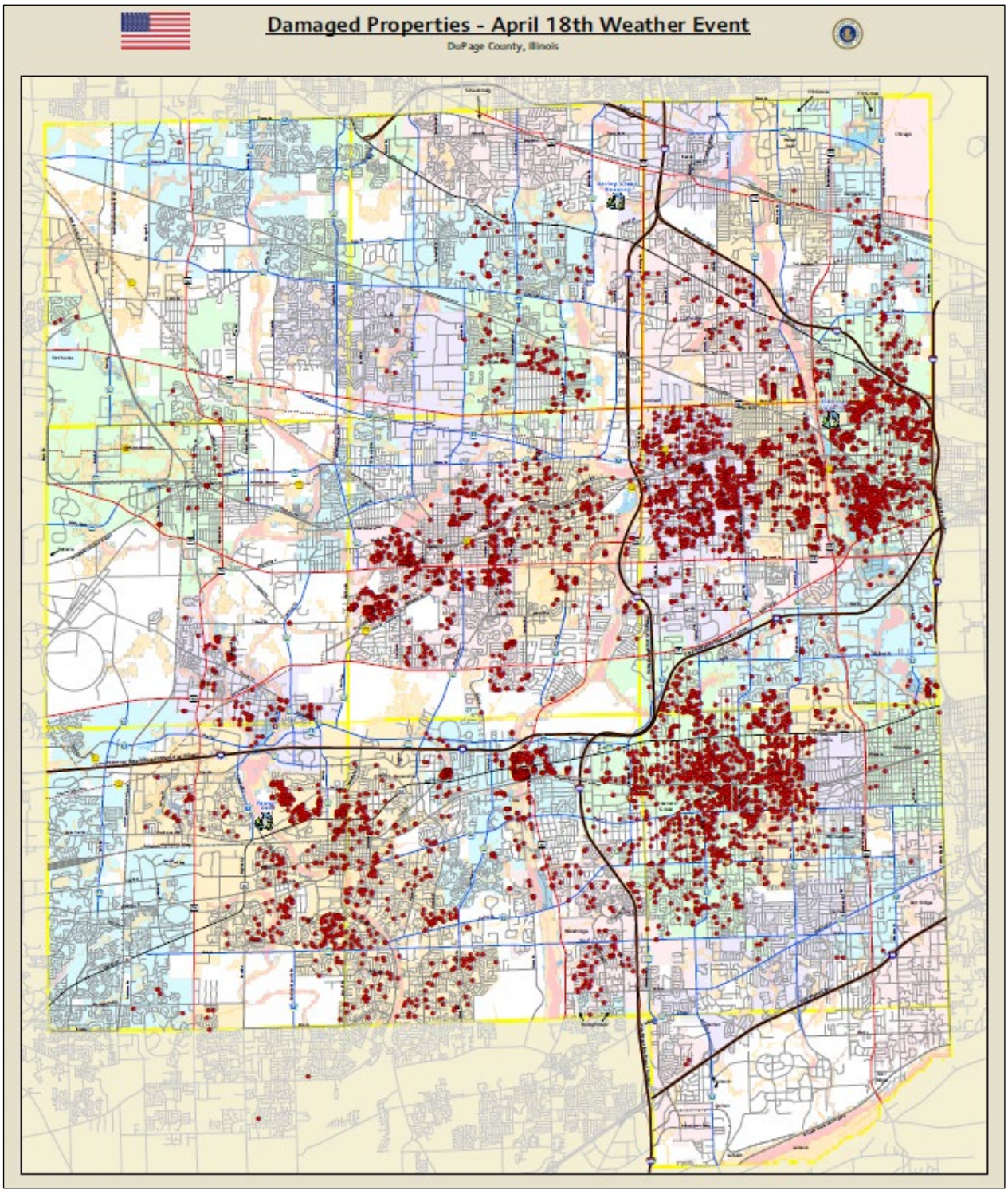
April 2013: In April 2013, flooding occurred throughout DuPage County. The East Branch of the DuPage River experienced record-breaking flood depths resulting from a severe storm. During this storm, rainfall amounted to 7.3 inches (Exhibit 4-29) within 24 hours from a slow-moving system, falling on the pre-saturated ground (DuPage County, 2013). As a result, road closures were required in Lisle, Downers Grove, and unincorporated DuPage, including portions of Route 53, Maple Avenue, Highland Avenue, and 55th Street.

Exhibit 4-29. Northern Illinois Precipitation – April 2013



In Lisle, over 200 properties were flooded along the East Branch DuPage River and St. Joseph Creek. Flood depths of four feet were recorded, requiring rescues by boat. Lisle estimated over $7 million in private, real property damage within the regulatory floodplain, and 113 flood insurance claims were paid. Over 500 vehicles were also destroyed, many located in below-grade parking structures. The Tower of Four Lakes Villages apartment complex suffered a reported $4 million in damage due to flooding of the underground parking garage, lobby, building's electrical system, and elevators. Tower residents were displaced due to the damage, finally returning in June. Downers Grove experienced flooding throughout the St. Joseph Creek watershed, including numerous residential structures and downtown businesses. An overflow from a detention pond in Westmont reportedly overtopped a home's foundation flooding a basement with enough force to tear basement doors from their hinges. A summary of all reported housing damage from the event could be found in Exhibit 4-30.

Exhibit 4-30. DuPage County Damage - April 2013



The DuPage County EOC was activated from April 17 to April 19. During that time, the OHSEM facilitated conference calls, collaborated with subject matter experts, and coordinated resource procurement and deployment to affected communities. A shelter was established at Benedictine University and approximately 60 individuals utilized the facility. Carol Stream, Naperville, Oak Brook, Bartlett, Downers Grove, Addison, and West

Chicago activated their EOCs on April 18. During the recovery phase of the disaster, the OHSEM facilitated individual community damage assessment tours with FEMA and IEMA. As a result of these meetings, DuPage County as a whole was able to recover approximately $17.6 million. About 3,935 families qualified for Individual Assistance, totaling roughly $14.7 million. And 26 communities, including DuPage County, qualified for about $2.9 million.

Vulnerability and Impacts

Life Safety and Health: Safety and health concerns during a flood range considerably. One of the primary issues communities experience, especially during flash floods, is vehicles getting stuck and swept away by rapidly moving waters. These scenarios also present danger to first responders and bystanders attempting to rescue vehicle occupants. "It is easy to misjudge the depth of floodwater, particularly at night. Sometimes the bridge or road masked by flood water may have been undermined or completely washed out (The Weather Channel, 2023)". The Weather Channel also writes that according to FEMA:

- Six inches of water will reach the bottom of most passenger cars, causing loss of control and potential stalling.
- A foot of water will float many vehicles.
- Two feet of rushing water will carry away most vehicles, including SUVs and pickups.

Just as vehicles are recommended to stay away from standing and moving flood waters, the same is recommended for individuals. Flood waters can be both unsanitary and dangerous. According to Dr. Greg Forbes, a severe weather expert for The Weather Channel, water flowing at just 6 miles per hour (mph) can exert the same force as the winds of an EF5 tornado (The Weather Channel, 2023). Additionally, water moving at approximately "25 mph has the pressure equivalent of wind blowing at 790 mph, faster than the speed of sound (The Weather Channel, 2023)". When individuals get stuck in flood waters, some experience heart attacks and other medical conditions while trying to free themselves from the water.

Contact with flood waters can increase the possibility of contracting a communicable disease and other medical issues due to pollutants, chemicals, waste, and an increased number of insects (CDC, 2023). When receding, flood waters can also saturate the ground, which leads to infiltration into sanitary sewer lines. When wastewater treatment facilities are flooded, there is often nowhere for the treated sewage to be discharged or inflowing sewage to be stored. Infiltration and lack of treatment lead to overloaded sewer lines, which back up into low-lying areas and some homes. Even though diluted by flood waters, raw sewage can be a breeding ground for bacteria, such as E. coli, and other disease-causing agents. Because of this threat, tetanus shots are given to people affected by a flood.

Stagnant water is often a perfect breeding ground for insects, specifically mosquitoes, known to carry and distribute various types of diseases. Standing water also creates

mold, which can be a health issue for everyone, but is a hazard to those with breathing issues, children, and the elderly. If forced-air systems are affected by floods and are not subsequently appropriately cleaned, individuals may inadvertently breathe in pollutants. If the water system loses pressure, a boil order may be issued to protect people and animals from contaminated water.

The force of flood waters can damage gas lines, which creates the potential for secondary hazards such as gas leaks and fires. This force, along with standing water, can also damage the structural integrity of buildings, which can cause injuries if issues go unnoticed or unrepaired. While fires have not resulted from flooding within DuPage County, history shows that floods can prevent fire departments and protection agencies from successfully combating and sometimes even accessing a fire, allowing it to spread.

In addition to the National Weather Service (NWS) flood warnings and watches, DuPage County maintains the ability to predict flooding throughout the county, as previously mentioned. Using these gauges, the county can assist municipalities in determining if an evacuation may be needed in a severe flooding scenario.

Exhibit 4-31. Population Impact from a 100-year Flood

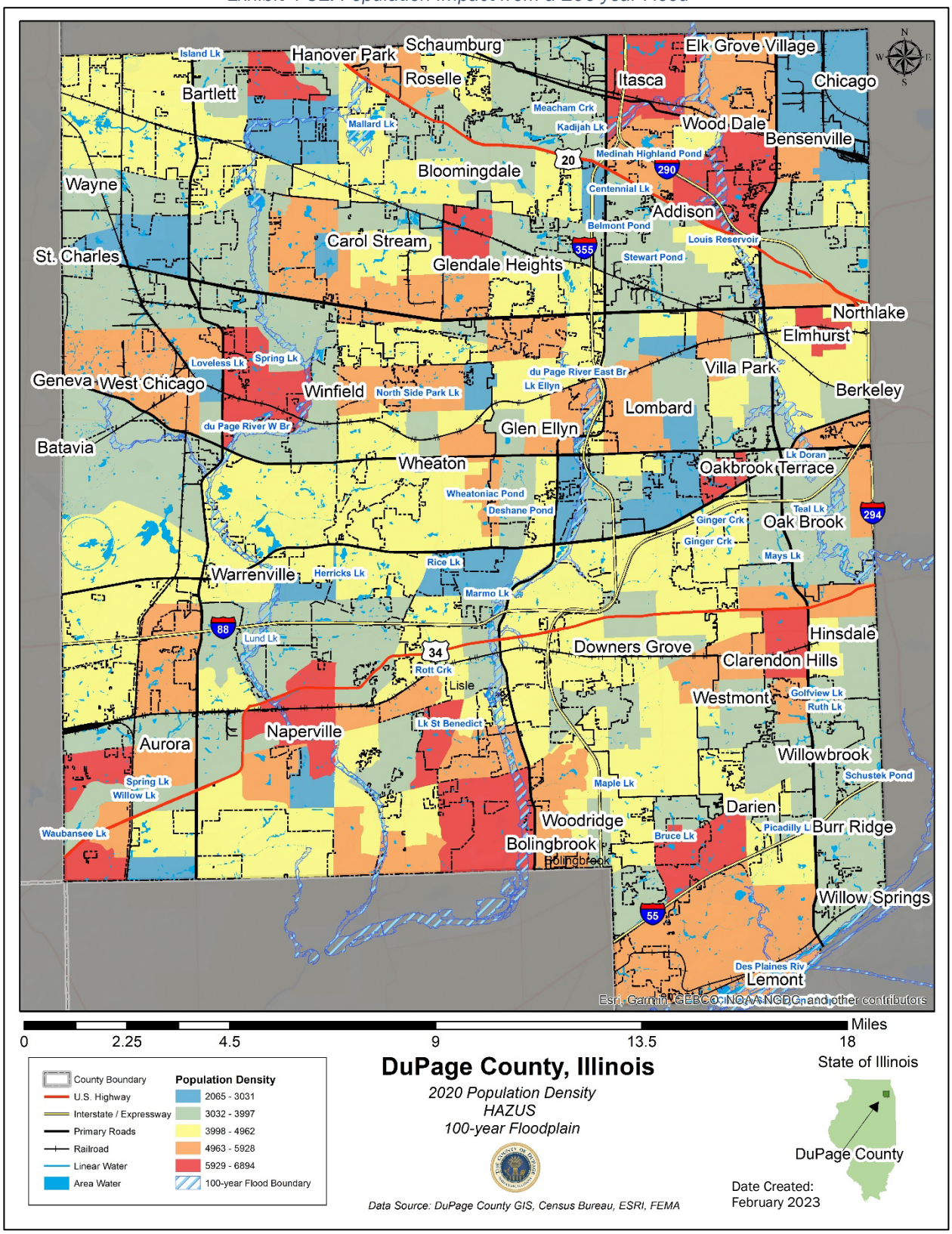
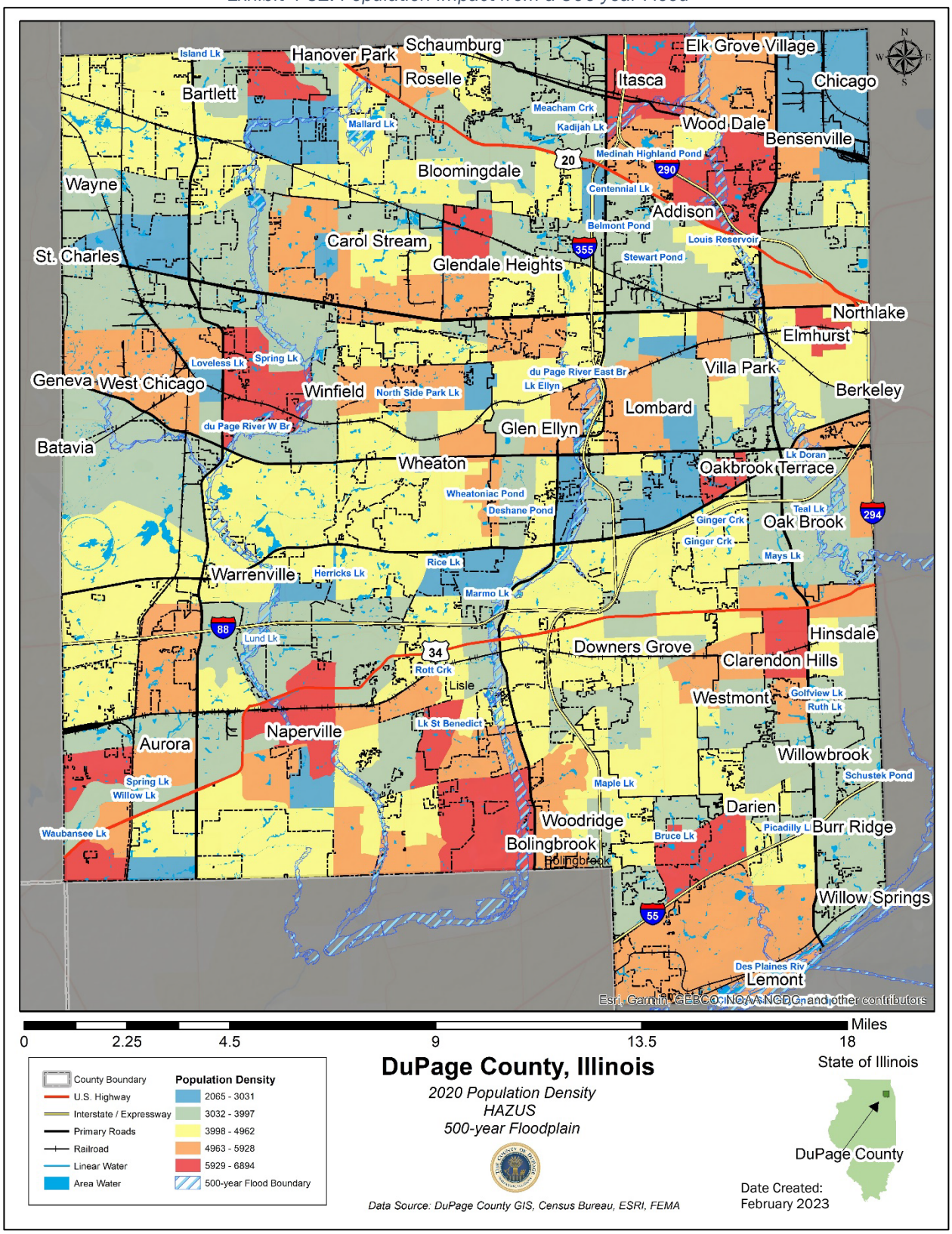


Exhibit 4-32. Population Impact from a 500-year Flood



Property Damage and Critical Infrastructure: A HAZUS analysis was conducted for a 100-year and 500-year flood to examine the exposure and damages of buildings to flooding.

100-year Flood Analysis:
HAZUS estimates that about 1,402 buildings will be at least moderately damaged. This is over 75% of the total number of buildings in the scenario.

Table 4-43. HAZUS 100-year Expected Building Damage by Occupancy

Expected Building Damage by Occupancy												
Damage Level	1-10		11-20		21-30		31-40		41-50		Substantially	
Occupancy	Count	%	Count	%	Count	%	Count	%	Count	%	Count	%
Agriculture	0	0	0	0	0	0	0	0	0	0	0	0
Commercial	17	35	23	47	4	8	3	6	0	0	2	4
Education	0	0	0	0	0	0	0	0	0	0	0	0
Government	0	0	0	0	0	0	0	0	0	0	0	0
Industrial	10	25	17	43	5	13	3	8	5	13	0	0
Religion	0	0	0	0	0	0	0	0	0	0	0	0
Residential	468	36	525	40	167	13	68	5	35	3	50	4
Total	**495**	-	**565**	-	**176**	-	**74**	-	**40**	-	**52**	-

Table 4-44. HAZUS 100-year Expected Damage to Essential Facilities

Expected Damage to # of Essential Facilities			
	At Least Moderate	At Least Substantial	Loss of Use
Fire Stations	0	0	0
Hospitals	0	0	0
Police Stations	0	0	0
Schools	0	0	0
Emergency Operations Center	0	0	0

Table 4-45. HAZUS 100-year Building-Related Economic Loss Estimates

Building-Related Economic Loss Estimates (Millions of Dollars)						
	Area	Residential	Commercial	Industrial	Others	Total
Building Loss	Building	129.29	45.94	20.12	5.51	200.85
	Content	59.45	106.52	48.35	30.39	244.72
	Inventory	0.00	6.19	5.22	1.05	12.46
	Subtotal	**188.74**	**158.66**	**73.69**	**36.94**	**458.03**
Business Interruption	Income	1.79	103.21	0.81	15.97	121.79
	Relocation	40.63	28.19	1.75	9.44	80.01
	Rental Income	16.04	20.18	0.28	1.08	37.57
	Wage	4.22	95.67	1.34	81.44	182.66
	Subtotal	**62.67**	**247.25**	**4.18**	**107.94**	**422.03**
All	**Total**	**251.41**	**405.90**	**77.86**	**144.88**	**880.06**

The total economic loss estimated for the flood is $880.06 million, representing 10.04% of the total replacement value of the scenario buildings.

The total building-related losses were $458.03 million. 48% of the estimated losses were related to business interruption in the region. The residential occupancies made up 28.57% of the total loss.

HAZUS estimates the number of households expected to be displaced due to the flood and the associated potential evacuation. HAZUS also estimates those displaced people that will require accommodations in temporary public shelters. The model estimates that 2,130 households (6,391 people) will be displaced due to the flood. Displacement includes households evacuated from within or very near the inundated area. Of these, 828 people are expected to seek temporary shelter in public shelters.

500-year Flood Analysis:

HAZUS estimates that about 1,541 buildings will be at least moderately damaged. This is over 78% of the total number of buildings in the scenario.

Table 4-46. HAZUS 500-year Expected Building Damage by Occupancy

Expected Building Damage by Occupancy												
Damage Level	1-10		11-20		21-30		31-40		41-50		Substantially	
Occupancy	Count	%	Count	%	Count	%	Count	%	Count	%	Count	%
Agriculture	0	0	0	0	0	0	0	0	0	0	0	0
Commercial	16	29	22	40	6	11	9	16	2	4	0	0
Education	0	0	0	0	0	0	0	0	0	0	0	0
Government	0	0	0	0	0	0	0	0	0	0	0	0
Industrial	6	16	15	39	10	26	5	13	2	5	0	0
Religion	0	0	0	0	0	0	0	0	0	0	0	0
Residential	511	35	616	43	195	13	74	5	26	2	26	2
Total	**533**	-	**653**	-	**211**	-	**88**	-	**30**	-	**26**	-

Table 4-47. HAZUS 500-year Expected Damage to Essential Facilities

Expected Damage to # of Essential Facilities			
	At Least Moderate	At Least Substantial	Loss of Use
Fire Stations	0	0	0
Hospitals	0	0	0
Police Stations	0	0	0
Schools	0	0	0
Emergency Operations Center	0	0	0

Table 4-48. HAZUS 500-year Building-Related Economic Loss Estimates

Building-Related Economic Loss Estimates (Millions of Dollars)						
	Area	Residential	Commercial	Industrial	Others	Total
Building Loss	Building	146.07	50.82	20.13	5.21	222.23
	Content	67.16	118.93	49.23	30.50	265.82
	Inventory	0.00	7.18	5.39	1.17	13.74

	Subtotal	**213.23**	**176.92**	**74.75**	**36.88**	**501.79**
Business Interruption	Income	2.50	113.95	0.85	16.70	134
	Relocation	44.77	30.47	1.78	9.30	86.32
	Rental Income	17.45	21.95	0.28	0.83	40.51
	Wage	5.88	102.36	1.39	68.17	177.80
	Subtotal	**70.60**	**268.73**	**4.30**	**95.00**	**438.63**
All	**Total**	**283.84**	**445.65**	**79.05**	**131.88**	**940.41**

The total economic loss estimated for the flood is $940.41 million, representing 10.73% of the full replacement value of the scenario buildings.

The total building-related losses were $501.79 million. Forty-seven percent of the estimated losses were related to business interruption in the region. The residential occupancies made up 30.18% of the total loss.

HAZUS estimates the number of households expected to be displaced due to a flood and the associated potential evacuation. HAZUS also estimates the number of people that will require accommodations in temporary public shelters. The model estimates that 2,464 households (7,391 people) will be displaced due to a flood. Displacement includes households evacuated from within or very near the inundated area. Of these, 935 people are expected to seek temporary shelter in public shelters.

Exhibit 4-33. Critical Infrastructure and Key Resource Impact from a 100-year Flood

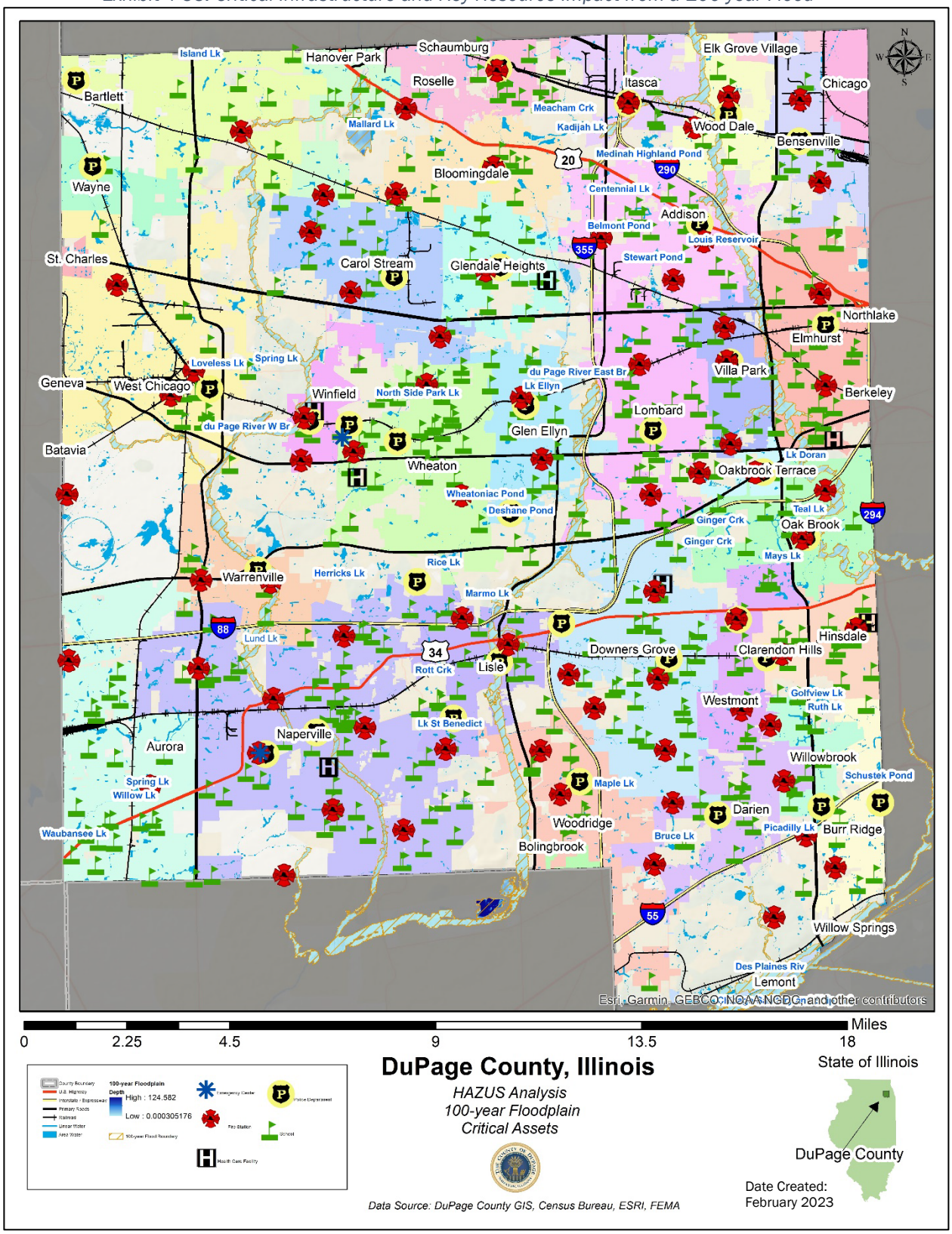
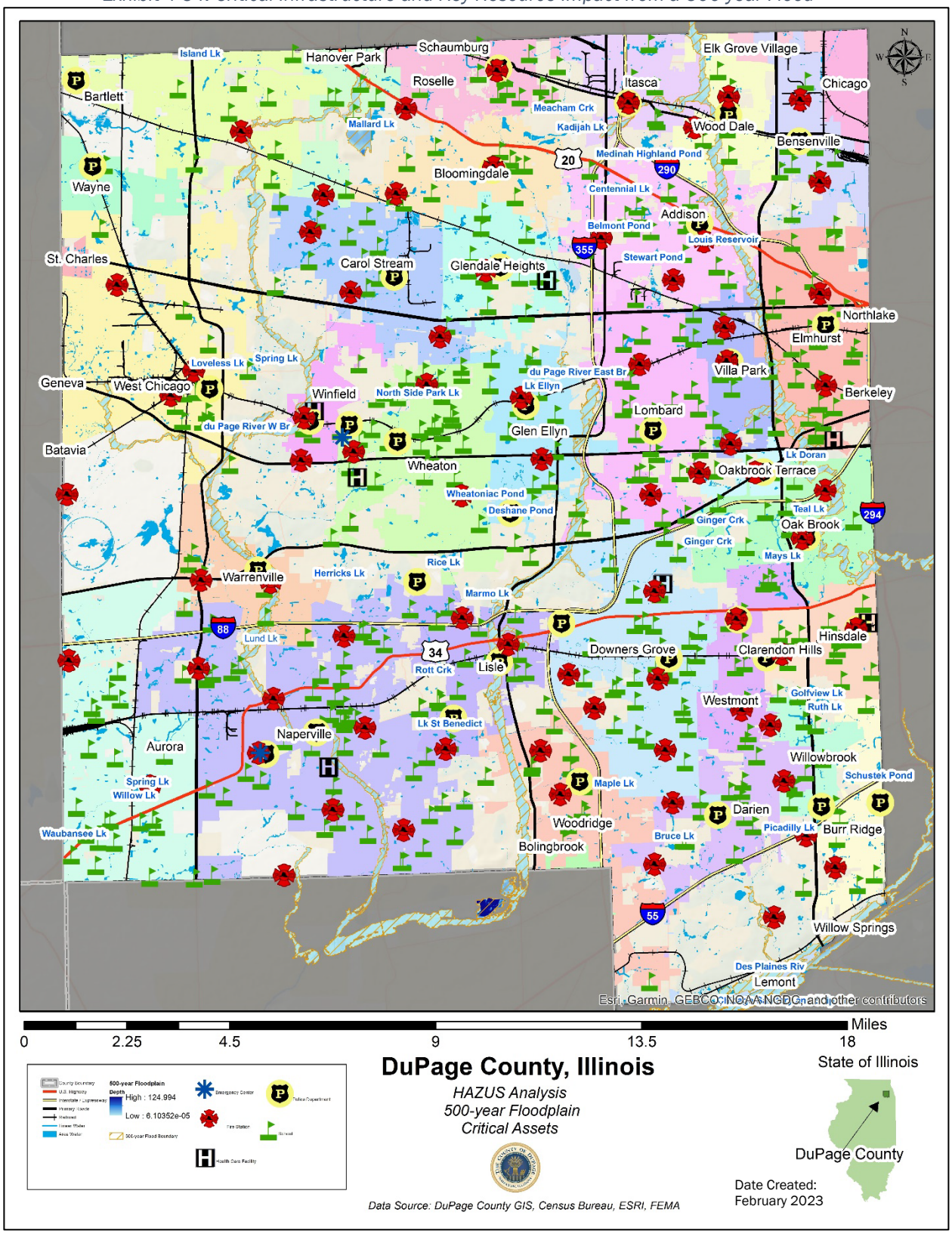


Exhibit 4-34. Critical Infrastructure and Key Resource Impact from a 500-year Flood



Repetitive Loss Properties*:* There are several different definitions of a "repetitive loss property." The current FEMA definition of a repetitive loss property is:

> "**Repetitive Loss Structure:** An NFIP-insured structure that has had at least two paid flood losses of more than $1,000 each in any 10-year period since 1978." (FEMA, 2023).

Additionally, the definitions of a severe repetitive loss building and severe repetitive loss property are:

> **"Severe Repetitive Loss Building:** Any building that:
> 1. Is covered under a Standard Flood Insurance Policy made available under this title.
> 2. Has incurred flood damage for which:
>
> a. Four or more separate claim payments have been made under a Standard Flood Insurance Policy issued pursuant to this title, with the amount of each such claim exceeding $5,000 and with the cumulative amount of such claims payments exceeding $20,000; or
>
> b. At least two separate claims payments have been made under a Standard Flood Insurance Policy, with the cumulative amount of such claim payments exceeding the fair market value of the insured building on the day before each loss" (FEMA, 2023).
>
> **"Severe Repetitive Loss Property:** Either a severe repetitive loss building or the contents within a severe repetitive loss building, or both" (FEMA, 2023).

FEMA encourages the mitigation of severe repetitive loss and repetitive loss properties through the distribution of mitigation grants, the NFIP's Increased Cost of the Compliance program, and the Community Rating System (CRS) program. Depending on the number of repetitive loss properties within a CRS community, the community may be required to develop a specific plan to determine the causes of the repetitive claims and ways to mitigate the causes of the repetitive claims. At a minimum, each CRS community must conduct an annual outreach project to these properties advising the owners of their location in the regulatory floodplain, property protection measures, and any funding options for property protection and flood insurance.

FEMA offers several programs aimed at supporting communities in identifying and addressing the root causes of their repetitive losses. One such program is the Community Rating System (CRS), which this Plan fulfills the requirements for as outlined in Chapter One.

The DuPage County 'Repetitive Loss Areas', shown in Exhibit 4-35, summarizes FEMA repetitive loss properties in DuPage County. DuPage County maintains a list of all flood-prone properties that qualify for acquisition, and the list includes repetitive loss properties. Properties have been identified for acquisition throughout DuPage County based on watershed modeling done by the county. The properties are identified by watershed (or sub-watershed) utilizing a Benefit Cost Analysis (BCA) Model that predicts frequencies and damages of structures within a flood prone area rather than "repetitive loss areas." Funding of acquisitions, or matching funds, is/are provided through County

stormwater management program and supplemented by FEMA/IEMA/IDNR/HUD grant funds. The acquisition list also includes all properties that have been acquired by local, state, and federal agencies (see Table 4-49).

The effort of the Countywide Stormwater Management Program has greatly reduced the number of repetitive loss properties in DuPage County. Municipalities and DuPage County are continuing repetitive loss acquisition efforts as grant dollars and matching funds become available.

Table 4-49 explains the source of water, cause and depth of flooding, and the velocity of flood waters for each area shown within Exhibit 4-35. Table 4-49 explains the total number of structures shown within each area of Exhibit 4-35. Out of these locations, a total of 14 properties are considered severe repetitive loss properties. For confidentiality reasons, the locations of these properties and the types of structures are not disclosed.

Table 4-49. Repetitive Loss Areas: Source of Water, Cause, Depth of Flooding, and Velocity

Rep Loss Area	Peak Discharge (CFS)				Mean Velocity	100yr elevation	Source	Cause	Approx. Depth
	10yr	50yr	100yr	500yr	(FPS)				
A	202	346	429	693	2.2	669.2	Willow Creek Trib to Salt	Overbank	0-6"
B	--	--	--	--	--	664.5	Depressional Flooding/Site Specific	Depressional	0-6"
C	197	296	370	445	2.2	734.8	Upper Spring Brook Trib to Salt Creek	Overbank	0-6"
D	642	1040	1264	1800	1.9	683.1	Lower Spring Brook Conf Salt Creek	Overbank	0-12"
E	2110	3090	3502	4490	1.3	678.2	Lower Salt Creek Main Stem 1	Overbank	6-12"
F	115	195	235	328	1.1	704.4	Upper Spring Brook 2 Trib to Salt Creek	Overbank	0-6"
G	62	135	180	296	0.4	701.8	Westwood Creek Trib 1 to Salt Creek	Overbank	0-6"
H	171	282	323	438	0.6	676.2	Westwood Creek Trib 2 to Salt Creek	Overbank	0-6"
I	2267	3350	3857	5240	1	675.5	Lower Salt Creek Main Stem	Overbank	0-12"
J	570	780	850	1000	1.3	687.4	Sugar Creek Trib to Salt Creek	Overbank	6-12"
K	2162	3258	3665	4427	2.5	661.1	Lower Salt Creek Main Stem 2	Overbank	12"+
L	225	350	384	451	1.7	691.1	Bronzewood Creek Trib to Salt	Overbank	0-6"
M	1420	2300	2720	3850	3	691.8	Flagg Creek Trib to Des Plaines River	Overbank	0-6"
N	294	476	566	800	2.1	694.6	Sawmill Creek	Overbank	0-6"
O	885	1150	1435	1820	5.3	680.4	East Branch Main Stem 1	Depressional	0-6"
P	140	235	305	605	2.3	737.7	Armitage Creek Trib to East Branch	Overbank	0-6"
Q	145	218	302	396	1.6	724.1	Tributary #2 East Branch	Overbank	0-6"
R	--	--	--	--	--	707.2	Unnamed Tributary to East Branch	Depressional	0-6"
S	455	730	870	1200	2.7	715.9	Glencrest Creek Trib to East Branch	Overbank	0-6"
T	1810	2510	2900	3880	4.2	663.3	East Branch Main Stem 2	Overbank	0-12"
U	450	720	860	1180	1.6	698.5	Lacey Creek Trib to East Branch	Overbank	0-6"
V	690	1090	1290	1770	2.5	699.8	St Joseph Trib 1 to East Branch	Overbank	0-6"
W	145	195	230	320	1.9	719.5	St Joseph Trib 3 to East Branch	Overbank	12"+

X	155	250	295	405	2.5	727.7	St Joseph Trib 2 to East Branch	Overbank	0-6"
Y	420	665	795	1100	1.4	722.7	Prentiss Creek Trib to East Brnach	Overbank	0-6"
Z	--	--	--	--	--	779.1	Trib #1 West Branch	Depressional	0-6"
AA	445	592	655	947	2.4	748.4	Klein Creek Trib to West Branch	Overbank	6-12"
BB	--	--	--	--	--	760.1	Depressional Flooding/Site Specific	Depressional	0-6"
CC	370	510	590	855	2.1	734	Winfield Creek Trib 1 to West Banch	Overbank	0-6"
DD	430	585	665	935	1.5	713.7	Winfield Creek Trib 2 to West Banch	Overbank	12"+
EE	305	425	490	705	1.3	711.2	West Branch, SpringBrook Trib	Overbank	0-6"
FF	65	140	190	305	0.5	771.8	West Branch Main Stem	Overbank	0-6"
GG	380	540	615	805	2.4	706	Ferry Creek Tributary to West Branch	Overbank	0-6"
HH	3075	4000	4400	5250	3.6	654.2	West Branch Main Stem 2	Overbank	0-6"
II	--	--	--	--	--	708.1	Depressional Flooding/Site Specific	Depressional	0-6"
JJ	54	96	122	185	0.7	657.1	Addison Creek Trib to Salt Creek	Overbank	0-6"

Table 4-50. Repetitive Loss Areas: Land Use Types and Total Properties

Rep Loss Area	Land Use Type					Total Number of Properties
	Single-Family Residential	Multi-Family Residential	Industrial	Commercial	Institutional	
A	-	-	9	-	-	9
B	2	-	-	-	-	2
C	2	-	-	-	-	2
D	4	-	1	-	-	5
E	8	-	-	-	-	8
F	1	-	-	-	-	1
G	2	-	-	-	-	2
H	6	3	-	1		10
I	14	7	-	2	-	23
J	5	-	-	-	-	5
K	26	1	-	3	-	30
L	3	-	-	-	-	3
M	2	-	-	-	-	2
N	2	-	-	-	-	2
O	1	1	-	-	-	2
P	4	-	-	-	-	4
Q	1	-	-	1	-	2
R	3	-	-	-	-	3
S	8	-	-	-	-	8
T	24	-	-	-	-	24
U	3	-	-	-	-	3
V	1	1	-	-	-	2
W	4	-	-	-	-	4
X	5	1	-	-	-	6

Y	2	-	-	-	-	2
Z	1	-	-	-	-	1
AA	21	-	-	-	-	21
BB	2	-	-	-	-	2
CC	3	-	-	1	-	4
DD	7	-	-	-	-	7
EE	12	1	-	1	-	14
FF	3	-	-	-	-	3
GG	1	-	-	-	-	1
HH	3	-	-	-	1	4
II	1	-	-	-	-	1
JJ	9	-	-	-	1	10

Exhibit 4-35. DuPage County Repetitive Loss Areas

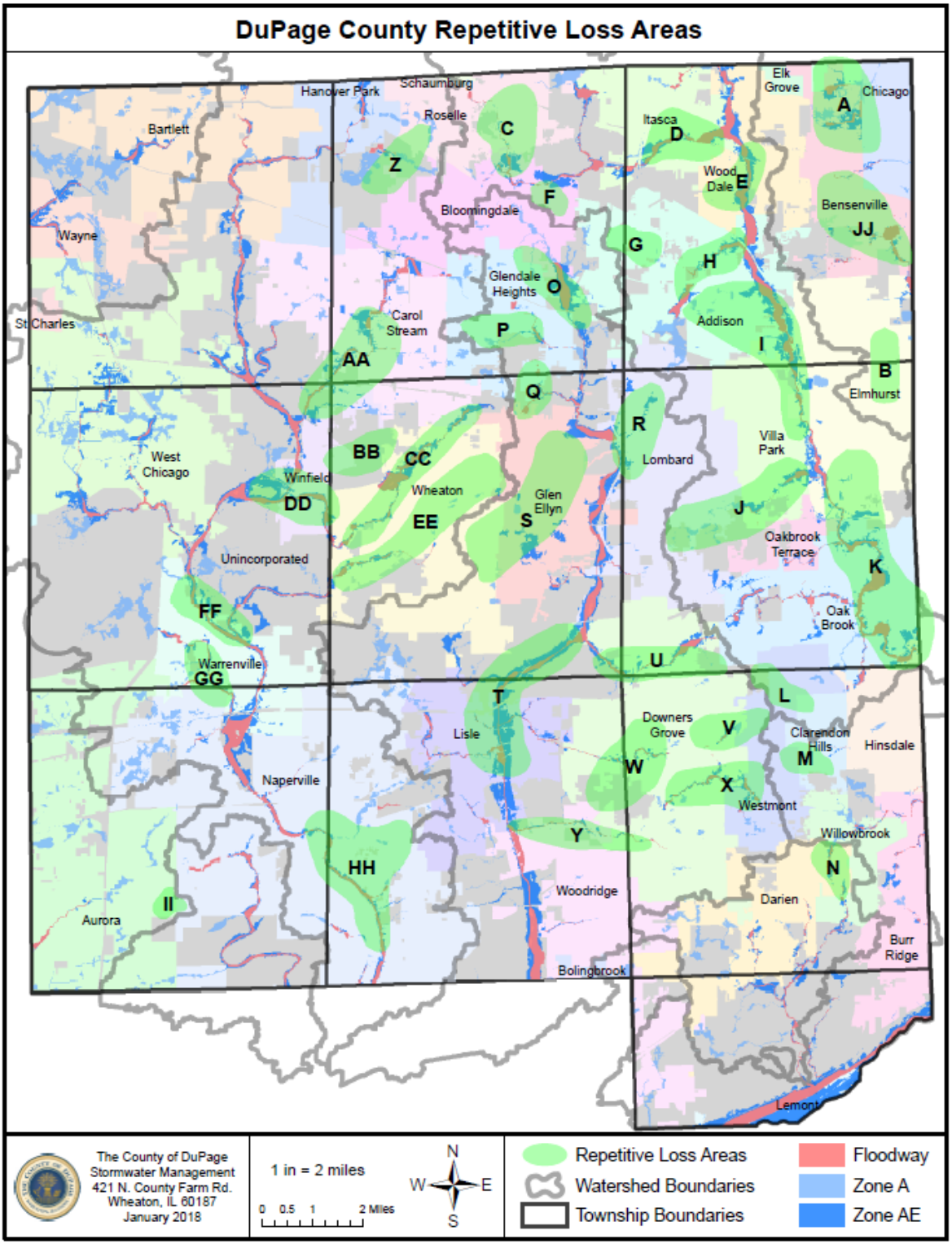


Table 4-51. Policy In Force Table for DuPage County

POLICY IN FORCE TABLE				
County	Community Name (Number)	Policies in Force	Total Coverage	Total Written Premium + FPF
DUPAGE COUNTY	ADDISON, VILLAGE OF (170198)	277	$50,034,900	$163,707
DUPAGE COUNTY	AURORA, CITY OF (170320)	23	$6,676,000	$11,479
DUPAGE COUNTY	BARTLETT, VILLAGE OF (170059)	9	$2,505,000	$4,579
DUPAGE COUNTY	BENSENVILLE, VILLAGE OF (170200)	29	$11,863,000	$29,179
DUPAGE COUNTY	BLOOMINGDALE, VILLAGE OF (170201)	139	$9,096,000	$28,463
DUPAGE COUNTY	BURR RIDGE, VILLAGE OF (170071)	15	$4,518,000	$9,067
DUPAGE COUNTY	CAROL STREAM, VILLAGE OF (170202)	50	$13,010,500	$50,660
DUPAGE COUNTY	CLARENDON HILLS, VILLAGE OF (170203)	18	$4,492,000	$8,589
DUPAGE COUNTY	DARIEN, CITY OF (170750)	68	$19,733,000	$40,560
DUPAGE COUNTY	DOWNERS GROVE, VILLAGE OF (170204)	170	$49,099,000	$137,182
DUPAGE COUNTY	DU PAGE COUNTY* (170197)	417	$82,245,600	$242,174
DUPAGE COUNTY	ELK GROVE VILLAGE, VILLAGE OF (170088)	1	$218,000	$1,260
DUPAGE COUNTY	ELMHURST, CITY OF (170205)	162	$44,669,000	$93,921
DUPAGE COUNTY	GLENDALE HEIGHTS, VILLAGE OF (170206)	12	$3,635,000	$10,456
DUPAGE COUNTY	GLEN ELLYN, VILLAGE OF (170207)	57	$15,831,000	$43,193
DUPAGE COUNTY	HANOVER PARK, VILLAGE OF (170099)	1	$42,000	$256
DUPAGE COUNTY	HINSDALE, VILLAGE OF (170105)	273	$69,744,000	$108,369
DUPAGE COUNTY	ITASCA, VILLAGE OF (170210)	20	$6,706,000	$34,626
DUPAGE COUNTY	LISLE, VILLAGE OF (170211)	255	$59,982,000	$213,354
DUPAGE COUNTY	LOMBARD, VILLAGE OF (170212)	37	$9,379,000	$23,570
DUPAGE COUNTY	LYNDON, VILLAGE OF (170917)	1	$250,000	$452
DUPAGE COUNTY	NAPERVILLE, CITY OF (170213)	285	$74,280,000	$185,781
DUPAGE COUNTY	OAKBROOK TERRACE, CITY OF (170215)	32	$8,083,000	$21,909
DUPAGE COUNTY	OAK BROOK, VILLAGE OF (170214)	58	$21,115,000	$67,500
DUPAGE COUNTY	ROSELLE, VILLAGE OF (170216)	81	$24,419,000	$48,474
DUPAGE COUNTY	Unknown (Unknown)	450	$122,055,000	$442,070
DUPAGE COUNTY	VILLA PARK, VILLAGE OF (170217)	41	$15,627,600	$57,189
DUPAGE COUNTY	WARRENVILLE, CITY OF (170218)	22	$7,126,000	$22,736
DUPAGE COUNTY	WAYNE, VILLAGE OF (170865)	3	$950,000	$1,689
DUPAGE COUNTY	WEST CHICAGO, CITY OF (170219)	15	$8,880,000	$36,871
DUPAGE COUNTY	WESTMONT, VILLAGE OF (170220)	34	$10,242,000	$29,880
DUPAGE COUNTY	WHEATON, CITY OF (170221)	171	$49,107,000	$159,775
DUPAGE COUNTY	WILLOWBROOK, VILLAGE OF (170222)	180	$25,309,200	$34,774
DUPAGE COUNTY	WINFIELD, VILLAGE OF (170223)	33	$8,642,000	$45,627
DUPAGE COUNTY	WOOD DALE, CITY OF (170224)	61	$11,460,000	$35,550
DUPAGE COUNTY	WOODRIDGE, VILLAGE OF (170737)	20	$5,968,000	$12,601
SOURCE: FEMA NFIP: Current as of 2/28/23				

Economy: Flooding can have several different impacts on the economy in DuPage County. One potential impact is damage to businesses and infrastructure. Flooding can damage or destroy buildings, equipment, and inventory, disrupting operations and resulting in significant financial losses for companies. In addition, infrastructure such as roads, bridges, and utilities can also be damaged, which can impede transportation and communication networks and further disrupt the operations of businesses and other economic activity.

Another potential economic impact includes property values and insurance rates. Properties located in flood-prone areas may also decline in value, while insurance rates increase as the risk of flooding increases. This can make it more difficult for homeowners and businesses to secure loans and other forms of financing.

Changes in Development and Impact of Future Development: Per the 2019 DuPage County Strategic Plan, the county continues to prioritize the maintenance of flood control facilities to ensure they offer maximum protection. It also states the goal of making land in DuPage County more conducive to development and better utilized through incentives and flood reduction. Future development is also achieved by providing accurate stormwater and floodplain-related regulatory and zoning information to support effective and efficient development in DuPage County.

Effects of Climate Change on Severity of Impacts: Heavy precipitation leads to riverine flooding and flash floods as the ground fails to absorb the high volume of precipitation that falls in a short period. Increasing annual precipitation contributes to sustained flooding. (Neighborhoods At Risk, 2023).

Exhibit 4-36 illustrates 25-year precipitation projections for DuPage County, while Table 4-52 show future climate indicators for DuPage County.

Exhibit 4-36. 25-Year Precipitation Projections for DuPage County

25-YEAR PRECIPITATION PROJECTIONS FOR DUPAGE COUNTY, IL
HIGHER EMISSIONS (RCP8.5)
DuPage County is expected to experience a 12% increase in heavy precipitation within 25 years.
By 2048, DuPage County is expected to experience 0.6 more days of heavy precipitation per year (from 4.5 days to 5.1 days per year).
LOWER EMISSIONS (RCP4.5)
DuPage County is expected to experience a 1% increase in heavy precipitation within 25 years.
By 2048, DuPage County is expected to experience 0.04 more days of heavy precipitation per year (from 4.59 days to 4.63 days per year).
Source: Neighborhoods at Risk (https://nar.headwaterseconomics.org/)

Table 4-52. Future Climate Indicators for DuPage County

FUTURE CLIMATE INDICATORS FOR DUPAGE COUNTY, IL							
Indicator	**Modeled History** (1976-2005)	**Early Century** (2015-2044)		**Mid Century** (2035-2064)		**Late Century** (2070-2099)	
		Lower Emissions	Higher Emissions	Lower Emissions	Higher Emissions	Lower Emissions	Higher Emissions
	Min-Max	Min-Max	Min-Max	Min-Max	Min-Max	Min-Max	Min-Max

Precipitation:							
Annual Average Total Precipitation	35"	37"	37"	37"	38"	38"	39"
	34-36	34-41	33-41	34-42	33-44	34-43	34-45
Days Per Year With Precipitation (Wet Days)	171 days	169 days	168 days	168 days	167 days	167 days	164 days
	167-175	157-177	153-177	156-178	148-180	157-178	129-183
Maximum Period of Consecutive Wet Days	11 days	10 days	10 days	10 days	11 days	10 days	10 days
	10-13	9-12	9-12	9-12	9-12	9-12	9-13
Annual Days With:							
Annual Days With Total Precipitation > 1 inch	4 days	5 days	5 days	5 days	5 days	5 days	6 days
	3-4	3-6	4-5	4-6	4-7	4-7	4-9
Annual Days With Total Precipitation > 2 inches	0 days	0 days	0 days	0 days	1 day	1 day	1 day
	0-0	0-1	0-1	0-1	0-1	0-1	0-2
Annual Days With Total Precipitation > 3 inches	0 days	0 days	0 days	0 days	0 days	0 days	0 days
	0-0	0-0	0-0	0-0	0-0	0-0	0-0
Annual Days That Exceed 99th Percentile Precipitation	5 days	6 days	6 days	7 days	7 days	7 days	8 days
	5-6	6-8	6-8	6-8	7-9	6-8	8-10
Days With Maximum Temperature Below 32°F	40 days	30 days	29 days	25 days	23 days	21 days	12 days
	36-43	17-40	21-37	14-36	12-32	10-32	3-25
Source: Climate Mapping for Resilience and Adaptation (2023)							

Key conclusions from the 2020 Environmental Summit on the local impact of climate change on rainfall, flooding, permitting, and water quality in DuPage County provided the following (DuPage County, 2023):

- Significant storm events producing heavy precipitation are happening more frequently and more intensely.
- Flood Control Facility operations are happening more frequently, leading to increased costs, energy usage, maintenance, etc.
- Urban flooding will become more prevalent, with the burden primarily falling on the property owner.
- Updated rainfall studies may lead to more expansive floodplains/floodways with regulatory and permitting implications.
- Increased stormwater runoff leads to further pollution, erosion, and eutrophication of waterways.

Jurisdiction-specific Hazard Impact/Vulnerability: *Only those jurisdictions uniquely affected by riverine and urban/flash flooding are included. If a jurisdiction was not included, it denotes the hazard impact or vulnerability to riverine and urban/flash flooding is not significant and/or is adequately addressed at the county level. Jurisdictions completed the following form as part of the plan update:* https://integratedsolutions.wufoo.com/forms/dupage-county-natural-hazards/

Table 4-53. DuPage County Jurisdiction-specific Hazard Impact/Vulnerability

Jurisdiction	Affected Jurisdictions' Hazard Impact/Vulnerability Considerations
Village of Glendale Heights	James Court and Pearl Ave intersection has repeatedly flooded and caused property damage to residents due to storms that were assessed to be less than 1 in 5-year storms.
Village of Glen Ellyn	Glen Ellyn has many depressional areas located throughout the village. Many of these depressional areas are situated on private property in residential areas where there has been an increase in teardown developments in the last ten years. The Village has identified about 150 depressional areas. The Village has intersections that are susceptible to street flooding due to several factors, including undersized storm sewers and the natural topography of the area. Taft Avenue - multiple locations (floodplain areas); Hill Avenue west of Lorraine; area downstream of Lake Ellyn; Elm/Chidester at EBDR; 200 block of Anthony; area east of Village Links (S. Parkside, Lowden, Dawes, Coolidge); Duane and Prospect; Hillside and Taylor; S. Park Boulevard near Raintree; Euclid north of Oak; Summerdale west of Park; Roosevelt Rd (R38) east of Nicoll Way (State jurisdiction).
Village of Bensenville	Bensenville is an established community with drainage systems dating back to the early to mid-1900s. Many of these systems are undersized due to the growth of the community, intensity changes in rainfall patterns, and storm frequency changes. The Village has undertaken a comprehensive study of its local flooding issues in 2015, and those recommendations were included in the previous plan. The Village is working to implement capital projects that reduce local flooding, following the projects identified in the master plan, as funding allows.
City of Oakbrook Terrace	A tributary of Salt Creek runs through Oakbrook Terrace's main residential subdivision (located south of RT 56 and north of 22nd, east of Midwest and west of Rt 83), and basically has only one outfall. If trees/brush fall due to natural hazards, the outfall could become blocked and back up the tributary which would lead to major flooding. This area is just north of 1S550 RT 83, Villa Park, IL 60181.
City of West Chicago	The city was affected by flooding in the past. All neighborhoods were affected by flooding to some degree.
City of Wheaton	Locations include several flood-prone areas identified by FEMA, along with the Central Business District, all retention and detention facilities, storm outfalls, and Lakes 1, 2, 3, and 4 for stormwater retention.
City of Warrenville	The city has the West Branch DuPage River that floods along with various large tributaries. A few businesses and homes are within the 100-year floodplain. The city has worked with the county to remove structures from the floodplain. For urban/flash flooding, the intersection of Batavia Road and Route 59 has flash flooding issues as the storm sewer network is undersized, as well as Mack Road west of the West Branch DuPage River. The city is currently working to mitigate these issues.
Village of Roselle	Three specific basins within the Village have been identified as flood prone.
Village of Westmont	The village has several intersections that flood during flash flood situations. The village also has several ponds and creeks that have a past history of overflowing

	the normal banks that hold the water, and as a result, floods the roads and need to be closed until the water recedes.
Village of Addison	Higher volume roads, such as Mill Rd at Westwood Creek, Diversey Av/LaLonde Av, and Fullerton Av/Villa Av in the Village get flooded and become impassable under flood-stage conditions. South Addison Rd is not in the floodplain, but due to its topography and being a localized depressional area, the storm sewer may be under capacity. As a result, the road becomes impassible and causes flooding to adjacent properties.
Village of Carol Stream	Important village-owned roadways that are susceptible to flooding and that are not shown in Zone A or AE on the current FEMA FIRM include: (1) Lies Road just e/o County Farm Rd, (2) Kuhn Road and Birchbark Trail, (3) Main Place and Gundersen Drive; (4) Gundersen Drive just e/o Schmale Road.
Village of Itasca	The Village of Itasca has had severe flooding on a few occasions. Flood mitigation was completed a few years ago and plans are being made to do more mitigation. The northern part of the village has a retention pond that was dug out and had larger storm drains installed. The southern part of the village is controlled by the floodgates located in Wood Dale. The Schiller St retention pond will be enlarged within the next few years.
Village of Hanover Park	Flooding has been experienced at Barrington/Irving Park Road, Highlands subdivision, and Schick Road. The stormwater system is over 50 years old like many other communities in DuPage County.
Village of Villa Park	The Village of Villa Park has two waterways (Salt Creek and Sugar Creek) which intersect the village. The village therefore has floodplain and floodway areas associated with both of those waterways that also intersect portions of the village. Additionally, an area of the village that is effectively the lowest portion of the village abutting Salt Creek (the intersection of Wildwood Avenue and Monterey Avenue) repeatedly floods in heavy rain events.
Village of Winfield	The Village of Winfield has Winfield Creek and the West Branch of the DuPage River. Winfield Creek frequently overflows and has occasionally reached residential homes on Liberty Street, as well as, a commercial building on Church Street. In the past, it has topped Winfield Road, a main road in the Village. The West Branch of the DuPage River has flooded Shady Way and River Road, flooding intersections and making travel difficult.

FEMA NRI Expected Annual Loss Estimates

Table 4-54. DuPage County Expected Annual Loss Table

DUPAGE COUNTY, IL FEMA NRI EXPECTED ANNUAL LOSS TABLE FOR FLOODING EVENTS							
Annualized Frequency	**Population**	**Population Equivalence**	**Building Value**	**Agriculture Value**	**Total Value**	**Expected Annual Loss Score**	**Expected Annual Loss Rating**
2.7	0.60	$4,568,662	$1,482,780	$8,836	$6,060,278	22.96	Relatively High
Annualized Frequency: *The natural hazard annualized frequency is defined as the expected frequency or probability of a hazard occurrence per year. Annualized frequency is derived either from the number of recorded hazard occurrences each year over a given period or the modeled probability of a hazard occurrence each year.* ***Population:*** *Population exposure is defined as the estimated number of people determined to be exposed to a hazard according to a hazard type-specific methodology.* ***Expected Annual Loss*** *scores are calculated using an equation that combines values for exposure, annualized frequency, and historic loss ratios (Expected Annual Loss = Exposure × Annualized Frequency × Historic Loss Ratio). Source: hazards.fema.gov/nri/expected-annual-loss*							
Source: FEMA National Risk Index (2023)							

FEMA Hazard-Specific Risk Index Table

Table 4-55. DuPage County Hazard Specific Risk Index Table

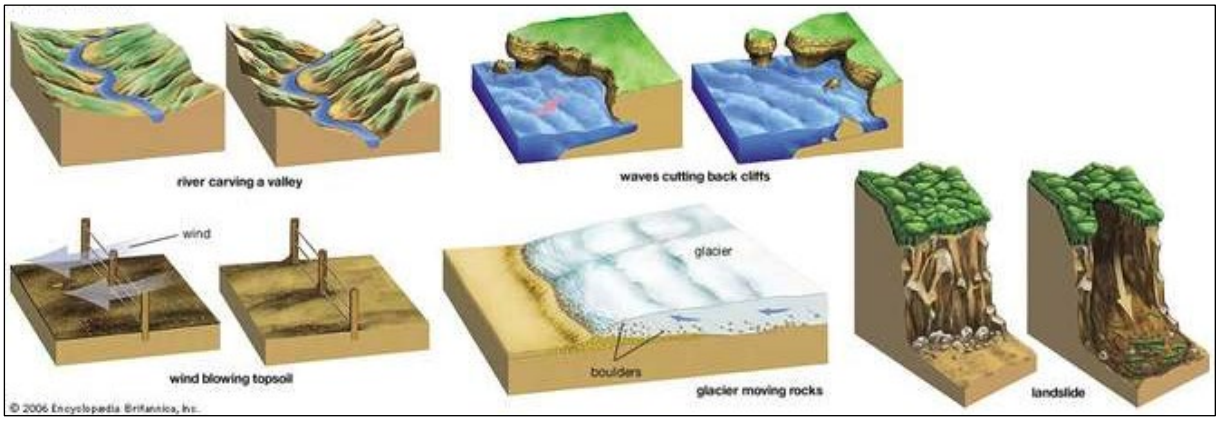
DUPAGE COUNTY, IL FEMA HAZARD SPECIFIC RISK INDEX – FLOODING	
Risk Index Score	**Risk Index Rating**
10.06 / 100	Relatively Low
*FEMA Hazard-Type **Risk Index Scores** are calculated using data for only a single hazard type and reflect a community's relative risk for only that hazard type.* *FEMA Hazard-Type **Risk Index Ratings** are a qualitative rating that describe the community in comparison to all other communities at the same level, ranging from "Very Low" to "Very High."*	
Source: FEMA National Risk Index (2023)	

4.9 Ground Failure

Hazard Description

Ground failure refers to a disturbance within the ground, usually caused by shaking from an earthquake, erosion, sinkhole, or a man-made cause, which creates instability. Examples of ground failure include landslides, liquefaction, erosion, and sinkholes. A landslide is the force of rocks, soil, and debris moving down a slope and debris flows (mudflows) are rock, earth, and other debris saturated with water which changes into a flowing river of mud (IEMA, 2018). Liquefaction is a process by which water-saturated sediment temporarily loses strength and acts as a fluid (USGS, 2023). Erosion is the removal of surface material from Earth's crust, primarily soil and rock debris, and the transportation of the eroded materials by natural agencies (such as water or wind) from the point of removal (Britannica, 2023). Exhibit 4-37 shows how erosion can occur (Britannica, 2023).

Exhibit 4-37. Types of Erosion



A sinkhole is a depression in the ground that has no natural external surface drainage. However, when it rains, all the water stays inside the sinkhole and typically drains into the subsurface (USGS, 2023). The term "karst" refers to a landscape that typically is pockmarked with sinkholes, may be underlain by caves, and has many large springs that discharge into stream valleys. Karst landscapes form when water from rain and snow melt seeps through a relatively thin soil cover and into a fractured and

soluble bedrock (limestone or dolostone) (ISGS, 2023). Exhibit 4-38 depicts where karst landscapes exist within Illinois, and Exhibit 4-39 illustrates this process (ISGS, 2023).

Exhibit 4-38. Karst Landscape in Illinois

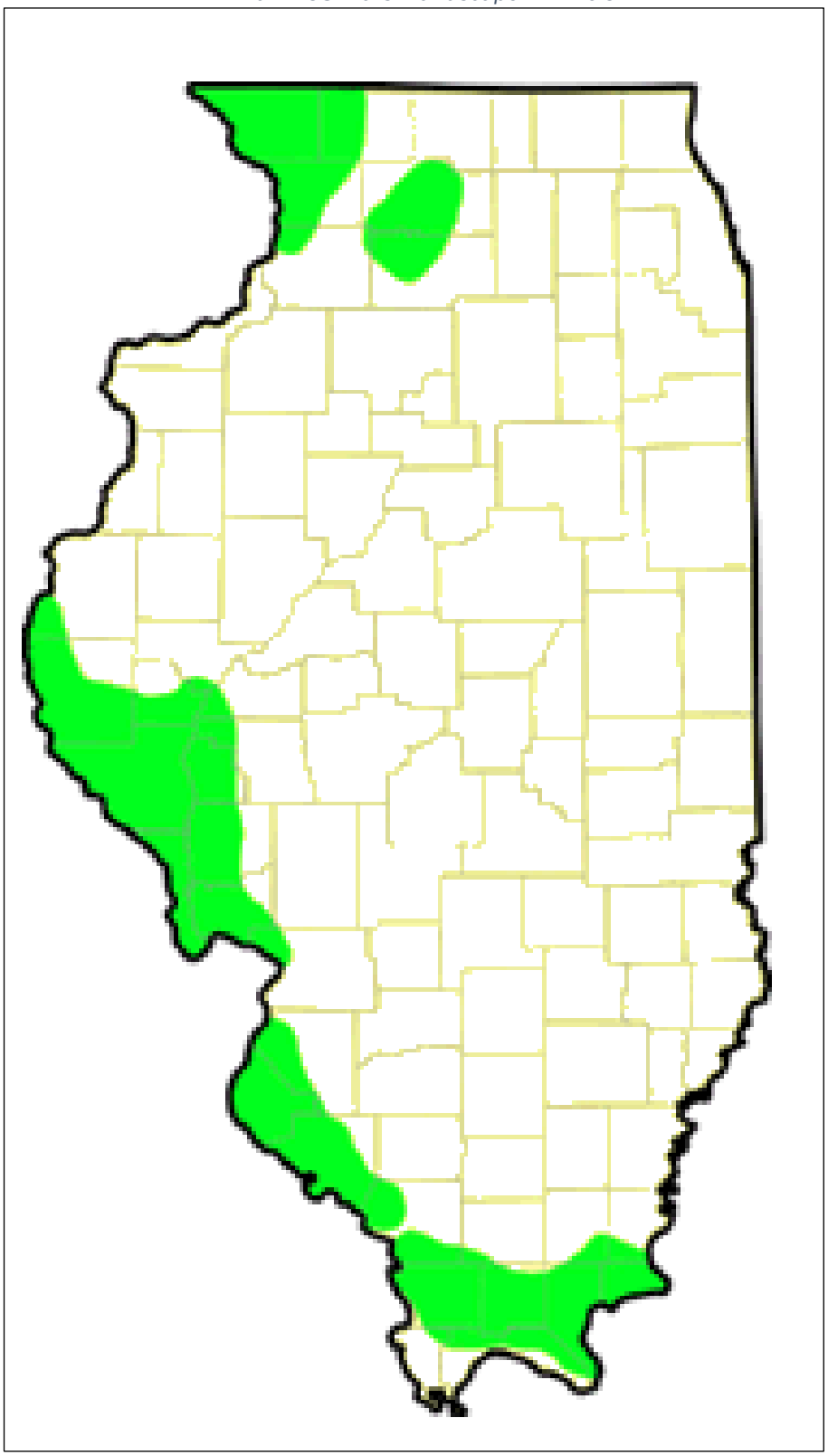
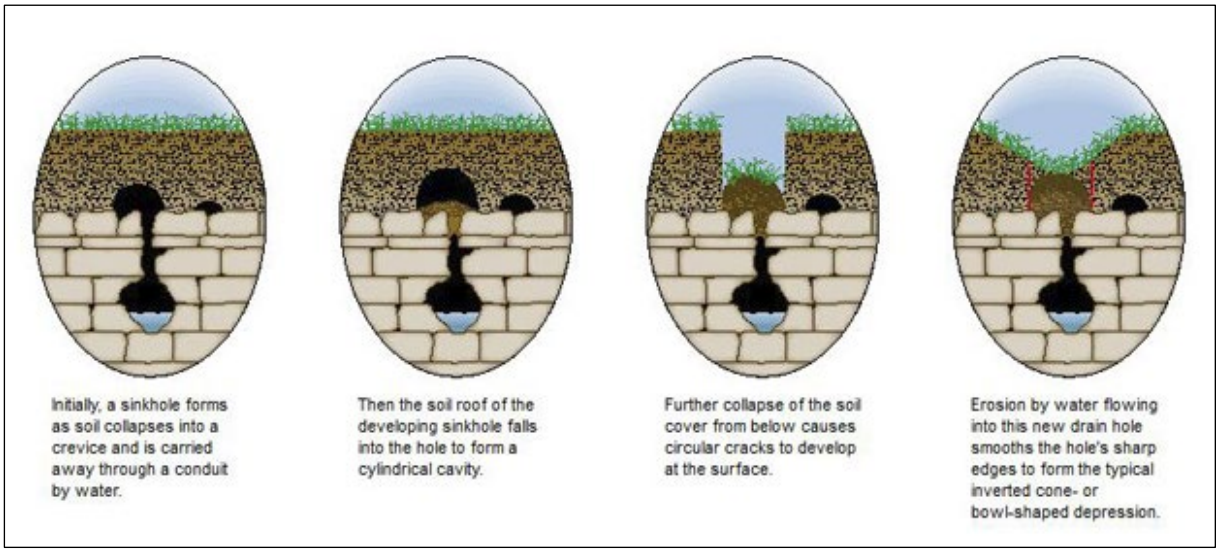


Exhibit 4-39. How A Sinkhole Forms



Hazard Location

Ground failure could occur anywhere in DuPage County but is more likely near streams and rivers.

Hazard Extent/Intensity

The magnitude and extent of ground failure can vary significantly. However, ground failure incidents in DuPage County are typically localized and minor.

Probability and Frequency

While the State of Illinois does not record erosion as a risk for DuPage County, as is the case for many other types of erosion (e.g., coastal erosion), DuPage County is and will continue to be at risk for low to moderate erosion. In addition, as previously described, the soil composites primarily responsible for sinkholes within the Midwest are not found within DuPage County. Therefore, a naturally occurring sinkhole is unlikely. However, sinkholes can form due to a pipe leak over an extended period. This scenario has a low to moderate risk of occurring within the county. Finally, given DuPage County's high urban composition and relatively flat topography, DuPage County is at a low to no chance of experiencing a landslide.

Past Events

Illinois does not have a state-wide reporting system for landslides (IEMA, 2018). Therefore, DuPage County could not find any historical records of landslides; the same is true for sinkholes. In addition, no data has been found regarding liquefication. While never extreme, DuPage County's streambanks have experienced erosion in the past; an example includes St. Joseph's Creek Watershed.

Vulnerability and Impacts

Life Safety and Health: Life safety risks, such as injuries, are possible if an individual is involved in a ground failure. An example may include a vehicle collision if a roadway is affected. In addition, if a ground failure involves water, the water may be contaminated. Therefore, anyone exposed to contaminated water may be at risk for disease.

Property Damage and Critical Infrastructure: When attempts to stabilize eroded stream banks fail, they often adversely affect nearby properties. Before any stream bank stabilization project is initiated, the property owner should seek professional guidance on stream bank stabilization techniques and information on floodplain and wetland permits (DuPage County, 2023). On a larger scale, ground failure can cause damage to infrastructures, such as roadways, bridges, building foundations, dams, and levees, which can lead to disruption of critical services and life safety threats.

Economy: No data exists demonstrating the economic impact of ground failure events on DuPage County. However, past ground failure events have impacted infrastructure such as roads, bridges, and utility systems, which can be costly to the local economy.

Changes in Development and Impact of Future Development: No data exists demonstrating the impact of ground failure on recent development and future development in DuPage County. However, ground failure can impact future development in areas with a risk of sinkholes, erosion, or other types of ground instability.

Effects of Climate Change on Severity of Impacts: No data exists demonstrating the impact of climate change on the severity of ground failure in DuPage County. However, more frequent and intense precipitation events can lead to (Local Impact of Climate Change, 2020):

- Rainwater is carried quickly to streams, especially in urban areas with storm sewer systems.
- Streambank erosion and channelization.
- It increased sediment load and turbidity.

Jurisdiction-specific Hazard Impact/Vulnerability: *Only those jurisdictions uniquely affected by ground failure are included. If a jurisdiction was not included, it denotes the hazard impact or vulnerability to ground failure is not significant and/or is adequately addressed at the county level. Jurisdictions completed the following form as part of the plan update:* https://integratedsolutions.wufoo.com/forms/dupage-county-natural-hazards/

Table 4-56. DuPage County Jurisdiction-specific Hazard Impact/Vulnerability

Jurisdiction	Affected Jurisdictions' Hazard Impact/Vulnerability Considerations
Village of Glendale Heights	Armitage Creek Reaches 13 and 14 embankments have receded back, and erosion is continuing to occur. There are existing utilities that are being compromised by the streambank erosion. There is a village-owned and maintained sanitary sewer manhole that is exposed along Reach 13. This manhole is critical infrastructure along a truck sanitary sewer, 24" diameter carrying sewage directly to the wastewater treatment plant. The streambank

	erosion has positioned this structure where it is inaccessible for maintenance and at risk of complete failure.
Village of Glen Ellyn	There are areas in Glen Ellyn where streambank erosion is an issue. Most of these are located along creeks and the East Branch of the DuPage River. Most of the East Branch of the DuPage River flows through properties owned by the Forest Preserve District, the Glen Ellyn Park District, and ComEd. Glen Crest Creek, east of Illinois Route 53, is of particular concern; the creek flows through private residential properties and has steep eroded banks with mature trees. Erosion can cause trees to fall within the creek which can potentially obstruct flows and cause flooding of adjacent homes and properties. Just south of Roosevelt Road, there is an asphalt path along the west side of the East Branch of the DuPage River. The area around this path has eroded, compromising the path.
City of Wheaton	Locations include Winfield Creek property lines and all other waterways in the City of Wheaton.
Village of Westmont	Erosion has occurred around some of the creeks and ponds in the community. One of the ponds in the area was rebuilt in 2022 to accommodate this issue (63rd Street and Richmond Avenue).

FEMA NRI Expected Annual Loss Estimates and Hazard-Specific Risk

The FEMA NRI does not assess ground failure.

4.10 High-Hazard Dams and Levees

Hazard Description

A dam is a barrier constructed across a watercourse for water storage, control, or diversion. Dams are typically built of earth, rock, concrete, or mine tailings.

Levees are built to hold back flood waters only up to some maximum level, often the 100-year (1% annual probability) flood event. When that maximum is exceeded by more than the design safety margin, the levee will be overtopped or otherwise fail, inundating communities in the land previously protected by that levee. It has been suggested that climate change, land-use shifts, and some forms of river engineering may increase the magnitude of large floods and the frequency of levee failure situations.

Dam Failure:

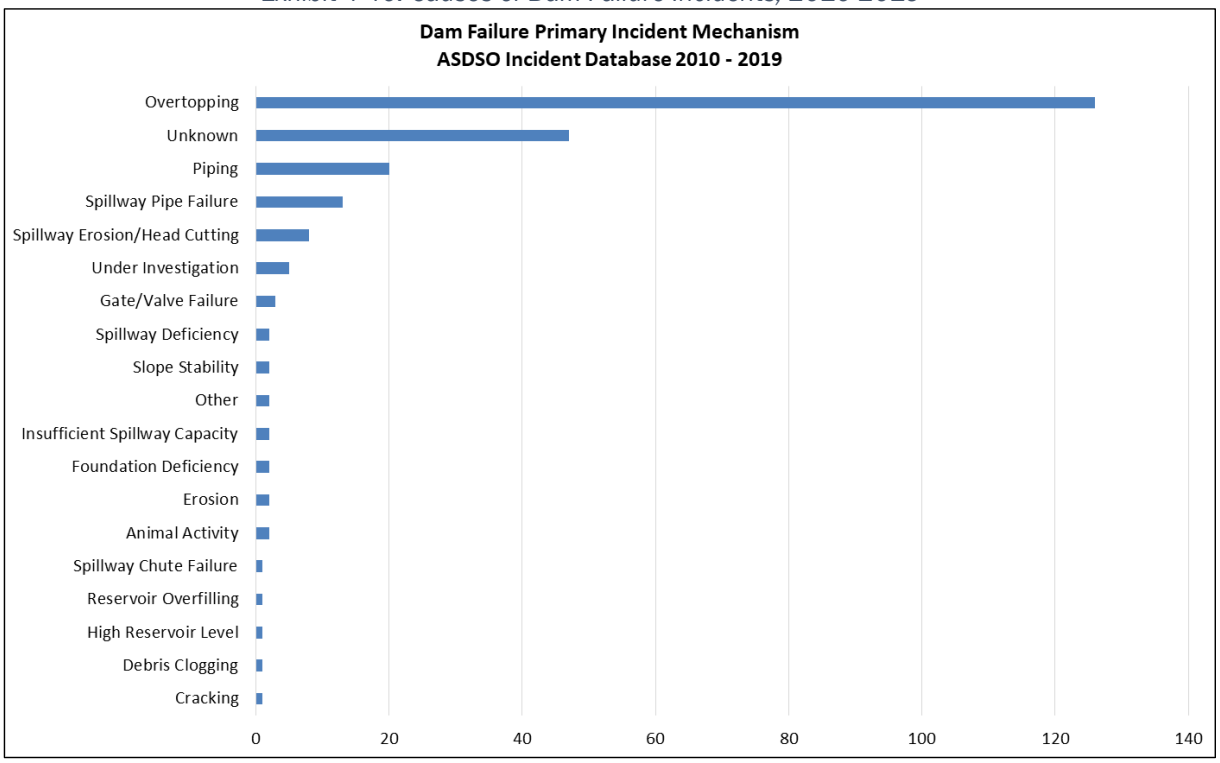
The sudden rapid and uncontrolled release of impounded water or liquid-borne solids characterizes failure. However, it is recognized that there are lesser degrees of failure and that any malfunction or abnormality outside the design assumptions and parameters that adversely affect a dam's primary function of impounding water could be considered a failure.

The Causes of Dam Failure: Dam failures are most likely to happen for one of five reasons (ASDSO, 2023):

1. Overtopping is caused by water spilling over the top of a dam. Overtopping of a dam is often a precursor of dam failure. For example, national statistics show that overtopping due to inadequate spillway design, debris blockage of spillways, or

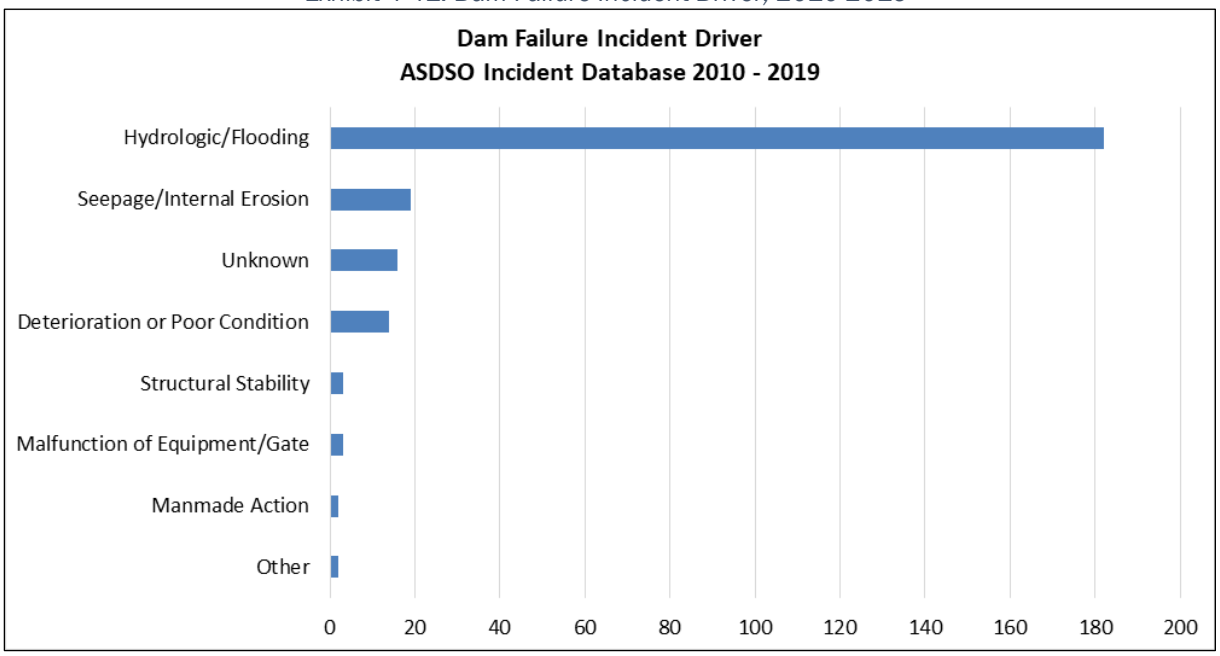
settlement of the dam crest account for approximately 34% of all U.S. dam failures.
2. Foundation defects, including settlement and slope instability, cause about 30% of all dam failures.
3. Cracking is caused by movements like the natural settling of a dam.
4. Inadequate maintenance and upkeep.
5. Piping is when seepage through a dam is not adequately filtered, soil particles continue to progress and form sinkholes in the dam. Another 20% of U.S. dam failures have been caused by piping (internal erosion caused by seepage). Seepage often occurs around hydraulic structures, such as pipes and spillways; through animal burrows; around roots of woody vegetation; and through cracks in dams, dam appurtenances, and dam foundations.

*Exhibit 4-40. Causes of Dam Failure Incidents, 2010-2019***



*** From the ASDSO Dam Incident Database, dam failure incidents for 2010 through 2019. Incident data is mainly obtained from the state dam safety programs and/or media reports. Therefore, the incident data is not inclusive of all dam safety incidents.*

Exhibit 4-41. Dam Failure Incident Driver, 2010-2019



Levees and Levee Failure:

Failure can be grouped into six main failure mechanisms: bearing failure, sliding failure, slump or spreading failure, seepage failure, erosion failure, and overtopping (Moss and Eller, 2007). Although, when the water level exceeds the design standard for the level, it is not strictly a failure. Many levees have been constructed to meet the criteria for a 1% annual chance flood (a.k.a. 100-year flood). These levees are not designed to withstand a more significant event, which may occur less frequently, but is expected to occur.

In Illinois, there are 2,923 levee structures and 576 levee systems totaling 1,951 miles of levees. The average age of levees in the U.S. is 55 years, and in Illinois, the average age is 64.

In DuPage County, there are 13 Levee Systems totaling four miles of levees. The reported average age of the levee structures was not available, thus making the age data insufficient for any insight regarding the age of DuPage County levees.

Location

Dams:

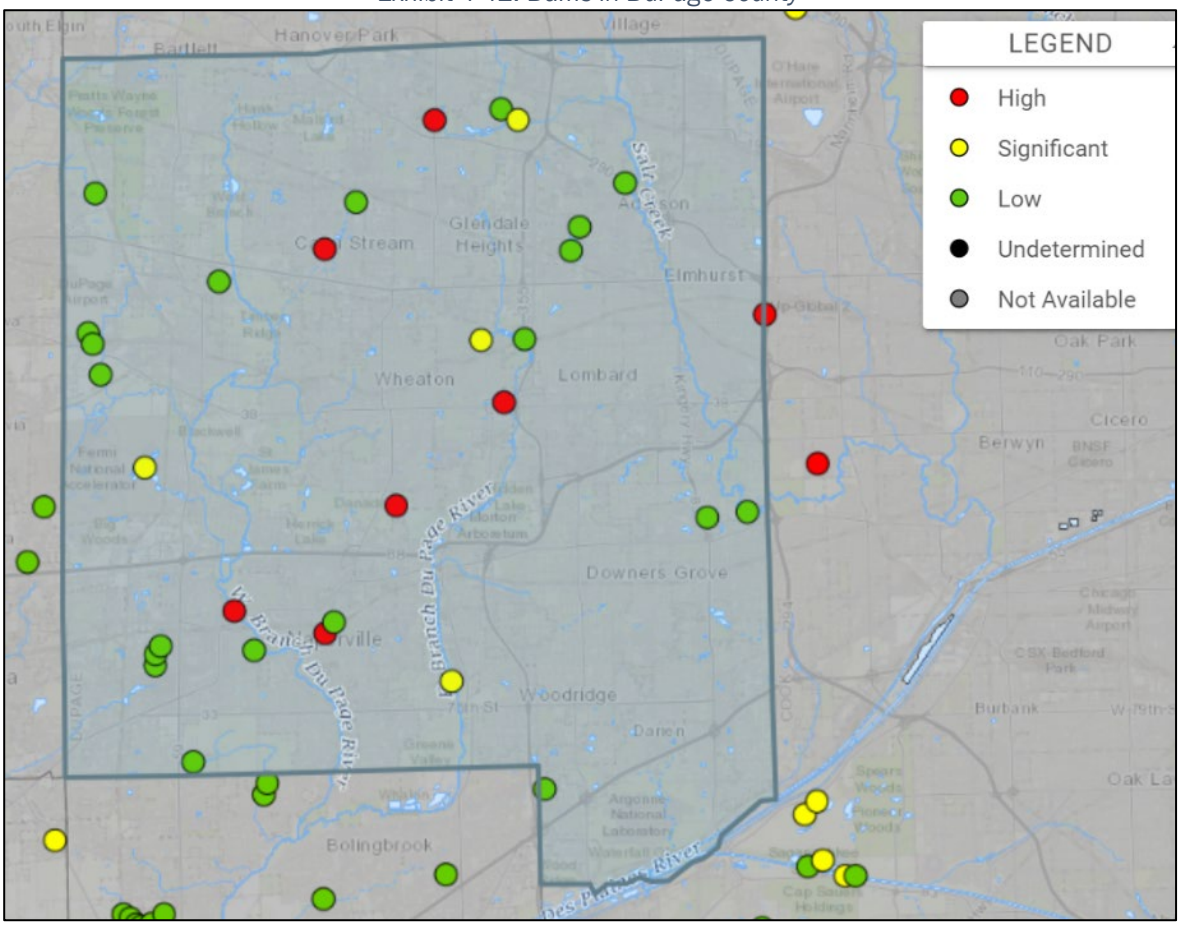
There are 29 state-regulated dams and one federally-regulated dam in DuPage County, as listed in Table 4-57 below. Ten of these dams are classified as “high” or “significant” risk, which means they have sufficient downstream populations to warrant the classification. Exhibit 4-42 illustrates a map of these dams.

Table 4-57. List of Dams within DuPage County

Name	National ID#	Location	Owner	Year Built	Primary Purpose	Height (feet)	Storage Capacity (acre-feet)	Max Discharge (cubic feet/sec)	Hazard Potential Classification
Fawell Dam	IL01236	DuPage, Illinois	DuPage County	1972	Flood Risk Reduction	26	3,172	23,577	High Risk
Baker Hill Detention Basin Dam	IL55014	DuPage, Illinois	Baker Hill Condo Association	1999	Flood Risk Reduction	23	24	-	High Risk
Armstrong Park Flood Control Reservoir Dam	IL55159	DuPage, Illinois	DuPage County	-	Flood Risk Reduction	22	114	-	High Risk
Rice Lake Dam	IL50219	DuPage, Illinois	Forest Preserve District of DuPage County	1991	Flood Risk Reduction, Recreation	13	660	14,887	High Risk
Meacham Grove Main Dam	IL50364	DuPage, Illinois	Forest Preserve District of DuPage County	1998	Flood Risk Reduction	11	131	5,550	High Risk
Country Commons Park Basin Dam	IL55103	DuPage, Illinois	DuPage Park District	2004	Flood Risk Reduction	8	54	-	High Risk
Hobson Road Dam	IL50139	DuPage, Illinois	Village of Woodridge	1991	Flood Risk Reduction	20	660	5,000	Significant Risk
Lake Law Dam	IL01166	DuPage, Illinois	U.S. Department of Energy	1971	Flood Risk Reduction	20	1,500	-	Significant Risk
Lake Kadijah Dam	IL00437	DuPage, Illinois	Medinah Country Club	1924	Water Supply	15	309	-	Significant Risk
Lake Ellyn Dam	IL50298	DuPage, Illinois	Glen Ellyn Park District	1991	Recreation	12	96	28	Significant Risk
Westwood Creek Dam	IL50336	DuPage, Illinois	Village of Addison	1996	Flood Risk Reduction	16	50	-	Low Risk
DuPage Airport Lower Dam	IL50205	DuPage, Illinois	DuPage County Airport Authority	1992	Flood Risk Reduction	15	90	550	Low Risk
DuPage Airport Upper Dam	IL50203	DuPage, Illinois	DuPage County Airport Authority	1993	Flood Risk Reduction	15	450	340	Low Risk
Kress Creek Regional Flood Control Dam	IL55143	DuPage, Illinois	DuPage County	2006	Flood Risk Reduction	15	250	1,136	Low Risk
Gw60 Dam	IL55055	DuPage, Illinois	DuPage County Department of Transportation	-	Flood Risk Reduction, Fish and Wildlife Pond	14	558	-	Low Risk
Old Plank Park Basin Dam	IL55145	DuPage, Illinois	City of Naperville	-	Flood Risk Reduction	10	75	870	Low Risk

Stark Farm Dam	IL50287	DuPage, Illinois	Carol Stream Partners, Inc.	1992	Flood Risk Reduction	10	152	600	Low Risk
Bush Hill Dam	IL55106	DuPage, Illinois	Forest Preserve District of DuPage County	-	Recreation	9	50	-	Low Risk
Medina Country Club Meacham Creek Dam	IL55137	DuPage, Illinois	Medinah Country Club	-	Recreation	9	50	1,200	Low Risk
Reservoir 54 Dam	IL55018	DuPage, Illinois	Gallagher and Henry	2002	Flood Risk Reduction	9	100	-	Low Risk
Spring Brook Gabion Dam	IL50042	DuPage, Illinois	City of Naperville	1984	Flood Risk Reduction, Recreation	9	89	1,047	Low Risk
Meridian Campus Liberty Road Dam	IL50279	DuPage, Illinois	Duke Realty Corporation	1993	Recreation	9	60	320	Low Risk
Skylane Drive Dam	IL50371	DuPage, Illinois	Naperville Park District	1998	Flood Risk Reduction	9	65	227	Low Risk
Meridian Campus Lake 7 Dam	IL50278	DuPage, Illinois	Duke Realty Corporation	1993	Recreation	9	70	570	Low Risk
Van Der Molen Dam	IL50012	DuPage, Illinois	Forest Preserve District of DuPage County	1984	Flood Risk Reduction	8	99	571	Low Risk
Churchill Woods Dam	IL55144	DuPage, Illinois	Forest Preserve District of DuPage County	-	Recreation	7	420	-	Low Risk
Fullerton Industrial Park Dam	IL50223	DuPage, Illinois	Forest Preserve District of DuPage County	1968	Flood Risk Reduction	7	100	677	Low Risk
Fullersburg Dam	IL50289	DuPage, Illinois	Forest Preserve District of DuPage County	1934	Recreation	7	80	4,000	Low Risk
Corner Stone Lakes Dam	IL55019	DuPage, Illinois	Town and Country Homes	2000	Flood Risk Reduction	7	200	-	Low Risk

Exhibit 4-42. Dams in DuPage County



Levees:

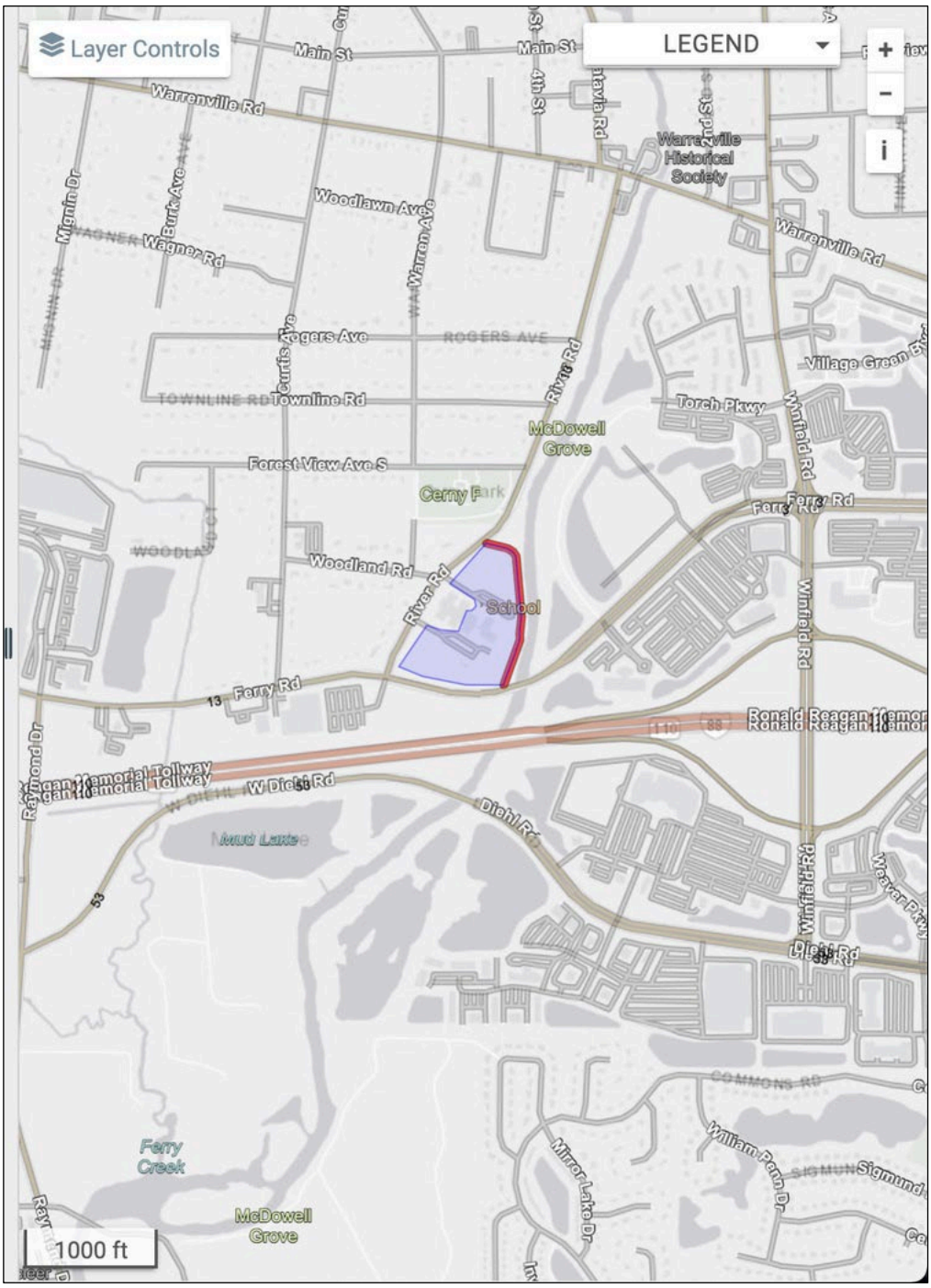
Table 4-58 and subsequent exhibits identify all levees and their location in DuPage County.

Table 4-58. List of Levees within DuPage County

Name	System ID#	Location	Levee Safety Action Classification	People at Risk (protected by Levee)	Structures at Risk (protected by Levee)	Property Value	Total Miles	Length of Embankment (miles)	Length of Floodwall (miles)
Bower School Berm Levee	1505901414	Warrenville, DuPage County, Illinois	Not Screened	0	4	$0	0.23	0.23	0
East Branch DuPage River (EBEB) 1	1505901401	Lisle, DuPage County, Illinois	Not Screened	0	0	$0	0.03	0.03	0
East Branch DuPage River (EBEB) 10	1505901410	Lisle, DuPage County, Illinois	Not Screened	3	1	$327,000	0.44	0.44	0

East Branch DuPage River (EBEB) 2	1505901402	Lisle, DuPage County, Illinois	Not Screened	48	20	$10,300,000	0.34	0.34	0
East Branch DuPage River (EBEB) 3	1505901403	Lisle, DuPage County, Illinois	Not Screened	113	51	$27,600,000	0.52	0.52	0
East Branch DuPage River (EBEB) 4	1505901404	Lisle, DuPage County, Illinois	Not Screened	11	1	$595,000	0.24	0.24	0
East Branch DuPage River (EBEB) 5	1505901405	Lisle, DuPage County, Illinois	Not Screened	108	49	$21,700,000	0.22	0.22	0
Branch DuPage River (EBEB) 6	1505901406	Lisle, DuPage County, Illinois	Not Screened	23	12	$4,750,000	0.22	0.22	0
Branch DuPage River (EBEB) 7	1505901407	Lisle, DuPage County, Illinois	Not Screened	6	4	$1,070,000	0.04	0.04	0
Branch DuPage River (EBEB) 8	1505901408	Lisle, DuPage County, Illinois	Not Screened	39	12	$5,570,000	0.04	0.04	0
Branch DuPage River (EBEB) 9	1505901409	Lisle, DuPage County, Illinois	Not Screened	1	1	$13,100,000	0.24	0.24	0
Elmhurst Levee	1505001270	Elmhurst, DuPage County, Illinois	Not Screened	650	134	$111,000,000	0.16	0.09	0.07
Elmhurst Levee	1505000782	Elmhurst, DuPage County, Illinois	Not Screened	4,697	1,742	$932,000	0.86	0.77	0.09

Exhibit 4-43. Bower School Berm Levee



Safety Action Classification: Not Screened

Exhibit 4-44. East Branch DuPage River (EBEB) 1

Safety Action Classification: Not Screened

Exhibit 4-45. East Branch DuPage River (EBEB) 10

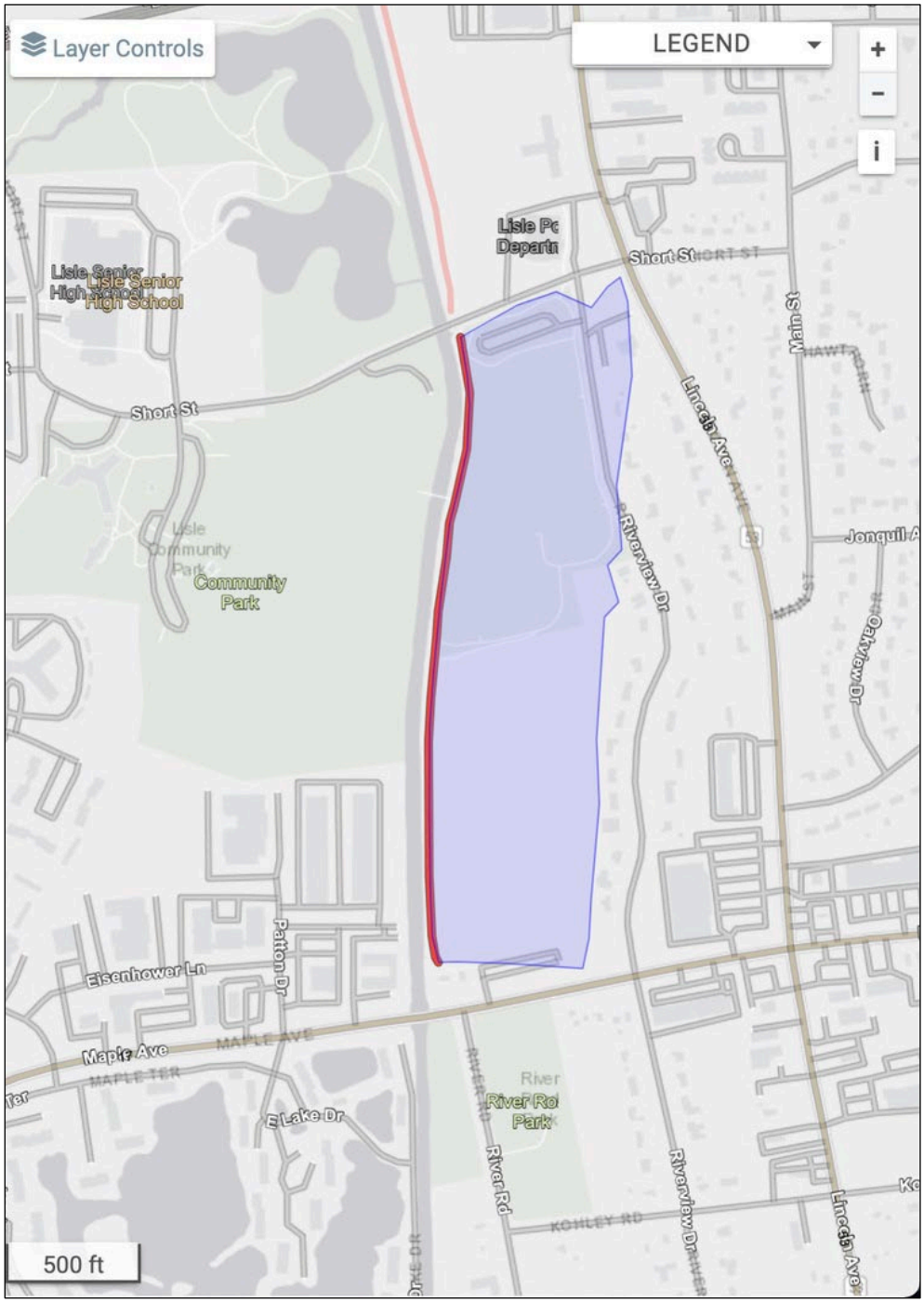


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Exhibit 4-46. East Branch DuPage River (EBEB) 2

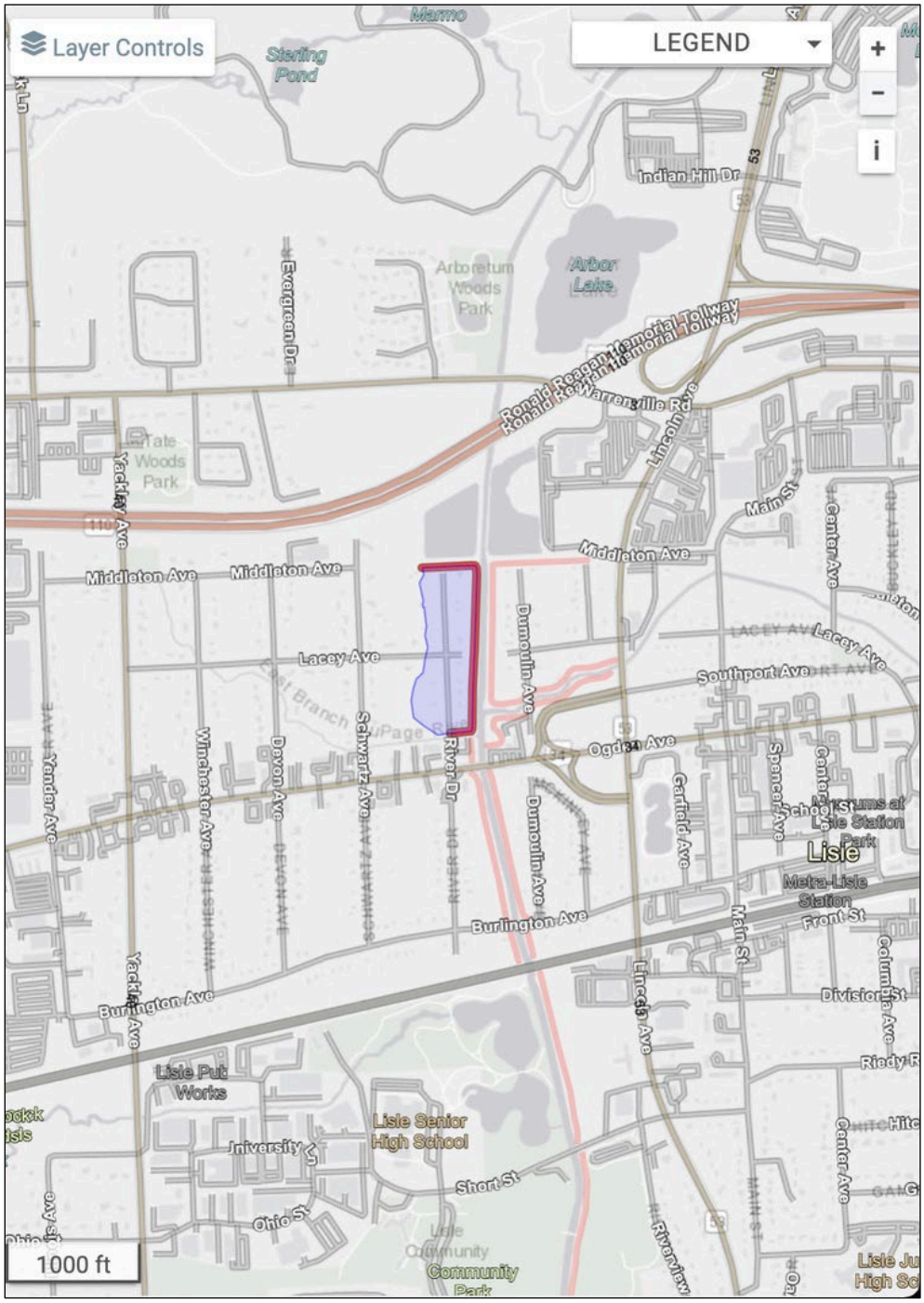

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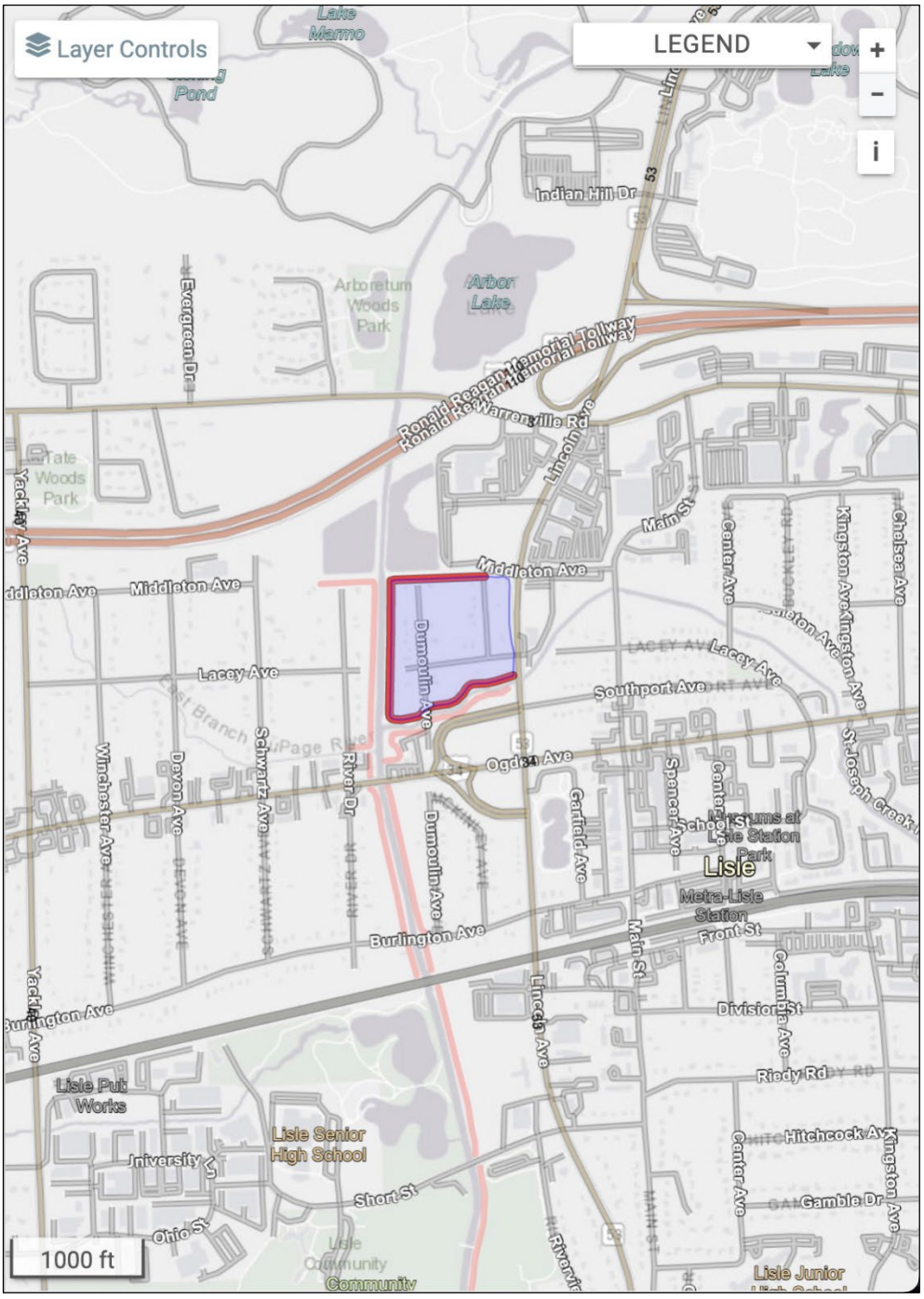
Exhibit 4-47. East Branch DuPage River (EBEB) 3



Safety Action Classification: Not Screened

Exhibit 4-48. East Branch DuPage River (EBEB) 4

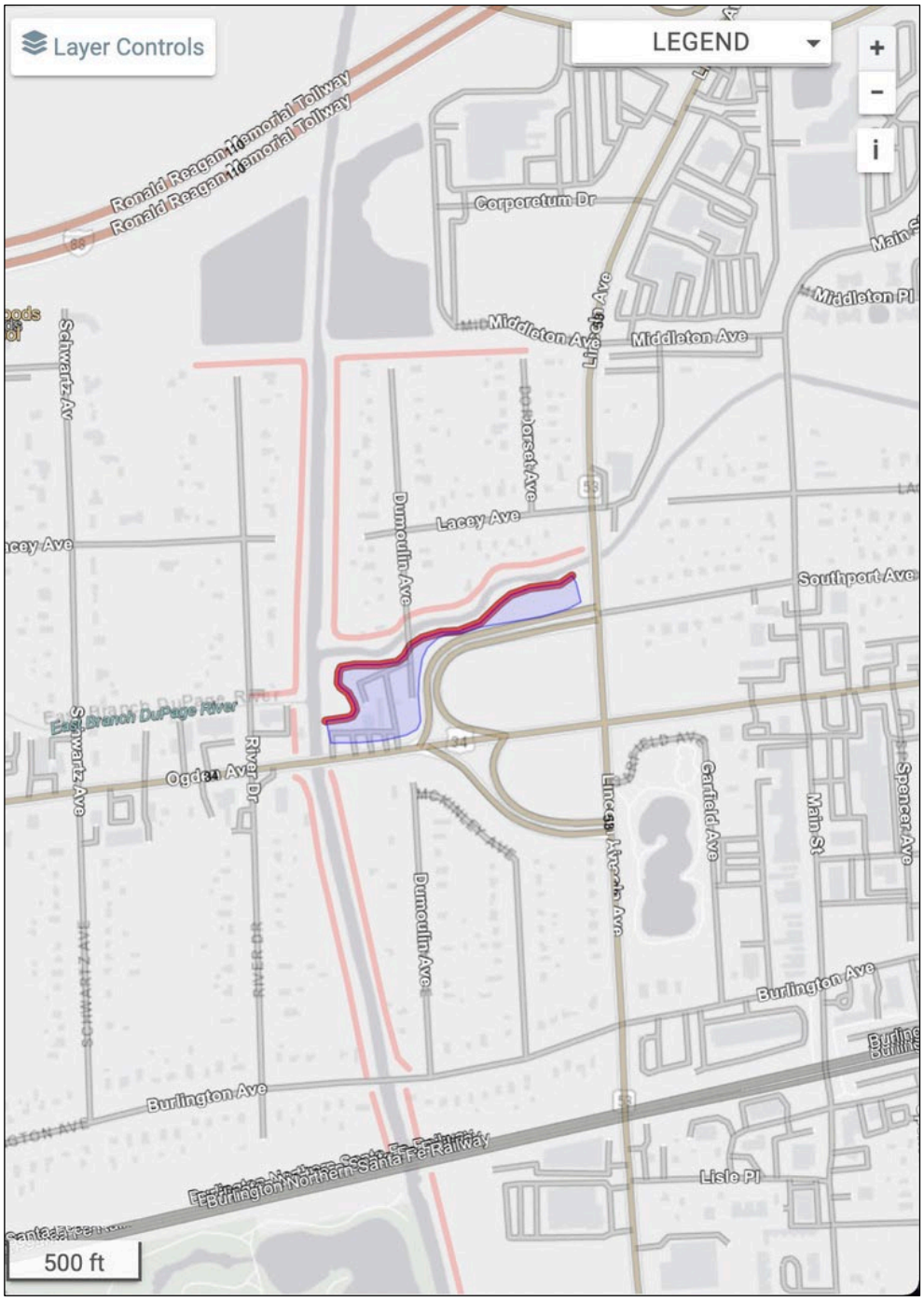


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Exhibit 4-49. East Branch DuPage River (EBEB) 5

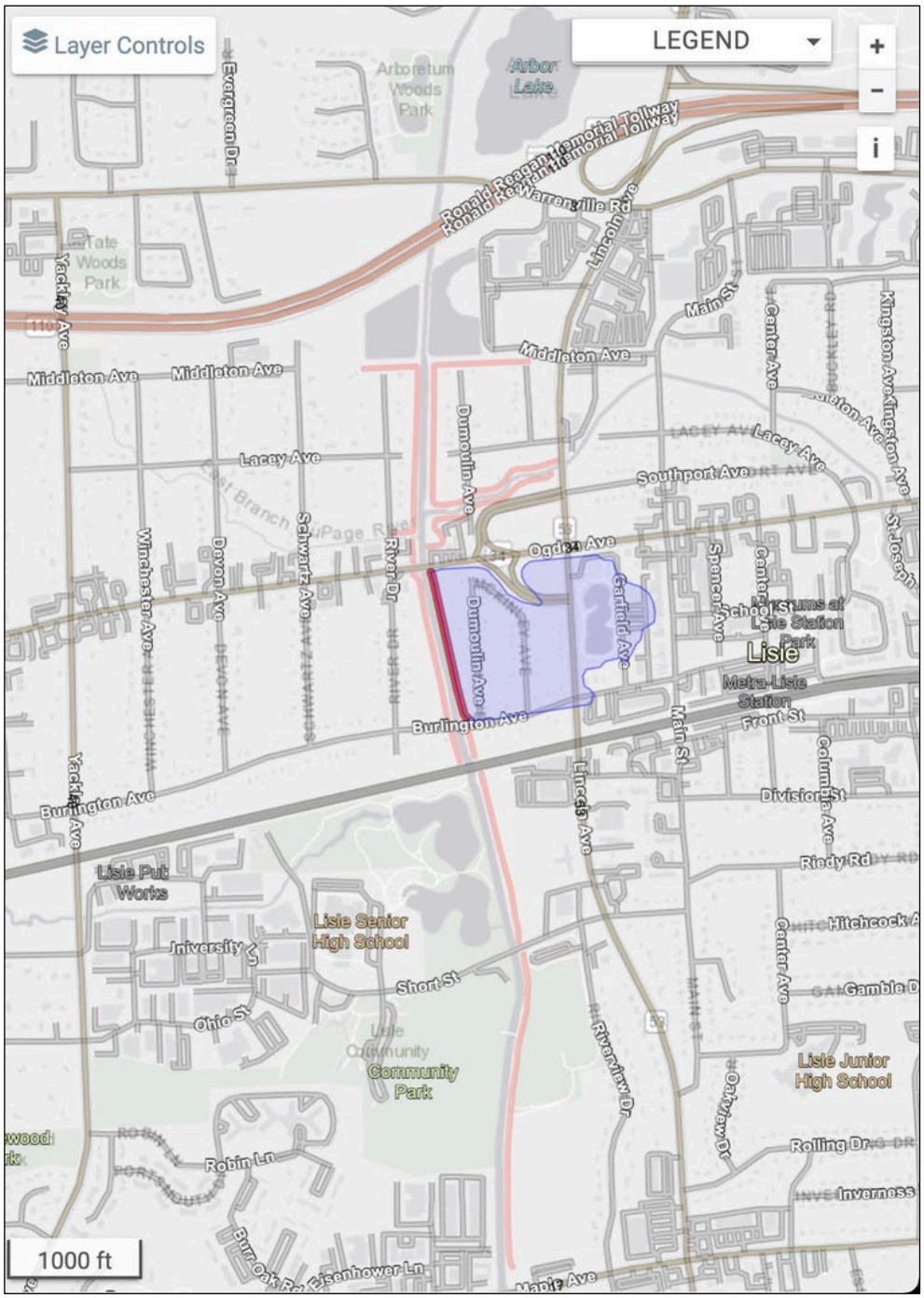

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Exhibit 4-50. East Branch DuPage River (EBEB) 6

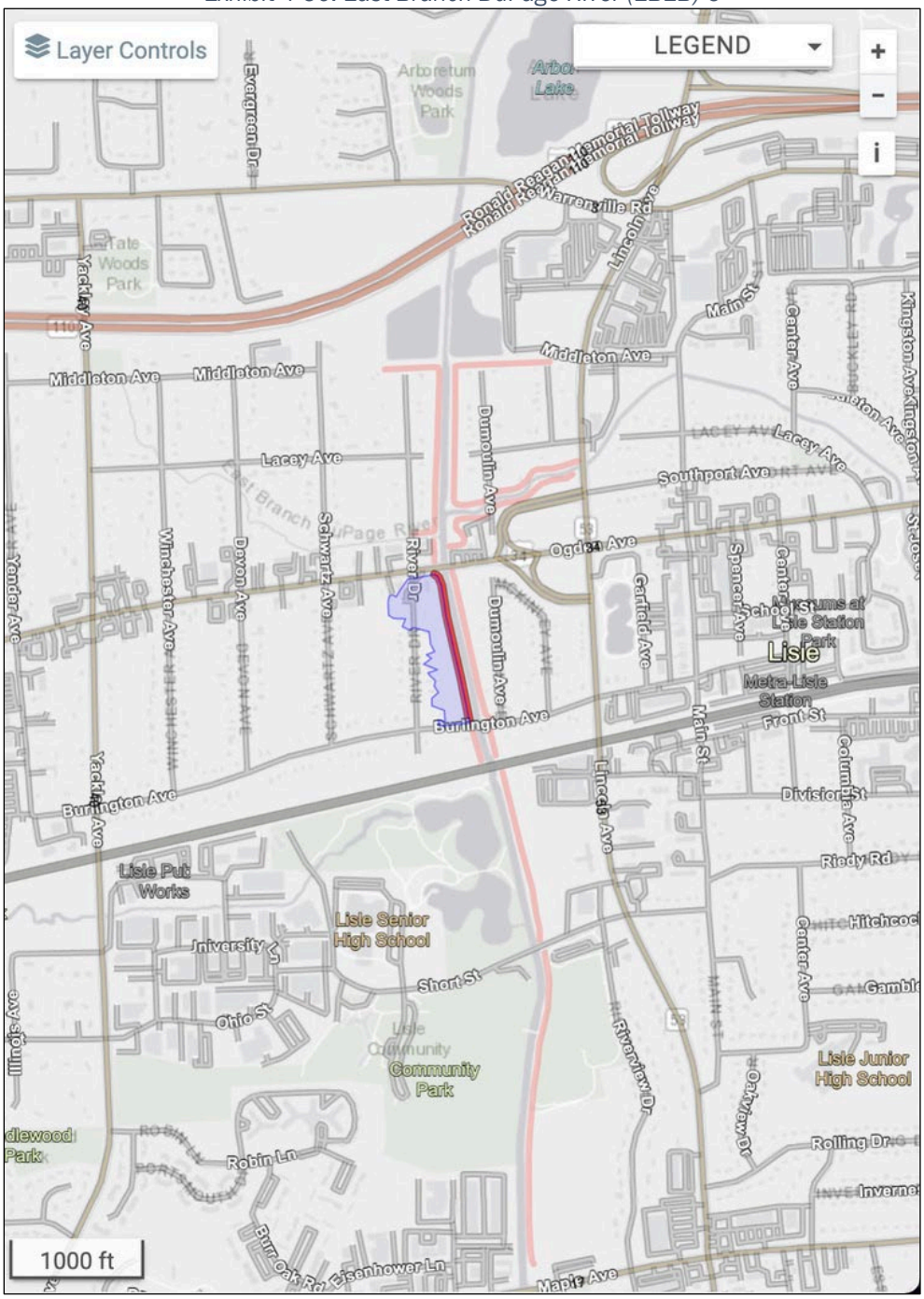

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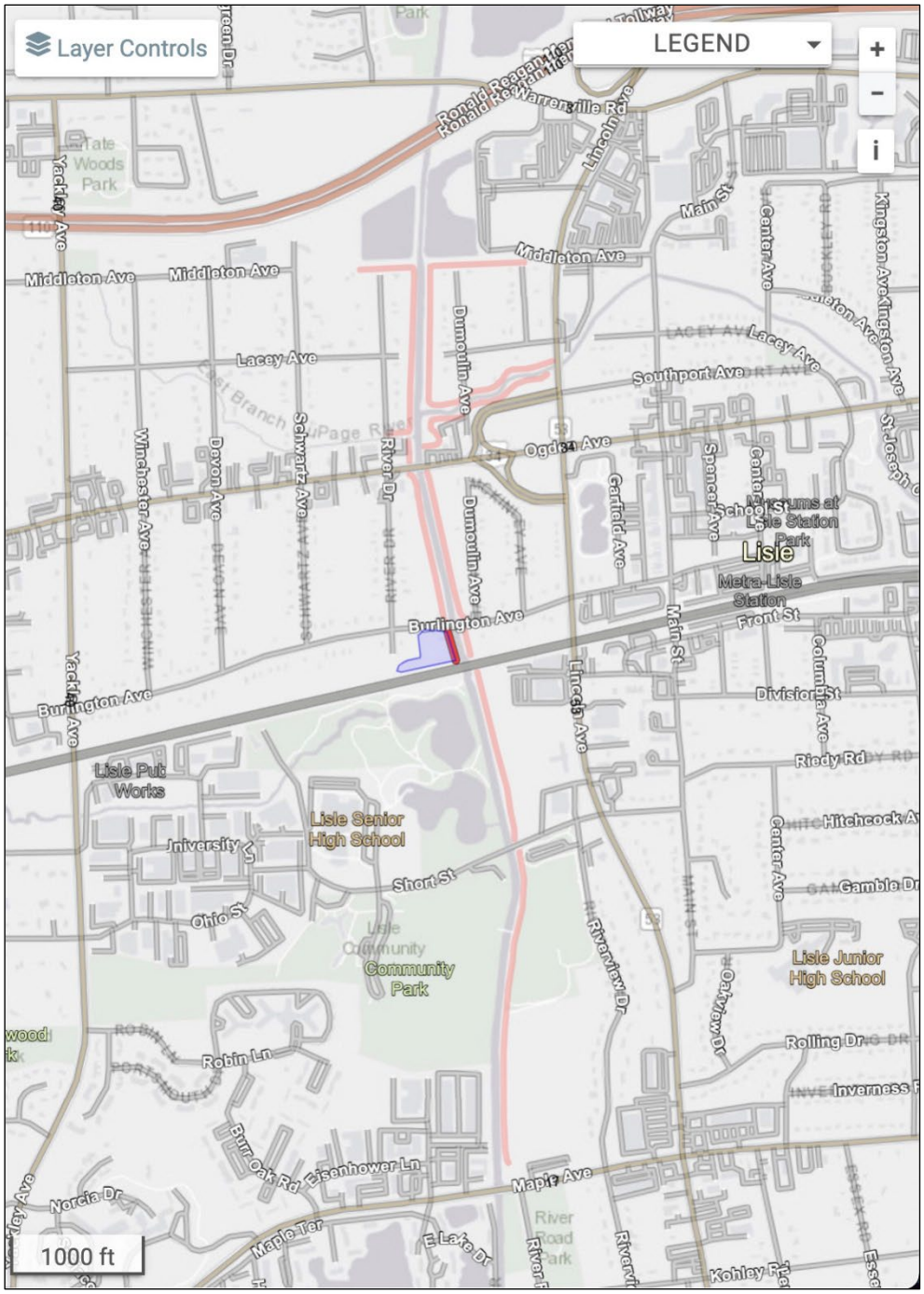
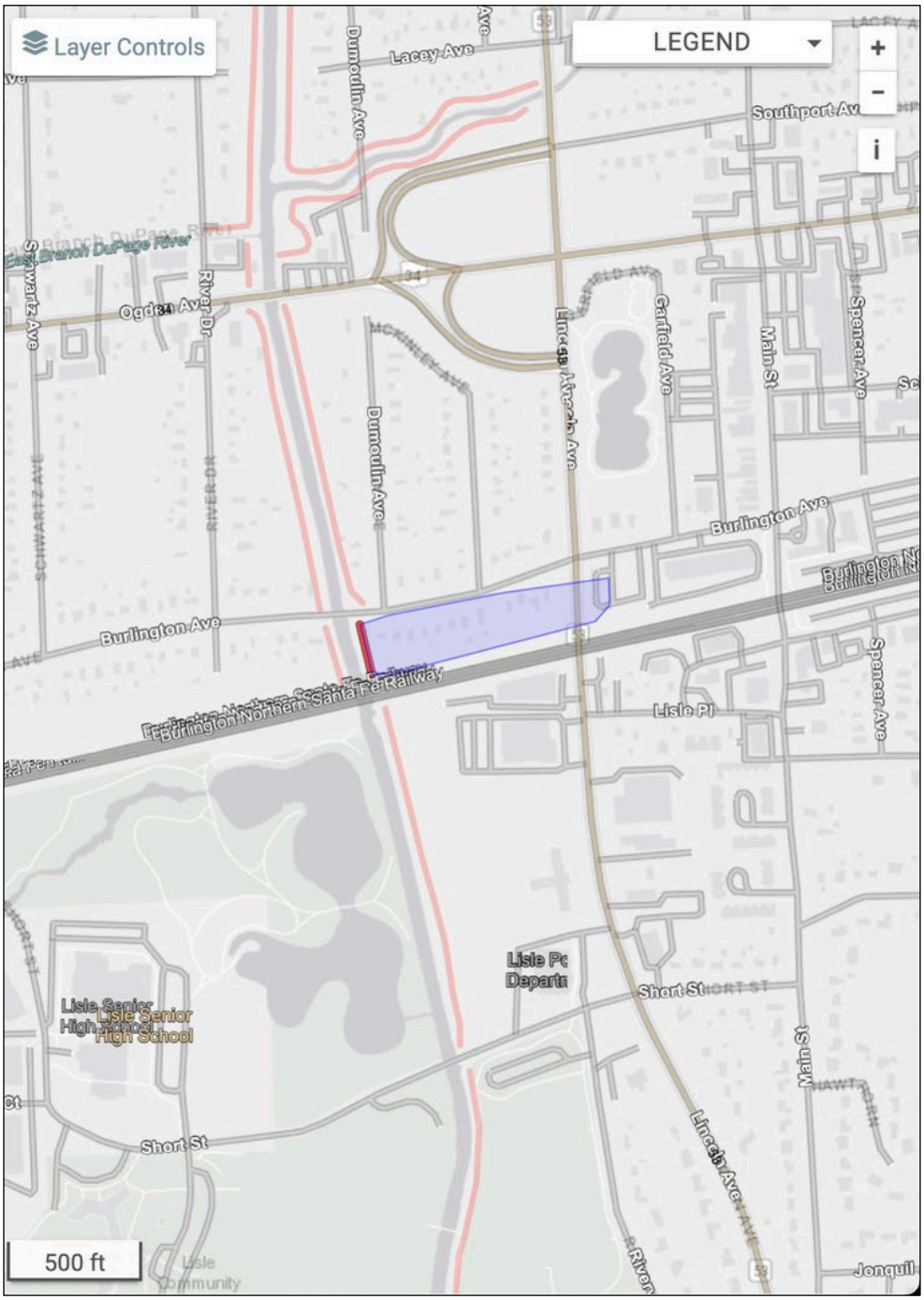
Exhibit 4-51. East Branch DuPage River (EBEB) 7



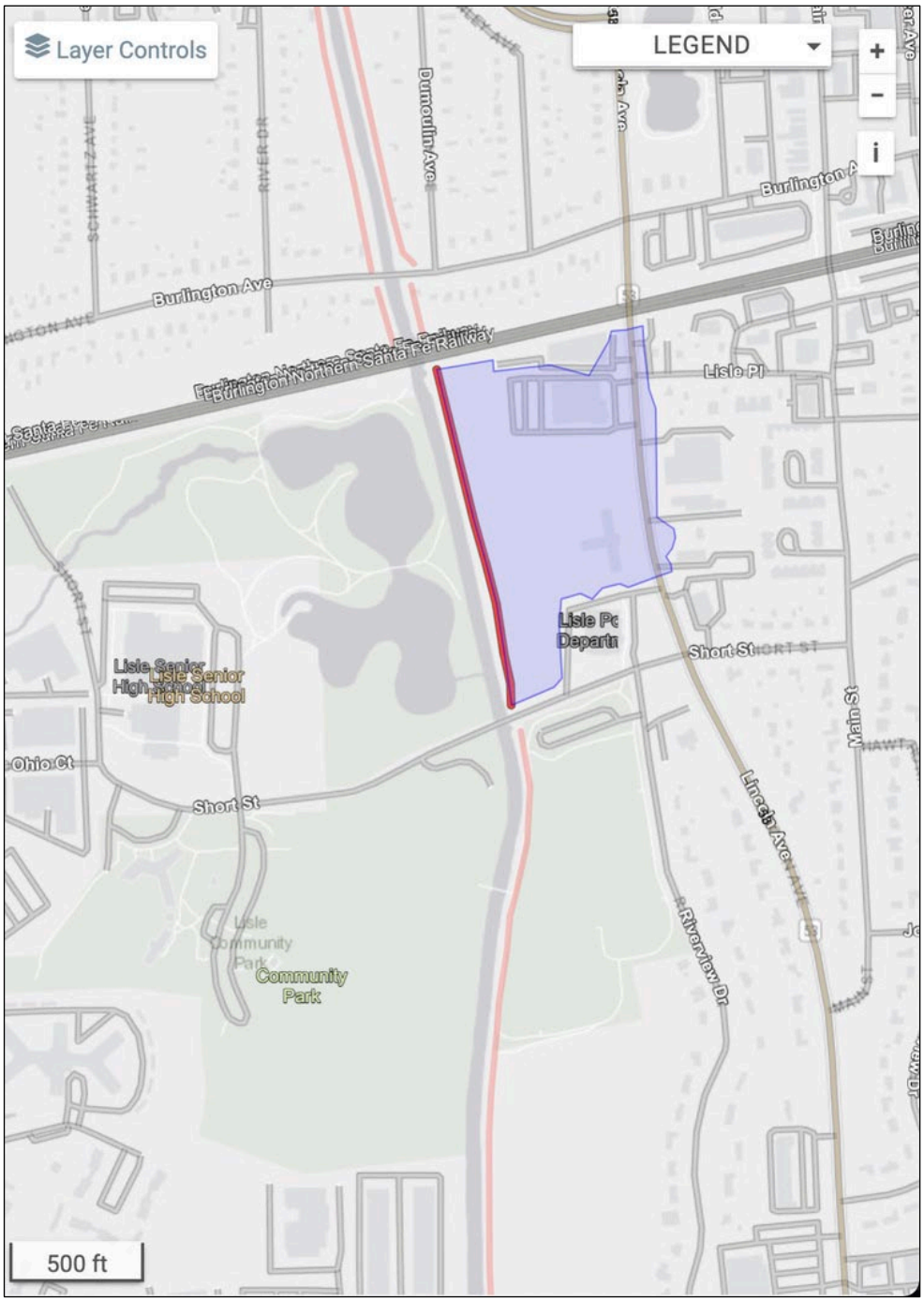
Safety Action Classification: Not Screened

Exhibit 4-52. East Branch DuPage River (EBEB) 8



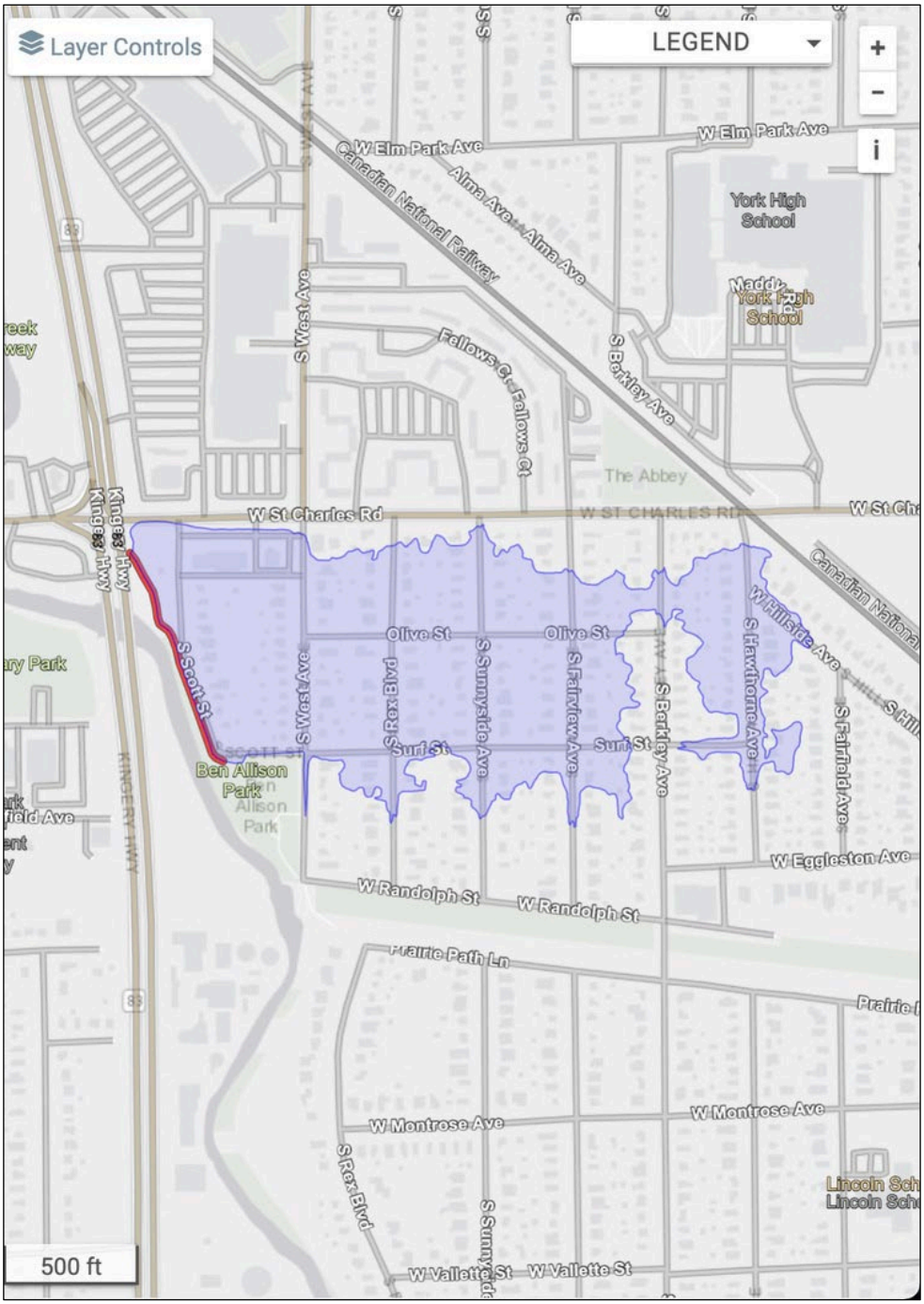
Safety Action Classification: Not Screened

Exhibit 4-53. East Branch DuPage River (EBEB) 9



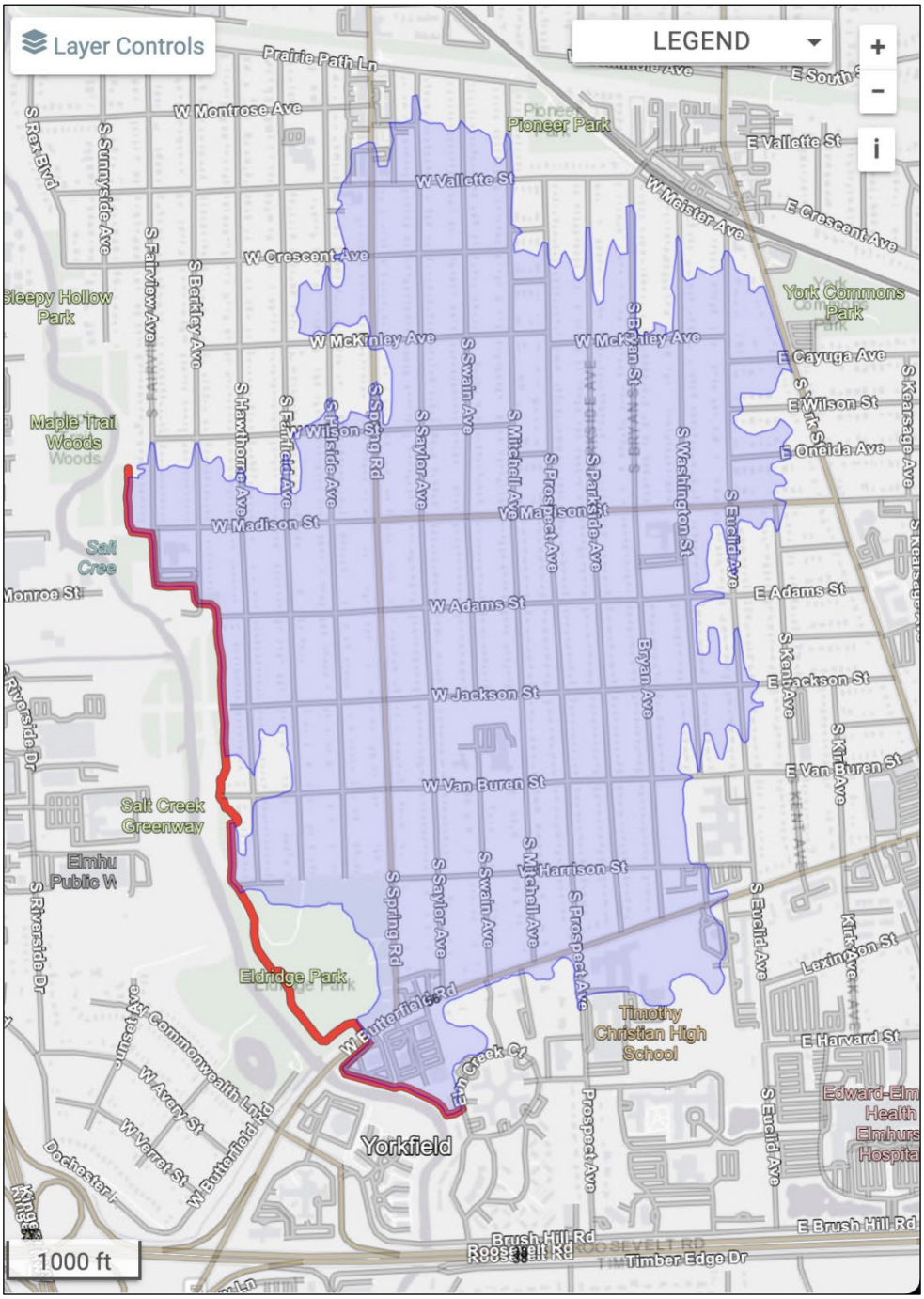
Safety Action Classification: Not Screened

Exhibit 4-54. Elmhurst Levee



Safety Action Classification: Not Screened

Exhibit 4-55. Elmhurst Levee 2



Safety Action Classification: Not Screened

Hazard Extent/Intensity

Dams:

Existing dam classification systems are numerous and vary within and between both federal and state agencies. Although differences in classification systems exist, they share a common thread: each system attempts to classify dams according to the potential impacts from a dam failure or misoperation, should it occur. The hazard

potential classification does not reflect the dam's current condition (e.g., safety, structural integrity, flood routing capacity).

State and federal classifications are the two primary dam hazard potential classification systems utilized in DuPage County. Illinois dam classifications are defined under Ill. Admin. Code tit. 17, § 3702.30)., used to permit dam construction, operation, and maintenance by the IDNR Division of Water Resource Management (DWRM). Federal dam safety hazard classifications can be found in FEMA's *Federal Guidelines for Dam Safety Hazard Potential Classification System for Dams* publication.

According to Title 17 Illinois Administrative Code (IAC), dams are categorized by Illinois state dam safety regulators into one of three classes according to the degree of threat to life and property in the event of dam failure:

> Class I: "Dams located where failure has a high probability of causing loss of life or substantial economic loss more than that which would naturally occur downstream of the dam if the dam had not failed. A dam has a high probability of causing loss of life or substantial economic loss if it is located where its failure may cause additional damage to such structures as a home, hospital, nursing home, a highly traveled roadway, a shopping center, or similar type facilities where people are normally present downstream of a dam." Similar to that of FEMA High Hazard Potential.
>
> Class II: "Dams located where failure has a moderate probability for causing loss of life or may cause substantial economic loss more than that which would naturally occur downstream of the dam if the dam had not failed. A dam has a moderate probability of causing loss of life or substantial economic loss if it is located where its failure may cause additional damage to such structures as a water treatment facility, a sewage treatment facility, a power substation, a city park, a U.S. Route, or Illinois Route highway, a railroad or similar type of facilities where people are downstream of the dam for only a portion of the day or on a more sporadic basis." Similar to FEMA's Significant Hazard Potential.
>
> Class III: "Dams located where failure has a low probability for causing loss of life, where there are no permanent structures for human habitation or minimal economic loss more than that which would naturally occur downstream of the dam if the dam had not failed. A dam has a low probability of causing loss of life or minimal economic loss if it is located where its failure may cause additional damage to agricultural fields, timber areas, township roads, or similar areas where people are seldom present and where there are few structures." Similar to FEMA Low Hazard Potential.

FEMA categorizes dams "according to the degree of adverse incremental consequences of a failure or misoperation of a dam. The National Inventory of Dams uses the federal classification system. Dams are federally categorized into Low, Significant, and High Hazard Potential based on the probable loss of human life and the impacts on economic, environmental, and lifeline interests. Improbable loss of life exists where persons are only temporarily in the potential inundation area.

1. **Low Hazard Potential**: Failure or misoperation results in no probable loss of human life and low economic and environmental losses. Losses are principally limited to the owner's property.
2. **Significant Hazard Potential:** Failure or misoperation results in no probable loss of human life but can cause economic loss, environmental damage, disruption of lifeline facilities, or can impact other concerns.
3. **High Hazard Potential**: Failure or misoperation will probably cause loss of human life.

Levees:

The Levee Safety Action Classification (LSAC) is one of the tools used to better inform stakeholders and residents of the residual risk in their communities.

The LSAC is neither a levee rating or grade; it is a classification system designed to take into account the probability of the levees being loaded (Hazard), the existing condition of the levee, the current and future maintenance of the levee (Performance), and the Consequences if a levee were to fail or be overwhelmed (US ACE, 2023). Exhibit 4-56 illustrates the Levee Safety Action Classification Table.

In DuPage County, no levees have a classification and have each been identified as "Not Screened."

Probability and Frequency

Dams:

A dam can fail at any time, given the right circumstances. However, the probability of future occurrence for regulated dams can be reduced due to proactive preventative action in compliance with IDNR-OWR's dam safety program. Illinois' dam safety program provides safety recommendations for signs, buoys, and short and long-term structural modifications – including dam removal.

As a dam ages, the likelihood of failure increases as undesirable woody vegetation on the embankment, deteriorated concrete, inoperable gates, and corroded outlet pipes become problems. In addition, since dam failures are often exacerbated by flooding, the probability of dam failures can be associated with projected flood frequencies.

Levees:

Accurate mapping of the risks of flooding behind levees and determining probability depends on knowing the condition and level of protection the levees provide. FEMA and the U.S. Army Corps of Engineers are working together to ensure that flood hazard maps reflect the flood protection capabilities of levees and accurately represent the flood risks posed to areas situated behind them. Levee owners – usually states, communities, or in some cases, private individuals, or organizations – are responsible for ensuring that the levees they own are maintained according to their design.

Exhibit 4-56. Levee Safety Classification

USACE LEVEE SAFETY ACTION CLASSIFICATION TABLE*

RISK	ACTIONS FOR LEVEE SYSTEMS AND LEVEED AREAS IN THIS CLASS (ADAPT ACTIONS TO SPECIFIC LEVEE SYSTEM CONDITIONS.)	RISK CHARACTERISTICS OF THIS CLASS
VERY HIGH (1)	Based on risk drivers, take immediate action to implement interim risk reduction measures. Increase frequency of levee monitoring, communicate risk characteristics to the community within an expedited timeframe; verify emergency plans and flood inundation maps are current; ensure community is aware of flood warning systems and evacuation procedures; and, recommend purchase of flood insurance. Support risk reduction actions as very high priority.	Likelihood of inundation due to breach and/or system component malfunction in combination with loss of life, economic, or environmental consequences results in very high risk.
HIGH (2)	Based on risk drivers, implement interim risk reduction measures. Increase frequency of levee monitoring; communicate risk characteristics to the community within an expedited timeframe; verify emergency plans and flood inundation maps are current; ensure community is aware of flood warning and evacuation procedures; and, recommend purchase of flood insurance. Support risk reduction actions as high priority.	Likelihood of inundation due to breach and/or system component malfunction in combination with loss of life, economic, or environmental consequences results in high risk.
MODERATE (3)	Based on risk drivers, implement interim risk reduction measures as appropriate. Verify risk information is current and implement routine monitoring program; assure O&M is up to date; communicate risk characteristics to the community in a timely manner; verify emergency plans and flood inundation maps are current; ensure community is aware of flood warning and evacuation procedures; and, recommend purchase of flood insurance. Support risk reduction actions as a priority.	Likelihood of inundation due to breach and/or system component malfunction in combination with loss of life, economic, or environmental consequences results in moderate risk.
LOW (4)	Verify risk information is current and implement routine monitoring program; assure O&M is up to date; communicate risk characteristics to the community as appropriate; verify emergency plans and flood inundation maps are current; ensure community is aware of flood warning and evacuation procedures; and, recommend purchase of flood insurance. Support risk reduction actions to further reduce risk to as low as practicable.	Likelihood of inundation due to breach and/or system component malfunction in combination with loss of life, economic, or environmental consequences results in low risk.
VERY LOW (5)	Continue to implement routine levee monitoring program, including operation and maintenance, inspections, and monitoring of risk. Communicate risk characteristics to the community as appropriate; verify emergency plans and flood inundation maps are current; ensure community is aware of flood warning and evacuation procedures; and recommend purchase of flood insurance.	Likelihood of inundation due to breach and/or system component malfunction in combination with loss of life, economic, or environmental consequences results in very low risk.
NO VERDICT	Not enough information is available to assign an LSAC.	

*LEVEE RISK IS THE RISK THAT EXISTS DUE TO THE PRESENCE OF THE LEVEE SYSTEM, AND THIS IS THE RISK USED TO INFORM THE DECISION ON THE LSAC ASSIGNMENT. THE INFORMATION PRESENTED IN THIS TABLE DOES NOT REFLECT THE OVERTOPPING WITHOUT BREACH RISK ASSOCIATED WITH THE PRESENCE OR OPERATION OF THE LEVEE SYSTEM.

Past Events

There are no available records of dam or levee failures in DuPage County. However, the State of Illinois experienced levee failures in 1993 and 2008. In 1993, 17 levee systems either failed, were overtopped, or were intentionally breached along the Mississippi River and the Illinois River just north of where it meets the Mississippi River. As a result, over 237,000 acres along the rivers were flooded.

Vulnerability and Impacts

Dams:

Dam-breach analyses and mapping potential dam breach inundation areas are the most appropriate means for examining the impact on people and property. Vulnerability analysis for dam failure for most dams listed has yet to be conducted due to insufficient data. Vulnerability analyses can be performed as individual dam failure analyses and inundation mapping are completed. An analysis of Fawell Dam was conducted in April 2019.

Life Safety and Health: Although the probability of a dam failure is typically low, they have the potential to severely impact DuPage County residents, especially those in the inundation area. In the unlikely event this would happen, DuPage County residents and their property would be at risk of injury, death, or damage. In addition, water supplies would also likely be affected.

Property Damage and Critical Infrastructure: Failure of the Lake Ellyn dam would cause significant flooding of roadways and some homes directly downstream. The failure of the Churchill Woods dam would result in roadway flooding in Crescent Boulevard and a rise in the water surface elevation upstream and downstream of the Union Pacific railroad. Downstream of the railroad, an industrial park within the floodplain may sustain additional damage. The Baker Hill dam is located adjacent to a broad floodplain area on Forest Preserve and Commonwealth Edison property, which would help attenuate flows to the river and reduce velocities from a dam failure. Still, as expected, there would be a rise in the water surface elevation downstream.

Rice Lake Dam is located in Wheaton near Leask Lane. Approximately twenty single-family residences are located within the inundation area.

An analysis of Fawell Dam was conducted in April 2019. Inundation maps of the Farwell Dam can be observed in Exhibit 4-57, Exhibit 4-58, Exhibit 4-59, and Exhibit 4-60. These maps should be used for reference only. The data is subject to change without notice. The County of DuPage assumes no liability in the use or application of the data. The inundation maps highlight potential impacts. Similar studies are needed for the other high-hazard dams in the county. The analysis did not determine potential property and infrastructure damages.

Exhibit 4-57. Fawell Dam Inundation Map (1/4)

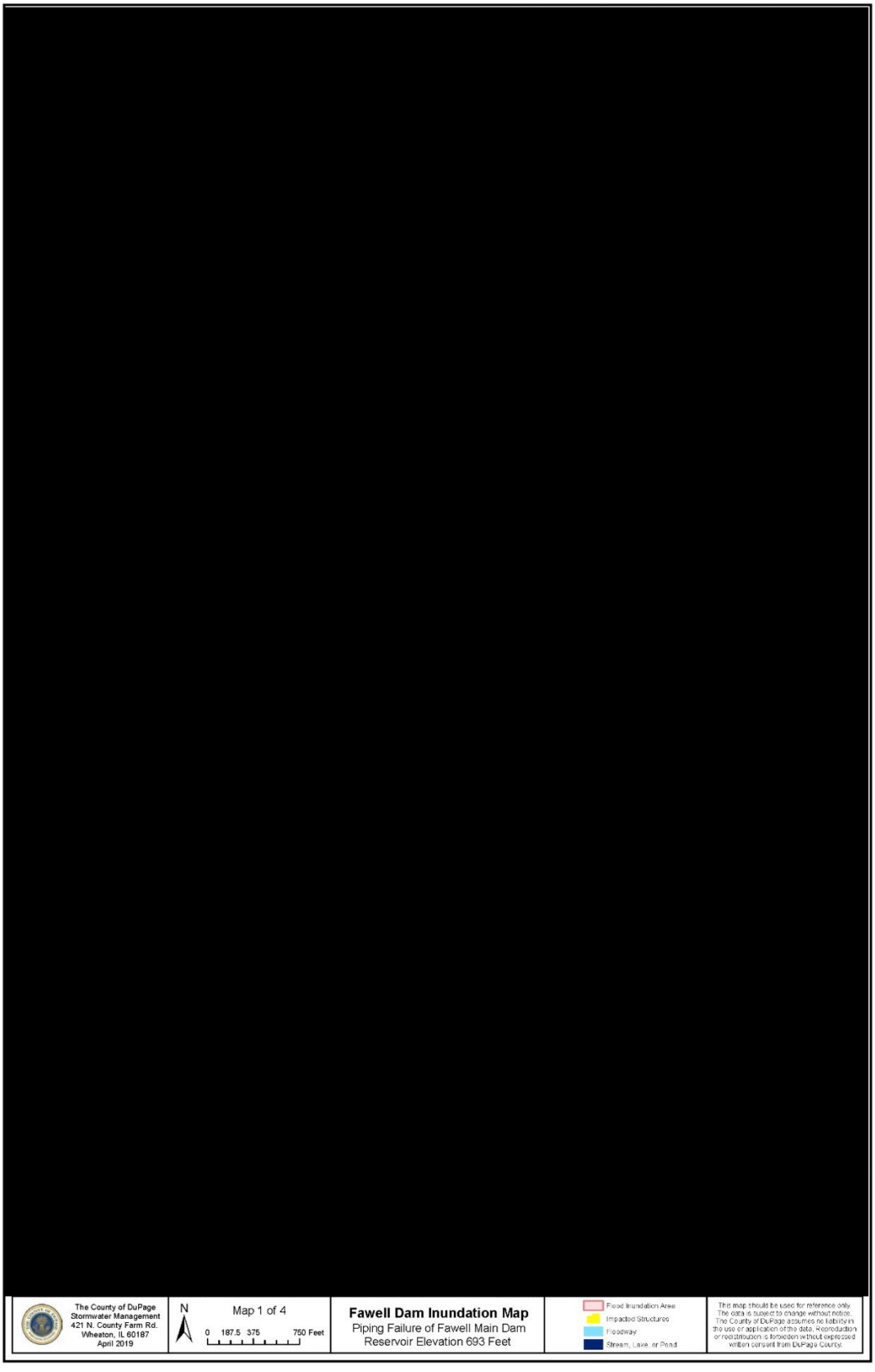


Exhibit 4-58. Fawell Dam Inundation Map (2/4)

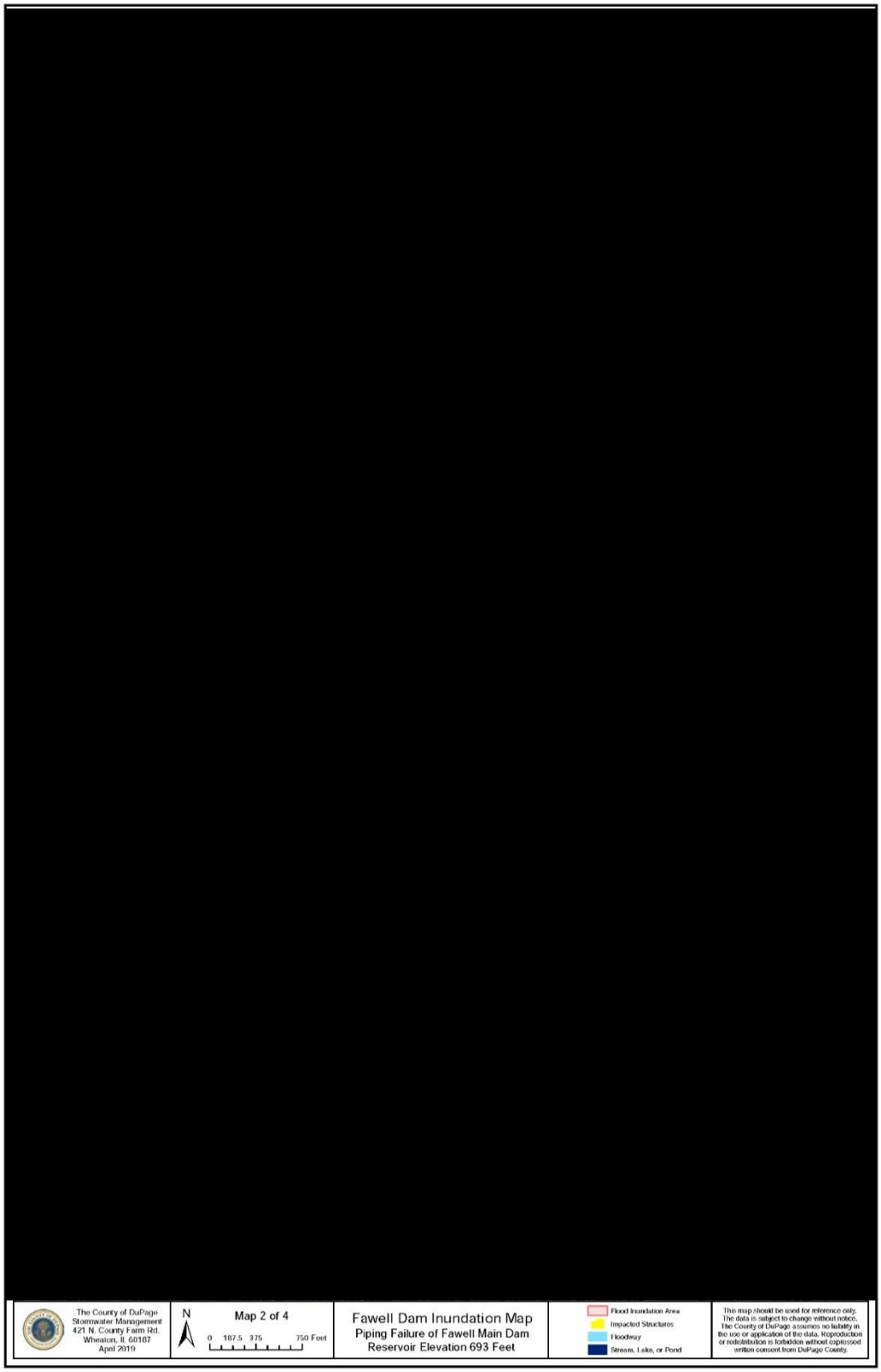


Exhibit 4-59. Fawell Dam Inundation Map (3/4)

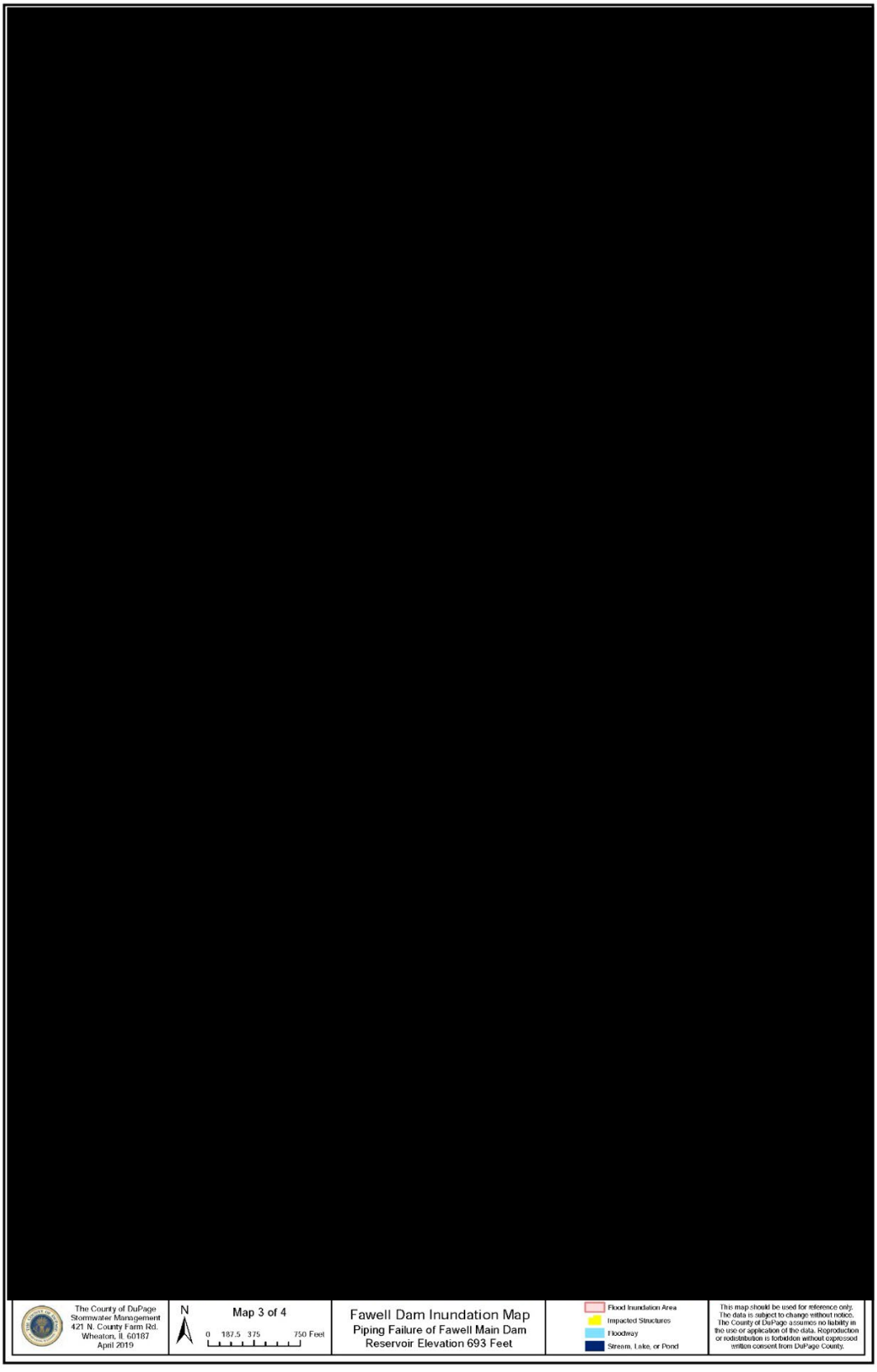
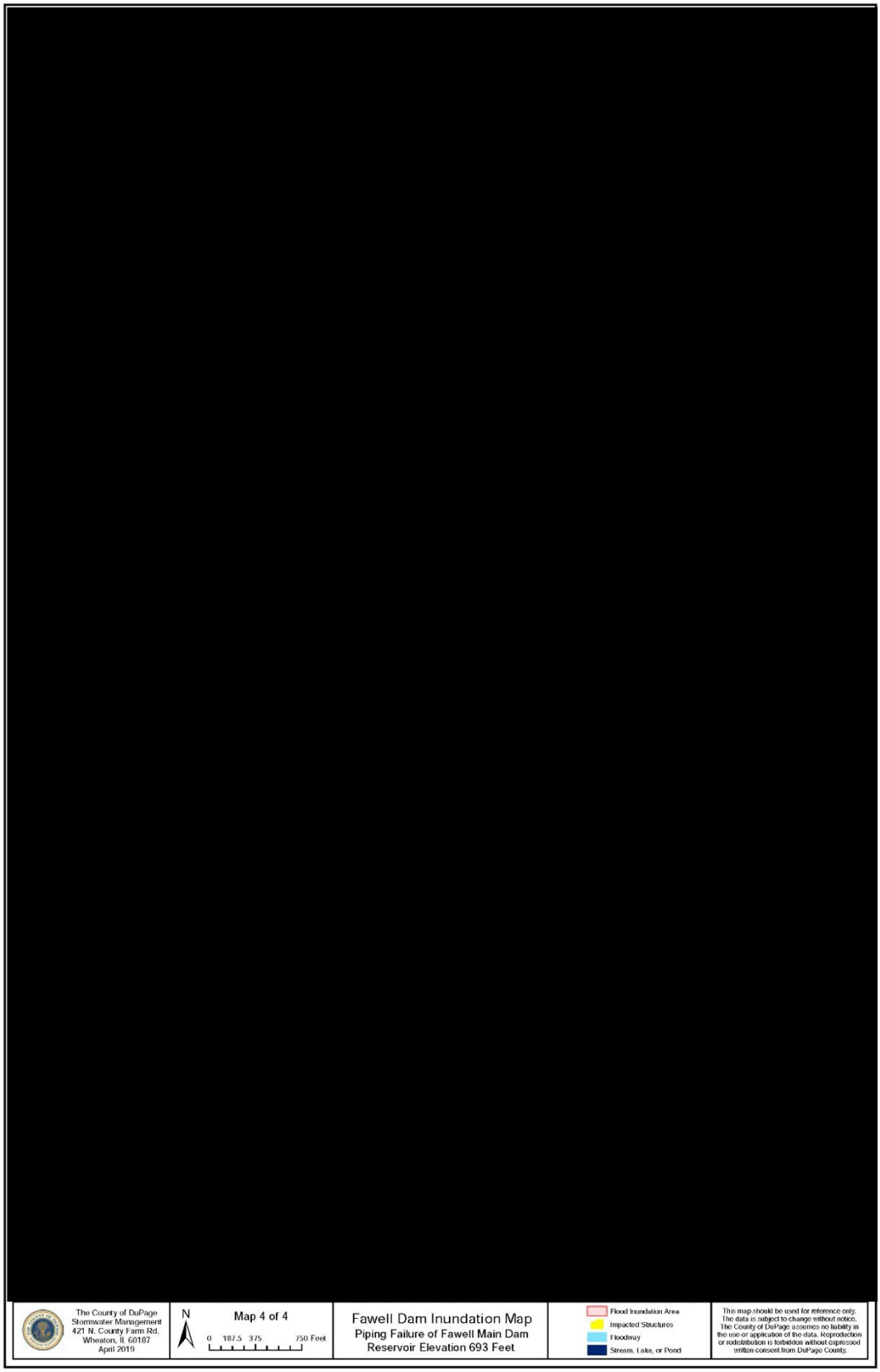


Exhibit 4-60. Fawell Dam Inundation Map (4/4)



Economy: No data exists demonstrating the economic impact of past dam failure events in DuPage County.

Changes in Development and Impact of Future Development: If constructed in the inundation area, future buildings' exposure to dam failure would remain the same as existing buildings. Per the 2019 DuPage County Strategic Plan, the county continues to prioritize the maintenance of flood control facilities to ensure they offer maximum protection. It also states the goal of making land in DuPage County more conducive to development and better utilized through incentives and flood reduction. Future development is also achieved by providing accurate stormwater and floodplain-related regulatory and zoning information to support effective and efficient development in DuPage County.

Levees:

Life Safety and Health: 5,699 people are protected by DuPage County levees.

Property Damage and Critical Infrastructure: In total, 2,031 structures are protected by DuPage County levees. The property value behind all 13 levee systems is $196,944,000.

Economy: No data exists demonstrating the economic impact of past levee failure events in DuPage County.

Changes in Development and Impact of Future Development: Future building exposure to levee failure would remain the same as existing buildings if constructed in the inundation area. Per the 2019 DuPage County Strategic Plan, the county continues to prioritize the maintenance of flood control facilities to ensure they offer maximum protection. It also states the goal of making land in DuPage County more conducive to development and better utilized through incentives and flood reduction. Future development is also achieved by providing accurate stormwater and floodplain-related regulatory and zoning information to support effective and efficient development in DuPage County.

Dam and Levees

Effects of Climate Change on Severity of Impacts: Heavy precipitation leads to riverine flooding and flash floods as the ground fails to absorb the high volume of precipitation that falls in a short period. Increasing annual precipitation contributes to sustained flooding. (Neighborhoods At Risk, 2023).

Exhibit 4-61 illustrates 25-year precipitation projections for DuPage County, while Table 4-59 show future climate indicators for DuPage County.

Exhibit 4-61. 25-Year Precipitation Projections for DuPage County

25-YEAR PRECIPITATION PROJECTIONS FOR DUPAGE COUNTY, IL
HIGHER EMISSIONS (RCP8.5)
DuPage County is expected to experience a 12% increase in heavy precipitation within 25 years.

By 2048, DuPage County is expected to experience 0.6 more days of heavy precipitation per year (from 4.5 days to 5.1 days per year).
LOWER EMISSIONS (RCP4.5)
DuPage County is expected to experience a 1% increase in heavy precipitation within 25 years.
By 2048, DuPage County is expected to experience 0.04 more days of heavy precipitation per year (from 4.59 to 4.63 days per year).
Source: Neighborhoods at Risk (https://nar.headwaterseconomics.org/)

Table 4-59. Future Climate Indicators for DuPage County

FUTURE CLIMATE INDICATORS FOR DUPAGE COUNTY, IL							
Indicator	**Modeled History** (1976-2005)	**Early Century** (2015-2044)		**Mid Century** (2035-2064)		**Late Century** (2070-2099)	
		Lower Emissions	Higher Emissions	Lower Emissions	Higher Emissions	Lower Emissions	Higher Emissions
	Min-Max	Min-Max	Min-Max	Min-Max	Min-Max	Min-Max	Min-Max
Precipitation:							
Annual Average Total Precipitation	35”	37”	37”	37”	38”	38”	39”
	34-36	34-41	33-41	34-42	33-44	34-43	34-45
Days Per Year With Precipitation (Wet Days)	171 days	169 days	168 days	168 days	167 days	167 days	164 days
	167-175	157-177	153-177	156-178	148-180	157-178	129-183
Maximum Period of Consecutive Wet Days	11 days	10 days	10 days	10 days	11 days	10 days	10 days
	10-13	9-12	9-12	9-12	9-12	9-12	9-13
Annual Days With:							
Annual Days With Total Precipitation > 1 inch	4 days	5 days	5 days	5 days	5 days	5 days	6 days
	3-4	3-6	4-5	4-6	4-7	4-7	4-9
Annual Days With Total Precipitation > 2 inches	0 days	0 days	0 days	0 days	1 day	1 day	1 day
	0-0	0-1	0-1	0-1	0-1	0-1	0-2
Annual Days With Total Precipitation > 3 inches	0 days	0 days	0 days	0 days	0 days	0 days	0 days
	0-0	0-0	0-0	0-0	0-0	0-0	0-0
Annual Days That Exceed 99th Percentile Precipitation	5 days	6 days	6 days	7 days	7 days	7 days	8 days
	5-6	6-8	6-8	6-8	7-9	6-8	8-10
Days With Maximum Temperature Below 32° F	40 days	30 days	29 days	25 days	23 days	21 days	12 days
	36-43	17-40	21-37	14-36	12-32	10-32	3-25
Source: Climate Mapping for Resilience and Adaptation (2023)							

Jurisdiction-specific Hazard Impact/Vulnerability: *Only those jurisdictions uniquely affected by high-hazard dams and levees are included. If a jurisdiction was not included, it denotes the hazard impact or vulnerability to high-hazard dams and levees is not significant and is adequately addressed at the county level. Jurisdictions completed the following form as part of the plan update:* https://integratedsolutions.wufoo.com/forms/dupage-county-natural-hazards/

Table 4-60. DuPage County Jurisdiction-specific Hazard Impact/Vulnerability

Jurisdiction	Affected Jurisdictions' Hazard Impact/Vulnerability Considerations
Village of Glen Ellyn	Glen Ellyn has three dams - Lake Ellyn, Churchill Woods, and Baker Hill. Lake Ellyn is owned by the Park District; Churchill Woods is owned by the Forest Preserve District of DuPage County; and Baker Hill is owned by the Baker Hill Condo Association. These dams are not under the direct control of the Village. Failure of the Lake Ellyn dam would cause significant flooding of roadways and some homes directly downstream. The failure of the Churchill Woods dam would result in roadway flooding on Crescent Boulevard and a rise in the water surface elevation upstream and downstream of the Union Pacific railroad. Downstream of the railroad, an industrial park within the floodplain may sustain additional damage. The Baker Hill dam is located adjacent to a broad floodplain area on Forest Preserve and Commonwealth Edison property, which would help attenuate flows to the river and reduce velocities from a dam failure, but as expected, there would be a rise in the water surface elevation downstream.
Village of Lisle	Rice Lake Dam is located in Wheaton near Leask Lane. Approximately twenty single-family residences are located within the inundation area.
Village of Carol Stream	The Upper Reservoir of the Armstrong Park Flood Control Facility and the Gary-Kehoe Flood Control Reservoir, both of which are owned/maintained by DuPage County Stormwater, are considered dams by IDNR when filled to their high-water line.

FEMA NRI Expected Annual Loss Estimates and Hazard-Specific Risk

The FEMA NRI does not assess high-hazard dams and levees.

4.11 Severe Summer Storms

Hazard Description

In this Plan, severe storms are considered thunderstorms, lightning events, microbursts, high wind events, and hailstorms.

Thunderstorms affect relatively small areas when compared to hurricanes and winter storms. However, despite their small size, all thunderstorms are dangerous. A typical thunderstorm is 15 miles in diameter and lasts an average of 30 minutes. Of the estimated 100,000 thunderstorms that occur each year in the United States, about 10 percent are classified as severe. The National Weather Service considers a thunderstorm severe if it produces hail at least 3/4 inch in diameter, winds of 58 MPH or stronger, or a tornado. Every thunderstorm needs three essential components: (1) moisture to form clouds and rain, (2) unstable air, which is warm air that rises rapidly, and (3) lift, which is a cold or warm front capable of lifting air to help form thunderstorms (NOAA, 2023).

Lightning, although not considered criteria for a severe thunderstorm by the National Weather Service definition, can accompany heavy rain during thunderstorms. Lightning develops when ice particles in a cloud move around and collide with other particles. These collisions cause a separation of electrical charges. As a result, positively charged ice particles rise to the top of the cloud, while negatively charged particles fall to the middle and lower sections of the cloud. The negative charges at the base of the cloud attract positive charges at the surface of the Earth. Invisible to the human eye, the negatively charged area of the cloud sends a charge called a stepped leader toward the ground. Once it gets close enough, a channel develops between the cloud and the ground. Lightning is the electrical transfer through this channel. The channel rapidly heats to 50,000 degrees Fahrenheit and contains approximately 100 million electrical volts. The rapid expansion of the heated air causes thunder (NOAA, 2023).

Microbursts (Damaging Winds): A **microburst** is a small, concentrated downburst that produces an outward burst of strong winds at or near the surface. Microbursts are small — less than 2.5 miles across — and short-lived, lasting only five to 10 minutes, with maximum windspeeds sometimes exceeding 100 mph. There are two kinds of microbursts: wet and dry. A wet microburst is accompanied by heavy precipitation at the surface. Dry microbursts, common in places like the high plains and the intermountain west, occur with little or no precipitation reaching the ground (NOAA, 2023).

Hailstorms: Hail is a form of precipitation that occurs when updrafts in thunderstorms carry raindrops upward into extremely cold areas of the atmosphere, where they freeze into balls of ice. Hail can damage aircraft, homes, and cars and be deadly to livestock and people (NOAA, 2017c). Table 4-61 outlines the potential hail sizes and describes physical items for comparison (NOAA, 2023).

Hailstones grow by colliding with supercooled water drops. Supercooled water will freeze in contact with ice crystals, frozen raindrops, dust, or some other nuclei. Thunderstorms with a strong updraft keep lifting the hailstones to the top of the cloud, where they encounter more supercooled water and continue to grow. The hail falls when the thunderstorm's updraft can no longer support the weight of the ice or the updraft weakens. The stronger the updraft, the more significant the hailstone can grow (NOAA, 2023)

"Hailstones can have layers like an onion if they travel up and down in an updraft, or they can have few or no layers if they are "balanced" in an updraft. Counting the layers, one can tell how many times a hailstone traveled to the top of the storm. In addition, hailstones can begin to melt and re-freeze together – forming large and very irregularly shaped hail (NOAA, 2023).

Table 4-61. National Weather Service Hail Descriptions

Description	Diameter (inches)
Pea	0.25
Marble or Mothball	0.50
Penny or Dime	0.75
Nickel	0.88
Quarter	1.00
Half Dollar	1.25
Walnut or Ping Pong Ball	1.50
Golf ball	1.75
Hen's Egg	2.00
Tennis Ball	2.50
Baseball	2.75
Tea Cup	3.00
Grapefruit	4.00
Softball	4.50

High Winds: High winds are defined as "sustained winds with speeds of 40 miles per hour (mph) or greater, or wind gusts with speeds of 58 mph or greater (NOAA, 2023)". High winds can have a significant impact on weather conditions and can cause damage to structures, trees, and power.

Hazard Location

Severe summer storms could occur anywhere in DuPage County.

Hazard Extent/Intensity

Severe summer storms vary in intensity and magnitude in DuPage County. However, it is estimated that approximately five storms each year have hailstorms and high winds considered severe thunderstorms.

Probability and Frequency

The DuPage County area averages 5.8 thunderstorm events yearly, with winds over 50 miles per hour. They average an hour in duration. It is estimated that only five storms each year have hailstorms and high winds to be considered severe thunderstorm. Assuming the average severe storm affects 100 square miles, the odds of a severe thunderstorm hitting any particular square mile in DuPage County are 1:1 or 100 percent. Based on the data collected for this Plan, it is reasonable to assume that the probability for these types of storms to happen in the future is high. Not all storms result in death, but the damage of these storms is measurable.

Past Events

During the July 6, 2003, hail event, 4,400 to 5,000 properties in Glendale Heights suffered roof or siding damage from 2-inch hail. In the summer of 1992, a microburst in Woodridge knocked down a wall under construction. Multiple injuries were sustained, with one fatality from falling debris. In November 2004, a wind event in Woodridge cost the Village around $40,000 to remove tree debris.

In June 2017, Itasca and Wood Dale experienced a microburst encompassing approximately 5 square miles. DuPage County assisted in the response. In this response, the DuPage County Department of Transportation spent about 2,000 hours helping in the recovery operation. In addition, approximately $35,000 was paid from DuPage County in equipment and person-hours in three days.

Exhibit 4-62 provides an estimate of the costs incurred by DuPage County during this incident by category.

Exhibit 4-62. DuPage County Assistance to Itasca, IL

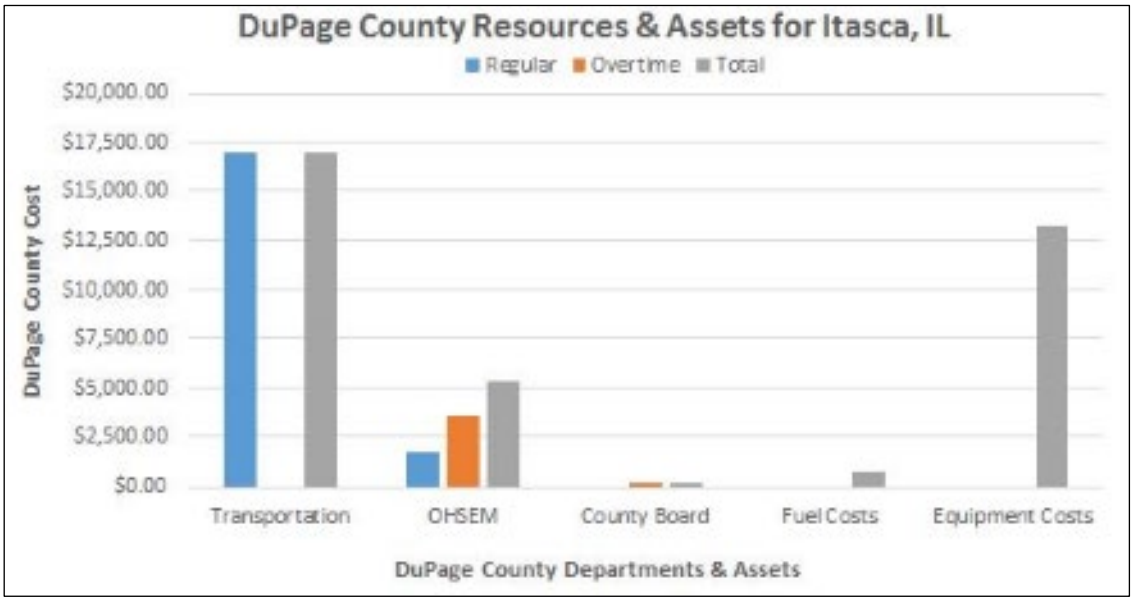


Exhibit 4-63 summarizes severe wind and hail events recorded by the NOAA within northern Illinois from 2003 to July 2017.

Exhibit 4-63. Northern Illinois Record Wind/Hail Events

July 19-23, 2017: Multiple rounds of heavy rain producing storms bring flooding & areas of wind damage
June 14, 2017: Storms bring scattered wind damage and near three inches of rain to parts of northern IL
May 15, 2017: Hail to golf ball size in the Rockford Area
March 7, 2017: Early season line of storms brings strong winds
July 21-24, 2016: Humid and hot weather brings multiple days of storms, with scattered wind damage in Chicago and flash flooding in Belvidere
May 25, 2016: Isolated wind damage and locally heavy rainfall
August 10, 2015: Severe microburst in Glen Ellyn, IL; the role of boundaries in severe weather
August 2, 2015: Large hail in DeKalb, IL and damaging winds in Wood Dale and Evanston, IL
June 8, 2015: Many hail-producing storms, including up to golf ball size
May 30, 2015: Cold and windy with heavy rainfall & high waves
June 30, 2014: Widespread wind damage across northern IL & northern IN within the second of two derechoes
June 21, 2014: Damaging winds & heavy rainfall event
May 20, 2014: Baseball size hail in Chana, IL & damaging winds in DeKalb, IL
May 11, 2014: Scattered large hail & damaging winds
April 12, 2014: Large hail up to golf ball size in the north Chicago metro
August 30, 2013: Severe storms impact the north Chicago metro
August 4, 2012: Severe wind producing complex of storms with thousands of lightning strikes crosses area
July 26, 2012: Downburst over O'Hare International Airport brings 70 mph gust
May 3-4, 2012: Hail and heavy rain across Chicago
July 11, 2011: Derecho brings widespread wind damage to northern IL, including six injuries in Palos Heights, IL
June 18, 2010: Two bow echoes with severe winds move across the area
June 19, 2009: Widespread hail, winds, and flooding across northern IL
July 25, 2007: Microbursts in Burr Ridge & Homer Glen, IL in Cook County
March 31, 2007: Microburst in Carol Stream & Glendale Heights, IL in DuPage County
May 18 & 20, 2004: Multiple severe weather episodes across northern IL & northwest IN
July 27, 2003: Damaging winds & heavy rain across the far southwest & southern suburbs
July 6, 2003: Golf ball size hail in Buffalo Grove & Carol Stream, IL

Exhibit 4-64. DuPage County Historical Hail Incidents

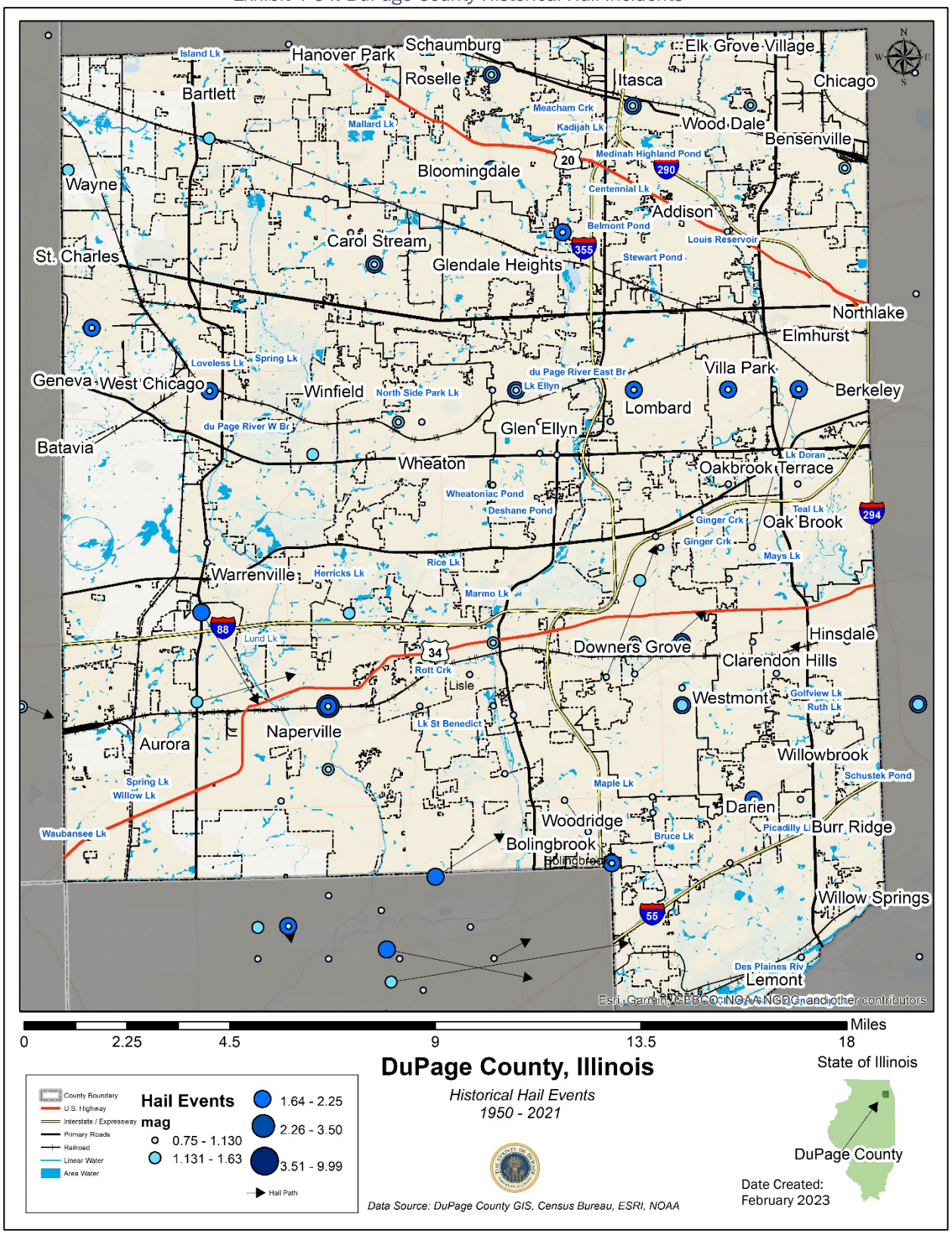


Exhibit 4-65. DuPage County Historical Wind Incidents

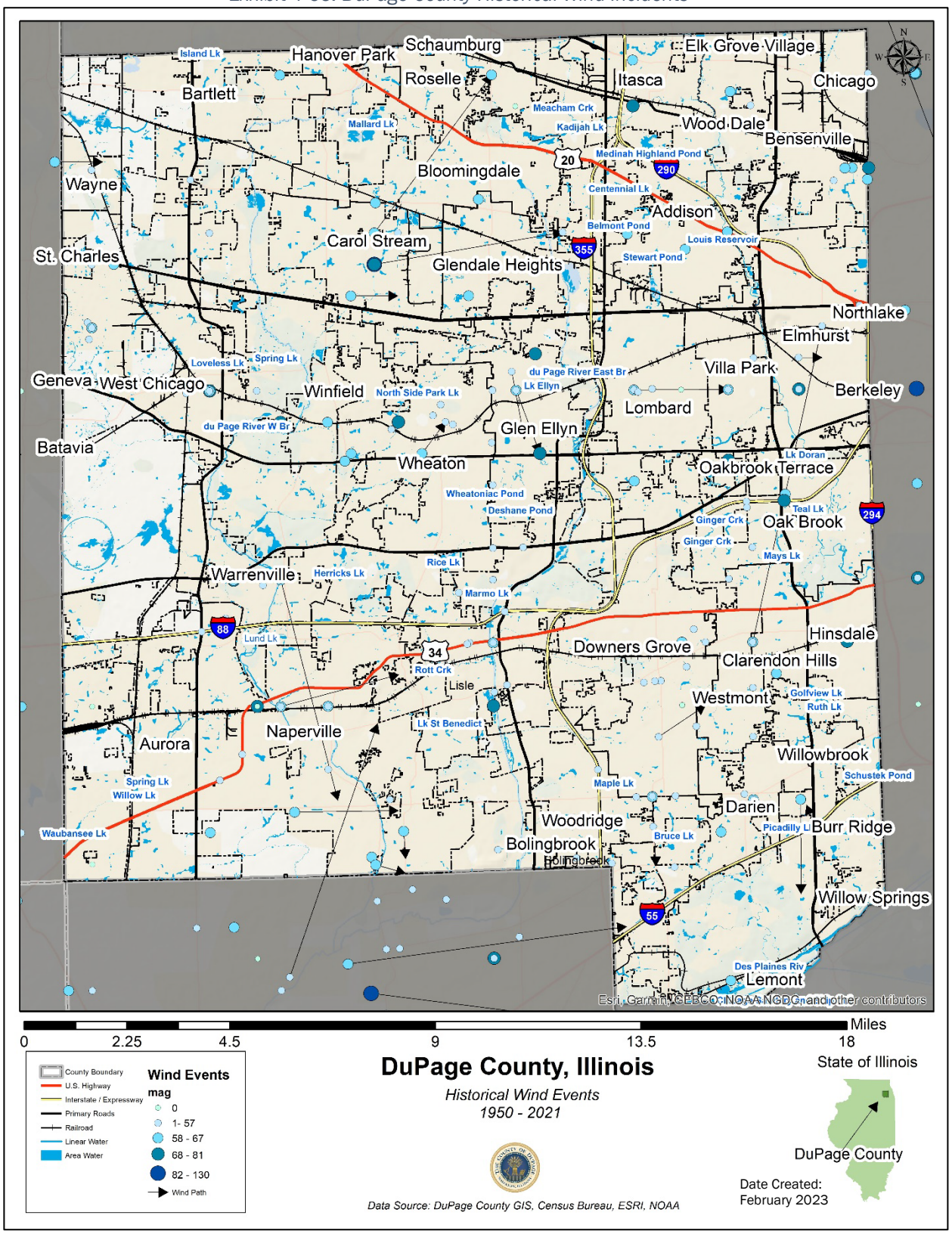


Exhibit 4-66, Exhibit 4-67, and Exhibit 4-68 outline information from the NOAA database between January 1, 1997, and December 1, 2017, for the severe types of storms within each exhibit.

Exhibit 4-66. National Weather Service Thunderstorms and Damaging Wind Events (1997-2017)

Number of County/Zone areas affected:	1
Number of Days with Event:	87
Number of Days with Event and Death:	2
Number of Days with Event and Death or Injury:	9
Number of Days with Event and Property Damage:	23
Number of Days with Event and Crop Damage:	0
Number of Event Types reported:	1

Exhibit 4-67. National Weather Service Lightning Events (1997-2017)

Number of County/Zone areas affected:	1
Number of Days with Event:	18
Number of Days with Event and Death:	2
Number of Days with Event and Death or Injury:	3
Number of Days with Event and Property Damage:	15
Number of Days with Event and Crop Damage:	0
Number of Event Types reported:	1

Exhibit 4-68. National Weather Service Hail Events (1997-2017)

Number of County/Zone areas affected:	1
Number of Days with Event:	74
Number of Days with Event and Death:	0
Number of Days with Event and Death or Injury:	0
Number of Days with Event and Property Damage:	0
Number of Days with Event and Crop Damage:	0
Number of Event Types reported:	1

Exhibit 4-69, Exhibit 4-70, and Exhibit 4-71 outline information from the NOAA database between January 1, 2017, and December 1, 2022, for the severe types of storms within each exhibit. No injuries or deaths were associated with these events during this time frame.

Exhibit 4-69. National Weather Service Thunderstorm Wind Events (2017-2022)

Number of County/Zone areas affected:	1
Number of Days with Event:	36
Number of Days with Event and Death:	0
Number of Days with Event and Death or Injury:	0
Number of Days with Event and Property Damage:	2
Number of Days with Event and Crop Damage:	0
Number of Event Types reported:	1

Exhibit 4-70. National Weather Service Lightning Events (2017-2022)

Number of County/Zone areas affected:	0
Number of Days with Event:	0
Number of Days with Event and Death:	0
Number of Days with Event and Death or Injury:	0
Number of Days with Event and Property Damage:	0
Number of Days with Event and Crop Damage:	0
Number of Event Types reported:	0

Exhibit 4-71. National Weather Service Hail Events (2017-2022)

Number of County/Zone areas affected:	1
Number of Days with Event:	13
Number of Days with Event and Death:	0
Number of Days with Event and Death or Injury:	0
Number of Days with Event and Property Damage:	1
Number of Days with Event and Crop Damage:	0
Number of Event Types reported:	1

Vulnerability and Impacts

All assets located in DuPage County can be considered at risk from severe summer storms. This includes 100 percent of the county's population and all buildings and infrastructure.

Life Safety and Public Health: The threat to life and the cause of death vary by the type of storm. Exhibit 4-69 through Exhibit 4-71 provide injury and death information recorded by NOAA from severe summer storms between January 1, 1997, and December 1, 2022.

Property Damage and Critical Infrastructure: As with tornadoes, manufactured homes are at high risk for thunderstorm damage because of their lightweight building construction and vulnerability to flying debris. Wind and water damage can result from windows broken by flying debris or hail. In addition, lightning can cause direct damage to structures (especially those without lightning protection systems) and can cause fires that damage forests and structures.

Critical facilities are susceptible to the same damage and disruption from thunderstorms as other buildings. Emergency operations can be disrupted as thunderstorms and lightning affect radio communications, and antennas are a prime target for lightning. To date, there is no record of critical facilities in DuPage County having incurred any damages due to severe storms.

Thunderstorms can impact transportation and utilities. Automobiles and their windshields are subject to damage by hail. Power lines can be knocked out by lightning or wind and debris. In Addison, at Lake Street and 4th Avenue, a billboard was damaged due to high winds on March 31, 2006. Repair costs were in the tens of thousands. Lightning can also cause power surges that damage appliances, electronic equipment, and computers. The cost of clean-up by towns can add up.

Economy: No data exists demonstrating the economic impact of past severe summer storms on DuPage County.

Changes in Development and Impact of Future Development: There is no impact based on current development trends.

Effects of Climate Change on Severity of Impacts: With increasing global surface temperatures, the potential for storm intensity will likely increase. As more water vapor is evaporated into the atmosphere, it becomes fuel for more powerful storms to develop (USGS, 2023)

Exhibit 4-72 illustrates 25-year precipitation projections for DuPage County, while Table 4-62 illustrates future climate indicators for DuPage County.

Exhibit 4-72. 25-Year Climate Projections for DuPage County

25-YEAR CLIMATE PROJECTIONS FOR DUPAGE COUNTY, IL
HIGHER EMISSIONS (RCP8.5)
DuPage County is expected to experience a 117% increase in extremely hot days within 25 years.
By 2048, DuPage County is expected to experience 11 more days that reach above 95°F (from 10 days to 21 days per year).
LOWER EMISSIONS (RCP4.5)
DuPage County is expected to experience a 79% increase in extremely hot days within 25 years.
By 2048, DuPage County is expected to experience 7 more days that reach above 95°F (from 9 days to 15 days per year).
Source: Neighborhoods at Risk (https://nar.headwaterseconomics.org/)

Table 4-62. Future Climate Indicators for DuPage County

FUTURE CLIMATE INDICATORS FOR DUPAGE COUNTY, IL							
Indicator	**Modeled History** (1976-2005)	**Early Century** (2015-2044)		**Mid Century** (2035-2064)		**Late Century** (2070-2099)	
		Lower Emissions	Higher Emissions	Lower Emissions	Higher Emissions	Lower Emissions	Higher Emissions
	Min-Max	Min-Max	Min-Max	Min-Max	Min-Max	Min-Max	Min-Max
Temperature Thresholds							
Annual Days With Maximum Temperature >90°	14 days	35 days	39 days	45 days	54 days	55 days	86 days
	14-20	22-58	22-55	25-74	36-80	30-90	52-117
Annual Days With Maximum Temperature >95°	3 days	11 days	13 days	17 days	24 days	24 days	53 days
	2-4	5-25	5-27	6-41	11-51	9-62	20-92
Annual Days With Maximum Temperature >100°	0 days	2 days	3 days	4 days	7 days	7 days	25 days
	0-0	0-7	0-8	0-16	1-24	1-16	2-69
Annual Days With Maximum Temperature >105°	0 days	0 days	0 days	1 day	1 day	1 day	9 days
	0-0	0-1	0-1	0-3	0-6	0-8	0-42
Annual Temperature							
Annual Single Highest Temperature °F	97°F	100°F	101°F	102°F	103°F	103°F	108°F
	96-98	98-105	97-104	98-108	99-108	99-111	101-115
Annual Highest Maximum Temperature Averaged Over a 5-Day Period	92°F	95°F	96°F	97°F	98°F	98°F	103°F
	91-92	93-99	93-98	93-102	95-103	94-104	96-110
Cooling Degree Days (CDD)	889 degree-days	1,238 degree-days	1,286 degree-days	1,408 degree-days	1,573 degree-days	1,590 degree-days	2,246 degree-days
	840-963	1,031-1,561	1,047-1,487	1,115-1,830	1,250-1,965	1,196-2,267	1,567-3,054
Source: Climate Mapping for Resilience and Adaptation (2023)							

Jurisdiction-specific Hazard Impact/Vulnerability: *Only those jurisdictions uniquely affected by thunderstorms, lightning, hail, high winds, and microbursts are included. If a jurisdiction was not included, it denotes the hazard impact or vulnerability to thunderstorms, lightning, hail, high winds, and microbursts is not significant and/or is adequately addressed at the county level. Jurisdictions completed the following form as*

part of the plan update: https://integratedsolutions.wufoo.com/forms/dupage-county-natural-hazards/

Table 4-63. DuPage County Jurisdiction-specific Hazard Impact/Vulnerability

Jurisdiction	Affected Jurisdictions' Hazard Impact/Vulnerability Considerations
Village of Bartlett	There is a manufactured home park (Spring Lake Manufactured Home Estates) located in the northwest part of town.
City of Oakbrook Terrace	Oakbrook Terrace's main residential subdivision is located south of RT 56 and north of 22nd, east of Midwest and west of Rt 83. This subdivision is uniquely vulnerable with its electrical grid being lined with trees that could be potentially hazardous to Oakbrook Terrace's main residential population. If trees were to fall during natural hazards, this could cause potential city-wide power outages.
Village of Wayne	Due to the high number of trees in the Village, downed trees knocking out power lines and blocking roads during severe weather with strong winds would be an issue. Generally, residents with only one road serving their house are more vulnerable to this.
West Chicago	West Chicago has been subject to the effects of microbursts in the past. Microbursts have affected industrial areas and numerous homes.
City of Wheaton	The following is a list of establishments within the city that may be uniquely vulnerable to this natural disaster: elementary schools, high schools, Wheaton College Campus, and a number of apartment and condo buildings. Loss of power to any of these areas could be a problem for the affected population.
Village of Glen Ellyn	Backup power generation at water and sewer facilities is inadequate. Currently, two trailer-mounted generators and one with natural gas run six water facilities (4 buildings and 2 water towers) and 5 lift stations. The SCADA system currently utilizes radios, which are vulnerable to this type of hazard.
Village of Roselle	Many critical facilities do not have backup power sources. These include the Public Works Facility and Vehicle Maintenance Garage, the Devlin Wastewater Treatment Plant, the Botterman Wastewater Treatment Plant, 7 wastewater lift stations, and 7 water distribution facilities. Any of these facilities losing power can impact the health and safety of the community.
Village of Westmont	The village is uniquely vulnerable to this hazard with the high population of senior citizens, including several nursing homes. The village is uniquely vulnerable due to the number of large trees which could affect populated areas where powerlines are not underground. Fallen trees during a severe storm could cause widespread outages.
Addison	Mature and weakened trees in the parkway have been subject to damage and falling over causing property damage and road blockages. Overhead utility lines have been damaged by winds and microbursts in private easement areas that are difficult to access and clear.
Village of Villa Park	The Village of Villa Park has a maturing and aging tree population, both public and private, that is susceptible to wind damage and even knockdown as a result of this hazard.

FEMA NRI Expected Annual Loss Estimates

Table 4-64. DuPage County Expected Annual Loss Table

DUPAGE COUNTY, IL FEMA NRI EXPECTED ANNUAL LOSS TABLE FOR LIGHTNING EVENTS							
Annualized Frequency	Population	Population Equivalence	Building Value	Agriculture Value	Total Value	Expected Annual Loss Score	Expected Annual Loss Rating
72.9	0.10	$791,527	$80,239	N/A	$	47.75	Relatively High
DUPAGE COUNTY, IL FEMA NRI EXPECTED ANNUAL LOSS TABLE FOR HAIL EVENTS							
Annualized Frequency	Population	Population Equivalence	Building Value	Agriculture Value	Total Value	Expected Annual Loss Score	Expected Annual Loss Rating
4.3	0.00	$29,046	$6,433,288	$403	$	45.85	Relatively High
DUPAGE COUNTY, IL FEMA NRI EXPECTED ANNUAL LOSS TABLE FOR HIGH WINDS EVENTS							
Annualized Frequency	Population	Population Equivalence	Building Value	Agriculture Value	Total Value	Expected Annual Loss Score	Expected Annual Loss Rating
5.3	1.05	$7,969,187	$596,422	$221	$	78.16	Very High

Annualized Frequency: *The natural hazard annualized frequency is defined as the expected frequency or probability of a hazard occurrence per year. Annualized frequency is derived either from the number of recorded hazard occurrences each year over a given period or the modeled probability of a hazard occurrence each year.*
Population: *Population exposure is defined as the estimated number of people determined to be exposed to a hazard according to a hazard type-specific methodology.*
Expected Annual Loss *scores are calculated using an equation that combines values for exposure, annualized frequency, and historic loss ratios (Expected Annual Loss = Exposure × Annualized Frequency × Historic Loss Ratio). Source: hazards.fema.gov/nri/expected-annual-loss*

Source: FEMA National Risk Index (2023)

FEMA Hazard-Specific Risk Index Table

Table 4-65. DuPage County Hazard Specific Risk Index Table

DUPAGE COUNTY, IL FEMA HAZARD SPECIFIC RISK INDEX – LIGHTNING	
Risk Index Score	Risk Index Rating
2.64 / 100	Very Low
DUPAGE COUNTY, IL FEMA HAZARD SPECIFIC RISK INDEX – HAIL EVENTS	
Risk Index Score	Risk Index Rating
18.46 / 100	Relatively Moderate
DUPAGE COUNTY, IL FEMA HAZARD SPECIFIC RISK INDEX – HIGH WINDS EVENTS	

Risk Index Score	Risk Index Rating
18.95 / 100	Relatively Moderate
*FEMA Hazard-Type **Risk Index Scores** are calculated using data for only a single hazard type and reflect a community's relative risk for only that hazard type.* *FEMA Hazard-Type **Risk Index Ratings** are a qualitative rating that describe the community in comparison to all other communities at the same level, ranging from "Very Low" to "Very High."*	
Source: FEMA National Risk Index (2023)	

4.12 Severe Winter Storms

Hazard Description

The Illinois Emergency Management Agency defines a severe winter storm as a storm that meets one or more of the following criteria (IEMA, 2018):

- A snowstorm produces six inches or more of snow within 48 hours or less.
- An ice storm in which 10 percent of the cooperative National Weather Service stations in Illinois report glaze and/or,
- A snowstorm or ice storm in which deaths, injuries, or property damage occurs.

A **winter storm** is an event in which the main types of precipitation are snow, sleet, or freezing rain. Blizzards are dangerous winter storms that combine snow and wind, resulting in low visibility. While heavy snowfalls and severe colds often accompany blizzards, they are not required. Sometimes strong winds pick up snow that has already fallen, creating a ground blizzard (NOAA, 2023).

An **ice storm** is a storm that results in the accumulation of at least .25" of ice on exposed surfaces. They create hazardous driving and walking conditions. In addition, tree branches and powerlines can easily snap under the weight of the ice (NOAA, 2023).

The term **extreme cold** can have varying definitions in hazard identification. Generally, extreme cold events refer to a prolonged period (days) with frigid temperatures. An extreme cold event to the NWS severely threatens life and property from excessive cold.

Hazard Location

Severe winter storms could occur anywhere in DuPage County.

Hazard Extent/Intensity

Most precipitation in wintertime clouds starts as snow because the top layer of the storm is usually cold enough to create snowflakes. Snowflakes are just collections of ice crystals that cling to each other as they fall toward the ground. Precipitation continues to fall as snow when the temperature remains at or below 32° from the cloud base to the ground (NOAA, 2023).

- **Snow Flurries:** Light snow falling for short durations. No accumulation or light dusting is all that is expected.
- **Snow Showers:** Snow falling at varying intensities for brief periods of time. Some accumulation is possible.
- **Snow Squalls:** Brief, intense snow showers accompanied by strong, gusty winds. Accumulation may be significant. Snow squalls are best known in the Great Lakes Region.
- **Blowing Snow:** Wind-driven snow that reduces visibility and causes significant drifting. Blowing snow may be snow falling and/or loose snow on the ground picked up by the wind.
- **Blizzards:** Winds over 35mph with snow and blowing snow, reducing visibility to ¼ mile or less for at least three hours.

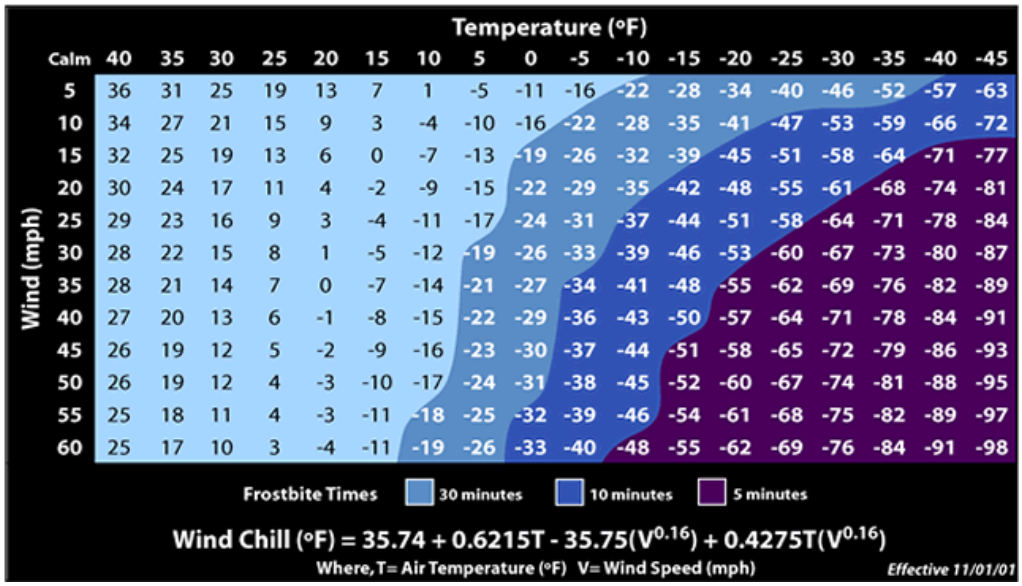
When snow, or the potential for snow, is detected by the NWS, several types of winter weather notices can be issued, according to the (NOAA, 2023):

- **Blizzard Warning:** Issued when winds of 35 mph or greater are combined with blowing and drifting snow with visibilities of ¼ mile or less. Seek indoor shelter immediately and stay indoors until the severe conditions end.
- **Winter Storm Warning:** Issued when a combination of hazardous winter weather in the form of heavy snow, heavy freezing rain, or heavy sleet is imminent or occurring. Winter Storm Warnings are usually issued 12 to 24 hours before the event is expected to begin.
- **Winter Storm Watch:** Issued 12-48 hours before the onset of severe winter conditions. The watch may or may not be upgraded to a winter storm warning, depending on how the weather system moves or develops.
- **Winter Storm Outlook:** Issued before a Winter Storm Watch. The Outlook is given when forecasters believe winter storm conditions are possible and are usually issued 3 to 5 days before a winter storm.
- **Winter Weather Advisories:** Issued for accumulations of snow, freezing rain, freezing drizzle, and sleet, which will cause significant inconveniences and, if caution is not exercised, could lead to life-threatening situations.
- **Lake Effect Snow Warning:** Issued when heavy lake effect snow is imminent or occurring.
- **Lake Effect Snow Advisory:** Issued when an accumulation of lake effect snow will cause significant inconvenience.
- **Wind Chill Warning:** Issued when wind chill temperatures are expected to be hazardous to life within several minutes of exposure.
- **Wind Chill Advisory:** Issued for a wind chill situation that could cause significant inconveniences but does not meet warning criteria. Criteria for issuing Windchill Warnings and Advisories are set locally.
- **Snow Flurries:** Light snow falling for short durations. No accumulation or light dusting is all that is expected.
- **Snow Showers:** Snow falling at varying intensities for brief periods of time. Some accumulation is possible.
- **Blowing Snow:** Wind-driven snow that reduces visibility and causes significant drifting. Blowing snow may be snow falling and/or loose snow on the ground picked up by the wind.

Wind Chill Index: The Wind Chill Index measures the heat loss rate from exposed skin caused by the combined effects of wind and cold. As the wind increases, heat is carried away from the body faster, driving down both the skin temperature and, eventually, the internal body temperature.

Exposure to extreme wind chills can be life-threatening. Exhibit 4-73 illustrates the Wind Chill Index, corresponding to various temperatures and wind speeds. For example, if the air temperature is 5°F and the wind speed is 10 miles per hour, the wind chill would be -10°F. As wind chills approaching -19°F and below, there is an increased likelihood that continued exposure will lead to individuals developing cold-related illnesses.

Exhibit 4-73. Wind Chill Chart



Probability and Frequency

Since 1994 when the National Climate Data Center (NCDC) started recording events, DuPage County has been impacted by one to three snow or ice events each winter. Therefore, the odds of a severe winter storm hitting DuPage County in any given year are 1:1 or a 100 percent chance.

Past Events

Severe winter storm events recorded by the NOAA are shown in Table 4-66 and Table 4-67. In addition, narrative descriptions from notable incidents are provided below.

January 1999: The January 1999 snow event blanketed the entire county. In Naperville, 11 inches of snowfall were recorded. The event brought a federal disaster declaration. DuPage County spent $187,000 over their regular costs. Woodridge spent over $102,000, Downers Grove spent over $44,000, and Wheaton over $82,000. Elmhurst spent over $90,000, and Lisle over $40,000.

December 2000: December 2000 snow event cost Elmhurst $74,000, Lisle $21,500, and Wheaton $51,103. Numerous deaths have been recorded for people suffering heart attacks following snow shoveling.

February 2007: Heavy snow fell across northern Illinois on February 13th, with some areas receiving over one foot of snow. In addition, wind gusts frequently blew at or above 35 mph, creating blizzard and whiteout conditions across many areas. Willowbrook measured 11.8 inches of snowfall, Oak Brook measured 11.0 inches, Winfield measured 10.5 inches, and Wheaton measured 10.1 inches of snowfall.

Table 4-66. DuPage County Recorded Winter Events (1997-2016)

1/9/1997	Winter Storm
1/15/1997	Winter Storm
3/9/1998	Heavy Snow
1/1/1999	Heavy Snow
3/5/1999	Heavy Snow
3/8/1999	Heavy Snow
2/18/2000	Heavy Snow
12/11/2000	Blizzard
1/30/2002	Winter Storm
3/2/2002	Winter Storm
3/4/2003	Winter Storm
1/4/2004	Heavy Snow
1/4/2005	Heavy Snow
1/21/2005	Heavy Snow
12/8/2005	Winter Storm
1/20/2006	Winter Storm
11/30/2006	Winter Storm
12/1/2006	Winter Storm
2/3/2007	Extreme Cold/wind Chill
2/13/2007	Blizzard
2/25/2007	Winter Storm
1/29/2008	Winter Storm
1/31/2008	Winter Storm
2/1/2008	Winter Storm
2/5/2008	Winter Storm
2/10/2008	Extreme Cold/wind Chill
2/25/2008	Winter Storm
3/21/2008	Winter Storm
12/18/2008	Winter Storm
12/21/2008	Extreme Cold/wind Chill
1/9/2009	Winter Storm
1/15/2009	Extreme Cold/wind Chill
2/5/2009	Extreme Cold/wind Chill
12/26/2009	Winter Storm
1/7/2010	Winter Storm
2/8/2010	Winter Storm
12/11/2010	Winter Storm
2/1/2011	Blizzard
1/12/2012	Winter Storm
1/20/2012	Winter Storm
2/26/2013	Heavy Snow
3/5/2013	Winter Storm
1/4/2014	Heavy Snow
1/6/2014	Extreme Cold/wind Chill
1/27/2014	Extreme Cold/wind Chill

2/1/2014	Heavy Snow
2/4/2014	Heavy Snow
2/17/2014	Heavy Snow
1/8/2015	Extreme Cold/wind Chill
2/1/2015	Heavy Snow
11/20/2015	Heavy Snow
12/4/2016	Heavy Snow

January and February 2011: Between January 31 and February 3, 2011, Northern Illinois, including all of DuPage County, experienced heavy snowfall. Most areas in DuPage County received over 20 inches of snow. O'Hare and Midway airports reported totals of 21.2 and 20.9 inches, respectively. Both airports were closed for several days. Peak wind gusts were measured at over 65mph. Major roadways like Lake Shore Drive were shut down and impassable. While no blizzard-related deaths were reported in DuPage County, every community in DuPage County was significantly impacted. Response cost countywide related to this event was estimated at over $3 million, resulting in State and Presidential Disaster Declarations (IEMA, 2018). As a result of the Presidential Declaration, Public Assistance reimbursements totaling $3,041,412 were received by 133 entities throughout DuPage County (FEMA, 2011).

Thousands of motorists and their vehicles became stranded during the evening hours as conditions deteriorated and snow quickly accumulated. The National Guard was activated to assist stranded motorists traveling on interstates, but large sections of interstates, including Interstate 80 and Interstate 39, were eventually closed. As a result, many communities began helping stranded motorists using plow trucks. In addition, many police officers began riding with plow truck drivers to respond to emergency calls because their cars were getting stuck in the snow. Many communities also had plow trucks escort ambulances and fire trucks. Other rescue personnel used snowmobiles to respond to emergency calls (IEMA, 2018).

During the height of the storm from the evening of February 1st into the morning of February 2nd, many communities pulled their plow trucks off the roads out of concern for the safety of their drivers. Many communities declared roads closed to traffic with little hope of rescue for anyone who ventured out into the blizzard and needed help. Whether roads were officially closed or not, most were impassible.

The high winds also blew down tree limbs and power lines, causing numerous power outages. A portion of a garden center roof collapsed under the weight of heavy snow in Naperville. On Sunday, February 13th, a 10-foot section of brickwork on the parapet along the roof of a building collapsed on Westmore Avenue in Lombard. Heavy snow and ice slid into the parapet and knocked it down.

January 18, 2019: During the evening of January 18, 2019, heavy snow developed over northern Illinois and continued through the late morning of January 19th. O'Hare International Airport set a daily record low of -23° on the morning of January 30th and -21° on the morning of January 31st.

Table 4-67. DuPage County Recorded Winter Events (2017--2022)

SEVERE WINTER STORM EVENTS IN DUPAGE COUNTY, IL (2017-2022)				
Date	Description	Deaths	Injuries	Property Damages
02/08/2018	Winter Storm	0	0	$0
11/25/2018	Winter Storm	0	0	$0
01/18/2019	Winter Storm	0	0	$0
02/11/2019	Ice Storm	0	0	$0
04/14/2019	Winter Storm	0	0	$0
01/25/2021	Winter Storm	0	0	$0
01/30/2021	Winter Storm	0	0	$0
02/03/2021	Cold/Wind Chill	1	0	$0
02/15/2021	Winter Storm	0	0	$0
02/13-14/2021	Cold/Wind Chill	0	0	$0
01/25/2022	Cold/Wind Chill	0	0	$0
02/02/2022	Winter Storm	0	0	$0
12/22/2022	Winter Storm	0	0	$0

February 3, 2021: During a severe winter storm event, a 96-year-old woman (who used a wheelchair) was left on a transport bus in Westmont during the afternoon of February 2nd. She was found unresponsive on the bus around 10:30 am on February 3rd and then pronounced dead. The low temperature at the NWS Office in Romeoville was eight degrees on the morning of February 3rd. The low temperature at Midway International Airport was 17°.

Vulnerability and Impacts

All of DuPage County is vulnerable to severe winter storms. Severe winter storms can lead to power outages, downed trees and branches, hypothermia, injuries, and loss of life. Climate data maintained by the Illinois State Water Survey indicates that between 1900 and 2000, Illinois can expect to receive a six-inch or more snowfall within 48 hours at least twice a year. In Illinois, severe winter storm losses since 1950 average an estimated $102 million annually. Severe winter storms can immobilize large areas, with rural areas particularly impacted by impassable roads.

Life Safety and Health: Severe winter storms bring two safety hazards. The first, weather-related hazards, include hazardous driving and walking conditions and heart attacks from shoveling snow. The second type, Extreme cold, is from the low temperatures, wind chill, and heat loss due to power outages.

According to NOAA, the number of deaths in the U.S. peaks in midwinter and reaches a low point in late summer (NOAA, 2023). Specific populations are especially vulnerable to the cold, including the elderly, people experiencing homelessness, and lower-income families with heating problems (Mayo Clinic, 2023). Most deaths from [severe] winter storms are not directly related to the storm itself:

- People die in traffic accidents on icy roads.
- People die of heart attacks while shoveling snow.
- People die of hypothermia from prolonged exposure to cold.

Recent observations show that:

- Of injuries related to ice and snow:
  - About 70% occur in automobiles.
  - About 25% are people caught out in the storm.
  - The majority are males over 40 years old.
- Of injuries related to exposure to cold:
  - 50% are people over 60 years old.
  - Over 75% are males.
  - About 20% occur in the home.

The effect of cold on people is usually made more severe by wind chill factors. The wind chill is reported as a temperature but is not the actual temperature. Instead, it is how wind and cold feel on exposed skin. As the wind increases, heat is carried away from the body at an accelerated rate, driving down the body temperature. Extreme cold can result in people and animals suffering from frostbite and hypothermia. Frostbite is damage to tissue caused by the effects of ice crystals in frozen tissue. Extremities (hands, feet, ears, and nose) with more circulation difficulties are most frequently affected" (Mayo Clinic, 2023).

Hypothermia is the lowering of the core body temperature. It is "clinically significant" when the body temperature is below 95°. Severe hypothermia occurs when the body's temperature drops below 85°, resulting in unconsciousness. If help does not come, death follows. Therefore, great care is needed to properly re-warm a person, even in mild cases (Mayo Clinic, 2023).

Property Damage and Critical Facilities: Historically, roofs would collapse due to heavy snow loads, but most buildings are now constructed with low temperatures, snow loads, and ice storms in mind. With today's energy consciousness, buildings are much better insulated than they were 50 years ago. As a result, severe winter storms do not have a major impact on structures. The significant effects of snow and ice storms on the property are on utilities and roads. Power lines and tree limbs are coated with heavy ice resulting in disrupted power and telephone service, often for days. Even small accumulations of ice can be hazardous to motorists and pedestrians. Bridges and overpasses are hazardous because they freeze before other surfaces.

Loss of power means businesses and manufacturing corporations must consider closure. Loss of access due to snow and/or ice-covered roads has a similar effect. There are also impacts when people need help getting to work, school, or the store. Proper planning is critical in winter weather situations.

Economy: While no data exists demonstrating the economic impact of past severe winter storms on DuPage County, loss of power means businesses may close due to manufacturing concerns must close. Loss of access to roads due to snow and/or ice accumulations has a similar effect. There are also impacts when people cannot get to work, school, or the store.

Changes in Development and Impact of Future Development: There is no impact based on current development trends.
Effects of Climate Change on Severity of Impacts: According to the Environmental Defense Fund (EDF), more snowfall during snowstorms is an expected effect of climate change. EDF further explains that a warmer planet is evaporating more water into the atmosphere, resulting in more precipitation in the form of heavy snowfall or downpour (Environmental Defense Fund, 2023).

Exhibit 4-74 illustrates 25-year precipitation projections, while Table 4-68 show future climate indicators for DuPage County.

Exhibit 4-74. 25-Year Precipitation Projections for DuPage County

25-YEAR PRECIPITATION PROJECTIONS FOR DUPAGE COUNTY, IL
HIGHER EMISSIONS (RCP8.5)
DuPage County is expected to experience a 12% increase in heavy precipitation within 25 years.
By 2048, DuPage County is expected to experience 0.6 more days of heavy precipitation per year (from 4.5 days to 5.1 days per year).
LOWER EMISSIONS (RCP4.5)
DuPage County is expected to experience a 1% increase in heavy precipitation within 25 years.
By 2048, DuPage County is expected to experience 0.04 more days of heavy precipitation per year (from 4.59 days to 4.63 days per year).
Source: Neighborhoods at Risk (https://nar.headwaterseconomics.org/)

Table 4-68. Future Climate Indicators for DuPage County

FUTURE CLIMATE INDICATORS FOR DUPAGE COUNTY, IL							
Indicator	**Modeled History** (1976-2005)	**Early Century** (2015-2044)		**Mid Century** (2035-2064)		**Late Century** (2070-2099)	
		Lower Emissions	Higher Emissions	Lower Emissions	Higher Emissions	Lower Emissions	Higher Emissions
	Min-Max	Min-Max	Min-Max	Min-Max	Min-Max	Min-Max	Min-Max
Precipitation:							
Annual Average Total Precipitation	35”	37”	37”	37”	38”	38”	39”
	34-36	34-41	33-41	34-42	33-44	34-43	34-45
Days Per Year With Precipitation (Wet Days)	171 days	169 days	168 days	168 days	167 days	167 days	164 days
	167-175	157-177	153-177	156-178	148-180	157-178	129-183
Maximum Period of Consecutive Wet Days	11 days	10 days	10 days	10 days	11 days	10 days	10 days
	10-13	9-12	9-12	9-12	9-12	9-12	9-13
Annual Days With:							
Annual Days With Total Precipitation > 1 inch	4 days	5 days	5 days	5 days	5 days	5 days	6 days
	3-4	3-6	4-5	4-6	4-7	4-7	4-9
	0 days	0 days	0 days	0 days	1 day	1 day	1 day

Annual Days With Total Precipitation > 2 inches	0-0	0-1	0-1	0-1	0-1	0-1	0-2
Annual Days With Total Precipitation > 3 inches	0 days	0 days	0 days	0 days	0 days	0 days	0 days
	0-0	0-0	0-0	0-0	0-0	0-0	0-0
Annual Days That Exceed 99th Percentile Precipitation	5 days	6 days	6 days	7 days	7 days	7 days	8 days
	5-6	6-8	6-8	6-8	7-9	6-8	8-10
Days With Maximum Temperature Below 32°F	40 days	30 days	29 days	25 days	23 days	21 days	12 days
	36-43	17-40	21-37	14-36	12-32	10-32	3-25
Source: Climate Mapping for Resilience and Adaptation (2023)							

Jurisdiction-specific Hazard Impact/Vulnerability: *Only those jurisdictions uniquely affected by blizzards, extreme colds, and ice storms are included. If a jurisdiction was not included, it denotes the hazard impact or vulnerability to blizzards, extreme cold, and ice storms is not significant and/or is adequately addressed at the county level. Jurisdictions completed the following form as part of the plan update:* https://integratedsolutions.wufoo.com/forms/dupage-county-natural-hazards/

Table 4-69. DuPage County Jurisdiction-specific Hazard Impact/Vulnerability

Jurisdiction	Affected Jurisdictions' Hazard Impact/Vulnerability Considerations
Village of Bartlett	The following is a list of establishments within Bartlett that are uniquely vulnerable to this natural disaster: 1) Artis Senior Living 2) The Oaks at Bartlett (Senior Living) 3) Victory Centre of Bartlett (Senior Living) 4) Maryville City Youth (Group home for troubled youths) The presence of backup generators for these facilities is unknown.
West Chicago	Not all assisted living facilities have backup generators. The Dialysis Center does not have backup generators.
City of Wheaton	The following is a list of establishments within the city that may be uniquely vulnerable to this natural disaster: elementary schools, high schools, Wheaton College Campus, and a number of apartment and condo buildings. Loss of power to any of these areas could be a problem for the affected population.
Village of Roselle	Many critical facilities do not have backup power sources. These include the Public Works Facility and Vehicle Maintenance Garage, the Devlin Wastewater Treatment Plant, the Botterman Wastewater Treatment Plant, seven water distribution facilities. Any of these facilities losing power can impact the health and safety of the community.
Village of Westmont	With many schools in Westmont, the village is vulnerable to travel hazards for children. The village also has many areas with power lines that are not underground and potentially create long-term power outages during severe weather.

Village of Villa Park	The Village of Villa Park snow and ice control equipment fleet has faced challenges with regard to upkeep and replacement of equipment as a result of increasing costs and decreasing availability of parts and replacement equipment.

FEMA NRI Expected Annual Loss Estimates

Table 4-70. DuPage County Expected Annual Loss Table

DUPAGE COUNTY, IL FEMA NRI EXPECTED ANNUAL LOSS TABLE FOR WINTER STORM EVENTS							
Annualized Frequency	Population	Population Equivalence	Building Value	Agriculture Value	Total Value	Expected Annual Loss Score	Expected Annual Loss Rating
4.4 events per year	0.03	$240,045	$14,949	$20	$255,013	34.09	Relatively High
DUPAGE COUNTY, IL FEMA NRI EXPECTED ANNUAL LOSS TABLE FOR ICE STORM EVENTS							
Annualized Frequency	Population	Population Equivalence	Building Value	Agriculture Value	Total Value	Expected Annual Loss Score	Expected Annual Loss Rating
0.5 events per year	0.02	$153,233	$95,077	N/A	$248,309	28.28	Relatively Moderate
DUPAGE COUNTY, IL FEMA NRI EXPECTED ANNUAL LOSS TABLE FOR COLD WAVE EVENTS							
Annualized Frequency	Population	Population Equivalence	Building Value	Agriculture Value	Total Value	Expected Annual Loss Score	Expected Annual Loss Rating
0.7 events per year	0.09	$698,670	$245	$1,080	$699,995	47.56	Relatively High

Annualized Frequency: *The natural hazard annualized frequency is defined as the expected frequency or probability of a hazard occurrence per year. Annualized frequency is derived either from the number of recorded hazard occurrences each year over a given period or the modeled probability of a hazard occurrence each year.*
Population: *Population exposure is defined as the estimated number of people determined to be exposed to a hazard according to a hazard type-specific methodology.*
Expected Annual Loss *scores are calculated using an equation that combines values for exposure, annualized frequency, and historic loss ratios (Expected Annual Loss = Exposure × Annualized Frequency × Historic Loss Ratio). Source: hazards.fema.gov/nri/expected-annual-loss*

Source: FEMA National Risk Index (2023)

FEMA Hazard-Specific Risk Index Table

Table 4-71. DuPage County Hazard Specific Risk Index Table

DUPAGE COUNTY, IL FEMA HAZARD SPECIFIC RISK INDEX – WINTER STORM EVENTS	
Risk Index Score	Risk Index Rating
12.00 / 100	Relatively Low
DUPAGE COUNTY, IL FEMA HAZARD SPECIFIC RISK INDEX – ICE STORM EVENTS	
Risk Index Score	Risk Index Rating

9.57 / 100	Relatively Low
DUPAGE COUNTY, IL FEMA HAZARD SPECIFIC RISK INDEX – COLD WAVE EVENTS	
Risk Index Score	**Risk Index Rating**
19.95 / 100	Relatively Moderate
*FEMA Hazard-Type **Risk Index Scores** are calculated using data for only a single hazard type and reflect a community's relative risk for only that hazard type.* *FEMA Hazard-Type **Risk Index Ratings** are a qualitative rating that describe the community in comparison to all other communities at the same level, ranging from "Very Low" to "Very High".*	
Source: FEMA National Risk Index (2023)	

4.13 Tornadoes

Hazard Description

A tornado is a violently rotating column of air extending from a thunderstorm to the ground. Since wind is invisible, tornadoes are hard to see unless one forms from water droplets, dust, and debris. The most violent tornadoes are capable of tremendous destruction with wind speeds of 250 mph or more. Damage paths can be more than one mile wide and 50 miles long. Most tornadoes have wind speeds of 112 mph or less.

Hazard Location

A tornado could occur anywhere in DuPage County.

Hazard Extent/Intensity

The Enhanced Fujita Scale, or the "EF-Scale," measures tornado strength and associated damages. This Enhanced Fujita Scale is illustrated in Table 4-72. The EF-Scale is an update to the earlier Fujita scale published in 1971. It classifies tornadoes occurring in the United States into six intensity categories based on the estimated maximum winds within the wind vortex. The EF-Scale has become the definitive metric for estimating wind speeds within tornadoes based on the damage done to buildings and structures since it was implemented through the National Weather Service in 2007.

Table 4-72. Enhanced Fujita Scale and Associated Damage

EF-Scale Number	Wind Speed (MPH)	Type of Damage Possible
EF0	**65-85**	**Minor damage**: Peels surface off some roofs; some damage to gutters or siding; branches broken off trees; shallow-rooted trees pushed over. Confirmed tornadoes with no reported damage (i.e., those that remain in open fields) are always rated EF0.

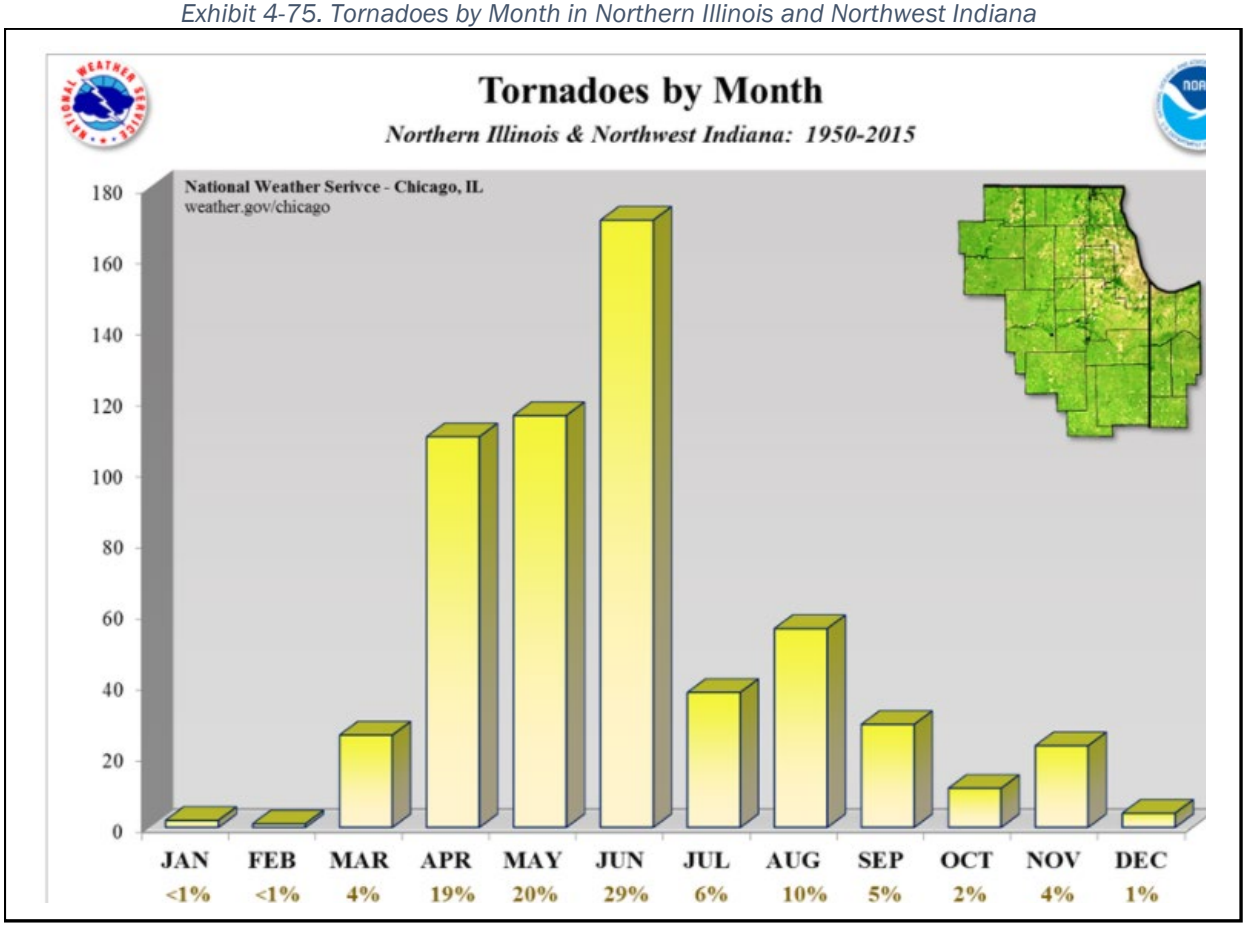
EF1	**86-110**	**Moderate damage**: Roofs severely stripped; manufactured homes overturned or badly damaged; loss of exterior doors; windows and other glass broken.
EF2	**111-135**	**Considerable damage**: Roofs torn off well-constructed houses; foundations of frame homes shifted; manufactured homes destroyed; large trees snapped or uprooted; light-object missiles generated; cars lifted off ground.
EF3	**136-165**	**Severe damage**: Entire stories of well-constructed houses destroyed; severe damage to large buildings such as shopping malls; trains overturned; trees debarked; heavy cars lifted off the ground and thrown; structures with weak foundations blown away some distance.
EF4	**166-200**	**Devastating damage**: Well-constructed houses and whole frame houses completely leveled; cars thrown, and small missiles generated.
EF5	**>200**	**Extreme damage**: Sturdy frame houses leveled off foundations and swept away; automobile-sized missiles fly more than 100 m (300 ft.); steel reinforced concrete structure badly damaged; high-rise buildings have significant structural deformation.

Based on historical and probabilistic models, the most severe and intense tornado was an F4. Given the geographic location and probabilistic models, this would suggest that an EF5 would be possible in DuPage County.

Probability and Frequency

For DuPage County, most tornadoes occur from March through September (Exhibit 4-75). In the 2018 Illinois Natural Hazard Mitigation Plan (IEMA, 2018), DuPage County had 25 of the total tornadoes recorded in Illinois between 1950 and 2017. DuPage County is 9th in the State for the highest normalized number of tornadoes per 100 square miles. DuPage County is classified as having a “medium” tornado risk based on historic tornado wind speeds and the number of recorded tornadoes per 1,000 square miles.

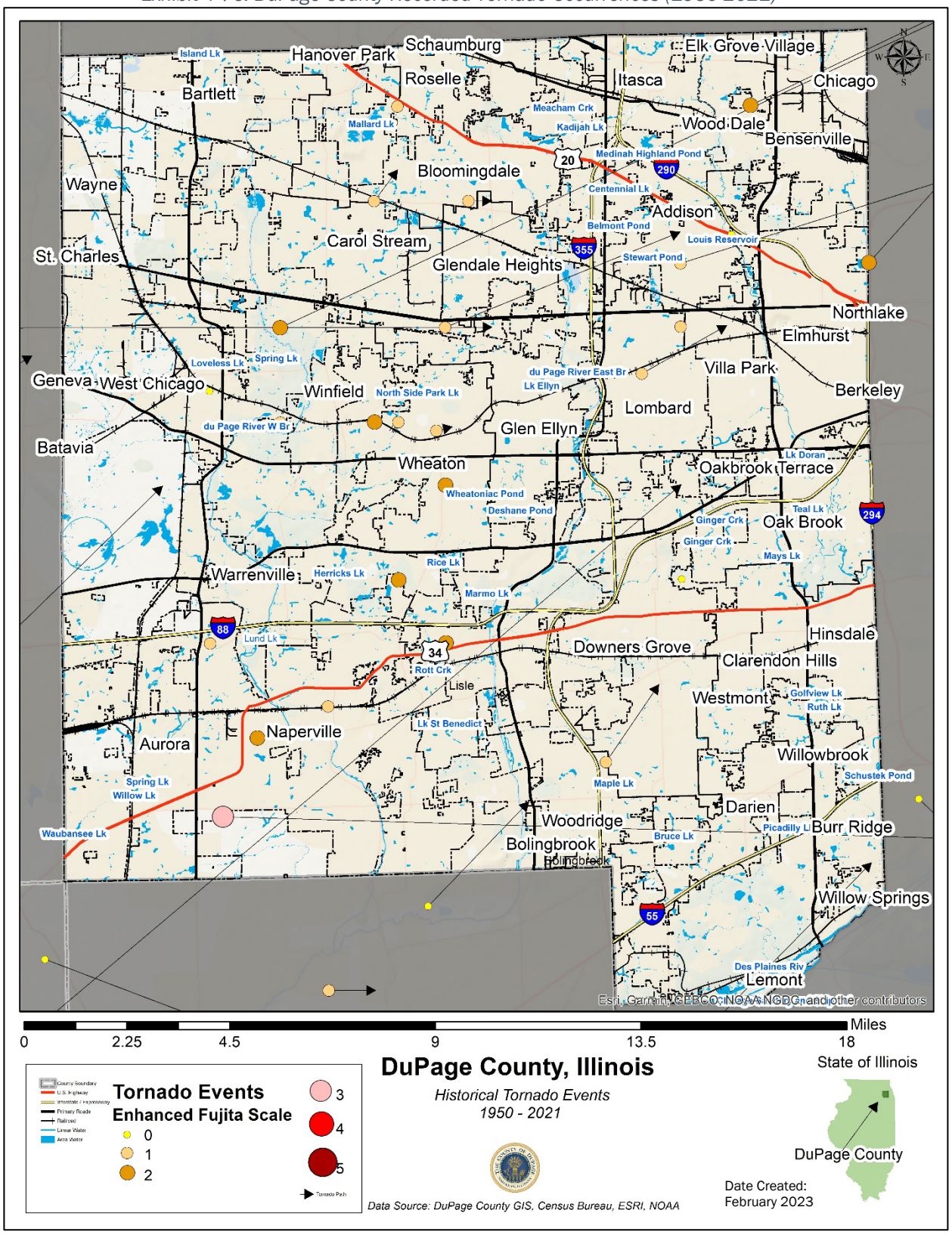
Exhibit 4-75. Tornadoes by Month in Northern Illinois and Northwest Indiana



Though no official recurrence intervals are calculated for tornadoes, with over 20 occurrences over 67 years (1950 to 2017), the likelihood of a tornado occurring somewhere within the county is 35% in any given year. The width and the length of a tornado's path can vary greatly, but with an assumption that a tornado affects one square mile of land and there are 334 square miles in DuPage County, the odds of a tornado hitting any particular square mile in the county is one in 960 each year, or a 0.001% chance (NOAA, 2023).

While DuPage County has experienced lulls in tornadic activity for nearly ten years, when examining the intervals between tornadoes outlined in Table 4-73, DuPage County experiences a tornado approximately every two years. The paths of tornadoes from 1950 to 2021 can be seen in Exhibit 4-76.

Exhibit 4-76. DuPage County Recorded Tornado Occurrences (1950-2021)



Significant Past Incidents

"About 1,200 tornadoes hit the U.S. yearly. However, since official tornado records only date back to 1950, we do not know the actual average number of tornadoes that occur each year. Plus, tornado spotting and reporting methods have changed a lot over the last several decade's (NOAA, 2023)". Tornadoes come in all shapes and sizes and can occur anywhere in the U.S. at any time of day or year. In the southern states, peak tornado season is March through May, while peak months in the northern states are during summer.

Table 4-73 below shows the recorded tornado events for DuPage County from 1950 to 2017, as recorded by NOAA's National Climate Data Center. From 1950 to 2017, DuPage County had one F3 tornado and one F4 tornado during the same month, in June 1976. There have also been seven F2 events. No deaths were attributed to the tornadoes shown in Table 4-73; however, there were 44 injuries.

Table 4-73. Tornadic Activity in DuPage County, Illinois (1950-2017)

Location	County/Zone	St	Date	Time	T.Z.	Type	Mag	Dth	Inj	PrD	CrD
Totals:								**0**	**44**	**12.463M**	**0.00K**
DU PAGE CO.	DU PAGE CO.	IL	04/28/1955	21:05	CST	Tornado	F1	0	3	2.500M	0.00K
DU PAGE CO.	DU PAGE CO.	IL	09/26/1959	17:45	CST	Tornado	F2	0	0	250.00K	0.00K
DU PAGE CO.	DU PAGE CO.	IL	09/30/1961	13:30	CST	Tornado	F1	0	0	25.00K	0.00K
DU PAGE CO.	DU PAGE CO.	IL	05/26/1965	07:45	CST	Tornado	F2	0	11	250.00K	0.00K
DU PAGE CO.	DU PAGE CO.	IL	06/23/1965	17:50	CST	Tornado	F1	0	0	2.50K	0.00K
DU PAGE CO.	DU PAGE CO.	IL	11/12/1965	14:48	CST	Tornado	F2	0	0	25.00K	0.00K
DU PAGE CO.	DU PAGE CO.	IL	04/19/1966	22:27	CST	Tornado	F2	0	0	250.00K	0.00K
DU PAGE CO.	DU PAGE CO.	IL	04/21/1967	17:10	CST	Tornado	F1	0	0	25.00K	0.00K
DU PAGE CO.	DU PAGE CO.	IL	04/21/1967	17:10	CST	Tornado	F1	0	0	250.00K	0.00K
DU PAGE CO.	DU PAGE CO.	IL	07/26/1969	15:50	CST	Tornado	F1	0	0	25.00K	0.00K
DU PAGE CO.	DU PAGE CO.	IL	08/24/1971	19:15	CST	Tornado	F2	0	2	250.00K	0.00K
DU PAGE CO.	DU PAGE CO.	IL	07/17/1972	19:10	CST	Tornado	F2	0	0	2.500M	0.00K
DU PAGE CO.	DU PAGE CO.	IL	06/20/1974	18:40	CST	Tornado		0	0	0.00K	0.00K
DU PAGE CO.	DU PAGE CO.	IL	06/18/1975	12:50	CST	Tornado	F0	0	0	2.50K	0.00K
DU PAGE CO.	DU PAGE CO.	IL	03/12/1976	12:57	CST	Tornado	F3	0	3	2.500M	0.00K
DU PAGE CO.	DU PAGE CO.	IL	03/12/1976	13:20	CST	Tornado	F2	0	25	2.500M	0.00K
DU PAGE CO.	DU PAGE CO.	IL	06/13/1976	16:48	CST	Tornado	F4	0	0	250.00K	0.00K
DU PAGE CO.	DU PAGE CO.	IL	08/02/1978	15:30	CST	Tornado	F0	0	0	0.00K	0.00K
DU PAGE CO.	DU PAGE CO.	IL	04/23/1991	12:50	CST	Tornado	F1	0	0	2.50K	0.00K

WHEATON	DU PAGE CO.	IL	07/18/1997	14:30	CST	Tornado	F1	0	0	0.00K	0.00K
WINFIELD	DU PAGE CO.	IL	08/23/2007	14:08	CST-6	Tornado	EF1	0	0	15.00K	0.00K
CLOVERDALE	DU PAGE CO.	IL	08/04/2008	18:45	CST-6	Tornado	EF1	0	0	40.00K	0.00K
BLOOMINGDALE	DU PAGE CO.	IL	08/04/2008	18:47	CST-6	Tornado	EF1	0	0	250.00K	0.00K
THE MEADOWS	DU PAGE CO.	IL	06/21/2011	19:31	CST-6	Tornado	EF1	0	0	500.00K	0.00K
WOODRIDGE	DU PAGE CO.	IL	08/18/2015	18:57	CST-6	Tornado	EF0	0	0	0.00K	0.00K
DOWNERS GROVE	DU PAGE CO.	IL	08/18/2015	19:06	CST-6	Tornado	EF0	0	0	50.00K	0.00K
Totals:								**0**	**44**	**12.463M**	**0.00K**

2007: On August 23rd, 2007, an EF1 tornado touched down near Prince Crossing Road south of Geneva Road in Winfield. The tornado had a path length of 2.67 miles and a path width of 300 to 500 yards. The tornado lifted just west of Gary Avenue, south of Geneva Road. The primary damage from the tornado included several large, uprooted hardwood trees. Shingles and power lines were also blown down.

2008: On August 4th, 2008, a brief EF1 tornado touched down in an industrial area near Fox Court. It continued east northeast across South Gary Drive and dissipated near Stratford Square Mall. A large warehouse had a wall blown out near Fox Court and Madsen Drive.

A second, brief tornado touched down in Bloomingdale near an apartment complex on Century Point Lane. There was roof and window damage at two apartment buildings. In addition, significant damage was done to houses' roofs and trees from Cardinal Drive east across Bloomingdale Road through Norton Lane and into the area around Sterling Drive.

2011: On June 21st, 2011, the National Weather Service storm survey confirmed an EF1 tornado touched down near Sunnydale Park and lifted near 55th and Main in Downers Grove. Most of the damage was to trees. Many mature hardwood trees had been snapped or knocked down. In addition, falling trees damaged an estimated 35 homes.

Table 4-74 shows DuPage County's tornado events from 2017 to 2022, as recorded by NOAA's National Climate Data Center. From 2017 to 2022, DuPage County had one EF3 tornado and two EF1 tornadoes. One death and eleven injuries were attributed to the tornadoes shown in Table 4-74.

Table 4-74. Tornadic Activity in DuPage County, Illinois (2017-2022)

Location	County/Zone	St.	Date	Time	T.Z.	Type	Mag	Dth	Inj	PrD	CrD
Totals:								0	11	0.00K	0.00K
WHEATON	DU PAGE CO.	IL	08/10/2020	14:35	CST-6	Tornado	EF1	0	0	0.00K	0.00K
LOMBARD	DU PAGE CO.	IL	08/10/2020	14:39	CST-6	Tornado	EF1	0	0	0.00K	0.00K
ADDISON	DU PAGE CO.	IL	06/20/2021	21:54	CST-6	Tornado	EF0	0	0	0.00K	0.00K
NAPERVILLE	DU PAGE CO.	IL	06/20/2021	22:02	CST-6	Tornado	EF3	1	11	0.00K	0.00K

OAK BROOK	DU PAGE CO.	IL	04/30/2022	15:44	CST-6	Tornado	EF0	0	0	0.00K	0.00K
ROSELLE	DU PAGE CO.	IL	06/13/2022	17:29	CST-6	Tornado	EF0	0	0	0.00K	0.00K
AURORA/NAPERVILLE	DU PAGE CO.	IL	07/23/2022	04:40	CST-6	Tornado	EF0	0	0	0.00K	0.00K
ADDISON	DU PAGE CO.	IL	03/31/2023	20:17	CST-6	Tornado	EF1	TBD	TBD	TBD	TBD
Totals:								**1**	**11**	**0.00K**	**0.00K**

2020: On August 10th, 2020, an EF1 tornado with peak winds of 90 mph touched down near Seminary Avenue and Scott Street and moved northeast, where it knocked down a roughly 50-foot steeple at the College Church of Wheaton. The tornado produced minor tree damage before lifting near Collage Avenue and Howard Street.

2021: On June 20th, 2021, an EF3 tornado with peak winds of 140 mph touched down just south of 75th Street, west of Book Road, in the western portion of the Springbrook Prairie Forest Preserve located in Naperville. The near-continuous damage path started near Plainfield-Naperville Road and Sheppey Court, where considerable tree damage occurred. Significant tree damage began east of Modaff Road, with trees snapped, and others uprooted along Quall Drive. Significant tree damage occurred near Verdin Lane, with trees uprooted, trunks snapped, and large tree limbs broken and tossed into homes. Damage to homes in this area appeared primarily due to falling trees. Tree damage continued through Killdeer Drive and along Bailey Road. Damage to roofs occurred in some homes in this area. Several utility poles were blown down on Bailey Road, between Lighthouse Drive and Coach Drive. Windows were broken, and debris was embedded in stucco on a southside wall of an apartment building on the southeast corner of Bailey Road and Coach Drive. The tornado gradually intensified east of Naper Boulevard. Large trees were snapped just east of Naper Boulevard along Bailey Road. One fell onto a home, causing roof damage. Naperville Fire Station #2 was damaged.

The tornado jogged to the northeast and began to increase in width, with tree damage continuing through Fender Road, where roof and wall damage occurred to a home from a falling tree. Tree damage continued through Clemson Drive and Wehrli Road. Widespread tree damage occurred near 77th Street, where one car was flipped over, and a second car was damaged by debris. Roof and siding damage occurred to homes, and a garage wall was removed. A garage door was blown in, and a wall was destroyed on Siebert Court. The tornado destroyed a home on Princeton Circle. The house collapsed with debris deposited to the northeast, though dwellings on either side remained standing with only minor damage. At this location, the tornado reached a peak intensity of EF3. In the same block, considerable damage occurred to the roofs of several nearby homes. Damage to dwellings continued along Nutmeg Lane to Shady Grove Court, including removing walls on the second floor of at least one home and roofing damage to several others. The tornado increased in width as it moved between 75th and 79th Streets, destroying garages and lifting the roofing of an apartment complex along Gladstone Drive. Considerable tree damage also occurred in the Green Valley Forest Preserve as the tornado crossed Greene Road.

The tornado continued east across Route 53, with tree and roof damage noted. More significant damage began again near Woodridge Drive. Several homes were damaged, with large trees uprooted or snapped. Multiple fences were also blown down. Damage to dwellings continued near Evergreen Lane and James Court, where several homes

suffered significant roof and second-story damage. Finally, the tornado crossed Interstate 355, where a large portion of a traffic sign on southbound Interstate 355 was ripped off two steel posts. The missing section of the traffic sign was found in a pond in the Lake Ridge Club, between 79th Street and 81st Street, east of Madison Street in Burr Ridge, nearly 6 miles from its original location.

Significant damage occurred to homes and apartment buildings east of Interstate 355 between Country Club Drive and Egerton Drive. Some roofs were removed entirely. Tree and roof damage continued along Pine Drive and Britten Street. The tornado began to increase in width again as it crossed Lemont Road, where a warehouse building was damaged. Tree and roof damage continued through Highland Avenue, Plainfield Road, Bailey Road, and Cass Avenue. At least one apartment building suffered significant roof damage along Lakeview Drive. East of Cass Avenue, the tornado produced mainly tree damage, crossing Interstate 55, then Route 83, and then moving east along 83rd Street. Damage occurred to several dozen homes in Burr Ridge. The tornado crossed into Cook County near 83rd Street.

In Naperville, 231 structures reported some level of damage. One home was destroyed, 19 were declared uninhabitable, and 143 sustained significant damage. In Woodridge, 640 structures were damaged, including 31 homes that were uninhabitable and 157 that sustained substantial damage. In Darrien, two houses were damaged, and one was uninhabitable. A total of 11 people were injured, including a woman who was six months pregnant and critically injured. The woman lost her unborn baby as a result of her injuries.

Vulnerability and Impacts

Life Safety: Within the last five years, DuPage County has lost life and suffered 11 injuries due to tornadic events. Residents living in manufactured homes are more vulnerable than people in permanent homes. People can inadvertently put their lives in danger during a tornado or have little or no warning.

Property Damage and Critical Facilities: Although tornadoes strike at random, making all buildings vulnerable, three types of structures are more likely to suffer damage:

- Manufactured homes,
- Homes on crawlspaces (more susceptible to lift), and
- Buildings with large spans include airplane hangars, gymnasiums, and factories.

DuPage County has approximately 732 manufactured homes that could be impacted by a tornadic event (Neighborhoods At Risk, 2023).

In areas subject to extreme wind events, those responsible for public safety—including building owners, schools, hospitals, and neighborhood associations—should consider building accessible community safe rooms. In addition, people who live or work in structures with inadequate protection, such as manufactured homes or buildings with long-span roofs, also should discuss the option of building a community safe room or shelter (FEMA, 2021).

Because a tornado can hit anywhere in the county, all structures are susceptible to being hit. Schools are a particular concern, though, for two reasons:

- They have large numbers of people present, either during school or as a storm shelter, and
- They have large span areas, such as gyms and theaters.

Economy: No data exists demonstrating the economic impact of past tornadoes on DuPage County. However, significant historical events in Illinois and the U.S. have been shown to impact stores and small businesses, including excessive loss of revenue.

Changes in Development and Impact of Future Development: No data exists demonstrating the impact of tornadoes on future development in DuPage County. However, tornadoes in Illinois and the U.S. have been shown to influence changes in building codes and zoning laws to ensure that structures are built to withstand high winds and other severe weather events. Additionally, tornadoes can lead to changes in emergency management plans to better prepare for future disasters. For example, storm shelters and warning systems may be installed to protect residents during severe weather better.

Effects of Climate Change on Severity of Impacts: In a 2021 thesis study, pseudo-global warming (PGW) methodology was used to analyze two historical tornadic events within environments influenced by anthropogenic climate change (ACC). In the findings of this study, weather research and forecasting modeling (WRF) suggested that more convective and intense storms would occur under ACC. In addition, accumulated precipitation also generally increased, and more areas received measurable rainfall, where extreme rainfall – more than 100 mm – increased by more than 50% on average (Woods, 2021).

Climate Change Impact on Tornadic Events in DuPage County:

Exhibit 4-77. 25-Year Climate Projections for DuPage County

25-YEAR CLIMATE PROJECTIONS FOR DUPAGE COUNTY, IL	
HIGHER EMISSIONS (RCP8.5)	
	DuPage County is expected to experience a 117% increase in extremely hot days within 25 years.
	By 2048, DuPage County is expected to experience 11 more days that reach above 95°F (from 10 days to 21 days per year).
LOWER EMISSIONS (RCP4.5)	
	DuPage County is expected to experience a 79% increase in extremely hot days within 25 years.
	By 2048, DuPage County is expected to experience 7 more days that reach above 95°F (from 9 days to 15 days per year).
Source: Neighborhoods at Risk (https://nar.headwaterseconomics.org/)	

Using Woods' thesis study and 25-Year climate projections in Exhibit 4-77, it is possible to conclude that increasing climate conditions will impact the connectivity and intensity of future tornadic events in DuPage County.

Jurisdiction-specific Hazard Impact/Vulnerability: *Only those jurisdictions uniquely affected by tornado are included. If a jurisdiction was not included, it denotes the hazard impact or vulnerability to tornado is not significant and/or is adequately addressed at the county level. Jurisdictions completed the following form as part of the plan update:* https://integratedsolutions.wufoo.com/forms/dupage-county-natural-hazards/

Table 4-75. DuPage County Jurisdiction-specific Hazard Impact/Vulnerability

Jurisdiction	Affected Jurisdictions' Hazard Impact/Vulnerability Considerations
Village of Bartlett	There is a manufactured home park (Spring Lake Manufactured Home Estates) located in the northwest part of town.
Village of Wayne	Due to the high number of trees in the Village, downed trees knocking out power lines and blocking roads during severe weather with strong winds, such as a tornado, would be an issue.
West Chicago	Tornadoes have touched down within DuPage County and sightings have been reported in West Chicago. Assisted living and behavioral health facilities could be affected.
City of Wheaton	The following is a list of establishments within the city that may be uniquely vulnerable to this natural disaster: elementary schools, high schools, Wheaton College Campus, and a number of apartment and condo buildings. Loss of power to any of these areas could be a problem for the affected population.
Village of Glen Ellyn	Backup power generation at water and sewer facilities is inadequate. Currently, two trailer-mounted generators and one with natural gas run six water facilities (4 buildings and 2 water towers) and 5 lift stations.
Village of Roselle	Many critical facilities do not have backup power sources. These include the Public Works Facility and Vehicle Maintenance Garage, the Devlin Wastewater Treatment Plant, the Botterman Wastewater Treatment Plant, 7 wastewater lift stations, and 7 water distribution facilities. Any of these facilities losing power can impact the health and safety of the community.
Village of Villa Park	The Village of Villa Park has a maturing and aging tree population, both public and private, that is susceptible to wind damage and even knockdown as a result of this hazard.

FEMA NRI Expected Annual Loss Estimates

Table 4-76. DuPage County Expected Annual Loss Table

DUPAGE COUNTY, IL FEMA NRI EXPECTED ANNUAL LOSS TABLE FOR TORNADIC EVENTS							
Annualized Frequency	Population	Population Equivalence	Building Value	Agriculture Value	Total Value	Expected Annual Loss Score	Risk Index Rating
0.2	2.01	$15,242,960	$11,317,714	$26	$	57.47	Very High

Annualized Frequency: *The natural hazard annualized frequency is defined as the expected frequency or probability of a hazard occurrence per year. Annualized frequency is derived either from the number of recorded hazard occurrences each year over a given period or the modeled probability of a hazard occurrence each year.*
Population: *Population exposure is defined as the estimated number of people determined to be exposed to a hazard according to a hazard type-specific methodology.*
Expected Annual Loss Scores *are calculated using an equation that combines values for exposure,*

annualized frequency, and historic loss ratios (Expected Annual Loss = Exposure × Annualized Frequency × Historic Loss Ratio). Source: hazards.fema.gov/nri/expected-annual-loss
Source: FEMA National Risk Index (2023)

FEMA Hazard-Specific Risk Index Table

Table 4-77. DuPage County Hazard Specific Risk Index Table

DUPAGE COUNTY, IL FEMA HAZARD SPECIFIC RISK INDEX - TORNADO	
Risk Index Score	**Risk Index Rating**
25.18 / 100	Relatively High
*FEMA Hazard-Type **Risk Index Scores** are calculated using data for only a single hazard type and reflect a community's relative risk for only that hazard type.* *FEMA Hazard-Type **Risk Index Ratings** are a qualitative rating that describes the community in comparison to all other communities at the same level, ranging from "Very Low" to "Very High."*	
Source: FEMA National Risk Index (2023)	

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Chapter 5: Capabilities and Integration of Mitigation Measures

5.1 Preventative Measures

Preventative activities keep problems related to natural hazards from escalating and ensure new developments have reduced vulnerability to hazards. The following examples of preventative measures are usually carried out by building, planning, zoning, and/or code enforcement officials:

- Floodplain Mapping and Data
- Open Space Preservation
- Floodplain Regulations
- Erosion Setbacks
- Planning and Zoning
- Stormwater Management
- Drainage System Maintenance
- Building Codes

The information within this Chapter largely focuses on building codes, planning and zoning, stormwater runoff, floodplain management, water quality protection, and soil erosion control.

DuPage County is responsible for establishing countywide minimum standards for permitting of developments affecting stormwater runoff. In response to increasing flood damages due to increasing urbanization in the Chicagoland area, the State authorized the counties in northeastern Illinois to adopt countywide stormwater and floodplain management programs. In addition to providing funding for regional watershed planning and flood control efforts, the law allowed for the creation of countywide ordinances for the prevention of future damages due to development. The Countywide Stormwater and Floodplain Ordinance (herein referred to as “ordinance”) was adopted in October of 1991 and went into effect in February 1992. The ordinance was last revised on September 13, 2022. The ordinance addresses every aspect of stormwater and floodplain management, including stormwater runoff and storage, post-construction best management practices (BMPs), sediment and erosion control, floodplain and floodway impacts, buffer area impacts, wetland impacts and water quality impacts. The ordinance also sets administrative requirements regarding permitting procedures, performance security, enforcement, and penalties, appeals and variance procedures. Unincorporated DuPage County is a Non-Waiver Community under the ordinance, where Stormwater Management reviews and administers all areas of the ordinance within the Unincorporated area (DuPage County, 2022).

5.1.1 Building Codes

Updating and adopting new building codes, as well as addressing the effectiveness of these codes, can be one of the best ways to conduct mitigation. When properly designed and constructed, many buildings can withstand the impacts of high winds, a flood, or a tornado. Many communities in Illinois are working with various versions of the International Codes published by the International Code Council, Inc. (ICC). These codes include:

- International Building Code (IBC)
- International Residential Code (IRC)
- International Fire Code (IFC)
- International Mechanical Code (IMC)
- International Fuel Gas Code (IFGC)
- International Existing Building Code (IEBC)
- International Wildland-Urban Interface Code (IWUIC)
- International Property Maintenance Code (IPMC)
- International Swimming Pool and Spa Code (ISPSC)
- International Zoning Code (IZC)

Additionally, Illinois communities are required by the State to enforce the Illinois Energy Efficient Building Code, Illinois State Plumbing Code, and the Illinois Accessibility Code. The following communities have updated their building codes, since the previous version of this Plan: Addison, Bartlett, Bloomingdale, Burr Ridge, Carol Stream, Clarendon Hills, Glen Ellyn, Hanover Park, Itasca, Lisle, Lombard, Oak Brook, Roselle, Villa Park, Warrenville, Wayne, Westmont, Wheaton, Willowbrook, and DuPage County.

The following codes apply to the unincorporated areas of DuPage County: Current Building Code (residential construction), 2021 International Code Council (International Building Code, International Fire Code, International Mechanical Code, International Fuel Gas Code, International Property Maintenance Code), 2020 National Electric Code, current Illinois Energy Efficient Building Code, current Illinois State Plumbing Code and current Illinois Accessibility Code.

Code Administration

Enforcement of code standards is very important to hazard mitigation. Adequate inspections are needed during the course of construction to ensure that the builder understands and implements the requirements. The Building Code Effectiveness Grading Schedule (BCEGS) is a national program used by the insurance industry to determine how well new construction is protected from wind, earthquake and other non-flood hazards. It is similar to the CRS program and the fire insurance rating scheme: building permit programs are reviewed and scored. A class 1 community is the highest rating, and a class 10 community is the most basic rating. As a result of code improvements and upgrades, many DuPage County communities have received improved BCEGS ratings.

Training of code officials is also very important for code enforcement. Training of code officials and inspectors is a large part of the BCEGS rating for a community. Courses are offered through the building code associations to help local officials understand standards that apply to seismic, wind and flood hazards.

The DuPage County Building and Zoning Department participates in the plan review of all buildings and structures for County Buildings, and for developments by the DuPage County Forest Preserve District to provide an added dimension of review to ensure life safety. Table 5-1 lists building code adoptions in use within DuPage County.

Table 5-78 Building Codes Used in DuPage County

	Building Code Residential	Building Code Commercial
Village of Addison	IRC 2018	IBC 2018
City of Aurora	IRC 2015	IBC 2015
Village of Bartlett	IRC 2018	IBC 2018
Village of Bloomingdale	IRC 2021	IBC 2021
Village of Bensenville	IRC 2015	IBC 2015
Village of Burr Ridge	IRC 2017	IBC 2017
Village of Carol Stream	IRC 2018	IBC 2018
Village of Clarendon Hills	IRC 2015	IBC 2015
City of Darien	IRC 2015	IBC 2015
Village of Downers Grove	IRC 2015	IBC 2016
City of Elmhurst	IRC 2012	IBC 2012
Village of Glendale Heights	IRC 2006	IBC 2006
Village of Glen Ellyn	IRC 2018	IBC 2018
Village of Hanover Park	IRC 2021	IBC 2021
Village of Hinsdale	IRC 2006	IBC 2006
Village of Itasca	IRC 2018	IBC 2018
Village of Lisle	IRC 2021	IBC 2021
Village of Lombard	IRC 2018	IBC 2018
City of Naperville	IRC 2018	IBC 2018
Village of Oak Brook	IRC 2021	IBC 2021
City of Oakbrook Terrace	IRC 2009	IBC 2009
Village of Roselle	IRC 2018	IBC 2018
Village of Villa Park	IRC 2015	IBC 2015
City of Warrenville	IRC 2021	IBC 2021
Village of Wayne	IRC 2018	IBC 2018
City of West Chicago	IRC 2015	IBC 2015
Village of Westmont	IRC 2021	IBC 2021
City of Wheaton	IRC 2018	IBC 2018
Village of Willowbrook	IRC 2018	IBC 2018
Village of Winfield	IRC 2015	IBC 2015
City of Wood Dale	IRC 2012	IBC 2012
Village of Woodridge	IRC 2012	IBC 2012
DuPage County	IRC 2021	IBC 2021

** Information is based on Natural Hazard Mitigation Plan Annual Reports / existing best available county data.*

5.1.2 Planning and Zoning

Planning and zoning activities, such as land use plans, transportation plans, subdivision ordinances, zoning code and economic re-development plans, can be used to direct development away from hazardous areas. For example, comprehensive land use plans can designate floodplains and wetlands as areas for open space, wetlands, or low-density residential. Table 5-2 shows the communities in DuPage County with adopted comprehensive plans, zoning ordinances, and subdivision ordinances. The table also highlights communities where flood or other hazards are addressed.

Comprehensive Plans

Comprehensive Plans are the primary tools used by communities to address future development. They can reduce future flood-related damages by indicating open space or low-density development within floodplains and other hazardous areas. Natural hazards should be emphasized in specific land use recommendations. In addition to developing community-specific plans, the county and several communities have engaged in the Local Technical Assistance (LTA) Planning Grant Program, offered by the Chicago Metropolitan Agency for Planning (CMAP). This program enables communities within the Chicagoland Region to gain funding for projects within the areas of transportation, land use, environmental, and stormwater planning.

The following 19 jurisdictions have updated their comprehensive plans since the previous version of the hazard mitigation plan: Aurora, Bartlett, Bloomingdale, Burr Ridge, Carol Stream, Clarendon Hills, Glen Ellyn, Hanover Park, Itasca, Lisle, Lombard, Oak Brook, Villa Park, Warrenville, Wayne, Westmont, Wheaton, Willowbrook, and DuPage County.
The following provides a brief description of DuPage County communities and their efforts to integrate hazard mitigation, hazards, and other mitigation considerations into their comprehensive or related community-wide plans.

Hyperlinks to each community-specific plan can be accessed by clicking on the community name.

Addison: On January 7, 2013, the Addison Village Board unanimously adopted a new comprehensive plan, developed through CMAP's LTA Program. "Despite being a built-out community with a range of thriving land uses, Addison presents unique opportunities for improvements to its built and unbuilt environment. Infill development will continue to shape the community's physical, economic, and social character, while regional changes caused by the O'Hare airport expansion project and new western access to O'Hare will impact development decisions in the Village's foreseeable future. As a result, Addison will be faced with numerous near and long-term decisions. Having an up-to-date Comprehensive Plan in place provides a context in which decisions affecting the future of Addison can be made with some certainty that today's choices — whether large or small — contribute to achieving the long-term goals and vision of the community."

Aurora: In 2019, the City of Aurora adopted a new sustainability plan with goals to combat climate change and promote sustainability. The city aims to improve air quality, reduce greenhouse gas emissions, and engage the community in climate change mitigation and adaptation. The vision of the plan includes development of the community's environmental, social, and economic resources using best practices, promoting local and sustainable development, protecting natural assets, and enhancing recreational opportunities for all residents. The plan highlights a commitment to promoting environmental justice, by ensuring that all neighborhoods have access to sustainable development opportunities. The plan also aims to create a resilient community by promoting beauty and livability, improving plant and wildlife diversity, promoting safe practices, supporting innovative technologies for local food production and distribution, and integrating resiliency strategies into development policies and plans. Finally, the plan aims to improve transportation and infrastructure by improving pedestrian and bicycle networks and connecting with regional partners.

Bartlett: In 2016-2017, the Village of Bartlett adopted a new comprehensive plan. The goals of this Plan include fostering a sense of community, attracting (and retaining) diverse businesses, maintaining and enhancing the appearance of the community, and providing high-quality, responsive, and cost-effective village services. The objectives for achieving these goals include promoting community identity, events, and resident involvement; reviewing municipal policies, processes, and regulations relative to the business community; advancing residential, industrial, and commercial regulations via ordinance and policy reviews and implementation; and encouraging environmentally friendly development, purchases, awareness, and programs. The plan also emphasizes the importance of maintaining a fiscally responsible government, providing infrastructure, facilities, and services to focus on core municipal service areas, and maintaining emergency management efforts to ensure the safety of the community.

Bensenville: The Village of Bensenville has been impacted and shaped by the multi-billion dollar O'Hare Modernization Program. To help the community take advantage of this major capital project (CMAP, 2017) the CMAP LTA Program helped the Village develop a new Comprehensive Plan. The Comprehensive Plan was adopted by the Village on January 28, 2015. The Comprehensive Plan built upon the Airport Compatibility Study from April 2013, addressed stormwater issues, including Silver Creek and Addison Creek Watersheds, storm sewer and detention basin projects, and outreach and education programs.

Bloomingdale: In September 2010, the Village of Bloomingdale adopted a new Comprehensive Land Use plan. Within this Plan, land use goals for maximizing property value are centered on maintaining efficient land use patterns while providing ample opportunities for living, working, shopping, and recreation. The objectives outlined include evaluating new development proposals for consistency with the Comprehensive Plan land use map, ensuring compatibility of new development with surrounding areas, and promoting site development that respects natural topographic conditions while protecting floodplains, wetlands, and mature vegetation. The plan also notes that scale of new development should be appropriate for surrounding land uses, as well as pedestrian and vehicular traffic patterns. Annexation of lands necessary to accommodate the future growth of the community is also highlighted, with recognition of its impact on future development.

This Plan also includes recommendations for future development and hazard mitigation. Regarding flooding and hazards, the plan highlights that certain areas have wetland conditions and floodplains that should be considered during future development. For example, Area #1, which includes Lake Street on the north and both sides of Garden Ave, south to Springfield Drive, has wetland conditions and floodplains in certain areas. Similarly, Area #4, which is bounded by Lawrence Avenue on the north, Gary Avenue on the east, and Thorn Road on the west, contains a former fishing lake in the center, with wetlands and/or floodplain bordering to the south. The plan suggests that the wetland, floodplain, and otherwise riparian characteristics of these sites need to be established before development potential can be determined.

The 2010 plan also suggests maintaining wetlands consistent with standards, eliminating flag lot conditions if possible, providing connections to existing recreational paths, and

preserving trees during any new development. It's also suggested to buffer loading areas from the view of residential areas and passersby on the road through the use of landscaping and wing-walls.

Carol Stream: The Village of Carol Stream adopted a new Comprehensive Plan, developed through CMAP's LTA Program, on June 6, 2016. The plan serves elected leadership, residents, and businesses focusing on "land use and development, transportation, parks and open space, infrastructure, and capital improvements throughout the Village" (Village of Carol Stream, 2016, P. 9).

Clarendon Hills: On November 16, 2017, the Village of Clarendon Hills adopted a new 55th Street Sub-Area Plan, which identifies existing conditions and recommendations for the 55th Street Sub-Area in Clarendon Hills. The sub-area consists mainly of single-family residential uses, some multifamily residential, and commercial and institutional land uses. The existing water mains are supplied by a private utility, with many private properties served by private wells. The existing sanitary sewer system is owned and operated by the Flagg Creek Water Reclamation District. The sub-area's rolling topography divides the area into several defined watersheds, and the local drainage is served by a combination of storm sewers and roadside ditches/culverts. The recommendations in this Plan include future land uses remaining mostly the same, with opportunities for expansion of the institutional uses and the creation of new business zoning districts or the rezoning of existing ones. Additionally, transitional standards should be applied to mitigate potential adverse impacts on adjacent residential properties.

Downers Grove: On July 21, 2015, the Village of Downers Grove amended their 2011 Comprehensive Plan. In the update, the plan addresses stormwater management as a significant issue in the village, with a reliance on natural features such as creeks and rivers as part of its stormwater management. The plan recommends environmentally friendly stormwater management practices, including the use of natural plantings and wildflowers in retention and detention areas. Upgrades to stormwater infrastructure should be a priority, with the consideration of naturalized stormwater retention and detention basins and pervious paving materials. The plan encourages the use of native plantings, swales, and pervious pavers to improve stormwater management within commercial and off-street parking areas.

Glen Ellyn: In January of 2023, the Village of Glen Ellyn released a new Comprehensive plan, which has a focus on diversifying the housing options in Glen Ellyn, mainly by increasing single-family attached and multi-family uses. The accompanying Future Land Use Distribution graph projects the composition of future land use based on the plan. Although single-family detached housing will continue to be the predominant use within the village, commercial uses are projected to make up around 3% of the area, and mixed-use development is expected to increase throughout the downtown as a mixed-use district. The plan identifies several residential infill areas where higher-density residential development should be encouraged, including Sunnybrook Road, Swift Road, Bloomingdale Road, Stacy's Corners, the Union Pacific Railroad and Illinois Prairie Path, Hill and Golf Avenue, Western Duane Street, and the Nicoll Way and Abbey Drive area. Finally, the 2023 plan emphasizes

that new housing should be of similar scale and character to nearby development and that any development should be mindful of the wetlands in the adjacent Churchill Park.

Hanover Park: On August 30, 2017, the Village of Hanover Park released an updated Village Center Plan Update. Within this Plan, a historical outline of the village is documented. In addition, discussion highlighting a decision point to save the remaining Ontarioville district, which has several historical properties. Recommendations in this Plan promote the Elgin-O'Hare Expressway/IL 390 Western extension as a regional arterial boulevard with controlled points of access. Regarding hazard mitigation, the plan outlines that wetlands, drainage corridors, and other environmental features pose constraints to development, and new projects should be designed to turn these environmental features into unique public assets.

Itasca: On July 7, 2015, the Village of Itasca adopted a new Comprehensive Plan. Within this Plan the village and its extraterritorial planning jurisdiction (ETJ) provides policies and identifies appropriate land uses for the future development of the area, influenced by existing development patterns, community planning principles, and other factors. The plan focuses on promoting a compatible land use pattern that promotes reinvestment in the community and maximizes redevelopment potential within Itasca's business areas. The plan also notes that the existing land use pattern and future land use plan are defined by major transportation corridors, with the western half of the community hosting much of the village's industry and businesses and the eastern half consisting of quiet residential neighborhoods. Regarding transportation infrastructure, this plan illustrates how the Elgin O'Hare Western Access initiative has the most profound potential to impact Itasca, which includes extending the Elgin O'Hare Expressway and a western bypass of O'Hare between I-294 and I-90.

Lombard: In 2014, the Village of Lombard adopted a new Comprehensive Plan. This Plan indicates that Lombard is a community that is mostly residential with a thriving commercial base. One major infrastructure feature in Lombard includes being served by the Union Pacific West Metra commuter line, which has a depot in the center of the community. The Village also prioritizes efficient transportation systems, maintaining parks, and public schools.

Regarding climate change, the 2014 plan highlights how Lombard is committed to sustainability and has expanded upon its long-standing commitment in recent years. To do so, the Village has incorporated sustainable practices into its policies and everyday operations, such as using low-VOC paints, anti-idling policy, replacing inefficient vehicles with fuel-efficient models, and retrofitting light switches to incorporate motion sensors.

Naperville: In 2021, the City of Naperville developed a Priorities Plan with an emphasis on community engagement and collaboration between elected officials and city staff. The plan includes five equal focus areas: financial stability and economy, housing choice, infrastructure and utilities, public safety, and sustainability. In the sustainability focus area, the City aims to work within city government and with community partners to act sustainably and make Naperville more resilient. Critical actions include implementing a Green Purchasing Program, revising permit applications to capture waste/recycling data and

sustainability efforts, and collaborating with community partners to create a Sustainability Outreach and Engagement Program. The plan also includes actions to promote development of the local economy, support housing and neighborhoods for all stages of life, provide reliable and safe infrastructure and utilities, and ensure a safe and secure community for all residents and businesses.

Oakbrook Terrace: On March 13, 2007, the City of Oakbrook Terrace adopted a new Comprehensive Plan to provide a guide for future land development and redevelopment within the city, including a mix of residential and commercial uses. Within the plan, corridor commercial areas are recommended along major roads, and the Plan also includes measures for extensive landscaping and screening from adjacent residential areas. The transportation aspect of the plan aims to ensure the safe and efficient movement of vehicles, pedestrians, and cyclists, while the Capital Improvements Program establishes schedules and priorities for public improvement projects, including upgrading existing utilities and infrastructure.

Roselle: In 2016, the Village of Roselle adopted a new Comprehensive Plan. Within this Plan the stormwater management assessment analyzed the stormwater management requirements for two Opportunity Sites located southeast and southwest of the Elgin-O'Hare Expressway and Roselle Road interchange. The analysis assumed that there is no floodplain present on either parcel. The Metropolitan Water Reclamation District of Greater Chicago Watershed Management Ordinance was then used to determine the required detention volume relationship, and the storage ratio was applied assuming the required volume control storage would be incorporated into the site development design. The proposed development and redevelopment site for Opportunity Area 1 has a total coverage area of 6.5 acres, with 1.55 acres of the site inundated by wetlands. The required storage volume of 1.1 acre-feet was placed in two basins, occupying approximately 0.8 acres of the site. The proposed redevelopment site for Opportunity Area 2 has a total coverage area of 4.5 acres, and the required storage volume of 1.3 acre-feet was placed at the southern end of the proposed site. The stormwater management basin occupies approximately 0.85 acres of the site. The village worked with Christopher B. Burke Engineering Ltd. (CBBEL) to develop the plan/report. The report notes that the Village has adopted the DuPage County Stormwater ordinance for all areas and CBBEL's assumptions are adequate to provide a reasonable example of detention needs at the concept stage.

West Chicago: In 2020, the City of West Chicago adopted a new Comprehensive Plan. This Plan highlights building on the city's assets and existing patterns to guide decision-making for future development and redevelopment. The plan also clarifies opportunities for desired growth and change, aligns resources towards downtown, maintains and enhances the character of existing neighborhoods, strengthens industrial areas and job centers, and connects open spaces and recreational amenities to residents and economic development. Policy guidance and recommendations in this Plan include suggestions to improve flood mitigation by improving water systems and developing green infrastructure to adapt to climate change.

Westmont: On February 13, 2013, the Village of Westmont adopted a new Comprehensive Plan that promotes compatible land use patterns to reinvest in the Village's neighborhoods

and key commercial areas. The plan emphasizes the stabilization, enhancement, and protection of residential neighborhoods, the provision of community facilities, and the preservation and enhancement of desirable environmental assets including its parks and recreation system.

The Village of Westmont also has a stormwater master plan in place that identifies various flooding sources and stormwater sewer system inadequacies, with recommendations to alleviate flooding in residential areas of the Village through public and private projects. The stormwater plan recommends promoting infiltration-based hydrology and stormwater management practices, minimizing the amount of impervious surface created by new development, and updating the Village's Municipal Code to ensure stormwater management practices reflect current best practices.

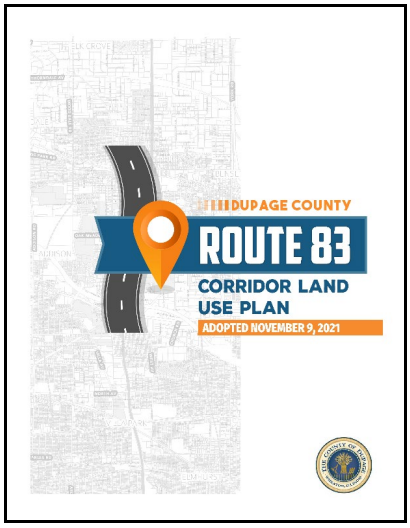
Winfield: On May 1, 2014, the Village of Winfield adopted a new Comprehensive Plan which identifies aging infrastructure that needs to be upgraded or replaced. One suggestion includes the revitalization of commercial corridors to create sustainable land use.

Hazard mitigation in the plan highlights that Winfield is proactively maintaining and replacing its water and wastewater infrastructure and has computer models to determine their capacity. The plan notes that drainage issues related to new development will be addressed during development in accordance with the countywide stormwater ordinance. Flood concerns highlighted in the plan include Winfield Creek and the West Branch of the DuPage River, which flow through the village causing flooding. To address these concerns, the village is partnering with DuPage County to update the Winfield Creek Watershed Plan to pursue flood control measures, buyouts, and water quality improvements. At the December 3, 2015, Village Board meeting, County Stormwater officials presented findings from their first update to the Winfield Creek Watershed Study in over 20 years. The waterway drains ten-square miles of western Wheaton and surrounding areas through Winfield to the West Branch of the DuPage River.

Wood Dale: On August 2, 2018, the City of Wood Dale adopted a new Comprehensive Plan. This Plan highlights that the Salt Creek and Salt Creek Trail are amenities to the community, but the associated floodplain, floodway, and wetlands can cause issues for existing development areas in addition to limiting future development potential. It's noted that stormwater management is an ongoing matter for site development affecting wetlands, and the floodplain requires special consideration from Wood Dale and/or DuPage County.

The future land use pattern of Wood Dale will largely be established by existing buildings, but redevelopment presents interesting opportunities. Proximity to O'Hare Airport and the newly extended Illinois Route 390 roadway make the area attractive for new development. A plan has been prepared by the Chicago Metropolitan Agency for Planning (CMAP) on behalf of 11 communities surrounding the Chicago O'Hare International Airport, including the City of Wood Dale, identifying the proposed routes to support the regional trucking network. Roadways within the four quadrants in the area of the IL-390 and Wood Dale Road interchange, serving the industrial properties, have been recommended for designation as Class II Local Truck Routes, but adjustments may be necessary based on redevelopment and infrastructure improvements.

DuPage County: In 2011 and 2012, DuPage County was awarded two Local Technical Assistance (LTA) grants. The Roosevelt Road corridor involved Lombard, Villa Park, Oakbrook Terrace, Oak Brook, and Elmhurst; the Lake Street corridor involved Addison, Bloomingdale, Itasca, Roselle, and Hanover Park. Working with its partner communities, DuPage set out to update both county and municipal land use plans relative to specific transportation corridors of Lake Street and Roosevelt Road. The combined effort of these projects was to comprehensively address existing conditions and future developments throughout these corridors. Activities included special management of stormwater and drainage issues that exist and have come into play in the redevelopment of these corridors. These planning efforts have ensured that development is not focused on the benefit of a single community, but holistically addressed with the myriad of factors that goes into redevelopment of properties, roadways, and infrastructure. Since the Lake Street and Roosevelt Road Corridors LTA grant projects were so successful, DuPage applied to receive an additional grant in 2017. The County (both Building and Zoning and the Department of Transportation) along with the municipalities of Bensenville, Addison, Wood Dale, Itasca, and Villa Park, were awarded an even more robust LTA Grant from CMAP. This grant provided the funds to conduct a study of the Rt. 83 Corridor in 2018. The plan was adopted on November 9, 2021 (if you are accessing the Microsoft Word version, double-click the image below to access the plan. If you are using the PDF version of the Plan, please access the "Attachments" feature in Adobe PDF and click the corresponding file). Future development near Route 83 and, in many cases, close to the Salt Creek, is greatly challenged by floodplains. In such cases, development or redevelopment may be impractical and/or require high costs.



Zoning Regulations

Zoning codes are the primary tool used to implement comprehensive plan guidelines for how land should be developed. Zoning ordinances usually set minimum lot sizes for each zoning district. Often, developers will produce a standard grid layout. The ordinance and the community can allow flexibility in lot sizes and location so developers can avoid hazardous areas.

One way to encourage flexibility is to use the planned unit development (PUD) approach. The PUD approach "is both a type of development and a regulatory process," which allows developers "flexibility in the configuration of buildings and/or uses on a site than is allowed in standing zoning ordinances," and encourages unified plans (Bengford, B., 2012, P. 1). Protection of open space, critical areas, and floodplain preservation are important and common aspects of PUD designs.

Exhibit 5-78. PUD Zoning Example 1

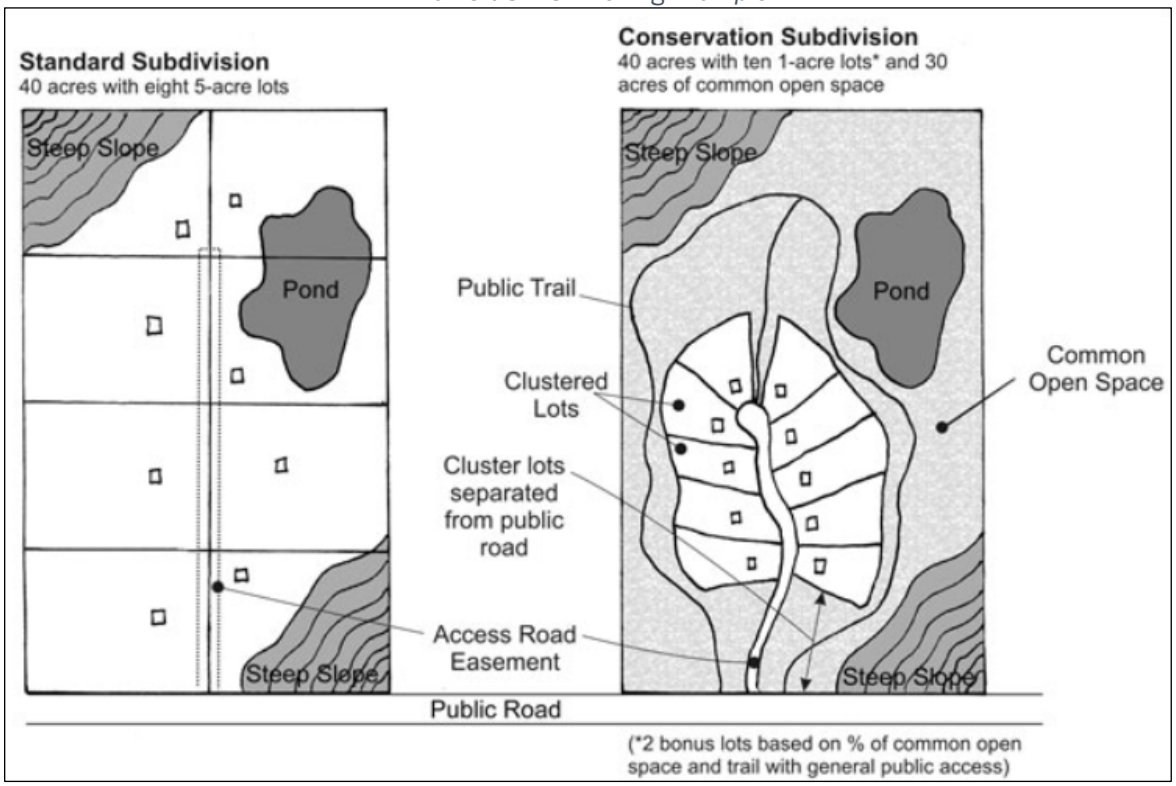
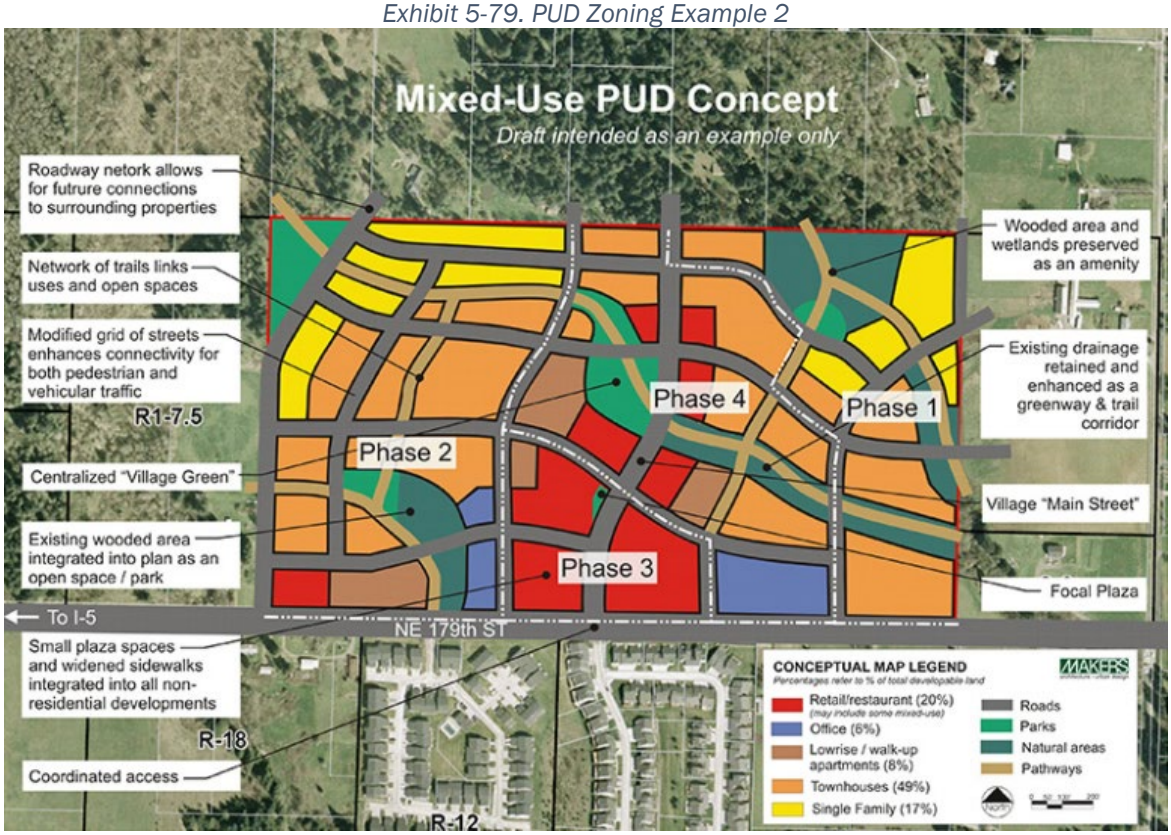


Exhibit 5-79. PUD Zoning Example 2



"A typical PUD [project] would include a cluster of small lots in conjunction with a common usable open space with some recreational amenities and a protected natural area functioning as permanent open space. This arrangement can benefit both sides: A developer gets extra flexibility in configuring lots and buildings and perhaps a density bonus and/or reduced infrastructure cost, while the city/county gets permanent open space and/or other desired amenities" (Bengford, B., 2012, P. 1). An example of the PUD approach to planning subdivisions considering floodplains can be seen in Exhibit 5-1 (Bengford, B., 2012, P. 2). A second example of the PUD approach can be seen in Exhibit 5-2. (Bengford, B., 2012, P. 7), depicting how this method can be used throughout an entire area of the community.

Table 5-79. DuPage County Planning and Land Use Ordinances

Community	Comprehensive Plan	Mitigation and/or Hazards Included in Comprehensive Plan	Zoning Ordinance	Flood hazards or drainage provisions in Subdivision Ordinance	Requirement to bury utilities in Subdivision Ordinance
Village of Addison	2013	Yes	2016	Yes	Yes
City of Aurora	2018	Unidentified	1923/2015	Yes	Yes
Village of Bartlett	2016-17	No	2023	County*	Yes
Village of Bensenville	2015	Yes	2023	County*	Yes
Village of Bloomingdale	2010	Yes	2012	County*	Yes
Village of Burr Ridge	1999	Yes	2020	County*	Unidentified
Village of Carol Stream	2016	Yes	2022	Yes	Yes
Village of Clarendon Hills	2017	Yes	1930/2006	County*	Yes
City of Darien	2002	Unidentified	2000	County*	Unidentified
Village of Downers Grove	2017	Yes	2023	Yes	Yes
City of Elmhurst	2009	Yes	2007	County*	Unidentified
Village of Glendale Heights	1973	Unidentified	2022	Yes	Unidentified
Village of Glen Ellyn	2023	Yes	1989/2013	County*	Unidentified
Village of Hanover Park	2017	Yes	1991/2022	Yes	Unidentified
Village of Hinsdale	1989	Unidentified	1989/2006	County*	Yes
Village of Itasca	2015	Yes	1959/2023	Yes	Unidentified
Village of Lisle	2004	No	1970/2022	Yes	Yes
Village of Lombard	2014	No	1924/2022	County*	Unidentified
City of Naperville	2021	No	1980/2022	Yes	Yes
Village of Oak Brook	1990	No	2023	Yes	Yes
City of Oakbrook Terrace	2007	No	1990/2006	County*	Unidentified
Village of Roselle	2016	No	1985/2023	Yes	No
Village of Villa Park	2009	Yes	2022	County*	No
City of Warrenville	1984/2007	Unidentified	1989/2012	Yes	Yes
Village of Wayne	2005	Yes	2023	County*	Unidentified
City of West Chicago	2022	Yes	2022	County*	Unidentified
Village of Westmont	2013	Yes	1979	County*	Unidentified
City of Wheaton	1999	Yes	Yes	Yes	Yes
Village of Willowbrook	1993	Unidentified	1960/2023	Yes	Yes
Village of Winfield	2014	Yes	1921/1999	Yes	Yes
City of Wood Dale	2018	Yes	1948/2023	Yes	Yes
Village of Woodridge	2007	Yes	1976/1991	Yes	Yes
DuPage County (Unincorporated)	2013	Yes	2022	County*/Yes	Yes

** Rely on DuPage Countywide Stormwater and Floodplain Ordinance | Information is based on Natural Hazard Mitigation Plan Annual Reports / existing best available county data.*

Capital Improvement Plans

Communities use Capital Improvement Plans or Community Investment Programs to guide major public expenditures for the next five to 20 years. Capital expenditures can include roadways, water and sewer lines, acquisition of floodplain open space, and retrofitting of existing public structures to withstand hazards. The Village of Downers Grove maintains a Community Investment Program which includes $43 million in stormwater improvements from 2017 to 2021. In the aftermath of the 2013 storm/flood event, Downers Grove completed a Stormwater Project Analysis that identified a total of 21 locations that would be part of a prioritized list of recommended projects to be completed, valued at over $16 million. The Village also has a cost share program for local drainage problems to assist residents on private property ($60,000 budgeted each year). DuPage County (unincorporated) updates its capital improvement plan annually. Projects include, but are not limited to:

- Purchasing repetitive loss properties and install additional water sewers, storm sewer mains, and culverts throughout the county.
- Working to rehabilitate damaged and aging bridges around the county.
- Updating traffic signal software and installing uninterruptable power supplies (UPS) to alleviate congestion during power outages and enhance signal management capabilities during evacuation scenarios.
- Working to increase flood storage within the communities along the East Branch of the DuPage River that experience frequent flooding.
- Retrofitting Fawell Dam to allow for proper wildlife migration.
- Extending current drinking water supplies to unincorporated residents.
- Repair and replace aging sanitary sewer pipes, and update technology within Wastewater Treatment Plants.

5.1.3 Subdivision Regulations

Subdivision regulations govern how land will be subdivided and sets construction standards. These standards generally address roads, sidewalks, utilities, storm sewers and drainageways. They can include the following hazard protection standards:

- Requiring that the final plat show all hazardous areas.
- Road standards that allow passage of firefighting equipment and snowplows
- Requiring power or phone lines to be buried
- Minimum water pressures adequate for fire fighting
- Requiring that each lot be provided with a building site above the flood level
- Requiring that all roadways be no more than one foot below the flood elevation.

Table 5-2 shows the communities in DuPage County that have adopted subdivision regulations, comprehensive plans, and the last update of their zoning ordinance.

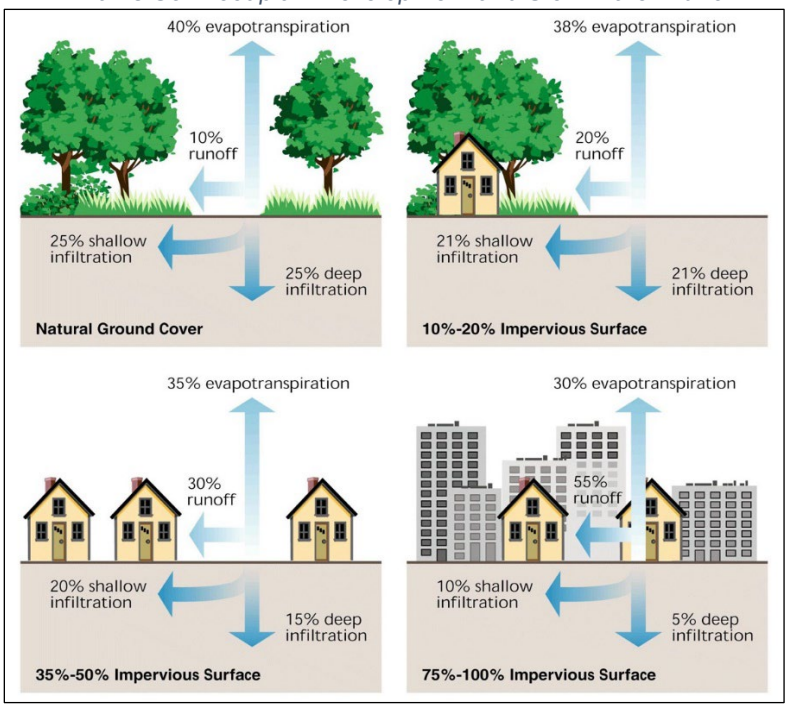
5.1.4 Stormwater Management

New construction in the floodplain increases the amount of development exposed to damage and can aggravate flooding on neighboring properties. Development outside a floodplain can also contribute to flooding problems. Stormwater runoff is increased when natural ground cover is replaced by urban development (see Exhibit 5-3). Development in the watershed that drains to a river can aggravate downstream flooding, overload a community's drainage system, cause erosion, and impair water quality. An example of this can be found within Exhibit 5-3 (Muth C., Brinson L., and Bernhardt, E., 2010, P. 1).

Stormwater management encompasses approaches to protecting existing downstream properties and new construction from damage by surface water, including (but not limited to):

- Regulating development in the floodplain to ensure that it will be protected from flooding and that it won't divert floodwaters onto other properties.
- Regulating all development to ensure that the post-development peak runoff will not be greater than under pre-development conditions.
- Stormwater runoff regulations require developers to build retention or detention basins to minimize the increases in the runoff rate caused by impervious surfaces and new drainage systems.

Exhibit 5-80. Floodplain Development and Stormwater Runoff



DuPage County Stormwater Management is responsible for administering and enforcing the Countywide Stormwater and Floodplain Ordinance. Communities, based on their regulatory resources, are granted a partial or complete waiver of county permit application review of permit application reviews. Community status is outlined within Table 5-3.

DuPage County and all municipalities have adopted the DuPage County Countywide Stormwater and Floodplain Ordinance (DuPage County, 2022). The Stormwater Ordinance established stormwater management and detention requirements, meets or exceed all of the state and NFIP floodplain regulatory requirements, provides for wetland management, and addresses soil erosion and sediment control. As a result of this ordinance, all DuPage County communities participate in the NFIP. Additionally, all communities are compliant with Illinois Department of Natural Resources (IDNR) minimum requirements for regulating development in the floodplain and in the floodway: all new buildings must be protected from the base (100-year) flood and no development can cause an increase in flood heights or velocities. Some of the requirements of the County's Stormwater Ordinance include:

- Buildings must be elevated at least one foot above the base (100-year) flood level.
- Fill must meet certain standards to protect it from erosion and scour. Flood storage lost due to filling and construction must be compensated for by removal of an equal volume of storage.
- Only appropriate uses are allowed in the floodway.
- Standards for retention and detention basins, requirements for erosion and sedimentation control should be established.
- The requirement to incorporate best management practices into all plans.

Some communities, such as Downers Grove, have established additional more stringent regulations.

Table 5-80. DuPage Countywide Stormwater and Floodplain Ordinance Waiver Status

Community	County Stormwater Ordinance Waiver
Village of Addison	Complete
City of Aurora	Opt Out
Village of Bartlett	Partial
City of Batavia	Non-Waiver
Village of Bensenville	Partial
Village of Bloomingdale	Complete
Village of Burr Ridge	Partial
Village of Carol Stream	Complete
City of Chicago	Non-Waiver
Village of Clarendon Hills	Partial
City of Darien	Partial
Village of Downers Grove	Complete
City of Elmhurst	Partial
Village of Glendale Heights	Partial
Village of Glen Ellyn	Complete

Village of Hanover Park	Partial
Village of Hinsdale	Partial
Village of Itasca	Partial
Village of Lemont	Non-Waiver
Village of Lisle	Partial
Village of Lombard	Partial
City of Naperville	Partial
Village of Oak Brook	Complete
City of Oakbrook Terrace	Partial
Village of Roselle	Partial
City of St. Charles	Opt Out
City of Schaumburg	Non-Waiver
Village of Villa Park	Complete
City of Warrenville	Complete
Village of Wayne	Partial
City of West Chicago	Partial
Village of Westmont	Partial
City of Wheaton	Partial
Village of Willowbrook	Complete
Village of Winfield	Partial
City of Wood Dale	Complete
Village of Woodridge	Complete
DuPage County (Unincorporated)	Non-waiver

Erosion and Sedimentation Control

Erosion occurs along streambanks and shorelines as the volume and velocity of flow or wave action destabilize and wash away the soil. Sediment suspended will settle out where flowing water slows down. It can clog storm sewers, drain tiles, culverts, and ditches, and reduce the water transport and storage capacity of river and stream channels, lakes and wetlands.

Additionally, the sediment often brings chemicals, heavy metals, and other pollutants. High sediment loads reduce the amount of light and oxygen in the stream which impairs water quality. Sediment has been identified by the US Environmental Protection Agency (EPA) as the nation's number one nonpoint source pollutant for aquatic life.

Techniques to minimize erosion include phased construction, minimal land clearing, and stabilizing bare ground as soon as possible with vegetation and other soil stabilizing practices. If erosion occurs, other measures are used to capture sediment before it leaves the site. Silt fences, sediment traps and vegetated filter strips are commonly used to control

sediment transport. Runoff from the site can be slowed down by terraces, contour strip farming, no-till farm practices, hay, or straw bales, constructed wetlands, and impoundments (e.g., sediment basins and farm ponds). Slowing surface water runoff on the way to a drainage channel increases infiltration into the soil and reduces the volume of topsoil eroded from the site.

Standards for soil erosion and sediment control during and following project construction are components of the County Stormwater Ordinance. Erosion and sediment control planning is required in the initial site planning process.

5.1.5 Hazard Mapping

Floodplain maps may be used to help determine whether or not a DuPage County property is located in the regulatory floodplain. The current effective Digital Flood Insurance Rate Maps (DFIRMs), issued by the Federal Emergency Management Agency (FEMA), identify various flood zones, and are used by the NFIP for rating flood insurance policies and enforcing federal mandatory insurance purchase requirements.

The first Flood Insurance Rate Maps (FIRM) that established the 1% annual chance (100-year) floodplains for DuPage County were issued by FEMA in the late 1970s and early 1980s. These maps have become outdated and inaccurate due to changes in land use, topography, and modeling technologies. The Stormwater Management Department has been conducting new watershed studies that incorporate more current land use and topographical conditions and meet today's standards and practices in hydrologic and hydraulic analysis.

In 2008, DuPage County Stormwater Management received a $2.05 million grant from FEMA to restudy and remap the floodplains for 24 watersheds in DuPage County. In cooperation with the Illinois State Water Survey (ISWS), this project resulted in a new Countywide floodplain map that became effective on August 1, 2019.

This countywide project incorporated new flood hazard information (base flood elevations, Special Flood Hazard Area (SFHA) boundaries, floodway boundaries, and flood insurance zone designations) in the following watersheds:

- Salt Creek Mainstem and its tributaries that include Spring Brook, Devon Avenue, Westwood Creek, Ginger Creek, Sugar Creek, Oak Brook Tributary and Bronswood Tributary
- East Branch DuPage River Mainstem and its tributaries that include Swift Meadows/Army Trail Road, Armitage Creek, Glencrest Creek, Tributary No. 2, Rott Creek, Lacey Creek, Prentiss Creek, St. Joseph Creek, Crabtree Creek and Willoway Brook
- Steeple Run Tributary, Spring Brook No. 1
- Sawmill Creek, Wards Creek

The project also incorporated flood hazard information from effective Flood Insurance Study (FIS) reports, FIRMs and Flood Boundary, and Floodway Maps for the remaining watersheds in DuPage County that were not were not re-studied. Fifty-six Letters of Map Revision (LOMR)

and one multi-lot Letter of Map Amendment (LOMA) were also incorporated (DuPage County, 2019).

Development in the Floodplain

"The DuPage County Regulatory Flood Maps (RFMs) are for use in administering the DuPage Regulatory Flood Program. For all development in the floodplain, it is required that users consult the current RFM and current effective DFIRM. The maps are used as a planning tool only and cannot be used to definitively determine whether or not a property is located in the floodplain. Floodplain maps do not necessarily identify all areas subject to flooding. Site specific floodplain, depressional storage areas and local drainage sources of small sizes are not always represented on the floodplain maps. Actual floodplain boundaries may be slightly different than those shown on the maps due to variations in topography. The community map repository should be consulted for possible updated or additional flood hazard information, such as FEMA Letter of Map Change (LOMC) or Letter of Map Revision (LOMR) information" (DuPage County, N.D.).

Several communities, including Glen Ellyn and Downers Grove, have also developed community-specific hazard maps for local depressions in the topography. There are additional restrictions on development within these areas. Downers Grove requires compensatory storage and other floodplain-type restrictions within the areas referred to as Locally Poor Drainage Areas (LPDA).

5.2 Property Protection

Property protection mitigation measures are used to modify a building or a property that is subject to a hazard, reducing potential damage. Property protection measures fall under three approaches:

- Modify the site to keep the hazard from reaching the building,
- Modify the building so it can withstand the impacts of the hazard, and
- Insure the property to provide financial relief after the damage occurs.

Property protection activities include:

- Relocation
- Acquisition
- Building Elevation
- Retrofitting
- Sewer Backup Protection
- Insurance

5.2.1 Barriers, Elevation, Relocation, and Acquisition

For the hazards considered in this Plan, flooding is the one hazard that can be kept away from a building. There are four common methods to do this:

- Erect a barrier between the building and the source of flooding

- Move the building out of the flood prone area
- Elevate the building above the flood level
- Demolish the building

Local Implementation

The DuPage County Countywide Stormwater and Floodplain Ordinance includes floodplain building protection standards. See below for details:

15-28.A Within the boundary of the regulatory floodplain, all usable space in new buildings, or added to existing buildings, shall either be elevated, flood proofed, or otherwise protected such that the lowest entry shall be at least one foot above the nearest base flood elevation to prevent the entry of surface stormwater. Floodproofing devices shall be operational without human intervention. If electricity is required for protection against flood damage, there shall be a backup power source which will activate without human intervention. Floodproofing measures shall be certified by a professional engineer.

15-28.B All usable space in new buildings or added to existing buildings, shall be elevated, floodproofed, or otherwise protected to at least one foot above the design elevation to prevent the entry of surface stormwater. The design elevation is the higher elevation of either Article X or the elevation associated with the design rate as determined in Section 15-81.B.2.

15-28.C Other building protection standards for structures that may be implemented in the floodplain are listed in Section 15-81.B in Article X.

Table 5-4 lists the flood-prone property acquisitions throughout the county since the 1980s. Communities like Carol Stream, Downers Grove and Lisle have had structures experience flooding/repetitive flooding over the last 20 years, through local funds and federal grants these communities and/or DuPage County Stormwater has been able to acquire nearly 50 flood-prone properties since 2013.

Table 5-81. DuPage County Flood Prone Property Acquisitions

Community	Watershed	Location	Number of Acquisitions	Participating Agencies
Village of Addison	Salt Creek	Salt Creek	4	IDNR, FEMA
Village of Carol Stream	West Branch / Klein Creek	Ilini/Silverlead/Mohican	6	Village/IEMA.DCSM
City of Darien	Sawmill Creek	Crest Road	4	DCSM
Village of Downers Grove	East Branch DuPage River	St. Joseph Creek	4	Village
City of Elmhurst	Salt Creek	Monterey Avenue	3	IDNR
Village of Lisle	East Branch DuPage River	Garfield/Lincoln River/Dumoulin	43	Village, DCSM
Village of Oak Brook	Salt Creek	Hunter Drive/22nd St	1	Village

Village of Oak Brook	Salt Creek	Forest Trail	3	County
Village of Roselle	Salt Creek/Spring Brook	Roselle Road	2	Village/DCSM
Village of Villa Park	Salt Creek	Riverside Court/Elsworth/Monterey/Euclid	7	Village/HMPG/DCEO-PBP/HMGP-DR
City of Warrenville	West Branch DuPage River	River Rd	2	DCSM, IDNR
City of Wheaton	East Branch DuPage River/Winfield Creek	Main Street/Dorchester/Williston	6	DCSM, City
Village of Winfield	West Branch DuPage River	Park Street/Beecher Ave	6	DCSM, Village
City of Wood Dale	Salt Creek	Forest Ave	10	FEMA, IDNR, DCFPD, City, Park District
Village of Woodridge		Prentiss Creek	1	Village Funds
DuPage County	East Branch DuPage River	Valley View (Uninc. DuPage)	47	DCSM, FEMA

DuPage County Stormwater Management (DCSWM),
DuPage County Forest Preserve District (DCFPD), Illinois Department of Natural Resources, Office of Water Resources (IDNR), Federal Emergency Management Agency (FEMA)

5.2.2 Retrofitting – Modify the Building

This section focuses on keeping the hazard from reaching a building or damage-prone part of a property. An alternative is to modify or "retrofit" the site or building to minimize or even prevent damage. There are a variety of techniques to do this.

Overhead Sewers

Most floodproofing activities in the county consist of overhead sewer installations. Communities that have programs related to overhead sewers, including rebates, include DuPage County, Lisle, Bensenville, Aurora, Addison, Bloomingdale, Darien, Elmhurst, Roselle, Downers Grove Sanitary District (which serves Downers Grove and parts of Westmont, Woodridge, Lisle, Oak Brook, and Darien), Glen Ellyn, Villa Park, Wheaton Sanitary District (which serves Wheaton and parts of Carol Stream, Glen Ellyn, and Winfield), and Lombard. In addition, some communities such as Downers Grove and Lombard also aid with backyard drainage. For more information on community assistance, see Table 5-5.

Table 5-82. DuPage County Floodproofing Assistance Efforts

Community	Overhead Sewers or Floodproofing	Financial Assistance	Technical Assistance	Other Efforts
Village of Addison	Yes	Yes	Yes	Overhead sewer required with new construction
City of Aurora	Unidentified	Yes	Unidentified	Unidentified
Village of Bartlett	Yes	Yes	Yes	Overhead sewer required with new construction
Village of Bensenville	Yes	Yes	Unidentified	Back-Yard /Side-Yard Elevation Program
Village of Bloomingdale	Unidentified	Yes	Yes	Overhead sewer required with new construction

Village of Burr Ridge	Unidentified	Unidentified	Unidentified	Overhead sewer required with new construction
Village of Carol Stream	No	No	Yes	Unidentified
Village of Clarendon Hills	Unidentified	Unidentified	Yes	Overhead sewer required with new construction
City of Darien	No	Yes	Unidentified	Unidentified
Village of Downers Grove	Yes	Yes	Yes	Overhead sewer required with new construction
City of Elmhurst	Some	Yes	Unidentified	Unidentified
Village of Glendale Heights	Unidentified	Unidentified	Yes	New sewer system and WTP has reduced problems
Village of Glen Ellyn	Yes	Yes	Yes	Overhead sewer required with new construction
Village of Hanover Park	Unidentified	Unidentified	Unidentified	Unidentified
Village of Hinsdale	Unidentified	Unidentified	Unidentified	Overheads required by sanitary district
Village of Itasca	Unidentified	Unidentified	Unidentified	Unidentified
Village of Lisle	Yes	Yes	Yes	Unidentified
Village of Lombard	Yes	Yes	Yes	Backyard program
City of Naperville	Yes	Unidentified	Unidentified	Overhead sewer required with new construction
Village of Oak Brook	Unidentified	Yes	Unidentified	Unidentified
City of Oakbrook Terrace	Unidentified	Unidentified	Unidentified	Unidentified
Village of Roselle	Yes	Yes	Yes	Overhead sewer required with new construction | The Village has a backflow prevention program which provides financial assistance to residents
Village of Villa Park	Unidentified	No	Yes	Overhead sewer required with new construction
City of Warrenville	No	No	Yes	Overhead sewer required with new construction
Village of Wayne	No	No	Unidentified	Site visits to determine if sanitary sewer problems
City of West Chicago	Unidentified	Unidentified	Unidentified	Unidentified
Village of Westmont	Unidentified	Yes	Unidentified	Ejectors required
City of Wheaton	Unidentified	Yes	Yes	Overhead sewer required with new construction
Village of Willowbrook	Unidentified	Unidentified	Yes	Overhead sewer required with new construction
Village of Winfield	Yes	Yes	Unidentified	Unidentified
City of Wood Dale	No		Yes	Unidentified
Woodridge	Yes	Yes	Yes	In village code and through program
DuPage County	--	Yes	--	--

5.2.3 Insurance

Technically speaking, insurance does not mitigate damage caused by a natural hazard. However, it does help the owner repair, rebuild and (hopefully) afford to incorporate some of the other mitigation measures in the process.

Insurance has the advantage that, as long as the policy is in force, the property is protected, and no human intervention is needed for the measure to work. A standard homeowner's insurance policy will cover a property for the hazards of tornado, wind, hail, and winter storms. Separate endorsements are usually needed for earth movement (e.g., earthquake) coverage, sump pump failure, and sanitary backup.

Flood Insurance

Although most homeowner's insurance policies do not cover a property for flood damage, an owner can insure a building for damage by surface flooding through the National Flood Insurance Program (NFIP). Flood insurance coverage is provided for buildings and their contents damaged by a "general condition of surface flooding" in the area. Some homeowners have purchased flood insurance because it was required by the bank when they got a mortgage or home improvement loan. Usually, these policies just cover the building's structure and not the contents. Renters can buy contents coverage, even if the owner does not buy structural coverage on the building. There is limited coverage for basements and the below grade floors of bi-levels and tri-levels.

Several insurance companies have sump pump failure or sewer backup coverage that can be added to a homeowner's insurance policy. Each company has different amounts of coverage, exclusions, deductibles, and arrangements. Most are riders that cost extra. Most exclude damage from surface flooding that would be covered by a National Flood Insurance policy.

Earthquake Insurance

Earthquakes are not covered under standard homeowners or business insurance policies, but coverage is usually available for earthquake damage in the form of an endorsement to a home or business insurance policy. Cars and other vehicles are covered for earthquake damage under the comprehensive part of the auto insurance policy. In DuPage County, property owners can obtain earthquake insurance.

Earthquake insurance provides coverage for your dwelling, for your personal property, and for any additional living expenses. Coverage can include costs for the following:

- Temporary rental home, apartment, or hotel room
- Restaurant meals
- Telephone or utility installation in a temporary residence
- Relocation and storage
- Furniture Rental
- Laundry

Local Implementation

Larger local governments can self-insure and often absorb the cost of damages to one facility, but if many facilities are exposed to damage by one event, self-insurance can be a major drain on the community. Many communities in DuPage County are part of an Intergovernmental Risk Management Agency (IRMA), a member-owned public risk pool of governmental units located in northeastern Illinois or are part of the Illinois Municipal League Risk Management Association (IMLRMA).

Communities should not rely on federal disaster assistance to make up the difference. The Stafford Act, Section 406(d), as amended, states:

> "(1) Reduction of Federal Assistance - If a public facility or private nonprofit facility located in a special flood hazard area identified for more than 1 year by the Administrator pursuant to the National Flood Insurance Act of 1968 (42 U.S.C. 4001 et seq.) is damaged or destroyed, after the 180th day following November 23, 1988, by flooding in a major disaster and such facility is not covered on the date of such flooding by flood insurance, the Federal assistance which would otherwise be available under this section with respect to repair, restoration, reconstruction, and replacement of such facility and associated expenses shall be reduced in accordance with paragraph (2).
>
> (2) Amount of Reduction - The amount of a reduction in Federal assistance under this section with respect to a facility shall be the lesser of –
> (A) the value of such facility on the date of the flood damage or destruction, or
> (B) the maximum amount of insurance proceeds which would have been payable with respect to such facility if such facility had been covered by flood insurance under the National Flood Insurance Act of 1968 on such date"
> **(FEMA, 2019).**

In other words, the law expects public agencies to be fully insured as a condition of receiving Federal disaster assistance.

5.3 Structural Projects

Structural projects are projects that are constructed to protect people and infrastructure from damage due to natural hazards. Structural projects are usually funded by public agencies. Structural projects keep flood waters away from an area by constructing barriers, storing floodwater elsewhere, or by redirecting flood flows. Large structural flood control projects are most often planned, funded, and implemented at a regional level by agencies, such as DuPage County Stormwater Management, the Illinois Department of Natural Resources Office of Water Resources (IDNR-OWR), the U.S. Army Corps of Engineers, and the U.S. Department of Agriculture's Natural Resources Conservation Service. Many projects are jointly planned and funded between these agencies in cooperation with the municipalities or the DuPage County Forest Preserve District. Six approaches are reviewed in this chapter:

- Reservoirs
- Levees
- Floodwalls
- Diversions
- Channel modifications
- Storm drain improvements

The DuPage County Stormwater Management Plan was adopted in 1989. This Plan consolidated the existing stormwater effort throughout the county into a "unified, countywide structure" (DuPage County, 1989, P. 5). The Plan was adopted in accordance with Illinois Public Act 85-905 which gives DuPage County to authority to conduct planning, adopt regulations and implement projects, including structural projects, relating to stormwater management.

The planning of structural flood control projects usually involves an alternative assessment, and that assessment is typically part of, or a product of, a watershed plan. Watershed plans,

flood control studies, and reports published for DuPage County communities can be found within Table 5-6.

Table 5-83. DuPage County Studies and Publications

Studies and Publications	
1988	Adopted Willow Way Brook Watershed Plan
1991	Adopted Ginger Creek Watershed Plan
1991	Adopted Salt Creek Watershed Plan
1991	Adopted Willow Creek Watershed Plan
1992	Adopted Salt Creek Watershed Capital Improvement Plan
1992	Adopted Tributary #4 Watershed Plan
1994	Adopted Black Partridge Watershed Plan
1994	Adopted Winfield Creek Watershed Plan
1994	Adopted Westwood Creek Watershed Plan
1994	Adopted Klein Creek Watershed Plan
1996	Adopted Valley View Flood Control Plan
1996	Adopted Sawmill Creek Watershed Plan
1996	Adopted Tributary #2 Watershed Plan
1997	Adopted Flagg Creek Watershed Plan
1997	Adopted Steeple Run Watershed Plan
1998	Adopted the Sawmill Creek Watershed Plan Addendum
1999	Amended the Salt Creek Watershed Plan
1999	Adopted Ferry Creek Watershed Plan
2002	Adopted West Branch Tributary #1 Watershed Plan (Keeneyville)
2003	Adopted Addison Creek Watershed Plan
2004	Adopted the River-Dumoulin Flood Control Plan for inclusion in the East Branch DuPage River Watershed Plan
2004	Adoption of Route 53 North Flood Control Plan for inclusion in the East Branch DuPage River Watershed Plan
2004	Adopted the Upper Des Plaines River Tributaries Watershed Plan
2006	Adopted West Branch DuPage River Watershed Plan
2006	Adopted Spring Brook Tributary to Salt Creek Watershed Plan
2010	Adopted West Branch DuPage River Interim Watershed Plan Addendum
2010	Adopted Klein Creek Watershed Plan Addendum No 2
2010	Adopted Brewster Creek Watershed Plan
2011	Addendum to the Springbrook Creek Tributary to Salt Creek Watershed Plan
2011	Cherry Street Upland Depressional Area Flood Study, City of Wheaton, IL
2012	Williston Basin Flood Study, City of Wheaton, IL
2013	City of Woodale Citywide Drainage and Flood Improvement Study
2015	Adopted East Branch DuPage River Watershed & Resiliency Plan
2015	Updated Winfield Creek Watershed Plan
2015	Briarcliffe Lakes System Flood Study, City of Wheaton, IL
2016	Adopted Phase I Addendum to Winfield Creek Watershed Plan
2016	Redmond Reservoir Hydrologic & Hydraulic Analysis
2016	Pershing Avenue West of Chase Street Flood Study, City of Wheaton, IL
2017	Harrison Avenue-Cherry Street Area Flood Study, City of Wheaton, IL
2017	Mayo Avenue Rear Yard Upland Depression Flood Study, City of Wheaton, IL
2017	Thomas Overland Flow Path Flood Study, City of Wheaton, IL
2017	Turf, Countryside & Ranch Floodprone Area Flood Study, City of Wheaton, IL
2017	Wakeman and Cadillac Upland Depressional Area Flood Study, City of Wheaton, IL
2017	Erie and Mayo Flood Study, City of Wheaton, IL
2018	Dallas Street and Park Avenue Stormwater Basins Study, Village of Clarendon Hills, IL
2018	Dorset Drive at Dorset Park Flood Study, City of Wheaton, IL
2018	Dorset Drive at Ridge Park Flood Study, City of Wheaton, IL

2018	Glendale Overland Flow Path Flood Study, City of Wheaton, IL
2018	Madison-Jefferson Area Flood Study, City of Wheaton, IL
2018	Prairie Path Park Area Flood Study, City of Wheaton, IL
2021	Seasons 4/Devlin Watershed Studies, Village of Roselle, IL

5.3.1 Reservoirs and Detention

Reservoirs reduce flooding by temporarily storing flood waters behind dams or in storage or detention basins. Reservoirs lower the flood height by holding back, or detaining, runoff before it can flow downstream. Flood waters are detained until the flooding has subsided, then the water in the reservoir or detention basin is released or pumped out slowly at a rate that the river can accommodate downstream. Reservoirs can be dry and remain idle until a large rain event occurs. Or they may be designed so that a lake or pond is created. Reservoirs are most commonly built for one of two purposes. Large reservoirs are constructed to protect property from existing flood problems. Smaller reservoirs or detention basins are built to protect property from the impacts of new development (i.e., more runoff).

In urban areas such as DuPage County, reservoirs are an important part of floodwater management. Table 5-7 shows reservoirs that have been constructed. Significant detention has been provided in the Salt Creek watershed to address the damage that occurred from the 1987 flood. Examination of detention opportunities is a part of watershed planning for DuPage County. Also, the DuPage County Countywide Stormwater and Floodplain Ordinance require stormwater detention with most new developments.

Table 5-84. DuPage County Detention Projects – Constructed

Watershed	Project	Storage (Acre-Feet)	Year Completed	Maintenance
Salt Creek	Elmhurst Quarry Reservoir	8,300	1996*	DuPage County
Salt Creek	Wood Dale - Itasca Reservoir	1,775	2003*	DuPage County
Salt Creek	Meacham Grove Reservoir	600	1997*	DuPage County
Salt Creek	Lake-Villa Reservoir (Louis Reservoir)	210	1994*	Addison
	Wayne Oaks Dam	70	1995*	
East Branch DuPage River	Willoway Brook Reservoir	345	1990*	DuPage FPD
West Branch DuPage River	Upper DuPage Reservoir	230	1977	
West Branch DuPage River	Winfield Creek	110	1997*	
West Branch DuPage River/Klein Creek	Gary/Kehoe Reservoir	140	1999*	DuPage County
	Cricket Creek Wetland Bank	1	1996*	
	Steeple Run Drainage Improvement.	30	2000*	
Sawmill Creek	Marion Hills Dale Basin	14	2002*	
Sawmill Creek	Marion Hills Crest Road Basin	34	2004*	
	Eldridge Park Reservoir Modification	120	2002*	
	Huffman Street Flood Control Project – Phase I	13.5	2006*	
	Kress Creek Regional Flood Control facility	200	2006*	
East Branch	8th and Cumnor	4.6	2009	Downers Grove
East Branch	Washington Park	9	2010	Downers Grove
East Branch	2nd and Cumnor	5.7	2011	Downers Grove
Brewster Creek	Brewster Creek Flood Control Reservoir	50	2012	DuPage County

West Branch DuPage River/Klein Creek	Armstrong Park Reservoirs	113	2015	DuPage County
Total Storage:		**12,375 ac ft**		

*Constructed since the adoption of the 1989 DuPage County Countywide Stormwater Management Plan

Other detention projects that have been sponsored by DuPage municipalities include:

- Lufkin Reservoirs/Jackson Detention Area in Villa Park in the Sugar Creek watershed (100-year design)
- Reservoir at Prospect/Coolidge in Wheaton (built in 1976) with pump station
- Twin Lakes Park Detention Area in Villa Park
- Terrace-Douglas Basin in Villa Park with a 100-year design
- Off-Track Betting Detention Basin in Villa Park with a 100-year design
- Prospect/Norfolk detention basin in Clarendon Hills (10-year design) built in 1989
- Schiller Street Basin in the Salt Creek watershed, built in 1987 in Itasca
- Meacham Creek Tributary 3 reservoir constructed in 2004 in Roselle, in the Salt Creek watershed
- Lake Manor Pond in Addison (100-year design) in the Salt Creek watershed
- Plamondon-Mulloy Pond in Addison (100-year design) in the Salt Creek watershed
- Steeple Run watershed projects in Naperville (Old Plank Park and Huffman Street)
- Carol Stream Venture subdivision

5.3.2 Levees and Barriers

This flood control measure is a barrier of earth (levee) or concrete (floodwall) erected between the watercourse and the property to be protected. Levees and floodwalls confine water to the stream channel by raising its banks. They must be designed to account for large floods, underground seepage, pumping of internal drainage, erosion and scour. Constructed levees in DuPage County are shown in Table 5-8.

Table 5-85. DuPage County Levee and Barrier Projects – Constructed

Watershed	Project	Year Completed	Maintenance
Salt Creek	Addison Dam and Pump (Westwood Creek backflow prevention)	1995	Addison
Salt Creek	Kingery West Levee (east side of Salt Creek)	1982	DuPage County
Salt Creek	Elmhurst Levee	1991	DuPage County
East Branch DuPage River	East Branch DuPage River and St. Joseph Creek in Lisle (Levee)	1968	DuPage County
West Branch DuPage River	Winfield Creek in Wheaton	1977	--
East Branch DuPage River	Dumoulin Pump Stations	2008	DuPage County
West Branch DuPage River	River Road Levee	2016	DuPage County
Salt Creek	Graue Mill Levee	2017	Hinsdale

In 1977, a levee was constructed to protect homes in the Winfield Creek watershed in Wheaton (100-year design). A portion of the levee eroded during the 1987 flood. The levee was repaired. The Elmhurst levee was constructed in 1991 to protect homes from Salt Creek flooding (100-year design). The levee was constructed as the Elmhurst Quarry reservoir was being designed to provide storage of floodwaters. In Villa Park a berm was constructed at Rotary Park in the Salt Creek watershed (50-year design). In the 1960s, channel improvements were made and levees constructed along the East Branch of the DuPage River (from Middleton Avenue to Maple Avenue) and St. Joseph Creek (from confluence with the East Branch DuPage River to Illinois State Route 53) in Lisle. As part of the River Dumoulin Flood Control Study, the county has proposed repair of the Lisle levees. However, easements from private property owners for this work have been difficult to obtain and the repairs have not been completed as a result.

DuPage County Stormwater Management oversaw the design and construction of the Bower School berm enhancement project to protect the school from flooding from the adjacent West Branch DuPage River. The improvement to the school's existing berm follows a flood in 2008 that caused the school to close for a week. The project removed the school from the high-risk flood zone and protected the school in the April 2013 flood event. Following this project, a berm was constructed upstream from the school along River Road, which protected approximately 60 additional structures. This was completed in 2016.

The West Branch DuPage River Flood Control and Re-meander Project was the final phase of work to address the flooding concerns along River Road in Warrenville. The project was completed in October 2016. Improvements included: the extension of a flood control berm and multi-use path along River Road, creation of compensatory storage in Leone Schmidt Heritage Park, realignment of the West Branch DuPage River, and associated river restoration. The DuPage County Division of Transportation reduced the existing water surface elevations by the re-meander realignment of the river with the replacement of the Warrenville Road bridge in 2015.

DuPage County in cooperation with the Village of Hinsdale, IDNR-OWR and IEMA worked on the multi-phase Graue Mill Levee project which provides enhanced protection for its residents. This project includes floodwalls, berms, and pump stations. The project was completed in 2018.

5.3.3 Channel Improvements and Diversions

By improving channel's conveyance, more water is carried away at a faster rate. Three types of channel improvements are considered here: projects that make the channel wider, straighter, or smoother; dredging the channel bottom; and diversion of high flows to another channel or body of water.

The channel enlargement on Willoway Brook in the East Branch DuPage River watershed (100-year design) constructed in 1990 in Wheaton performed well during the 1996 flood. DuPage County channel improvement projects are included in Table 5-9.

Table 5-86. DuPage County Channel Improvement Projects – Constructed

Watershed	Project	Year Completed	Maintenance
Salt Creek	Salt Creek Channel Improvement	1992	Oak Brook, Elmhurst
Salt Creek	Bensenville Ditch	1998	Bensenville
East Branch DuPage River	St. Joseph Creek Channel Improvement	1990	Downers Grove
East Branch DuPage River	Willoway Brook	1990	Wheaton
West Branch DuPage River	West Branch DuPage River Channel Improvement	1992	Hanover Park
West Branch DuPage River	Long Meadow Road Channel Improvement	1981	Hanover Park
West Branch DuPage River	West Branch DuPage River Improvements (10 mile project)	2015	Property Owners
East Branch DuPage River	Lacey Creek Streambank Stabilization	2017	Downers Grove

5.3.4 Crossings and Roadways

In some cases, buildings may be elevated above floodwaters but access to the building is lost when floodwaters overtop local roadways, driveways, and culverts or ditches. Depending on the recurrence interval between floods, the availability of alternative access, and the level of need for access, it may be economically justifiable to elevate some roadways and improve crossing points.

For example, if there is sufficient downstream channel capacity, a small culvert that constricts flow and causes localized backwater flooding may be replaced with a larger culvert to eliminate flooding at the waterway crossing point. The potential for worsening adjacent or downstream flooding needs to be considered before implementing any crossing or roadway drainage improvements.

The bridges shown in Table 5-10 have been identified by DuPage County communities as those which impede or obstruct flow. The roadways included in the table are those that could be elevated to provide continued access during flooding.

Table 5-87. DuPage County Bridges and Roadways that Impede Flood Flows

Community	Bridge or Roadway
Village of Downers Grove	Highland Avenue
Village of Downers Grove	55th Street and Grand Avenue
Village of Downers Grove	Fairview Avenue and Maple Avenue Creek, East Branch
Village of Downers Grove	Fairview Avenue and 56th
Village of Itasca	Maple Street Bridge
Village of Itasca	Irving Park Road Bridge
Village of Itasca	Elm Street (private bridge to Itasca Country Club)
Village of Itasca	North Prospect Avenue
Village of Lisle	Burlington Northern railroad culvert at south end of Elm Street
Village of Roselle	Foster Avenue Bridge (Improvement proposed)
Village of Villa Park	Possibly St. Charles Road at Salt Creek

Village of Villa Park	Possibly Villa Avenue at Sugar Creek
City of Wheaton	1700 Block of North Main Street
City of Wheaton	Bridge at Marianjoy Rehabilitation Hospital
Village of Winfield	Winfield Road at Winfield Creek (aka Spring Brook)
Village of Winfield	Park Street at Winfield Creek
Village of Winfield	Church Street at Winfield Creek
Village of Winfield	Summit Drive at Winfield Creek
Village of Winfield	East Street at Winfield Creek
Village of Winfield	Manchester Road at Winfield Creek
Village of Winfield	Roosevelt & Shaffner Roads at Winfield Creek
City of Wood Dale	Irving Park Road at Salt Creek (in design)

5.3.5 Drainage and Storm Sewer Improvements

Manmade ditches and storm sewers help drain areas where the surface drainage system is inadequate, or where underground drainageways may be safer or more practical. Storm sewer improvements include installing new sewers, enlarging small pipes, and preventing back flows. Particularly appropriate for depressions and low spots that will not drain naturally, drainage and storm sewer improvements are usually are designed to carry the runoff from smaller, more frequent storms.

The DuPage County Department of Public Works administers and manages the Residential Drainage Assistance Program (RDAP). The objective of this program is to assist county residents in correcting drainage concerns within unincorporated areas. The department can offer technical support and/or guidance to residents if a drainage concern does not qualify for construction improvements.

Many contributing factors can result in standing water on a person's property, ranging from the type of soils to topographical information. Some properties simply take longer to drain than others. Improvement projects are only recommended for small local problems where the receiving stream or river has sufficient capacity to handle the additional volume and flow of water. To reduce the cumulative downstream flood impacts of numerous small drainage projects, additional detention or run-off reduction practices should be provided in conjunction with the drainage system improvements.

A combination of restored wetland detention, vegetated swales, infiltration trenches and other best management practices that increase infiltration (reducing runoff) and improve water quality can be implemented in conjunction with stormwater system improvements.

Most DuPage County communities include storm sewer and drainage improvements annually in their capital budgets. Many communities have also implemented projects to address areas with combined sewers.

Drainage System Maintenance: The drainage system may include detention ponds, stream channels, swales, ditches and culverts. Drainage system maintenance is an ongoing program to clean out blockages caused by an accumulation of sediment or overgrowth of weedy, non-native vegetation or debris, and remediation of streambank erosion sites.

Maintenance activities normally do not alter the shape of the channel or pond, but they do affect how well the drainage system can do its job. Sometimes it is difficult to determine what separates debris that should be removed from natural material that helps form habitat. Therefore, written procedures that are consistent with state laws and environmental concerns are usually needed.

Government agencies usually accept responsibility for maintaining facilities on public property. However, in Illinois, the responsibility for drainageway maintenance on private property, when no easements have been granted, is with the individual private property owner. This often results in very little maintenance being accomplished. Table 5-11 shows drainage system maintenance activity in DuPage County.

Table 5-88. DuPage County Drainage System Maintenance

Community	Regular Drainage System Maintenance*	Written Procedures
Village of Addison	Yes	Unidentified
City of Aurora	Yes	Unidentified
Village of Bartlett	Yes	Unidentified
Village of Bensenville	Yes	No
Village of Bloomingdale	Yes	Unidentified
Village of Burr Ridge	Yes	Unidentified
Village of Carol Stream	Yes	Yes
Village of Clarendon Hills	Yes	Unidentified
City of Darien	Yes	Unidentified
Village of Downers Grove	Yes	Unidentified
City of Elmhurst	Yes	Unidentified
Village of Glendale Heights	Yes	Yes
Village of Glen Ellyn	Yes	No
Village of Hanover Park	Yes	Unidentified
Village of Hinsdale	Yes	Unidentified
Village of Itasca	Yes	Unidentified
Village of Lisle	Yes	Yes
Village of Lombard	Yes	Unidentified
City of Naperville	Yes	No
Village of Oak Brook	Yes	No
City of Oakbrook Terrace	Yes	Unidentified
Village of Roselle	Yes	Unidentified
Village of Villa Park	Yes	Unidentified
City of Warrenville	Yes	No
City of West Chicago	Yes	Unidentified
Village of Westmont	Yes	Unidentified
City of Wheaton	Yes	Unidentified
Village of Willowbrook	Yes	Yes
Village of Winfield	Yes	Unidentified
City of Wood Dale	Yes	Unidentified
Village of Woodridge	Yes	Yes
DuPage County	Yes	--

*Based on information received for the Natural Hazard Mitigation Plan Annual Reports

5.4 Natural Resource Protection

Natural Resource Protection activities preserve or restore natural areas or the natural functions of floodplain and watershed areas. Examples of these activities include:

- Wetlands Protection
- Erosion and Sediment Control
- Natural Area Preservation
- Natural Area Restoration
- Water Quality Improvement
- Environmental Corridors
- Natural Functions Protection

5.4.1 Open Space Preservation

Keeping the floodplain and other hazardous areas open and free from development is the best approach to preventing damage to new developments. Open space can be parks, greenway corridors, and golf courses. Capital improvement plans and comprehensive land use plans can identify areas to be preserved through any or all of the following means:

- Acquisition
- Dedication by developers
- Dedicating or purchasing an easement to keep the land open
- Specifying setbacks or buffer zones where development is not allowed

For over a century, the Forest Preserve District has been acquiring land in support of its mission "to acquire and hold lands containing forests, prairies, wetlands and associated plant communities or lands capable of being restored to such natural conditions for the purpose of protecting and preserving the flora, fauna and scenic beauty for the education, pleasure and recreation of its citizens" (Forest Preserve District of DuPage" County, N.D.).

"To guarantee future residents the benefits of a healthy balance between urban development and natural areas, [the Forest Preserve District Board] established a target ratio of 25 acres of forest preserve land for every 1,000 residents" (Forest Preserve District of DuPage County, N.D.).

5.4.2 Wetland Protection

Wetlands often found in floodplains and depressional areas of a watershed generally include swamps, bogs, marshes, wooded wetlands, ponds, streams, wet meadows, and similar areas. For regulatory purposes under the Clean Water Act, the term wetlands means those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions (DuPage County, 2022).

Wetlands provide several natural benefits, including pollutant removal, flood control, groundwater regeneration, and a natural habitat for plants and animals to live and grow. For additional information on each of these natural benefits, see Table 5-12.

Table 5-89. Natural Watershed Benefits

Pollutant Removal	Flood Control	Groundwater Regeneration	Natural Habitat
"Wetlands help to filter pollutants out of the water and filter nutrients into the soil, enriching the soil for future plant growth. When water flows through thick wetland vegetation and open water, it slows down allowing sediment and certain pollutants to settle to the bottom. Over time, the sediment becomes incorporated into the wetland soil. Over a very long period of time, sediments build up so much that the wetland may fill in and eventually become dry land. This process is called natural succession."	"Wetlands can contain and slow down large amounts of water runoff from heavy storms resulting in less flooding. In fact, one acre of wetlands has the potential to store 1 to 1 ½ million gallons of floodwater."	"Wetlands also help to regenerate our groundwater supply by filtering stormwater runoff though the system to remove pollutants and returning it to underground aquifers. When water is allowed to pond in a wetland, it may begin to soak into the soil to an aquifer below. The soil acts as a filter which removes most contaminants before it reaches the groundwater supply."	"Many species of animals and plants depend on wetlands for habitat and nourishment. Birds use wetlands for nesting and migratory purposes. Nearly half of all endangered species depend on wetlands for survival! Wetlands also provide habitat to diverse plant life. Wetlands make up approximately 5% of land in the continental U.S., but almost 1/3 of our plant species can be found in wetlands."

(FEMA, N.D.c)

DuPage County has been recognized for having a comprehensive stormwater management program. A component of this program is based on protecting the many benefits provided by wetlands and buffers, primarily by enforcing the DuPage County Countywide Stormwater and Floodplain Ordinance. Since many wetland and buffer functions are difficult, expensive, and sometimes impossible to replace, the ordinance requires that an applicant avoid or minimize impacts to wetlands, if possible. Wetland impacts are to be replaced, or mitigated, in the same watershed. Impacted buffer functions are replaced in kind. Wetland replacement ratios and buffer widths are based on the quality of a wetland which is determined by analyses of habitat and vegetation quality, and the presence of endangered or threatened species.

DuPage County Stormwater Management hosts training for environmental professionals on regulations, wetland soils, botany, water quality, and more. County staff regularly participate in professional seminars and community events as speakers, organizers, and facilitators.

5.4.3 Stream Restoration

Stream restoration activities have several names, such as "stream conservation," "bioengineering," or "riparian corridor restoration." The objective of these approaches is to return streams, streambanks, and adjacent land to a more natural condition, including

natural meanders. Another term is "ecological restoration" which restores native indigenous plants and animals to an area.

A key component of these efforts is to use appropriate native plantings along the banks that resist erosion. This may involve retrofitting the shoreline with willow cuttings, wetland plants, and/or rolls of landscape material covered with a natural fabric that decomposes after the banks are stabilized with plant roots.

In all, restoring the right vegetation to a stream has the following advantages:

- Reduces the amount of sediment and pollutants entering the water
- Enhances aquatic habitat by cooling water temperature
- Provides food and shelter for both aquatic and terrestrial wildlife
- Can reduce flood damage by slowing the velocity of water
- Prevents property loss due to erosion
- Provides recreational opportunities, such as hunting, fishing, and bird watching
- Reduces long-term maintenance costs

The increased quantity of stormwater runoff entering receiving waters results in the loss of equilibrium in natural water features and associated negative impacts such as shoreline and stream bank erosion, channel down cutting, and wetland sedimentation. Development within wetlands, floodplains, and riparian areas results in the loss of the stormwater benefits provided by these water resource features further exacerbating negative impacts to the watershed. Eventually, a point may be reached where the social and economic costs due to the loss of water resources becomes unacceptable to the populace. The cost to mitigate for lost water resource benefits due to development can be taxing on local and State government.

Maintaining Native Vegetated Open Spaces

The ordinance requires the following: "An area of open space that is a minimum of 25 feet in width shall be maintained or established adjacent to waters of DuPage where the riparian environment or buffer is not present or is less restrictive than 25 feet. The ground cover in this area shall be native, non-invasive vegetation. Enhancement of an existing special management area may be considered a BMP where no enhancement would be proposed as enhancement for impacts to Special Management Areas caused by development. Maintaining or establishing natively vegetated open spaces that are not considered a Special Management Area under the DuPage County Countywide Stormwater and Floodplain Ordinance ("ordinance") may also serve as an appropriate Best Management Practices (BMP). These areas will be reviewed on a case-by-case basis" (DuPage County, 2022).

The ordinance is identified as Appendix F of the DuPage County Stormwater Management Plan. The ordinance is enforced countywide through cooperation with county municipalities. The ordinance is the primary regulation affecting new development within the county. It regulates all activities that affect the discharge of stormwater. The ordinance includes permit requirements for stormwater runoff, stormwater detention, wetlands, floodplain,

floodway, riparian, and water quality BMPs. The ordinance is typically updated on an annual basis. It is important to refer to the most current ordinance.

5.4.4 Urban Forestry

According to Tree City USA, a national program sponsored by the Arbor Day Foundation in partnership with the U.S. Forest Service and the National Association of State Foresters, maintaining an urban forestry program offers both direct and indirect benefits to a community and its residents. By meeting four fundamental standards, a community can become a certified Tree City USA member, joining more than 3,400 other communities nationwide. The Tree City USA four core standards of sound urban forestry management are (Arbor Day Foundation, N.D.):

- Maintaining a tree board or department.
- Having a community tree ordinance.
- Spending at least $2 per capita on urban forestry.
- Celebrate Arbor Day.

The following communities within DuPage County have participated in Tree City USA for over a decade.

- Addison
- Bensenville
- Bloomingdale
- Burr Ridge
- Clarendon Hills
- Downers Grove
- Elmhurst
- Glen Ellyn
- Glendale Heights
- Hanover Park
- Hinsdale
- Itasca
- Lisle
- Lombard
- Naperville
- Roselle
- Villa Park
- Warrenville
- Wayne
- Westmont
- Wheaton
- Winfield
- Wood Dale
- Woodridge

In 2015, DuPage County accepted the Chicago Region Trees Initiative ("CRTI") under the DuPage County Energy Conservation and Air Quality Improvement Plan (also known as Cool DuPage). The mission of CRTI is to collaborate with regional partners to develop and implement a strategy that builds a healthier and more diverse urban forest by 2040. The county supports the mission and promotes energy efficiency through the planting of the correct tree species and the use of location optimization. The urban forest provides multiple benefits, including, but not limited to: improved air and water quality, a reduction in flooding and the urban heat island effect, and reduces energy use by shading buildings.

5.5 Emergency Services

Emergency services activities are conducted prior to and during an emergency to minimize the impact of a hazard. This mitigation category primarily focuses on life safety and property protection.

Emergency services activities are usually the responsibility of municipal and/or county emergency managers. In smaller communities, the designated emergency manager may also be a full-time police officer or firefighter. Emergency services activities can also be conducted by private industries responsible for critical facilities or providing critical services such as communication and energy. Activities may include, but are not limited to:

- Hazard Threat Recognition
- Critical Facilities Protection
- Hazard Warning
- Health and Safety Maintenance
- Hazard Response Operations
- Post-Disaster Mitigation Actions

The DuPage County Office of Homeland Security and Emergency Management (OHSEM) coordinates emergency management services in DuPage County. Activities of OHSEM include: activating the DuPage County Emergency Operations Center (EOC) during disasters; coordinating resource procurements and logistics during an emergency; coordinating and overseeing the Local Emergency Management Coordinators (LEMC) Workgroup and the Local Emergency Planning Committee (LEPC); participating in the National Weather Service's (NWS) StormReady® certification program; conducting an annual Threat Hazard Identification Risk Assessments (THIRA) in coordination with the Illinois Emergency Management Agency (IEMA); developing a Countywide community profile with critical infrastructure and incident data; coordinating and overseeing the DuPage County Citizen Corps; overseeing the development and maintenance of this Natural Hazard Mitigation Plan; and developing other plans focused on emergencies and natural, technological, and human-caused hazards.

5.5.1 Emergency Services and Integration of Mitigation Considerations

Preparedness Planning

The objective of preparing emergency plans is to create the capacity for county and local government to: save the maximum number of lives in the event of a major emergency or disaster and to minimize injuries; protect property; preserve functioning civil government; and to maintain and support economic activities essential for the survival and eventual recovery from the emergency or disaster. DuPage County has an Emergency Operations Plan (EOP), formally approved by the County Board Chair, which includes hazard specific plans for natural hazards. The county's EOP is approved every two years by IEMA. In addition, OHSEM coordinates the certification of local emergency management and emergency services disaster agency EOPs every two years. The county, and most DuPage municipalities, have designated spaces to serve as an Emergency Operations Center (EOC) during an emergency.

Stakeholder Engagement

The Local Emergency Management Coordinators (LEMC) Workgroup meets quarterly to coordinate planning efforts and share information. Mutual aid agreements are in place throughout the county for Fire (Mutual Aid Box Alarm System (MABAS)), Police (Illinois Law Enforcement Alarm System (ILEAS)), Emergency Management (Illinois Emergency Management Mutual Aid System (IEMMA)), Public Health (Illinois Public Health Mutual Aid System (IPHMAS)), and Public Works (Public Works Mutual Aid System (PWMA)). These agreements can be utilized in any phase of an emergency or disaster.

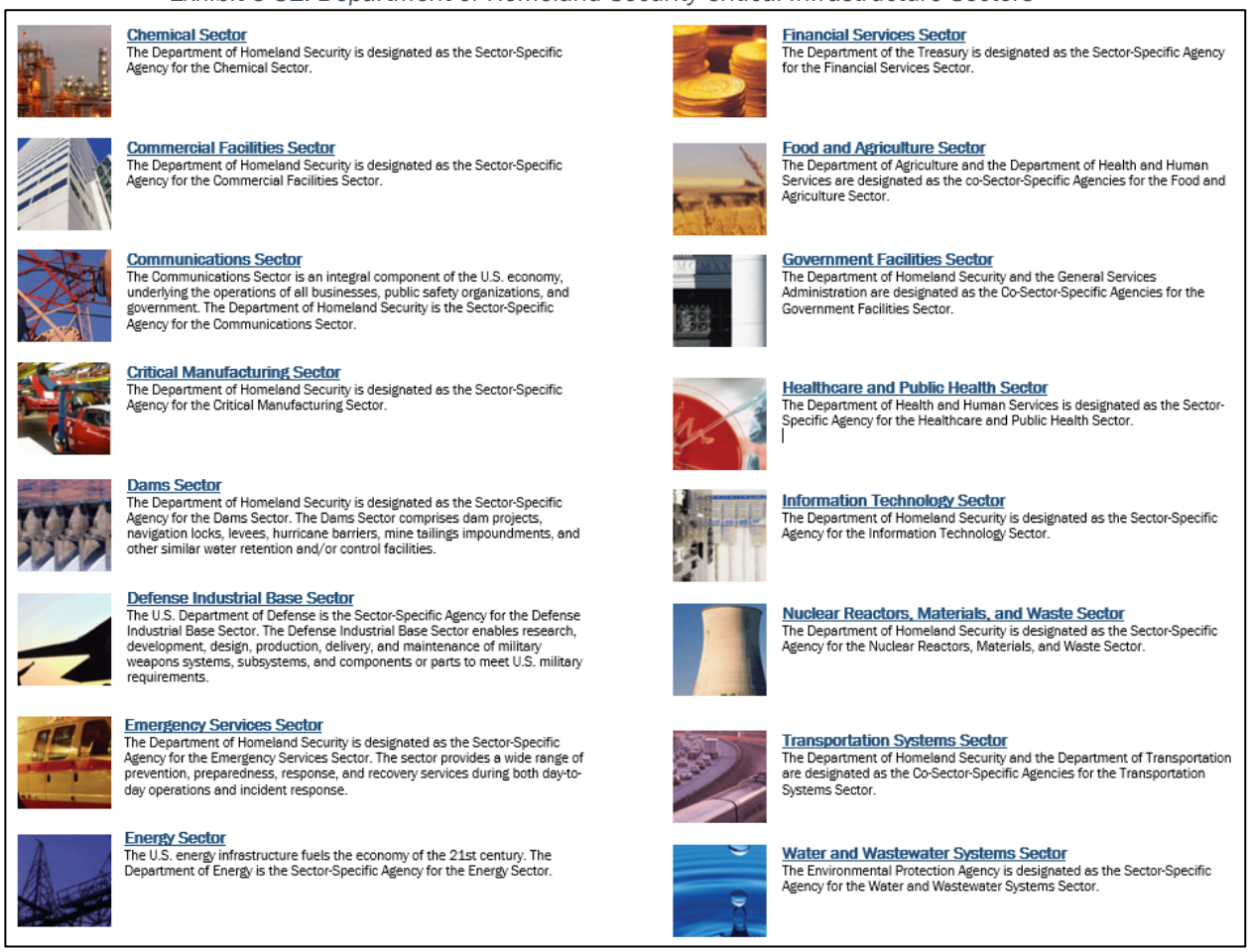
Threat Recognition

The first step in being able to effectively respond to a natural hazard is to identify the threats associated with the hazard, specific vulnerabilities, and capabilities the community has to respond to hazard if it were to occur. Every two years, OHSEM completes a Threat Hazard and Identification Risk Assessment (THIRA) as required by IEMA. OHSEM works with subject matter experts from the county and other private stakeholders to address and rank natural hazards and identify further needs to increase community resiliency.

Critical Infrastructure Identification and Protection

While protecting critical infrastructure from a disaster is the responsibility of the owner or operator, utilizing public-private partnerships to mitigate and respond to the effects of hazards is a best practice. When critical infrastructure is affected by a natural disaster, an entire community can experience impacts. When referencing critical infrastructure, this Plan utilizes the 16 sectors identified by the Department of Homeland Security (DHS). Exhibit 5-4 shows each of the sectors and their federal oversight agencies (CISA, N.D.).

Exhibit 5-81. Department of Homeland Security Critical Infrastructure Sectors



OHSEM is continuing to develop a Geographic Information System (GIS) based countywide community profile, to include critical infrastructure locations and characteristics. This will allow the county and partnering municipalities to: identify vulnerabilities before a disaster strikes, develop strategies for reducing these vulnerabilities, and to respond quicker in identifying impacted infrastructure following a natural disaster. In addition, DuPage County Stormwater Management is continually identifying and mapping critical facilities that are within flood prone areas.

Some critical facilities such as hospitals and nursing homes are required by state statute to establish and maintain backup generators to ensure electrical power can be maintained at minimal levels. DuPage County has several critical facilities on its county campus such as the Jail, DuPage Care Center, and the Emergency Operations Center (EOC). DuPage County invested in backup generation for all county campus buildings. Most police and fire stations throughout the county currently have backup generators. Municipalities should continue to identify key facilities and establish backup systems as budgets allow.

StormReady® Participation

The National Weather Service established the StormReady® program to help local governments improve the timeliness and effectiveness of hazardous weather-related warnings for the public. To be officially StormReady®, a community must:

- Establish a 24-hour warning point and Emergency Operations Center (EOC)
- Have more than one way to receive severe weather warnings from the National Weather Service (NWS) and provide forecasts and to alert the public
- Create a system that monitors weather conditions locally
- Promote the importance of public readiness through community seminars
- Develop a formal hazardous weather plan, which includes training severe weather spotters and holding emergency exercises.

Being designated as a StormReady® community by the Weather Service is a good measure of a community's emergency warning program for weather hazards. Unincorporated DuPage County, as well as many municipalities and even colleges and universities within DuPage County, are certified through this program.

Public Warning Systems

When the county and local governments need to share critical and time sensitive information with the public, emergency services agencies use multiple notifications systems made available through the Federal Emergency Management Agency's (FEMA) Integrated Public Alert and Warning System (IPAWS). The system "is a comprehensive, coordinated, integrated system that can be used by authorized public officials to deliver effective alert messages to the American public" (FEMA, N.D.b) via multiple emergency communication and warning platforms such as:

- The Emergency Alert System (EAS), which may be used by state, county, and local authorities, in cooperation with the broadcast community, to deliver important emergency information, (i.e., weather information, imminent threats, and AMBER alerts) via radio (AM/FM/Satellite), television, analog and digital phone lines (FEMA, N.D.a).
- Wireless Emergency Alerts (WEA), which may be used by state, county, and local authorities to deliver important emergency information through the cellular phone network (FEMA, N.D.d).
- The National Oceanic and Atmospheric Administration (NOAA) weather radio system, which can be tied to tone-activated receivers in key facilities, such as schools, hospitals, and government facilities, through the Emergency Alert Radio System (EARS).

In addition to these systems, IPAWS coordinates with internet service providers to disseminate information through social media platforms. Also, local public safety answering points (PSAPs) are responsible for activating local outdoor sirens for weather related incidents. The earlier and the more specific the warning, the greater the number of people who can implement protection measures.

Communication

Since 2007, DuPage County first responder agencies have maintained interoperable communications, between disciplines and jurisdictions, through the STARCOM21 system. The DuPage County Emergency Telephone System Board (ETSB) has oversight of the enhanced 9-1-1 systems for community members of DuPage County, as well as, portions of Cook, Kane, and Will counties. Over the past decade, the DuPage County Office of Homeland Security and Emergency Management has also increased interoperable communications capacity throughout the county by:

- Obtaining and maintaining a cache of deployable tactical radios, available for first responder agencies throughout the county.
- Enhancing the county's Illinois Transportable Emergency Communications System (ITECS) Unit, coordinated through the IEMA, through a robust training curriculum and holding regular Unit exercises.
- Designing and building a rapidly-deployable communications vehicle (RapidComm 4).
- Maintaining the DuPage County Emergency Radio Network (DCERN) system.
- Maintaining multiple high-quality video conferencing systems.
- Conducting monthly tests of all communications systems.
- Maintaining amateur radio communications equipment capable of short (VHF/UHF) and long-range (HF) analog and digital communications.
- Developing a cadre of skilled and dedicated communication reservists (i.e., sworn volunteers) to support the compliment of emergency communications assets.
- Participating in committees and associations whose priorities include strategic and interoperable communications, such as the:

    - Emergency Telephone Safety Board (ETSB) Committee
    - Public Safety Answering Points (PSAP) Supervisors Committee
    - DuPage County Chiefs of Police Association (DCCPA)
    - DuPage County Fire Chiefs Association

Recovery

Following a disaster, one of the ways the OHSEM begins the process of coordinating recovery is through the collection of damage assessment information. This can be done through "windshield" assessments, door-to-door canvassing, and the collection of internet-based surveys. In addition to damaged buildings, the DuPage County EOC also collects information on utility outages, transportation and communications interruptions, and public health needs. This information is used to develop a common operating picture and a prioritized recovery plan. In addition to aiding residents following a disaster, the county also prioritizes business recovery, especially the recovery of small businesses. Business closures can financially and psychologically impact a community, leaving residents out of work, damaging the local economy, and sometimes slowing regional growth.

5.6 Key Mitigation Integration and Implementation Considerations

- Building codes are the primary preventive measure for tornadoes, high winds, snowstorms and earthquakes. Rigorous enforcement of the latest available building codes, with an adequately trained staff provides a more sustainable community. In addition, it is important for communities to continue to update their Building and Zoning Codes on a regular basis.
- On a regional basis, municipal and county code enforcement staff should work together to:

  i) Develop building code language to strengthen new buildings against damage by high winds, tornadoes, and hail.

  ii) Adequately regulate manufactured structure installation for all uses, including residential, commercial, and schools.

- All communities should adopt the latest International Codes, the new national standard that is being adopted throughout the Country. Current efforts by multi-community organizations of building departments to develop local amendments for regional consistency should be pursued, provided they produce equivalent natural hazard protection features.
- Communities should work to improve their BCEGS rating, with a target of reaching or maintaining at least a Class 5 or better in time for their next cycle visit by the Insurance Services Office.
- The majority of the comprehensive and land use plans address floodplains and the need to preserve these hazardous areas from intensive development. However, many zoning ordinances do not designate flood prone areas for any special type of land use.
- On a regional basis, municipal and county planning and engineering staff should develop example subdivision ordinance language that requires new infrastructure to have hazard mitigation provisions, such as secondary access to subdivisions.
- Offices responsible for design, construction or permitting critical facilities should ensure that the design accounts for natural hazards and adjacent land uses.
- The public, developers, builders, and decision makers should be informed about the hazard mitigation benefits of these preventive measures and the procedures that should be followed to ensure that new developments do not create new problems.
- Communities need to understand and consistently enforce the Countywide Stormwater and Floodplain Ordinance provisions. All communities should enforce the wetland protection, erosion and sediment control and best management practices provisions of the Countywide Stormwater and Floodplain Ordinance. The DuPage County municipal engineers' group should continue their efforts in these areas.
- Available property protection public education materials should be consolidated and tailored for DuPage County. Materials should address measures that can help

owners reduce their exposure to damage by natural hazards and the various types of insurance coverage that are available.

- The county and municipalities should provide information and technical advice to floodplain property owners for reading floodplain maps.
- The county and municipalities should consider the feasibility of providing information and technical advice to floodplain property owners for protecting their property.
- Repetitive flood loss areas should be investigated and mitigated.
- Structural elevation or acquisition alternatives should be investigated for flood-prone properties when a regional project is not feasible.
- Positive incentives should be maintained and created by the county and municipalities to encourage property protection by property owners.
- Communities should consider cost-sharing programs, such as rebates, to encourage low-cost property protection.
- All property owners should be encouraged to determine if they are adequately insured for natural hazards.
- All critical facilities in the floodplain, with priority given to facilities in the floodway, should be mitigated to the extent that the measures are cost effective and feasible.
- Structural flood control projects, including drainage and bridge and culvert improvements, should be pursued and funded, provided they meet the following criteria:
    - Each project's study looks beyond the immediate project site to ensure that no other properties will be adversely impacted.
    - Each project should be based on a watershed master plan or, at a minimum, coordinated with other projects in the same watershed.
    - Each project's study considers protecting the natural functions of the stream and floodplain, in addition to flood protection.
    - Each project's study considers alternative non-structural approaches to protect the affected properties from flood damage.
    - The design and construction are certified by a licensed professional engineer.
    - Opportunities for stream and natural areas restoration are incorporated wherever feasible.
    - Communities and property owners that may be affected by the project are notified.
    - All relevant federal, state and local permits are obtained, including Corps of Engineer's permits and IDNR floodway permits.
- The DuPage County Stormwater Management program should continue to be funded through appropriate funding mechanisms.
- The DuPage County Stormwater Management program and municipalities should continue to identify, plan and implement structural flood control projects both before and after flood events.
- Funding for municipal or regional structural measures in DuPage County should be sought as it is made available through FEMA hazard mitigation programs.

- Each municipality and the county should implement a formal and regular drainage system maintenance program, where feasible.
- Municipal comprehensive plans, land use plans and zoning ordinances should incorporate open space provisions that will protect properties from flooding and preserve wetlands.
- Each community should ensure that it has enforceable stream and wetland dumping regulations.
- Every community should develop or continue to implement an urban forestry program that qualifies them to become a Tree City, USA.
- Continue to update Emergency Operations Plans for the county and municipalities every two years with a focus to integrate the hazard mitigation plan, where appropriate.
- Assessments and response procedures for floods and other hazards should be incorporated in all emergency operations planning and response where appropriate.
- Emergency Operations Centers at the county and in municipalities should be evaluated for effectiveness and functionality and modified appropriately.
- The county and municipalities should continue to coordinate the identification and mapping of critical infrastructure to enhance emergency planning and response.
- DuPage communities should continue to strive to obtain or renew StormReady certification.

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Chapter 6: Mitigation Goals

The mitigation strategy includes the development of goals and prioritized hazard mitigation actions. Goals are long-term policy statements and global visions that support the mitigation strategy.

6.1 Community Priorities

The following topics were identified by the planning team to be of priority for the county and participating jurisdictions:

- Life Safety
- Public Health
- Critical Infrastructure Maintenance and Protection
- Public Information and Warning
- Public Outreach, Education, and Awareness
- Equitable outcomes for underserved communities and socially vulnerable populations
- Inter-governmental Coordination
- Public-Private Partnerships
- Repetitive Loss Properties
- Climate Change

6.2 Goals and Guidelines

6.2.1 Mitigation Goals

The following goals (shown in order of importance) were developed by the planning team for the purpose of guiding and directing the plan in accordance with governmental requirements, community priorities, and changing circumstances. These goals were compared with other DuPage County and Chicago Metro Area County Plans to ensure aligning viewpoints are used regionally. Given the importance of mitigating flooding within DuPage County, the planning team ensured this Plan's goals are consistent with Countywide Stormwater and Floodplain Ordinance, adopted by DuPage County and the municipalities, which addresses stormwater, floodplain, wetland, and water quality management associated with new and re-development.

Goal 1. Prioritize the health and safety of DuPage County residents from the impacts of natural hazards.

Goal 2. Protect critical infrastructure and community lifelines within DuPage County by identifying and reducing vulnerabilities to the impacts of natural hazards.

Goal 3. Strengthen relationships between the public sector, private sector entities, leaders from underserved communities, and residents to enhance community resilience through a

whole-community approach, with specific emphasis on achieving equitable outcomes for all communities, including underserved communities and socially vulnerable populations.

Goal 4. Increase the preparedness and awareness of natural hazards among DuPage County residents through targeted and coordinated outreach campaigns.

Goal 5. Promote better coordination between public service sectors and encourage multi-jurisdictional participation in sustainable and cost-effective mitigation projects.

Goal 6. Safeguard historic and cultural aspects of DuPage County from the effects of natural hazards.

Goal 7. Encourage systematic updates and adoptions of regulations to ensure new developments address changing environmental concerns and natural resource protection.

Goal 8. Protect properties and structures within DuPage County from the impacts of natural hazards through the implementation of flood control projects, green infrastructure, mitigation activities, and advanced warning systems.

6.2.2 Mitigation Guidelines

The following guidelines were developed by the planning team for purpose of achieving the goals and to facilitate the development of hazard mitigation action items in Chapter 7:

- **Guideline 1.** Prioritize hazard mitigation projects on the hazards that pose the greatest threat to the community.
- **Guideline 2**. Promote public education strategies for the community around the need to take steps to protect themselves, their families, and their property.
- **Guideline 3**. Create and foster public-private partnerships and relationships with leaders from underserved communities to accomplish hazard mitigation activities and equitable outcomes for all communities, including underserved communities and socially vulnerable populations.
- **Guideline 4**. Encourage interdepartmental and multi-jurisdictional collaboration and shared resources when developing and conducting hazard mitigation exercises and projects.
- **Guideline 5**. Strive to improve and expand communication/coordination between public works and emergency services before, during, and after a disaster response.
- **Guideline 6**. Seek County, State, and Federal support for mitigation projects.

Chapter 7: Mitigation Action Plan

The findings, conclusions, and recommendations presented in Chapters 1 through 6 of the DuPage County Natural Hazard Mitigation Plan have been collated into this Action Plan. In addition, the guidelines and goals developed by the Workgroup, and presented in Chapter 6, set the context for these Action Items. The following Action Items align with the six mitigation areas outlined by the Federal Emergency Management Agency (FEMA) within their Community Rating System (CRS) Program. The Action Plan presented in this chapter establishes an overall direction for the county regarding natural hazard mitigation. The Action Plan is the most essential part of this Plan as it incorporates an awareness of local risks, resources, needs and plans a path forward.

7.1 Mitigation Action Plan

The action plan helps to prioritize mitigation initiatives according to a benefit/cost analysis of the proposed projects and their associated costs (44 CFR, Section 201.6(c)(3)(iii)). The action plan also provides the framework for how the proposed projects and initiatives will be implemented and administered over the next five years.

7.1.1 Mitigation Strategy/Action Timeline Parameters

While the preference is to provide definitive project completion dates, this is only possible for some mitigation strategies/actions. Therefore, the parameters for the timeline (Projected Completion Date) are as follows:

- **Short-term**—To be completed in one to five years
- **Long-term**—To be completed in greater than five years
- **Ongoing**—Currently being implemented under existing programs but without a definite completion date

7.1.2 Mitigation Strategy/Action Benefit Parameters

Benefit ratings are defined as follows:

- **High**—The project will provide an immediate reduction of risk exposure for life and property.
- **Medium**—The project will have a long-term impact on reducing risk exposure for life and property, or the project will provide an immediate reduction in the risk exposure for property.
- **Low**—Long-term benefits of the project are difficult to quantify in the short term.

7.1.3 Mitigation Strategy/Action Estimated Cost Parameters

While the preference is to provide definitive costs (dollar figures) for each mitigation strategy/action, this is only possible for some mitigation strategies/action. Therefore, the estimated costs for the mitigation initiatives identified in this Plan are identified as high, medium, or low, using the following ranges:

- **High**—Existing funding will not cover the project's cost; implementation would require new revenue through an alternative source (e.g., bonds, grants, and fee increases).
- **Medium**—The project could be implemented with existing funding but would require a re-apportion of the budget or a budget amendment, or the project cost would have to be spread over multiple years.
- **Low**—The project could be funded under the existing budget. The project is part of or can be part of a current ongoing program.

7.1.4 Mitigation Strategy/Action Prioritization Process

The action plan must be prioritized according to a benefit/cost analysis of the proposed projects and their associated costs (44 CFR, Section 201.6(c)(3)(iii)). The benefits of proposed projects were weighed against estimated costs as part of the project prioritization process. The benefit/cost analysis was not of the detailed variety required by FEMA for project grant eligibility under the Hazard Mitigation Grant Program (HMGP) and Building Resilient Infrastructure and Communities (BRIC) grant program. A less formal approach was used because some projects may not be implemented for multiple years, and associated costs and benefits could change dramatically. Therefore, a review of the apparent benefits versus the evident cost of each project was performed. Parameters were established for assigning subjective ratings (high, medium, and low) to the costs and benefits of these projects.

The priorities are defined as follows:

- **High**—A project that addresses numerous goals or hazards, has benefits that exceed the cost, has funding secured or is an ongoing project, and meets eligibility requirements for the HMGP or BRIC grant program. High-priority projects may be completed in the short term (1 to 5 years).
- **Medium**—A project that addressed multiple goals and hazards, with benefits that exceed costs, and for which funding has not been secured but is grant eligible under HMGP, BRIC, or other grant programs. The project can be completed in the short term once funding is secured. Medium-priority projects will become high-priority projects once funding is secured.

- **Low**—A project that will address a few or no goals, mitigate the risk of one or a few hazards, has benefits that do not exceed the costs or are challenging to quantify, for which funding has not been secured, that is not eligible for HMGP or BRIC grant funding, and for which the timeline for completion is long term. Low-priority projects may qualify for other grant funding sources from other programs.

For many of the strategies identified in this action plan, the participating jurisdictions may seek financial assistance under HMA programs, most requiring detailed benefit/cost analyses. These analyses will be performed on projects at the time of application using the FEMA benefit-cost model. For projects not seeking financial assistance from grant programs that require detailed analysis, the partners reserve the right to define "benefits" according to parameters that meet the goals and objectives of this Plan.

7.2 Mitigation Projects

Listed below are the projects that were developed to address the risks posed. It should be noted that this Plan serves only to recommend mitigation measures. Implementing these recommendations depends on adopting this Plan by the DuPage County Board and the city council or board of trustees of each participating municipality. It also depends on the cooperation and support of the designated offices responsible for each action item. In addition, each community was encouraged to include additional community-specific action/project items.

A summary of the previous plan's action items through the final annual report, along with the mitigation activities communities completed to achieve each action item, can be found in Appendix D.

Participating jurisdictions agreed upon 17 mitigation actions that apply to the county and all participating jurisdictions (see 7.3 Mitigation Action Plan & Projects for DuPage County & All Participating Jurisdictions). These shared actions, some of which address all hazards, help to meet the following requirement: "Does the plan identify and analyze a comprehensive range of specific mitigation actions and projects for each jurisdiction being considered to reduce the effects of hazards, with emphasis on new and existing buildings and infrastructure? Does the plan include one or more action(s) per jurisdiction for each hazard identified within the risk assessment?" In addition to the 17 mitigation measures that apply to the county and all participating jurisdictions, most communities identified additional mitigation actions unique to their jurisdiction. The following table summarizes the jurisdictions' mitigation measures in relationship to the hazards addressed in the risk assessment.

Table 7-90. Participating Jurisdictions' Mitigation Strategies and Hazard Alignment

XX = DuPage County and All Participating Jurisdictions' Action(s) | X = Jurisdiction-Specific Action(s)

	Drought	Earthquakes	Extreme Heat	Flood	Ground Failure	High Hazard Dams	Severe Summer Weather	Severe Winter Weather	Tornadoes
DuPage County and Unincorporated Areas	XX (7.3.1) XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.12) X (7.4.7)	XX (7.3.1) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.12) XX (7.3.17)	XX (7.3.1) XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.12) XX (7.3.16) X (7.4.7)	XX (7.3.1) XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.6) XX (7.3.7) XX (7.3.8) XX (7.3.9) XX (7.3.10) XX (7.3.11) XX (7.3.12) XX (7.3.14) XX (7.3.15) X (7.4.1) X (7.4.2) X (7.4.3) X (7.4.4) X (7.4.5) X (7.4.6) X (7.4.7)	XX (7.3.1) XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.9) XX (7.3.12) XX (7.3.14)	XX (7.3.1) XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.12) XX (7.3.13)	XX (7.3.1) XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.9) XX (7.3.12) X (7.4.6) X (7.4.7)	XX (7.3.1) XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.12) X (7.4.6) X (7.4.7)	XX (7.3.1) XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.12) X (7.4.6) X (7.4.7)
Addison	XX (7.3.1) XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.12)	XX (7.3.1) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.12) XX (7.3.17)	XX (7.3.1) XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.12) XX (7.3.16)	XX (7.3.1) XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.6) XX (7.3.7) XX (7.3.8) XX (7.3.9) XX (7.3.10) XX (7.3.11) XX (7.3.12) XX (7.3.14) XX (7.3.15) X (7.5.1.1) X (7.5.1.2)	XX (7.3.1) XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.9) XX (7.3.12) XX (7.3.14)	XX (7.3.1) XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.12) XX (7.3.13)	XX (7.3.1) XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.9) XX (7.3.12)	XX (7.3.1) XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.12)	XX (7.3.1) XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.12)
Bartlett	XX (7.3.1)	XX (7.3.1)	XX (7.3.1)	XX (7.3.1)	XX (7.3.1)	XX (7.3.1)	XX (7.3.1)	XX (7.3.1)	XX (7.3.1)

	Drought	Earthquakes	Extreme Heat	Flood	Ground Failure	High Hazard Dams	Severe Summer Weather	Severe Winter Weather	Tornadoes
	XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.12)	XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.12) XX (7.3.17)	XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.12) XX (7.3.16)	XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.6) XX (7.3.7) XX (7.3.8) XX (7.3.9) XX (7.3.10) XX (7.3.11) XX (7.3.12) XX (7.3.14) XX (7.3.15) X (7.5.2.1)	XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.9) XX (7.3.12) XX (7.3.14)	XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.12) XX (7.3.13)	XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.9) XX (7.3.12) X (7.5.2.2)	XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.12) X (7.5.2.2)	XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.12) X (7.5.2.1) X (7.5.2.2)
Bensenville	XX (7.3.1) XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.12) X (7.5.3.4) X (7.5.3.5) X (7.5.3.10)	XX (7.3.1) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.12) XX (7.3.17) X (7.5.3.4) X (7.5.3.5) X (7.5.3.10)	XX (7.3.1) XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.12) XX (7.3.16) X (7.5.3.4) X (7.5.3.5) X (7.5.3.7) X (7.5.3.10)	XX (7.3.1) XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.6) XX (7.3.7) XX (7.3.8) XX (7.3.9) XX (7.3.10) XX (7.3.11) XX (7.3.12) XX (7.3.14) XX (7.3.15) X (7.5.3.1) X (7.5.3.2) X (7.5.3.3) X (7.5.3.4) X (7.5.3.5) X (7.5.3.9) X (7.5.3.10)	XX (7.3.1) XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.9) XX (7.3.12) XX (7.3.14) X (7.5.3.4) X (7.5.3.5) X (7.5.3.10)	XX (7.3.1) XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.12) XX (7.3.13) X (7.5.3.4) X (7.5.3.5) X (7.5.3.10)	XX (7.3.1) XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.9) XX (7.3.12) X (7.5.3.4) X (7.5.3.5) X (7.5.3.8) X (7.5.3.10)	XX (7.3.1) XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.12) X (7.5.3.4) X (7.5.3.5) X (7.5.3.6) X (7.5.3.7) X (7.5.3.10)	XX (7.3.1) XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.12) X (7.5.3.4) X (7.5.3.5) X (7.5.3.6) X (7.5.3.10)
Bloomingdale	XX (7.3.1) XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7)	XX (7.3.1) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8)	XX (7.3.1) XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7)	XX (7.3.1) XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.6)	XX (7.3.1) XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7)	XX (7.3.1) XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7)	XX (7.3.1) XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7)	XX (7.3.1) XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7)	XX (7.3.1) XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7)

	Drought	Earthquakes	Extreme Heat	Flood	Ground Failure	High Hazard Dams	Severe Summer Weather	Severe Winter Weather	Tornadoes
	XX (7.3.8) XX (7.3.12)	XX (7.3.12) XX (7.3.17)	XX (7.3.8) XX (7.3.12) XX (7.3.16) X (7.5.4.1)	XX (7.3.7) XX (7.3.8) XX (7.3.9) XX (7.3.10) XX (7.3.11) XX (7.3.12) XX (7.3.14) XX (7.3.15) X (7.5.4.1) X (7.5.4.2)	XX (7.3.8) XX (7.3.9) XX (7.3.12) XX (7.3.14)	XX (7.3.8) XX (7.3.12) XX (7.3.13)	XX (7.3.8) XX (7.3.9) XX (7.3.12)	XX (7.3.8) XX (7.3.12) X (7.5.4.1)	XX (7.3.8) XX (7.3.12)
Burr Ridge	XX (7.3.1) XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.12) X (7.5.5.1)	XX (7.3.1) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.12) XX (7.3.17) X (7.5.5.1)	XX (7.3.1) XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.12) XX (7.3.16) X (7.5.5.1)	XX (7.3.1) XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.6) XX (7.3.7) XX (7.3.8) XX (7.3.9) XX (7.3.10) XX (7.3.11) XX (7.3.12) XX (7.3.14) XX (7.3.15) X (7.5.5.2)	XX (7.3.1) XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.9) XX (7.3.12) XX (7.3.14) X (7.5.5.1)	XX (7.3.1) XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.12) XX (7.3.13)	XX (7.3.1) XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.9) XX (7.3.12)	XX (7.3.1) XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.12)	XX (7.3.1) XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.12)
Carol Stream	XX (7.3.1) XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.12)	XX (7.3.1) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.12) XX (7.3.17)	XX (7.3.1) XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.12) XX (7.3.16)	XX (7.3.1) XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.6) XX (7.3.7) XX (7.3.8) XX (7.3.9) XX (7.3.10) XX (7.3.11) XX (7.3.12) XX (7.3.14) XX (7.3.15) X (7.5.6.1) X (7.5.6.2)	XX (7.3.1) XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.9) XX (7.3.12) XX (7.3.14)	XX (7.3.1) XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.12) XX (7.3.13) X (7.5.6.1) X (7.5.6.2)	XX (7.3.1) XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.9) XX (7.3.12)	XX (7.3.1) XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.12)	XX (7.3.1) XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.12)

	Drought	Earthquakes	Extreme Heat	Flood	Ground Failure	High Hazard Dams	Severe Summer Weather	Severe Winter Weather	Tornadoes
Clarendon Hills	XX (7.3.1) XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.12) X (7.5.7.1)	XX (7.3.1) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.12) XX (7.3.17) X (7.5.7.1)	XX (7.3.1) XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.12) XX (7.3.16) X (7.5.7.1)	XX (7.3.1) XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.6) XX (7.3.7) XX (7.3.8) XX (7.3.9) XX (7.3.10) XX (7.3.11) XX (7.3.12) XX (7.3.14) XX (7.3.15) X (7.5.7.1)	XX (7.3.1) XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.9) XX (7.3.12) XX (7.3.14) X (7.5.7.1)	XX (7.3.1) XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.12) XX (7.3.13) X (7.5.7.1)	XX (7.3.1) XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.9) XX (7.3.12) X (7.5.7.1) X (7.5.7.2)	XX (7.3.1) XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.12) X (7.5.7.1)	XX (7.3.1) XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.12) X (7.5.7.1) X (7.5.7.2)
Darien	XX (7.3.1) XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.12) X (7.5.8.1)	XX (7.3.1) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.12) XX (7.3.17) X (7.5.8.1)	XX (7.3.1) XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.12) XX (7.3.16) X (7.5.8.1)	XX (7.3.1) XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.6) XX (7.3.7) XX (7.3.8) XX (7.3.9) XX (7.3.10) XX (7.3.11) XX (7.3.12) XX (7.3.14) XX (7.3.15) X (7.5.8.1)	XX (7.3.1) XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.9) XX (7.3.12) XX (7.3.14) X (7.5.8.1)	XX (7.3.1) XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.12) XX (7.3.13) X (7.5.8.1)	XX (7.3.1) XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.9) XX (7.3.12) X (7.5.8.1) X (7.5.8.2)	XX (7.3.1) XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.12) X (7.5.8.1)	XX (7.3.1) XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.12) X (7.5.8.1) X (7.5.8.2)
Downers Grove	XX (7.3.1) XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.12) X (7.5.9.1)	XX (7.3.1) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.12) XX (7.3.17)	XX (7.3.1) XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.12) XX (7.3.16)	XX (7.3.1) XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.6) XX (7.3.7) XX (7.3.8) XX (7.3.9)	XX (7.3.1) XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.9) XX (7.3.12)	XX (7.3.1) XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.12) XX (7.3.13)	XX (7.3.1) XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.9) XX (7.3.12)	XX (7.3.1) XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.12)	XX (7.3.1) XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.12)

	Drought	Earthquakes	Extreme Heat	Flood	Ground Failure	High Hazard Dams	Severe Summer Weather	Severe Winter Weather	Tornadoes
	X (7.5.9.3) X (7.5.9.8)	X (7.5.9.3) X (7.5.9.8)	X (7.5.9.3) X (7.5.9.8)	XX (7.3.10) XX (7.3.11) XX (7.3.12) XX (7.3.14) XX (7.3.15) X (7.5.9.1) X (7.5.9.2) X (7.5.9.3) X (7.5.9.4) X (7.5.9.5) X (7.5.9.6) X (7.5.9.7) X (7.5.9.8) X (7.5.9.9)	XX (7.3.14) X (7.5.9.3) X (7.5.9.8)	X (7.5.9.3) X (7.5.9.8)	X (7.5.9.3) X (7.5.9.8)	X (7.5.9.3) X (7.5.9.8)	X (7.5.9.3) X (7.5.9.8)
Elmhurst	XX (7.3.1) XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.12) X (7.5.10.1)	XX (7.3.1) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.12) XX (7.3.17) X (7.5.10.1)	XX (7.3.1) XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.12) XX (7.3.16) X (7.5.10.1)	XX (7.3.1) XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.6) XX (7.3.7) XX (7.3.8) XX (7.3.9) XX (7.3.10) XX (7.3.11) XX (7.3.12) XX (7.3.14) XX (7.3.15) X (7.5.10.1) X (7.5.10.2)	XX (7.3.1) XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.9) XX (7.3.12) XX (7.3.14) X (7.5.10.1)	XX (7.3.1) XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.12) XX (7.3.13) X (7.5.10.1)	XX (7.3.1) XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.9) XX (7.3.12) X (7.5.10.1) X (7.5.10.2)	XX (7.3.1) XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.12) X (7.5.10.1)	XX (7.3.1) XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.12) X (7.5.10.1)
Glen Ellyn	XX (7.3.1) XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.12) X (7.5.11.4) X (7.5.11.5)	XX (7.3.1) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.12) XX (7.3.17) X (7.5.11.4) X (7.5.11.5)	XX (7.3.1) XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.12) XX (7.3.16) X (7.5.11.4)	XX (7.3.1) XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.6) XX (7.3.7) XX (7.3.8) XX (7.3.9) XX (7.3.10) XX (7.3.11)	XX (7.3.1) XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.9) XX (7.3.12) XX (7.3.14)	XX (7.3.1) XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.12) XX (7.3.13) X (7.5.11.4)	XX (7.3.1) XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.9) XX (7.3.12) X (7.5.11.4)	XX (7.3.1) XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.12) X (7.5.11.4) X (7.5.11.5)	XX (7.3.1) XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.12) X (7.5.11.4) X (7.5.11.5)

	Drought	Earthquakes	Extreme Heat	Flood	Ground Failure	High Hazard Dams	Severe Summer Weather	Severe Winter Weather	Tornadoes
			X (7.5.11.5) X (7.5.11.6)	XX (7.3.12) XX (7.3.14) XX (7.3.15) X (7.5.11.1) X (7.5.11.2) X (7.5.11.3) X (7.5.11.4) X (7.5.11.5) X (7.5.11.6) X (7.5.11.7)	X (7.5.11.2) X (7.5.11.4) X (7.5.11.5)	X (7.5.11.5)	X (7.5.11.5) X (7.5.11.6)	X (7.5.11.6)	X (7.5.11.6)
Glendale Heights	XX (7.3.1) XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.12)	XX (7.3.1) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.12) XX (7.3.17)	XX (7.3.1) XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.12) XX (7.3.16)	XX (7.3.1) XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.6) XX (7.3.7) XX (7.3.8) XX (7.3.9) XX (7.3.10) XX (7.3.11) XX (7.3.12) XX (7.3.14) XX (7.3.15) X (7.5.12.2) X (7.5.12.3) X (7.5.12.4) X (7.5.12.5) X (7.5.12.7)	XX (7.3.1) XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.9) XX (7.3.12) XX (7.3.14)	XX (7.3.1) XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.12) XX (7.3.13)	XX (7.3.1) XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.9) XX (7.3.12) X (7.5.12.1) X (7.5.12.3)	XX (7.3.1) XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.12) X (7.5.12.1) X (7.5.12.3) X (7.5.12.6)	XX (7.3.1) XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.12)
Hanover Park	XX (7.3.1) XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.12) X (7.5.13.1)	XX (7.3.1) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.12) XX (7.3.17) X (7.5.13.1)	XX (7.3.1) XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.12) XX (7.3.16) X (7.5.13.1)	XX (7.3.1) XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.6) XX (7.3.7) XX (7.3.8) XX (7.3.9) XX (7.3.10) XX (7.3.11) XX (7.3.12)	XX (7.3.1) XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.9) XX (7.3.12) XX (7.3.14) X (7.5.13.1)	XX (7.3.1) XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.12) XX (7.3.13) X (7.5.13.1)	XX (7.3.1) XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.9) XX (7.3.12) X (7.5.13.1)	XX (7.3.1) XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.12) X (7.5.13.1)	XX (7.3.1) XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.12) X (7.5.13.1)

	Drought	Earthquakes	Extreme Heat	Flood	Ground Failure	High Hazard Dams	Severe Summer Weather	Severe Winter Weather	Tornadoes
				XX (7.3.14) XX (7.3.15) X (7.5.13.1)					
Hinsdale	XX (7.3.1) XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.12) X (7.5.14.1)	XX (7.3.1) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.12) XX (7.3.17) X (7.5.14.1)	XX (7.3.1) XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.12) XX (7.3.16) X (7.5.14.1)	XX (7.3.1) XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.6) XX (7.3.7) XX (7.3.8) XX (7.3.9) XX (7.3.10) XX (7.3.11) XX (7.3.12) XX (7.3.14) XX (7.3.15) X (7.5.14.2) X (7.5.14.3)	XX (7.3.1) XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.9) XX (7.3.12) XX (7.3.14) X (7.5.14.1 X (7.5.14.2) X (7.5.14.3)	XX (7.3.1) XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.12) XX (7.3.13)	XX (7.3.1) XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.9) XX (7.3.12)	XX (7.3.1) XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.12)	XX (7.3.1) XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.12)
Itasca	XX (7.3.1) XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.12) X (7.5.15.3)	XX (7.3.1) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.12) XX (7.3.17) X (7.5.15.3)	XX (7.3.1) XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.12) XX (7.3.16) X (7.5.15.3)	XX (7.3.1) XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.6) XX (7.3.7) XX (7.3.8) XX (7.3.9) XX (7.3.10) XX (7.3.11) XX (7.3.12) XX (7.3.14) XX (7.3.15) X (7.5.15.1) X (7.5.15.2) X (7.5.15.3)	XX (7.3.1) XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.9) XX (7.3.12) XX (7.3.14) X (7.5.15.3)	XX (7.3.1) XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.12) XX (7.3.13) X (7.5.15.3)	XX (7.3.1) XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.9) XX (7.3.12) X (7.5.15.3)	XX (7.3.1) XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.12) X (7.5.15.3)	XX (7.3.1) XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.12) X (7.5.15.3)
Lisle	XX (7.3.1) XX (7.3.2) XX (7.3.3)	XX (7.3.1) XX (7.3.3) XX (7.3.4)	XX (7.3.1) XX (7.3.2) XX (7.3.3)	XX (7.3.1) XX (7.3.2) XX (7.3.3)	XX (7.3.1) XX (7.3.2) XX (7.3.3)	XX (7.3.1) XX (7.3.2) XX (7.3.3)	XX (7.3.1) XX (7.3.2) XX (7.3.3)	XX (7.3.1) XX (7.3.2) XX (7.3.3)	XX (7.3.1) XX (7.3.2) XX (7.3.3)

	Drought	Earthquakes	Extreme Heat	Flood	Ground Failure	High Hazard Dams	Severe Summer Weather	Severe Winter Weather	Tornadoes
	XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.12) X (7.5.16.4) X (7.5.16.5) X (7.5.16.8) X (7.5.16.11) X (7.5.16.13)	XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.12) XX (7.3.17) X (7.5.16.4) X (7.5.16.5) X (7.5.16.8) X (7.5.16.11)	XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.12) XX (7.3.16) X (7.5.16.4) X (7.5.16.5) X (7.5.16.8) X (7.5.16.9) X (7.5.16.11) X (7.5.16.13)	XX (7.3.4) XX (7.3.5) XX (7.3.6) XX (7.3.7) XX (7.3.8) XX (7.3.9) XX (7.3.10) XX (7.3.11) XX (7.3.12) XX (7.3.14) XX (7.3.15) X (7.5.16.1) X (7.5.16.2) X (7.5.16.3) X (7.5.16.4) X (7.5.16.5) X (7.5.16.6) X (7.5.16.7) X (7.5.16.8) X (7.5.16.10) X (7.5.16.11) X (7.5.16.12)	XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.9) XX (7.3.12) XX (7.3.14) X (7.5.16.4) X (7.5.16.5) X (7.5.16.8) X (7.5.16.11)	XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.12) XX (7.3.13) X (7.5.16.4) X (7.5.16.5) X (7.5.16.8) X (7.5.16.11)	XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.9) XX (7.3.12) X (7.5.16.4) X (7.5.16.5) X (7.5.16.6) X (7.5.16.7) X (7.5.16.8) X (7.5.16.11) X (7.5.16.14)	XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.12) X (7.5.16.4) X (7.5.16.5) X (7.5.16.8) X (7.5.16.9) X (7.5.16.11)	XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.12) X (7.5.16.4) X (7.5.16.5) X (7.5.16.6) X (7.5.16.7) X (7.5.16.8) X (7.5.16.11) X (7.5.16.14)
Lombard	XX (7.3.1) XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.12)	XX (7.3.1) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.12) XX (7.3.17)	XX (7.3.1) XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.12) XX (7.3.16)	XX (7.3.1) XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.6) XX (7.3.7) XX (7.3.8) XX (7.3.9) XX (7.3.10) XX (7.3.11) XX (7.3.12) XX (7.3.14) XX (7.3.15) X (7.5.17.1) X (7.5.17.2)	XX (7.3.1) XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.9) XX (7.3.12) XX (7.3.14)	XX (7.3.1) XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.12) XX (7.3.13)	XX (7.3.1) XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.9) XX (7.3.12)	XX (7.3.1) XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.12)	XX (7.3.1) XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.12)
Naperville	XX (7.3.1) XX (7.3.2) XX (7.3.3)	XX (7.3.1) XX (7.3.3) XX (7.3.4)	XX (7.3.1) XX (7.3.2) XX (7.3.3)	XX (7.3.1) XX (7.3.2) XX (7.3.3)	XX (7.3.1) XX (7.3.2) XX (7.3.3)	XX (7.3.1) XX (7.3.2) XX (7.3.3)	XX (7.3.1) XX (7.3.2) XX (7.3.3)	XX (7.3.1) XX (7.3.2) XX (7.3.3)	XX (7.3.1) XX (7.3.2) XX (7.3.3)

	Drought	Earthquakes	Extreme Heat	Flood	Ground Failure	High Hazard Dams	Severe Summer Weather	Severe Winter Weather	Tornadoes
	XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.12) X (7.5.18.1)	XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.12) XX (7.3.17) X (7.5.18.1)	XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.12) XX (7.3.16) X (7.5.18.1)	XX (7.3.4) XX (7.3.5) XX (7.3.6) XX (7.3.7) XX (7.3.8) XX (7.3.9) XX (7.3.10) XX (7.3.11) XX (7.3.12) XX (7.3.14) XX (7.3.15) X (7.5.18.1)	XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.9) XX (7.3.12) XX (7.3.14) X (7.5.18.1)	XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.12) XX (7.3.13) X (7.5.18.1)	XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.9) XX (7.3.12) X (7.5.18.1)	XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.12) X (7.5.18.1)	XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.12) X (7.5.18.1)
Oak Brook	XX (7.3.1) XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.12)	XX (7.3.1) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.12) XX (7.3.17)	XX (7.3.1) XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.12) XX (7.3.16)	XX (7.3.1) XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.6) XX (7.3.7) XX (7.3.8) XX (7.3.9) XX (7.3.10) XX (7.3.11) XX (7.3.12) XX (7.3.14) XX (7.3.15) X (7.5.19.1)	XX (7.3.1) XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.9) XX (7.3.12) XX (7.3.14)	XX (7.3.1) XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.12) XX (7.3.13)	XX (7.3.1) XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.9) XX (7.3.12)	XX (7.3.1) XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.12)	XX (7.3.1) XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.12)
Oakbrook Terrace	XX (7.3.1) XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.12)	XX (7.3.1) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.12) XX (7.3.17)	XX (7.3.1) XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.12) XX (7.3.16)	XX (7.3.1) XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.6) XX (7.3.7) XX (7.3.8) XX (7.3.9) XX (7.3.10) XX (7.3.11) XX (7.3.12) XX (7.3.14) XX (7.3.15)	XX (7.3.1) XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.9) XX (7.3.12) XX (7.3.14) X (7.5.20.1)	XX (7.3.1) XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.12) XX (7.3.13)	XX (7.3.1) XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.9) XX (7.3.12) X (7.5.20.1) X (7.5.20.2)	XX (7.3.1) XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.12)	XX (7.3.1) XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.12) X (7.5.20.2)

	Drought	Earthquakes	Extreme Heat	Flood	Ground Failure	High Hazard Dams	Severe Summer Weather	Severe Winter Weather	Tornadoes
				X (7.5.20.1) X (7.5.20.2)					
Roselle	XX (7.3.1) XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.12) X (7.5.21.4) X (7.5.21.5) X (7.5.21.6) X (7.5.21.7) X (7.5.21.8)	XX (7.3.1) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.12) XX (7.3.17) X (7.5.21.4) X (7.5.21.5) X (7.5.21.6) X (7.5.21.7) X (7.5.21.8)	XX (7.3.1) XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.12) XX (7.3.16) X (7.5.21.4) X (7.5.21.5) X (7.5.21.6) X (7.5.21.7) X (7.5.21.8)	XX (7.3.1) XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.6) XX (7.3.7) XX (7.3.8) XX (7.3.9) XX (7.3.10) XX (7.3.11) XX (7.3.12) XX (7.3.14) XX (7.3.15) X (7.5.21.1) X (7.5.21.2) X (7.5.21.3) X (7.5.21.4) X (7.5.21.5) X (7.5.21.6) X (7.5.21.7) X (7.5.21.8)	XX (7.3.1) XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.9) XX (7.3.12) XX (7.3.14) X (7.5.21.4) X (7.5.21.5) X (7.5.21.6) X (7.5.21.7) X (7.5.21.8)	XX (7.3.1) XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.12) XX (7.3.13) X (7.5.21.4) X (7.5.21.5) X (7.5.21.6) X (7.5.21.7) X (7.5.21.8)	XX (7.3.1) XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.9) XX (7.3.12) X (7.5.21.4) X (7.5.21.5) X (7.5.21.6) X (7.5.21.7) X (7.5.21.8)	XX (7.3.1) XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.12) X (7.5.21.4) X (7.5.21.5) X (7.5.21.6) X (7.5.21.7) X (7.5.21.8)
Villa Park	XX (7.3.1) XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.12)	XX (7.3.1) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.12) XX (7.3.17)	XX (7.3.1) XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.12) XX (7.3.16)	XX (7.3.1) XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.6) XX (7.3.7) XX (7.3.8) XX (7.3.9) XX (7.3.10) XX (7.3.11) XX (7.3.12) XX (7.3.14) XX (7.3.15) X (7.5.22.1) X (7.5.22.2)	XX (7.3.1) XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.9) XX (7.3.12) XX (7.3.14)	XX (7.3.1) XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.12) XX (7.3.13)	XX (7.3.1) XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.9) XX (7.3.12) X (7.5.22.1) X (7.5.22.2)	XX (7.3.1) XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.12)	XX (7.3.1) XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.12)

	Drought	Earthquakes	Extreme Heat	Flood	Ground Failure	High Hazard Dams	Severe Summer Weather	Severe Winter Weather	Tornadoes
				X (7.5.22.3) X (7.5.22.4) X (7.5.22.5)					
Warrenville	XX (7.3.1) XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.12)	XX (7.3.1) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.12) XX (7.3.17)	XX (7.3.1) XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.12) XX (7.3.16)	XX (7.3.1) XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.6) XX (7.3.7) XX (7.3.8) XX (7.3.9) XX (7.3.10) XX (7.3.11) XX (7.3.12) XX (7.3.14) XX (7.3.15) X (7.5.23.1) X (7.5.23.2) X (7.5.23.3) X (7.5.23.5)	XX (7.3.1) XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.9) XX (7.3.12) XX (7.3.14)	XX (7.3.1) XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.12) XX (7.3.13)	XX (7.3.1) XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.9) XX (7.3.12) X (7.5.23.2) X (7.5.23.3) X (7.5.23.4)	XX (7.3.1) XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.12) X (7.5.23.4)	XX (7.3.1) XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.12)
Wayne	XX (7.3.1) XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.12) X (7.5.24.1)	XX (7.3.1) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.12) XX (7.3.17) X (7.5.24.1)	XX (7.3.1) XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.12) XX (7.3.16) X (7.5.24.1)	XX (7.3.1) XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.6) XX (7.3.7) XX (7.3.8) XX (7.3.9) XX (7.3.10) XX (7.3.11) XX (7.3.12) XX (7.3.14) XX (7.3.15) X (7.5.24.1)	XX (7.3.1) XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.9) XX (7.3.12) XX (7.3.14) X (7.5.24.1)	XX (7.3.1) XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.12) XX (7.3.13) X (7.5.24.1)	XX (7.3.1) XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.9) XX (7.3.12) X (7.5.24.1) X (7.5.24.2)	XX (7.3.1) XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.12) X (7.5.24.1)	XX (7.3.1) XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.12) X (7.5.24.1) X (7.5.24.2)
West Chicago	XX (7.3.1) XX (7.3.2) XX (7.3.3)	XX (7.3.1) XX (7.3.3) XX (7.3.4)	XX (7.3.1) XX (7.3.2) XX (7.3.3)	XX (7.3.1) XX (7.3.2) XX (7.3.3)	XX (7.3.1) XX (7.3.2) XX (7.3.3)	XX (7.3.1) XX (7.3.2) XX (7.3.3)	XX (7.3.1) XX (7.3.2) XX (7.3.3)	XX (7.3.1) XX (7.3.2) XX (7.3.3)	XX (7.3.1) XX (7.3.2) XX (7.3.3)

	Drought	Earthquakes	Extreme Heat	Flood	Ground Failure	High Hazard Dams	Severe Summer Weather	Severe Winter Weather	Tornadoes
	XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.12) X (7.5.25.1)	XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.12) XX (7.3.17) X (7.5.25.1)	XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.12) XX (7.3.16) X (7.5.25.1)	XX (7.3.4) XX (7.3.5) XX (7.3.6) XX (7.3.7) XX (7.3.8) XX (7.3.9) XX (7.3.10) XX (7.3.11) XX (7.3.12) XX (7.3.14) XX (7.3.15) X (7.5.25.1) X (7.5.25.2) X (7.5.25.4)	XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.9) XX (7.3.12) XX (7.3.14) X (7.5.25.1)	XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.12) XX (7.3.13) X (7.5.25.1)	XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.9) XX (7.3.12) X (7.5.25.1) X (7.5.25.2) X (7.5.25.3) X (7.5.25.4)	XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.12) X (7.5.25.1) X (7.5.25.3) X (7.5.25.4)	XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.12) X (7.5.25.1) X (7.5.25.3)
Westmont	XX (7.3.1) XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.12)	XX (7.3.1) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.12) XX (7.3.17) X (7.5.26.1)	XX (7.3.1) XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.12) XX (7.3.16) X (7.5.26.1) X (7.5.26.2)	XX (7.3.1) XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.6) XX (7.3.7) XX (7.3.8) XX (7.3.9) XX (7.3.10) XX (7.3.11) XX (7.3.12) XX (7.3.14) XX (7.3.15) X (7.5.26.1) X (7.5.26.2)	XX (7.3.1) XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.9) XX (7.3.12) XX (7.3.14)	XX (7.3.1) XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.12) XX (7.3.13)	XX (7.3.1) XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.9) XX (7.3.12) X (7.5.26.1)	XX (7.3.1) XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.12) X (7.5.26.1) X (7.5.26.2)	XX (7.3.1) XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.12) X (7.5.26.1)
Wheaton	XX (7.3.1) XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.12) X (7.5.27.2) X (7.5.27.3)	XX (7.3.1) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.12) XX (7.3.17) X (7.5.27.2) X (7.5.27.3)	XX (7.3.1) XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.12) XX (7.3.16) X (7.5.27.2)	XX (7.3.1) XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.6) XX (7.3.7) XX (7.3.8) XX (7.3.9) XX (7.3.10) XX (7.3.11)	XX (7.3.1) XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.9) XX (7.3.12) XX (7.3.14)	XX (7.3.1) XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.12) XX (7.3.13) X (7.5.27.1)	XX (7.3.1) XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.9) XX (7.3.12) X (7.5.27.1)	XX (7.3.1) XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.12) X (7.5.27.1) X (7.5.27.2)	XX (7.3.1) XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.12) X (7.5.27.1) X (7.5.27.2)

	Drought	Earthquakes	Extreme Heat	Flood	Ground Failure	High Hazard Dams	Severe Summer Weather	Severe Winter Weather	Tornadoes
	X (7.5.27.4) X (7.5.27.5) X (7.5.27.6) X (7.5.27.7) X (7.5.27.8) X (7.5.27.9) X (7.5.27.10) X (7.5.27.11)	X (7.5.27.4) X (7.5.27.5) X (7.5.27.6) X (7.5.27.7) X (7.5.27.8) X (7.5.27.9) X (7.5.27.10) X (7.5.27.11)	X (7.5.27.3) X (7.5.27.4) X (7.5.27.5) X (7.5.27.6) X (7.5.27.7) X (7.5.27.8) X (7.5.27.9) X (7.5.27.10) X (7.5.27.11)	XX (7.3.12) XX (7.3.14) XX (7.3.15) X (7.5.27.1) X (7.5.27.2) X (7.5.27.3) X (7.5.27.4) X (7.5.27.5) X (7.5.27.6) X (7.5.27.7) X (7.5.27.8) X (7.5.27.9) X (7.5.27.10) X (7.5.27.11)	X (7.5.27.1) X (7.5.27.2) X (7.5.27.3) X (7.5.27.4) X (7.5.27.5) X (7.5.27.6) X (7.5.27.7) X (7.5.27.8) X (7.5.27.9) X (7.5.27.10) X (7.5.27.11)	X (7.5.27.2) X (7.5.27.3) X (7.5.27.4) X (7.5.27.5) X (7.5.27.6) X (7.5.27.7) X (7.5.27.8) X (7.5.27.9) X (7.5.27.10) X (7.5.27.11)	X (7.5.27.2) X (7.5.27.3) X (7.5.27.4) X (7.5.27.5) X (7.5.27.6) X (7.5.27.7) X (7.5.27.8) X (7.5.27.9) X (7.5.27.10) X (7.5.27.11)	X (7.5.27.3) X (7.5.27.4) X (7.5.27.5) X (7.5.27.6) X (7.5.27.7) X (7.5.27.8) X (7.5.27.9) X (7.5.27.10) X (7.5.27.11)	X (7.5.27.3) X (7.5.27.4) X (7.5.27.5) X (7.5.27.6) X (7.5.27.7) X (7.5.27.8) X (7.5.27.9) X (7.5.27.10) X (7.5.27.11)
Willowbrook	XX (7.3.1) XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.12)	XX (7.3.1) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.12) XX (7.3.17)	XX (7.3.1) XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.12) XX (7.3.16)	XX (7.3.1) XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.6) XX (7.3.7) XX (7.3.8) XX (7.3.9) XX (7.3.10) XX (7.3.11) XX (7.3.12) XX (7.3.14) XX (7.3.15) X (7.5.28.1) X (7.5.28.2)	XX (7.3.1) XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.9) XX (7.3.12) XX (7.3.14)	XX (7.3.1) XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.12) XX (7.3.13)	XX (7.3.1) XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.9) XX (7.3.12)	XX (7.3.1) XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.12)	XX (7.3.1) XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.12)
Winfield	XX (7.3.1) XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.12)	XX (7.3.1) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.12) XX (7.3.17)	XX (7.3.1) XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.12) XX (7.3.16)	XX (7.3.1) XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.6) XX (7.3.7) XX (7.3.8) XX (7.3.9) XX (7.3.10) XX (7.3.11)	XX (7.3.1) XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.9) XX (7.3.12) XX (7.3.14)	XX (7.3.1) XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.12) XX (7.3.13)	XX (7.3.1) XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.9) XX (7.3.12) X (7.5.29.2)	XX (7.3.1) XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.12)	XX (7.3.1) XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.12) X (7.5.29.2)

	Drought	Earthquakes	Extreme Heat	Flood	Ground Failure	High Hazard Dams	Severe Summer Weather	Severe Winter Weather	Tornadoes
				XX (7.3.12) XX (7.3.14) XX (7.3.15) X (7.5.29.1)					
Wood Dale	XX (7.3.1) XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.12)	XX (7.3.1) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.12) XX (7.3.17)	XX (7.3.1) XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.12) XX (7.3.16)	XX (7.3.1) XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.6) XX (7.3.7) XX (7.3.8) XX (7.3.9) XX (7.3.10) XX (7.3.11) XX (7.3.12) XX (7.3.14) XX (7.3.15) X (7.5.30.1) X (7.5.30.2)	XX (7.3.1) XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.9) XX (7.3.12) XX (7.3.14)	XX (7.3.1) XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.12) XX (7.3.13)	XX (7.3.1) XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.9) XX (7.3.12)	XX (7.3.1) XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.12)	XX (7.3.1) XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.12)
Woodridge	XX (7.3.1) XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.12)	XX (7.3.1) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.12) XX (7.3.17)	XX (7.3.1) XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.12) XX (7.3.16) X (7.5.31.1) X (7.5.31.2)	XX (7.3.1) XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.6) XX (7.3.7) XX (7.3.8) XX (7.3.9) XX (7.3.10) XX (7.3.11) XX (7.3.12) XX (7.3.14) XX (7.3.15)	XX (7.3.1) XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.9) XX (7.3.12) XX (7.3.14)	XX (7.3.1) XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.12) XX (7.3.13)	XX (7.3.1) XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.9) XX (7.3.12) X (7.5.31.1) X (7.5.31.2) X (7.5.31.3)	XX (7.3.1) XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.12) X (7.5.31.1) X (7.5.31.2)	XX (7.3.1) XX (7.3.2) XX (7.3.3) XX (7.3.4) XX (7.3.5) XX (7.3.7) XX (7.3.8) XX (7.3.12) X (7.5.31.2)

7.3 Mitigation Action Plan & Projects for DuPage County & All Participating Jurisdictions

The projects in this section considered the countywide coordination through the Stormwater Ordinance Administrator's Workgroup, the DuPage County Public Works Directors Working Group, and the Local Emergency Management Coordinators Group.

Action 7.3.1

Mitigation Project: Integrate Mitigation Priorities Within the Existing Stormwater Ordinance Administrator's Workgroup					
Year Initiated	**Applicable Jurisdiction**	**Lead Agency/ Organization**	**Priority and Level of Importance** (Low, Medium, High)	**Projected Completion Date** (Short-term, Long-term, or Ongoing)	**Estimated Cost & Analysis** (Low, Medium, High)
2018	DuPage County and All Participating Jurisdictions	All County and municipal participating agencies	High	Ongoing	Low
Applicable Goal(s)	**Hazard(s) Mitigated**	**Benefits** (Loss Avoided)		**Benefit Analysis** (Low, Medium, High)	**Potential Funding Source(s)**
1, 2, 3, 5, 7, 8	All Hazards	Designating this workgroup to support the plan maintenance and update process will increase the Workgroup participation, build and enhance relationships, enhance the output from this Plan, and improve plan content by ensuring subject matter experts have the proper influence.		High	Local funds, Staff time
Action/Implementation Plan and Project Description:					
The Stormwater Ordinance Administrator's Workgroup will establish annual workgroup meetings, based on subject matter expertise, to support the plan maintenance and update process, and to help prioritize mitigation opportunities in the county. **2023 Status:** Ongoing (see Annual Reports for specific updates and progress)					

Action 7.3.2

Mitigation Project: National Weather Service StormReady Participation					
Year Initiated	**Applicable Jurisdiction**	**Lead Agency/ Organization**	**Priority and Level of Importance** (Low, Medium, High)	**Projected Completion Date** (Short-term, Long-term, or Ongoing)	**Estimated Cost & Analysis** (Low, Medium, High)
2018	DuPage County and All Participating Jurisdictions	County and Municipal emergency management agency	Medium	Short-term	Low
Applicable Goal(s)	**Hazard(s) Mitigated**	**Benefits** (Loss Avoided)		**Benefit Analysis** (Low, Medium, High)	**Potential Funding Source(s)**
1, 4, 5, 8	Drought, Extreme Heat, Flood, Ground Failure, High Hazard Dams, Severe Summer Weather, Severe Winter Weather, Tornadoes	In addition to ensuring a community has up-to-date warning systems, which can prevent injuries and save lives, StormReady certification has the potential to enhance a community's Community Rating System (CRS) rating.		Medium	Local funds, Staff time
Action/Implementation Plan and Project Description:					
DuPage County communities should participate in the National Weather Service StormReady program. **2023 Status:** Ongoing (see Annual Reports for specific updates and progress)					

Action 7.3.3

Mitigation Project: Critical Infrastructure Identification and Verification					
Year Initiated	**Applicable Jurisdiction**	**Lead Agency/ Organization**	**Priority and Level of Importance** (Low, Medium, High)	**Projected Completion Date** (Short-term, Long-term, or Ongoing)	**Estimated Cost & Analysis** (Low, Medium, High)
2018	DuPage County and All Participating Jurisdictions	County and Municipal Emergency Management Agencies, Public Works Departments, Stormwater Administrators, and Engineers	Medium	Ongoing	Low
Applicable Goal(s)	**Hazard(s) Mitigated**	**Benefits** (Loss Avoided)		**Benefit Analysis** (Low, Medium, High)	**Potential Funding Source(s)**
2	All Hazards	Identifying critical infrastructure and the hazards each may face will enhance a community's capability to complete a comprehensive threat and hazard identification process. In addition, allowing the County to compile data from all communities will enable the County as a whole to develop a more in-depth community profile, and could potentially enhance a common operating picture during incident response. When a community is aware of its critical infrastructure, and the potential hazards it can face, all aspects of planning become easier (i.e., hazard mitigation, financial and strategic, project cost-sharing, etc.).		Medium	Local funds, Staff time
Action/Implementation Plan and Project Description:					

Mitigation Project: Critical Infrastructure Identification and Verification
DuPage County communities should verify aspects of the 16 Critical Infrastructure Sectors within their jurisdiction and share findings with the County to identify mitigation opportunities, to include advanced warning systems. **2023 Status:** Ongoing (see Annual Reports for specific updates and progress)

Action 7.3.4

Mitigation Project: Critical Facility Back-Up Generation Assessment and Implementation					
Year Initiated	**Applicable Jurisdiction**	**Lead Agency/ Organization**	**Priority and Level of Importance** (Low, Medium, High)	**Projected Completion Date** (Short-term, Long-term, or Ongoing)	**Estimated Cost & Analysis** (Low, Medium, High)
2018	DuPage County and All Participating Jurisdictions	County and Municipal Emergency Management Agencies, Public Works Departments, Stormwater Administrators, and Engineers	High	Ongoing	The total cost of this action item is highly dependent on the community. The primary cost associated with this action item is the staff time that will be required. Communities that have a greater awareness of the critical facilities within their community will have an easier time verifying backup generation capabilities. Implementation of redundant power and the cost to do so will vary.
Applicable Goal(s)	**Hazard(s) Mitigated**	**Benefits** (Loss Avoided)		**Benefit Analysis** (Low, Medium, High)	**Potential Funding Source(s)**
1	All Hazards	Ensuring critical facilities have adequate back-up generation capabilities, including automatic switchover, and heat/air capabilities, helps to reduce potential life safety and public health		High	Local funds, Grants

Mitigation Project: Critical Facility Back-Up Generation Assessment and Implementation				
		issues. The benefits of using back-up generation may include preventing an evacuation of a facility and allowing government services to continue.		
Action/Implementation Plan and Project Description:				
DuPage County communities should identify backup generation capabilities and ensure facilities meet minimum emergency power requirements of the current code. **2023 Status:** Ongoing (see Annual Reports for specific updates and progress)				

Action 7.3.5

Mitigation Project: Continue to Develop and Implement Public Education Programs on Disaster Awareness					
Year Initiated	**Applicable Jurisdiction**	**Lead Agency/ Organization**	**Priority and Level of Importance** (Low, Medium, High)	**Projected Completion Date** (Short-term, Long-term, or Ongoing)	**Estimated Cost & Analysis** (Low, Medium, High)
2018	DuPage County and All Participating Jurisdictions	County and Municipal public information offices/officers	High	Ongoing	Low
Applicable Goal(s)	**Hazard(s) Mitigated**	**Benefits** (Loss Avoided)		**Benefit Analysis** (Low, Medium, High)	**Potential Funding Source(s)**
1, 3, 4	All Hazards	Having all communities share the same themed information to residents will serve as a force multiplier within the region, increasing public awareness and resiliency, and aligning County government through a “one voice” approach.		High	Local funds, Staff time
Action/Implementation Plan and Project Description:					
Develop and implement public outreach and education programs on disaster awareness. DuPage County OHSEM will assist participating jurisdictions in their outreach and education efforts. Activities may include: • Warning, public information, and education materials.					

Mitigation Project: Continue to Develop and Implement Public Education Programs on Disaster Awareness
• Family disaster plans and supply kits. • Preparedness events. • Web site or content for county and municipality websites. • Content for county and municipal newsletters, brochures, etc. • Trainings. **2023 Status:** Ongoing (see Annual Reports for specific updates and progress)

Action 7.3.6

Mitigation Project: Flood Control and Property Protection Projects					
Year Initiated	**Applicable Jurisdiction**	**Lead Agency/ Organization**	**Priority and Level of Importance** (Low, Medium, High)	**Projected Completion Date** (Short-term, Long-term, or Ongoing)	**Estimated Cost & Analysis** (Low, Medium, High)
2018	DuPage County and All Participating Jurisdictions	County and Municipal Stormwater Administrators, Community Planners, and Building and Zoning Officials	High	Ongoing	The costs associated with this action item will be community and project specific.
Applicable Goal(s)	**Hazard(s) Mitigated**	**Benefits** (Loss Avoided)		**Benefit Analysis** (Low, Medium, High)	**Potential Funding Source(s)**
1, 2, 6, 8	Flood	Flood control and property protection projects can benefit multiple communities by targeting the source of a problem. Enhanced project participation will increase overall benefits (i.e., cost-sharing, resources, etc.).		High	BRIC, FMA, HMGP, Local Funds
Action/Implementation Plan and Project Description:					
DuPage County and its communities should continue to partner on flood control – both structural and green infrastructure – and property protection projects. **2023 Status:** Ongoing (see Annual Reports for specific updates and progress)					

Action 7.3.7

Mitigation Project: Improve Building Code Ratings					
Year Initiated	**Applicable Jurisdiction**	**Lead Agency/ Organization**	**Priority and Level of Importance** (Low, Medium, High)	**Projected Completion Date** (Short-term, Long-term, or Ongoing)	**Estimated Cost & Analysis** (Low, Medium, High)
2018	DuPage County and All Participating Jurisdictions	County and municipal building and zoning departments	High	Ongoing	The costs associated with this action item will be community and project specific.
Applicable Goal(s)	**Hazard(s) Mitigated**	**Benefits** (Loss Avoided)		**Benefit Analysis** (Low, Medium, High)	**Potential Funding Source(s)**
1, 7	All Hazards	Improved building codes can reduce existing buildings' vulnerability to natural hazards, ensure future developments will not be hindered by hazards, mitigate potential public health and life safety issues, and enhance the overall welfare of a community.		High	Local funds, Staff time
Action/Implementation Plan and Project Description:					
DuPage County communities should seek to improve their Building Code Effectiveness Grading Schedule (BCEGS) rating. **2023 Status:** Ongoing (see Annual Reports for specific updates and progress)					

Action 7.3.8

Mitigation Project: Incorporate Mitigation Concepts into Future Planning and Development					
Year Initiated	**Applicable Jurisdiction**	**Lead Agency/ Organization**	**Priority and Level of Importance** (Low, Medium, High)	**Projected Completion Date** (Short-term, Long-term, or Ongoing)	**Estimated Cost & Analysis** (Low, Medium, High)
2018	DuPage County and All Participating Jurisdictions	County and Municipal Emergency Management	High	Ongoing	The costs associated with this action item will be community and project specific.

Mitigation Project: Incorporate Mitigation Concepts into Future Planning and Development					
		Agencies, Public Works Departments, Stormwater Administrators, and Engineers			
Applicable Goal(s)	**Hazard(s) Mitigated**	**Benefits** (Loss Avoided)		**Benefit Analysis** (Low, Medium, High)	**Potential Funding Source(s)**
	All Hazards	Including hazard mitigation and climate change concepts into future planning efforts ensures these concepts will remain at the forefront of a community's activities.		High	BRIC, HMGP, FMA, Local Funds
Action/Implementation Plan and Project Description:					
2023 Status: Ongoing (see Annual Reports for specific updates and progress)					

Action 7.3.9

Mitigation Project: Participate in Tree City USA					
Year Initiated	**Applicable Jurisdiction**	**Lead Agency/ Organization**	**Priority and Level of Importance** (Low, Medium, High)	**Projected Completion Date** (Short-term, Long-term, or Ongoing)	**Estimated Cost & Analysis** (Low, Medium, High)
2018	DuPage County and All Participating Jurisdictions	County and Municipal Environmental Departments	Medium	Ongoing	Low Participating in this program will cost a community at minimum $2 per capita, plus staff time to apply for and coordinate the program.
Applicable Goal(s)	**Hazard(s) Mitigated**	**Benefits** (Loss Avoided)		**Benefit Analysis** (Low, Medium, High)	**Potential Funding Source(s)**

Mitigation Project: Participate in Tree City USA				
8	Ground Failure, Flood, Severe Summer Weather	Participating in Tree City USA will enhance the County's natural resource protection capabilities, improve air quality, reduce costs for natural resource protection and other associated projects, improve property values, and reduce energy costs.	Medium	Local funds, Staff time
Action/Implementation Plan and Project Description:				
DuPage County communities should participate in the Arbor Day Foundation's Tree City USA program. **2023 Status:** Ongoing (see Annual Reports for specific updates and progress)				

Action 7.3.10

Mitigation Project: Participate in Community Rating System (CRS) Program					
Year Initiated	**Applicable Jurisdiction**	**Lead Agency/ Organization**	**Priority and Level of Importance** (Low, Medium, High)	**Projected Completion Date** (Short-term, Long-term, or Ongoing)	**Estimated Cost & Analysis** (Low, Medium, High)
2018	DuPage County and All Participating Jurisdictions	County and Municipal departments designated for land use and floodplain planning.	High	Ongoing	Low Participating in the Community Rating System program is free. However, costs may be associated with implementing credible activities and staff time for applying and maintaining program status.
Applicable Goal(s)	**Hazard(s) Mitigated**	**Benefits** (Loss Avoided)		**Benefit Analysis** (Low, Medium, High)	**Potential Funding Source(s)**
1, 2, 4, 5, 6, 7, 8	Flood	Participating in the Community Rating System (CRS) program can maintain a community's good standing in the		High	Local funds, Staff time

Mitigation Project: Participate in Community Rating System (CRS) Program				
		National Floodplain Insurance Program (NFIP), can lower resident's insurance premiums, reduce life safety and public health issues, and reduce a community's vulnerability to hazards.		
Action/Implementation Plan and Project Description:				
DuPage County communities should participate in the Federal Emergency Management Agency's Community Rating System. **2023 Status:** Ongoing (see Annual Reports for specific updates and progress)				

Action 7.3.11

Mitigation Project: Participate and Support Floodplain Management Studies					
Year Initiated	**Applicable Jurisdiction**	**Lead Agency/ Organization**	**Priority and Level of Importance** (Low, Medium, High)	**Projected Completion Date** (Short-term, Long-term, or Ongoing)	**Estimated Cost & Analysis** (Low, Medium, High)
2018	DuPage County and All Participating Jurisdictions	County and Municipal stormwater administrators, engineers, and public works departments.	High	Ongoing	The costs associated with this action item will be community and project specific.
Applicable Goal(s)	**Hazard(s) Mitigated**	**Benefits** (Loss Avoided)		**Benefit Analysis** (Low, Medium, High)	**Potential Funding Source(s)**
1, 2, 6, 7, 8	Flood	Conducting thorough studies allows for the development of in-depth plans and hazard mitigation projects, reducing life safety and public health issues, and protecting property and critical infrastructure.		High	BRIC, FMA, HMGP, Local Funds
Action/Implementation Plan and Project Description:					
DuPage County and its communities should continue to support floodplain management studies, and review and update watershed plans. **2023 Status:** Ongoing (see Annual Reports for specific updates and progress)					

Action 7.3.12

Mitigation Project: Powerline/Utility Infrastructure Improvements					
Year Initiated	**Applicable Jurisdiction**	**Lead Agency/ Organization**	**Priority and Level of Importance** (Low, Medium, High)	**Projected Completion Date** (Short-term, Long-term, or Ongoing)	**Estimated Cost & Analysis** (Low, Medium, High)
2023	DuPage County and All Participating Jurisdictions	Public Works Departments and Utilities	Medium	Ongoing	High
Applicable Goal(s)	**Hazard(s) Mitigated**	**Benefits** (Loss Avoided)		**Benefit Analysis** (Low, Medium, High)	**Potential Funding Source(s)**
2, 8	All Hazards	Retrofit and reinforce utilities		Medium	HMGP, Local Funds
Action/Implementation Plan and Project Description:					
• Pad mounted transformers: elevate above base flood elevation, or lowering and burying them in non-flood, high wind areas • Using multiples poles to support transformers • Burying lines • Replacing poles with a better material (for example wood poles replaced with spun concrete) **2023 Status:** New Mitigation Action					

Action 7.3.13

Mitigation Project: Assess High Hazard Dams in DuPage County that are not county-owned and regulated. Coordinate with dam owners to better understand the vulnerabilities and impacts of these dams on the county.					
Year Initiated	**Applicable Jurisdiction**	**Lead Agency/ Organization**	**Priority and Level of Importance** (Low, Medium, High)	**Projected Completion Date** (Short-term, Long-term, or Ongoing)	**Estimated Cost & Analysis** (Low, Medium, High)
2023	DuPage County and All Participating Jurisdictions	County and Municipal stormwater administrators, engineers, and public works departments	Low	Short-term	Medium

Mitigation Project: Assess High Hazard Dams in DuPage County that are not county-owned and regulated. Coordinate with dam owners to better understand the vulnerabilities and impacts of these dams on the county.				
Applicable Goal(s)	**Hazard(s) Mitigated**	**Benefits** (Loss Avoided)	**Benefit Analysis** (Low, Medium, High)	**Potential Funding Source(s)**
1, 2, 3, 8	High Hazard Dams	Understand the threat of dam failure and potential impacts.	Low	Local funds, Staff time
Action/Implementation Plan and Project Description:				
2023 Status: New Mitigation Action				

Action 7.3.14

Mitigation Project: Study and Conduct Stream/Riverbank Erosion/Stabilization Alternatives					
Year Initiated	**Applicable Jurisdiction**	**Lead Agency/ Organization**	**Priority and Level of Importance** (Low, Medium, High)	**Projected Completion Date** (Short-term, Long-term, or Ongoing)	**Estimated Cost & Analysis** (Low, Medium, High)
2023	DuPage County and All Participating Jurisdictions	County and Municipal stormwater administrators, engineers, and public works departments	Medium	Ongoing	Medium
Applicable Goal(s)	**Hazard(s) Mitigated**	**Benefits** (Loss Avoided)		**Benefit Analysis** (Low, Medium, High)	**Potential Funding Source(s)**
2, 8	Ground Failure, Flood	Flood mitigation and erosion		Medium	BRIC, FMA, HMGP, Local Funds
Action/Implementation Plan and Project Description:					
2023 Status: New Mitigation Action					

Action 7.3.15

Mitigation Project: Conduct Debris Clearing of Streams and Rivers to Mitigate Flooding					
Year Initiated	**Applicable Jurisdiction**	**Lead Agency/ Organization**	**Priority and Level of Importance** (Low, Medium, High)	**Projected Completion Date** (Short-term, Long-term, or Ongoing)	**Estimated Cost & Analysis** (Low, Medium, High)
2023	DuPage County and All Participating Jurisdictions	County and Municipal stormwater administrators, engineers, and public works departments.	Medium	Ongoing	Medium
Applicable Goal(s)	**Hazard(s) Mitigated**	**Benefits** (Loss Avoided)		**Benefit Analysis** (Low, Medium, High)	**Potential Funding Source(s)**
2, 8	Flood	Flood mitigation		Medium	Local funds, Staff time
Action/Implementation Plan and Project Description:					
2023 Status: New Mitigation Action					

Action 7.3.16

Mitigation Project: Develop and Educate Residents About Extreme Heat and Cooling Centers in DuPage County					
Year Initiated	**Applicable Jurisdiction**	**Lead Agency/ Organization**	**Priority and Level of Importance** (Low, Medium, High)	**Projected Completion Date** (Short-term, Long-term, or Ongoing)	**Estimated Cost & Analysis** (Low, Medium, High)
2023	DuPage County and All Participating Jurisdictions	DuPage County OHSEM Municipal Emergency Management Agencies	Medium	Ongoing	Low
Applicable Goal(s)	**Hazard(s) Mitigated**	**Benefits** (Loss Avoided)		**Benefit Analysis** (Low, Medium, High)	**Potential Funding Source(s)**

Mitigation Project: Develop and Educate Residents About Extreme Heat and Cooling Centers in DuPage County				
1, 4	Extreme Heat	Educate residents about the dangers of extreme heat and available resources.	Medium	Local funds, Staff time
Action/Implementation Plan and Project Description:				
2023 Status: New Mitigation Action				

Action 7.3.17

Mitigation Project: Participate In Annual Great Shakeout Earthquake Drill and Support IEMA With Promotion					
Year Initiated	**Applicable Jurisdiction**	**Lead Agency/ Organization**	**Priority and Level of Importance** (Low, Medium, High)	**Projected Completion Date** (Short-term, Long-term, or Ongoing)	**Estimated Cost & Analysis** (Low, Medium, High)
2023	DuPage County and All Participating Jurisdictions	DuPage County OHSEM Municipal Emergency Management Agencies	Low	Ongoing	Low
Applicable Goal(s)	**Hazard(s) Mitigated**	**Benefits** (Loss Avoided)		**Benefit Analysis** (Low, Medium, High)	**Potential Funding Source(s)**
1, 4	Earthquake	Increase earthquake preparedness and readiness.		Low	Local funds, Staff time
Action/Implementation Plan and Project Description:					
2023 Status: New Mitigation Action					

7.4 Mitigation Action Plan & Projects for DuPage County & Unincorporated Areas

Action 7.4.1

Mitigation Project: Conduct Activities to Meet Activity 610 (Flood Warning and Response) of the CRS Coordinator's Manual					
Year Initiated	**Applicable Jurisdiction**	**Lead Agency/ Organization**	**Priority and Level of Importance** (Low, Medium, High)	**Projected Completion Date** (Short-term, Long-term, or Ongoing)	**Estimated Cost & Analysis** (Low, Medium, High)
2023	DuPage County and Unincorporated Areas	DuPage County CRS Coordinator/Planning and Zoning Administration Coordinator	High	Short-term	Low
Applicable Goal(s)	**Hazard(s) Mitigated**	**Benefits** (Loss Avoided)		**Benefit Analysis** (Low, Medium, High)	**Potential Funding Source(s)**
1, 2, 7, 8	Flood	Achieve higher CRS rating		High	Local funds, Staff time
Action/Implementation Plan and Project Description:					
2023 Status: New Mitigation Action					

Action 7.4.2

Mitigation Project: Relocate and Raise the Elevation of Illinois Route 53 between South of Illinois Route 56 and Park Boulevard to Minimize Future Flooding and Road Closures					
Year Initiated	**Applicable Jurisdiction**	**Lead Agency/ Organization**	**Priority and Level of Importance** (Low, Medium, High)	**Projected Completion Date** (Short-term, Long-term, or Ongoing)	**Estimated Cost & Analysis** (Low, Medium, High)
2023	DuPage County		High	Short-term	High
Applicable Goal(s)	**Hazard(s) Mitigated**	**Benefits** (Loss Avoided)		**Benefit Analysis** (Low, Medium, High)	**Potential Funding Source(s)**
1, 2, 8	Flood	Mitigate flooding		High	BRIC, HMGP, Local Funds
Action/Implementation Plan and Project Description:					

Mitigation Project: Relocate and Raise the Elevation of Illinois Route 53 between South of Illinois Route 56 and Park Boulevard to Minimize Future Flooding and Road Closures
2023 Status: New Mitigation Action

Action 7.4.3

Mitigation Project: Replace and Raise/Elevate the Geneva Road Bridge Over the West Branch DuPage River to Minimize Future Flooding					
Year Initiated	**Applicable Jurisdiction**	**Lead Agency/ Organization**	**Priority and Level of Importance** (Low, Medium, High)	**Projected Completion Date** (Short-term, Long-term, or Ongoing)	**Estimated Cost & Analysis** (Low, Medium, High)
2023 (Will be initiated in 2024)	DuPage County	DuPage County Division of Transportation	High	Short-term (2025)	$6,962,775.60
Applicable Goal(s)	**Hazard(s) Mitigated**	**Benefits** (Loss Avoided)		**Benefit Analysis** (Low, Medium, High)	**Potential Funding Source(s)**
1, 2, 8	Flood	By raising the elevation of both the Geneva Road bridge and roadway, it will minimize the potential for Geneva Road to be closed due to flooding from the West Branch DuPage River and keeping the road open for motorists and emergency responders.		High	Federal Grant, Local Funds
Action/Implementation Plan and Project Description:					
The project is proposing to replace the Geneva Road Bridge over the West Branch DuPage River due to the age and condition of the bridge. Additionally, the proposed bridge and roadway will be raised in elevation from existing conditions to minimize potential for future flooding and closing of the roadway. **2023 Status:** New Mitigation Action					

Action 7.4.4

Mitigation Project: Replace and Raise the Warrenville Road Bridge Over the East Branch DuPage River to Minimize Future Flooding					
Year Initiated	**Applicable Jurisdiction**	**Lead Agency/ Organization**	**Priority and Level of Importance** (Low, Medium, High)	**Projected Completion Date** (Short-term, Long-term, or Ongoing)	**Estimated Cost & Analysis** (Low, Medium, High)
2023 (Will be initiated in 2024)	DuPage County	DuPage County Division of Transportation	High	Short-term (2025)	$7,286,147.25
Applicable Goal(s)	**Hazard(s) Mitigated**	**Benefits** (Loss Avoided)		**Benefit Analysis** (Low, Medium, High)	**Potential Funding Source(s)**
1, 2, 8	Flood	By raising the elevation of both the Warrenville Road bridge and roadway, it will minimize the potential for Warrenville Road to be closed due to flooding from the East Branch DuPage River and keeping the road open for motorists and emergency responders.		High	Federal Grant, Local Funds
Action/Implementation Plan and Project Description:					
The project is proposing to replace the Warrenville Road Bridge over the East Branch DuPage River due to the age and condition of the bridge. Additionally, the proposed bridge and roadway will be raised in elevation from existing conditions to minimize potential for future flooding and closing of the roadway. **2023 Status:** New Mitigation Action					

Action 7.4.5

Mitigation Project: Replace and Elevate Army Trail Road Bridge over the West Branch DuPage River to Minimize Future Flooding					
Year Initiated	**Applicable Jurisdiction**	**Lead Agency/ Organization**	**Priority and Level of Importance** (Low, Medium, High)	**Projected Completion Date** (Short-term, Long-term, or Ongoing)	**Estimated Cost & Analysis** (Low, Medium, High)
2023 (Will be initiated in 2025)	DuPage County	DuPage County Division of Transportation	High	Short-term (2026)	$5 million
Applicable Goal(s)	**Hazard(s) Mitigated**	**Benefits** (Loss Avoided)		**Benefit Analysis** (Low, Medium, High)	**Potential Funding Source(s)**

Mitigation Project: Replace and Elevate Army Trail Road Bridge over the West Branch DuPage River to Minimize Future Flooding				
1, 2, 8	Flood	By raising the elevation of both the Army Trail Road bridge and roadway, it will minimize the potential for Army Trail Road to be closed due to flooding from the West Branch DuPage River and keeping the road open for motorists and emergency responders.	High	Local funds, Staff time
Action/Implementation Plan and Project Description:				
The project is proposing to replace the Army Trail Road Bridge over the West Branch DuPage River due to the age and condition of the bridge. Additionally, the proposed bridge and roadway will be raised in elevation from existing conditions to minimize potential for future flooding and closing of the roadway. **2023 Status:** New Mitigation Action				

Action 7.4.6

Mitigation Project: Update Building Code to Current ICC Code and Adhere to CRS Requirements					
Year Initiated	**Applicable Jurisdiction**	**Lead Agency/ Organization**	**Priority and Level of Importance** (Low, Medium, High)	**Projected Completion Date** (Short-term, Long-term, or Ongoing)	**Estimated Cost & Analysis** (Low, Medium, High)
2023	DuPage County and Unincorporated Areas	DuPage County Building & Zoning Department	High	Short-term (Update to be completed in 2023)	Low (below $1,000)
Applicable Goal(s)	**Hazard(s) Mitigated**	**Benefits** (Loss Avoided)		**Benefit Analysis** (Low, Medium, High)	**Potential Funding Source(s)**
1, 3, 7, 8	Flood, Severe Summer Weather, Severe Winter Weather, Tornadoes	Updating the building codes including energy codes and the County Stormwater ordinance produces safer construction and communities for our residents.		High	Local funds, Staff time
Action/Implementation Plan and Project Description:					

Mitigation Project: Update Building Code to Current ICC Code and Adhere to CRS Requirements
The department intends to review and update the County Building Code. This review considers the State of Illinois Energy Code, County Stormwater management ordinance, the County CRS program, as well as the ICC codes and the County Residential Code. **2023 Status:** New Mitigation Action

Action 7.4.7

Mitigation Project: Back up Electrical Feeds to WWTPs					
Year Initiated	**Applicable Jurisdiction**	**Lead Agency/ Organization**	**Priority and Level of Importance** (Low, Medium, High)	**Projected Completion Date** (Short-term, Long-term, or Ongoing)	**Estimated Cost & Analysis** (Low, Medium, High)
2023	DuPage County	DuPage County Public Works	High	Short-term (2025)	$22 million
Applicable Goal(s)	**Hazard(s) Mitigated**	**Benefits** (Loss Avoided)		**Benefit Analysis** (Low, Medium, High)	**Potential Funding Source(s)**
2, 8	Flood, Severe Summer Weather, Severe Winter Weather, Tornadoes, Drought, Extreme Heat	Redundant power source		High	Public Works capital, grants, IEPA loans
Action/Implementation Plan and Project Description:					
The project includes upgrading the electrical infrastructure at 2 regional wastewater treatment plants including switch gears, transformers, concrete duct banks, and backup generators. **2023 Status:** New Mitigation Action					

7.5 Mitigation Action Plan & Projects for Participating Jurisdictions

7.5.1 Addison, Village

Action 7.5.1

Mitigation Project: Streambank Stabilization and Debris Clearing of Westwood Creek Between US20 and Rozanne Drive					
Year Initiated	**Applicable Jurisdiction**	**Lead Agency/ Organization**	**Priority and Level of Importance** (Low, Medium, High)	**Projected Completion Date** (Short-term, Long-term, or Ongoing)	**Estimated Cost & Analysis** (Low, Medium, High)
2023	Village of Addison	Community Development/ Engineering	High	Long-term	$3.5 to $4.0 million
Applicable Goal(s)	**Hazard(s) Mitigated**	**Benefits** (Loss Avoided)		**Benefit Analysis** (Low, Medium, High)	**Potential Funding Source(s)**
1, 2, 3, 8	Flood	Protects loss of property and adjacent pavement. Improves streamflow. Reduces localized flooding. Improves stream water quality. Creates an amenity.		High	EPA grants, Water Quality Grants, CDBG, Community Project Funding
Action/Implementation Plan and Project Description:					
Approximately 2500 LF of creek within a residential area adjacent to Westwood Creek that is currently subject to flooding would be stabilized using a combination of hardscape and natural plantings. Property at the top of the creek banks would be reclaimed for driveways, parking areas, and green space. The stream channel would also be dredged to improve flow characteristics and reduce restrictions that have caused backups and local flooding. **2023 Status:** New Mitigation Action					

Action 7.5.1.2

Mitigation Project: Reduce South Addison Road Flooding During Heavy Rain Events					
Year Initiated	**Applicable Jurisdiction**	**Lead Agency/ Organization**	**Priority and Level of Importance** (Low, Medium, High)	**Projected Completion Date** (Short-term, Long-term, or Ongoing)	**Estimated Cost & Analysis** (Low, Medium, High)
2023	Village of Addison	Community Development/ Engineering	High	Long-term	$1.5 million
Applicable Goal(s)	**Hazard(s) Mitigated**	**Benefits** (Loss Avoided)		**Benefit Analysis** (Low, Medium, High)	**Potential Funding Source(s)**
1, 2, 8	Flood	Addison Road carries significant north-south traffic and is a federal STP route. When it is flooded it gets shut down and vehicles must use local roads to bypass it, if available.		High	STP Federal Funding, Community Project Funding
Action/Implementation Plan and Project Description:					
To reduce the frequency of shutting down Addison Rd due to flooding, the road would either need to be raised, detention would need to be constructed with storm sewer improvements, or a combination of both. This project would also benefit adjacent property owners who get flooded and suffer damages due to wave action when vehicles try to continue to use the road. **2023 Status:** New Mitigation Action					

7.5.2 Bartlett, Village

Action 7.5.2.1

Mitigation Project: Replacement of All Culverts/Bridges Along the Following Waterways: 1) Country Creek between Devon Ave and Stearns Rd. 2) West Branch of the DuPage River between E Struckman Blvd and Schick Rd					
Year Initiated	**Applicable Jurisdiction**	**Lead Agency/ Organization**	**Priority and Level of Importance** (Low, Medium, High)	**Projected Completion Date** (Short-term, Long-term, or Ongoing)	**Estimated Cost & Analysis** (Low, Medium, High)
2023	Village of Bartlett	Village of Bartlett	High	Long-term	High
Applicable Goal(s)	**Hazard(s) Mitigated**	**Benefits** (Loss Avoided)		**Benefit Analysis** (Low, Medium, High)	**Potential Funding Source(s)**
1, 2	Flood, Tornadoes	Maintain connectivity across the community in the event of a disaster		High	BRIC, HMGP
Action/Implementation Plan and Project Description:					
2023 Status: New Mitigation Action					

Action 7.5.2.2

Mitigation Project: Bury Power Lines Within Downtown Area					
Year Initiated	**Applicable Jurisdiction**	**Lead Agency/ Organization**	**Priority and Level of Importance** (Low, Medium, High)	**Projected Completion Date** (Short-term, Long-term, or Ongoing)	**Estimated Cost & Analysis** (Low, Medium, High)
2023	Village of Bartlett	Village of Bartlett	High	Ongoing	High
Applicable Goal(s)	**Hazard(s) Mitigated**	**Benefits** (Loss Avoided)		**Benefit Analysis** (Low, Medium, High)	**Potential Funding Source(s)**
1, 2, 3, 8	Severe Summer Weather, Severe Winter Weather, Tornadoes	Lowering the chance of extended power outages to individual residences and businesses		High	HMGP
Action/Implementation Plan and Project Description:					
2023 Status: New Mitigation Action					

7.5.3 Bensenville, Village

Action 7.5.3.1

Mitigation Project: Implement Drainage Culvert Improvements					
Year Initiated	**Applicable Jurisdiction**	**Lead Agency/ Organization**	**Priority and Level of Importance** (Low, Medium, High)	**Projected Completion Date** (Short-term, Long-term, or Ongoing)	**Estimated Cost & Analysis** (Low, Medium, High)
2023	Village of Bensenville	Village of Bensenville	Medium	Long-term	High (more than $10 million)
Applicable Goal(s)	**Hazard(s) Mitigated**	**Benefits** (Loss Avoided)		**Benefit Analysis** (Low, Medium, High)	**Potential Funding Source(s)**
1, 2, 8	Flood	Improving the drainage will reduce upstream flooding of the adjacent waterways.		High	Grants (BRIC, HMGP), Local Funds
Action/Implementation Plan and Project Description:					
The Village has studied the condition and capacity of all Village-owned culverts that convey stormwater. Improving the drainage will reduce upstream flooding of the adjacent waterways. **2023 Status:** New Mitigation Action					

Action 7.5.3.2

Mitigation Project: Study and Implement Streambank Stabilization of Silver Creek and Addison Creek					
Year Initiated	**Applicable Jurisdiction**	**Lead Agency/ Organization**	**Priority and Level of Importance** (Low, Medium, High)	**Projected Completion Date** (Short-term, Long-term, or Ongoing)	**Estimated Cost & Analysis** (Low, Medium, High)
2023	Village of Bensenville	Village of Bensenville	Low	Short-term (2-3 years)	High (more than $2 million)
Applicable Goal(s)	**Hazard(s) Mitigated**	**Benefits** (Loss Avoided)		**Benefit Analysis** (Low, Medium, High)	**Potential Funding Source(s)**
1, 2, 8	Flood	Reduces upstream flooding of the adjacent waterways		Medium	BRIC, HMGP, Local Funds
Action/Implementation Plan and Project Description:					
The Village has begun a study to restore and re-establish the banks of both the Silver (Bensenville Ditch) and Addison Creeks in the Village limits.					

Mitigation Project: Study and Implement Streambank Stabilization of Silver Creek and Addison Creek
2023 Status: New Mitigation Action

Action 7.5.3.3

Mitigation Project: Seek funding for Stormwater Projects Identified in Master Plan and Implement Projects					
Year Initiated	**Applicable Jurisdiction**	**Lead Agency/ Organization**	**Priority and Level of Importance** (Low, Medium, High)	**Projected Completion Date** (Short-term, Long-term, or Ongoing)	**Estimated Cost & Analysis** (Low, Medium, High)
2018	Village of Bensenville	Public Works	High	Ongoing	Staff time and cost of construction improvements
Applicable Goal(s)	**Hazard(s) Mitigated**	**Benefits** (Loss Avoided)		**Benefit Analysis** (Low, Medium, High)	**Potential Funding Source(s)**
1, 2, 8	Flood	Flood protection		High	Grants, Local Funds
Action/Implementation Plan and Project Description:					
Work to develop a 5-year Capital Improvements Projects strategy to incorporate the stormwater improvements. **2023 Status Update:** Ongoing					

Action 7.5.3.4

Mitigation Project: Develop a Storage Location to Handle Debris From Large Scale Disasters					
Year Initiated	**Applicable Jurisdiction**	**Lead Agency/ Organization**	**Priority and Level of Importance** (Low, Medium, High)	**Projected Completion Date** (Short-term, Long-term, or Ongoing)	**Estimated Cost & Analysis** (Low, Medium, High)
2018	Village of Bensenville	Public Works	Medium	Long-term	Staff time and potential cost of property.
Applicable Goal(s)	**Hazard(s) Mitigated**	**Benefits** (Loss Avoided)		**Benefit Analysis** (Low, Medium, High)	**Potential Funding Source(s)**
1, 2, 8	All Hazards	Provide direction to Village following emergency situations.		Medium	Local funds, Staff time

Mitigation Project: Develop a Storage Location to Handle Debris From Large Scale Disasters
Action/Implementation Plan and Project Description:
Work to develop a plan to handle, stage and store large amounts of debris from a tornado, flood, etc. **2023 Status Update:** Ongoing

Action 7.5.3.5

Mitigation Project: Continue Providing Public Outreach to Encourage Residents to Participate in CodeRED					
Year Initiated	**Applicable Jurisdiction**	**Lead Agency/ Organization**	**Priority and Level of Importance** (Low, Medium, High)	**Projected Completion Date** (Short-term, Long-term, or Ongoing)	**Estimated Cost & Analysis** (Low, Medium, High)
2018	Village of Bensenville	Emergency Management/ Village Manager's Office	High	Ongoing	Low
Applicable Goal(s)	**Hazard(s) Mitigated**	**Benefits** (Loss Avoided)		**Benefit Analysis** (Low, Medium, High)	**Potential Funding Source(s)**
1, 3, 4	All Hazards	Prevention, public education, and awareness.		High	Local funds, Staff time
Action/Implementation Plan and Project Description:					
Advertisement on Village website, newsletters, utility bills, social media, etc. **2023 Status Update:** Ongoing					

Action 7.5.3.6

Mitigation Project: Continue Participation in StormReady Program					
Year Initiated	**Applicable Jurisdiction**	**Lead Agency/ Organization**	**Priority and Level of Importance** (Low, Medium, High)	**Projected Completion Date** (Short-term, Long-term, or Ongoing)	**Estimated Cost & Analysis** (Low, Medium, High)
2018	Village of Bensenville	Emergency Management/ Public Works	Medium	Ongoing	Low

Mitigation Project: Continue Participation in StormReady Program				
Applicable Goal(s)	**Hazard(s) Mitigated**	**Benefits** (Loss Avoided)	**Benefit Analysis** (Low, Medium, High)	**Potential Funding Source(s)**
1, 3, 5	Severe Summer Storm, Tornadoes	Prevention, property protection.	Medium	Local funds, Staff time
Action/Implementation Plan and Project Description:				
Stay involved and up to date with changes to the program. **2023 Status Update:** Ongoing				

Action 7.5.3.7

Mitigation Project: Provide Public Outreach About "Warming and Cooling Centers" For Extreme Weather Events					
Year Initiated	**Applicable Jurisdiction**	**Lead Agency/ Organization**	**Priority and Level of Importance** (Low, Medium, High)	**Projected Completion Date** (Short-term, Long-term, or Ongoing)	**Estimated Cost & Analysis** (Low, Medium, High)
2018	Village of Bensenville	Emergency management/ Village Manager's Office	Medium	Ongoing	Low
Applicable Goal(s)	**Hazard(s) Mitigated**	**Benefits** (Loss Avoided)		**Benefit Analysis** (Low, Medium, High)	**Potential Funding Source(s)**
1, 3, 4	Extreme Heat, Severe Winter Weather	Prevention, public education, and awareness.		Medium	Local funds, Staff time
Action/Implementation Plan and Project Description:					
Advertisement on Village website, newsletters, utility bills, social media, etc. **2023 Status Update:** Ongoing					

Action 7.5.3.8

Mitigation Project: Continue Participation in Tree City USA					
Year Initiated	**Applicable Jurisdiction**	**Lead Agency/ Organization**	**Priority and Level of Importance** (Low, Medium, High)	**Projected Completion Date** (Short-term, Long-term, or Ongoing)	**Estimated Cost & Analysis** (Low, Medium, High)
2018	Village of Bensenville	Public Works	Low	Ongoing	Staff time, cost of trees, contractual operations costs
Applicable Goal(s)	**Hazard(s) Mitigated**	**Benefits** (Loss Avoided)		**Benefit Analysis** (Low, Medium, High)	**Potential Funding Source(s)**
8	Severe Summer Weather	Prevention, Property Protection, Natural Resource Protection.		Low	Local funds, Staff time
Action/Implementation Plan and Project Description:					
Continue to plant and maintain trees on annual basis. **2023 Status Update:** Ongoing (31 years)					

Action 7.5.3.9

Mitigation Project: Continue Improvement of Drainage Systems					
Year Initiated	**Applicable Jurisdiction**	**Lead Agency/ Organization**	**Priority and Level of Importance** (Low, Medium, High)	**Projected Completion Date** (Short-term, Long-term, or Ongoing)	**Estimated Cost & Analysis** (Low, Medium, High)
2018	Village of Bensenville	Public Works	High	Ongoing	Staff time and equipment maintenance
Applicable Goal(s)	**Hazard(s) Mitigated**	**Benefits** (Loss Avoided)		**Benefit Analysis** (Low, Medium, High)	**Potential Funding Source(s)**
2, 8	Flood	Prevention, Property Protection.		High	Local funds, Staff time
Action/Implementation Plan and Project Description:					
Clean out catch basin, storm structures on routine basis. **2023 Status Update:** Ongoing					

Action 7.5.3.10

Mitigation Project: Schedule and Participate in Emergency Tabletop Exercises					
Year Initiated	**Applicable Jurisdiction**	**Lead Agency/ Organization**	**Priority and Level of Importance** (Low, Medium, High)	**Projected Completion Date** (Short-term, Long-term, or Ongoing)	**Estimated Cost & Analysis** (Low, Medium, High)
2018	Village of Bensenville	All Village Departments	High	Ongoing	Low
Applicable Goal(s)	**Hazard(s) Mitigated**	**Benefits** (Loss Avoided)		**Benefit Analysis** (Low, Medium, High)	**Potential Funding Source(s)**
1, 3, 5	All Hazards	Prevention, Awareness, Education.		High	Local funds, Staff time
Action/Implementation Plan and Project Description:					
Assign roles and responsibilities in the event of an emergency. **2023 Status Update:** Ongoing					

Completed or Removed Mitigation Projects

Mitigation Project: Obtain Additional Stream Gauges/Monitoring Equipment					
Year Initiated	**Applicable Jurisdiction**	**Lead Agency/ Organization**	**Priority and Level of Importance** (Low, Medium, High)	**Projected Completion Date** (Short-term, Long-term, or Ongoing)	**Estimated Cost & Analysis** (Low, Medium, High)
2018	Village of Bensenville	Public Works	-	-	Staff time and Equipment cost
Applicable Goal(s)	**Hazard(s) Mitigated**	**Benefits** (Loss Avoided)		**Benefit Analysis** (Low, Medium, High)	**Potential Funding Source(s)**
-	-	Obtaining stream gauges/monitoring equipment would allow staff to track water levels at all times to better alert residents and first responders.		-	-
Action/Implementation Plan and Project Description:					
During large storm events a number of locations in town experience severe flooding.					

Mitigation Project: Obtain Additional Stream Gauges/Monitoring Equipment
2023 Status Update: No longer pursuing

7.5.4 Bloomingdale, Village

Action 7.5.4.1

Mitigation Project: Enhance Emergency Preparedness Information Available Through Village Website and Community Outreach					
Year Initiated	**Applicable Jurisdiction**	**Lead Agency/ Organization**	**Priority and Level of Importance** (Low, Medium, High)	**Projected Completion Date** (Short-term, Long-term, or Ongoing)	**Estimated Cost & Analysis** (Low, Medium, High)
2023	Village of Bloomingdale	Village of Bloomingdale	High	Short-term (2023)	Low
Applicable Goal(s)	**Hazard(s) Mitigated**	**Benefits** (Loss Avoided)		**Benefit Analysis** (Low, Medium, High)	**Potential Funding Source(s)**
1, 8	Flood, Severe Winter Weather, Extreme Heat	Residents and visitors in the community will have access to emergency preparedness information to better mitigate risks in the event of a natural hazard.		High	Local funds, Staff time
Action/Implementation Plan and Project Description:					
Enhance emergency preparedness information available to residents and visitors through the Village website and community outreach opportunities. Residents and visitors in the community will have access to emergency preparedness information to better mitigate risks in the event of a natural hazard. **2023 Status:** New Mitigation Action					

Action 7.5.4.2

Mitigation Project: Provide Information to Residents About Mitigation and Protection Against Flooding Events					
Year Initiated	**Applicable Jurisdiction**	**Lead Agency/ Organization**	**Priority and Level of Importance** (Low, Medium, High)	**Projected Completion Date** (Short-term, Long-term, or Ongoing)	**Estimated Cost & Analysis** (Low, Medium, High)

Mitigation Project: Provide Information to Residents About Mitigation and Protection Against Flooding Events					
2023	Village of Bloomingdale	Village of Bloomingdale	High	Short-term (2023)	Low
Applicable Goal(s)	**Hazard(s) Mitigated**	**Benefits** (Loss Avoided)		**Benefit Analysis** (Low, Medium, High)	**Potential Funding Source(s)**
1, 8	Flood	Flood proofing information can be utilized to better inform and prepare residents to minimize impacts due to flooding.		High	Local funds, Staff time
Action/Implementation Plan and Project Description:					
Provide information for residents related to mitigation measures and means to protect themselves and their property from a flood event. Flood proofing, mitigation and property maintenance information can be utilized to better inform and prepare residents to minimize impacts due to flooding. **2023 Status:** New Mitigation Action					

7.5.5 Burr Ridge, Village

Action 7.5.5.1

Mitigation Project: Interconnect Burr Ridge and Hinsdale Water Systems					
Year Initiated	**Applicable Jurisdiction**	**Lead Agency/ Organization**	**Priority and Level of Importance** (Low, Medium, High)	**Projected Completion Date** (Short-term, Long-term, or Ongoing)	**Estimated Cost & Analysis** (Low, Medium, High)
2023	Village of Burr Ridge	Village of Burr Ridge Village of Hinsdale	High	Long-term (2030)	$4 million
Applicable Goal(s)	**Hazard(s) Mitigated**	**Benefits** (Loss Avoided)		**Benefit Analysis** (Low, Medium, High)	**Potential Funding Source(s)**
1, 2, 3, 5	Drought, Extreme Heat, Earthquakes, Ground Failure	Interconnected water systems will safeguard human and environmental health during drought and water shortages, increase resilience between communities with aging infrastructure, and provide safe alternates to using untreated and contaminated well water.		High	Community Project Grants, State Revolving Loan Fund
Action/Implementation Plan and Project Description:					
The Village of Burr Ridge and Village of Hinsdale are proposing to construct an emergency interconnect of these municipalities' water distribution systems. New water main pipes and pumps would interconnect and adjust water pressures between the existing, independent water systems. The interconnect would be utilized when either community's water transmission supply mains, pump stations, or storage facilities are compromised or inadequate during extreme heat or drought conditions. The existing shallow aquifer wells in each community have inadequate capacity and safeguards to provide safe, potable water in a time of emergency. The proposed interconnect would provide a resilient water supply for both communities if a drought, system failure, or criminal activity compromises available drinking water. **2023 Status:** New Mitigation Action					

Action 7.5.5.2

Mitigation Project: Elm Street Culvert Replacement					
Year Initiated	**Applicable Jurisdiction**	**Lead Agency/ Organization**	**Priority and Level of Importance** (Low, Medium, High)	**Projected Completion Date** (Short-term, Long-term, or Ongoing)	**Estimated Cost & Analysis** (Low, Medium, High)
2023 (Initiated in 2020)	Village of Burr Ridge	Village of Burr Ridge	High	Short-term (2024)	$975,000
Applicable Goal(s)	**Hazard(s) Mitigated**	**Benefits** (Loss Avoided)		**Benefit Analysis** (Low, Medium, High)	**Potential Funding Source(s)**
1, 2, 5, 8	Flood	The culvert has significant corrosion and is approaching the end of its useful life. This can eventually lead to sink holes or collapse of the culvert. The collapse would result in adjacent property damage and safe access to the nearby Elm School.		High	Community Project Grants, County BMP Fund, Local Funds
Action/Implementation Plan and Project Description:					
The project consists of removal of the existing 6'11" x 4'5" elliptical corrugated metal pipe (CMP) culvert and replacing it with a double cell 2-13' x 5' reinforced concrete box culvert (RCBC). Project includes all ancillary construction necessary for the removal and replacement of the new waterway crossing. **2023 Status:** New Mitigation Action					

7.5.6 Carol Stream, Village

Action 7.5.6.1

Mitigation Project: Intelligent Stormwater Management Study					
Year Initiated	**Applicable Jurisdiction**	**Lead Agency/ Organization**	**Priority and Level of Importance** (Low, Medium, High)	**Projected Completion Date** (Short-term, Long-term, or Ongoing)	**Estimated Cost & Analysis** (Low, Medium, High)
2023	Village of Carol Stream	Village of Carol Stream USACE Chicago	High	Short-term (2024)	$150,000
Applicable Goal(s)	**Hazard(s) Mitigated**	**Benefits** (Loss Avoided)		**Benefit Analysis** (Low, Medium, High)	**Potential Funding Source(s)**
2, 5, 7, 8	Flood, High Hazard Dam	Reduce impacts to flood-prone property and public infrastructure (i.e., roadways).		High	USACE FPMS Grant
Action/Implementation Plan and Project Description:					
USACE Chicago District will provide professional services up to $125,000 to model Klein Creek and the urban system that is tributary to it. The model will analyze how effective intelligent stormwater systems can be in optimizing the performance of upstream stormwater management facilities. **2023 Status:** New Mitigation Action					

Action 7.5.6.2

Mitigation Project: Klein Creek Streambank Stabilization - Section II					
Year Initiated	**Applicable Jurisdiction**	**Lead Agency/ Organization**	**Priority and Level of Importance** (Low, Medium, High)	**Projected Completion Date** (Short-term, Long-term, or Ongoing)	**Estimated Cost & Analysis** (Low, Medium, High)
2023	Village of Carol Stream	Village of Carol Stream, DuPage County, IEPA	High	Short-term (2026)	$3.22 million
Applicable Goal(s)	**Hazard(s) Mitigated**	**Benefits** (Loss Avoided)		**Benefit Analysis** (Low, Medium, High)	**Potential Funding Source(s)**

Mitigation Project: Klein Creek Streambank Stabilization - Section II				
8	Flood, High Hazard Dam	Repair and protect property and public infrastructure from shoreline erosion.	High	IEPA 319h NonPoint Source Reduction
Action/Implementation Plan and Project Description:				
Design and construct streambank stabilization using a combination of structural and bioengineering techniques on ~2,000 lineal feet of stream channel. This stretch is hemmed in on both sides by residential property, some of which have structures in the floodplain and a few even in the floodway. Using structural measures will help in maintaining the conveyance capacity that is critical to ensuring the success of the many regional detention facilities that drain into it. Using bioengineering techniques will ensure that aquatic life can navigate between the upstream and downstream stretches with higher habitat quality. **2023 Status:** New Mitigation Action				

7.5.7 Clarendon Hills, Village

Action 7.5.7.1

Mitigation Project: Continue to Educate People About Emergency Preparedness Using the City Website and Pamphlets					
Year Initiated	**Applicable Jurisdiction**	**Lead Agency/ Organization**	**Priority and Level of Importance** (Low, Medium, High)	**Projected Completion Date** (Short-term, Long-term, or Ongoing)	**Estimated Cost & Analysis** (Low, Medium, High)
2023	Village of Clarendon Hills	Public Works Department	High	Ongoing	Low
Applicable Goal(s)	**Hazard(s) Mitigated**	**Benefits** (Loss Avoided)		**Benefit Analysis** (Low, Medium, High)	**Potential Funding Source(s)**
1, 2, 4, 6	All Hazards	Life safety		High	Local funds, Staff time
Action/Implementation Plan and Project Description:					
2023 Status: New Mitigation Action					

Action 7.5.7.2

Mitigation Project: Trim Tree Limbs Near Critical Infrastructure and Roads					
Year Initiated	**Applicable Jurisdiction**	**Lead Agency/ Organization**	**Priority and Level of Importance** (Low, Medium, High)	**Projected Completion Date** (Short-term, Long-term, or Ongoing)	**Estimated Cost & Analysis** (Low, Medium, High)
2023	Village of Clarendon Hills	Public Works Department	Medium	Ongoing	Medium
Applicable Goal(s)	**Hazard(s) Mitigated**	**Benefits** (Loss Avoided)		**Benefit Analysis** (Low, Medium, High)	**Potential Funding Source(s)**
1, 2, 4, 6	Severe Summer Weather, Tornadoes	Minimize damage during high intensity weather events		Medium	Local funds, Staff time
Action/Implementation Plan and Project Description:					
2023 Status: New Mitigation Action					

7.5.8 Darien, City

Action 7.5.8.1

Mitigation Project: Continue to Educate People About Emergency Preparedness Using the City Website and Pamphlets					
Year Initiated	**Applicable Jurisdiction**	**Lead Agency/ Organization**	**Priority and Level of Importance** (Low, Medium, High)	**Projected Completion Date** (Short-term, Long-term, or Ongoing)	**Estimated Cost & Analysis** (Low, Medium, High)
2023	City of Darien	Public Works Department	Medium	Ongoing	Low
Applicable Goal(s)	**Hazard(s) Mitigated**	**Benefits** (Loss Avoided)		**Benefit Analysis** (Low, Medium, High)	**Potential Funding Source(s)**
1, 2, 4, 6	All Hazards	Life safety		High	Local funds, Staff time
Action/Implementation Plan and Project Description:					
2023 Status: New Mitigation Action					

Action 7.5.8.2

Mitigation Project: Trim Tree Limbs Near Critical Infrastructure and Roads					
Year Initiated	**Applicable Jurisdiction**	**Lead Agency/ Organization**	**Priority and Level of Importance** (Low, Medium, High)	**Projected Completion Date** (Short-term, Long-term, or Ongoing)	**Estimated Cost & Analysis** (Low, Medium, High)
2023	City of Darien	Municipal Services Department	Medium	Ongoing	Medium
Applicable Goal(s)	**Hazard(s) Mitigated**	**Benefits** (Loss Avoided)		**Benefit Analysis** (Low, Medium, High)	**Potential Funding Source(s)**
1, 2, 4, 6	Severe Summer Weather, Tornadoes	Minimize damage during high intensity weather events		Medium	Local funds, Staff time
Action/Implementation Plan and Project Description:					
2023 Status: New Mitigation Action					

7.5.9 Downers Grove, Village

Action 7.5.9.1

Mitigation Project: Implement Village Flood Mitigation Projects					
Year Initiated	**Applicable Jurisdiction**	**Lead Agency/ Organization**	**Priority and Level of Importance** (Low, Medium, High)	**Projected Completion Date** (Short-term, Long-term, or Ongoing)	**Estimated Cost & Analysis** (Low, Medium, High)
2023	Downers Grove	Public Works	High	Ongoing	High
Applicable Goal(s)	**Hazard(s) Mitigated**	**Benefits** (Loss Avoided)		**Benefit Analysis** (Low, Medium, High)	**Potential Funding Source(s)**
1, 2, 3, 4, 5, 6, 7, 8	Flood	Mitigate flooding		High	Local Funding, BRIC, HMGP
Action/Implementation Plan and Project Description:					
Acquire flood-prone properties Acquire properties in floodplain and LPDA Provide stormwater storage (detention) Streambank stabilization Provide stormwater management system (storm sewer or ditch) for all properties in the Village Maintain passable roads during a flood **2023 Status:** New Mitigation Action					

Action 7.5.9.2

Mitigation Project: Maintain CRS Class 6 Rating					
Year Initiated	**Applicable Jurisdiction**	**Lead Agency/ Organization**	**Priority and Level of Importance** (Low, Medium, High)	**Projected Completion Date** (Short-term, Long-term, or Ongoing)	**Estimated Cost & Analysis** (Low, Medium, High)
2018	Downers Grove	Public Works	High	Ongoing	Low (Staff time, printing costs, postage)
Applicable Goal(s)	**Hazard(s) Mitigated**	**Benefits** (Loss Avoided)		**Benefit Analysis** (Low, Medium, High)	**Potential Funding Source(s)**
7	Flood	Reduction in flood insurance premiums for Village property owners.		High	Local funds, Staff time

Mitigation Project: Maintain CRS Class 6 Rating
Action/Implementation Plan and Project Description:
Continue various floodplain management activities including public outreach, map information, drainage system maintenance and flood protection. **2023 Status Update:** Ongoing

Action 7.5.9.3

Mitigation Project: Develop a Storage Location to Handle Debris From Large Scale Disasters					
Year Initiated	**Applicable Jurisdiction**	**Lead Agency/ Organization**	**Priority and Level of Importance** (Low, Medium, High)	**Projected Completion Date** (Short-term, Long-term, or Ongoing)	**Estimated Cost & Analysis** (Low, Medium, High)
2018	Downers Grove	Public Works	Medium	Ongoing	Medium (Staff time and potential cost of property)
Applicable Goal(s)	**Hazard(s) Mitigated**	**Benefits** (Loss Avoided)		**Benefit Analysis** (Low, Medium, High)	**Potential Funding Source(s)**
2, 5	All Hazards	Provide direction to Village following emergency situations.		Medium	Local funds, Staff time
Action/Implementation Plan and Project Description:					
Work to develop a plan to handle, stage and store large amounts of debris from a tornado, flood, etc. **2023 Status Update:** Ongoing					

Action 7.5.9.4

Mitigation Project: Improve Detention Basin Program and Secure Easements for Older Basins Located on Private Property					
Year Initiated	**Applicable Jurisdiction**	**Lead Agency/ Organization**	**Priority and Level of Importance** (Low, Medium, High)	**Projected Completion Date** (Short-term, Long-term, or Ongoing)	**Estimated Cost & Analysis** (Low, Medium, High)
2018	Downers Grove	Public Works, Community Development, Legal Department	Medium	Ongoing	Low

Mitigation Project: Improve Detention Basin Program and Secure Easements for Older Basins Located on Private Property				
Applicable Goal(s)	**Hazard(s) Mitigated**	**Benefits** (Loss Avoided)	**Benefit Analysis** (Low, Medium, High)	**Potential Funding Source(s)**
2, 3, 7, 8	Flood	Ensure detention basins remain functioning properly to greater protect the Village during storm events.	Medium	Local funds, Staff time
Action/Implementation Plan and Project Description:				
All basins have been inspected. Continue to work with HOA and private property owners to ensure they are properly maintained. In those cases where easements don't exist, work to secure easements. **2023 Status Update:** Ongoing				

Action 7.5.9.5

Mitigation Project: Public Outreach to Streamside Landowners					
Year Initiated	**Applicable Jurisdiction**	**Lead Agency/ Organization**	**Priority and Level of Importance** (Low, Medium, High)	**Projected Completion Date** (Short-term, Long-term, or Ongoing)	**Estimated Cost & Analysis** (Low, Medium, High)
2018	Downers Grove	Public Works	Medium	Ongoing	Low (Staff time, printing, postage)
Applicable Goal(s)	**Hazard(s) Mitigated**	**Benefits** (Loss Avoided)		**Benefit Analysis** (Low, Medium, High)	**Potential Funding Source(s)**
1, 2, 4	Flood	Ensure Ordinance requirements are being followed, improve water quality.		Medium	Local funds, Staff time
Action/Implementation Plan and Project Description:					
Develop public outreach to streamside landowners regarding floodplain and wetland regulations, recommended maintenance, and invasive species removal. **2023 Status Update:** Ongoing					

Action 7.5.9.6

Mitigation Project: Secure Easements of Major Creeks/Floodplain					
Year Initiated	**Applicable Jurisdiction**	**Lead Agency/ Organization**	**Priority and Level of Importance** (Low, Medium, High)	**Projected Completion Date** (Short-term, Long-term, or Ongoing)	**Estimated Cost & Analysis** (Low, Medium, High)
2018	Downers Grove	Public Works, Community Development	Medium	Ongoing	Low
Applicable Goal(s)	**Hazard(s) Mitigated**	**Benefits** (Loss Avoided)		**Benefit Analysis** (Low, Medium, High)	**Potential Funding Source(s)**
1, 2, 7, 8	Flood	Obtaining easements will allow the Village access to property to remove debris jams, or work on the property as part of a water quality improvement and/or streambank stabilization project.		Medium	Local funds, Staff time
Action/Implementation Plan and Project Description:					
Work to obtain easements for all major creeks/floodplain areas. **2023 Status Update:** Ongoing					

Action 7.5.9.7

Mitigation Project: Obtain Additional Stream Gauges/Monitoring Equipment					
Year Initiated	**Applicable Jurisdiction**	**Lead Agency/ Organization**	**Priority and Level of Importance** (Low, Medium, High)	**Projected Completion Date** (Short-term, Long-term, or Ongoing)	**Estimated Cost & Analysis** (Low, Medium, High)
2018	Downers Grove	Public Works	Medium	Ongoing	Low (Equipment cost)
Applicable Goal(s)	**Hazard(s) Mitigated**	**Benefits** (Loss Avoided)		**Benefit Analysis** (Low, Medium, High)	**Potential Funding Source(s)**
1, 2, 8	Flood	Obtaining stream gauges/monitoring equipment would allow staff to track water levels at all times to better alert residents.		Medium	Local funds, Staff time
Action/Implementation Plan and Project Description:					

Mitigation Project: Obtain Additional Stream Gauges/Monitoring Equipment
During large storm events a number of locations in town experience severe flooding. **2023 Status Update:** Ongoing

Action 7.5.9.8

Mitigation Project: Continue Providing Public Outreach About Community Wide Notification System					
Year Initiated	**Applicable Jurisdiction**	**Lead Agency/ Organization**	**Priority and Level of Importance** (Low, Medium, High)	**Projected Completion Date** (Short-term, Long-term, or Ongoing)	**Estimated Cost & Analysis** (Low, Medium, High)
2018	Downers Grove	Emergency Management/Village Manager's Office	High	Ongoing	Low
Applicable Goal(s)	**Hazard(s) Mitigated**	**Benefits** (Loss Avoided)		**Benefit Analysis** (Low, Medium, High)	**Potential Funding Source(s)**
1, 4	All Hazards	Prevention, public education, and awareness.		High	Local funds, Staff time
Action/Implementation Plan and Project Description:					
Continue to provide public outreach to encourage all residents to sign up for Community Wide Notification System for Village. **2023 Status Update:** Ongoing					

Action 7.5.9.9

Mitigation Project: Continue Updating Village Stormwater Masterplan Including Property Acquisition					
Year Initiated	**Applicable Jurisdiction**	**Lead Agency/ Organization**	**Priority and Level of Importance** (Low, Medium, High)	**Projected Completion Date** (Short-term, Long-term, or Ongoing)	**Estimated Cost & Analysis** (Low, Medium, High)
2018	Downers Grove	Public Works	High	Short-term	Low
Applicable Goal(s)	**Hazard(s) Mitigated**	**Benefits** (Loss Avoided)		**Benefit Analysis** (Low, Medium, High)	**Potential Funding Source(s)**

Mitigation Project: Continue Updating Village Stormwater Masterplan Including Property Acquisition				
1, 2, 7, 8	Flood	Prevention, flood reduction.	High	Local funds, Staff time
Action/Implementation Plan and Project Description:				
Village currently has a masterplan that has updates based upon 2013 Storm event. Work to expand based upon work done to date and address areas not in the plan. **2023 Status Update:** Ongoing				

7.5.10 Elmhurst, City

Action 7.5.10.1

Mitigation Project: Adopt and Implement 2021 International Building Codes (IBC) and International Residential Code (IRC)					
Year Initiated	**Applicable Jurisdiction**	**Lead Agency/ Organization**	**Priority and Level of Importance** (Low, Medium, High)	**Projected Completion Date** (Short-term, Long-term, or Ongoing)	**Estimated Cost & Analysis** (Low, Medium, High)
2023 (Updated IRB and IRC building code to 2021 codes)	City of Elmhurst	City of Elmhurst Community Developments	High	Short-term (2023)	$10,000
Applicable Goal(s)	**Hazard(s) Mitigated**	**Benefits** (Loss Avoided)		**Benefit Analysis** (Low, Medium, High)	**Potential Funding Source(s)**
2, 3, 7, 8	All Hazards	This project will make things standard and safer through the community.		High	Local funds, Staff time
Action/Implementation Plan and Project Description:					
We have been using the 2012 codes and have committed to updating the code ever three years. **2023 Status:** New Mitigation Action					

Action 7.5.10.2

Mitigation Project: Improvement to McKinley Stormwater Pump Station					
Year Initiated	**Applicable Jurisdiction**	**Lead Agency/ Organization**	**Priority and Level of Importance** (Low, Medium, High)	**Projected Completion Date** (Short-term, Long-term, or Ongoing)	**Estimated Cost & Analysis** (Low, Medium, High)
2023 (Will be initiated in 2024)	City of Elmhurst	City of Elmhurst Public Works	High	Short-term	$5 million
Applicable Goal(s)	**Hazard(s) Mitigated**	**Benefits** (Loss Avoided)		**Benefit Analysis** (Low, Medium, High)	**Potential Funding Source(s)**

Mitigation Project: Improvement to McKinley Stormwater Pump Station				
1, 2, 3, 4, 5, 7, 8	Flood, Severe Summer Weather	The project will consist of upgrades and improvements to the McKinley Stormwater Pump Station, Located along Maple Trail Woods. This pump station is critical to stormwater relief efforts and the improvements will provide backup pumps, power and improved	High	Local funds, Staff time
Action/Implementation Plan and Project Description:				
Construction activities are scheduled to begin in February 2023 which will include excavation and expansion of the existing station. Construction is planned during cold weather months; however, equipment installation and final completion may extend to 2024. The existing pump station will remain available for use throughout construction. **2023 Status:** New Mitigation Action				

7.5.11 Glen Ellyn, Village

Action 7.5.11.1

Mitigation Project: Perform a Study Identifying Risk and Depressional Areas to Determine HWL to Regulate Development					
Year Initiated	**Applicable Jurisdiction**	**Lead Agency/ Organization**	**Priority and Level of Importance** (Low, Medium, High)	**Projected Completion Date** (Short-term, Long-term, or Ongoing)	**Estimated Cost & Analysis** (Low, Medium, High)
2023	Village of Glen Ellyn	Village of Glen Ellyn	Medium	Long-term	$200,000
Applicable Goal(s)	**Hazard(s) Mitigated**	**Benefits** (Loss Avoided)		**Benefit Analysis** (Low, Medium, High)	**Potential Funding Source(s)**
1, 8	Flood	Reduces chances of structures getting water in their basement, reduces property damage, property owners get to enjoy and make sure of their rear yards.		Medium	Local funds, Staff time
Action/Implementation Plan and Project Description:					
Perform a study identifying all the depressional areas in the village and determine the HWL for all the depressional areas for the purpose of regulating development around these areas. The study should also identify structures at risk and ways to protect them from flooding while preserving stormwater storage. **2023 Status:** New Mitigation Action					

Action 7.5.11.2

Mitigation Project: Perform a Study Identifying Areas Susceptible to Soil Erosion and Include a List of Recommendations					
Year Initiated	**Applicable Jurisdiction**	**Lead Agency/ Organization**	**Priority and Level of Importance** (Low, Medium, High)	**Projected Completion Date** (Short-term, Long-term, or Ongoing)	**Estimated Cost & Analysis** (Low, Medium, High)
2023	Village of Glen Ellyn	Village of Glen Ellyn	Low	Long-term	$100,000
Applicable Goal(s)	**Hazard(s) Mitigated**	**Benefits** (Loss Avoided)		**Benefit Analysis** (Low, Medium, High)	**Potential Funding Source(s)**
1, 8	Flood, Ground Failure	Reduces negative impact to rivers and bodies of water due to silt and sediment entering the water, reduces chances of		Low	Local funds, Staff time

Mitigation Project: Perform a Study Identifying Areas Susceptible to Soil Erosion and Include a List of Recommendations				
		structures getting damaged, reduces overall property damage.		
Action/Implementation Plan and Project Description:				
Perform a study identifying all the areas in the village that are susceptible to soil erosion including areas along rivers. The study should also include a list of recommendations. **2023 Status:** New Mitigation Action				

Action 7.5.11.3

Mitigation Project: Perform a Study Identifying Intersections Susceptible to Flooding and Include a List of Recommendations					
Year Initiated	**Applicable Jurisdiction**	**Lead Agency/ Organization**	**Priority and Level of Importance** (Low, Medium, High)	**Projected Completion Date** (Short-term, Long-term, or Ongoing)	**Estimated Cost & Analysis** (Low, Medium, High)
2023	Village of Glen Ellyn	Village of Glen Ellyn	Low	Long-term	$100,000
Applicable Goal(s)	**Hazard(s) Mitigated**	**Benefits** (Loss Avoided)		**Benefit Analysis** (Low, Medium, High)	**Potential Funding Source(s)**
1, 2, 3, 8	Flood	Reduces or eliminates infrastructure damage, reduces, or eliminates vehicle damage, reduces or eliminates loss of life.		Low	Local funds, Staff time
Action/Implementation Plan and Project Description:					
Perform a study identifying all the intersections in the village that are susceptible to street flooding. The study should also include a list of recommendations to eliminate or reduce street flooding. **2023 Status:** New Mitigation Action					

Action 7.5.11.4

Mitigation Project: Perform a Backup Power Generation Needs Assessment for Water and Sewer Facilities					
Year Initiated	**Applicable Jurisdiction**	**Lead Agency/ Organization**	**Priority and Level of Importance** (Low, Medium, High)	**Projected Completion Date** (Short-term, Long-term, or Ongoing)	**Estimated Cost & Analysis** (Low, Medium, High)
2023	Village of Glen Ellyn	Village of Glen Ellyn	Medium	Short-term (2024)	$10,000
Applicable Goal(s)	**Hazard(s) Mitigated**	**Benefits** (Loss Avoided)		**Benefit Analysis** (Low, Medium, High)	**Potential Funding Source(s)**
1, 2	All Hazards	Reduces or eliminates damage to critical facilities or infrastructure, reduces or eliminates loss of life.		Medium	Local funds, Staff time
Action/Implementation Plan and Project Description:					
Perform a backup power generation needs assessment of water and sewer facilities – 4 water buildings, 2 water towers and 5 lift stations. **2023 Status:** New Mitigation Action					

Action 7.5.11.5

Mitigation Project: Install Additional Backup Power Generation at Water and Sewer Facilities Based on Needs Assessment					
Year Initiated	**Applicable Jurisdiction**	**Lead Agency/ Organization**	**Priority and Level of Importance** (Low, Medium, High)	**Projected Completion Date** (Short-term, Long-term, or Ongoing)	**Estimated Cost & Analysis** (Low, Medium, High)
2023	Village of Glen Ellyn	Village of Glen Ellyn	Medium	Short-term (2025/2026)	$400,000
Applicable Goal(s)	**Hazard(s) Mitigated**	**Benefits** (Loss Avoided)		**Benefit Analysis** (Low, Medium, High)	**Potential Funding Source(s)**
1, 2	All Hazards	Reduces or eliminates damage to critical facilities or infrastructure, reduces or eliminates loss of life.		Medium	Local funds, grants
Action/Implementation Plan and Project Description:					
Replace, upgrade and/or install additional backup power generation at various water and sewer facilities based on assessment needs. **2023 Status:** New Mitigation Action					

Action 7.5.11.6

Mitigation Project: Upgrade Radio Technology to Cellular to Improve SCADA System Reliability					
Year Initiated	**Applicable Jurisdiction**	**Lead Agency/ Organization**	**Priority and Level of Importance** (Low, Medium, High)	**Projected Completion Date** (Short-term, Long-term, or Ongoing)	**Estimated Cost & Analysis** (Low, Medium, High)
2023	Village of Glen Ellyn	Village of Glen Ellyn	Medium	2024	$80,000
Applicable Goal(s)	**Hazard(s) Mitigated**	**Benefits** (Loss Avoided)		**Benefit Analysis** (Low, Medium, High)	**Potential Funding Source(s)**
1, 2	Severe Summer Weather, Severe Winter Weather, Tornadoes, Extreme Heat	Reduces or eliminates damage to critical facilities or infrastructure, reduces or eliminates loss of life.		Medium	Local funds, Staff time
Action/Implementation Plan and Project Description:					
Upgrade current radio technology for SCADA system to cellular for reliability. **2023 Status:** New Mitigation Action					

Action 7.5.11.7

Mitigation Project: Dredge Outfall Channel at East End of Chidester (east of Riford) That Drains to the East Branch of the DuPage River					
Year Initiated	**Applicable Jurisdiction**	**Lead Agency/ Organization**	**Priority and Level of Importance** (Low, Medium, High)	**Projected Completion Date** (Short-term, Long-term, or Ongoing)	**Estimated Cost & Analysis** (Low, Medium, High)
2023	Village of Glen Ellyn	Village of Glen Ellyn	Medium	Short-term (2023)	$100,000
Applicable Goal(s)	**Hazard(s) Mitigated**	**Benefits** (Loss Avoided)		**Benefit Analysis** (Low, Medium, High)	**Potential Funding Source(s)**
1, 2, 4, 8	Flood	Reduces or eliminates infrastructure damage, reduces, or eliminates vehicle damage, reduces, or eliminates loss of life.		Medium	Local funds, grants

Mitigation Project: Dredge Outfall Channel at East End of Chidester (east of Riford) That Drains to the East Branch of the DuPage River
Action/Implementation Plan and Project Description:
Dredging of outfall channel at the east end of Chidester (east of Riford) that drains to the East Branch of the DuPage River. **2023 Status:** New Mitigation Action

7.5.12 Glendale Heights, Village

Action 7.5.12.1

Mitigation Project: Replace Fleet Services Building Generator					
Year Initiated	**Applicable Jurisdiction**	**Lead Agency/ Organization**	**Priority and Level of Importance** (Low, Medium, High)	**Projected Completion Date** (Short-term, Long-term, or Ongoing)	**Estimated Cost & Analysis** (Low, Medium, High)
2023	Village of Glendale Heights	Village of Glendale Heights	Medium	Short-term (April 2025)	$270,000
Applicable Goal(s)	**Hazard(s) Mitigated**	**Benefits** (Loss Avoided)		**Benefit Analysis** (Low, Medium, High)	**Potential Funding Source(s)**
1, 2, 8	Severe Summer Weather, Severe Winter Weather	Provide protection to maintain critical infrastructure		Medium	Local funds, Staff time
Action/Implementation Plan and Project Description:					
2023 Status: New Mitigation Action					

Action 7.5.12.2

Mitigation Project: Continue Jacobsen Avenue Cured-in-Place Pipe Project					
Year Initiated	**Applicable Jurisdiction**	**Lead Agency/ Organization**	**Priority and Level of Importance** (Low, Medium, High)	**Projected Completion Date** (Short-term, Long-term, or Ongoing)	**Estimated Cost & Analysis** (Low, Medium, High)
2023	Village of Glendale Heights	Village of Glendale Heights	High	Short-term (May 15, 2023)	$429,935.50
Applicable Goal(s)	**Hazard(s) Mitigated**	**Benefits** (Loss Avoided)		**Benefit Analysis** (Low, Medium, High)	**Potential Funding Source(s)**
	Flood	Restore full carrying capacity of the storm sewer system.		High	Local funds, Staff time
Action/Implementation Plan and Project Description:					
Removal of sediment and debris from pipe connected to upstream detention area to restore the full carrying capacity of the storm sewer system. New CIPP will be installed to provide extended service life to antiquated pipes.					

Mitigation Project: Continue Jacobsen Avenue Cured-in-Place Pipe Project
2023 Status: New Mitigation Action

Action 7.5.12.3

Mitigation Project: Mill Pond Lift Station Improvements					
Year Initiated	**Applicable Jurisdiction**	**Lead Agency/ Organization**	**Priority and Level of Importance** (Low, Medium, High)	**Projected Completion Date** (Short-term, Long-term, or Ongoing)	**Estimated Cost & Analysis** (Low, Medium, High)
2023	Village of Glendale Heights	Village of Glendale Heights	High	Short-term (May 2024)	$1,761,000
Applicable Goal(s)	**Hazard(s) Mitigated**	**Benefits** (Loss Avoided)		**Benefit Analysis** (Low, Medium, High)	**Potential Funding Source(s)**
2, 8	Flood, Severe Summer Weather, Severe Winter Weather	Surcharging of sewer wet well and potential SSO		High	ARPA Funds
Action/Implementation Plan and Project Description:					
Includes conversion of an existing dry pit/wet well wastewater lift station located below peak historic flood elevation to submersible over PHF levels. **2023 Status:** New Mitigation Action					

Action 7.5.12.4

Mitigation Project: Water System Resilience Upgrades					
Year Initiated	**Applicable Jurisdiction**	**Lead Agency/ Organization**	**Priority and Level of Importance** (Low, Medium, High)	**Projected Completion Date** (Short-term, Long-term, or Ongoing)	**Estimated Cost & Analysis** (Low, Medium, High)
2023	Village of Glendale Heights	Village of Glendale Heights	High	Short-term (October 2023)	$78,600
Applicable Goal(s)	**Hazard(s) Mitigated**	**Benefits** (Loss Avoided)		**Benefit Analysis** (Low, Medium, High)	**Potential Funding Source(s)**

Mitigation Project: Water System Resilience Upgrades				
2	Flood	$223,000 Annual Monetized Net Benefit (per EPA VSAT)	High	Local funds, Staff time
Action/Implementation Plan and Project Description:				
Includes physical security upgrades to several water system facilities identified as high priority in the Village's Risk and Resilience Assessment. **2023 Status:** New Mitigation Action				

Action 7.5.12.5

Mitigation Project: North Avenue I&I. Phase 2 Project					
Year Initiated	**Applicable Jurisdiction**	**Lead Agency/ Organization**	**Priority and Level of Importance** (Low, Medium, High)	**Projected Completion Date** (Short-term, Long-term, or Ongoing)	**Estimated Cost & Analysis** (Low, Medium, High)
2023	Village of Glendale Heights	Village of Glendale Heights	High	Short-term (December 2023)	$550,000
Applicable Goal(s)	**Hazard(s) Mitigated**	**Benefits** (Loss Avoided)		**Benefit Analysis** (Low, Medium, High)	**Potential Funding Source(s)**
1, 2	Flood	Provide more capacity within the system for sewage		High	Local funds, Staff time
Action/Implementation Plan and Project Description:					
Manhole rehabilitation and manhole lining will reduce infiltration and inflow (I&I) to provide more capacity within the system for sewage and reduce the likelihood of sanitary sewer overflows and basement backups. In addition, this reduces the volume of clean water being processed at the treatment plant to lower operating cost and energy usage. **2023 Status:** New Mitigation Action					

Action 7.5.12.6

Mitigation Project: Water Main Replacement					
Year Initiated	**Applicable Jurisdiction**	**Lead Agency/ Organization**	**Priority and Level of Importance** (Low, Medium, High)	**Projected Completion Date** (Short-term, Long-term, or Ongoing)	**Estimated Cost & Analysis** (Low, Medium, High)

Mitigation Project: Water Main Replacement					
2023	Village of Glendale Heights	Village of Glendale Heights	Medium	Short-term (June 30, 2023)	$3 million
Applicable Goal(s)	**Hazard(s) Mitigated**	**Benefits** (Loss Avoided)		**Benefit Analysis** (Low, Medium, High)	**Potential Funding Source(s)**
1, 2	Severe Winter Weather	Reduce risk of potential breaks		Medium	Community Development Block Grant
Action/Implementation Plan and Project Description:					
Water Main Replacement – areas with high frequency of breaks which are susceptible to freeze/thaw. New water mains are being replaced to improve reliability, reduce risk of potential breaks, installed to depth below anticipated frost line, designed to current Village standards, and improve fire protection, water flow pressure, and hydrant spacing. **2023 Status:** New Mitigation Action					

Action 7.5.12.7

Mitigation Project: James Court (at Pearl Avenue) Sewer Project					
Year Initiated	**Applicable Jurisdiction**	**Lead Agency/ Organization**	**Priority and Level of Importance** (Low, Medium, High)	**Projected Completion Date** (Short-term, Long-term, or Ongoing)	**Estimated Cost & Analysis** (Low, Medium, High)
2023	Village of Glendale Heights	Village of Glendale Heights	High	Short-term (October 31, 2023)	$505,000
Applicable Goal(s)	**Hazard(s) Mitigated**	**Benefits** (Loss Avoided)		**Benefit Analysis** (Low, Medium, High)	**Potential Funding Source(s)**
1, 2, 8	Flood	Provide 10-year level of service to adjacent properties		High	ARPA
Action/Implementation Plan and Project Description:					
Installation of additional storm sewer to provide 10-year level of service for flood protection to adjacent residential property. The new pipe system will provide additional capacity. **2023 Status:** New Mitigation Action					

7.5.13 Hanover Park, Village

Action 7.5.13.1

Mitigation Project: Obtain Generators to Provide Backup Power to Key Critical Infrastructure in the Village					
Year Initiated	**Applicable Jurisdiction**	**Lead Agency/ Organization**	**Priority and Level of Importance** (Low, Medium, High)	**Projected Completion Date** (Short-term, Long-term, or Ongoing)	**Estimated Cost & Analysis** (Low, Medium, High)
2023	Village of Hanover Park	Village of Hanover Park	High	Long-term	High
Applicable Goal(s)	**Hazard(s) Mitigated**	**Benefits** (Loss Avoided)		**Benefit Analysis** (Low, Medium, High)	**Potential Funding Source(s)**
1, 2, 8	All Hazards	Provide backup power to key facilities in the Village.		High	Local Funds, BRIC, HMGP
Action/Implementation Plan and Project Description:					
This project will assess and install backup generators and hook-ups to provide backup power at key critical infrastructure sites, such as stormwater systems and facilities essential to emergency operations. **2023 Status:** New Mitigation Action					

7.5.14 Hinsdale, Village

Action 7.5.14.1

Mitigation Project: Interconnect Burr Ridge and Hinsdale Water Systems					
Year Initiated	**Applicable Jurisdiction**	**Lead Agency/ Organization**	**Priority and Level of Importance** (Low, Medium, High)	**Projected Completion Date** (Short-term, Long-term, or Ongoing)	**Estimated Cost & Analysis** (Low, Medium, High)
2023	Village of Hinsdale	Village of Hinsdale Village of Burr Ridge	High	Short-term (2023)	$4 million
Applicable Goal(s)	**Hazard(s) Mitigated**	**Benefits** (Loss Avoided)		**Benefit Analysis** (Low, Medium, High)	**Potential Funding Source(s)**
1, 2, 3, 5	Drought, Extreme Heat, Earthquakes, Ground Failure	Interconnected water systems will safeguard human and environmental health during drought and water shortages, increase resilience between communities with aging infrastructure, and provide safe alternates to using untreated and contaminated well water.		High	Community Project Grants, State Revolving Loan Fund
Action/Implementation Plan and Project Description:					
The Village of Burr Ridge and Village of Hinsdale are proposing to construct an emergency interconnect of these municipalities' water distribution systems. New water main pipes and pumps would interconnect and adjust water pressures between the existing, independent water systems. The interconnect would be utilized when either community's water transmission supply mains, pump stations, or storage facilities are compromised or inadequate during extreme heat or drought conditions. The existing shallow aquifer wells in each community have inadequate capacity and safeguards to provide safe, potable water in a time of emergency. The proposed interconnect would provide a resilient water supply for both communities if a drought, system failure, or criminal activity compromises available drinking water. **2023 Status:** New Mitigation Action					

Action 7.5.14.2

Mitigation Project: Stormwater Improvements					
Year Initiated	**Applicable Jurisdiction**	**Lead Agency/ Organization**	**Priority and Level of Importance** (Low, Medium, High)	**Projected Completion Date** (Short-term, Long-term, or Ongoing)	**Estimated Cost & Analysis** (Low, Medium, High)
2023	Village of Hinsdale	Village of Hinsdale, Public Services & Engineering	High	Short-term (December 1, 2025)	$840,000
Applicable Goal(s)	**Hazard(s) Mitigated**	**Benefits** (Loss Avoided)		**Benefit Analysis** (Low, Medium, High)	**Potential Funding Source(s)**
1, 2, 8	Flood, Ground Failure	A drainage improvement project to address currently known roadway flooding during rain events at several locations within the Village. It primarily consists of adding storm sewers and drainage structures within existing roadways and parkways.		High	Local funding sources.
Action/Implementation Plan and Project Description:					
2023 Status: New Mitigation Action					

Action 7.5.14.3

Mitigation Project: Roadway, Water Main, Sanitary Sewer Improvements					
Year Initiated	**Applicable Jurisdiction**	**Lead Agency/ Organization**	**Priority and Level of Importance** (Low, Medium, High)	**Projected Completion Date** (Short-term, Long-term, or Ongoing)	**Estimated Cost & Analysis** (Low, Medium, High)
2023	Village of Hinsdale	Village of Hinsdale, Public Services & Engineering	High	Short-term (December 1, 2027)	$3 million
Applicable Goal(s)	**Hazard(s) Mitigated**	**Benefits** (Loss Avoided)		**Benefit Analysis** (Low, Medium, High)	**Potential Funding Source(s)**

Mitigation Project: Roadway, Water Main, Sanitary Sewer Improvements				
1, 2, 8	Flood, Ground Failure	A reconstruction improvement project from Garfield Street to County Line Road. The roadway will be rehabilitated, and water main replacement with sanitary sewer improvements will also occur.	High	Local funding sources.
Action/Implementation Plan and Project Description:				
2023 Status: New Mitigation Action				

7.5.15 Itasca, Village

Action 7.5.15.1

Mitigation Project: Flood Mitigation					
Year Initiated	**Applicable Jurisdiction**	**Lead Agency/ Organization**	**Priority and Level of Importance** (Low, Medium, High)	**Projected Completion Date** (Short-term, Long-term, or Ongoing)	**Estimated Cost & Analysis** (Low, Medium, High)
2023	Itasca	Itasca Police Department	Medium	Long-term	High
Applicable Goal(s)	**Hazard(s) Mitigated**	**Benefits** (Loss Avoided)		**Benefit Analysis** (Low, Medium, High)	**Potential Funding Source(s)**
1, 2, 8	Flood	Elimination of flooding in the southern part of Itasca		Medium	Local Funds, FEMA BRIC, NFIP
Action/Implementation Plan and Project Description:					
Schiller Street Reservoir. Enlarge the footprint of the Schiller Street Reservoir to be able to accommodate the amount of stormwater during heavy rains. The reservoir is located on Schiller Street and Broker Steet and serves as the primary retention for water runoff in the south of the village. **2023 Status:** New Mitigation Action					

Action 7.5.15.2

Mitigation Project: Happy Acres Retention Pond Expansion					
Year Initiated	**Applicable Jurisdiction**	**Lead Agency/ Organization**	**Priority and Level of Importance** (Low, Medium, High)	**Projected Completion Date** (Short-term, Long-term, or Ongoing)	**Estimated Cost & Analysis** (Low, Medium, High)
2023	Itasca	Itasca Police Department	Medium	Long-term	High
Applicable Goal(s)	**Hazard(s) Mitigated**	**Benefits** (Loss Avoided)		**Benefit Analysis** (Low, Medium, High)	**Potential Funding Source(s)**
1, 2, 8	Flood	Mitigate the amount of storm water left on roadways. backyards and houses		Medium	Local Funds, FEMA BRIC, NFIP
Action/Implementation Plan and Project Description:					

Mitigation Project: Happy Acres Retention Pond Expansion
The Happy Acres Retention Pond is located on Bryn Mawr Street between Walnut Street and Willow Street. The pond was enlarged approximately 8 years ago along with drainage to alleviate the flooding in the area. During heavy storms flooding continues to be a problem and this would alleviate the issue. **2023 Status:** New Mitigation Action

Action 7.5.15.3

Mitigation Project: Install Underpass on Prospect Ave (at the Railroad Tracks)					
Year Initiated	**Applicable Jurisdiction**	**Lead Agency/ Organization**	**Priority and Level of Importance** (Low, Medium, High)	**Projected Completion Date** (Short-term, Long-term, or Ongoing)	**Estimated Cost & Analysis** (Low, Medium, High)
2023	Itasca	Itasca Police Department	Low	Long-term	High
Applicable Goal(s)	**Hazard(s) Mitigated**	**Benefits** (Loss Avoided)		**Benefit Analysis** (Low, Medium, High)	**Potential Funding Source(s)**
1	All Hazards	Limit the amount of time it takes to get from the north side of town to the south		Medium	Local funds, Grants
Action/Implementation Plan and Project Description:					
Due to the high amount of wait time from the merger of trains and the number of trains coming through town, the need for an underpass located on Prospect Ave at the railroad tracks is a necessity. In the event of an emergency situation this will ensure that first responders would be able to go from one side of town safely and expeditiously. **2023 Status:** New Mitigation Action					

7.5.16 Lisle, Village

Action 7.5.16.1

Mitigation Project: Establish Prioritization for Voluntary Floodplain Acquisitions					
Year Initiated	**Applicable Jurisdiction**	**Lead Agency/ Organization**	**Priority and Level of Importance** (Low, Medium, High)	**Projected Completion Date** (Short-term, Long-term, or Ongoing)	**Estimated Cost & Analysis** (Low, Medium, High)
2023	Village of Lisle	Village of Lisle	High	Short-term (2023)	$2 million
Applicable Goal(s)	**Hazard(s) Mitigated**	**Benefits** (Loss Avoided)		**Benefit Analysis** (Low, Medium, High)	**Potential Funding Source(s)**
1, 2, 3, 4, 5, 8	Flood	This action will remove vulnerable structures from the floodplain.		High	Local funds, grants
Action/Implementation Plan and Project Description:					
The Village adopted a flood property acquisition program to purchase and demolish up to $2,000,000 of impacted properties within the regulatory floodplain. Acquired properties will be restored and maintained by the Village's Public Works Department. **2023 Status:** New Mitigation Action					

Action 7.5.16.2

Mitigation Project: Maintain Class 5 CRS Rating					
Year Initiated	**Applicable Jurisdiction**	**Lead Agency/ Organization**	**Priority and Level of Importance** (Low, Medium, High)	**Projected Completion Date** (Short-term, Long-term, or Ongoing)	**Estimated Cost & Analysis** (Low, Medium, High)
2018	Village of Lisle	Development Services & Public Works	High	Ongoing	Low
Applicable Goal(s)	**Hazard(s) Mitigated**	**Benefits** (Loss Avoided)		**Benefit Analysis** (Low, Medium, High)	**Potential Funding Source(s)**
7	Flood	Reduction in flood insurance premiums for Village property owner and improved floodplain management.		High	Local funds, Staff time
Action/Implementation Plan and Project Description:					

Mitigation Project: Maintain Class 5 CRS Rating
Continue various floodplain management activities including public outreach as outlined in the Board adopted Program for Public Information, map information, drainage system maintenance and flood protection assistance. **2023 Status Update:** Maintained and Ongoing

Action 7.5.16.3

Mitigation Project: Develop Detention Basin Inspection and Maintenance Enforcement Program					
Year Initiated	**Applicable Jurisdiction**	**Lead Agency/ Organization**	**Priority and Level of Importance** (Low, Medium, High)	**Projected Completion Date** (Short-term, Long-term, or Ongoing)	**Estimated Cost & Analysis** (Low, Medium, High)
2018	Village of Lisle	Development Services & Public Works	High	Short-term	Low
Applicable Goal(s)	**Hazard(s) Mitigated**	**Benefits** (Loss Avoided)		**Benefit Analysis** (Low, Medium, High)	**Potential Funding Source(s)**
7	Flood	Improve stormwater management in the Village.		High	Local funds, Staff time
Action/Implementation Plan and Project Description:					
Develop a detention basin inspection and maintenance enforcement program for all public and private stormwater storage basins. **2023 Status Update:** In progress					

Action 7.5.16.4

Mitigation Project: Continue Providing Public Outreach to Encourage Residents to Participate in CodeRED					
Year Initiated	**Applicable Jurisdiction**	**Lead Agency/ Organization**	**Priority and Level of Importance** (Low, Medium, High)	**Projected Completion Date** (Short-term, Long-term, or Ongoing)	**Estimated Cost & Analysis** (Low, Medium, High)
2018	Village of Lisle	Village Manager's Office	High	Ongoing	Low
Applicable Goal(s)	**Hazard(s) Mitigated**	**Benefits** (Loss Avoided)		**Benefit Analysis** (Low, Medium, High)	**Potential Funding Source(s)**

Mitigation Project: Continue Providing Public Outreach to Encourage Residents to Participate in CodeRED				
1, 4	All Hazards	Increased number of residents reached with emergency messages during hazardous conditions.	High	Local funds, Staff time
Action/Implementation Plan and Project Description:				
Provide public outreach to encourage all residents to sign up and update CodeRED. **2023 Status Update:** Ongoing				

Action 7.5.16.5

Mitigation Project: Improve And Support Volunteers 4 Lisle Program					
Year Initiated	**Applicable Jurisdiction**	**Lead Agency/ Organization**	**Priority and Level of Importance** (Low, Medium, High)	**Projected Completion Date** (Short-term, Long-term, or Ongoing)	**Estimated Cost & Analysis** (Low, Medium, High)
2018	Village of Lisle	Police Department	Medium	Ongoing	Low
Applicable Goal(s)	**Hazard(s) Mitigated**	**Benefits** (Loss Avoided)		**Benefit Analysis** (Low, Medium, High)	**Potential Funding Source(s)**
1, 3, 4, 5	All Hazards	Allows for volunteers to staff roadblocks, provide door to door contact during evacuations, freeing Police and Public Works staff.		Medium	Local funds, Staff time
Action/Implementation Plan and Project Description:					
Maintain Volunteers 4 Lisle program for assistance during emergencies and with StormReady program. **2023 Status Update:** Maintained and Ongoing					

Action 7.5.16.6

Mitigation Project: Continue Participation in StormReady Program					
Year Initiated	**Applicable Jurisdiction**	**Lead Agency/ Organization**	**Priority and Level of Importance** (Low, Medium, High)	**Projected Completion Date** (Short-term, Long-term, or Ongoing)	**Estimated Cost & Analysis** (Low, Medium, High)

Mitigation Project: Continue Participation in StormReady Program					
2018	Village of Lisle	Police Department	High	Ongoing	Low
Applicable Goal(s)	**Hazard(s) Mitigated**	**Benefits** (Loss Avoided)		**Benefit Analysis** (Low, Medium, High)	**Potential Funding Source(s)**
1, 3, 5, 7	Severe Summer Weather, Tornadoes, Flood	Trained staff and volunteers improved our capability to predict and respond to a weather emergency.		High	Local funds, Staff time
Action/Implementation Plan and Project Description:					
Continue to train staff and volunteers per StormReady program requirements, including storm spotting and emergency exercises. **2023 Status Update:** Maintained and Ongoing					

Action 7.5.16.7

Mitigation Project: Continue Participation in Tree City USA					
Year Initiated	**Applicable Jurisdiction**	**Lead Agency/ Organization**	**Priority and Level of Importance** (Low, Medium, High)	**Projected Completion Date** (Short-term, Long-term, or Ongoing)	**Estimated Cost & Analysis** (Low, Medium, High)
2018	Village of Lisle	Public Works	Medium	Ongoing	$50,000 minimum ($2 per capita)
Applicable Goal(s)	**Hazard(s) Mitigated**	**Benefits** (Loss Avoided)		**Benefit Analysis** (Low, Medium, High)	**Potential Funding Source(s)**
3, 5	Severe Summer Weather, Tornadoes	Improve the health of Village trees and reduce damages or roadway debris due to falling parkway trees and branches.		Medium	Local funds, Staff time
Action/Implementation Plan and Project Description:					
Continue forestry program throughout the community and Arbor Day tree sale. **2023 Status Update:** Maintained and Ongoing					

Action 7.5.16.8

Mitigation Project: Develop Outreach Program to Serve Individuals with Functional Needs					
Year Initiated	**Applicable Jurisdiction**	**Lead Agency/ Organization**	**Priority and Level of Importance** (Low, Medium, High)	**Projected Completion Date** (Short-term, Long-term, or Ongoing)	**Estimated Cost & Analysis** (Low, Medium, High)
2018	Village of Lisle	Village Manager's Office & Police	High	Ongoing	Low
Applicable Goal(s)	**Hazard(s) Mitigated**	**Benefits** (Loss Avoided)		**Benefit Analysis** (Low, Medium, High)	**Potential Funding Source(s)**
1, 4	All Hazards	Avoid potential conflicts when responding to emergencies that impact functional need residents, such as wheelchair bound residents, or facilities such as local senior living facilities and an autism day school.		High	Local funds, Staff time
Action/Implementation Plan and Project Description:					
Develop an outreach program and a process to manage community members and organizations that serve individuals with functional needs. **2023 Status Update:** Ongoing					

Action 7.5.16.9

Mitigation Project: Educate Residents About Extreme Heat and Cooling Centers in DuPage County					
Year Initiated	**Applicable Jurisdiction**	**Lead Agency/ Organization**	**Priority and Level of Importance** (Low, Medium, High)	**Projected Completion Date** (Short-term, Long-term, or Ongoing)	**Estimated Cost & Analysis** (Low, Medium, High)
2018	Village of Lisle	Village Manager's Office & Police	Medium	Ongoing	Low
Applicable Goal(s)	**Hazard(s) Mitigated**	**Benefits** (Loss Avoided)		**Benefit Analysis** (Low, Medium, High)	**Potential Funding Source(s)**
4	Severe Winter Weather, Extreme Heat	Increases awareness of centers for at risk residents.		Medium	Local funds, Staff time
Action/Implementation Plan and Project Description:					

Mitigation Project: Educate Residents About Extreme Heat and Cooling Centers in DuPage County
Provide public outreach to the residents regarding the availability of cooling or warming centers during times of extended high temperatures and severe winter weather. **2023 Status Update:** Ongoing

Action 7.5.16.10

Mitigation Project: Public Outreach to Streamside Landowners					
Year Initiated	**Applicable Jurisdiction**	**Lead Agency/ Organization**	**Priority and Level of Importance** (Low, Medium, High)	**Projected Completion Date** (Short-term, Long-term, or Ongoing)	**Estimated Cost & Analysis** (Low, Medium, High)
2018	Village of Lisle	Development Services & Public Works	High	Ongoing	$3,000
Applicable Goal(s)	**Hazard(s) Mitigated**	**Benefits** (Loss Avoided)		**Benefit Analysis** (Low, Medium, High)	**Potential Funding Source(s)**
4	Flood	Have a more educated and resilient community.		High	Local funds, Staff time
Action/Implementation Plan and Project Description:					
Develop public outreach to streamside landowners regarding floodplain and wetland regulations, recommended maintenance, and invasive species removal. **2023 Status Update:** Ongoing, annual mailing to property owners					

Action 7.5.16.11

Mitigation Project: Update Emergency Operations Plan					
Year Initiated	**Applicable Jurisdiction**	**Lead Agency/ Organization**	**Priority and Level of Importance** (Low, Medium, High)	**Projected Completion Date** (Short-term, Long-term, or Ongoing)	**Estimated Cost & Analysis** (Low, Medium, High)
2018	Village of Lisle	Development Services & Public Works	High	Short-term	Low

Mitigation Project: Update Emergency Operations Plan				
Applicable Goal(s)	**Hazard(s) Mitigated**	**Benefits** (Loss Avoided)	**Benefit Analysis** (Low, Medium, High)	**Potential Funding Source(s)**
1, 3, 5	All Hazards	Provides a written plan for an emergency response.	High	Local funds, Staff time
Action/Implementation Plan and Project Description:				
Continue updates to Village's Emergency Operations Plan to meet all state and federal requirements and add local flood response planning. **2023 Status Update:** Ongoing and update completed in 2023				

Action 7.5.16.12

Mitigation Project: Pursue Mitigation Funds for Floodplain Structure Acquisition					
Year Initiated	**Applicable Jurisdiction**	**Lead Agency/ Organization**	**Priority and Level of Importance** (Low, Medium, High)	**Projected Completion Date** (Short-term, Long-term, or Ongoing)	**Estimated Cost & Analysis** (Low, Medium, High)
2018	Village of Lisle	Development Services & Public Works	High	Ongoing	Low
Applicable Goal(s)	**Hazard(s) Mitigated**	**Benefits** (Loss Avoided)		**Benefit Analysis** (Low, Medium, High)	**Potential Funding Source(s)**
2, 8	Flood	Reduce the cost of flooding on our community and flood insurance program.		High	Local funds, Staff time
Action/Implementation Plan and Project Description:					
Pursue mitigation funds to acquire additional floodplain residential structures. **2023 Status Update:** Ongoing					

Action 7.5.16.13

Mitigation Project: Public Outreach to Residents About Summer Watering Restrictions					
Year Initiated	**Applicable Jurisdiction**	**Lead Agency/ Organization**	**Priority and Level of Importance** (Low, Medium, High)	**Projected Completion Date** (Short-term, Long-term, or Ongoing)	**Estimated Cost & Analysis** (Low, Medium, High)

Mitigation Project: Public Outreach to Residents About Summer Watering Restrictions					
2018	Village of Lisle	Village Manager's Office & Public Works	Low	Ongoing	Low
Applicable Goal(s)	**Hazard(s) Mitigated**	**Benefits** (Loss Avoided)		**Benefit Analysis** (Low, Medium, High)	**Potential Funding Source(s)**
4, 7	Extreme Heat, Drought	Reducing water consumption, especially during periods of drought.		Low	Local funds, Staff time
Action/Implementation Plan and Project Description:					
Issue social media messages and newsletter reminders of Village water restrictions. **2023 Status Update:** Ongoing					

Action 7.5.16.14

Mitigation Project: Improvement to Tornado Sirens					
Year Initiated	**Applicable Jurisdiction**	**Lead Agency/ Organization**	**Priority and Level of Importance** (Low, Medium, High)	**Projected Completion Date** (Short-term, Long-term, or Ongoing)	**Estimated Cost & Analysis** (Low, Medium, High)
2018	Village of Lisle	Public Works	High	Ongoing	$2,000
Applicable Goal(s)	**Hazard(s) Mitigated**	**Benefits** (Loss Avoided)		**Benefit Analysis** (Low, Medium, High)	**Potential Funding Source(s)**
1, 4	Tornadoes, Severe Summer Weather	Ensures siren is operational during a tornado warning to allow time for people in the community to take cover.		High	Local funds, Staff time
Action/Implementation Plan and Project Description:					
Continue maintenance of Village owned tornado sirens. **2023 Status Update:** Ongoing					

Completed Mitigation Projects

Mitigation Project: Develop a Long-term Flood Mitigation and Levee Policy					
Year Initiated	**Applicable Jurisdiction**	**Lead Agency/ Organization**	**Priority and Level of Importance** (Low, Medium, High)	**Projected Completion Date** (Short-term, Long-term, or Ongoing)	**Estimated Cost & Analysis** (Low, Medium, High)
2018	Village of Lisle	Development Services & Public Works	-	-	Staff time
Applicable Goal(s)	**Hazard(s) Mitigated**	**Benefits** (Loss Avoided)		**Benefit Analysis** (Low, Medium, High)	**Potential Funding Source(s)**
-	-	Provide direction for Village budgeting and certainty for property owners protected by the levee.		-	-
Action/Implementation Plan and Project Description:					
Develop a long-term flood mitigation strategy and levee policy in coordination with DuPage County Stormwater Management and US Army Corps of Engineers. **2023 Status Update:** Executed Project Partnership Agreement with USACE for Lisle Levee Elevation Project					

Mitigation Project: Develop a Master Stormwater Plan and Associated Capital Improvements Program					
Year Initiated	**Applicable Jurisdiction**	**Lead Agency/ Organization**	**Priority and Level of Importance** (Low, Medium, High)	**Projected Completion Date** (Short-term, Long-term, or Ongoing)	**Estimated Cost & Analysis** (Low, Medium, High)
2018	Village of Lisle	Development Services & Public Works	-	-	Consultant fee and staff time
Applicable Goal(s)	**Hazard(s) Mitigated**	**Benefits** (Loss Avoided)		**Benefit Analysis** (Low, Medium, High)	**Potential Funding Source(s)**
-	-	Will provide direction for Village budgeting and certainty for property owners affected.		-	-
Action/Implementation Plan and Project Description:					

Mitigation Project: Develop a Master Stormwater Plan and Associated Capital Improvements Program
Collect data on existing stormwater and flooding concerns throughout the Village, develop solutions, cost estimates and prioritization for future resolution. **2023 Status Update:** Completed

Mitigation Project: Update Comprehensive Plan					
Year Initiated	**Applicable Jurisdiction**	**Lead Agency/ Organization**	**Priority and Level of Importance** (Low, Medium, High)	**Projected Completion Date** (Short-term, Long-term, or Ongoing)	**Estimated Cost & Analysis** (Low, Medium, High)
2018	Village of Lisle	Development Services	-	-	Consultant fee and staff time
Applicable Goal(s)	**Hazard(s) Mitigated**	**Benefits** (Loss Avoided)		**Benefit Analysis** (Low, Medium, High)	**Potential Funding Source(s)**
-	-	Avoids conflicting land use recommendations in the regulatory floodplain.		-	-
Action/Implementation Plan and Project Description:					
Comprehensive plan update addressing land use of the regulatory floodplain and coordination with the DuPage River Feasibility Study. **2023 Status Update:** RFP Issued, Consultant Awarded, Estimated Completion Date Summer 2023					

Mitigation Project: Establish Prioritization for Floodplain Acquisitions					
Year Initiated	**Applicable Jurisdiction**	**Lead Agency/ Organization**	**Priority and Level of Importance** (Low, Medium, High)	**Projected Completion Date** (Short-term, Long-term, or Ongoing)	**Estimated Cost & Analysis** (Low, Medium, High)
2018	Village of Lisle	Development Services & Public Works.	-	-	Staff time
Applicable Goal(s)	**Hazard(s) Mitigated**	**Benefits** (Loss Avoided)		**Benefit Analysis** (Low, Medium, High)	**Potential Funding Source(s)**
-	-	Creates a fair method of distributing funds when available for buyouts.		-	-

Mitigation Project: Establish Prioritization for Floodplain Acquisitions
Action/Implementation Plan and Project Description:
Establish a long-term prioritization method for implementing a floodplain acquisition program when funds are available, especially post-disaster funds. **2023 Status Update:** Local flood buyout program adopted by Village Board in 2022. Program initiated in 2023

Mitigation Project: Update Property Maintenance Code					
Year Initiated	**Applicable Jurisdiction**	**Lead Agency/ Organization**	**Priority and Level of Importance** (Low, Medium, High)	**Projected Completion Date** (Short-term, Long-term, or Ongoing)	**Estimated Cost & Analysis** (Low, Medium, High)
2018	Village of Lisle	Development Services	-	-	Staff time
Applicable Goal(s)	**Hazard(s) Mitigated**	**Benefits** (Loss Avoided)		**Benefit Analysis** (Low, Medium, High)	**Potential Funding Source(s)**
-	-	Ensures that buildings are better able to withstand severe weather events.		-	-
Action/Implementation Plan and Project Description:					
Update Property Maintenance Code to the latest I-code. **2023 Status Update:** The Village adopted the ICC codes in 2022.					

Mitigation Project: Develop a Sandbag Deployment Policy					
Year Initiated	**Applicable Jurisdiction**	**Lead Agency/ Organization**	**Priority and Level of Importance** (Low, Medium, High)	**Projected Completion Date** (Short-term, Long-term, or Ongoing)	**Estimated Cost & Analysis** (Low, Medium, High)
2018	Village of Lisle	Development Services & Public Works	-	-	Staff time
Applicable Goal(s)	**Hazard(s) Mitigated**	**Benefits** (Loss Avoided)		**Benefit Analysis** (Low, Medium, High)	**Potential Funding Source(s)**

Mitigation Project: Develop a Sandbag Deployment Policy				
-	-	Provides direction for staff during emergencies.	-	-
Action/Implementation Plan and Project Description:				
Develop a written sandbag deployment policy and maintain sandbag and barricade supplies. **2023 Status Update:** Completed, part of the Village's Emergency Operations Plan.				

Mitigation Project: Install Staff Gauge on East Branch DuPage River					
Year Initiated	**Applicable Jurisdiction**	**Lead Agency/ Organization**	**Priority and Level of Importance** (Low, Medium, High)	**Projected Completion Date** (Short-term, Long-term, or Ongoing)	**Estimated Cost & Analysis** (Low, Medium, High)
2018	Village of Lisle	Development Services & Public Works	-	-	$1,000 and staff time
Applicable Goal(s)	**Hazard(s) Mitigated**	**Benefits** (Loss Avoided)		**Benefit Analysis** (Low, Medium, High)	**Potential Funding Source(s)**
-	-	Better predictions of levee overtopping.		-	-
Action/Implementation Plan and Project Description:					
Install a staff gauge at Short Street bridge on East Branch DuPage River, downstream of St. Joseph Creek confluence. **2023 Status Update:** Completed. The USGS installed a stream gauge on the Short Street bridge over the East Branch.					

7.5.17 Lombard, Village

Action 7.5.17.1

Mitigation Project: Implement Detention Basin at 641 N Main Street					
Year Initiated	**Applicable Jurisdiction**	**Lead Agency/ Organization**	**Priority and Level of Importance** (Low, Medium, High)	**Projected Completion Date** (Short-term, Long-term, or Ongoing)	**Estimated Cost & Analysis** (Low, Medium, High)
2023	Village of Lombard	Village of Lombard	Medium	Short-term (December 31, 2024)	$2.05 million
Applicable Goal(s)	**Hazard(s) Mitigated**	**Benefits** (Loss Avoided)		**Benefit Analysis** (Low, Medium, High)	**Potential Funding Source(s)**
1, 2, 8	Flood	$0 (mitigating roadway + basement flooding, unquantified)		Medium	Village Sewer & Water Capital Fund
Action/Implementation Plan and Project Description:					
A new detention basin is currently under design at 641 N Main Street to reduce the frequency and depth of flooding on North Main Street and the neighborhood to the southwest. **2023 Status:** New Mitigation Action					

Action 7.5.17.2

Mitigation Project: Improvement to the Charles Lane Basin					
Year Initiated	**Applicable Jurisdiction**	**Lead Agency/ Organization**	**Priority and Level of Importance** (Low, Medium, High)	**Projected Completion Date** (Short-term, Long-term, or Ongoing)	**Estimated Cost & Analysis** (Low, Medium, High)
2023	Village of Lombard	Village of Lombard	Medium	Short-term (December 31, 2023)	$975,000
Applicable Goal(s)	**Hazard(s) Mitigated**	**Benefits** (Loss Avoided)		**Benefit Analysis** (Low, Medium, High)	**Potential Funding Source(s)**
1, 2	Flood	$0 (mitigating roadway flooding, unquantified)		Medium	Village Sewer & Water Capital Fund
Action/Implementation Plan and Project Description:					
The Charles Lane Basin is currently under re-design to further reduce the frequency and depth of flooding on Finley Road.					

Mitigation Project: Improvement to the Charles Lane Basin
2023 Status: New Mitigation Action

7.5.18 Naperville, City

Action 7.5.18.1

Mitigation Project: Replace Washington Street Bridge					
Year Initiated	**Applicable Jurisdiction**	**Lead Agency/ Organization**	**Priority and Level of Importance** (Low, Medium, High)	**Projected Completion Date** (Short-term, Long-term, or Ongoing)	**Estimated Cost & Analysis** (Low, Medium, High)
2023	Naperville	Engineering Services	High	Short-term	High
Applicable Goal(s)	**Hazard(s) Mitigated**	**Benefits** (Loss Avoided)		**Benefit Analysis** (Low, Medium, High)	**Potential Funding Source(s)**
1, 2, 8	All Hazards	Ensure first responders can utilize bridge		High	Local Funds, IDOT
Action/Implementation Plan and Project Description:					
Washington Street is an important thoroughfare through downtown Naperville. It is the only north-south route in the City that crosses both the BNSF railway tracks and the West Branch of the DuPage River. Being such a vital corridor, Washington Street sees a considerable amount of traffic. In addition to vehicular traffic, Washington Street is host to a variety of small businesses and recreational areas including Fredenhagen Park and the Naperville Riverwalk. At the center of downtown Naperville is the Washington Street bridge. Tens of thousands of vehicles traverse this bridge every single day. The structure, which is located between Aurora Avenue and Chicago Avenue, is more than 40 years old and it is in need of replacement due to its deteriorated condition. **2023 Status:** New Mitigation Action					

7.5.19 Oak Brook, Village

Action 7.5.19.1

Mitigation Project: Implement flood mitigation to properties adjacent to 22nd Street					
Year Initiated	**Applicable Jurisdiction**	**Lead Agency/ Organization**	**Priority and Level of Importance** (Low, Medium, High)	**Projected Completion Date** (Short-term, Long-term, or Ongoing)	**Estimated Cost & Analysis** (Low, Medium, High)
2023	Village of Oak Brook	Village of Oak Brook	Medium	Ongoing	High
Applicable Goal(s)	**Hazard(s) Mitigated**	**Benefits** (Loss Avoided)		**Benefit Analysis** (Low, Medium, High)	**Potential Funding Source(s)**
1, 2, 8	Flood	Mitigate flooding and avoid property damage		Medium	Local Funds, BRIC, HMGP
Action/Implementation Plan and Project Description:					
2023 Status: New Mitigation Action					

7.5.20 Oakbrook Terrace, City

Action 7.5.20.1

Mitigation Project: Implement Streambank Stabilization Program					
Year Initiated	**Applicable Jurisdiction**	**Lead Agency/ Organization**	**Priority and Level of Importance** (Low, Medium, High)	**Projected Completion Date** (Short-term, Long-term, or Ongoing)	**Estimated Cost & Analysis** (Low, Medium, High)
2023	City of Oakbrook Terrace	Engineering Department	Medium	Ongoing	Medium
Applicable Goal(s)	**Hazard(s) Mitigated**	**Benefits** (Loss Avoided)		**Benefit Analysis** (Low, Medium, High)	**Potential Funding Source(s)**
1, 2, 4, 6	Flood, Severe Summer Weather, Ground Failure			Medium	Local Funds
Action/Implementation Plan and Project Description:					
Salt Creek is prone to flooding as well as erosion in high volume areas. A yearly program is in place to stabilize the creek through native plantings and retaining walls. **2023 Status:** New Mitigation Action					

Action 7.5.20.2

Mitigation Project: Trim Tree Limbs Near Critical Infrastructure and Roads					
Year Initiated	**Applicable Jurisdiction**	**Lead Agency/ Organization**	**Priority and Level of Importance** (Low, Medium, High)	**Projected Completion Date** (Short-term, Long-term, or Ongoing)	**Estimated Cost & Analysis** (Low, Medium, High)
2023	City of Oakbrook Terrace	Public Works Department	Medium	Ongoing	Medium
Applicable Goal(s)	**Hazard(s) Mitigated**	**Benefits** (Loss Avoided)		**Benefit Analysis** (Low, Medium, High)	**Potential Funding Source(s)**
1, 2, 4, 6	Severe Summer Weather, Tornadoes			Medium	Local Funds
Action/Implementation Plan and Project Description:					

Mitigation Project: Trim Tree Limbs Near Critical Infrastructure and Roads
2023 Status: New Mitigation Action

7.5.21 Roselle, Village

Action 7.5.21.1

Mitigation Project: Seasons 4 Drainage Basin Improvements					
Year Initiated	**Applicable Jurisdiction**	**Lead Agency/ Organization**	**Priority and Level of Importance** (Low, Medium, High)	**Projected Completion Date** (Short-term, Long-term, or Ongoing)	**Estimated Cost & Analysis** (Low, Medium, High)
2023 (Initiated in 2021)	Village of Roselle	Village of Roselle	High	Long-term (2029, depending on funding)	$9 million
Applicable Goal(s)	**Hazard(s) Mitigated**	**Benefits** (Loss Avoided)		**Benefit Analysis** (Low, Medium, High)	**Potential Funding Source(s)**
1, 2, 8	Flood	This project will prevent structure flooding that occurs today during heavy rain events as well as reduce on street flooding which causes the closure of roadways and reduces access to homes.		High	BRIC, HMGP, Local Funds
Action/Implementation Plan and Project Description:					
Information was provided in the report to DuPage OHEM via email. **2023 Status:** New Mitigation Action					

Action 7.5.21.2

Mitigation Project: Devlin Drainage Basin Stormwater Improvements					
Year Initiated	**Applicable Jurisdiction**	**Lead Agency/ Organization**	**Priority and Level of Importance** (Low, Medium, High)	**Projected Completion Date** (Short-term, Long-term, or Ongoing)	**Estimated Cost & Analysis** (Low, Medium, High)

Mitigation Project: Devlin Drainage Basin Stormwater Improvements					
2023 (Was initiated in 2021)	Village of Roselle	Village of Roselle	High	Long-term (2029, depending on funding)	$7 million
Applicable Goal(s)	**Hazard(s) Mitigated**	**Benefits** (Loss Avoided)		**Benefit Analysis** (Low, Medium, High)	**Potential Funding Source(s)**
1, 2, 8	Flood	This project will reduce on street flooding which causes the closure of roadways and reduces access to homes and the Devlin Wastewater Treatment Plant		High	BRIC, HMGP, Local Funds
Action/Implementation Plan and Project Description:					
Information was provided in the report to DuPage OHEM via email. This project is vital to improving the stormwater flow to the only entrance of the Devlin Wastewater Treatment Plant. During heavy rainfall, access to the plant is not possible by vehicle due to waist-deep water at the gate. This does not allow the necessary equipment to enter or exit the critical facility, thus impacting the health and safety of residents. **2023 Status:** New Mitigation Action					

Action 7.5.21.3

Mitigation Project: Meacham Creek Drainage Basin Stormwater Improvements					
Year Initiated	**Applicable Jurisdiction**	**Lead Agency/ Organization**	**Priority and Level of Importance** (Low, Medium, High)	**Projected Completion Date** (Short-term, Long-term, or Ongoing)	**Estimated Cost & Analysis** (Low, Medium, High)
2023 (Was initiated in 2022)	Village of Roselle	Village of Roselle	High	Long-term (2029, depending on funding)	$13 million
Applicable Goal(s)	**Hazard(s) Mitigated**	**Benefits** (Loss Avoided)		**Benefit Analysis** (Low, Medium, High)	**Potential Funding Source(s)**
1, 2, 8	Flood	This project will prevent structure flooding that occurs today during heavy rain events as well as reduce on street flooding which causes the closure of roadways and reduces access to homes.		High	BRIC, HMGP, Local Funds
Action/Implementation Plan and Project Description:					
Information was provided in the report to DuPage OHEM via email.					

Mitigation Project: Meacham Creek Drainage Basin Stormwater Improvements
2023 Status: New Mitigation Action

Action 7.5.21.4

Mitigation Project: Install Wastewater Lift Station Backup Generators					
Year Initiated	**Applicable Jurisdiction**	**Lead Agency/ Organization**	**Priority and Level of Importance** (Low, Medium, High)	**Projected Completion Date** (Short-term, Long-term, or Ongoing)	**Estimated Cost & Analysis** (Low, Medium, High)
2023	Village of Roselle	Village of Roselle	High	Ongoing (as funding allows through 2030)	$1 million
Applicable Goal(s)	**Hazard(s) Mitigated**	**Benefits** (Loss Avoided)		**Benefit Analysis** (Low, Medium, High)	**Potential Funding Source(s)**
1, 2, 8	All Hazards	Power failures at these facilities can cause sanitary sewer backups in homes, businesses, and roadways.		High	BRIC, HMGP, Local Funds

Action/Implementation Plan and Project Description:

This project will install backup generators to power the pumps and control systems at 7 Village-owned wastewater lift stations. Power failures at these facilities can cause sanitary sewer backups in homes, businesses, and roadways.

- Roselle Center Lift Station - 1060 Stevenson Court
- Den Lift Station - 505 N Roselle Road
- Lincoln Lift Station - 560 Lincoln Street
- Chesapeake Lift Station - 200 West End Road
- Fall Circle Lift Station - 433 1/2 Fall Circle
- Sycamore Lift Station - 542 Sycamore Avenue
- Lake Park East Campus Lift Station - On High School Campus

2023 Status: New Mitigation Action

Action 7.5.21.5

Mitigation Project: Install Backup Generator at Devlin Wastewater Treatment Plant					
Year Initiated	**Applicable Jurisdiction**	**Lead Agency/ Organization**	**Priority and Level of Importance** (Low, Medium, High)	**Projected Completion Date** (Short-term, Long-term, or Ongoing)	**Estimated Cost & Analysis** (Low, Medium, High)
2023	Village of Roselle	Village of Roselle	High	Ongoing (2030 as funding allows)	$2 million
Applicable Goal(s)	**Hazard(s) Mitigated**	**Benefits** (Loss Avoided)		**Benefit Analysis** (Low, Medium, High)	**Potential Funding Source(s)**
1, 2, 8	All Hazards	Power failures at this facility can cause sanitary sewer backups in homes, businesses, and roadways or may result in the release of untreated wastewater into area streams.		High	BRIC, HMGP, Local Funds
Action/Implementation Plan and Project Description:					
This project will install a backup generator to power the Devlin Wastewater Treatment Plant. Power failures at this facility can cause sanitary sewer backups in homes, businesses, and roadways or the release of untreated wastewater into area streams. **2023 Status:** New Mitigation Action					

Action 7.5.21.6

Mitigation Project: Install Backup Generator at Botterman Wastewater Treatment Plant					
Year Initiated	**Applicable Jurisdiction**	**Lead Agency/ Organization**	**Priority and Level of Importance** (Low, Medium, High)	**Projected Completion Date** (Short-term, Long-term, or Ongoing)	**Estimated Cost & Analysis** (Low, Medium, High)
2023	Village of Roselle	Village of Roselle	High	Ongoing (2030 as funding allows)	$1.5 million
Applicable Goal(s)	**Hazard(s) Mitigated**	**Benefits** (Loss Avoided)		**Benefit Analysis** (Low, Medium, High)	**Potential Funding Source(s)**
1, 2, 8	All Hazards	Power failures at this facility can cause sanitary sewer backups in homes, businesses, and roadways or may result in the release of untreated wastewater into area streams.		High	BRIC, HMGP, Local Funds

Mitigation Project: Install Backup Generator at Botterman Wastewater Treatment Plant
Action/Implementation Plan and Project Description:
This project will install a backup generator to power the Botterman Wastewater Treatment Plant. Power failures at this facility can cause sanitary sewer backups in homes, businesses, and roadways or the release of untreated wastewater into area streams. **2023 Status:** New Mitigation Action

Action 7.5.21.7

Mitigation Project: Install Backup Generator at Roselle Public Works Building					
Year Initiated	**Applicable Jurisdiction**	**Lead Agency/ Organization**	**Priority and Level of Importance** (Low, Medium, High)	**Projected Completion Date** (Short-term, Long-term, or Ongoing)	**Estimated Cost & Analysis** (Low, Medium, High)
2023	Village of Roselle	Village of Roselle	High	Ongoing (2030 as funding allows)	$1 million
Applicable Goal(s)	**Hazard(s) Mitigated**	**Benefits** (Loss Avoided)		**Benefit Analysis** (Low, Medium, High)	**Potential Funding Source(s)**
1, 2, 8	All Hazards	Power failures at this facility limit the Village's ability to respond to other emergencies throughout the community.		High	BRIC, HMGP, Local Funds
Action/Implementation Plan and Project Description:					
This project will install a backup generator at the Roselle Public Works Department. The building has no backup power and during power outages, garage doors cannot be opened. This limits the ability of the Village to respond to emergencies in the community. Additionally, the Water Distribution System cannot be monitored through SCADA. **2023 Status:** New Mitigation Action					

Action 7.5.21.8

Mitigation Project: Install Backup Generators at Water Distribution Facility					
Year Initiated	**Applicable Jurisdiction**	**Lead Agency/ Organization**	**Priority and Level of Importance** (Low, Medium, High)	**Projected Completion Date** (Short-term, Long-term, or Ongoing)	**Estimated Cost & Analysis** (Low, Medium, High)
2023	Village of Roselle	Village of Roselle	High	Ongoing (as funding allows through 2030)	$1 million
Applicable Goal(s)	**Hazard(s) Mitigated**	**Benefits** (Loss Avoided)		**Benefit Analysis** (Low, Medium, High)	**Potential Funding Source(s)**
1, 2, 8	All Hazards	Power failures at these facilities can cause loss of water service in homes and businesses. This would also include the loss of pressure for fire flows.		High	BRIC, HMGP, Local Funds

Action/Implementation Plan and Project Description:

This project will install backup generators to power the pumps, controls, and other systems at the 7 Village-owned water distribution facilities. Power failures at these facilities can cause loss of water service in homes and businesses. This would also include the loss of pressure for fire flows.

- West Pressure Adjusting Station - 680 Mensching Road
- Central Pressure Adjusting Station - 5 N Roselle Road
- East Pressure Adjusting Station - 22W104 Irving Park Road
- Booster Pumping Station - 370 Summerfield Drive
- Ground Level Reservoir - 470 Summerfield Drive
- Elevated Tank 1 - 550 E Irving Park Road
- Elevated Tank 2 - 1800 W Central Avenue

2023 Status: New Mitigation Action

7.5.22 Villa Park, Village

Action 7.5.22.1

Mitigation Project: Construct/Expand New Flood Control Facility					
Year Initiated	**Applicable Jurisdiction**	**Lead Agency/ Organization**	**Priority and Level of Importance** (Low, Medium, High)	**Projected Completion Date** (Short-term, Long-term, or Ongoing)	**Estimated Cost & Analysis** (Low, Medium, High)
2023	Village of Villa Park	Village of Villa Park	High	Short-term (2024)	$9.88 million
Applicable Goal(s)	**Hazard(s) Mitigated**	**Benefits** (Loss Avoided)		**Benefit Analysis** (Low, Medium, High)	**Potential Funding Source(s)**
1, 2, 8	Flood, Severe Summer Weather	Protection of 60+ village homes against flood damages from a 100-year rain event		High	Village of Villa Park local funds; FEMA Pre-Disaster Mitigation (BRIC) grant funding; Community Development Block Grant – Disaster Recovery (CDBG-DR) grant funding.
Action/Implementation Plan and Project Description:					
The Village of Villa Park is in the process of constructing new flood control facilities or expanding existing flood control facilities, the total new and expanded volume of which is approximately 60 acre-feet. **2023 Status:** New Mitigation Action					

Action 7.5.22.2

Mitigation Project: Separation of Existing Sewer Mains					
Year Initiated	**Applicable Jurisdiction**	**Lead Agency/ Organization**	**Priority and Level of Importance** (Low, Medium, High)	**Projected Completion Date** (Short-term, Long-term, or Ongoing)	**Estimated Cost & Analysis** (Low, Medium, High)
2023	Village of Villa Park	Village of Villa Park	High	Long-term (2030)	$30 million
Applicable Goal(s)	**Hazard(s) Mitigated**	**Benefits** (Loss Avoided)		**Benefit Analysis** (Low, Medium, High)	**Potential Funding Source(s)**

Mitigation Project: Separation of Existing Sewer Mains				
1, 2, 8	Flood, Severe Summer Weather	Protection of the properties in a portion of the village comprising approximately 44% of its overall area from sewer backups and sewer surcharges resulting from heavy rain events and the presence of combined sewers.	High	Village of Villa Park local funds; IEPA revolving loan funds, Community Development Block Grant (CDBG) grant funding.
Action/Implementation Plan and Project Description:				
The Village of Villa Park is in the process of separating existing combined sewer mains. Of the approximately 31.1 total miles of previously and currently combined sewer mains, the village has already separated 26.5 miles, currently has 0.66 miles of sewer separation efforts under construction, has another 1.86 miles of proposed sewer separation efforts under design, and a remaining 2.07 miles of combined sewer separation efforts that still need to be addressed. **2023 Status:** New Mitigation Action				

Action 7.5.22.3

Mitigation Project: Implementation of Projects, Goals, and Recommendations Outlined in the Comprehensive Plan					
Year Initiated	**Applicable Jurisdiction**	**Lead Agency/ Organization**	**Priority and Level of Importance** (Low, Medium, High)	**Projected Completion Date** (Short-term, Long-term, or Ongoing)	**Estimated Cost & Analysis** (Low, Medium, High)
2018	Village of Villa Park	All participating agencies	High	Ongoing	The costs associated with this action item will be project specific.
Applicable Goal(s)	**Hazard(s) Mitigated**	**Benefits** (Loss Avoided)		**Benefit Analysis** (Low, Medium, High)	**Potential Funding Source(s)**
1, 2, 8	Flood	Implementation of the recommendations within Appendix – Chapter B would alleviate flooding and reduce stress on the combined sewer collection system.		High	Local Funds, BRIC, HMGP
Action/Implementation Plan and Project Description:					
The Village of Villa Park has dedicated resources towards research and plan development in areas of specific concern to the community. Specifically, Appendix - Chapter B of the Comprehensive Plan outlines study findings and recommendations for the combined sewer system. **2023 Status Update:** Ongoing					

Action 7.5.22.4

Mitigation Project: Implementation of Projects, Goals, and Recommendations Outlined in the Comprehensive Flood Plan					
Year Initiated	**Applicable Jurisdiction**	**Lead Agency/ Organization**	**Priority and Level of Importance** (Low, Medium, High)	**Projected Completion Date** (Short-term, Long-term, or Ongoing)	**Estimated Cost & Analysis** (Low, Medium, High)
2018	Village of Villa Park	All participating agencies	High	Ongoing	The costs associated with this action item will be project specific.
Applicable Goal(s)	**Hazard(s) Mitigated**	**Benefits** (Loss Avoided)		**Benefit Analysis** (Low, Medium, High)	**Potential Funding Source(s)**
1, 2, 8	Flood	Implementing the recommendations within this Plan will assist the community in achieving adequate protection against a 100-year flood event.		High	Local Funds, BRIC, HMGP
Action/Implementation Plan and Project Description:					
The Comprehensive Flood Plan, focusing on Storm Sewer System Analysis, uses research and calibrated computer models, to outline proposed drainage improvements projects including increased storm sewer sizes, constructing relief sewers, creating flood storage in open space, providing flood storage underground, and floodwalls. **2023 Status Update:** Ongoing					

Action 7.5.22.5

Mitigation Project: Implementation of Projects, Goals, and Recommendations Outlined in the Sugar Creek Watershed Plan					
Year Initiated	**Applicable Jurisdiction**	**Lead Agency/ Organization**	**Priority and Level of Importance** (Low, Medium, High)	**Projected Completion Date** (Short-term, Long-term, or Ongoing)	**Estimated Cost & Analysis** (Low, Medium, High)
2018	Village of Villa Park	All participating agencies	High	Ongoing	The costs associated with this action item will be project specific.
Applicable Goal(s)	**Hazard(s) Mitigated**	**Benefits** (Loss Avoided)		**Benefit Analysis** (Low, Medium, High)	**Potential Funding Source(s)**
1, 2, 8	Flood	The projects outlined within this Plan are expected to shorten the duration of flooding and provide a positive means for		High	Local Funds, BRIC, HMGP

Mitigation Project: Implementation of Projects, Goals, and Recommendations Outlined in the Sugar Creek Watershed Plan				
		water to leave the problem areas after inundation peaks have subsided.		
Action/Implementation Plan and Project Description:				
The Sugar Creek Watershed is located in DuPage County in the Villages of Villa Park and Lombard and the City of Elmhurst. There are a number of areas within the watershed that have a history of flooding. The flooding levels range from minor nuisance ponding to significant flooding that causes structural damage. **2023 Status Update:** Ongoing				

7.5.23 Warrenville, City

Action 7.5.23.1

Mitigation Project: Conduct Channel Stabilization and Improvement Restoration Along Ferry Creek					
Year Initiated	**Applicable Jurisdiction**	**Lead Agency/ Organization**	**Priority and Level of Importance** (Low, Medium, High)	**Projected Completion Date** (Short-term, Long-term, or Ongoing)	**Estimated Cost & Analysis** (Low, Medium, High)
2023 (Will be initiated in the Future)	City of Warrenville	City of Warrenville	High	Long-term	$1 million
Applicable Goal(s)	**Hazard(s) Mitigated**	**Benefits** (Loss Avoided)		**Benefit Analysis** (Low, Medium, High)	**Potential Funding Source(s)**
8	Flood	Stabilize the streambank to prevent loss of structures, retaining wall, and further erosion of bank.		High	BRIC, HMGP, Local Funds
Action/Implementation Plan and Project Description:					
Conduct channel stabilization, improvement, and restoration along Ferry Creek from Summerlakes Park to Route 56. **2023 Status:** New Mitigation Action					

Action 7.5.23.2

Mitigation Project: Install Additional Sewer to Increase Capacity of Storm Sewer Network					
Year Initiated	**Applicable Jurisdiction**	**Lead Agency/ Organization**	**Priority and Level of Importance** (Low, Medium, High)	**Projected Completion Date** (Short-term, Long-term, or Ongoing)	**Estimated Cost & Analysis** (Low, Medium, High)
2023	City of Warrenville	City of Warrenville	High	Short-term	$500,000
Applicable Goal(s)	**Hazard(s) Mitigated**	**Benefits** (Loss Avoided)		**Benefit Analysis** (Low, Medium, High)	**Potential Funding Source(s)**
8	Flood, Severe Summer Weather	Protect structures and property		High	BRIC, HMGP, Local Funds
Action/Implementation Plan and Project Description:					
Installing and increasing capacity of storm sewer network in the East Side neighborhood that typically has urban drainage issues due to lack of storm sewer network, detention ponds, and undersized storm sewers.					

Mitigation Project: Install Additional Sewer to Increase Capacity of Storm Sewer Network
2023 Status: New Mitigation Action

Action 7.5.23.3

Mitigation Project: Create an Urban Drainage Analysis					
Year Initiated	**Applicable Jurisdiction**	**Lead Agency/ Organization**	**Priority and Level of Importance** (Low, Medium, High)	**Projected Completion Date** (Short-term, Long-term, or Ongoing)	**Estimated Cost & Analysis** (Low, Medium, High)
2023	City of Warrenville	City of Warrenville	Low	Short-term	$100,000
Applicable Goal(s)	**Hazard(s) Mitigated**	**Benefits** (Loss Avoided)		**Benefit Analysis** (Low, Medium, High)	**Potential Funding Source(s)**
1, 8	Flood, Severe Summer Weather	Helps to formulate a plan to fix urban drainage issues		Medium	BRIC, HMGP, Local Funds
Action/Implementation Plan and Project Description:					
Creating an urban drainage analysis for City so that the City can be proactive in addressing issues rather than reactive. **2023 Status:** New Mitigation Action					

Action 7.5.23.4

Mitigation Project: Install Back-Up Generators at Lift Stations					
Year Initiated	**Applicable Jurisdiction**	**Lead Agency/ Organization**	**Priority and Level of Importance** (Low, Medium, High)	**Projected Completion Date** (Short-term, Long-term, or Ongoing)	**Estimated Cost & Analysis** (Low, Medium, High)
2023	City of Warrenville	City of Warrenville	Low	Ongoing	$60,000
Applicable Goal(s)	**Hazard(s) Mitigated**	**Benefits** (Loss Avoided)		**Benefit Analysis** (Low, Medium, High)	**Potential Funding Source(s)**
1, 2	Severe Summer Weather,	Prevent lift stations from losing power during storms		Medium	BRIC, HMGP, Local Funds

Mitigation Project: Install Back-Up Generators at Lift Stations				
	Severe Winter Weather			
Action/Implementation Plan and Project Description:				
Installation of back-up generators for lift stations to prevent sanitary sewer backup of residential services. **2023 Status:** New Mitigation Action				

Action 7.5.23.5

Mitigation Project: Conduct Channel Stabilization, Improvement and Restoration Along Ferry Creek					
Year Initiated	**Applicable Jurisdiction**	**Lead Agency/ Organization**	**Priority and Level of Importance** (Low, Medium, High)	**Projected Completion Date** (Short-term, Long-term, or Ongoing)	**Estimated Cost & Analysis** (Low, Medium, High)
2023	City of Warrenville	City of Warrenville Various HOAs	High	Long-term	$1 million
Applicable Goal(s)	**Hazard(s) Mitigated**	**Benefits** (Loss Avoided)		**Benefit Analysis** (Low, Medium, High)	**Potential Funding Source(s)**
8	Flood	Stabilize the streambank to prevent loss of structures, retaining wall, and further erosion of bank.		High	Grants, Local Funds
Action/Implementation Plan and Project Description:					
Conduct channel stabilization, improvement and restoration along Ferry Creek from Summerlakes Park to Route 56. **2023 Status:** New Mitigation Action					

7.5.24 Wayne, Village

Action 7.5.24.1

Mitigation Project: Install Backup Generator and Hookups for Village Hall and Police Station					
Year Initiated	**Applicable Jurisdiction**	**Lead Agency/ Organization**	**Priority and Level of Importance** (Low, Medium, High)	**Projected Completion Date** (Short-term, Long-term, or Ongoing)	**Estimated Cost & Analysis** (Low, Medium, High)
2023	Village of Wayne	Public Works Department	High	Short-term (Summer of 2023)	Medium
Applicable Goal(s)	**Hazard(s) Mitigated**	**Benefits** (Loss Avoided)		**Benefit Analysis** (Low, Medium, High)	**Potential Funding Source(s)**
1, 2, 4, 6, 7, 8	All Hazards	This generator will allow the Village to function during and after hazardous events.		High	Local Funds
Action/Implementation Plan and Project Description:					
Install Backup Generator and Hookups for Village Hall and Police Station. **2023 Status:** New Mitigation Action					

Action 7.5.24.2

Mitigation Project: Trim Tree Limbs Near Critical Infrastructure and Roads					
Year Initiated	**Applicable Jurisdiction**	**Lead Agency/ Organization**	**Priority and Level of Importance** (Low, Medium, High)	**Projected Completion Date** (Short-term, Long-term, or Ongoing)	**Estimated Cost & Analysis** (Low, Medium, High)
2023	Village of Wayne	Public Works Department	Medium	Ongoing	Low
Applicable Goal(s)	**Hazard(s) Mitigated**	**Benefits** (Loss Avoided)		**Benefit Analysis** (Low, Medium, High)	**Potential Funding Source(s)**
1, 2, 4, 6	Severe Summer Weather, Tornadoes	Minimize damage during high intensity weather events		Medium	Local Funds
Action/Implementation Plan and Project Description:					
2023 Status: New Mitigation Action					

7.5.25 West Chicago, City

Action 7.5.25.1

Mitigation Project: Join Illinois Public Works Mutual Aid Network					
Year Initiated	**Applicable Jurisdiction**	**Lead Agency/ Organization**	**Priority and Level of Importance** (Low, Medium, High)	**Projected Completion Date** (Short-term, Long-term, or Ongoing)	**Estimated Cost & Analysis** (Low, Medium, High)
2023	West Chicago	Public Works	High	Short-term (2023)	Low
Applicable Goal(s)	**Hazard(s) Mitigated**	**Benefits** (Loss Avoided)		**Benefit Analysis** (Low, Medium, High)	**Potential Funding Source(s)**
3, 5	All Hazards	Increase coordination and collaboration		Medium	Local Funds
Action/Implementation Plan and Project Description:					
On February 20, 2023, the City Council approved the membership to join the Illinois Public Works Mutual Aid Network (IPWMAN) which is a statewide public works mutual aid network. **2023 Status:** New Mitigation Action					

Action 7.5.25.2

Mitigation Project: Conduct Drainage System Improvements					
Year Initiated	**Applicable Jurisdiction**	**Lead Agency/ Organization**	**Priority and Level of Importance** (Low, Medium, High)	**Projected Completion Date** (Short-term, Long-term, or Ongoing)	**Estimated Cost & Analysis** (Low, Medium, High)
2023	West Chicago	Public Works	High	Ongoing	Medium
Applicable Goal(s)	**Hazard(s) Mitigated**	**Benefits** (Loss Avoided)		**Benefit Analysis** (Low, Medium, High)	**Potential Funding Source(s)**
2, 8	Flood, Severe Summer Weather	Mitigate effects of severe weather and flooding		Medium	Local Funds, Grants
Action/Implementation Plan and Project Description:					
The City's Public Works Department has introduced a preventative cleaning and jetting program for its entire storm sewer conveyance system pipe network. The goal of this program is to ensure the system is functional as designed by removing all blockages. Going forward, the Public Works Department will also make any improvements necessary when identified in the system to ensure proper conveyance.					

Mitigation Project: Conduct Drainage System Improvements
2023 Status: New Mitigation Action

Action 7.5.25.3

Mitigation Project: Implement Tree Trimming Program					
Year Initiated	**Applicable Jurisdiction**	**Lead Agency/ Organization**	**Priority and Level of Importance** (Low, Medium, High)	**Projected Completion Date** (Short-term, Long-term, or Ongoing)	**Estimated Cost & Analysis** (Low, Medium, High)
2023	West Chicago	Public Works	High	Ongoing	Medium
Applicable Goal(s)	**Hazard(s) Mitigated**	**Benefits** (Loss Avoided)		**Benefit Analysis** (Low, Medium, High)	**Potential Funding Source(s)**
1, 2, 8	Severe Summer Weather, Severe Winter Weather, Tornadoes	Mitigate effects of severe weather and power outages		Medium	Local Funds
Action/Implementation Plan and Project Description:					
The City's Public Works Department has an annual parkway tree trimming program to ensure proper growth of the trees. One of the other goals of this program is to remove hazardous branches that can fall on power lines that can cause power failures. The Public Works Department also works along with ComEd and its forestry team to ensure proper trimming around power lines. The Public Works Department, as part of its ongoing effort to reduce power line damage, has identified specific underwire trees which will not grow as tall to prevent conflicts with power lines. **2023 Status:** New Mitigation Action					

Action 7.5.25.4

Mitigation Project: Develop and Implement a Preventative Maintenance and Improvement Program					
Year Initiated	**Applicable Jurisdiction**	**Lead Agency/ Organization**	**Priority and Level of Importance** (Low, Medium, High)	**Projected Completion Date** (Short-term, Long-term, or Ongoing)	**Estimated Cost & Analysis** (Low, Medium, High)
2023	West Chicago	Public Works	High	Ongoing	Medium

Mitigation Project: Develop and Implement a Preventative Maintenance and Improvement Program				
Applicable Goal(s)	**Hazard(s) Mitigated**	**Benefits** (Loss Avoided)	**Benefit Analysis** (Low, Medium, High)	**Potential Funding Source(s)**
1, 2, 8	Flood, Severe Summer Weather, Severe Winter Weather	Mitigate effects of severe weather, flood, and power outages	Medium	Local Funds
Action/Implementation Plan and Project Description:				
Currently, all of the City's well houses, water treatment plant, and critical lift stations are equipped with onsite generators in the event of a power failure. The Public Works Department also has a portable backup generator, as well as alarms at all of these critical facilities through its SCADA system. The department is looking to introduce a preventative maintenance and improvement program for all the generators by performing bi-annual inspections and load bank testing. **2023 Status:** New Mitigation Action				

7.5.26 Westmont, Village

Action 7.5.26.1

Mitigation Project: Obtain Generators for Critical Infrastructure					
Year Initiated	**Applicable Jurisdiction**	**Lead Agency/ Organization**	**Priority and Level of Importance** (Low, Medium, High)	**Projected Completion Date** (Short-term, Long-term, or Ongoing)	**Estimated Cost & Analysis** (Low, Medium, High)
2023	Village of Westmont	Emergency Management / Fire Department	Medium	Short-term (2025)	Medium
Applicable Goal(s)	**Hazard(s) Mitigated**	**Benefits** (Loss Avoided)		**Benefit Analysis** (Low, Medium, High)	**Potential Funding Source(s)**
1, 2, 3, 4	Severe Summer Weather, Severe Winter Weather, Tornadoes, Extreme Heat, Earthquakes	Protection of Life and Property for Senior Living Facilities		Medium	Local Funds, HMGP
Action/Implementation Plan and Project Description:					
For us to be able to achieve this Mitigation Action we would need Federal and / or State Grants. The locations that would need to be updated are: 501 N. Cass Avenue; 1600-1691 35th Street; 1725 35th Street. **2023 Status:** New Mitigation Action					

Action 7.5.26.2

Mitigation Project: Create a Program to Manage Extreme Heat/Cold Events					
Year Initiated	**Applicable Jurisdiction**	**Lead Agency/ Organization**	**Priority and Level of Importance** (Low, Medium, High)	**Projected Completion Date** (Short-term, Long-term, or Ongoing)	**Estimated Cost & Analysis** (Low, Medium, High)
2023	Village of Westmont	Emergency Management / Fire Department	Low	Short-term (2025)	$10,000

Mitigation Project: Create a Program to Manage Extreme Heat/Cold Events				
Applicable Goal(s)	**Hazard(s) Mitigated**	**Benefits** (Loss Avoided)	**Benefit Analysis** (Low, Medium, High)	**Potential Funding Source(s)**
1, 2, 3, 4	Severe Winter Weather, Extreme Heat	Life safety during extreme temperature events.	Low	Federal and / or Local Grants
Action/Implementation Plan and Project Description:				
Ensure that a local plan is in place to manage extreme heat/cold events within the village. With this plan we can ensure that adequate shelter facilities with properly trained coordinators and/or managers can address the needs of at-risk populations such as the elderly, the homeless, the disabled and families. **2023 Status:** New Mitigation Action				

7.5.27 Wheaton, City

Action 7.5.27.1

Mitigation Project: Bridge Replacement at Creekside Drive and Stonebridge Trail					
Year Initiated	**Applicable Jurisdiction**	**Lead Agency/ Organization**	**Priority and Level of Importance** (Low, Medium, High)	**Projected Completion Date** (Short-term, Long-term, or Ongoing)	**Estimated Cost & Analysis** (Low, Medium, High)
2023	City of Wheaton	City of Wheaton Public Works	Medium	Long-term	$1.8 million
Applicable Goal(s)	**Hazard(s) Mitigated**	**Benefits** (Loss Avoided)		**Benefit Analysis** (Low, Medium, High)	**Potential Funding Source(s)**
1, 2, 3, 4, 5, 8	Flood, Severe Summer Weather, Severe Winter Weather, Tornadoes, Ground Failure, High Hazard Dams	Replacing both structures will provide adequate strength to sustain loadings from all vehicle types and reduce the maintenance and inspection intervals.		Medium	BRIC, HMGP, Local Funds
Action/Implementation Plan and Project Description:					
Creekside and Stonebridge Trail bridge structures are inspected on an annual cycle. The components inspected include the timber pile supports which absorb loads from passing vehicles. Built in the late 1960's the existing piles have developed section loss which impacts the ability to support the structure. Replacement of the structure will allow for all vehicles to cross the creek at both locations and increase the inspection intervals to 48 months rather than a 12-month basis. **2023 Status:** New Mitigation Action					

Action 7.5.27.2

Mitigation Project: Relocate Sanitary Sewer Main at Kingston St and College Ave					
Year Initiated	**Applicable Jurisdiction**	**Lead Agency/ Organization**	**Priority and Level of Importance** (Low, Medium, High)	**Projected Completion Date** (Short-term, Long-term, or Ongoing)	**Estimated Cost & Analysis** (Low, Medium, High)
2023 (Initiated in 2018)	City of Wheaton	City of Wheaton Public Works	High	Long-term	$20 million

Mitigation Project: Relocate Sanitary Sewer Main at Kingston St and College Ave				
Applicable Goal(s)	**Hazard(s) Mitigated**	**Benefits** (Loss Avoided)	**Benefit Analysis** (Low, Medium, High)	**Potential Funding Source(s)**
1, 2, 3, 4, 5, 6, 7, 8	All Hazards	The relocation of this sewer main will make it more accessible for future maintenance. One of the current sewer mains is located beneath a building and any emergency excavation will be challenging.	High	BRIC, HMGP, Local Funds
Action/Implementation Plan and Project Description:				
Relocation of 300 feet of 8-inch sanitary sewer main at Kingston St and College Ave. The current sanitary sewer main must be removed and relocated to clean up contaminated soils by a private business. The sewer main will then be relocated to an existing easement and right-of-way. **2023 Status:** New Mitigation Action				

Action 7.5.27.3

Mitigation Project: Replace Basin 3 and 4 Discharge Pipes from Illinois Street/Willow Street to the Southside Interceptor					
Year Initiated	**Applicable Jurisdiction**	**Lead Agency/ Organization**	**Priority and Level of Importance** (Low, Medium, High)	**Projected Completion Date** (Short-term, Long-term, or Ongoing)	**Estimated Cost & Analysis** (Low, Medium, High)
2023 (Initiated in 2020)	City of Wheaton	City of Wheaton Public Works	High	Long-term	$2 million
Applicable Goal(s)	**Hazard(s) Mitigated**	**Benefits** (Loss Avoided)		**Benefit Analysis** (Low, Medium, High)	**Potential Funding Source(s)**
1, 2, 3, 4, 5, 6, 7, 8	All Hazards	Replacement of the Basin 3 and 4 discharge pipes will reduce operating expenses by reducing the cleaning frequency for these sewer mains (annually vs every 5 years).		High	BRIC, HMGP, Local Funds
Action/Implementation Plan and Project Description:					
Replace the Basin 3 and 4 discharge pipes from Illinois Street/Willow Street to the Southside Interceptor (SSI), approximately 2500 feet. When the SSI was installed, the depth of the new pipe at the upstream end was installed approximately five feet deeper than the old pipe. The City can take advantage of this additional elevation by installing a new discharge, from Basin 3 and 4, at an adequate slope. Sections of the current pipe are flat or back-pitched and do not maintain self-cleansing velocities. A new pipe installed at an adequate slope will increase the flow out of					

Mitigation Project: Replace Basin 3 and 4 Discharge Pipes from Illinois Street/Willow Street to the Southside Interceptor
Basin 3 and 4 reducing overflows and backups in the area. Grouting and public sector improvements will be utilized in Basin 5 and 6 to reduce I&I. **2023 Status:** New Mitigation Action

Action 7.5.27.4

Mitigation Project: Remove Excessive Sediment Filling the North Main Street Channel					
Year Initiated	**Applicable Jurisdiction**	**Lead Agency/ Organization**	**Priority and Level of Importance** (Low, Medium, High)	**Projected Completion Date** (Short-term, Long-term, or Ongoing)	**Estimated Cost & Analysis** (Low, Medium, High)
2023 (Initiated in 2017)	City of Wheaton	City of Wheaton Public Works	High	Ongoing	$1 million
Applicable Goal(s)	**Hazard(s) Mitigated**	**Benefits** (Loss Avoided)		**Benefit Analysis** (Low, Medium, High)	**Potential Funding Source(s)**
1, 2, 3, 4, 5, 6, 7, 8	All Hazards	The result of dredging will reduce immediate maintenance costs for Public Works personnel to remove debris from the top surface.		High	BRIC, HMGP, Local Funds
Action/Implementation Plan and Project Description:					
The culvert spanning North Main Street at Winfield Creek was replaced in 2013 to reduce the frequency of roadway closures during a record rain event. This work included re-shaping the channel and adding a hard surface bottom to assist with removal of sediment in the future. Excess sediment is deposited in the channel since being constructed and requires removal to ensure unobstructed conveyance of storm water downstream and to minimize the frequency of storm water overtopping the roadway. **2023 Status:** New Mitigation Action					

Action 7.5.27.5

Mitigation Project: Creek Channel Cleaning					
Year Initiated	**Applicable Jurisdiction**	**Lead Agency/ Organization**	**Priority and Level of Importance** (Low, Medium, High)	**Projected Completion Date** (Short-term, Long-term, or Ongoing)	**Estimated Cost & Analysis** (Low, Medium, High)

Mitigation Project: Creek Channel Cleaning					
2023 (Initiated in 2020)	City of Wheaton	City of Wheaton Public Works	High	Ongoing	$1 million
Applicable Goal(s)	**Hazard(s) Mitigated**	**Benefits** (Loss Avoided)		**Benefit Analysis** (Low, Medium, High)	**Potential Funding Source(s)**
1, 2, 3, 4, 5, 6, 7, 8	All Hazards	$50,000 per year after initial clearing services are rendered.		High	BRIC, HMGP, Local Funds
Action/Implementation Plan and Project Description:					
The responsibility of maintenance to the creek channels is unclear and not managed. Channels should be unblocked and free-flowing in order to serve residents with a functional storm sewer network and prevent flooding. Currently, the Sewer Division monitors debris and fallen trees in strategic locations and responds on an as-needed basis to address complaints and incidents. **2023 Status:** New Mitigation Action					

Action 7.5.27.6

Mitigation Project: Ditch Improvement					
Year Initiated	**Applicable Jurisdiction**	**Lead Agency/ Organization**	**Priority and Level of Importance** (Low, Medium, High)	**Projected Completion Date** (Short-term, Long-term, or Ongoing)	**Estimated Cost & Analysis** (Low, Medium, High)
2023 (Initiated in 2020)	City of Wheaton	City of Wheaton Public Works	High	Long-term	$1.5 million
Applicable Goal(s)	**Hazard(s) Mitigated**	**Benefits** (Loss Avoided)		**Benefit Analysis** (Low, Medium, High)	**Potential Funding Source(s)**
1, 2, 3, 4, 5, 6, 7, 8	All Hazards	Ditch maintenance would lead to a longer life span for adjacent street pavement.		High	Grants
Action/Implementation Plan and Project Description:					
Supports Strategic Priority 2: The City has over 21 miles of ditches that have not been maintained for, in some cases, for over 50 years. Ditches are the official stormwater conveyance device for rural cross section streets and act like a storm sewer pipe would on a curb and gutter street. The need for improvements is crucial and will not only have a positive impact on stagnated water in the right-of-way, but will most notably have a significant improvement in roadway life. **2023 Status:** New Mitigation Action					

Action 7.5.27.7

Mitigation Project: Reduce Overland Flooding Into Structures in Flood Prone Areas					
Year Initiated	**Applicable Jurisdiction**	**Lead Agency/ Organization**	**Priority and Level of Importance** (Low, Medium, High)	**Projected Completion Date** (Short-term, Long-term, or Ongoing)	**Estimated Cost & Analysis** (Low, Medium, High)
2023 (Initiated in 2020)	City of Wheaton	City of Wheaton Public Works	High	Long-term	$15 million
Applicable Goal(s)	**Hazard(s) Mitigated**	**Benefits** (Loss Avoided)		**Benefit Analysis** (Low, Medium, High)	**Potential Funding Source(s)**
1, 2, 3, 4, 5, 6, 7, 8	All Hazards	Storm response will still be necessary but will be at a reduced frequency decreasing staff time spent. The new infrastructure installed will require ongoing maintenance.		High	Grants
Action/Implementation Plan and Project Description:					
Strategic Priority 2: Enhanced Infrastructure, Goal B.1 is: Apply best practices to prevent recurring overland flooding of structures in identified flood-prone and flood-plain areas. The capital projects identified as quality projects as per the City of Wheaton Flood Resiliency Investigation are the best practice proposed to reduce or eliminate overland flooding into structures in their respective Flood Prone Area. Some Flood Prone Areas do not have an identified quality project and as such will need Buyouts or Floodproofing to achieve Strategic Priority 2 Goal B.1. **2023 Status:** New Mitigation Action					

Action 7.5.27.8

Mitigation Project: Rehabilitation of Spring Brook #1 (formally known as Union Drainage Ditch #1)					
Year Initiated	**Applicable Jurisdiction**	**Lead Agency/ Organization**	**Priority and Level of Importance** (Low, Medium, High)	**Projected Completion Date** (Short-term, Long-term, or Ongoing)	**Estimated Cost & Analysis** (Low, Medium, High)
2023 (Initiated in 2020)	City of Wheaton	City of Wheaton Public Works	High	Long-term	$12 million
Applicable Goal(s)	**Hazard(s) Mitigated**	**Benefits** (Loss Avoided)		**Benefit Analysis** (Low, Medium, High)	**Potential Funding Source(s)**
1, 2, 3, 4, 5, 6, 7, 8	All Hazards	Rehabilitation of the Spring Brook #1 will allow the storm sewer maintenance costs to remain manageable in the coming		High	Grants

Mitigation Project: Rehabilitation of Spring Brook #1 (formally known as Union Drainage Ditch #1)				
		decades and prevent increased maintenance costs in the future.		
Action/Implementation Plan and Project Description:				
Included would be the removal of a large quantity of woody vegetation, dredging of the channel, re-stabilization of the banks, and changes to the characteristic. Spring Brook #1 was created in the 1890's as a man-made channel for the purpose of conveying storm water to the West Branch of the DuPage River. It has a tributary watershed encompassing approximately half of the City of Wheaton and records show it was last dredged in 1952. Spring Brook #1 has issues of stream bank erosion and siltation, and current estimates range between two (2') and four (4') feet of sediment has accumulated for most of the channel between Atten Park Farm Bridge and the Kelly Park Headwall. Continued deferral of any maintenance could eventually dramatically reduce upstream storm sewer capacity and increase flooding upstream near downtown Wheaton. **2023 Status:** New Mitigation Action				

Action 7.5.27.9

Mitigation Project: Remove Excessive Sediment Filling the East Lake System					
Year Initiated	**Applicable Jurisdiction**	**Lead Agency/ Organization**	**Priority and Level of Importance** (Low, Medium, High)	**Projected Completion Date** (Short-term, Long-term, or Ongoing)	**Estimated Cost & Analysis** (Low, Medium, High)
2023 (Initiated in 2020)	City of Wheaton	City of Wheaton Public Works	High	Long-term	$1 million
Applicable Goal(s)	**Hazard(s) Mitigated**	**Benefits** (Loss Avoided)		**Benefit Analysis** (Low, Medium, High)	**Potential Funding Source(s)**
1, 2, 3, 4, 5, 6, 7, 8	All Hazards	The result of dredging will reduce immediate maintenance costs for Public Works personnel to remove debris from the top surface.		High	Grants
Action/Implementation Plan and Project Description:					
The east lake of the Streams Subdivision accumulates excessive sediment over half the lake system at the location where velocities decrease in the channel. The build-up of sediment causes issues with storm water conveyance, water quality impairments and odor from decay of organic sediment which impact residents living adjacent to the lake. The lake system was last dredged in 2016. **2023 Status:** New Mitigation Action					

Action 7.5.27.10

Mitigation Project: Reinforce Detention/Retention Facilities					
Year Initiated	**Applicable Jurisdiction**	**Lead Agency/ Organization**	**Priority and Level of Importance** (Low, Medium, High)	**Projected Completion Date** (Short-term, Long-term, or Ongoing)	**Estimated Cost & Analysis** (Low, Medium, High)
2023 (Initiated in 2020)	City of Wheaton	City of Wheaton Public Works	High	Long-term	$15 million
Applicable Goal(s)	**Hazard(s) Mitigated**	**Benefits** (Loss Avoided)		**Benefit Analysis** (Low, Medium, High)	**Potential Funding Source(s)**
1, 2, 3, 4, 5, 6, 7, 8	All Hazards	Reinforce the City's infrastructure of flood water breaking through levies and walls.		High	Grants
Action/Implementation Plan and Project Description:					
2023 Status: New Mitigation Action					

Action 7.5.27.11

Mitigation Project: Replace Damaged Overhead Power Lines With Buried Power Lines					
Year Initiated	**Applicable Jurisdiction**	**Lead Agency/ Organization**	**Priority and Level of Importance** (Low, Medium, High)	**Projected Completion Date** (Short-term, Long-term, or Ongoing)	**Estimated Cost & Analysis** (Low, Medium, High)
2023	City of Wheaton	City of Wheaton Public Works	Medium	Long-term	$5 million
Applicable Goal(s)	**Hazard(s) Mitigated**	**Benefits** (Loss Avoided)		**Benefit Analysis** (Low, Medium, High)	**Potential Funding Source(s)**
1, 2, 3, 4, 5, 6, 7, 8	All Hazards	Mitigate power outages		High	Grants and General Funds
Action/Implementation Plan and Project Description:					
2023 Status: New Mitigation Action					

7.5.28 Willowbrook, Village

Action 7.5.28.1

Mitigation Project: Stormwater Improvement on Executive Drive					
Year Initiated	**Applicable Jurisdiction**	**Lead Agency/ Organization**	**Priority and Level of Importance** (Low, Medium, High)	**Projected Completion Date** (Short-term, Long-term, or Ongoing)	**Estimated Cost & Analysis** (Low, Medium, High)
2023	Village of Willowbrook	Village of Willowbrook	High	Short-term (2023)	$2.3 million
Applicable Goal(s)	**Hazard(s) Mitigated**	**Benefits** (Loss Avoided)		**Benefit Analysis** (Low, Medium, High)	**Potential Funding Source(s)**
1, 2, 8	Flood	Roadway will no longer be impassable for days at a time. several feet of water collect on two roadways which causes businesses to shut down and prevents emergency vehicles from reaching businesses		High	Bond
Action/Implementation Plan and Project Description:					
We are removing 1400ft of Executive Dr and all of Plaza Ct. Excavating 8-10 feet below grade and adding 6in rock. This will create compensatory storage under the roadway and alleviate flooding of the street itself. **2023 Status:** New Mitigation Action					

Action 7.5.28.2

Mitigation Project: Willow Manor Stormwater Project					
Year Initiated	**Applicable Jurisdiction**	**Lead Agency/ Organization**	**Priority and Level of Importance** (Low, Medium, High)	**Projected Completion Date** (Short-term, Long-term, or Ongoing)	**Estimated Cost & Analysis** (Low, Medium, High)
2023	Village of Willowbrook	Village of Willowbrook	High	Short-term (2026)	$2.9 million
Applicable Goal(s)	**Hazard(s) Mitigated**	**Benefits** (Loss Avoided)		**Benefit Analysis** (Low, Medium, High)	**Potential Funding Source(s)**
1, 2, 3, 8	Flood	Eliminate flooding issues from 6 residential streets. 80 homes in this area		High	Bond

Mitigation Project: Willow Manor Stormwater Project				
		see standing water for a majority of the year in front of their home		
Action/Implementation Plan and Project Description:				
All ditch culverts are undersized and pitched incorrectly. Ditches are flat, holding water and breeding grounds for mosquitos. Replacing all culverts, adding storm lines to the ditches and backfilling will eliminate all safety issues with standing water in these ditches. **2023 Status:** New Mitigation Action				

7.5.29 Winfield, Village

Action 7.5.29.1

Mitigation Project: Flood Prone Property Buyouts					
Year Initiated	**Applicable Jurisdiction**	**Lead Agency/ Organization**	**Priority and Level of Importance** (Low, Medium, High)	**Projected Completion Date** (Short-term, Long-term, or Ongoing)	**Estimated Cost & Analysis** (Low, Medium, High)
2023 (Initiated in 2015)	Village of Winfield	Village of Winfield	High	Ongoing	$400,000 per buyout
Applicable Goal(s)	**Hazard(s) Mitigated**	**Benefits** (Loss Avoided)		**Benefit Analysis** (Low, Medium, High)	**Potential Funding Source(s)**
8	Flood	The removal of flood prone property from the floodplain/floodway will reduce the repetitive losses paid out by FEMA.		High	BRIC, HMGP, Local Funds
Action/Implementation Plan and Project Description:					
There are several residential properties in the floodway that the Village would like to remove. We budget for buyouts every year, and if we do not complete a buyout that money rolls over to the next year and additional money is added. **2023 Status:** New Mitigation Action					

Action 7.5.29.2

Mitigation Project: Construct and Implement a Storm Shelter					
Year Initiated	**Applicable Jurisdiction**	**Lead Agency/ Organization**	**Priority and Level of Importance** (Low, Medium, High)	**Projected Completion Date** (Short-term, Long-term, or Ongoing)	**Estimated Cost & Analysis** (Low, Medium, High)
2023 (Initiated in 2022)	Village of Winfield	Village of Winfield	High	Short-term	High
Applicable Goal(s)	**Hazard(s) Mitigated**	**Benefits** (Loss Avoided)		**Benefit Analysis** (Low, Medium, High)	**Potential Funding Source(s)**
1	Severe Summer Weather, Tornadoes	Provide a shelter for a limited number of residents		High	Local funds
Action/Implementation Plan and Project Description:					
The Village is planning a new police facility/municipal center which will include a storm shelter.					

Mitigation Project: Construct and Implement a Storm Shelter
2023 Status: New Mitigation Action

7.5.30 Wood Dale, City

Action 7.5.30.1

Mitigation Project: Floodplain Property Buyout					
Year Initiated	**Applicable Jurisdiction**	**Lead Agency/ Organization**	**Priority and Level of Importance** (Low, Medium, High)	**Projected Completion Date** (Short-term, Long-term, or Ongoing)	**Estimated Cost & Analysis** (Low, Medium, High)
2023 (Initiated in 2022)	City of Wood Dale	Public Works Department	Medium	Short-term (2023)	$1,100,000
Applicable Goal(s)	**Hazard(s) Mitigated**	**Benefits** (Loss Avoided)		**Benefit Analysis** (Low, Medium, High)	**Potential Funding Source(s)**
1, 5, 8	Flood	Reduce structural damage and public health concerns related to reoccurring flooding along Salt Creek.		Medium	BRIC, HMGP, Local Funds
Action/Implementation Plan and Project Description:					
The city will continue with the targeted buyout of properties within the floodplain. Purchasing and demolishing these properties and returning them to greenspace eliminates the risk of structural damage and public health concerns raised by reoccurring flooding. Funding has been awarded through the Hazard Mitigation Grant Program administered by IEMA. **2023 Status:** New Mitigation Action					

Action 7.5.30.2

Mitigation Project: Stormwater Infrastructure Improvements					
Year Initiated	**Applicable Jurisdiction**	**Lead Agency/ Organization**	**Priority and Level of Importance** (Low, Medium, High)	**Projected Completion Date** (Short-term, Long-term, or Ongoing)	**Estimated Cost & Analysis** (Low, Medium, High)
2023 (Initiated in 2022)	City of Wood Dale	Public Works Department	High	Short-term (2028)	$5 million

Mitigation Project: Stormwater Infrastructure Improvements				
Applicable Goal(s)	**Hazard(s) Mitigated**	**Benefits** (Loss Avoided)	**Benefit Analysis** (Low, Medium, High)	**Potential Funding Source(s)**
1, 2, 8	Flood	Reduce hazards associated with flash flooding.	High	BRIC, HMGP, Local Funds
Action/Implementation Plan and Project Description:				
In 2022 the city initiated a Storm Water Improvement Study to identify specific areas in the City's 1st ward prone to flash flooding during typical rain events. The Study identified 5 areas and proposed mitigation projects to be included in the City's Capital Improvement Plan. **2023 Status:** New Mitigation Action				

7.5.31 Woodridge, Village

Action 7.5.31.1

Mitigation Project: Facilitate Study and Install Generator					
Year Initiated	**Applicable Jurisdiction**	**Lead Agency/ Organization**	**Priority and Level of Importance** (Low, Medium, High)	**Projected Completion Date** (Short-term, Long-term, or Ongoing)	**Estimated Cost & Analysis** (Low, Medium, High)
2023 (Initiated in 2022)	Village of Woodridge	Village of Woodridge	High	Short-term (2025)	$225,000
Applicable Goal(s)	**Hazard(s) Mitigated**	**Benefits** (Loss Avoided)		**Benefit Analysis** (Low, Medium, High)	**Potential Funding Source(s)**
2	Severe Summer Weather, Severe Winter Weather, Extreme Heat	Adding back-up generator power to the Village Hall will increase the functionality of the building and maintain services to residents during routine outages, but more importantly, allowing it to serve as a warming/cooling facility during outages.		High	BRIC, HMGP, Local Funds
Action/Implementation Plan and Project Description:					
2023 Status: New Mitigation Action					

Action 7.5.31.2

Mitigation Project: Install Generator at Standpipe					
Year Initiated	**Applicable Jurisdiction**	**Lead Agency/ Organization**	**Priority and Level of Importance** (Low, Medium, High)	**Projected Completion Date** (Short-term, Long-term, or Ongoing)	**Estimated Cost & Analysis** (Low, Medium, High)
2023	Village of Woodridge	Village of Woodridge	High	Short-term (2028)	$225,000
Applicable Goal(s)	**Hazard(s) Mitigated**	**Benefits** (Loss Avoided)		**Benefit Analysis** (Low, Medium, High)	**Potential Funding Source(s)**
2	Severe Summer Weather, Severe Winter Weather,	The standpipe is the Village's largest storage facility at 4 MG and is the only location without a DuPage Water Commission feed.		High	Grant and Local Funding

Mitigation Project: Install Generator at Standpipe				
	Tornadoes, Extreme Heat			
Action/Implementation Plan and Project Description:				
2023 Status: New Mitigation Action				

Action 7.5.31.3

Mitigation Project: Adopt and implement 2021 International Building Codes (IBC) and International Residential Code (IRC)					
Year Initiated	**Applicable Jurisdiction**	**Lead Agency/ Organization**	**Priority and Level of Importance** (Low, Medium, High)	**Projected Completion Date** (Short-term, Long-term, or Ongoing)	**Estimated Cost & Analysis** (Low, Medium, High)
2023	Village of Woodridge	Village of Woodridge	Medium	Short-term (2024)	Low ($1,000 or more)
Applicable Goal(s)	**Hazard(s) Mitigated**	**Benefits** (Loss Avoided)		**Benefit Analysis** (Low, Medium, High)	**Potential Funding Source(s)**
7, 8	Severe Summer Weather	The new construction standards provide more restrictive building requirements which should reduce the potential for damage from some storm events.		Medium	Staff time, Local funds
Action/Implementation Plan and Project Description:					
2023 Status: New Mitigation Action					

Chapter 8: Plan Maintenance

The Natural Hazard Mitigation Workgroup (the Workgroup), which will be an entity within the Stormwater Ordinance Administrator's Workgroup (SOAW), will continue to develop an annual report to formally summarize the hazard mitigation activities of DuPage County and its communities, specifically focusing on progress towards each action item within the Natural Hazard Mitigation Plan (Plan). The Workgroup will also meet annually to discuss the report's findings, progress each community has made, issues each community has experienced, and proposed projects. The annual meeting shall also give Workgroup members the opportunity to discuss needed revisions/amendments to this Plan.

Developing an annual report and meeting annually to discuss progress keeps the Workgroup involved in the plan maintenance process, formalizes the maintenance process, and provides a level of accountability to work toward accomplishing the action items within the Plan. DuPage County departments and staff assigned to the Workgroup shall be responsible for coordinating and overseeing the development of the annual report and its associated meeting. DuPage County coordination shall be overseen by the DuPage County Office of Homeland Security and Emergency Management (OHSEM). In addition, to continue to encourage community participation, annual meetings shall be open to the public and a public comment period shall be incorporated into each meeting.

Per the Federal Emergency Management Agency (FEMA), this Plan shall be updated every five years. Again, DuPage County departments and staff assigned to the Workgroup shall be responsible for coordinating and overseeing the next plan update. DuPage County coordination shall be overseen by the OHSEM. In addition, it is recommended that the next 5-year update be conducted over the process of one to two years. This will provide the Workgroup ample time to meet, develop drafts, involve the public, coordinate with stakeholders, and finalize the plan.

This chapter describes the plan maintenance process for DuPage County.

8.1 Formal Review Process

The Plan will be reviewed on an annual basis by the Natural Hazard Mitigation Workgroup to determine the effectiveness of programs and to reflect changes that may affect mitigation priorities. The Director of DuPage County OHSEM or designee will be responsible for contacting the Workgroup and organizing the review. The Workgroup, which will be an entity within the Stormwater Ordinance Administrator's Workgroup (SOAW) and will consist of members from the SOAW, DuPage County Public Works Directors Working Group, and the Local Emergency Management Coordinators Group, will be responsible for monitoring and evaluating the progress of the mitigation strategies in the Plan. The Workgroup will review the goals and action items to determine their relevance to changing situations in the county as well as changes in Federal policy and to ensure they are addressing current and expected conditions. The Workgroup will also review the risk assessment portion of the Plan to determine if this information should be updated or modified, given any new available data. The organizations responsible for the various action items will report on the status of the

projects, the success of various implementation processes, difficulties encountered, success of coordination efforts, and which strategies should be revised or removed.

The Director of DuPage County OHSEM or designee will be responsible for ensuring the updating of the Plan. The Director or designee will also notify all holders of the Plan and affected stakeholders when changes have been made. Every five years, the updated plan will be submitted to the Illinois Emergency Management Agency (IEMA) and to the Federal Emergency Management Agency for review and approval.

8.2 Continued Public Involvement

DuPage County and the Workgroup are dedicated to involving the public directly in the review and updates of the Plan. The public will have the opportunity to provide input into Plan revisions and updates. Copies of the Plan will be kept by appropriate county departments and outside agencies.

Public meetings will be held when deemed necessary by the Workgroup. The meetings will provide a forum where the public can express concerns, opinions, or new alternatives that can then be included in the Plan. The Workgroup, and specifically DuPage County OHSEM, will be responsible for using county resources to publicize the public meetings and maintain public involvement.

To further facilitate continued public involvement in the planning process, DuPage County will ensure that:

- DuPage County OHSEM will keep a copy of the plan on hand at their office for review and comment by the public. The Plan will also be maintained on their website.
- A public meeting will be held annually to provide the public with a forum for discussing concerns, opinions, and ideas with the Workgroup.

8.3 Monitoring, Evaluation, and Updating the Plan

To ensure the Natural Hazard Mitigation Plan continues to provide an appropriate path for risk reduction throughout the county, it is necessary to regularly evaluate and update it. The Workgroup will be responsible for monitoring the status of the plan and gathering appropriate parties to report the status of mitigation actions. The Workgroup will convene on an annual basis to determine the progress of the identified mitigation actions. The Workgroup will also be an active participant in the next plan update. As the Natural Hazard Mitigation Plan matures, new stakeholders, specifically those stakeholders and organizations that represent underserved populations and groups in the county, will be identified and encouraged to join the existing Workgroup.

DuPage County OHSEM, DuPage County Stormwater Management, DuPage County Building and Zoning, DuPage County Division of Transportation, and DuPage County Public Works are responsible for contacting Workgroup members and organizing the annual meeting. The Workgroup's responsibilities include:

- Annually reviewing each goal to determine its relevance and appropriateness.
- Monitor and evaluate the mitigation strategies in this Plan to ensure the document reflects current hazard analyses, development trends, code changes and risk analyses and perceptions.
- Ensure the appropriate implementation of annual status reports and regular maintenance of the plan.
- Create future action plans and mitigation strategies. These should be carefully assessed and prioritized using benefit-cost analysis (BCA) methodology that FEMA has developed.
- Ensure the public is invited to comment and be involved in mitigation plan updates.
- Ensure that the county complies with all applicable Federal statutes and regulations during the periods for which it receives grant funding, in compliance with 44 CFR.
- Reassess the plan in light of any major hazard event. The Workgroup will convene within 45 days of any major event to review all applicable data and to consider the risk assessment, plan goals, and action items given the impact of the hazard event.
- Review the plan in connection to other plans, projects, developments, and other significant initiatives.
- Coordinate with appropriate municipalities and authorities to incorporate regional initiatives that transcend the boundaries of the county.
- Update the plan every five years and submit for FEMA approval.
- Amend the plan whenever necessary to reflect changes in State or Federal laws and statutes required in 44 CFR.

8.3.1 The Five-Year Action Plan

This section outlines the implementation agenda that the Workgroup should follow five years following adoption of this Plan, and then every five years thereafter. The Workgroup is responsible to ensure the Natural Hazard Mitigation Plan is updated every five years.

The Workgroup will consider the following an action plan for the five-year planning cycle. It should be noted that the schedule below can be modified as necessary and does not include any meetings and/or activities that would be necessary following a disaster event (which would include reconvening the Workgroup within 45 days of a disaster or emergency to determine what mitigation projects should be prioritized during the community recovery). If an emergency meeting of the Workgroup occurs, this proposed schedule may be altered to fit any new needs.

Year 0:

- **2023:** Update Natural Hazard Mitigation Plan, including a series of meetings & public meetings. Submit 2023 Natural Hazard Mitigation Plan for FEMA approval.
- **2023:** Work on mitigation actions. DuPage County OHSEM to stay in contact with lead departments and municipalities to keep tabs on project status.

Year 1:

- **January 2024 – December 2024:** Work on mitigation actions. DuPage County OHSEM to stay in contact with lead departments and municipalities to keep tabs on project status. Encourage plan integration efforts.
- **Fall/Winter 2024:** Reconvene Workgroup for an annual meeting. Discuss opportunities for mitigation plan integration with other planning documents. Discuss recent hazards. Update the status of projects. Host a public meeting.

Year 2:

- **January 2025 – December 2025:** Work on mitigation actions. DuPage County OHSEM to stay in contact with lead departments and municipalities to keep tabs on project status. Encourage plan integration efforts.
- **Fall/Winter 2025:** Reconvene Workgroup for an annual meeting. Discuss opportunities for mitigation plan integration with other planning documents. Discuss recent hazards. Update the status of projects. Host a public meeting.

Year 3:

- **January 2026 – December 2026:** Work on mitigation actions. DuPage County OHSEM to stay in contact with lead departments and municipalities to keep tabs on project status. Encourage plan integration efforts.
- **Summer/Fall 2026:** Apply for Building Resilient Infrastructure and Communities or Hazard Mitigation Grant Program funds to update the next iteration of the mitigation plan.
- **Fall/Winter 2026:** Reconvene Workgroup for an annual meeting. Discuss opportunities for mitigation plan integration with other planning documents. Discuss recent hazards. Update the status of projects. Host a public meeting.

Year 4:

- **January 2027 – December 2027:** Work on mitigation actions. DuPage County OHSEM to stay in contact with lead departments and municipalities to keep tabs on project status. Encourage plan integration efforts. Update 2023 Natural Hazard Mitigation Plan, including a series of meetings & public meetings.

Year 5:

- **2028:** Submit 2028 Natural Hazard Mitigation Plan for FEMA approval. Repeat.

8.4 Annual Natural Hazard Mitigation Workgroup Planning Meetings

During each annual workgroup meeting, the Workgroup will be responsible for a brief evaluation of the 2023 Natural Hazard Mitigation Plan and to review the progress on mitigation actions.

8.4.1 Plan Evaluation

To evaluate the plan, the Workgroup should answer the following questions:

- Are the goals still relevant?
- Is the risk assessment still appropriate, or has the nature of the hazard and/or vulnerability changed over time?
- Are current resources appropriate for implementing this Plan?
- Have lead agencies participated as originally proposed?
- Has the public been adequately involved in the process? Are their comments being heard?
- Have county departments and participating jurisdictions been integrating mitigation into their planning documents?

If the answer to each of the above questions is "yes," the plan evaluation is complete. If any questions are answered with a "no," the identified gap must be addressed.

8.4.2 Review of Mitigation Actions

Once the plan evaluation is complete, the Workgroup will review the status of the mitigation actions. To do so, the Workgroup should answer the following questions:

- Have the mitigation actions been implemented as planned?
- Have outcomes been adequate?
- What problems have occurred in the implementation process?

8.4.3 Meeting Documentation

Each annual workgroup meeting must be documented, including the plan evaluation and review of mitigation actions. This may be done by survey or other means, as appropriate.

8.5 Implementation through Existing Programs

Hazard mitigation practices must be incorporated within existing plans, projects, and programs. Therefore, the involvement of all departments, private non-profits, private industry, and appropriate jurisdictions is necessary in order to find mitigation opportunities within existing or planned projects and programs. To execute this, the Workgroup will assist and coordinate resources for the mitigation actions and provide strategic outreach to implement mitigation actions that meet the goals identified in this Plan.

References

FEMA. (2022). *Local Mitigation Planning Policy Guide.* Retrieved on: March 15, 2023. Retrieved from: https://www.fema.gov/sites/default/files/documents/fema_local-mitigation-planning-policy-guide_042022.pdf

Appendix A: Stakeholder Participation and Documentation

This appendix describes the methods the County used to involve stakeholders in the mitigation planning process.

A.1 Local representatives, participation activities, and planning documents to facilitate the planning process

A.1.1 Plan Participants and Representatives

Jurisdiction	Name	Title	Organization
DuPage County	Craig Dieckman	Director	DuPage County OHSEM
DuPage County	Mia Gerace	Emergency Management Specialist	DuPage County OHSEM
DuPage County	Sarah Hunn	Director	DuPage County Stormwater
DuPage County	Mike Figuray	Manager of Highway Operations	DuPage County Division of Transportation
DuPage County	Sean Reece	Operations Manager	DuPage County Public Works
DuPage County	Tom Ricker	GIS Manager	DuPage County
DuPage County	Jim Strain	Building and Zoning Manager	DuPage County Building and Zoning
DuPage County	Evan Shield	DuPage County Public Information Officer	DuPage County
DuPage County	Lucy Chang Evans	DuPage County Board Member	DuPage County, District 3
DuPage County	Kristine Murphy	Chair; Board Vice President; Board Member and Co-Chair; Task Force Member	Sustainable Aurora Advisory Board; Accelerate Climate Solutions; Climate Reality Chicago Metro; Climate Reality Chicago Metro; Naperville Environment and Sustainability Task Force
Addison	Kai Liu	Village Engineer	Village of Addison
Addison	Don Weiss	Community Relations Director	Village of Addison
Bartlett	Kristy Stone	Planning and Development	Village of Bartlett
Bartlett	Nick Talarico	Civil Engineer	Village of Bartlett
Bensenville	Jeff Maczko	Village Engineer	Village of Bensenville
Bensenville	Don Schultz	EM Coordinator	Bensenville EMA
Bloomingdale	Brian Sisco	Senior Civil Engineer	Village of Bloomingdale
Burr Ridge	Ryan Husarik	Deputy Chief	Burr Ridge PD
Burr Ridge	David Preissig	Public Works Director / Village Engineer	Village of Burr Ridge
Carol Stream	Greg Ulreich	Civil/Stormwater Engineer	Village of Carol Stream
Clarendon Hills, Darien, Glendale Heights, and Wayne	Andrew Lewand	Civil Engineer	Clarendon Hills, Darien, Glendale Heights, and Wayne
Downers Grove	Jennifer Rizzo	EM Coordinator	Downers Grove EMA

Jurisdiction	Name	Title	Organization
Elmhurst	Don Novak	EMA Coordinator	City of Elmhurst
Glen Ellyn	Ray Fano	Community Development Engineer	Village of Glen Ellyn
Glen Ellyn	John Hubsky	Assistant Public Works Director	Village of Glen Ellyn
Glendale Heights	Matt Dabrowski	Zoning and Economic Development	Village of Glendale Heights
Hanover Park	Neil Campbell	Engineering Tech	Village of Hanover Park
Hinsdale	Andy Smith	Emergency Manager	Village of Hinsdale
Itasca	Jim Duda	Deputy Asst. EM Coordinator / Sergeant	Village of Itasca Police
Lemont	Thomas Ballard	Emergency Management Director	Village of Lemont
Lisle	Jason Elias	Public Works Director	Village of Lisle
Lombard	Jim Arie	Emergency Manager	Village of Lombard
Lombard	Jeff Tomasek	Private Development Engineer	Village of Lombard
Naperville	Dan Nelson	EM Coordinator	Naperville Emergency Management
Oak Brook	Rebecca Von Drasek	Village Planner	Village of Oakbrook
Oakbrook Terrace	Melissa Headley	Community and Development	Oakbrook Terrace
Roselle	Kristin Mehl	Asst. Director of Public Works / Village Engineer	Village of Roselle
Roselle	Emily Glimco	Community Relations Coordinator	Village of Roselle
Villa Park	Rich Salerno	Public Works Deputy Director	Village of Villa Park
Villa Park	Kevin Mantels	Assistant Village Engineer	Village of Villa Park
Warrenville	Kristine Hocking	Sr. Civil Engineer	City of Warrenville
West Chicago	Colin Fleury	Chief of Police	West Chicago PD
West Chicago	Eugene Samuel	Commander	West Chicago PD
West Chicago	Antonio Reyes	Sergeant	West Chicago PD
West Chicago	Stuart Caravello	Building Chief Official	City of West Chicago
Westmont	David Lincoln	Deputy Director	Emergency Management Agency / Village of Westmont
Westmont	David Weiss	Director	Emergency Management Agency / Village of Westmont
Wheaton	Sean Walsh	Superintendent	City of Wheaton
Willowbrook	Lauren Kaspar	Deputy Chief	Willowbrook PD
Willowbrook	Ben Kadolph	Deputy Chief	Willowbrook PD
Winfield	Daniel Watson	Village Engineer	Rempe-Sharpe / Winfield
Winfield	Peter Krumins	Community Development Department	Village of Winfield
Wood Dale	Alan Piecuch	Sergeant	Wood Dale PD

Jurisdiction	Name	Title	Organization
Wood Dale	Chris Banaszynski	Deputy Chief	Wood Dale PD
Wood Dale	Alan Lange	Public Works Director	City of Wood Dale
Woodridge	Chris Bethel	Director of Public Works	Village of Woodridge

A.1.2 Mitigation Workshop

DuPage County, IL
Natural Hazard Mitigation Plan Update 2023
DuPage County, Illinois

Workshop Agenda

Monday, February 27, 2023 (1:00 p.m. to 4:00 p.m.) | Office of Homeland Security & Emergency Management (OHSEM), 418 N. County Farm Road, Wheaton, IL 60187

Wednesday, March 1, 2023 (9:00 a.m. to 12:00 p.m.) | Office of Homeland Security & Emergency Management (OHSEM), 418 N. County Farm Road, Wheaton, IL 60187

Introductions

Overview of mitigation: Why mitigate?

How the mitigation plan can benefit my community

Overview of key mitigation plan elements & plan process

New FEMA guidance that will affect the 2023 update

Risk Summary/Risk Assessment Discussion

Jurisdiction/Agency Hazard Summary

Mitigation Goals Discussion

New and Ongoing Mitigation Actions/Projects

Project schedule and key dates

1

DuPage County Jurisdiction-Specific Natural Hazards Assessment

Name:

Municipality (if applicable)**:**

Organization/Department:

E-mail:

Phone:

Instructions: *Please use this form to identify and describe how the natural hazards below have impacted (or could impact) your municipality or organization. Please be as specific as possible.*

Exposure and vulnerability to certain natural hazards **affect the entire county**. In other words, these hazards can affect the entire county (i.e. severe winter storm) or happen anywhere in the county (i.e. tornado). The following hazards fall into this category: Thunderstorms, lightning, hail, high winds, microbursts, severe winter storms, extreme cold, ice storms, tornadoes, drought, extreme heat, and earthquakes. Although the entire county may be vulnerable to these hazards, their impacts may vary based on existing community conditions (i.e. underserved or functional access needs populations may be more susceptible based on certain conditions, vulnerabilities, or needs). **Please indicate the hazards in which your community is uniquely vulnerable and provide a brief explanation.**

Please describe how your municipality/organization is uniquely vulnerable to Thunderstorms, Lightning, and Hail (example: indicate if there is a specific population subgroup that is uniquely vulnerable to this hazard).

Please describe how your municipality/organization is uniquely vulnerable to High Winds and Microbursts (example: indicate if there is a specific population subgroup that is uniquely vulnerable to this hazard, such as manufactured homes).

Please describe how your municipality/organization is uniquely vulnerable to Tornadoes (example: indicate if there is a specific population subgroup that is uniquely vulnerable to this hazard, such as manufactured homes and RVs, or gaps in warning sirens).

Please describe how your municipality/organization is uniquely vulnerable to Blizzards and Ice Storms (example: indicate if there is a specific population subgroup that is uniquely vulnerable to this hazard or if certain long-term care facilities lack back-up generators).

Please describe how your municipality/organization is uniquely vulnerable to Drought.

Please describe how your municipality/organization is uniquely vulnerable to Extreme Heat (example: indicate if there is a specific population subgroup that is uniquely vulnerable to extreme heat or if certain long-term care facilities lack sufficient air conditioning or back-up generators)**.**

Please describe how your municipality/organization is uniquely vulnerable to Earthquake (example: identify specific buildings or structures in your community that are seismically unreinforced or prone to collapse).

Exposure and vulnerability to certain natural hazards are **geographically defined**. In other words, these hazards tend to affect certain areas in your community (i.e. riverine-based flooding). The following hazards fall into this category: flooding, dam failure, erosion and sinkholes. Please indicate the hazards in which your community is uniquely vulnerable and provide a brief explanation.

Please describe how your municipality/organization is impacted by flood-related hazards (flash flood; riverine flood). For example, describe how a specific intersection, and/or subdivision repeatedly floods.

Please describe how your municipality/organization is impacted by dam failure. For example, indicate the dam of concern, and describe how a failure of the dam could impact your community.

Please describe how your municipality/organization is impacted by erosion and/or sinkholes. Describe the location of concern and its potential impacts.

Handout: New Mitigation Actions (DuPage County)

Name:

Organization/Department:

E-mail:

Phone:

New Mitigation Action (Please Describe):

Year Initiated	**2023 (New Mitigation Action)**
Applicable Jurisdiction	
Lead Agency/Organization	
Supporting Agencies/Organizations	
Potential Funding Source	
Estimated Cost	
Benefits (loss avoided)	
Projected Completion Date	
PRIORITY (High, Medium, Low)	

Please indicate if the mitigation goals and objectives below are applicable to the new mitigation action/project). Check All That Apply.

X	Place an "X" by the applicable goals, if applicable
	Goal 1. Prioritize the health and safety of DuPage County residents from the impacts of natural hazards.
	Goal 2. Protect critical infrastructure and community lifelines within DuPage County by identifying and reducing vulnerabilities to the impacts of natural hazards.
	Goal 3. Strengthen relationships between the public sector, private sector entities, leaders from underserved communities, and residents to enhance community resilience through a whole-community approach, with specific emphasis on achieving equitable outcomes for all communities, including underserved communities and socially vulnerable populations.
	Goal 4. Increase the preparedness and awareness of natural hazards among DuPage County residents through targeted and coordinated outreach campaigns.
	Goal 5. Promote better coordination between public service sectors, and encourage multi-jurisdictional participation in sustainable and cost-effective mitigation projects.
	Goal 6. Safeguard historic and cultural aspects of DuPage County from the effects of natural hazards.
	Goal 7. Encourage systematic updates and adoptions of regulations to ensure new developments address changing environmental concerns and natural resource protection.
	Goal 8. Protect properties and structures within DuPage County from the impacts of natural hazards through the implementation of flood control projects, green infrastructure, mitigation activities, and advanced warning systems.

Handout: New Mitigation Actions (DuPage County)

This mitigation action:

Instructions: Circle the best option

	Strongly Disagree (1)	Disagree (2)	Neither Agree or Disagree (3)	Agree (4)	Strongly Agree (5)
Social: Do you agree or disagree that the mitigation action is more likely to: be acceptable to the community; does not adversely affect a particular segment of the population; does not cause relocation of lower income people, and is compatible with the community's social and cultural values.	1	2	3	4	5
Technical: Do you agree or disagree that the mitigation action is technically effective in providing a long-term reduction of losses and has minimal secondary adverse impacts.	1	2	3	4	5
Administrative: Do you agree or disagree that your jurisdiction/organization has the necessary staffing and funding to carry-out this mitigation action.	1	2	3	4	5
Political: Do you agree or disagree that the mitigation action has the support of the public and stakeholders who have been offered an opportunity to participate in the planning process.	1	2	3	4	5
Legal: Do you agree or disagree that the jurisdiction or implementing agency has the legal authority to implement and enforce the mitigation action.	1	2	3	4	5
Economic: Budget constraints can significantly deter the implementation of mitigation actions. Do you agree or disagree that the mitigation action is cost-effective, as determined by a cost benefit review, and is possible to fund.	1	2	3	4	5
Environmental: Do you agree or disagree that the mitigation action is sustainable and does not have an adverse effect on the environment, complies with federal, state, and local environmental regulations, and is consistent with the community's environmental goals.	1	2	3	4	5

Place an "X" by the hazard(s) this action/project will mitigate:

Mitigated Hazards			
X	Place an "X" by the applicable hazard		Severe Winter Storms: Blizzards
	Applicable to **All Hazards**		Severe Winter Storms: Extreme Cold
	Flood: Riverine Flooding		Severe Winter Storms: Ice Storms
	Flood: Urban/Flash Flooding		Tornadoes
	Severe Summer Storms: Thunderstorms		Drought
	Severe Summer Storms: Lightning		Earthquakes
	Severe Summer Storms: Hail		Extreme Heat
	Severe Summer Storms: High Winds		High Hazard Dams
	Severe Summer Storms: Microbursts		Ground Failure

February 27, 2023

DuPage County
2023 Natural Hazard Mitigation Plan
Update
Workshop

March 1, 2023

- *SIGN-IN SHEET:* Natural Hazard Mitigation Plan Update -

Natural Hazard Mitigation Plan: Workshop (02/27/2023)

DuPage County, Illinois

Hazard Mitigation Planning Meeting – Workshop
Date: 02/27/2023

	Name	Organization	Title	Phone	E-mail
✓	GEORGE BETELLA	ISC	MNG. DIRECTOR	[redacted]	
✓	David Lincoln	Westmont EMA	Dep. Director		
✓	DAVE WEISS	WESTMONT FIRE	EMA Director		
✓	DANIEL ANDEREGG	ISC	SENIOR CONSULTANT		
✓	RAY FANO	Glen Ellyn	Comm. Devel.		
✓	JIM STRAIN	DuPage Co. B&Z	B&Z manager		
✓	Jennifer Rizzo	Downers Grove	EMA Coord.		
✓	Mia Gerace	Dupage OHSEM	EM specialist		
✓	Daiko Abe	ISC	Consultant		
✓	D.A. WATSON	RSA / WSNF2U	EM LIAISON		
✓	Jim Arie	Village of Lombard	EMA Coord.		
✓	Ryan Husarik	Burr Ridge	Deputy Chief		
✓	Mike Figuray	DuPage DOT	Manager of Hwy		
✓	MATT DABROWSKI	GLENDALE HTS	ZONING/EA PLANNER		
✓	~~SARAH HUNT~~	DPC - SWCM	DIRECTOR		

- *SIGN-IN SHEET:* Natural Hazard Mitigation Plan Update -

Natural Hazard Mitigation Plan: Workshop (02/27/2023)

DuPage County, Illinois

Hazard Mitigation Planning Meeting – Workshop
Date: 02/27/2023

	Name	Organization	Title	Phone	E-mail
✓	Sean Reese	DuPage County	Operations Manager	[redacted]	
✓	Chris Bethel	Woodridge	DPW		
✓	Andy Smith	Hinsdale	EM		
✓	Peter Krumins	Winfield	Community Develop		
✓	Don Novak	Elmhurst	EMA		
✓	DAVID PERISSINO	BUSH RIDGE	DIRECTOR PW		
✓	Tom Ricker	Dupage Co	GIS Mgr		
✓	Dan Nelson	Naperville	Coord		
✓	JEFF MACIEJ	BENSENVILLE	VILLAGE ENG		
✓	JOHN HUBSCH	GLEN ELLYN	APWA		
✓	CRAIG DIECKMAN	OHSEM	DIRECTOR		
✓	DON SCHULTZ	Bensenville EMA	Coord		

- SIGN-IN SHEET: Natural Hazard Mitigation Plan Update -

Natural Hazard Mitigation Plan: Workshop (03/01/2023)

DuPage County, Illinois

Hazard Mitigation Planning Meeting – Workshop
Date: 03/01/2023

	Name	Organization	Title	Phone	E-mail
✓	George DeTella	ISC	M.D	[redacted]	
✓	Daniel Anderegg	ISC	Consultant		
✓	Craig Dieckman	OHSEM	Director		
✓	Ben Knoblock	Willowbrook	Dep. Chief		
✓	Kai T. Cui	Addison	Vill. Eng.		
✓	Lauren Kasaar	Willowbrook	P/C		
✓	Jim Duda	Lombard PD	Sergeant		
✓	Chris Banaszynski	Woodridge PD	D/C		
✓	Alan Pierard	Wood Dale	Sgt		
✓	Jim Stran	DuPage Co	Bldg Manager		
✓	Stuart Caravello	West Chicago	Building Official		
✓	Nick Talarico	Bartlett	Civil Engineer		
✓	Kristin Mehl	Roselle	Asst. Dir. of PW		
✓	Sarah Hunn	DPC - SWM	Director		
✓	Greg Ulreich	Carol Stream	Civil Engineer		
✓	Andrew Lewand	Darien, Clarendon Hills, Wayne, Glendale Heights	Civil Engineer		

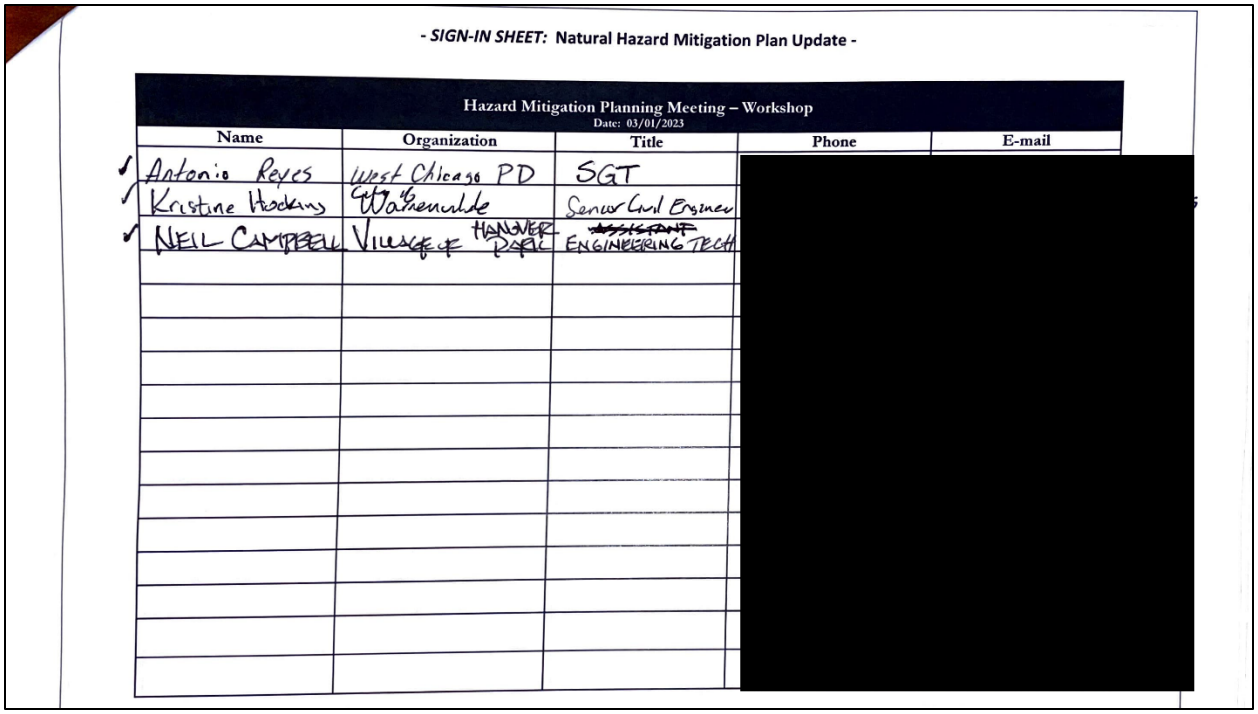
- SIGN-IN SHEET: Natural Hazard Mitigation Plan Update -

Natural Hazard Mitigation Plan: Workshop (03/01/2023)

DuPage County, Illinois

Hazard Mitigation Planning Meeting – Workshop
Date: 03/01/2023

	Name	Organization	Title	Phone	E-mail
✓	S. Walsh	City of Wheaton	Superintendent	[redacted]	
✓	Jeff Tomaseck	Vill. of Lombard	Engineer		
✓	Vince Lavang	City of Wheaton	Director of PW		
✓	Mike Figurny	DuDOT	Manager of Hwy		
✓	Jason Elias	Village of Lisle	Public Works Director		
✓	Kristy Stone	V. of Bartlett	Planning Dir		
✓	Sean Reese	DuPage P.W.	Operations Manager		
✓	Alan Lange	Wood Dale	PW Director		
✓	Mia Gerace	DuPage OHSEM	EM Specialist		
✓	Melissa Headley	Oak Brook Terrace	Dir of Comm Dev		
✓	Eugene Stamer	West Chicago PD	Commander		
✓	Colin Fleury	West Chicago PD	Chief		



- ***SIGN-IN SHEET:*** **Natural Hazard Mitigation Plan Update** -

Hazard Mitigation Planning Meeting – Workshop
Date: 03/01/2023

Name	Organization	Title	Phone	E-mail
✓ Antonio Reyes	West Chicago PD	SGT	[redacted]	
✓ Kristine Hockins	City of Warrenville	Senior Civil Engineer		
✓ NEIL CAMPBELL	VILLAGE OF HANOVER PARK	~~ASSISTANT~~ ENGINEERING TECH		

A.1.3 Other Stakeholders and Organizations

Organization	Last Name	First Name	Title/Position	Email
Cook County	Salgado	Maria	Cook County Department of Emergency Management and Regional Security	[redacted]
Will County	Bowen	Chelsea	Preparedness and Recovery Manager	
Kane County	Endean	Randy	EM Specialist/Planner	
Kendall County	Bonuchi	Roger	Director	
NWS	Bardou	Mike	Warning Coordination Meteorologist	
FermiLab	Campbell	Felicia	Emergency Management Specialist	
Argonne	Bleich	Marta	Training and Exercise Specialist, Office of Emergency Management, Environment, Safety, Health and Quality Directorate, Medical, Wellness, and Emergency Services	

A.1.4 Other Meetings

AGENDA
MUNICIPAL ENGINEER'S DISCUSSION GROUP
(Equivalent of 1 Professional Development Hour – PDH)
In Person – Regional Office of Education Conference Room

April 18, 2023

Regular Session 9:15 – 10:30 A.M.

1. Review/Discussion: DuPage County Stormwater Committee – March 7, 2023
2. Review/Discussion: DuPage County Stormwater Committee – April 4, 2023
3. Discussion: Update to Natural Hazards Mitigation Plan
   Craig Dieckman, Director, Office of Homeland Security & Emergency Management (OHSEM)
   Mia Gerace, Emergency Management Specialist, OHSEM
4. Update: Water Quality Program
   Mary Beth Falsey, Water Quality Supervisor, Stormwater Management
5. Update: Stormwater Management Public Outreach
   Raul Galvan, Stormwater Communications Supervisor, Stormwater Management
6. Update: Watershed Planning
   Rob Covey, Sr. Project Engineer, Stormwater Management
7. Update: Facility Operations and Construction Projects
   Jamie Lock, Chief Engineer, Stormwater Management
8. Municipal Engineers Group (MEG)
9. Debate/Discussion: Permit Irregularities/Special Conditions – Engineering/Wetlands
10. Old Business
11. New Business
12. **Attend Annual Sustainable Design Challenge**

Next Meeting: May 4, 2023

MUNICIPAL ENGINEER'S DISCUSSION GROUP MEETING
(Equivalent of 1 Professional Development Hour) - PDH
April 18th, 2023
"On File" Information

Name	Municipality/County	Phone #	E-Mail		Remove from File
Allen, Bob	Bartlett	[redacted]			
Assell, Nick	DuPage County				
Baczek, Evan	DuPage County				
Bethel, Christopher	Woodridge				
Boyer, Jennifer	DuPage County				
Bryant, Jana	Pinnacle				
Covey, Robert	DuPage County				
Culcasi, Anna	Hey And Associates				
Dirkse, Michael	DuPage County				
Dunn, Kris	Wheaton				
Ehrhardt, James	Terratopia				
Evans, Lucy	DuPage County Board Member				
Fahey, Jenna	DuPage County				
Falsey, MaryBeth	DuPage County				
Fano, Ray	Glen Ellyn				
Freitag, Brianna	DuPage County				
Furey, Dave	DuPage County				
Gallas, Richard	Lisle				
Gil, Erik	CBBEL				
Gorman, Dave	Lombard				
Guerra, Michael	Villa Park				
Hall, Veronica	Schaumburg				
Hargett, Brad	Bensenville				
Heatherly, Samantha	DuPage County				
Heffter, Clayton	DuPage County				

MUNICIPAL ENGINEER'S DISCUSSION GROUP MEETING
(Equivalent of 1 Professional Development Hour) - PDH
April 18th, 2023
"On File" Information

Name	Municipality/County	Phone #	E-Mail		Remove from File
Hocking, Kristine	Warrenville	[redacted]			
Hubeny, John	Downers Grove				
Hudson, Holly	CMAPS				
Hunn, Sarah	DuPage County				
Johnson, Kent	Elmhurst				
Jordahl, Nils	DuPage DOT				
Keppy, Douglas	Larson				
Kissane, Claire	DuPage County				
Klepp, Christine	DuPage County				
Klyce, Erskine	N/A				
Kroll, Lynn					
Krueger, Paul	LOCHNER				
Krumins, Peter	Winfield				
Kuper, Kent	DuPage DOT				
Lach, Patrick	Hey And Associates				
Levernier, Angela	DuPage				
Lew, Matthew	Hinsdale				
Liu, Kai Tak	Addison				
Litwin, Mike	Elmhurst				
Lock, Jamie	DuPage County				
Lomax, Julie	Downers Grove				
Lovelace, Brock	Forest Preserve				
Lu, Yifang	Naperville				
Lynch, Dan	CBBEL				
Maczko, Jeffrey	Bensenville				

MUNICIPAL ENGINEER'S DISCUSSION GROUP MEETING
(Equivalent of 1 Professional Development Hour) - PDH
April 18th, 2023
"On File" Information

Name	Municipality/County	Phone #	E-Mail		Remove from File
Martin, Derrick	V3	[redacted]			
Marchi, Michael	Retired				
Maslowski, Michael	ERA				
McGurr, Bill	A. McGurr Ltd				
McKenna, Amy	HLR				
Mehl, Kristin	Roselle				
Melin, Joel	Addison				
Meszaros, Casey	Elmhurst				
Miedema, James	Burr Ridge				
Murphy, Kristina	Naperville				
Pak, Amy	Schaumburg				
Pantoja, Wildy	DuPage County				
Patterson, Jamie	EZA Engineering				
Patton, James	Glendale Heights				
Peacock, Russell	Wheaton				
Pocius, Matt	Woodridge				
Preissig, David	Burr Ridge				
Prohaska,Robert	Retired				
Pye Mary Jo					
Raphael, Ron	Elk Grove Village				
Randall, Scott F	WBK Engineering				
Rivera, Lee	DPC DOT				
Rodriguez, Jairo	Wood Dale				
Romero, David	Warrenville				
Rubush, Katie	Naperville				

MUNICIPAL ENGINEER'S DISCUSSION GROUP MEETING
(Equivalent of 1 Professional Development Hour) - PDH
April 18th, 2023
"On File" Information

Name	Municipality/County	Phone #	E-Mail		Remove from File
Schladt, Jessica	Columbia Engineering	[redacted]			
Schroyer, Renee	Elk Grove Village				
Schultz, Erik	Elk Grove Village				
Sisco, Brian	Bloomingdale				
Skerke, Rob	West Chicago				
Stelle, Jonthan	Hanover Park				
Sucoe, Marilyn	State of Illinois				
Tebrugge, Joseph	Wheaton				
Tomasek, Jeff	Lombard				
Ulreich, Greg	Carol Stream				
Ulreich, Ray	Taurus Engineering				
Vittori, Mark	Advanced Drainage Systems				
Vonnahme, Chris	DuPage County				
Voskresenski, Vassili	Villa Park				
Welch, Chris	FPDDC				
Watson, D. A.	Winfield - RSA				
Wellbank, Jacob	Itasca-Robinson Eng.				
Winklebleck, David	DuPage County				
Witek, Adam	MWRDGC				
Witkowski, Brian					
Ye, Jade					
Young, Karen	Roselle				

MUNICIPAL ENGINEER'S DISCUSSION GROUP MEETING
(Equivalent of 1 Professional Development Hour) - PDH
April 18th, 2023
"Put On File" Information

Name	Municipality/Co	Phone #	E-Mail	Add to File
Mia Gerace	OHSEM	[redacted]		
Greg Dieckman	OHSEM			
Raul Galvan	DuPage County			

10/3/13

Appendix B: Public Involvement Activities and Documentation

Below are samples of public information and public involvement activities that were used during the development of the *DuPage County Natural Hazard Mitigation Plan*, including:

- Survey Results
- Public Meeting Announcements / News Releases
- Outreach Activities
- Public Meeting Photos

Jurisdiction	Date	Outreach Activity	Method of Sharing
DuPage County	Multiple	Public Survey and Public Meeting	Multiple Social Media Platforms, News Release
Warrenville	3/13/2023	Public Survey and Public Meeting	Website and Facebook
Bensenville	3/14/2023	Public Survey and Public Meeting	Facebook
Glen Ellyn	3/14/2023	Public Survey and Public Meeting	Facebook, Twitter
Roselle	Multiple	Public Survey and Public Meeting	Community Email Newsletter, Social Media Posts
Wheaton	3/15/2023	Public Survey and Public Meeting	Weekly Newsletter, Social Media Posts
Oakbrook Terrace	Multiple	Public Survey and Public Meeting	Social Media Platforms, including Facebook and Nextdoor and E-news
Bartlett	3/14/20223	Public Survey and Public Meeting	Social Media Platforms, including Facebook and Twitter
Addison	3/16/2023	Public Survey and Public Meeting	Social Media Platforms, including Facebook and Twitter
Woodridge	3/17/2023	Public Survey and Public Meeting	Announcement at Board Meetings, video available on community website
DuPage County	Multiple	Public Meeting	Daily Herald - suburban newspaper

B.1 Survey

Note: If you are accessing the Microsoft Word version of this Plan, double-click on the icon below to access the survey report and findings. If you are using the PDF version of the Plan, please access the "Attachments" feature in Adobe PDF and click the corresponding file. This is the redacted version.

DuPageCounty.PublicSurveyReport - Re

B.2 Public Meeting Announcements/News Releases

DUPAGE COUNTY

NEWS RELEASE

421 N. County Farm Road, Wheaton, Illinois 60187 (630) 407-6060
Website: WWW.DUPAGECOUNTY.GOV **Twitter**: @dupagecounty **Facebook**: DuPage County Board

For Immediate Release
March 13, 2023

Contact: Mia Gerace
Emergency Management Specialist
(630) 407-2937

DuPage County Seeking Public Input on Natural Hazard Mitigation Plan

Wheaton – DuPage County's Office of Homeland Security and Emergency Management (OHSEM) will host a public information and planning session regarding natural hazards that could impact the County.

The meeting is part of an effort to update DuPage County's Natural Hazard Mitigation Plan, which is a process that takes place every five years. The meeting will be held from 6 to 7 p.m. March 21 at OHSEM offices, 418 N. County Farm Road, Wheaton.

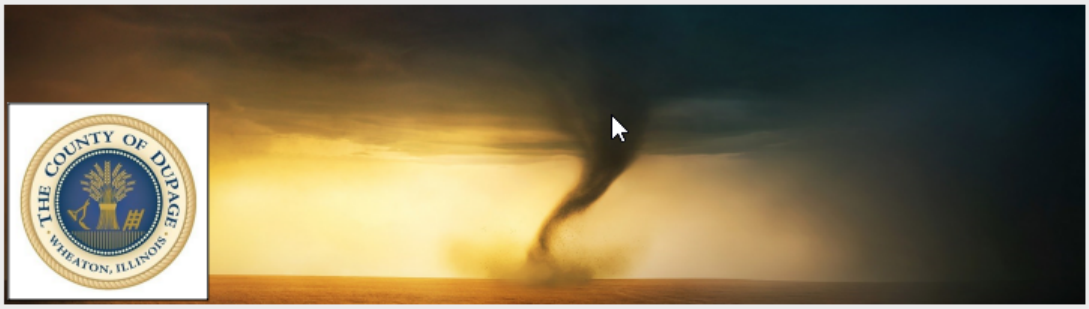
OHSEM staff will provide a brief presentation on natural hazards that could impact the County, including tornados, flooding, winter weather, and more, along with various mitigation measures intended to eliminate or reduce the negative impact of those hazards. The public will be able to provide feedback on the presentation. Language translation assistance in Spanish will be provided.

The U.S. government requires local and state governments to have a FEMA-approved Natural Hazard Mitigation Plan as established by the Disaster Mitigation Act of 2000 to qualify for Building Resilient Infrastructure and Communities and Hazard Mitigation Grant Program project grant dollars. These programs are critical sources of federal funding.

###

PUBLIC MEETING ANNOUNCEMENT:

LEARN ABOUT POTENTIAL DISASTERS THAT COULD IMPACT DUPAGE COUNTY



Date and Time:

March 21, 2023 | 6 p.m. to 7 p.m.

Location:

DuPage County Office of Homeland Security & Emergency Management
418 N. County Farm Road, Wheaton, IL 60187

DuPage County Office of Homeland Security and Emergency Management wants to know how it can better prepare you for disasters. Come join us on Tuesday, March 21, 2023, from 6:00 p.m. to 7:00 p.m. at DuPage County **Office of Homeland Security & Emergency Management, 418 N. County Farm Road, Wheaton, IL 60187.**

The meeting will provide the public an opportunity to review the potential hazards that could occur within the County, and will request input for the various mitigation measures intended to eliminate or reduce the negative impact of those hazards. Language translation assistance in Spanish will be provided.

For questions, please contact Mia Gerace, Emergency Management Specialist; DuPage County Office of Homeland Security & Emergency Management (OHSEM); (630) 407-2937 or Mia.Gerace@dupageco.org

La oficina de manejo de emergencia y seguridad Nacional del condado de DuPage quiere oír de ti! Queremos saber como poder prepararlos mejor en situaciones de emergencia para asegurar la protección de la vida y propiedad de los ciudadanos.

Acompáñenos el martes, 21 de marzo de 2023, de 6:00 p.m. a 7:00 p.m. El lugar de la reunión es:

La oficina de manejo de emergencia y seguridad Nacional del condado de DuPage

418 N. County Farm Road, Wheaton, IL 60187

La reunión le dará al público la oportunidad de aprender sobre los desastres potenciales que podrían ocurrir dentro del Condado, y la oportunidad de discutir maneras de eliminar o reducir el impacto negativo de esos desastres. Traducción al español disponible.

Si tiene preguntas, comuníquese con Mia Gerace, Manejo de Emergencia Especialista; La oficina de manejo de emergencia y seguridad Nacional del condado de DuPage; Teléfono de oficina: (630) 407 -2937 o Correo Electronico: Mia.Gerace@dupageco.org

DuPage County, IL
Natural Hazard Mitigation Plan Update 2023
DuPage County, Illinois

Date & Time:
Tuesday, March 21, 2023 | 6 p.m. to 7 p.m.

Location:
DuPage County Office of Homeland Security & Emergency Management
418 N. County Farm Road
Wheaton, IL 60187

Public Meeting Agenda

Introductions

Overview of mitigation: Why mitigate?

How the mitigation plan can benefit my community

Preliminary Questionnaire Findings

Hazard/Risk Discussion

Hazard Summary Worksheet

Identify New Mitigation Ideas/Initiatives

Closing Remarks

- *SIGN-IN SHEET:* Natural Hazard Mitigation Plan Update -

Natural Hazard Mitigation Plan: Public Meeting (03/21/2023)

DuPage County, Illinois

Hazard Mitigation Planning Meeting – Public Meeting
Date: 03/21/2023

Name	Organization (if applicable)	Title (if applicable)	Phone	E-mail
George DeFella	ISC	M.D.	[redacted]	
Mia Gerace	OHSEM	EM Specialist		
Elyzabeth Estrada				
Melissa Rome				
Daniel Anderegg				
Daiko Abe				
Carol Balabanow				
[illegible]		RN.		
Kent Sue Hebner				
Steve Clark				
Rod MacLeay				
John Rotherham				
Craig Dieckman				
Robert Thomas		CITIZEN		

- *SIGN-IN SHEET:* Natural Hazard Mitigation Plan Update -

Natural Hazard Mitigation Plan: Public Meeting (03/21/2023)

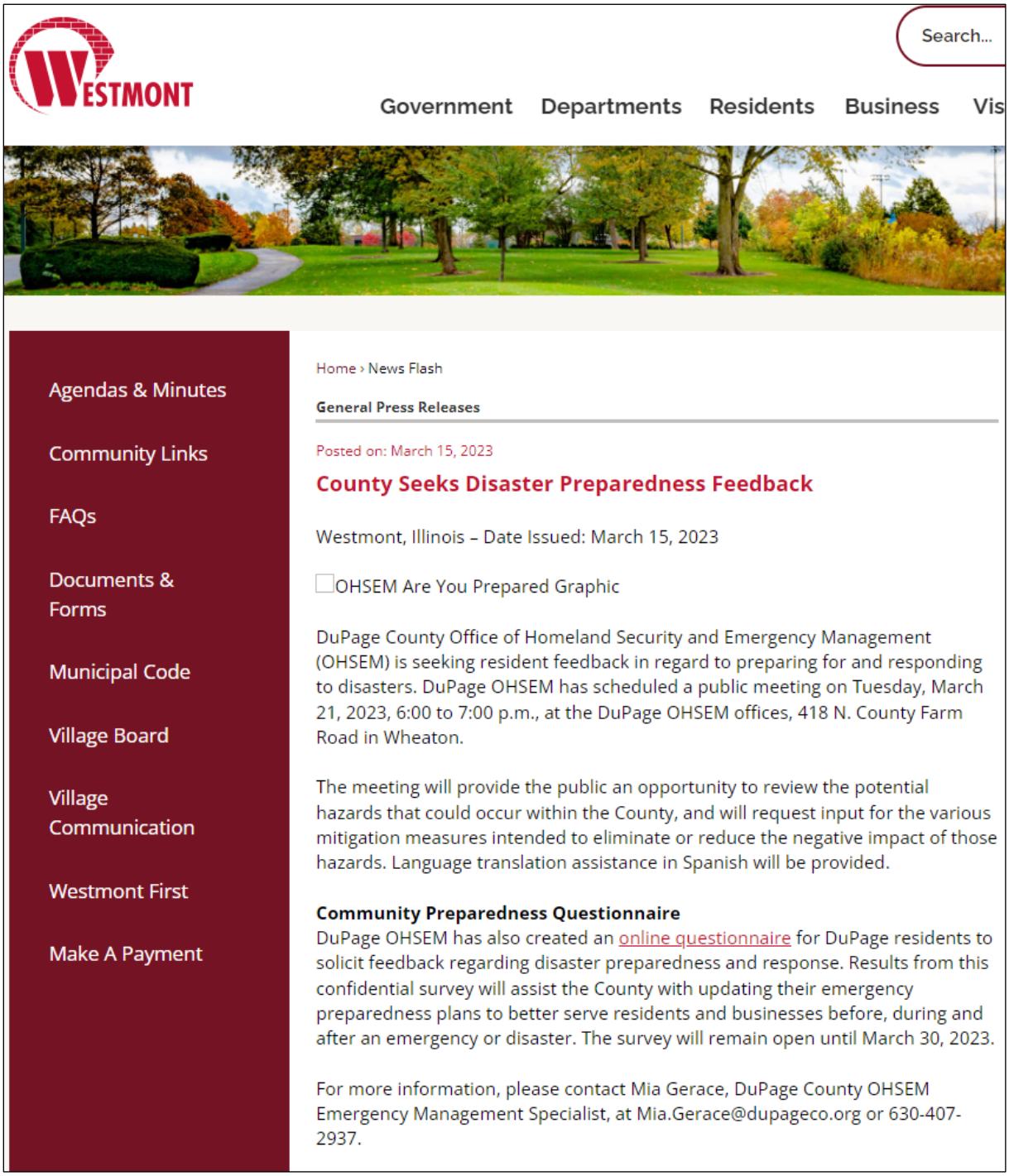
DuPage County, Illinois

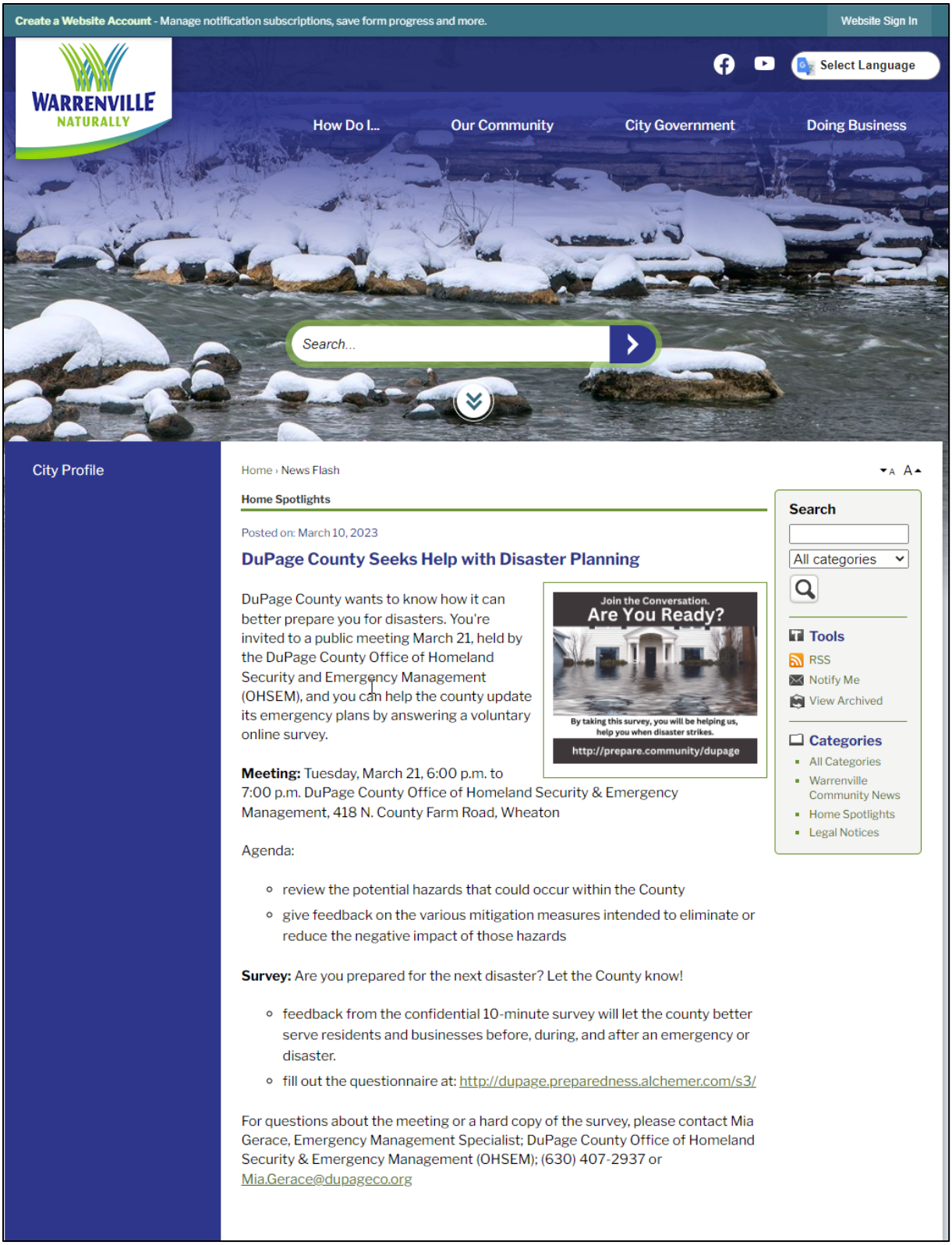
Hazard Mitigation Planning Meeting – Public Meeting
Date: 03/21/2023

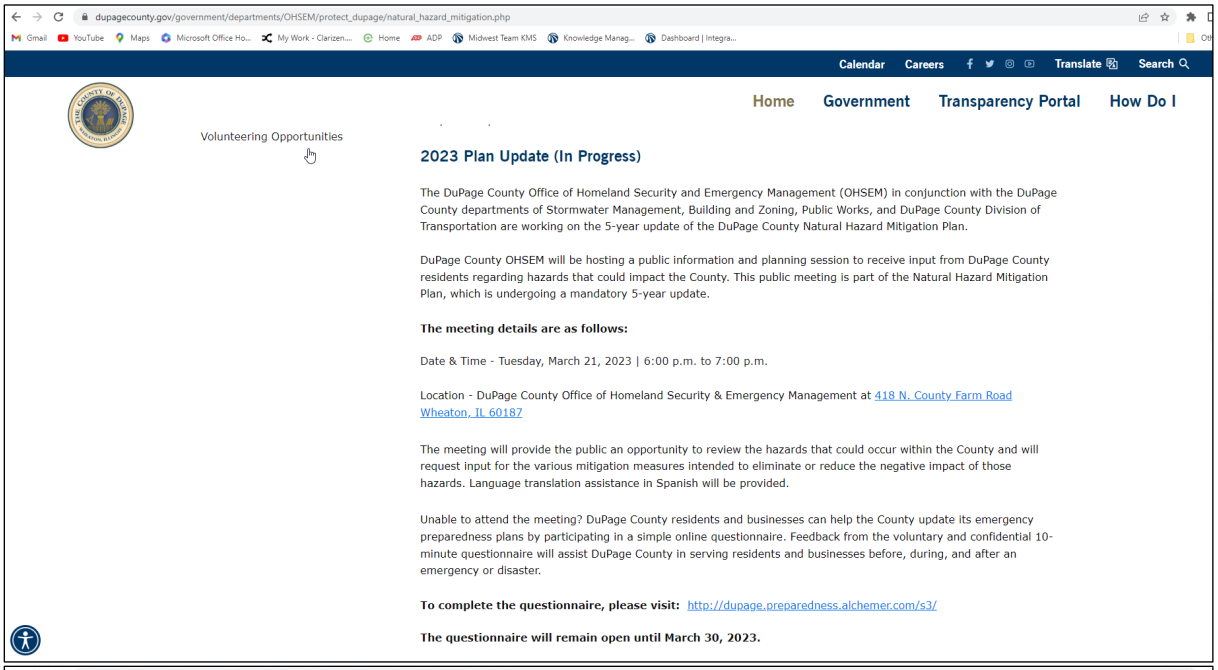
Name	Organization (if applicable)	Title (if applicable)	Phone	E-mail
Russell Scott Manthy			[redacted]	[redacted]

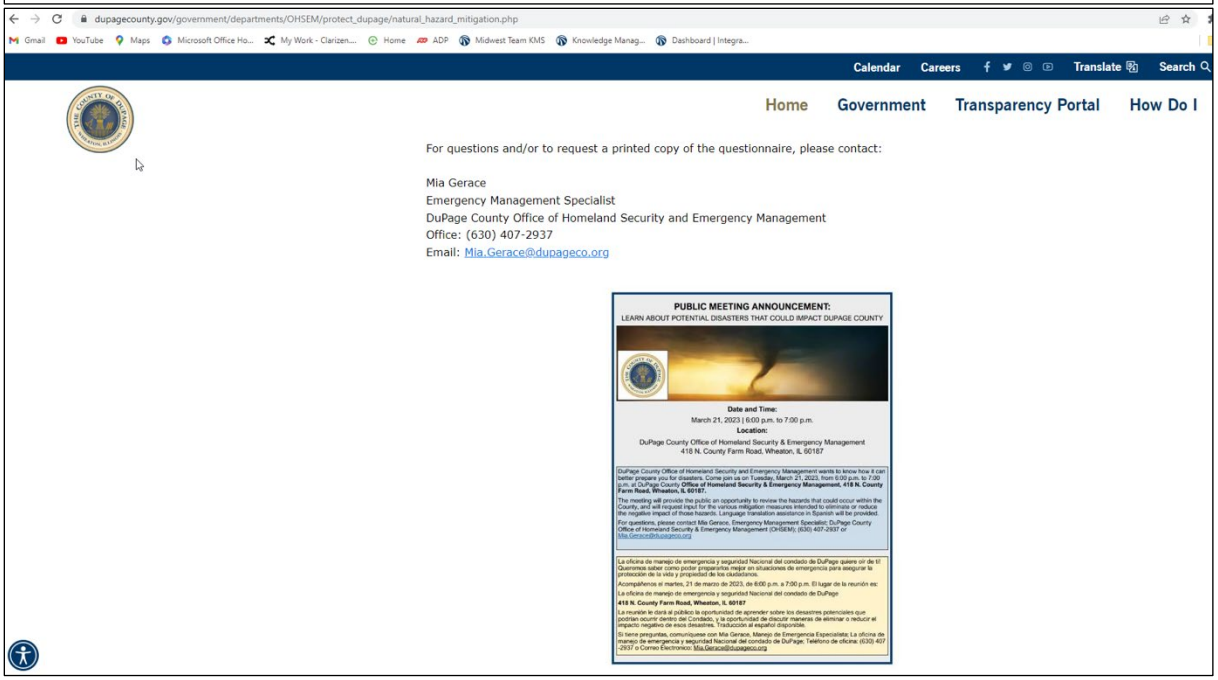
1

B.3 Outreach Activities




Create a Website Account - Manage notification subscriptions, save form progress and more.
Website Sign In
WARRENVILLE
NATURALLY
Select Language
How Do I...
Our Community
City Government
Doing Business
Search...
City Profile
Home › News Flash
Home Spotlights
Posted on: March 10, 2023
DuPage County Seeks Help with Disaster Planning
DuPage County wants to know how it can better prepare you for disasters. You're invited to a public meeting March 21, held by the DuPage County Office of Homeland Security and Emergency Management (OHSEM), and you can help the county update its emergency plans by answering a voluntary online survey.
Join the Conversation.
Are You Ready?
By taking this survey, you will be helping us, help you when disaster strikes.
http://prepare.community/dupage
Meeting: Tuesday, March 21, 6:00 p.m. to 7:00 p.m. DuPage County Office of Homeland Security & Emergency Management, 418 N. County Farm Road, Wheaton
Agenda:
review the potential hazards that could occur within the County
give feedback on the various mitigation measures intended to eliminate or reduce the negative impact of those hazards
Survey: Are you prepared for the next disaster? Let the County know!
feedback from the confidential 10-minute survey will let the county better serve residents and businesses before, during, and after an emergency or disaster.
fill out the questionnaire at: http://dupage.preparedness.alchemer.com/s3/
For questions about the meeting or a hard copy of the survey, please contact Mia Gerace, Emergency Management Specialist; DuPage County Office of Homeland Security & Emergency Management (OHSEM); (630) 407-2937 or Mia.Gerace@dupageco.org
Search
All categories
Tools
RSS
Notify Me
View Archived
Categories
All Categories
Warrenville Community News
Home Spotlights
Legal Notices


dupagecounty.gov/government/departments/OHSEM/protect_dupage/natural_hazard_mitigation.php
Calendar
Careers
Translate
Search
Home
Government
Transparency Portal
How Do I
Volunteering Opportunities
2023 Plan Update (In Progress)
The DuPage County Office of Homeland Security and Emergency Management (OHSEM) in conjunction with the DuPage County departments of Stormwater Management, Building and Zoning, Public Works, and DuPage County Division of Transportation are working on the 5-year update of the DuPage County Natural Hazard Mitigation Plan.
DuPage County OHSEM will be hosting a public information and planning session to receive input from DuPage County residents regarding hazards that could impact the County. This public meeting is part of the Natural Hazard Mitigation Plan, which is undergoing a mandatory 5-year update.
The meeting details are as follows:
Date & Time - Tuesday, March 21, 2023 | 6:00 p.m. to 7:00 p.m.
Location - DuPage County Office of Homeland Security & Emergency Management at 418 N. County Farm Road Wheaton, IL 60187
The meeting will provide the public an opportunity to review the hazards that could occur within the County and will request input for the various mitigation measures intended to eliminate or reduce the negative impact of those hazards. Language translation assistance in Spanish will be provided.
Unable to attend the meeting? DuPage County residents and businesses can help the County update its emergency preparedness plans by participating in a simple online questionnaire. Feedback from the voluntary and confidential 10-minute questionnaire will assist DuPage County in serving residents and businesses before, during, and after an emergency or disaster.
To complete the questionnaire, please visit: http://dupage.preparedness.alchemer.com/s3/
The questionnaire will remain open until March 30, 2023.


dupagecounty.gov/government/departments/OHSEM/protect_dupage/natural_hazard_mitigation.php
Calendar
Careers
Translate
Search
Home
Government
Transparency Portal
How Do I
For questions and/or to request a printed copy of the questionnaire, please contact:
Mia Gerace
Emergency Management Specialist
DuPage County Office of Homeland Security and Emergency Management
Office: (630) 407-2937
Email: Mia.Gerace@dupageco.org
PUBLIC MEETING ANNOUNCEMENT:
LEARN ABOUT POTENTIAL DISASTERS THAT COULD IMPACT DUPAGE COUNTY
Date and Time:
March 21, 2023 | 6:00 p.m. to 7:00 p.m.
Location:
DuPage County Office of Homeland Security & Emergency Management
418 N. County Farm Road, Wheaton, IL 60187

Protect DuPage
Just now
DuPage County wants to know how we can help you and your family be better prepared when disasters strike. All responses are confidential and will greatly help improve preparedness in the County. Join the conversation at http://dupage.preparedness.alchemer.com/s3/
The questionnaire will remain open until March 30, 2023. For a printed copy of the questionnaire, please contact Mia Gerace, Emergency Management Specialist; DuPage County Office of Homeland Security & Emergency Ma... See more
Join the Conversation.
Are You Ready?
By taking this survey, you will be helping us to help you when disaster strikes.
http://prepare.community/dupage

Village of Roselle
March 18 at 3:31 PM ·

DuPage County invites you to attend a public meeting on March 21 at 6:00 p.m. at the DuPage County Office of Homeland Security & Emergency Management (418 N. County Farm Road, Wheaton, IL 60187) to learn more about potential hazards that could occur within the county and provide input on mitigation measures. ⛈️🌪️

PUBLIC MEETING ANNOUNCEMENT:

LEARN ABOUT POTENTIAL DISASTERS THAT COULD IMPACT DUPAGE COUNTY

Date and Time:

March 21, 2023 | 6:00 p.m. to 7:00 p.m.

Location:

DuPage County Office of Homeland Security & Emergency Management
418 N. County Farm Road, Wheaton, IL 60187

DuPage County Office of Homeland Security and Emergency Management wants to know how it can better prepare you for disasters. Come join us on Tuesday, March 21, 2023, from 6:00 p.m. to 7:00 p.m. at DuPage County **Office of Homeland Security & Emergency Management, 418 N. County Farm Road, Wheaton, IL 60187.**

The meeting will provide the public an opportunity to review the hazards that could occur within the County, and will request input for the various mitigation measures intended to eliminate or reduce the negative impact of those hazards. Language translation assistance in Spanish will be provided.

For questions, please contact Mia Gerace, Emergency Management Specialist; DuPage County Office of Homeland Security & Emergency Management (OHSEM); (630) 407-2937 or Mia.Gerace@dupageco.org

La oficina de manejo de emergencia y seguridad Nacional del condado de DuPage quiere oír de ti! Queremos saber como poder prepararlos mejor en situaciones de emergencia para asegurar la protección de la vida y propiedad de los ciudadanos.

Acompáñenos el martes, 21 de marzo de 2023, de 6:00 p.m. a 7:00 p.m. El lugar de la reunión es:

La oficina de manejo de emergencia y seguridad Nacional del condado de DuPage

418 N. County Farm Road, Wheaton, IL 60187

La reunión le dará al público la oportunidad de aprender sobre los desastres potenciales que podrían ocurrir dentro del Condado, y la oportunidad de discutir maneras de eliminar o reducir el impacto negativo de esos desastres. Traducción al español disponible.

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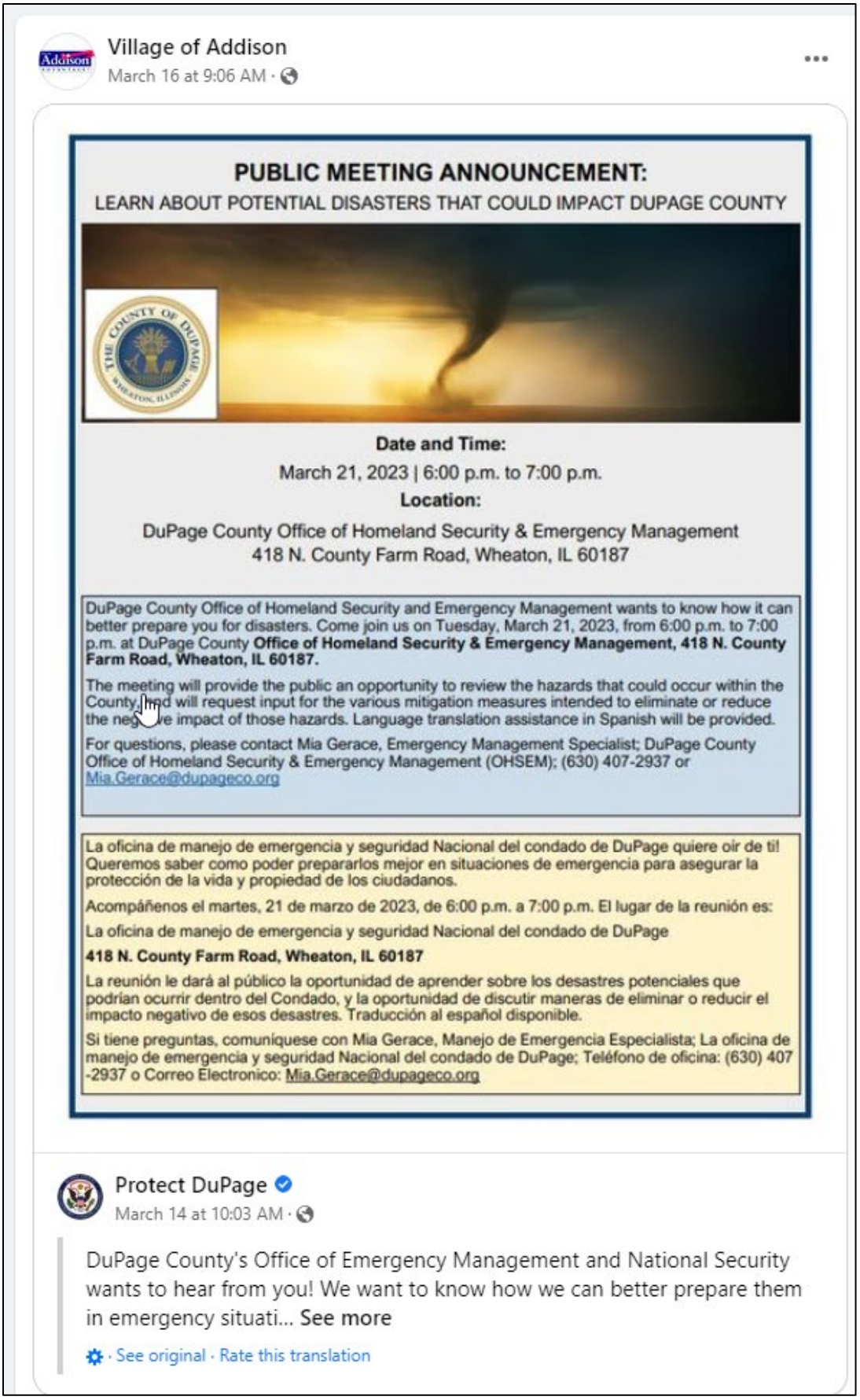
Village of Bartlett - Illinois
March 15 at 8:03 AM ·
Are you prepared for the next disaster? Let the county know! DuPage County residents and businesses can help the county update its emergency preparedness plans by participating in a voluntary online questionnaire. Feedback from the confidential 10-minute survey will enable the DuPage County Office of Homeland Security & Emergency Management to better serve residents and businesses before, during and after an emergency or disaster.
To fill out the questionnaire, go to: http:/... See more
Join the Conversation.
Are You Ready?
By taking this survey, you will be helping us, help you when disaster strikes.
http://prepare.community/dupage

City of Oakbrook Terrace
6d ·

Are you prepared for the next disaster? Let the County know! DuPage County residents and businesses can help the county update its emergency preparedness plans by participating in a voluntary online questionnaire. Feedback from the confidential 10-minute survey will enable the DuPage County Office of Homeland Security & Emergency Management to better serve residents and businesses before, during and after an emergency or disaster.

Fill out the questionnaire here: http://ow.l... See more


Village of Addison
March 16 at 9:06 AM ·
PUBLIC MEETING ANNOUNCEMENT:
LEARN ABOUT POTENTIAL DISASTERS THAT COULD IMPACT DUPAGE COUNTY
Date and Time:
March 21, 2023 | 6:00 p.m. to 7:00 p.m.
Location:
DuPage County Office of Homeland Security & Emergency Management
418 N. County Farm Road, Wheaton, IL 60187
DuPage County Office of Homeland Security and Emergency Management wants to know how it can better prepare you for disasters. Come join us on Tuesday, March 21, 2023, from 6:00 p.m. to 7:00 p.m. at DuPage County Office of Homeland Security & Emergency Management, 418 N. County Farm Road, Wheaton, IL 60187.
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For questions, please contact Mia Gerace, Emergency Management Specialist; DuPage County Office of Homeland Security & Emergency Management (OHSEM); (630) 407-2937 or Mia.Gerace@dupageco.org
La oficina de manejo de emergencia y seguridad Nacional del condado de DuPage quiere oir de ti! Queremos saber como poder prepararlos mejor en situaciones de emergencia para asegurar la protección de la vida y propiedad de los ciudadanos.
Acompáñenos el martes, 21 de marzo de 2023, de 6:00 p.m. a 7:00 p.m. El lugar de la reunión es:
La oficina de manejo de emergencia y seguridad Nacional del condado de DuPage
418 N. County Farm Road, Wheaton, IL 60187
La reunión le dará al público la oportunidad de aprender sobre los desastres potenciales que podrían ocurrir dentro del Condado, y la oportunidad de discutir maneras de eliminar o reducir el impacto negativo de esos desastres. Traducción al español disponible.
Si tiene preguntas, comuníquese con Mia Gerace, Manejo de Emergencia Especialista; La oficina de manejo de emergencia y seguridad Nacional del condado de DuPage; Teléfono de oficina: (630) 407-2937 o Correo Electronico: Mia.Gerace@dupageco.org
Protect DuPage
March 14 at 10:03 AM ·
DuPage County's Office of Emergency Management and National Security wants to hear from you! We want to know how we can better prepare them in emergency situati... See more
· See original · Rate this translation

Village of Bensenville
March 10 at 1:26 PM ·

DuPage County Office of Homeland Security and Emergency Management wants to know how it can better prepare you for disasters. Come join us on Tuesday, March 21, 2023, from 6:00 p.m. to 7:00 p.m. at DuPage County Office of Homeland Security & Emergency Management, 418 N. County Farm Road, Wheaton, IL 60187.

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9 2 shares

Vlg of Glen Ellyn Retweeted

DuPage County OHSEM @ProtectDuPage · Mar 13

Are you #prepared for the #NextDisaster? Let us know! #DuPageCounty needs your help by completing a confidential preparedness questionnaire at dupage.preparedness.alchemer.com/s3/ or call (630) 407-2937 to request a printed copy.

2 1 1,220

City of Warrenville Government
March 10 at 12:54 PM ·

You're invited to a public meeting March 21 and asked to take an online survey to help DuPage County better prepare for disasters.

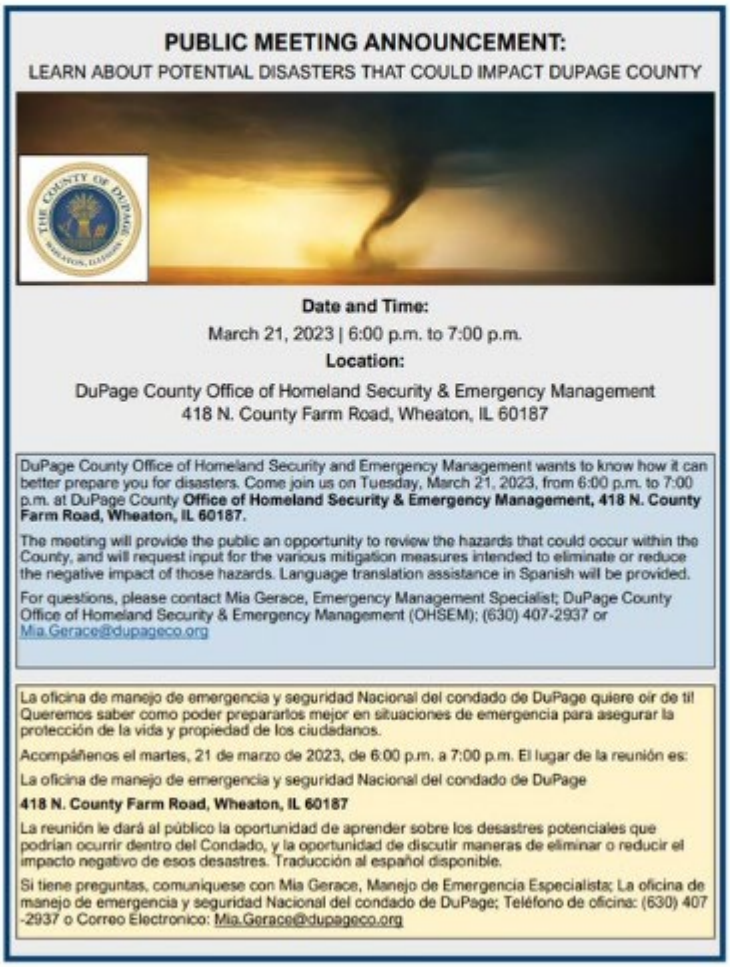
DuPage County Office of Homeland Security and Emergency Management (OHSEM) will hold a public meeting:

Tuesday, March 21... See more

Village Addison Retweeted

DuPage County OHSEM @ProtectDuPage · Mar 14

#DuPage County wants to know how we can better prepare you for disasters. Join us: Tues. March 21, 2023 from 6-7PM for a public meeting at the DuPage Co Office of Homeland Security and Emergency Management at 418 N. County Farm Road, Wheaton, IL. See attached flyer for more info.



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418 N. County Farm Road, Wheaton, IL 60187

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5 1 929

Village of Bartlett - Illinois
March 15 at 8:03 AM ·
Are you prepared for the next disaster? Let the county know! DuPage County residents and businesses can help the county update its emergency preparedness plans by participating in a voluntary online questionnaire. Feedback from the confidential 10-minute survey will enable the DuPage County Office of Homeland Security & Emergency Management to better serve residents and businesses before, during and after an emergency or disaster.
To fill out the questionnaire, go to: http:/... See more
Join the Conversation.
Are You Ready?
By taking this survey, you will be helping us, help you when disaster strikes.
http://prepare.community/dupage

Vlg of Glen Ellyn Retweeted

DuPage County OHSEM @ProtectDuPage · Mar 13

Are you #prepared for the #NextDisaster? Let us know! #DuPageCounty needs your help by completing a confidential preparedness questionnaire at dupage.preparedness.alchemer.com/s3/ or call (630) 407-2937 to request a printed copy.

2 1 1,220

DuPage County OHSEM @ProtectDuPage · Mar 21

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1 2 2 332

Are you prepared for the next disaster?
Mayor Paul Esposito from City of Oakbrook Terrace · 5 days ago

Let the County know! DuPage County residents and businesses can help the county update its emergency preparedness plans by participating in a voluntary online questionnaire. Feedback from the confidential 10-minute survey will enable the DuPage County Office of Homeland Security & Emergency Management to better serve residents and businesses before, during and after an emergency or disaster.

Fill out the questionnaire here: http://ow.ly/6Izm50Nm80T. The survey will remain open until March 30, 2023. For a hard copy version of the survey, please contact Mia Gerace, Emergency Management Specialist at (630) 407-2937.

2023 DuPage County, IL: Disaster Preparedness a…
2023 DuPage County, IL: Disaster Preparedness and Mitiga…
DUPAGE.PREPAREDNESS.ALCHEMER.COM

DuPage County wants to know how we can better prepare you for disasters.
Emergency Mgmt. Coor. / Public Information Officer John Nebl from DuPage County Office of Homeland Security and Emergency Management · 14 Mar

Come join us on Tuesday, March 21, 2023, from 6:00 p.m. to 7:00 p.m. at the DuPage County Office of Homeland Security & Emergency Management, 418 N. County Farm Road, Wheaton, IL 60187.

We will provide the public an opportunity to review the potential hazards that could occur within the County and will request input from our residents on the various mitigation measures intended to eliminate or reduce the negative impact of those hazards. Language translation assistance in Spanish will be provided.

For questions, please contact Mia Gerace, Emergency Management Specialist; DuPage County Office of Homeland Security & Emergency Management (OHSEM); (630) 407-2937 or Mia.Gerace@dupageco.org

14 Mar · Subscribers of DuPage County Office of Homeland Security and Emergency Management in General

THANK | 5 REPLY

Are you prepared for the next disaster?
Emergency Mgmt. Coor. / Public Information Officer John Nebl from DuPage County Office of Homeland Security and Emergency Management · 13 Mar

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2023 DuPage County, IL: Disaster Preparedness a…
2023 DuPage County, IL: Disaster Preparedness and Mitiga…
DUPAGE.PREPAREDNESS.ALCHEMER.COM

13 Mar · Subscribers of DuPage County Office of Homeland Security and Emergency Management in General

THANK | 24 REPLY

Village of Roselle
Tradition Meets Tomorrow

E-News

March 16, 2023

Next Board Meeting: March 27

The March 13 Village Board meeting is posted on the Village's YouTube channel. A video recording of the meeting is available for the public to view.

The next Village Board meeting is scheduled for March 27. The public may submit a comment or question for Village Board consideration ahead of time by using the Village Board Meeting Public Participation form by 4:00 p.m. the day of the meeting.

Live comments will be accepted by in-person attendees during the meeting.

Thank you, Community Forum participants!

Thank you to everyone who joined us at last night's community forum on infrastructure! If you weren't able to join us, you can watch the forum recording and download a copy of the presentation on our website.

Whether you watched the forum live or watch the recording later, **we want to hear from you!** Please take our quick survey to let us know your preference on infrastructure funding options and share feedback to help us improve future community conversations.

CPKC Rail Merger Approved by Surface Transportation Board

The proposed merger of Canadian Pacific and Kansas City Souther was approved on March 15, 2023 by the Surface Transportation Board, as reported in the Chicago Tribune and the Daily Herald.

The Coalition to Stop CPKC is in the process of reviewing the Surface Transportation Board's decision. The Village will share more details as information becomes available.

Yard Waste & Composting Programs Return in April

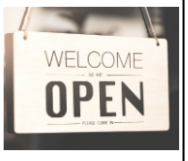
Flood Brothers begins their yard waste pickup program during the first week of April. Yard waste is collected during your regular garbage pickup day.

Residents receive free yard waste pickup for the first collection of the year (up to 7 bundles or bags). Residents may either order a 95-gallon yard waste cart from Flood Brothers, which is billed annually each April, or purchase individual yard waste stickers for disposal.

Residents who purchase a yard waste cart may participate in the Flood Brothers composting program by including food scraps in the cart. Composting is not available through the bag and sticker yard waste program.

Find information on collection dates, sticker purchase locations, and more on the Village's website at www.roselle.il.us/Yard-Waste.

Welcome, New Businesses!



Last month, Roselle welcomed the following new businesses:

- Diamond Yoga Flow
- Lava Construction
- Subway

For more information on starting a business in Roselle, or to explore resources available to your business, visit our website at www.roselle.il.us/Business.

DuPage County Public Meeting: Disaster Preparedness

DuPage County's Office of Emergency Management and National Security wants to know how they can better prepare you for disasters. Attend the public meeting on Tuesday, March 21 from 6:00-7:00p.m. at the DuPage County Office of Homeland Security & Emergency Management (418 N. County Farm Road, Wheaton, IL) to learn about potential disasters that could occur within the County and discuss ways to eliminate or reduce the negative impact of those disasters.

Questions? Contact Mia Gerace of the DuPage County Office of Emergency Management and National Security at (630) 407-2937 or Mia.Gerace@dupageco.org.

Wednesday, March 15, 2023

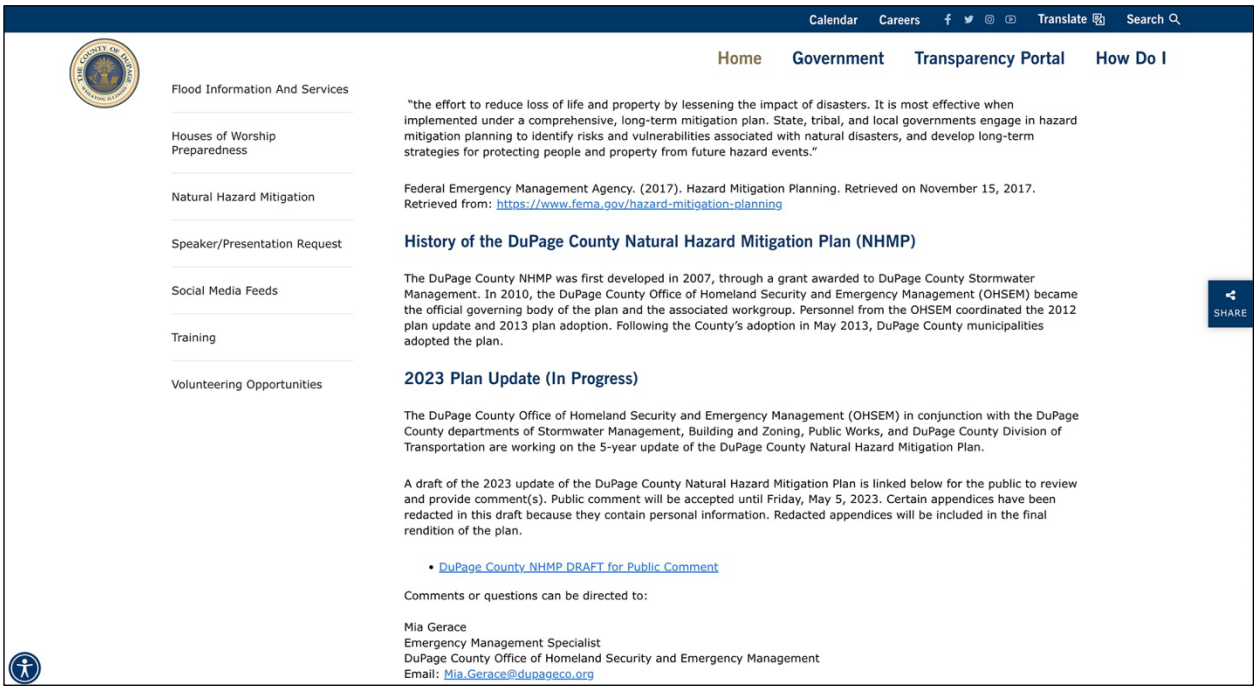
DuPage County Seeking Public Input on Natural Hazard Mitigation Plan

DuPage County's Office of Homeland Security and Emergency Management (OHSEM) will host a public information and planning session regarding natural hazards that could impact the County. The meeting is part of an effort to update DuPage County's Natural Hazard Mitigation Plan, which is a process that takes place every five years. The meeting will be held from 6-7 p.m. March 21 at OHSEM offices, 418 N. County Farm Road, Wheaton.

DuPage County Emergency Preparedness Survey

DuPage County residents and businesses can help the County update its emergency preparedness plans by participating in a simple online questionnaire. Feedback from the voluntary and confidential 10-minute questionnaire will assist DuPage County in serving residents and businesses before, during and after an emergency or disaster.

The questionnaire will remain open until March 30. Complete the questionnaire here.



Calendar Careers Translate Search

Home Government Transparency Portal How Do I

- Flood Information And Services
- Houses of Worship Preparedness
- Natural Hazard Mitigation
- Speaker/Presentation Request
- Social Media Feeds
- Training
- Volunteering Opportunities

"the effort to reduce loss of life and property by lessening the impact of disasters. It is most effective when implemented under a comprehensive, long-term mitigation plan. State, tribal, and local governments engage in hazard mitigation planning to identify risks and vulnerabilities associated with natural disasters, and develop long-term strategies for protecting people and property from future hazard events."

Federal Emergency Management Agency. (2017). Hazard Mitigation Planning. Retrieved on November 15, 2017. Retrieved from: https://www.fema.gov/hazard-mitigation-planning

History of the DuPage County Natural Hazard Mitigation Plan (NHMP)

The DuPage County NHMP was first developed in 2007, through a grant awarded to DuPage County Stormwater Management. In 2010, the DuPage County Office of Homeland Security and Emergency Management (OHSEM) became the official governing body of the plan and the associated workgroup. Personnel from the OHSEM coordinated the 2012 plan update and 2013 plan adoption. Following the County's adoption in May 2013, DuPage County municipalities adopted the plan.

SHARE

2023 Plan Update (In Progress)

The DuPage County Office of Homeland Security and Emergency Management (OHSEM) in conjunction with the DuPage County departments of Stormwater Management, Building and Zoning, Public Works, and DuPage County Division of Transportation are working on the 5-year update of the DuPage County Natural Hazard Mitigation Plan.

A draft of the 2023 update of the DuPage County Natural Hazard Mitigation Plan is linked below for the public to review and provide comment(s). Public comment will be accepted until Friday, May 5, 2023. Certain appendices have been redacted in this draft because they contain personal information. Redacted appendices will be included in the final rendition of the plan.

- DuPage County NHMP DRAFT for Public Comment

Comments or questions can be directed to:

Mia Gerace
Emergency Management Specialist
DuPage County Office of Homeland Security and Emergency Management
Email: Mia.Gerace@dupageco.org

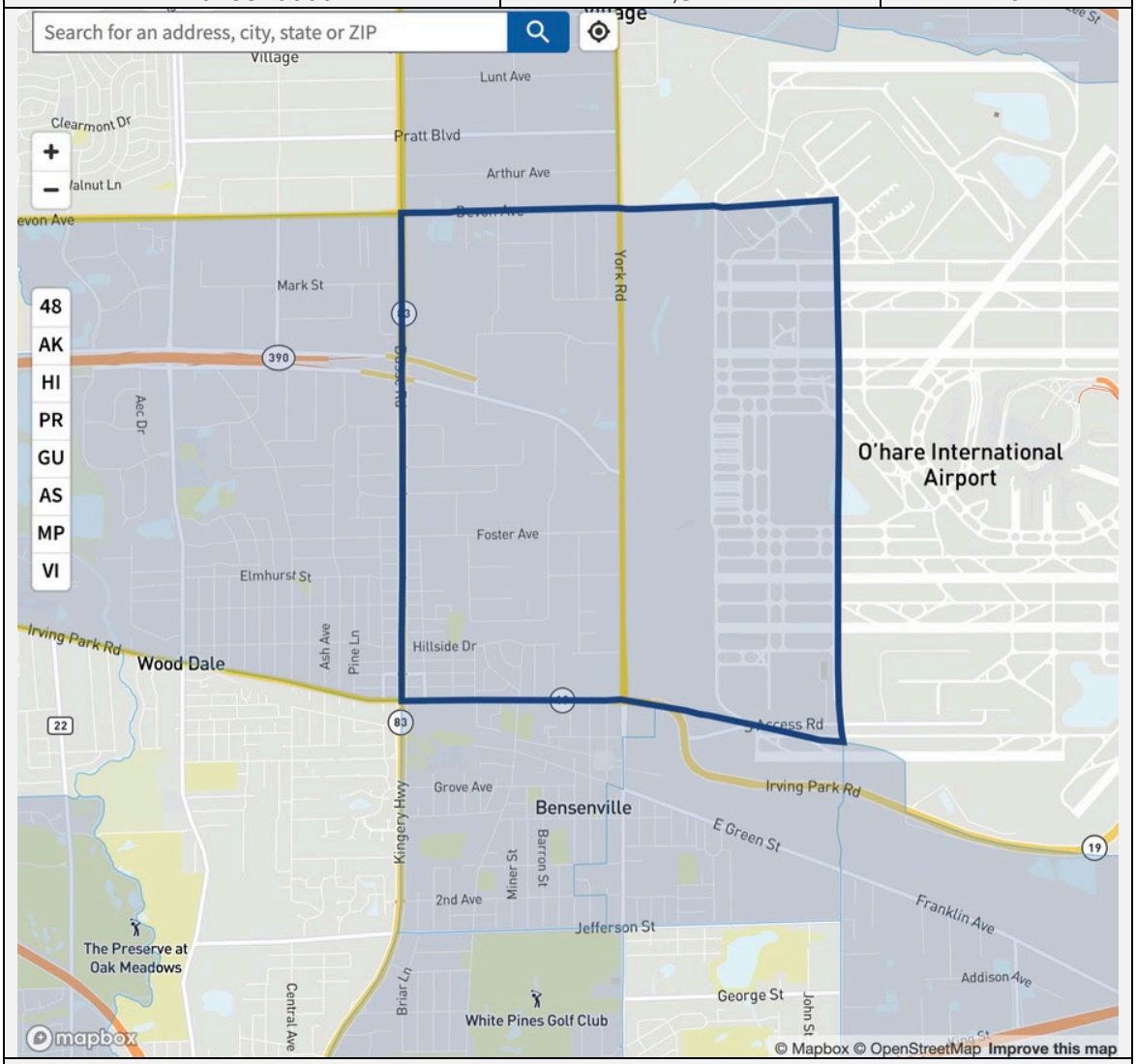
2023 HMP Draft Posted to DuPage County Website

www.ProtectDuPage.org | @ProtectDuPage
Protect DuPage
4.2K followers • 102 following
Learn More
Message
Follow
Posts
About
Mentions
Followers
Photos
Videos
More
Intro
Official Facebook page of the DuPage County Office of Homeland Security and Emergency Management.
Page · Government organization
(630) 682-7925
oem@dupageco.org
youtube.com/protectdupage
facebook.com/protectdupage
twitter.com/protectdupage
protectdupage.org
Photos
See all photos
Posts
Filters
Protect DuPage
26m ·
A draft of the 2023 DuPage County Natural Hazard Mitigation Plan (NHMP) is available for the public to review and provide comment(s). Public comment will be accepted until Friday, May 5, 2023. The draft and more information can be found on our ProtectDuPage website:
https://www.dupagecounty.gov/.../natural_hazard...
DUPAGE COUNTY
Multi-Jurisdictional
Natural Hazard Mitigation Plan
2023
DRAFT
Like
Comment
Share

Appendix C: Disadvantaged Communities

Exhibit C-82. DuPage County Census Tract 17043840000

DUPAGE COUNTY, IL		
CLIMATE & ECONOMIC JUSTICE SCREENING TOOL - DISADVANTAGED CENSUS TRACT		
CENSUS TRACT 2010 ID	**CENSUS TRACT POPULATION**	**LOW INCOME TRACT?**
17043840000	2,812	NO

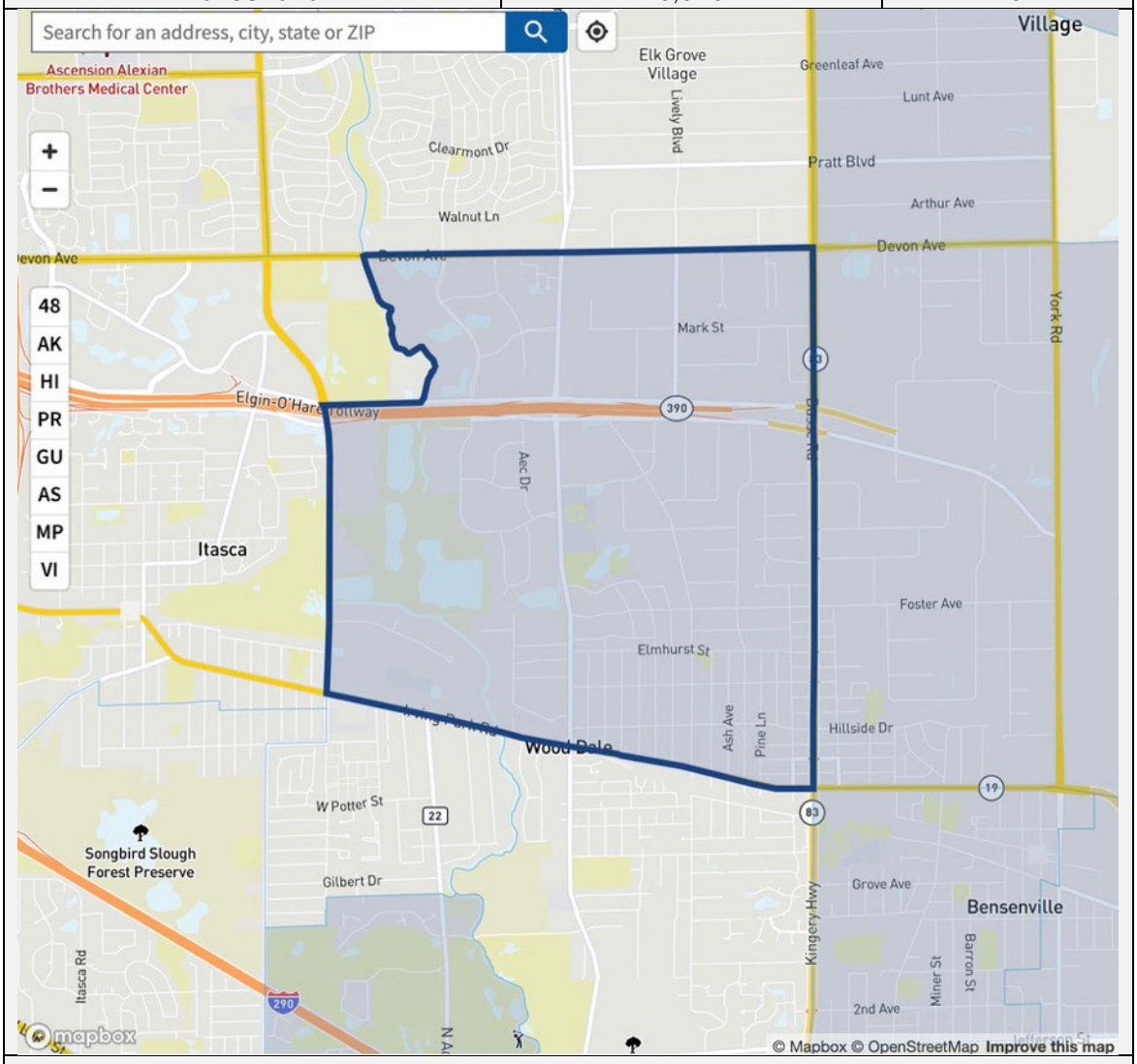


CENSUS TRACT BURDENS: Workforce Development	
91st *% (above 90th percentile)*	*Share of households where no one over age 14 speaks English very well*
28% *(above 10%)*	*Percent of people ages 25 years or older whose high school education is less than a high school diploma*

Source: U.S. Council on Environmental Quality – Climate & Economic Justice Screening Tool (2023)

Exhibit C-83. DuPage County Census Tract 17043840101

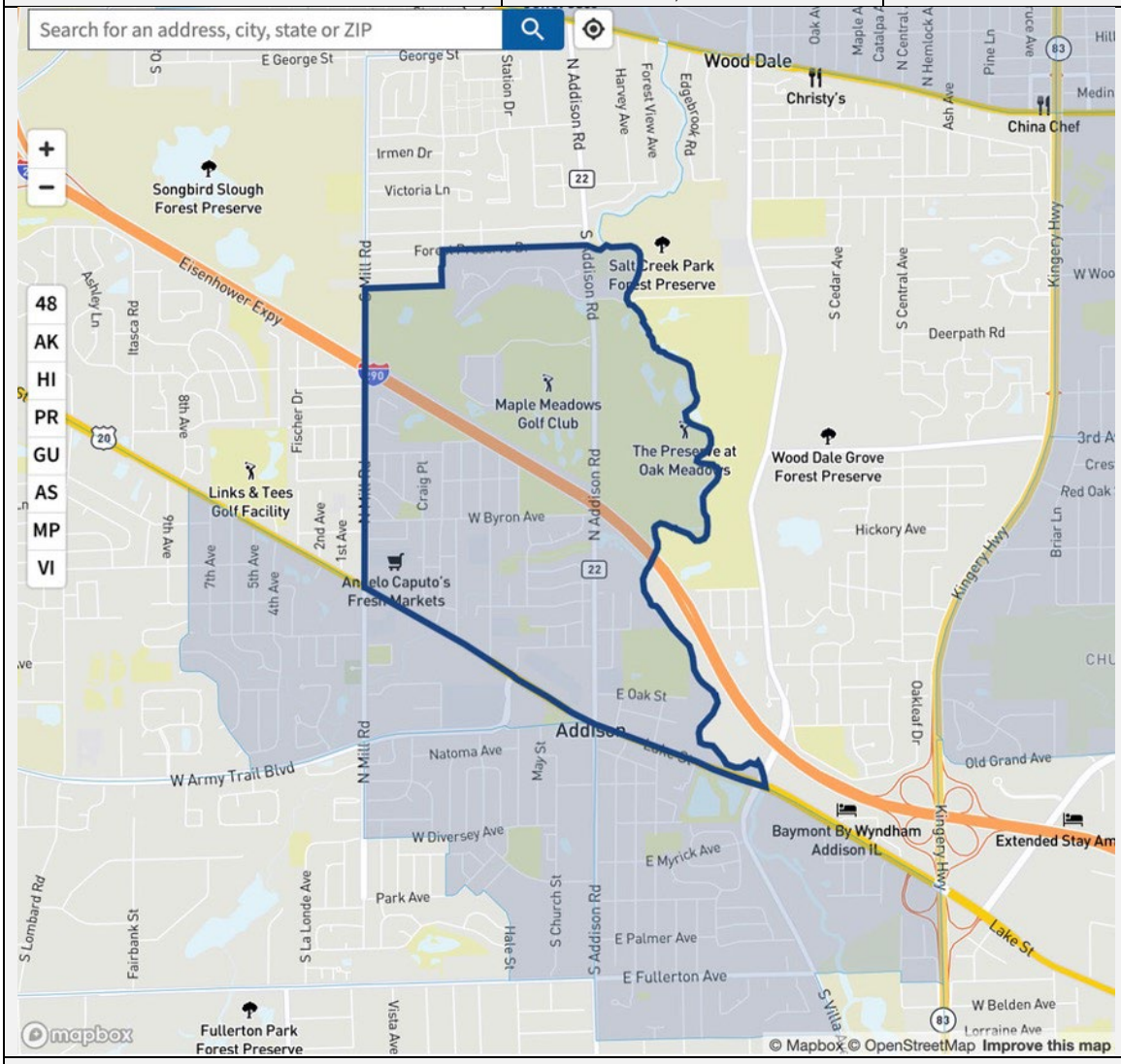
DUPAGE COUNTY, IL		
CLIMATE & ECONOMIC JUSTICE SCREENING TOOL - DISADVANTAGED CENSUS TRACT		
CENSUS TRACT 2010 ID	CENSUS TRACT POPULATION	LOW INCOME TRACT?
17043840101	5,516	NO



CENSUS TRACT BURDENS: Workforce Development	
91st *% (above 90th percentile)*	*Share of households where no one over age 14 speaks English very well*
17% *(above 10%)*	*Percent of people ages 25 years or older whose high school education is less than a high school diploma*
Source: U.S. Council on Environmental Quality – Climate & Economic Justice Screening Tool (2023)	

Exhibit C-84. DuPage County Census Tract 17043840104

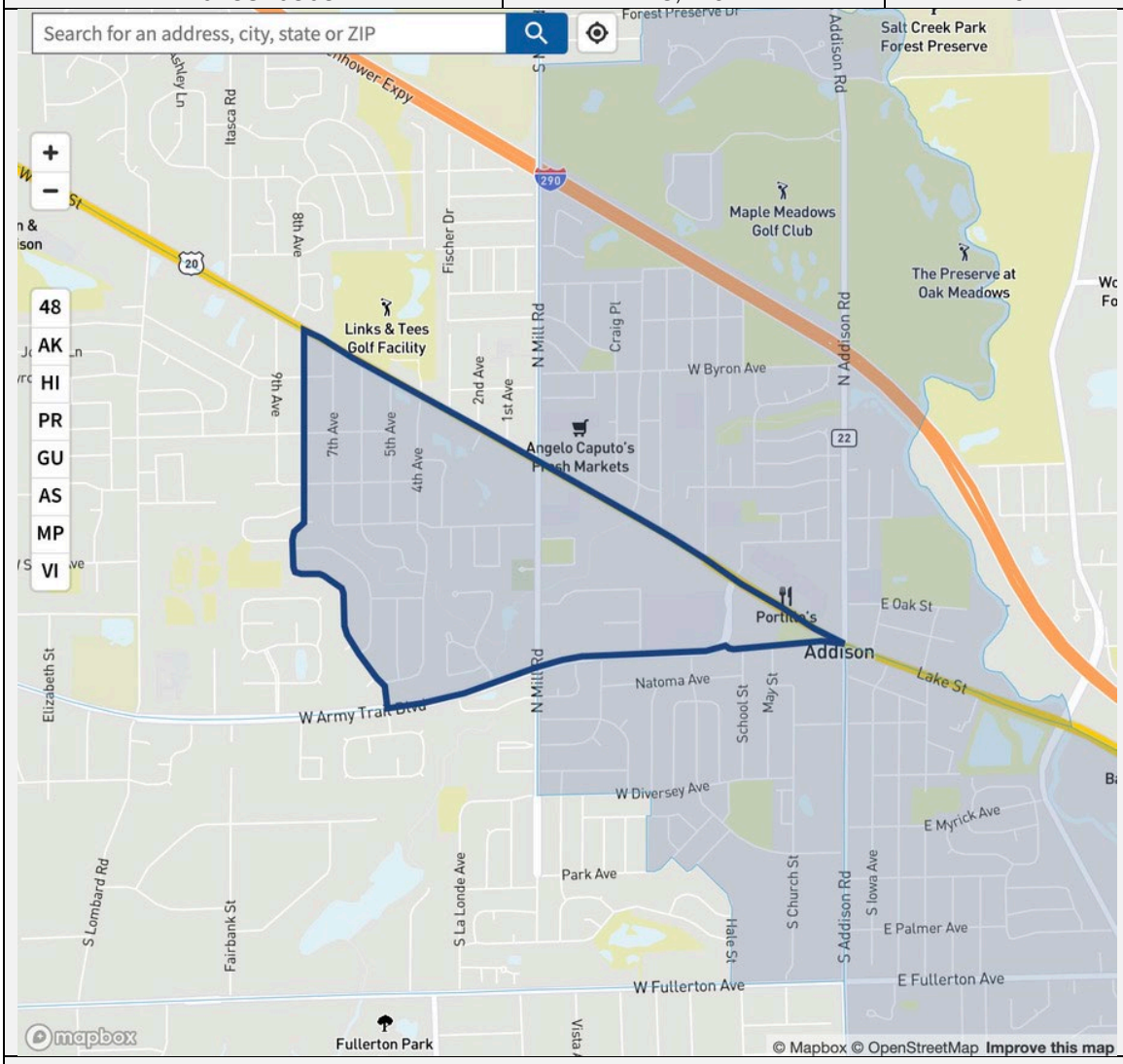
DUPAGE COUNTY, IL		
CLIMATE & ECONOMIC JUSTICE SCREENING TOOL - DISADVANTAGED CENSUS TRACT		
CENSUS TRACT 2010 ID	**CENSUS TRACT POPULATION**	**LOW INCOME TRACT?**
17043840104	5,690	YES



CENSUS TRACT BURDENS: Energy, Legacy Pollution, Water & Wastewater	
91st *% (above 90th percentile)*	*Level of inhalable particles, 2.5 micrometers or smaller in the air*
91st *% (above 90th percentile)*	*Count of hazardous waste facilities within 5 kilometers*
95th *% (above 90th percentile)*	*The density of leaking underground storage tanks and number of all active underground storage tanks within 1500 feet of the census tract boundaries*
96th *% (above 90th percentile)*	*Modeled toxic concentrations at parts of streams within 500 meters*
Source: U.S. Council on Environmental Quality – Climate & Economic Justice Screening Tool (2023)	

Exhibit C-85. DuPage County Census Tract 17043840303

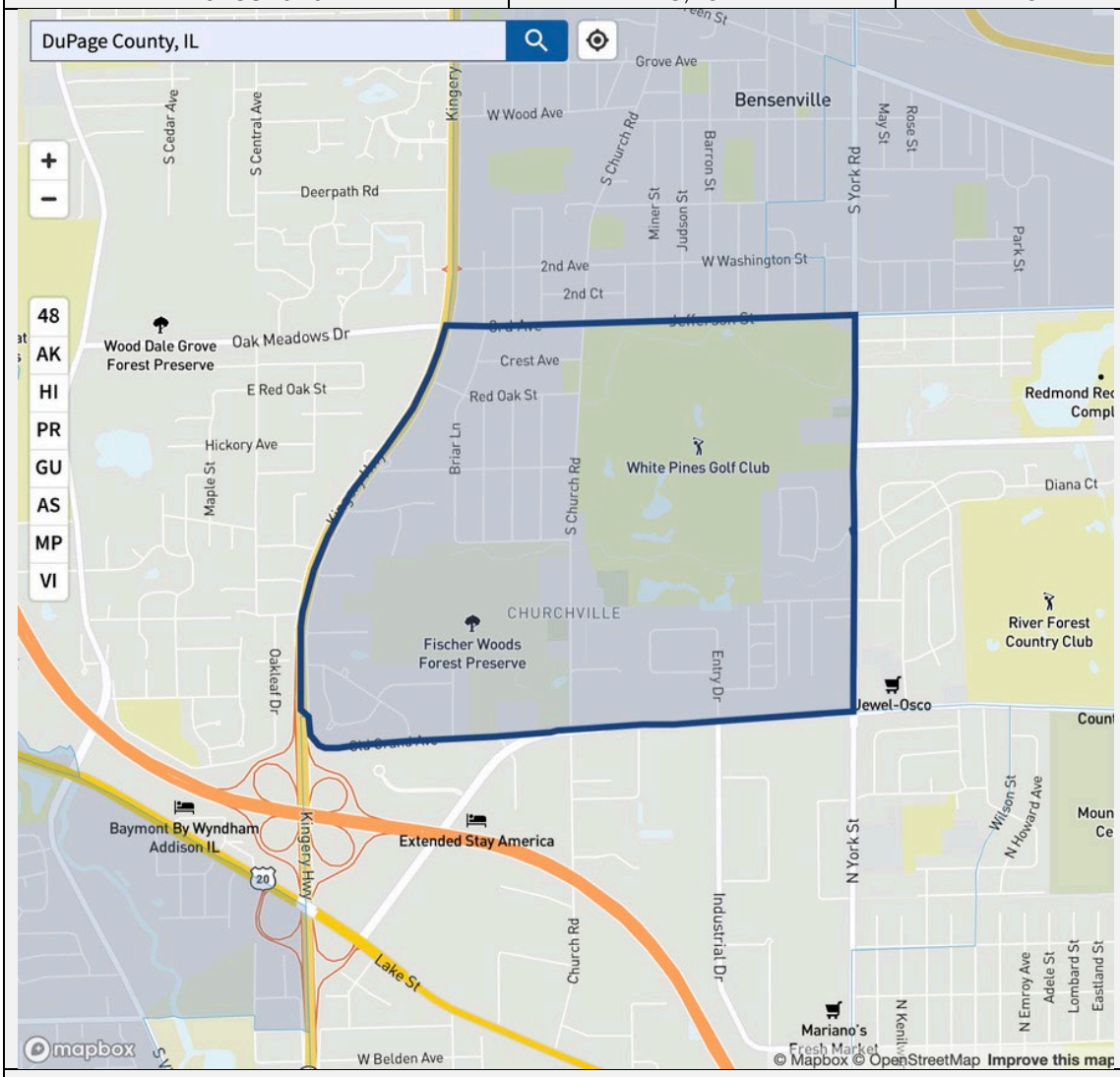
DUPAGE COUNTY, IL		
CLIMATE & ECONOMIC JUSTICE SCREENING TOOL - DISADVANTAGED CENSUS TRACT		
CENSUS TRACT 2010 ID	**CENSUS TRACT POPULATION**	**LOW INCOME TRACT?**
17043840303	3,779	NO



CENSUS TRACT BURDENS: Workforce Development	
91st *% (above 90th percentile)*	*Share of households where no one over age 14 speaks English very well*
28% *(above 10%)*	*Percent of people ages 25 years or older whose high school education is less than a high school diploma*
Source: U.S. Council on Environmental Quality – Climate & Economic Justice Screening Tool (2023)	

Exhibit C-86. DuPage County Census Tract 17043840704

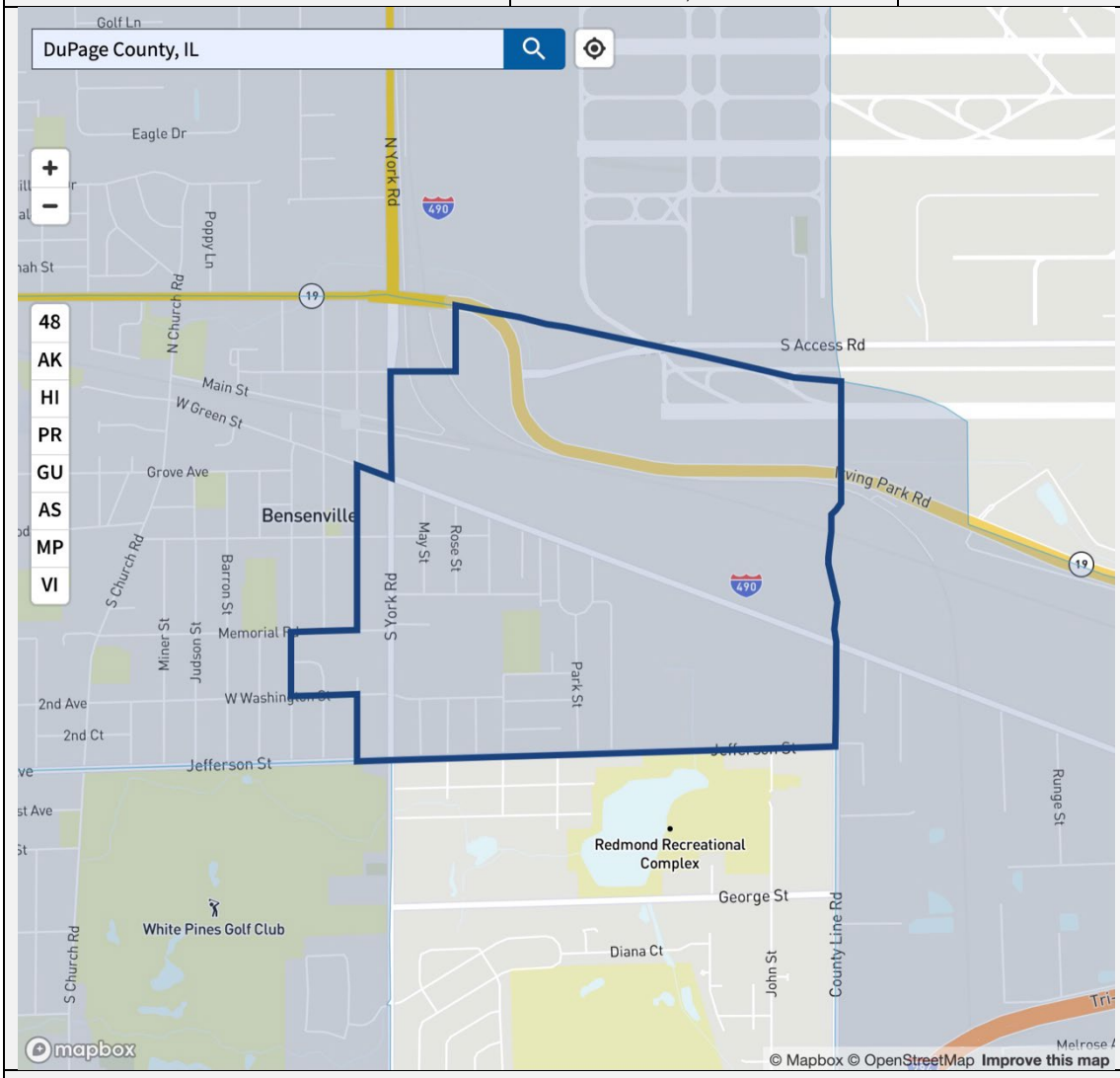
DUPAGE COUNTY, IL		
CLIMATE & ECONOMIC JUSTICE SCREENING TOOL - DISADVANTAGED CENSUS TRACT		
CENSUS TRACT 2010 ID	**CENSUS TRACT POPULATION**	**LOW INCOME TRACT?**
17043840704	3,152	NO



CENSUS TRACT BURDENS: Workforce Development	
94th *% (above 90th percentile)*	*Share of households where no one over age 14 speaks English very well*
21% *(above 10%)*	*Percent of people ages 25 years or older whose high school education is less than a high school diploma*
Source: U.S. Council on Environmental Quality – Climate & Economic Justice Screening Tool (2023)	

Exhibit C-87. DuPage County Census Tract 17043840801

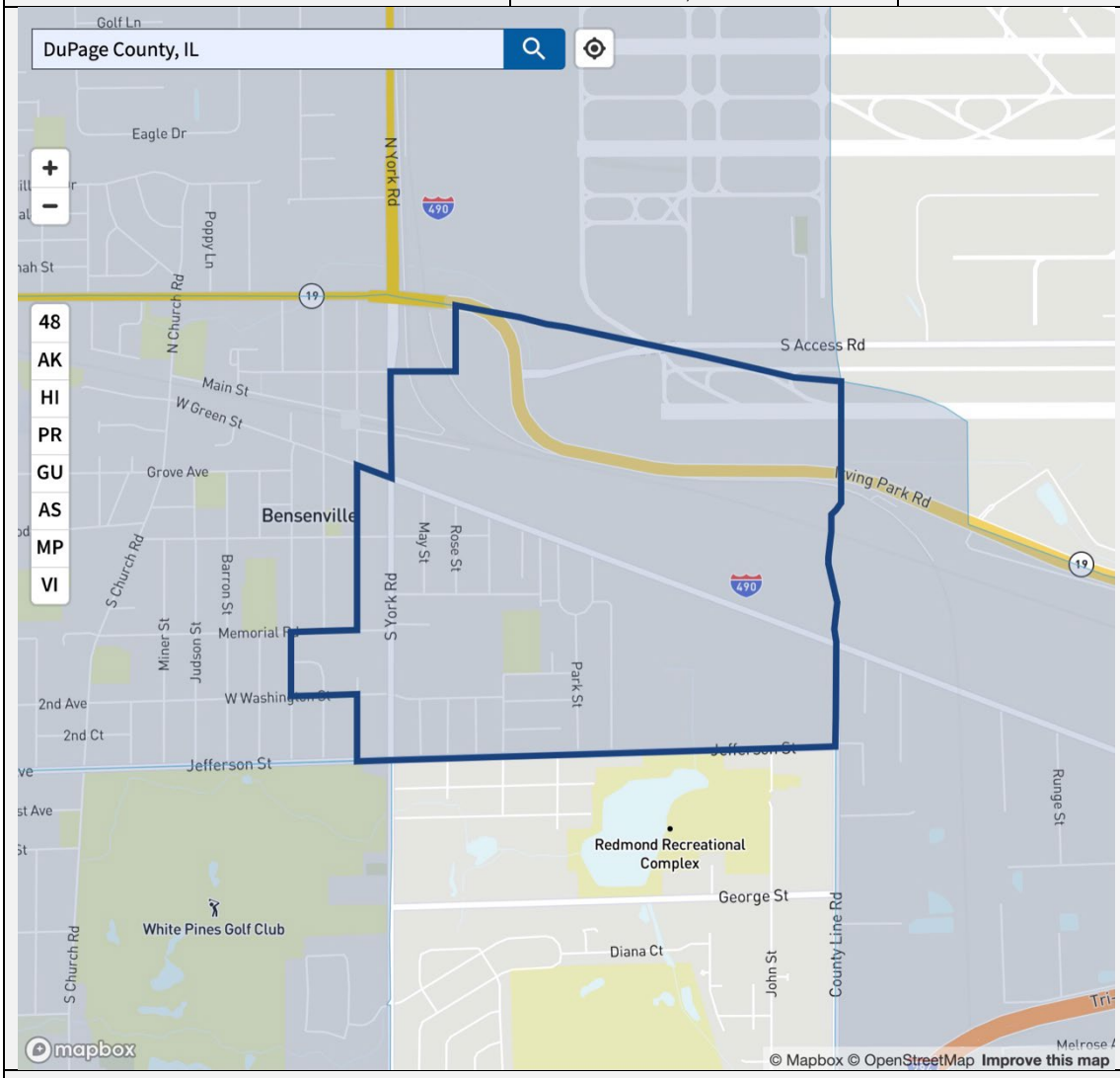
DUPAGE COUNTY, IL		
CLIMATE & ECONOMIC JUSTICE SCREENING TOOL - DISADVANTAGED CENSUS TRACT		
CENSUS TRACT 2010 ID	CENSUS TRACT POPULATION	LOW INCOME TRACT?
17043840801	2,592	YES



CENSUS TRACT BURDENS: Energy, Health, Housing, Water & Wastewater, Workforce Development	
91st % (above 90th percentile)	*Level of inhalable particles, 2.5 micrometers or smaller in the air*
90th % (above 90th percentile)	*Percent of people ages 18 years and older who have been told they have heart disease*
93rd % (above 90th percentile)	*Share of households making less than 80% of the area median family income and spending more than 30% of income on housing*
96th % (above 90th percentile)	*Share of homes without indoor kitchens or plumbing*
91st % (above 90th percentile)	*Modeled toxic concentrations at parts of streams within 500 meters*
22nd % (above 10%)	*Percent of people ages 25 years or older whose high school education is less than a high school diploma*
Source: U.S. Council on Environmental Quality – Climate & Economic Justice Screening Tool (2023)	

Exhibit C-88. DuPage County Census Tract 17043840802

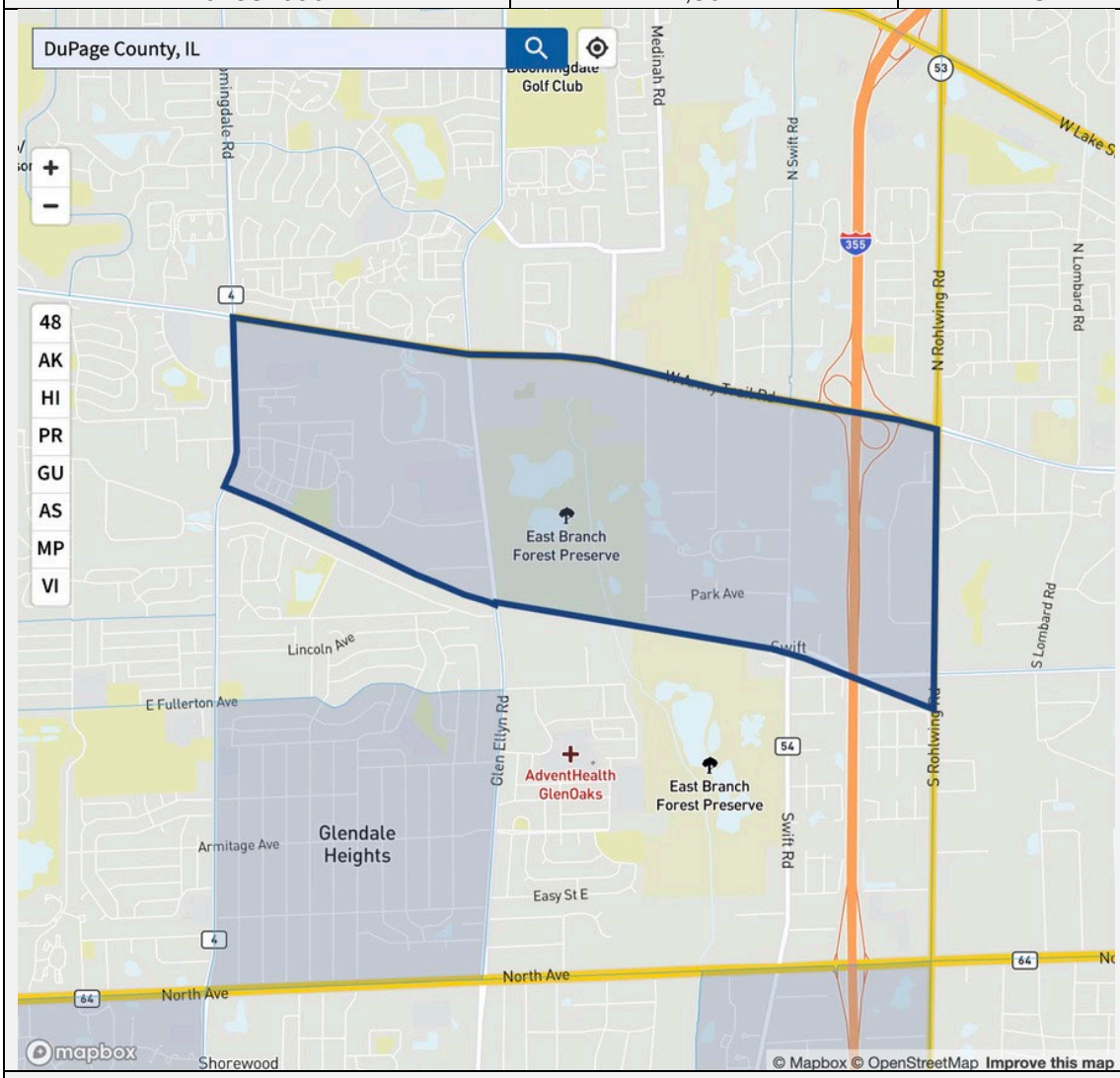
DUPAGE COUNTY, IL		
CLIMATE & ECONOMIC JUSTICE SCREENING TOOL - DISADVANTAGED CENSUS TRACT		
CENSUS TRACT 2010 ID	CENSUS TRACT POPULATION	LOW INCOME TRACT?
17043840802	5,739	NO



CENSUS TRACT BURDENS: Workforce Development	
95th *% (above 90th percentile)*	*Share of households where no one over age 14 speaks English very well*
19% *(above 10%)*	*Percent of people ages 25 years or older whose high school education is less than a high school diploma*
Source: U.S. Council on Environmental Quality – Climate & Economic Justice Screening Tool (2023)	

Exhibit C-89. DuPage County Census Tract 17043840904

DUPAGE COUNTY, IL		
CLIMATE & ECONOMIC JUSTICE SCREENING TOOL - DISADVANTAGED CENSUS TRACT		
CENSUS TRACT 2010 ID	**CENSUS TRACT POPULATION**	**LOW INCOME TRACT?**
17043840904	4,302	YES

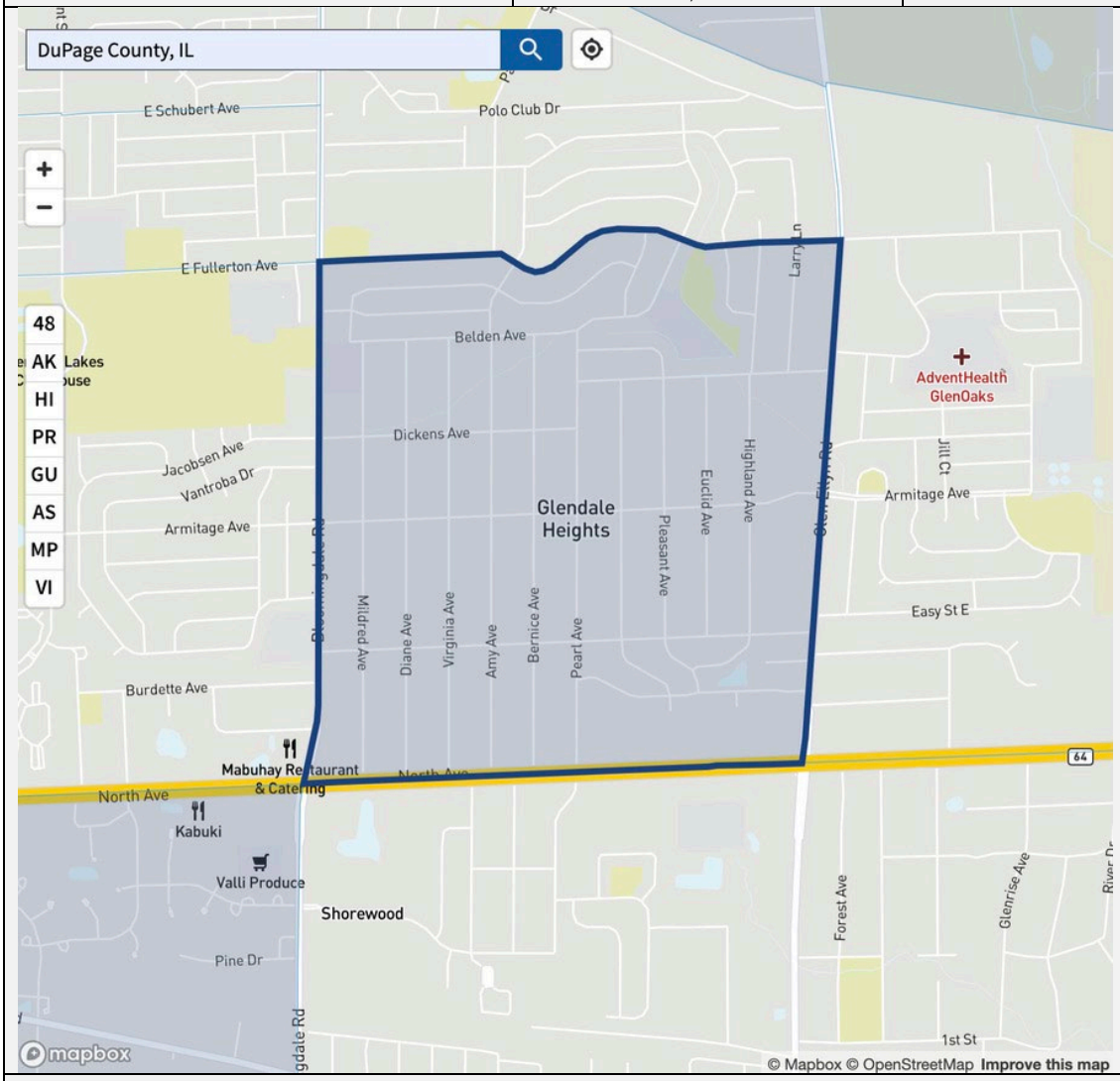


CENSUS TRACT BURDENS: Energy	
91st *% (above 90th percentile)*	*Level of inhalable particles, 2.5 micrometers or smaller in the air*

Source: U.S. Council on Environmental Quality – Climate & Economic Justice Screening Tool (2023)

Exhibit C-90. DuPage County Census Tract 17043840910

DUPAGE COUNTY, IL		
CLIMATE & ECONOMIC JUSTICE SCREENING TOOL - DISADVANTAGED CENSUS TRACT		
CENSUS TRACT 2010 ID	**CENSUS TRACT POPULATION**	**LOW INCOME TRACT?**
17043840910	5,051	YES



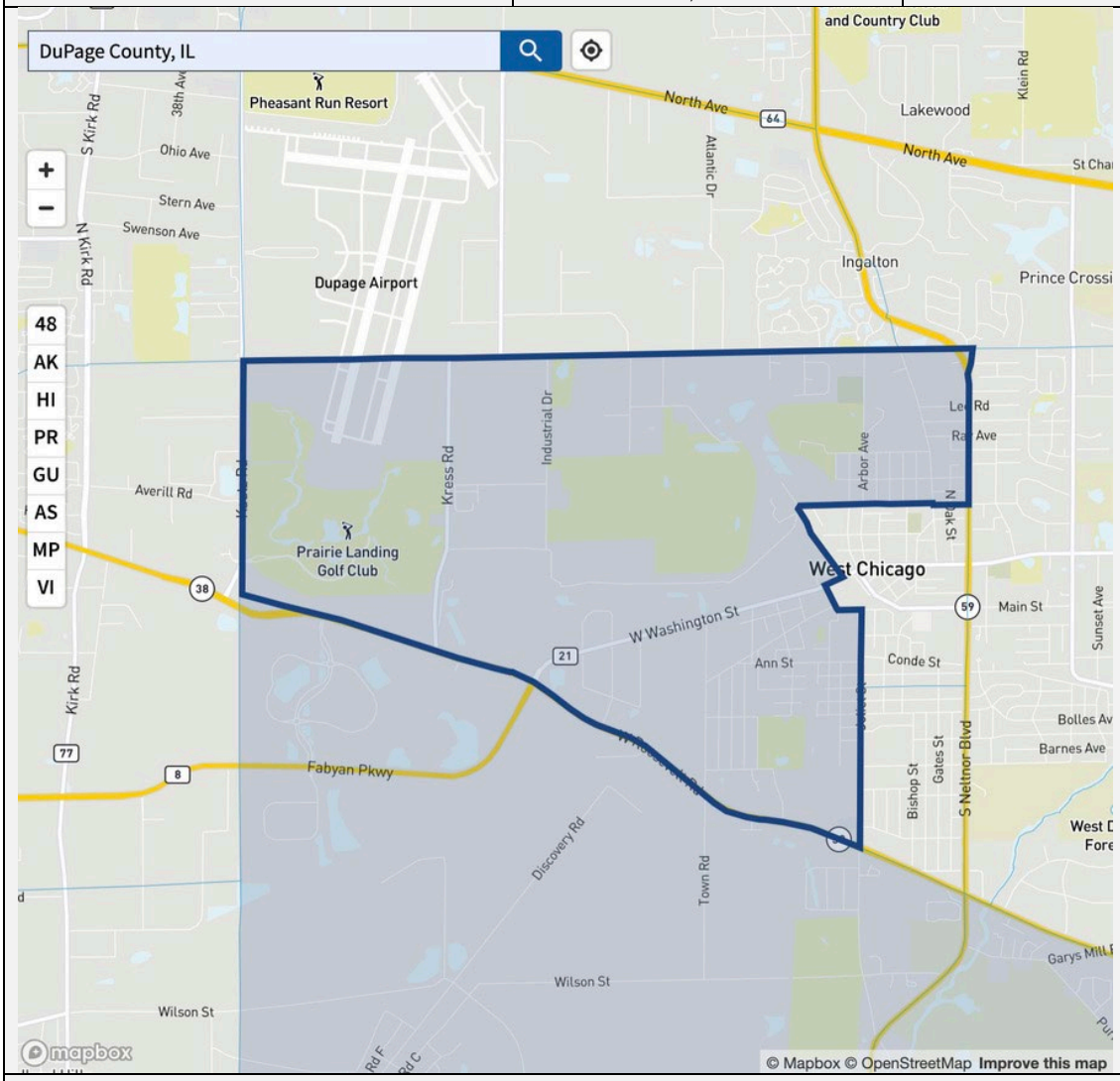
CENSUS TRACT BURDENS: Energy

91st *% (above 90th percentile)*	*Level of inhalable particles, 2.5 micrometers or smaller in the air*

Source: U.S. Council on Environmental Quality – Climate & Economic Justice Screening Tool (2023)

Exhibit C-91. DuPage County Census Tract 17043841501

DUPAGE COUNTY, IL		
CLIMATE & ECONOMIC JUSTICE SCREENING TOOL - DISADVANTAGED CENSUS TRACT		
CENSUS TRACT 2010 ID	CENSUS TRACT POPULATION	LOW INCOME TRACT?
17043841501	6,323	YES

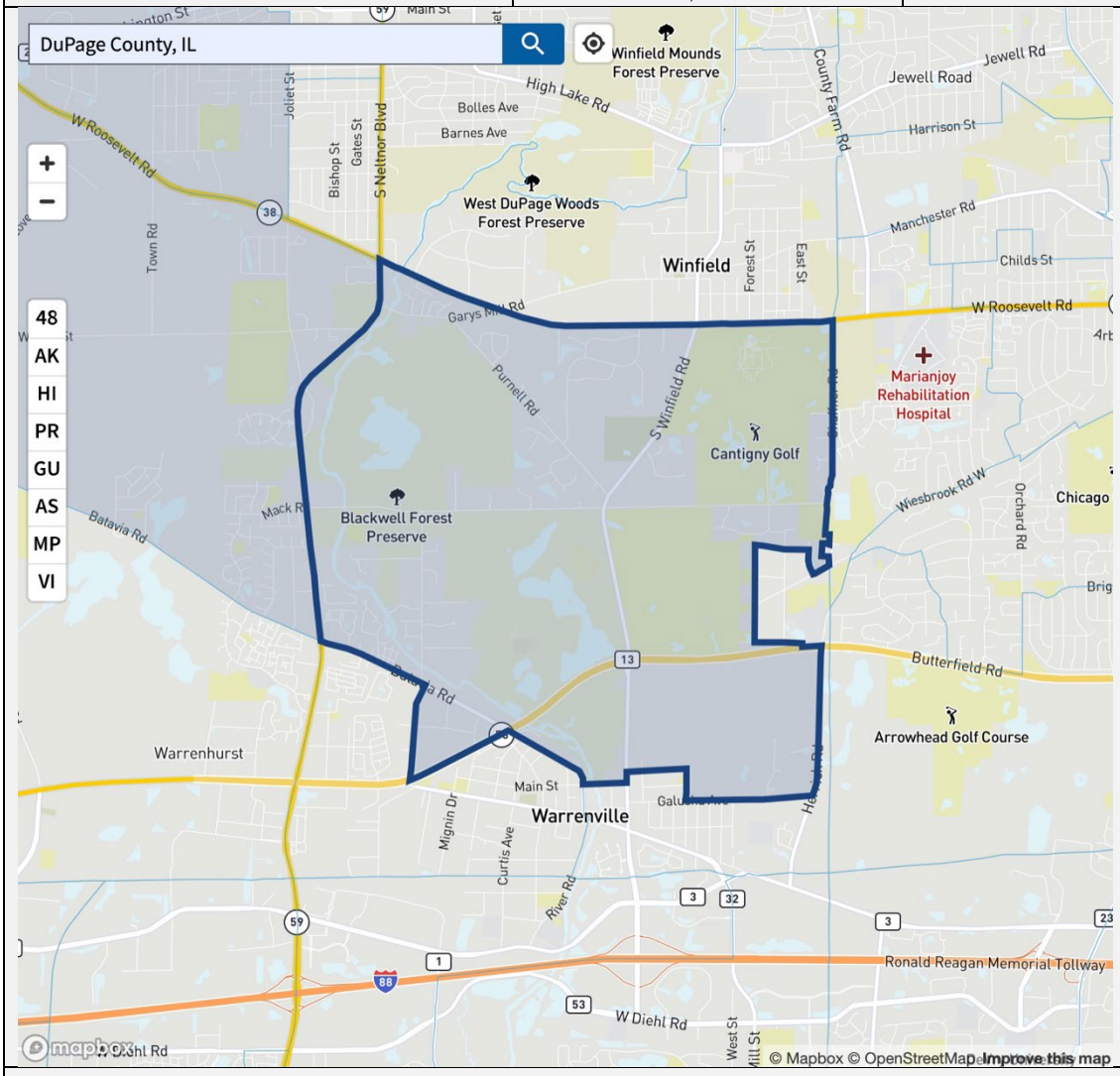


CENSUS TRACT BURDENS: Energy, Legacy Pollution	
90th % (above 90th percentile)	*Level of inhalable particles, 2.5 micrometers or smaller in the air*
99th % (above 90th percentile)	*Count of proposed or listed Superfund (or National Priorities List (NPL)) sites within 5 kilometers*

Source: U.S. Council on Environmental Quality – Climate & Economic Justice Screening Tool (2023)

Exhibit C-92. DuPage County Census Tract 17043841603

DUPAGE COUNTY, IL		
CLIMATE & ECONOMIC JUSTICE SCREENING TOOL - DISADVANTAGED CENSUS TRACT		
CENSUS TRACT 2010 ID	**CENSUS TRACT POPULATION**	**LOW INCOME TRACT?**
17043841603	4,249	YES



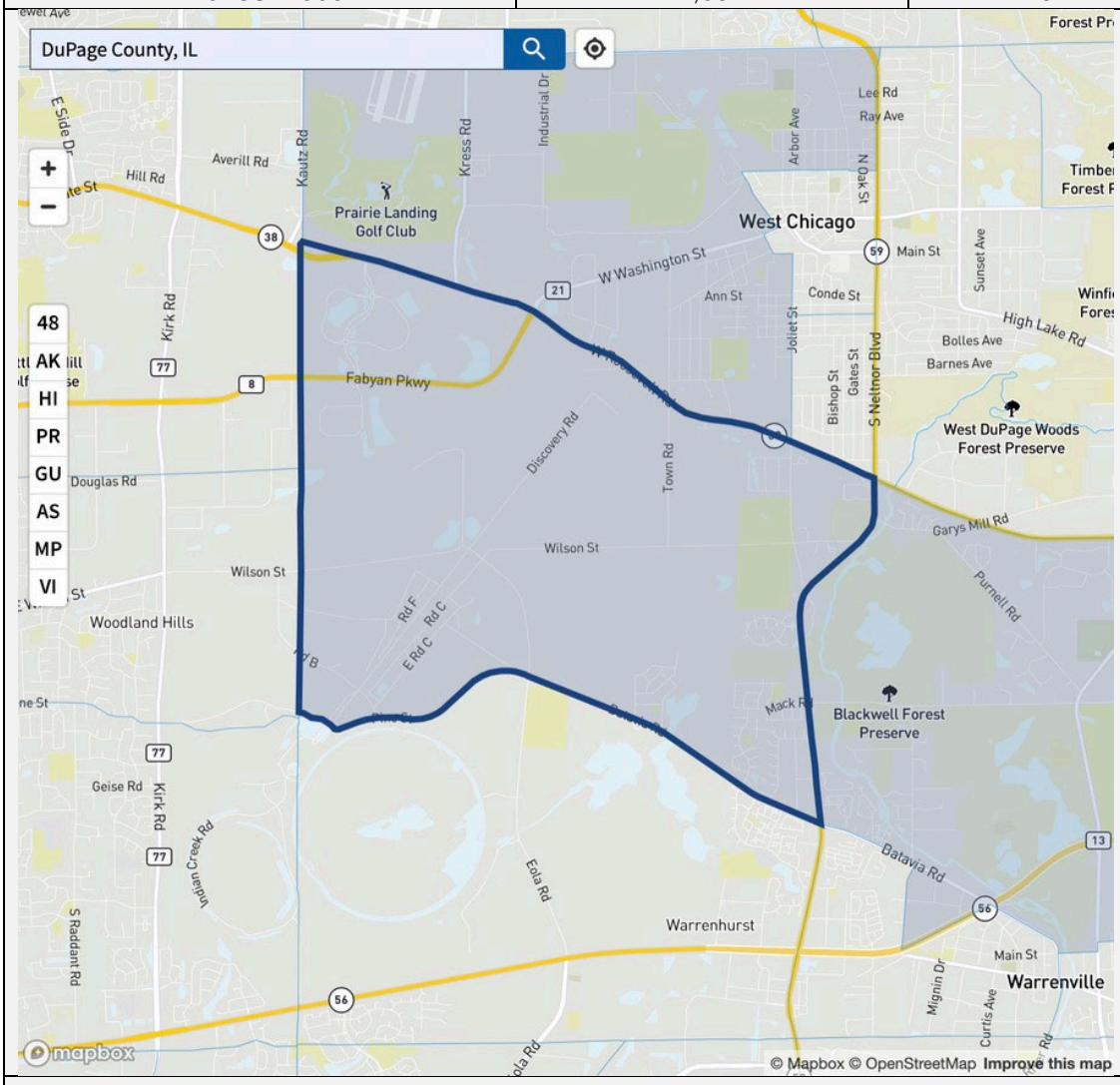
CENSUS TRACT BURDENS: Energy, Legacy Pollution

91st *% (above 90th percentile)*	*Level of inhalable particles, 2.5 micrometers or smaller in the air*
98th *% (above 90th percentile)*	*Count of proposed or listed Superfund (or National Priorities List (NPL)) sites within 5 kilometers*

Source: U.S. Council on Environmental Quality – Climate & Economic Justice Screening Tool (2023)

Exhibit C-93. DuPage County Census Tract 17043841605

DUPAGE COUNTY, IL		
CLIMATE & ECONOMIC JUSTICE SCREENING TOOL - DISADVANTAGED CENSUS TRACT		
CENSUS TRACT 2010 ID	**CENSUS TRACT POPULATION**	**LOW INCOME TRACT?**
17043841605	4,091	NO

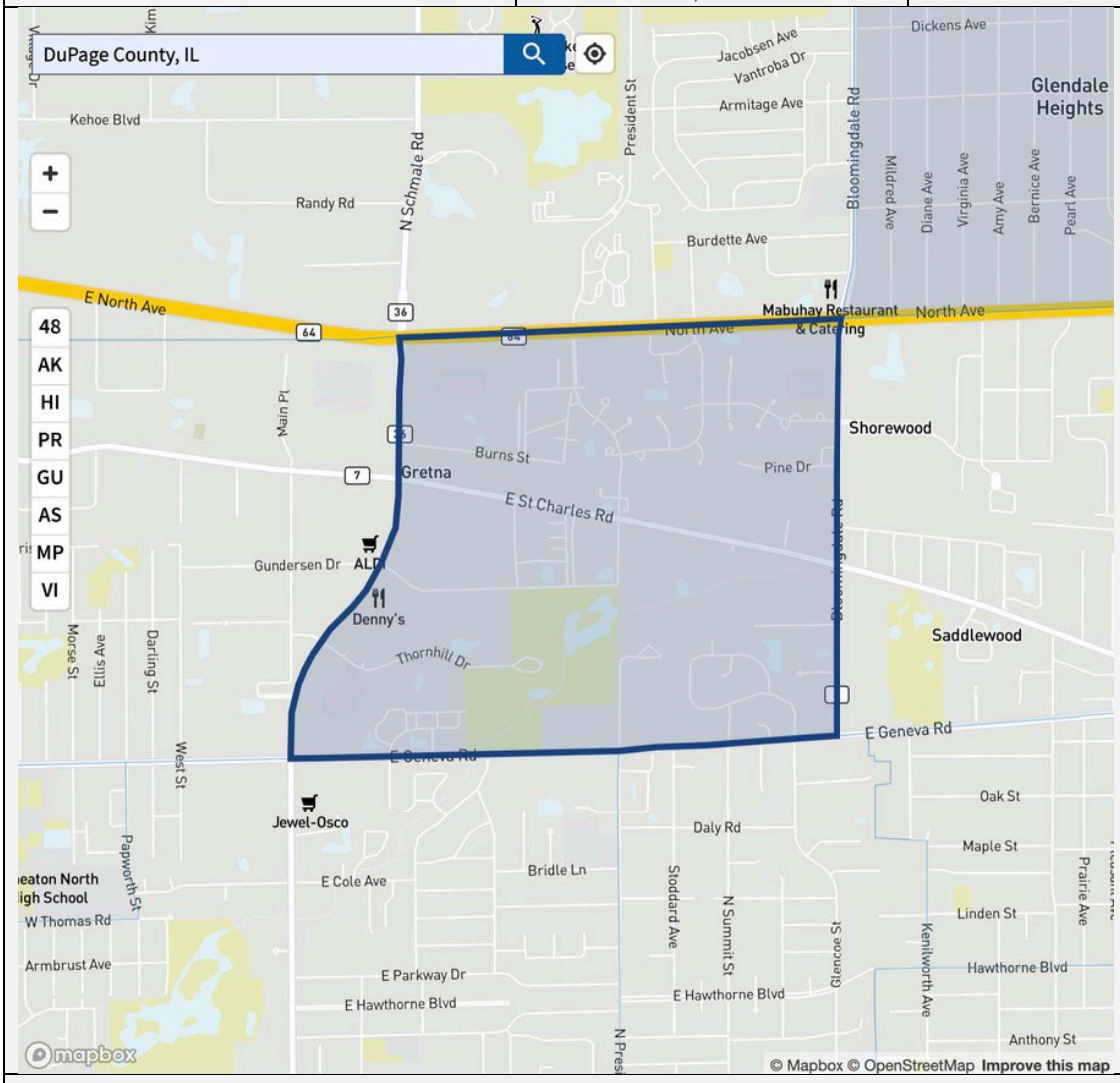


CENSUS TRACT BURDENS: Workforce Development	
91st *% (above 90th percentile)*	*Share of households where no one over age 14 speaks English very well*
17% *(above 10%)*	*Percent of people ages 25 years or older whose high school education is less than a high school diploma*

Source: U.S. Council on Environmental Quality – Climate & Economic Justice Screening Tool (2023)

Exhibit C-94. DuPage County Census Tract 17043841703

DUPAGE COUNTY, IL		
CLIMATE & ECONOMIC JUSTICE SCREENING TOOL - DISADVANTAGED CENSUS TRACT		
CENSUS TRACT 2010 ID	**CENSUS TRACT POPULATION**	**LOW INCOME TRACT?**
17043841703	6,999	YES



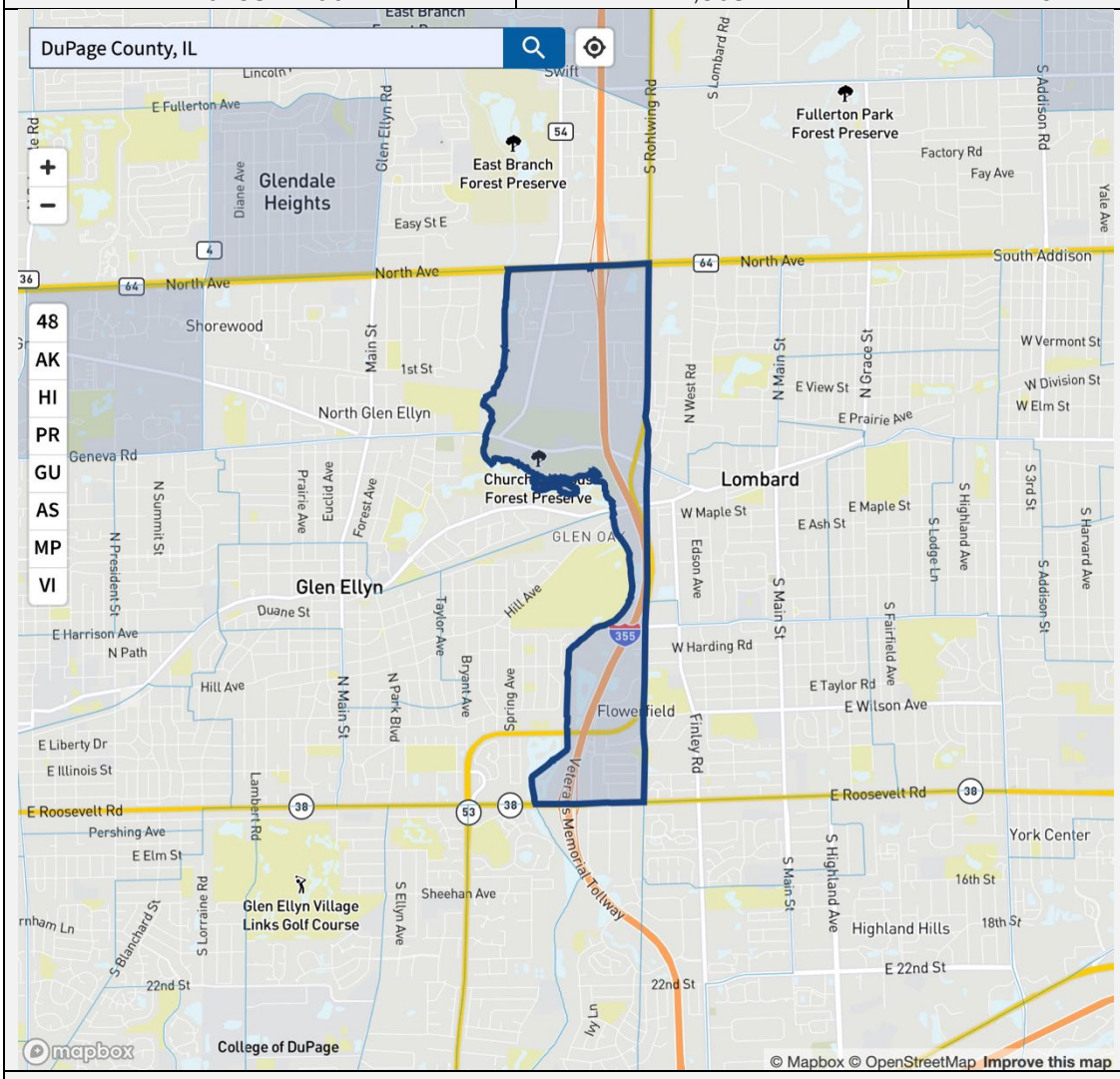
CENSUS TRACT BURDENS: Energy

91st *% (above 90th percentile)*	*Level of inhalable particles, 2.5 micrometers or smaller in the air*

Source: U.S. Council on Environmental Quality – Climate & Economic Justice Screening Tool (2023)

Exhibit C-95. DuPage County Census Tract 17043841706

DUPAGE COUNTY, IL		
CLIMATE & ECONOMIC JUSTICE SCREENING TOOL - DISADVANTAGED CENSUS TRACT		
CENSUS TRACT 2010 ID	**CENSUS TRACT POPULATION**	**LOW INCOME TRACT?**
17043841706	4,368	NO

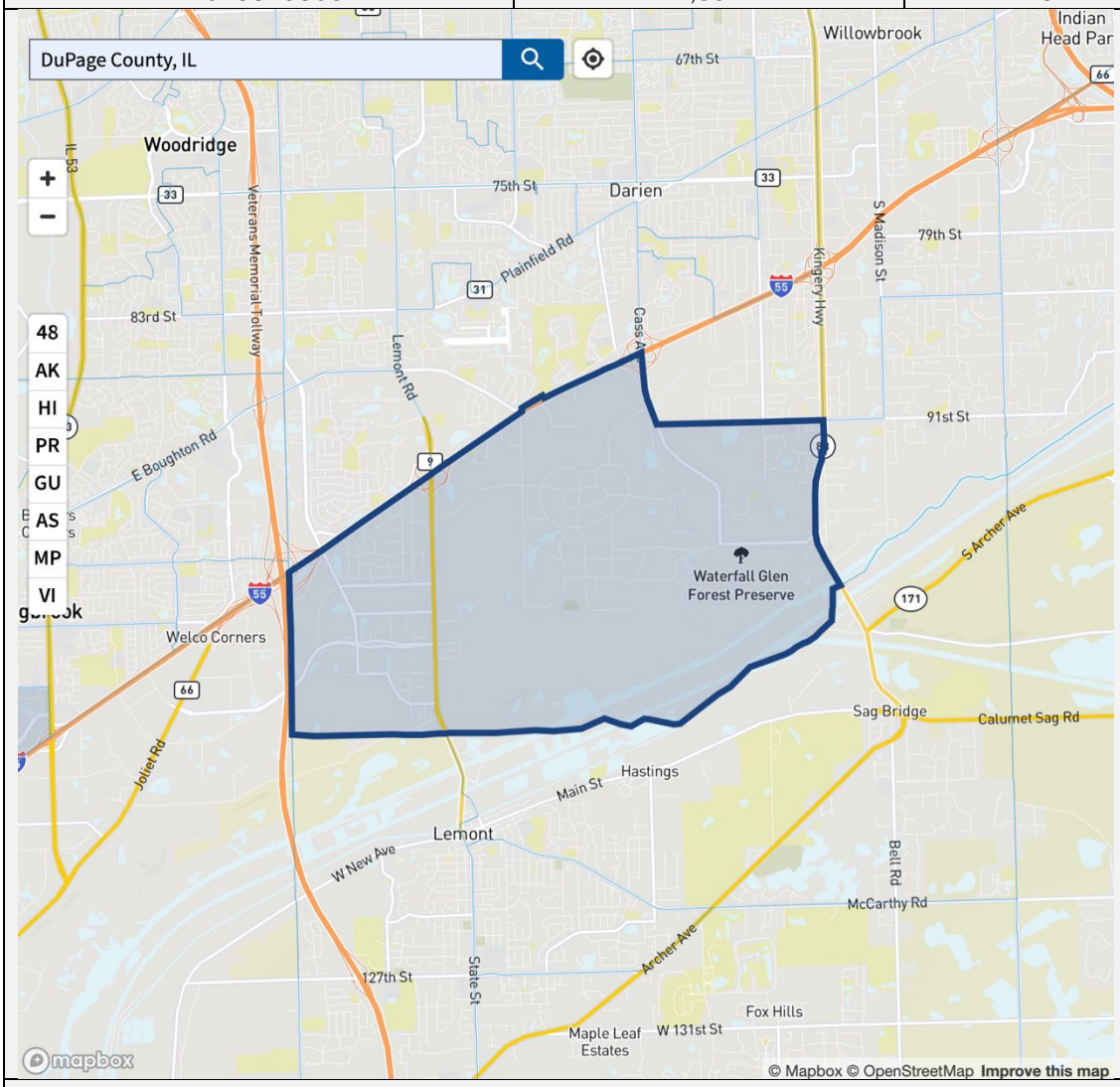


CENSUS TRACT BURDENS: Workforce Development	
93rd *% (above 90th percentile)*	*Share of households where no one over age 14 speaks English very well*
18% *(above 10%)*	*Percent of people ages 25 years or older whose high school education is less than a high school diploma*

Source: U.S. Council on Environmental Quality – Climate & Economic Justice Screening Tool (2023)

Exhibit C-96. DuPage County Census Tract 17043845803

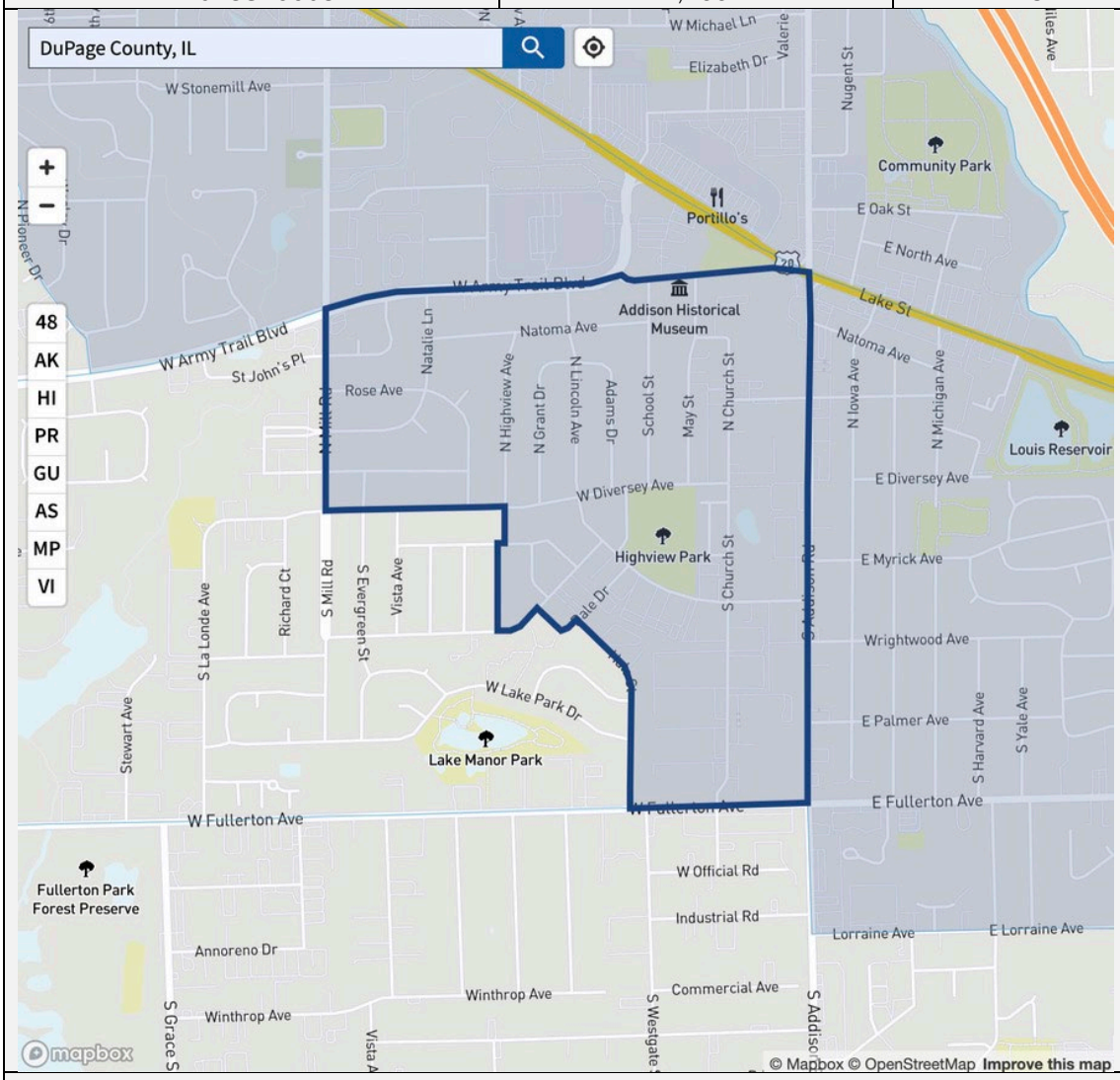
DUPAGE COUNTY, IL		
CLIMATE & ECONOMIC JUSTICE SCREENING TOOL - DISADVANTAGED CENSUS TRACT		
CENSUS TRACT 2010 ID	**CENSUS TRACT POPULATION**	**LOW INCOME TRACT?**
17043845803	2,592	YES



CENSUS TRACT BURDENS: Energy, Legacy Pollution, Transportation, Water & Wastewater	
91st *% (above 90th percentile)*	*Level of inhalable particles, 2.5 micrometers or smaller in the air*
YES	*Presence of one or more Formerly Used Defense Site within the tract*
95th *% (above 90th percentile)*	*Count of proposed or listed Superfund (or National Priorities List (NPL)) sites within 5 kilometers*
98th *% (above 90th percentile)*	*Average of relative cost and time spent on transportation*
90th *% (above 90th percentile)*	*Modeled toxic concentrations at parts of streams within 500 meters*
Source: U.S. Council on Environmental Quality – Climate & Economic Justice Screening Tool (2023)	

Exhibit C-97. DuPage County Census Tract 17043846603

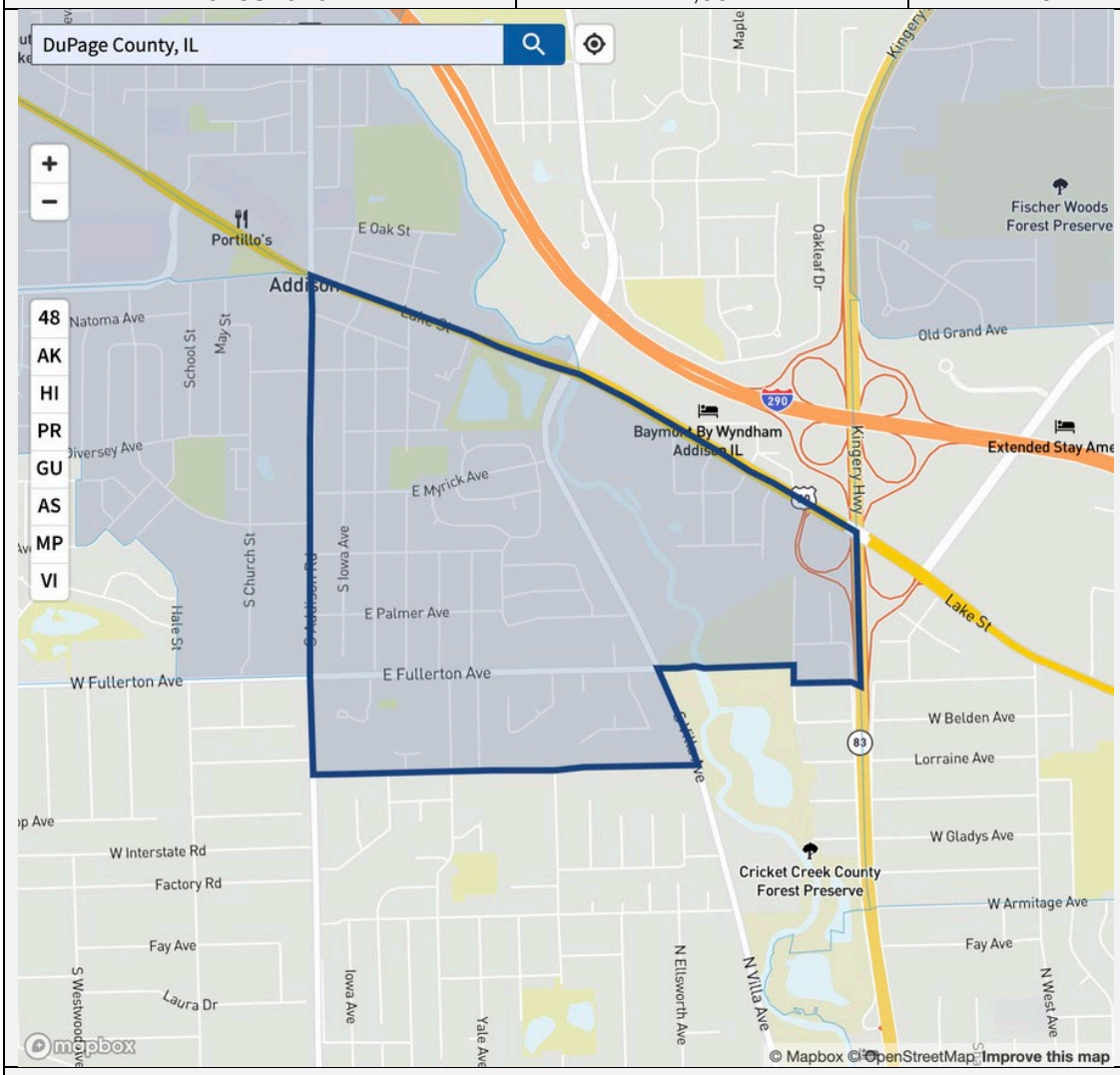
DUPAGE COUNTY, IL		
CLIMATE & ECONOMIC JUSTICE SCREENING TOOL - DISADVANTAGED CENSUS TRACT		
CENSUS TRACT 2010 ID	**CENSUS TRACT POPULATION**	**LOW INCOME TRACT?**
17043846603	4,159	YES



CENSUS TRACT BURDENS: Energy, Housing, Legacy Pollution, Waste & Wastewater, Workforce Development	
91st *% (above 90th percentile)*	*Level of inhalable particles, 2.5 micrometers or smaller in the air*
94th *% (above 90th percentile)*	*Share of households making less than 80% of the area median family income and spending more than 30% of income on housing*
95th *% (above 90th percentile)*	*Count of hazardous waste facilities within 5 kilometers*
90th *% (above 90th percentile)*	*Count of Risk Management Plan (RMP) facilities within 5 kilometers*
95th *% (above 90th percentile)*	*Modeled toxic concentrations at parts of streams within 500 meters*
96th *% (above 10%)*	*Share of households where no one over age 14 speaks English very well*
26% *(above 10%)*	*Percent of people ages 25 years or older whose high school education is less than a high school diploma*
Source: U.S. Council on Environmental Quality – Climate & Economic Justice Screening Tool (2023)	

Exhibit C-98. DuPage County Census Tract 17043846701

DUPAGE COUNTY, IL		
CLIMATE & ECONOMIC JUSTICE SCREENING TOOL - DISADVANTAGED CENSUS TRACT		
CENSUS TRACT 2010 ID	CENSUS TRACT POPULATION	LOW INCOME TRACT?
17043846701	4,597	NO



CENSUS TRACT BURDENS: Workforce Development	
93rd *% (above 90th percentile)*	*Share of households where no one over age 14 speaks English very well*
15% *(above 10%)*	*Percent of people ages 25 years or older whose high school education is less than a high school diploma*

Source: U.S. Council on Environmental Quality – Climate & Economic Justice Screening Tool (2023)

Appendix D: NHMP Annual Reports

Note: If you are accessing the Microsoft Word version of this Plan, double-click on the icon below each title to access each report. If you are using the PDF version of the Plan, please access the "Attachments" feature in Adobe PDF and click the corresponding file.

NHMP DuPage County 2019 Annual Report – Final

NHMP DuPage County 2019 Annual

NHMP DuPage County 2020 Annual Report – Final

NHMP DuPage County 2020 Annual

NHMP DuPage County 2021 Annual Report – Final

NHMP DuPage County 2021 Annual

Appendix E: Resolution Examples

Below are examples of resolutions that were used during the development of the *DuPage County Natural Hazard Mitigation Plan*, including:

- Resolution Example for DuPage County to Adopt this Plan
- Resolution Example for Communities to Adopt this Plan

Resolution
JPS

Adoption of the 2023 DuPage County Multi-Jurisdictional Natural Hazard Mitigation Plan

WHEREAS, the County of DuPage is subject to natural hazards, such as floods, severe summer and winter storms, tornadoes, and extreme heat events, that can threaten lives, damage property, close businesses, disrupt traffic, and present public health and safety hazards; and

WHEREAS, the County of DuPage has prepared a multi-hazard mitigation plan, hereby known as the 2023 DuPage County Multi-Jurisdictional Natural Hazard Mitigation Plan, in accordance with federal laws, including the Robert T. Stafford Disaster Relief and Emergency Assistance Act, as amended; the National Flood Insurance Act of 1968, as amended; and the National Dam Safety Program Act, as amended; and

WHEREAS, the 2023 DuPage County Multi-Jurisdictional Natural Hazard Mitigation Plan identifies mitigation goals and actions to reduce or eliminate long-term risk to people and property in DuPage County from the impacts of future hazards and disasters; and

WHEREAS, the County has participated in the development and update of the 2023 DuPage County Multi-Jurisdictional Natural Hazard Mitigation Plan; and

WHEREAS, adoption by the County of DuPage demonstrates its commitment to hazard mitigation and achieving the goals outlined in the 2023 DuPage County Multi-Jurisdictional Natural Hazard Mitigation Plan.

NOW, THEREFORE, BE IT RESOLVED that:

The 2023 DuPage County Multi-Jurisdictional Natural Hazard Mitigation Plan is hereby adopted as an official plan of DuPage County.

BE IT FURTHER RESOLVED, that the County Clerk be directed to transmit certified copies of this Resolution to the Illinois Emergency Management Agency, 2200 S. Dirksen Parkway, Springfield, Illinois, 62703 and the Federal Emergency Management Agency, 536 South Clark Street, Chicago, Illinois, 60605.

Enacted and approved this 27 day of June, 2023 at Wheaton, Illinois.

_____
Deborah A. Conroy, Chair
DuPage County Board

ATTEST: _____
Jean Kaczmarek, County Clerk

Community Resolution to Adopt the
2023 DuPage County Multi-Jurisdictional Natural Hazard Mitigation Plan:

Resolution No. _____

WHEREAS the City/Village of _____ is subject to natural hazards, such as floods, severe summer and winter storms, tornadoes, and extreme heat events, that can threaten lives, damage property, close businesses, disrupt traffic, and present public health and safety hazards; and

WHEREAS, the 2023 DuPage County Multi-Jurisdictional Natural Hazard Mitigation Plan identifies mitigation goals and actions to reduce or eliminate long-term risk to people and property in City/Village of _____ from the impacts of future hazards and disasters; and

WHEREAS, the City/Village of _____ has participated in the development and update of the 2023 DuPage County Multi-Jurisdictional Natural Hazard Mitigation Plan; and

WHEREAS, adoption by City/Village of _____ demonstrates its commitment to hazard mitigation and achieving the goals outlined in the 2023 DuPage County Multi-Jurisdictional Natural Hazard Mitigation Plan.

NOW THEREFORE, BE IT RESOLVED THAT:

The 2023 DuPage County Multi-Jurisdictional Natural Hazard Mitigation Plan is hereby adopted as an official plan of City/Village of _____.

[_____ name, _____ title] is hereby appointed as the City/Village's designee for participating in the yearly annual reporting and five-year updating processes.

ADOPTED this the _____ day of _____, 2023.

_____Clerk

APPROVED this the _____ day of _____, 2023

_____Mayor/Village President

Appendix F: Resolutions of Adoption

Resolutions will be included upon approval and adoption of the Plan.