AGENDA PACKET

VILLAGE OF LAKE ZURICH

Village Board of Trustees Meeting

May 15, 2023
07:00 pm

VILLAGE OF LAKE ZURICH
VILLAGE BOARD OF TRUSTEES MEETING

MAY 15, 2023
07:00 PM
AGENDA

1. **CALL TO ORDER**

2. **ROLL CALL**
   Mayor Thomas Poynton, Trustee Dan Bobrowski, Trustee Mary Beth Euker, Trustee William Riley, Trustee Marc Spacone, Trustee Roger Sugrue, Trustee Greg Weider.

3. **PLEDGE OF ALLEGIANCE**

4. **PUBLIC COMMENT**
   This is an opportunity for residents to comment briefly on matters included on the agenda and otherwise of interest to the Board of Trustees. Public Comment is limited to 30 minutes total and up to 5 minutes per speaker.

5. **PRESIDENT'S REPORT / COMMUNITY UPDATE**

   A. Mayoral Proclamations
   - Observing May 29, 2023 as Memorial Day
   - Recognizing May 14 -- 20, 2023 as Police Week
   - Recognizing May 21 -- 27, 2023 as Emergency Medical Services Week
   - Recognizing May 21 -- 27, 2023 as National Public Works Week

6. **CONSENT AGENDA**
   These titles will be read by the Village Clerk and approved by a single Roll Call Vote. Any item may be pulled from the Consent Agenda for discussion by any Village Trustee.

   A. Approval of Minutes from Village Board Meeting of May 1, 2023

   Attachment: 6a.pdf

   B. Approval of Semi-Monthly Warrant Register Dated May 15, 2023 Totaling $1,294,545.06

   Attachment: 05-15-23 WARRANT.pdf

   C. Ordinance Approving a Special Use Permit for BBQ'd Productions Bar and Grill at 405 North Rand Road (Assign Ord. #2023-05-513)

   Summary: HWS Productions LLC has filed a zoning application for the property at 405 North Rand Road seeking a Special Use Permit for the approval of live entertainment and exterior design lighting. The Planning and Zoning Commission opened a public hearing on this request on January 18, 2023 and on April 19, 2023, voting 5-0 in favor of recommending approval.

   Attachment: 6c.pdf

   D. Resolution Adopting the 2022 Lake County All-Natural Hazards Mitigation Plan (Assign Reso. #2023-05-075)

   Summary: The Lake County Hazard Mitigation Planning Committee has prepared a 2022 update of the Lake County All-Natural Hazards Mitigation Plan that reviews the County's option to protect people and reduce property damage. The Plan has been conditionally approved by the Illinois Emergency Management Agency and the Federal Emergency Management Agency. For the Village of Lake Zurich to qualify for flood buyouts and other mitigation projects, it must adopt this plan.

   Attachment: 6d.pdf

   E. Ordinance Amending Title 3 of Chapter 3 of the Village of Lake Zurich Municipal Code to Increase Authorized Class A-Restaurant Full Service and Class V-Video Gaming Liquor Licenses to Sergio's Restaurants, Inc. doing business as Sergio's Fresh Mexican Grill at 660 East Route 22 (Assign Ord. #2023-05-514)

   Summary: Sergio's is requesting a full-service restaurant Class-A Liquor License for the dispensing of alcoholic beverages and Class-V Video Gaming License. As alcoholic beverage service and video gaming is available at other Lake Zurich restaurants,

Sergio's desires to enhance their dining experience in similar fashion. The owner has completed all required documents and passed all background checks related to liquor license issuance.

Attachment: 6e.pdf

F. Ordinance Approving an Adjustment to the Final Plan through Amendment of Ordinance #2020-09-384 for Rear Yard Setback Encroachment at Wildwood Estates of Lake Zurich on Honey Lake Road (Assign Ord. #2023-04-510)

Summary: Wildwood of Lake Zurich, LLC has filed an Adjustment to the Final Plan for the Wildwood Estates development to allow certain structures to encroach into the rear-yard setback of all lots within the Subdivision. This Planned Unit Development was approved for the construction of 24 duplex homes on 12 lots in September 2020. The developer is requesting allowance for decks and other structures to encroach no more than 10 feet into the required rear-yard setbacks that are adjacent to the 28 acres of open space and wetlands to the south.

Attachment: 6f.pdf

G. Agreement with Metropolitan Pump Company for a Replacement Wicklow Sanitary Lift Station Control Panel in the Amount Not-to-Exceed $89,891 and Waiver of Competitive Bid Process

Summary: The FY 2023 budget includes $91,000 in the Water and Sewer Fund for this planned improvement to the Wicklow lift station, which was installed in 1996. Metropolitan Pump Company is the Village's designated lift station manufacturer at 13 of the 14 lift stations in Lake Zurich and also the sole source vendor for the specific controls the Village has been utilizing in recent lift station upgrades that facilities equipment standardization.

Attachment: 6g.pdf

7. NEW BUSINESS

This agenda item includes matters coming to the Board of Trustees for discussion and possible action.

A. Resolution of the Village of Lake Zurich, Lake County, Illinois, to Induce the Redevelopment of Certain Property within the Industrial Park Tax Increment Financing Redevelopment Project Area (Assign Reso. #2023-05-076) (Trustee Riley)

Summary: The proposed development inducement resolution allows NorthStar Pickle Company at 968 Donata Court to be eligible for certain future TIF reimbursements related to the acquisition and development of vacant industrial acreage. NorthStar Pickle has been operating on Donata Court since 2014 and is considering the construction of a new approximately 80,000 +/- square foot facility on Rose Road. This resolution does not authorize a specific incentive, which will be addressed by a subsequent agreement at a future Village Board meeting.

Recommended Action: A motion to approve Resolution #2023-05-076 to Induce the Redevelopment of Certain Property within the Industrial Park Tax Increment Financing Redevelopment Project Area.

Attachment: 7a.pdf

B. Resolution Expressing the Intent of the Adopting Entities to Work Towards a Membership Expansion of the Central Lake County Joint Action Water Agency with the Village of Lake Zurich (Assign Reso. #2023-05-077) (Trustee Spacone)

Summary: Last month in April 2023, the Village Board received a presentation from CDM Smith on proposed project phasing, infrastructure improvements, and costs associated with providing Lake Michigan water to Lake Zurich and potential funding options. The Executive Director of CLCJAWA provided a summary of the capital buy-in fee that is required to join the water agency and gave an overview of how the agency operates. After that presentation, the Village Board gave unanimous direction to Village staff to prepare a formal agreement to join the water agency and proceed with next steps.

The adoption of the proposed Resolution provides an exclusive engagement for the Village to move forward with the intention of becoming a full member of CLCJAWA. Looking ahead, preliminary design efforts are expected to commence in 2023 and continue into 2025, with competitive bidding on specific public works projects starting in 2025 and construction commencing in 2026.

Recommended Action: A motion to approve Resolution #2023-05-077 Expressing the Intent of the Adopting Entities to Work Towards a Membership Expansion of the Central Lake County Joint Action Water Agency with the Village of Lake Zurich.

Attachment: 7b.pdf

C. Agreement with CDM Smith for a Financial Water Rate Analysis, Operational Audit, and Illinois EPA State Revolving Loan Fund Project Plans related to the Central Lake County Joint Action Water Agency Lake Michigan Water Supply Transition in the Amount Not-to-Exceed $128,600 (Trustee Spacone)

Summary: As the Village continues to assess the feasibility of transitioning to Lake Michigan Water as the municipal water source, a

financial water rate and operational audit is required in order to submit a project plan to the Illinois Environmental Protection Agency (IEPA) State Revolving Fund (SRF). As part of the qualification process with the IEPA SRF fund, CDM Smith will develop a Project Plan for the Village of Lake Zurich to submit as the loan applicant for Village infrastructure improvements related to the transition to Lake Michigan water.

In addition to the project plan submittal, CDM Smith will develop a projection model that estimates total costs and revenue requirements for the Village's water system over a ten-year period. The model will be structured to facilitate changes in economic and financial assumptions as well as shifts in capital funding sources and the timing of different project phases.

Upon completion of the analysis, the results would be presented to the Village Board at a future public meeting with a submittal to the IEPA SRF anticipated to be before September 1, 2023.

Recommended Action: A motion to approve an agreement with CDM Smith for the financial water rate analysis, operational audit, and submittal of the Illinois EPA State Revolving Fund Project Plan in the Amount Not-to-Exceed $128,600.

Attachment: 7c.pdf

D. Courtesy Review for Proposed Chipotle Mexican Grill restaurant at 442 South Rand Road (Trustee Bobrowski)

Summary: Terraco Inc. are the owners of the vacant outlot at 442 South Rand Road at the southeast corner of Route 22 and Rand Road and propose to construct a new quick serve restaurant with drive-through pick-up lane to be operated by Chipotle Mexican Grill. This outlot was created in April 2022 and is currently improved with one of the three parking lots that serve the assemblage of lots at this corner.

The current proposal consists of a new 2,370 square-foot freestanding restaurant with pick-up lane and patio with outdoor seating. This property comprises an irregularly shaped parcel with a total land area of one acre, is zoned within the B-3 Regional Shopping Business District and has vehicular access from both Rand Road and Route 22. The existing access points to the property are proposed to be maintained in their current configuration thereby removing the need for access permits from IDOT.

Recommended Action: This is a non-voting item at this time. The developer and Village Staff seek to understand the Board's preferences towards the proposed use at this site.

Attachment: 7d.pdf

8. TRUSTEE REPORTS

9. VILLAGE STAFF REPORTS

Monthly Data Metric Reports

Attachment: Village Managers Office.pdf
Attachment: Finance
Attachment: Police.pdf
Attachment: Fire.pdf
Attachment: Parks.pdf
Attachment: Public Works.pdf
Attachment: Community Development.pdf

10. EXECUTIVE SESSION called for the purpose of:

â€¢ 5 ILCS 120 / 2 (c) (21) approval of executive session minutes

- 5 ILCS 120 / 2 (c) (11) pending, probable, or imminent litigation

- 5 ILCS 120 / 2 (c) (11) appointment, employment, compensation, discipline, performance or dismissal of specific employees

11. ADJOURNMENT

Next regularly scheduled Village Board meeting is on Monday, June 5, 2023.

AGENDA ITEM 6A

UNAPPROVED MINUTES
VILLAGE OF LAKE ZURICH
Board of Trustees
70 East Main Street

Board of Trustees
70 East Main Street
Monday, May 1, 2023 7:00 p.m.

1. CALL TO ORDER by Mayor Thomas M. Poynton at 7.00pm.
2. OATH OF OFFICE FOR NEWLY ELECTED VILLAGE BOARD TRUSTEES

   Trustees Marc Spacone, William Riley and Roger Sugrue were each administered the Oath of Office by Mayor Tom Poynton. After the oaths the Trustees took their seats on the dais.
3. ROLL CALL: Mayor Thomas Poynton, Trustee Dan Bobrowski, Trustee Mary Beth Euker, Trustee William Riley, Trustee Marc Spacone, Trustee Roger Sugrue, Trustee Greg Weider. Also in attendance: Village Manager Ray Keller, Village Atty. Scott Uhler, Finance Dir. Amy Sparkowski, Management Services Dir. Michael Duebner, Fire Chief Dave Pilgard, Police Chief Steve Husak, Dir. Of Community Development Sarosh Saher, Public Works Dir. Mike Brown.
4. PLEDGE OF ALLEGIANCE
5. PRESIDENT'S REPORT / COMMUNITY UPDATE

   Safe Boating Week Proclamation.

   Park and Rec Dept. are hiring lifeguards, please contact Bonnie Caputo, Park and Rec Dir.
6. PUBLIC COMMENT

   There were none.
7. CONSENT AGENDA
   - A. **Approval of Minutes from Village Board Meeting of April 17, 2023**
   - B. **Approval of Semi-Monthly Warrant Register Dated May 1, 2023 Totaling $1,125,343.24**
   - C. **Ordinance Establishing Village of Lake Zurich Special Service Area #20 at the Sanctuary of Lake Zurich Subdivision** ORD. #2023-05-512

     Summary: This backup Special Service Area is being established for the maintenance and reconstruction of certain improvements within the Sanctuary of Lake Zurich Subdivision in the event they are necessary. This backup SSA was required as a condition of the Development Agreement between the Village and LZ Development Group, LLC. On February 21, 2023, the Village Board conducted the required Public Hearing to propose the

establishment of the backup SSA. No objecting petition was filed within 60 days of that public hearing and the SSA may now therefore be approved.

D. **Agreement with Patriot Pavement Maintenance, Inc. for the 2023 Pavement Crack Sealing Program in the Amount Not-to-Exceed $60,000**

Summary: The FY23 budget includes $60,000 in the Motor Fuel Tax Fund for preventative street maintenance. A cooperative bid opening with the Lake County Municipal League on April 14, 2023 resulted in three bids received, with the most competitive bid from Patriot Pavement Maintenance.

E. **Change Order Request with Layne Christensen Company for Updated Well #12 Preventative Maintenance in the Amount Not-to-Exceed $204,400**

Summary: In September 2022, the Village Board authorized preventative maintenance for Well #12 with its designated deep well contractor, Layne Christensen Company for an amount not-to-exceed $154,000 from the FY22 budget. The maintenance project began on November 14, 2022 and due to unanticipated conditions discovered, additional costs will be incurred in order to complete the project.

Due to the uncertainty of the time necessary to reopen the borehole, staff is recommending adding a $10,000 contingency for a project total of $204,400, an overage of $50,400 from the original authorized amount. The FY23 budget includes $130,000 funding for Well #7 scheduled maintenance that staff is recommending to defer to FY 2024 in order to account for the increase in the cost of the Well 12 maintenance project.

F. **Intergovernmental Cooperation Agreement for the Purpose of a Shared Training Simulator between the Village of Vernon Hills and Local Law Enforcement Partners**

Summary: The LZPD has participated in a cooperative arrangement for the use of a scenario-based decision-making simulator system with five area police departments for nearly 20 years. The current system has become outdated and has experienced operational issues that have made it obsolete.
Recommended Action: A motion was made by Mayor Poynton, seconded by Trustee Spacone, to approve the Consent Agenda as presented.
AYES: 6 Trustees Bobrowski, Euker, Riley, Spacone, Sugrue, Weider.
NAYS: 0
ABSENT: 0
MOTION CARRIED.

8. NEW BUSINESS

A. **Agreement with Arrow Road Construction Company for the 2023 Road Resurfacing Program in the Amount Not-to-Exceed $2,742,061.01**

Summary: The FY 2023 budget includes $3.2 million in the Motor Fuel Tax Fund for the annual road resurfacing program. Traditionally, the road resurfacing program is funded almost entirely by the local 0.5% non-home rule sales tax. For this year's program, infrastructure funding from Federal and State grant programs allows the Village to dedicate an additional $1.29 million in resurfacing funds.

2023 road resurfacing will include the eastern portion of the Old Mill Grove subdivision, including Old Mill Grove Road in its entirety. Other roads slated

for resurfacing include Brush Hill Lane, Browning Lane, Millbrook Drive, Kingwood Lane, Heartwood Lane, Pebble Creek Drive, and Ridgewood Court.

A competitive bid opening on April 14, 2023 resulted in five bids received, with the lowest responsible bid from Arrow Road Construction Company with a base bid amount of $2,356,419.10. The total requested authorization amount of $2,742,061.01 includes the base bid plus $385,641.91 for engineering, materials testing, and additional project contingency.

Public Works Director Mike Brown gave background information and stated that the area has been in need of repair for some time. Federal and State grants will be used for the project. Trustee Bobrowski gave kudos to the Public Works Dept., for getting the grants. Trustee Spacone asked if it was a full replacement and Dir. Brown responded that it was not.

Recommended Action: A motion was made by Trustee Spacone, seconded by Trustee Euker, to approve an Agreement with Arrow Road Construction Company for the 2023 Road Resurfacing Program in the Amount Not-to-Exceed $2,742,061.01.
AYES: 6 Trustees Bobrowski, Euker, Riley, Spacone, Sugrue, Weider.
NAYS: 0
ABSENT: 0
MOTION CARRIED.

9. TRUSTEE REPORTS

Trustee Weider thanked the Public Works Dept., Park and Rec. staff and volunteers for their help in the recent Arbor Day celebrations.

Trustee Euker thanked the Lake Zurich High School Theater dept. for their recent production of "Frozen".

Trustee Bobrowski thanked Public Works' letter about the upcoming road works along West Main Street which has been shared to residents and businesses. Trustee Spacone asked where residents can see a map of the upcoming road works and Dir. Brown directed residents to the Village's website as well as a map at the Village Hall.

10. VILLAGE STAFF REPORTS

There were none.

11. ADJOURNMENT

A motion to adjourn was made by Trustee Weider, seconded by Trustee Riley.
AYES: 6 Trustees Bobrowski, Euker, Riley, Spacone, Sugrue, Weider.
NAYS: 0
ABSENT: 0 MOTION CARRIED.

Meeting adjourned at 7.26pm.

Respectfully submitted by: Kathleen Johnson, Village Clerk

Approved by:

_____ _____

Mayor Thomas M. Poynton Date.

VILLAGE OF LAKE ZURICH

WARRANT REPORT - 05/15/2023

$1,294,545.06

GL Number	GL Desc	Vendor	Invoice Description	Amount
Fund 101 GENERAL				
Dept 00000				
101-00000-10322	DRAWER RECREATION	PETTY CASH - PARK & RECREATION	BEACH '23 - PETTY CASH	400.00
101-00000-14101	INVENTORY	CMRS - POSTAGE BY PHONE	POSTAGE REPLENISH A/C #34328807	2,000.00
101-00000-15001	PREPAID EXPENDITURES	CIVIC PLUS	CIVIC PLUS WEBSITE	4,765.02
101-00000-15001	PREPAID EXPENDITURES	NORTHWEST MUNICIPAL CONFERENCE	NWMC ANNUAL DUES	4,198.80
101-00000-15001	PREPAID EXPENDITURES	POWER DMS, INC	CALEA ANNUAL SOFTWARE FEE	3,291.39
101-00000-21203	RECREATION CREDIT PAYABLE	GIDLEY, CHRISTINA	REF PRG CXL - LUNCH BUNCH	106.75
101-00000-25201	BUILDING PERMIT DEPOSITS	MARTIN, TERYL	BD PAYMENT REF - PERMIT #PB22-0967	160.00
101-00000-25201	BUILDING PERMIT DEPOSITS	PADDOCK PUBLICATIONS INC.	833 FOXMOOR LN #4599185	98.90
		Total For Dept 00000		15,020.86
Dept 11006 LEGISLATIVE MAYOR & BOARD				
101-11006-51654	MEMBERSHIPS & SUBSCRIP	NORTHWEST MUNICIPAL CONFERENCE	NWMC ANNUAL DUES	5,878.29
101-11006-52111	OTHER PROFESSIONAL SVCS	LAKE COUNTY CLERK	RECORDING DOCUMENTS	38.00
		Total For Dept 11006 LEGISLATIVE MAYOR & BOARD		5,916.29
Dept 12001 VILLAGE ADMIN ADMINISTRATION				
101-12001-51654	MEMBERSHIPS & SUBSCRIP	DATAPROSE, LLC	BENCHMARK INSERT	422.76
101-12001-52111	OTHER PROFESSIONAL SVCS	SUBURBAN ACCENTS, INC	FOAM RECYCLING SIGNAGE	1,850.00
101-12001-52201	VILLAGE ATTORNEY	KLEIN THORPE & JENKINS	LEGAL SERVICES - MAR 2023	5,202.66
101-12001-53208	OFFICE SUPPLIES	AMAZON.COM SALES, INC	BRITA WATER FILTERS	34.88
		Total For Dept 12001 VILLAGE ADMIN ADMINISTRATION		7,510.30
Dept 12180 VILLAGE ADMIN ECONOMIC DEVELOPMENT				
101-12180-54308	TAX REBATES	BRADFORD LAKE ZURICH 5 LLC	TAX REBATE - JANUARY 2023	14,042.04
101-12180-54308	TAX REBATES	VILLAGE OF HAWTHORN WOODS	TAX REBATE - JANUARY 2023	4,405.24
101-12180-54308	TAX REBATES	VILLAGE OF KILDEER	TAX REBATE - JANUARY 2023	8,810.49
		Total For Dept 12180 VILLAGE ADMIN ECONOMIC DEVELOPMENT		27,257.77
Dept 13001 FINANCE ADMINISTRATION				
101-13001-52112	PROFESSIONAL ACCOUNTING	BAKER TILLY VIRCHOW KRAUSE, LLP	FISCAL AUDIT 2022	15,300.00
101-13001-53208	OFFICE SUPPLIES	STAPLES CONTRACT & COMMERCIAL, INC	PENS, WALL FILE	35.22
101-13001-54301	BANK & CREDIT CARD FEES	AMERICAN EXPRESS	CORRECTION OF LATE FEE APPLIED IN 2022	39.00
101-13001-54307	RENTAL PROPERTY TAXES	LAKE COUNTY COLLECTOR	PROPERTY TAXES - 1ST INST	202.11
		Total For Dept 13001 FINANCE ADMINISTRATION		15,576.33

VILLAGE OF LAKE ZURICH

WARRANT REPORT - 05/15/2023

$1,294,545.06

GL Number	GL Desc	Vendor	Invoice Description	Amount
Dept 17001 TECHNOLOGY ADMINISTRATION				
101-17001-52111	OTHER PROFESSIONAL SVCS	ADOBE INC	CREATIVE CLOUD - APR	265.94
101-17001-52111	OTHER PROFESSIONAL SVCS	AWS #140011104 aws.amazon	AWS CLOUD SVCS - APR	15.17
101-17001-52111	OTHER PROFESSIONAL SVCS	CIVIC PLUS	CIVIC PLUS WEBSITE	9,530.24
101-17001-52111	OTHER PROFESSIONAL SVCS	MICROSYSTEMS INC.	MS CLOUD SERVICES - MAR	96.14
101-17001-53203	TELEPHONE & DATA SVCS	AT & T	VH ELEVATOR 540-9255	548.10
101-17001-53203	TELEPHONE & DATA SVCS	COMCAST CABLE COMMUNICATIONS MGMT	INTERNET - 133 N OLD RAND	114.90
101-17001-53203	TELEPHONE & DATA SVCS	COMCAST CABLE COMMUNICATIONS MGMT	COMBINED INTERNET - APR/MAY 2023	5,377.80
101-17001-53203	TELEPHONE & DATA SVCS	GRANITE TELECOMMUNICATIONS LLC	BARN ELEVATOR PHONE	73.72
101-17001-53203	TELEPHONE & DATA SVCS	PEERLESS NETWORK INC	ANALOG LINES - MAY	1,106.03
101-17001-53206	POSTAGE & SHIPPING	FEDERAL EXPRESS CORPORATION	SHIPPING FEES - TELECOM INNOVATIONS RMA	13.89
101-17001-53407	EQUIP MAINT PART&SUPPLIE	AMAZON.COM SALES, INC	ETHERNET CABLES, IPAD CASE, HONEYWELL TURBOFORCE FAN	85.45
101-17001-53407	EQUIP MAINT PART&SUPPLIE	BATTERIES PLUS HOLDING CORP	BATTERIES	50.00
101-17001-56601	CAPITAL LEASE	TOSHIBA FINANCIAL SERVICES	FIRE & PD - COPIER LEASE	164.73
		Total For Dept 17001 TECHNOLOGY ADMINISTRATION		17,442.11
Dept 24001 POLICE ADMINISTRATION				
101-24001-51652	TRAINING AND MEETINGS	LAKE COUNTY CHIEFS OF POLICE ASSOC	LC CHIEFS MEETING - TRAINING	84.00
101-24001-51652	TRAINING AND MEETINGS	NORTHWEST POLICE ACADEMY	CHIEFS TRAINING - ANDERSON, JOHNSON	50.00
101-24001-52111	OTHER PROFESSIONAL SVCS	GATSO USA, INC	RED LIGHT CAMERA FEE	6,570.00
101-24001-52118	SOFTWARE MAINTENANCE	POWER DMS, INC	CALEA ANNUAL SOFTWARE FEE	3,291.48
101-24001-52602	WASTE REMOVAL	DANIELS SHARPSMART, INC	SHARPS REMOVAL	264.96
101-24001-52701	MAINT-BLDGS & GROUNDS	ESSCOE LLC	GARAGE CCTV CAMERA	1,289.00
101-24001-53203	TELEPHONE & DATA SVCS	COMCAST CABLE COMMUNICATIONS MGMT	CABLE - PD	63.18
101-24001-53204	CELL PHONES & PAGERS	AT & T	CELL PHONES - PD APR 2023	394.60
101-24001-53208	OFFICE SUPPLIES	RUNCO OFFICE SUPPLY & EQUIPMENT CO.	STAPLERS STICK-IT NOTES	27.96
101-24001-53209	UNIFORMS	BUFFO, MARCY	SHOES	148.75
		Total For Dept 24001 POLICE ADMINISTRATION		12,183.93
Dept 24210 POLICE OPERATIONS				
101-24210-52111	OTHER PROFESSIONAL SVCS	MOTOROLA SOLUTIONS, INC	STARCOM RADIO - MAY	1,530.00
101-24210-52204	OTHER LEGAL	ALBARRAN, LUIS	LOCAL PROSECUTOR FEES - APR	6,666.67
101-24210-52204	OTHER LEGAL	ETERNO, DAVID G	ADJUDICATION HEARING FEE	150.00
101-24210-52703	MAINT-VEHICLES	RACEWAY CAR WASH INC	SQUAD CAR WASHES	629.00
101-24210-53209	UNIFORMS	GALL'S PARENT HOLDINGS LLC	BELT, SHIRTS, PANTS, SHORTS - MARINE UNIT	204.66
101-24210-53209	UNIFORMS	GALL'S PARENT HOLDINGS LLC	RAINCOAT - EBBING	140.10
101-24210-53209	UNIFORMS	GALL'S PARENT HOLDINGS LLC	SHOES - MARINE UNIT	60.62
101-24210-53209	UNIFORMS	GALL'S PARENT HOLDINGS LLC	RAINCOAT - PARLBERG	139.66

VILLAGE OF LAKE ZURICH

WARRANT REPORT - 05/15/2023

$1,294,545.06

GL Number	GL Desc	Vendor	Invoice Description	Amount
101-24210-53209	UNIFORMS	GALL'S PARENT HOLDINGS LLC	HYFIN VENT CHEST SEAL - SIEBER	39.52
101-24210-53211	OTHER SUPPLIES	K & M PRINTING	WINDOW DECALS	605.00
101-24210-53211	OTHER SUPPLIES	KIESLER POLICE SUPPLY, INC.	BEAN BAG ROUNDS	3,296.00
101-24210-53211	OTHER SUPPLIES	KIESLER POLICE SUPPLY, INC.	OC SPRAY	854.36
		Total For Dept 24210 POLICE OPERATIONS		14,315.59
Dept 24230 POLICE CRIME PREVENTION				
101-24230-52111	OTHER PROFESSIONAL SVCS	TLO LLC	INVESTIGATIVE SEARCH ENGINE	75.00
101-24230-52111	OTHER PROFESSIONAL SVCS	WEST PUBLISHING GROUP	INVESTIGATIVE SEARCH ENGINE	228.75
101-24230-53209	UNIFORMS	GALL'S PARENT HOLDINGS LLC	PANTS - WITT	141.75
101-24230-53209	UNIFORMS	GALL'S PARENT HOLDINGS LLC	BOOTS, POLO - WITT	148.73
101-24230-53209	UNIFORMS	GALL'S PARENT HOLDINGS LLC	PANTS - WITT	41.90
101-24230-53209	UNIFORMS	GALL'S PARENT HOLDINGS LLC	PANTS - WITT	133.56
		Total For Dept 24230 POLICE CRIME PREVENTION		769.69
Dept 24240 POLICE INTERGOVERNMENTAL				
101-24240-51654	MEMBERSHIPS & SUBSCRIP	MAJOR CRASH ASSISTANCE TEAM	MCAT ANNUAL DUES	500.00
101-24240-53209	UNIFORMS	FREY, MARK	COMBAT SHIRT, GLOVES FOR NIPAS	168.95
		Total For Dept 24240 POLICE INTERGOVERNMENTAL		668.95
Dept 25001 FIRE ADMINISTRATION				
101-25001-52701	MAINT-BLDGS & GROUNDS	FIRST GLOBAL HVAC LLC	ICE MACHINE MAINTENANCE	389.00
101-25001-53203	TELEPHONE & DATA SVCS	COMCAST CABLE COMMUNICATIONS MGMT	COMBINED INTERNET - APR/MAY 2023	2,688.91
101-25001-53203	TELEPHONE & DATA SVCS	PEERLESS NETWORK INC	ANALOG LINES - MAY 2023	154.01
101-25001-53204	CELL PHONES & PAGERS	APPLE STORE #R258 DEER PARK	ICLOUD 50BG STORAGE	0.99
101-25001-53204	CELL PHONES & PAGERS	AT & T	CELL PHONES - FIRE MAR 2023	202.50
101-25001-53204	CELL PHONES & PAGERS	AT & T	CELL PHONES - FIRE	36.66
101-25001-53210	SMALL TOOLS & EQUIP	LZ ACE LLC	PLASTIC BNDR ADHSV	8.49
101-25001-53210	SMALL TOOLS & EQUIP	LZ ACE LLC	FUSE KIT	3.90
101-25001-53211	OTHER SUPPLIES	RUNCO OFFICE SUPPLY & EQUIPMENT CO.	CUSTODIAL & REHAB SUPPLIES	39.99
101-25001-53211	OTHER SUPPLIES	RUNCO OFFICE SUPPLY & EQUIPMENT CO.	CUSTODIAL SUPPLIES	192.82
101-25001-53405	BLDG & GROUND MAINT SUPP	EAGLE ENGRAVING, INC	DOOR SIGN - KAMMIN	13.25
101-25001-54305	EMPLOYEE EXAMS	INDUSTRIAL ORGANIZATIONAL SOLUTIONS	FD ENTRY - LEVEL TESTING	3,120.00
101-25001-56601	CAPITAL LEASE	TOSHIBA FINANCIAL SERVICES	FIRE & PD - COPIER LEASE	164.74
		Total For Dept 25001 FIRE ADMINISTRATION		7,015.26
Dept 25320 FIRE FIRE SUPPRESSION				
101-25320-51652	TRAINING AND MEETINGS	O'BRIEN, MARGARET S	STRENGTH & CONDITIONING SESSIONS - APR	300.00

VILLAGE OF LAKE ZURICH

WARRANT REPORT - 05/15/2023

$1,294,545.06

GL Number	*GL Desc*	*Vendor*	*Invoice Description*	*Amount*
101-25320-51652	TRAINING AND MEETINGS	O'BRIEN, MARGARET S	STRENGTH/CONDITIONING SESSIONS - MAR	400.00
101-25320-52111	OTHER PROFESSIONAL SVCS	MOTOROLA SOLUTIONS, INC	FIRE STARCOM FEES - MAY	1,512.00
101-25320-53204	CELL PHONES & PAGERS	AT & T	CELL PHONES - FIRE MAR	276.75
101-25320-53211	OTHER SUPPLIES	CONSERV FS, INC	OIL DRY	493.00
101-25320-53211	OTHER SUPPLIES	LZ ACE LLC	DEAD BLOW HAMMER	42.49
101-25320-53211	OTHER SUPPLIES	RUNCO OFFICE SUPPLY & EQUIPMENT CO.	REHAB SUPPLIES	37.50
101-25320-53211	OTHER SUPPLIES	RUNCO OFFICE SUPPLY & EQUIPMENT CO.	REHAB SUPPLIES - WATER	59.94
101-25320-53211	OTHER SUPPLIES	RUNCO OFFICE SUPPLY & EQUIPMENT CO.	CUSTODIAL & REHAB SUPPLIES	122.31
		Total For Dept 25320 FIRE FIRE SUPPRESSION		3,243.99
Dept 25330 FIRE EMS				
101-25330-51651	LICENSING/CERTIFICATIONS	CHRISTOPHERSON, JOE A	REIMB: PARAMEDIC LICENSE	40.00
101-25330-51651	LICENSING/CERTIFICATIONS	IL DEPT OF PUBLIC HEALTH	ANNUAL AMBULANCE INSPECTION #7260	100.00
101-25330-53211	OTHER SUPPLIES	AMERICAN GASES CORP	OXYGEN RENTAL	145.82
101-25330-53211	OTHER SUPPLIES	AMERICAN GASES CORP	OXYGEN RENTAL	70.22
101-25330-53211	OTHER SUPPLIES	HENRY SCHEIN EMS	EAR THERMOMETER	247.03
101-25330-53211	OTHER SUPPLIES	HENRY SCHEIN EMS	CREDIT - EAR THERMOMETER	(247.03)
101-25330-53211	OTHER SUPPLIES	HENRY SCHEIN EMS	RECHARGEABLE CLIPPERS	64.66
101-25330-53211	OTHER SUPPLIES	HENRY SCHEIN EMS	CREDIT FOR RECHARGEABLE CLIPPERS	(64.66)
101-25330-53211	OTHER SUPPLIES	HENRY SCHEIN EMS	STAT PACKS BOLUS PACK BLUE X4	758.97
101-25330-53211	OTHER SUPPLIES	HENRY SCHEIN EMS	STAT PACKS BOLUS PACK BLUE X4	252.99
101-25330-53211	OTHER SUPPLIES	HENRY SCHEIN EMS	CLIPPER W/ CHARGER, HEADS, ECG PAPER CASE	637.31
101-25330-53211	OTHER SUPPLIES	STRYKER SALES CORPORATION	MASIMO RAINBOW DCI SPO2 FINGER SENSORS X2	1,161.36
101-25330-53211	OTHER SUPPLIES	STRYKER SALES CORPORATION	AED PADS FOR LP15 AND CR PLUS	382.08
		Total For Dept 25330 FIRE EMS		3,548.75
Dept 25340 FIRE SPECIAL RESCUE				
101-25340-53209	UNIFORMS	GLOBAL EQUIPMENT COMPANY, INC	PRO 2 POSITIONING BELT	167.84
101-25340-53211	OTHER SUPPLIES	AFC INTERNATIONAL, INC	GAS MONITOR SUPPLIES	717.25
		Total For Dept 25340 FIRE SPECIAL RESCUE		885.09
Dept 25350 FIRE FIRE PREVENTION BUREAU				
101-25350-53204	CELL PHONES & PAGERS	AT & T	CELL PHONES - FIRE MAR 2023	195.75
101-25350-53208	OFFICE SUPPLIES	AMAZON.COM SALES, INC	IPAD CASE	23.80
		Total For Dept 25350 FIRE FIRE PREVENTION BUREAU		219.55
Dept 28001 COMMUNITY DEVELOPMENT ADMINISTRATION				
101-28001-52111	OTHER PROFESSIONAL SVCS	KLEIN THORPE & JENKINS	SANCTUARY OF LZ (REIMBURSABLE)	45.00

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101-28001-53204	CELL PHONES & PAGERS	AT & T	CELL PHONES - WTR/CS/PW - MAR '23	50.38
		Total For Dept 28001 COMMUNITY DEVELOPMENT ADMINISTRATION		95.38
Dept 36001 PUBLIC WORKS ADMINISTRATION				
101-36001-52111	OTHER PROFESSIONAL SVCS	CINTAS CORPORATION #2	UNIFORMS/MATS - 04/27	32.76
101-36001-52111	OTHER PROFESSIONAL SVCS	CINTAS CORPORATION #2	UNIFORMS/MATS 05/04	34.68
101-36001-52113	ENGR/ARCHITECTURAL	LAND SURVEYING SERVICES INC	SURVEY LZ PROMENADE	1,800.00
101-36001-52603	LAKE/WATER QUALITY MGMT	AQUATIC ECOSYSTEMS MANAGMENT, INC	NPDES - 2022 WATER QUALITY ASSESSMENT	1,890.00
101-36001-52603	LAKE/WATER QUALITY MGMT	MC GINTY BROS., INC.	2023 NATURAL AREA MAINT PW	100.00
101-36001-52701	MAINT-BLDGS & GROUNDS	ANDERSON PEST SOLUTIONS	FIRE STA #1 PEST CONTROL - APR	75.45
101-36001-52701	MAINT-BLDGS & GROUNDS	CINTAS CORPORATION #2	UNIFORMS/MATS - 04/27	53.33
101-36001-52701	MAINT-BLDGS & GROUNDS	CINTAS CORPORATION #2	UNIFORMS/MATS 05/04	57.44
101-36001-52701	MAINT-BLDGS & GROUNDS	METRO DOOR & DOCK, INC	505 WEST DOOR CABLE	797.17
101-36001-52701	MAINT-BLDGS & GROUNDS	PREMIER FENCE INC	505 FENCE	1,100.00
101-36001-52701	MAINT-BLDGS & GROUNDS	SAFETY-KLEEN CORPORATION	505 TRIPLE TRAP CLEANING	929.06
101-36001-52704	MAINT-EQUIPMENT	INTL FIRE EQUIPMENT	MAINTENANCE OF FIRE EXTINGUISHERS - VH	137.19
101-36001-53201	ELECTRICITY	COMMONWEALTH EDISON	1043 PARTRIDGE LN	91.29
101-36001-53204	CELL PHONES & PAGERS	AT & T	CELL PHONES - WTR/CS/PW - MAR '23	271.20
101-36001-53204	CELL PHONES & PAGERS	FORCE AMERICA DISTRIBUTING LLC	PW TRUCK DATA PLAN	280.00
101-36001-53209	UNIFORMS	ELEGANT EMBROIDERY INC	SHORT SLEEVE SHIRTS	675.00
101-36001-53401	CUSTODIAL SUPPLIES	LZ ACE LLC	KLEENEX	13.59
101-36001-53403	LANDSCAPING SUPPLIES	KANZLER CONSTRUCTION LLC	TOPSOIL #210779 4/26	75.00
101-36001-53404	RIGHT OF WAY SUPPLIES	JOSEPH D FOREMAN & COMPANY, INC	SEWER PIPE AND FITTINGS	1,294.00
101-36001-53404	RIGHT OF WAY SUPPLIES	RILEIGHS OUTDOOR, LLC	WELCOME BANNERS	1,280.32
101-36001-53404	RIGHT OF WAY SUPPLIES	VOLLMAR CLAY PRODUCTS CO	MANHOLE REPAIR	55.00
101-36001-53405	BLDG & GROUNDS SUPPLIES	HOME DEPOT CREDIT SERVICES	BUILDING MAINTENANCE	116.94
101-36001-53405	BLDG & GROUNDS SUPPLIES	LZ ACE LLC	SILICONE CAULK	77.29
101-36001-53405	BLDG & GROUNDS SUPPLIES	LZ ACE LLC	KEYS	9.74
101-36001-53405	BLDG & GROUNDS SUPPLIES	LZ ACE LLC	WELD	9.33
101-36001-53405	BLDG & GROUNDS SUPPLIES	MOTOR PARTS & EQUIPMENT CORP	HVAC BELTS	51.45
101-36001-53407	EQUIP MAINT PART&SUPPLIE	MOTOR PARTS & EQUIPMENT CORP	OIL FILTER	7.28
101-36001-54306	EQUIPMENT RENTAL	RENTAL MAX LLC	TRENCHER	315.50
101-36001-54306	EQUIPMENT RENTAL	RENTAL MAX LLC	TRENCHER CREDIT	(76.16)
		Total For Dept 36001 PUBLIC WORKS ADMINISTRATION		11,553.85
Dept 36420 PUBLIC WORKS PARK MAINTENANCE				
101-36420-52701	MAINT-BLDGS & GROUNDS	DOCK & DOOR NATIONAL LLC	GUARD SHACK DOORS	10,659.00
101-36420-52701	MAINT-BLDGS & GROUNDS	INTL FIRE EQUIPMENT	ANNUAL SPRINKLER MAINT BARN	191.75

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101-36420-53201	ELECTRICITY	COMMONWEALTH EDISON	7 E MAIN ST	24.45
101-36420-53210	SMALL TOOLS & EQUIP	HOME DEPOT CREDIT SERVICES	WORK LIGHT	99.00
101-36420-53211	OTHER SUPPLIES	HOME DEPOT CREDIT SERVICES	CONCRETE	25.04
101-36420-53211	OTHER SUPPLIES	HOME DEPOT CREDIT SERVICES	MANHOLE BRICK	21.00
101-36420-53211	OTHER SUPPLIES	HOME DEPOT CREDIT SERVICES	REBAR	41.40
101-36420-53401	CUSTODIAL SUPPLIES	HOME DEPOT CREDIT SERVICES	WORK LIGHT	31.98
101-36420-53401	CUSTODIAL SUPPLIES	HOME DEPOT CREDIT SERVICES	CUSTODIAL SUPPLIES	33.94
101-36420-53403	LANDSCAPING SUPPLIES	AMERICAN GREEN DBA:	REPLACEMENT BUSHES	99.00
101-36420-53403	LANDSCAPING SUPPLIES	HOMER INDUSTRIES INC.	MULCH	1,140.00
101-36420-53405	BLDG & GROUND MAINT SUPP	CITY ELECTRIC SUPPLY	BARN EXTERIOR REPAIR	594.11
101-36420-53405	BLDG & GROUND MAINT SUPP	HOME DEPOT CREDIT SERVICES	BARN EXTERIOR REPAIR	32.24
101-36420-53405	BLDG & GROUND MAINT SUPP	HOME DEPOT CREDIT SERVICES	BARN EXTERIOR REPAIR	87.72
101-36420-53405	BLDG & GROUND MAINT SUPP	HOME DEPOT CREDIT SERVICES	BARN EXTERIOR ELECTRIC REPAIR	18.84
101-36420-53405	BLDG & GROUND MAINT SUPP	HOME DEPOT CREDIT SERVICES	PAULUS GATE REPAIR	180.09
101-36420-53405	BLDG & GROUND MAINT SUPP	HOME DEPOT CREDIT SERVICES	PAULUS GATE REPAIR RETURN	(35.86)
101-36420-53405	BLDG & GROUND MAINT SUPP	HOME DEPOT CREDIT SERVICES	PAULUS GATE REPAIR	64.05
101-36420-53405	BLDG & GROUND MAINT SUPP	HOME DEPOT CREDIT SERVICES	BUILDING MAINTENANCE	14.58
101-36420-53405	BLDG & GROUND MAINT SUPP	LZ ACE LLC	KEYS	45.74
101-36420-53417	SAND & GRAVEL	RELIABLE SAND & GRAVEL CO., INC	PEA GRAVEL	212.39
101-36420-54306	EQUIPMENT RENTAL	HOME DEPOT CREDIT SERVICES	RODDER RENTAL	100.00
101-36420-54306	EQUIPMENT RENTAL	HOME DEPOT CREDIT SERVICES	RODDER RENTAL RETURN	(42.50)
101-36420-54306	EQUIPMENT RENTAL	RENTAL MAX LLC	TRENCHER	795.20
101-36420-54306	EQUIPMENT RENTAL	SERVICE SANITATION, INC	PAULUS PARK PORT-O-POTTY	153.39
101-36420-54306	EQUIPMENT RENTAL	SERVICE SANITATION, INC	CHESTNUT PORT-O-POTTY	141.36
101-36420-55254	MACHINERY & EQUIPMENT	THOMAS PUMP CO., INC	SPRAYGROUND PUMP	3,864.00
		Total For Dept 36420 PUBLIC WORKS PARK MAINTENANCE		18,591.91
Dept 36471 PUBLIC WORKS FLEET SERVICES				
101-36471-52111	OTHER PROFESSIONAL SVCS	CINTAS CORPORATION #2	UNIFORMS/MATS - 04/27	43.26
101-36471-52111	OTHER PROFESSIONAL SVCS	CINTAS CORPORATION #2	UNIFORMS/MATS 05/04	43.37
101-36471-52111	OTHER PROFESSIONAL SVCS	MIKE'S TOWING, INC	SAFETY INSPECTIONS	390.00
101-36471-52111	OTHER PROFESSIONAL SVCS	MIKE'S TOWING, INC	SAFETY INSPECTIONS	286.00
101-36471-52111	OTHER PROFESSIONAL SVCS	MIKE'S TOWING, INC	SAFETY INSPECTIONS	317.00
101-36471-52703	MAINT-VEHICLES	RACEWAY CAR WASH INC	CAR WASH FD	183.95
101-36471-52703	MAINT-VEHICLES	WEST SIDE TRACTOR SALES	LOADER REPAIR	1,696.02
101-36471-53209	UNIFORMS	CUTLER WORKWEAR	BOOTS NEYFELDT	157.45
101-36471-53211	OTHER SUPPLIES	FASTENAL COMPANY	GRINDING DISC	133.35
101-36471-53211	OTHER SUPPLIES	LAWSON PRODUCTS INC.	HARDWARE	319.64

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101-36471-53211	OTHER SUPPLIES	LZ ACE LLC	PAINT SUPPLIES	17.96
101-36471-53211	OTHER SUPPLIES	LZ ACE LLC	PAINT SUPPLIES	25.48
101-36471-53211	OTHER SUPPLIES	LZ ACE LLC	BRUSH	10.15
101-36471-53211	OTHER SUPPLIES	LZ ACE LLC	PAINT TAPE	16.68
101-36471-53211	OTHER SUPPLIES	TERMINAL SUPPLY INC	WIRE	56.07
101-36471-53401	CUSTODIAL SUPPLIES	LZ ACE LLC	GLASS CLEANER	5.76
101-36471-53406	AUTO PARTS & SUPPLIES	CHICAGO PARTS & SOUND LLC	FILTERS	39.66
101-36471-53406	AUTO PARTS & SUPPLIES	CHICAGO PARTS & SOUND LLC	BRAKE PADS	441.18
101-36471-53406	AUTO PARTS & SUPPLIES	CHICAGO PARTS & SOUND LLC	WIPER SWITCH	66.83
101-36471-53406	AUTO PARTS & SUPPLIES	CHICAGO PARTS & SOUND LLC	WIPER SWITCH	65.39
101-36471-53406	AUTO PARTS & SUPPLIES	MACQUEEN EQUIPMENT, LLC	PIPE STRAP 211	34.39
101-36471-53406	AUTO PARTS & SUPPLIES	MACQUEEN EQUIPMENT, LLC	MARKER LIGHTS	102.91
101-36471-53406	AUTO PARTS & SUPPLIES	MOTOR PARTS & EQUIPMENT CORP	BATTERY 640	143.39
101-36471-53406	AUTO PARTS & SUPPLIES	MOTOR PARTS & EQUIPMENT CORP	CABIN FILTER	12.07
101-36471-53406	AUTO PARTS & SUPPLIES	MOTOR PARTS & EQUIPMENT CORP	AIR FILTER	24.00
101-36471-53406	AUTO PARTS & SUPPLIES	MOTOR PARTS & EQUIPMENT CORP	BRAKE ROTORS	161.76
101-36471-53406	AUTO PARTS & SUPPLIES	MOTOR PARTS & EQUIPMENT CORP	BATTERY 641	143.39
101-36471-53406	AUTO PARTS & SUPPLIES	MOTOR PARTS & EQUIPMENT CORP	CREDIT-PART RETURN	(22.79)
101-36471-53406	AUTO PARTS & SUPPLIES	MOTOR PARTS & EQUIPMENT CORP	CREDIT-CORE RETURN	(18.00)
101-36471-53406	AUTO PARTS & SUPPLIES	MOTOR PARTS & EQUIPMENT CORP	CREDIT-CORE RETURN	(18.00)
101-36471-53406	AUTO PARTS & SUPPLIES	RAY O'HERRON COMPANY INC.	REVERSE CAMERA SYSTEM	4,290.00
101-36471-53406	AUTO PARTS & SUPPLIES	RAY O'HERRON COMPANY INC.	REVERSE CAMERA SYSTEM	916.00
101-36471-53406	AUTO PARTS & SUPPLIES	RUSH TRUCK CENTER	DEF SENSOR	191.00
101-36471-53406	AUTO PARTS & SUPPLIES	WICKSTROM AUTO GROUP, INC	TAIL LAMP 107	146.91
101-36471-53406	AUTO PARTS & SUPPLIES	WICKSTROM AUTO GROUP, INC	INSULATOR	106.88
101-36471-53407	EQUIP MAINT PART&SUPPLIE	ARLINGTON POWER EQUIPMENT	AUGER	1,395.20
101-36471-53407	EQUIP MAINT PART&SUPPLIE	ARLINGTON POWER EQUIPMENT	SCRAPPER	81.12
101-36471-53407	EQUIP MAINT PART&SUPPLIE	ARLINGTON POWER EQUIPMENT	GASKET	4.98
101-36471-53407	EQUIP MAINT PART&SUPPLIE	ATLAS BOBCAT, LLC	FILTER	156.88
101-36471-53407	EQUIP MAINT PART&SUPPLIE	BURRIS EQUIPMENT COMPANY	LIGHT TOWER LAMPS	87.80
101-36471-53407	EQUIP MAINT PART&SUPPLIE	BURRIS EQUIPMENT COMPANY	BULB	91.10
101-36471-53407	EQUIP MAINT PART&SUPPLIE	MOTOR PARTS & EQUIPMENT CORP	FUSE HOLDER	15.98
101-36471-53407	EQUIP MAINT PART&SUPPLIE	MOTOR PARTS & EQUIPMENT CORP	CREDIT-CORE RETURN	(27.00)
101-36471-53407	EQUIP MAINT PART&SUPPLIE	MOTOR PARTS & EQUIPMENT CORP	CREDIT-CORE RETURN	(27.00)
101-36471-53407	EQUIP MAINT PART&SUPPLIE	MOTOR PARTS & EQUIPMENT CORP	BATTERY FIRE POLE	201.53
101-36471-53407	EQUIP MAINT PART&SUPPLIE	MOTOR PARTS & EQUIPMENT CORP	BATTERY	160.69
101-36471-53407	EQUIP MAINT PART&SUPPLIE	MOTOR PARTS & EQUIPMENT CORP	FUSE BOX	52.71
101-36471-53407	EQUIP MAINT PART&SUPPLIE	STANDARD EQUIPMENT COMPANY	QUICK CONNECTORS	472.04

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101-36471-53418	LUBRICANTS & FLUIDS	MOTOR PARTS & EQUIPMENT CORP	OIL	45.90
101-36471-53418	LUBRICANTS & FLUIDS	MOTOR PARTS & EQUIPMENT CORP	DEF	151.44
		Total For Dept 36471 PUBLIC WORKS FLEET SERVICES		13,392.48
Dept 67001 RECREATION ADMINISTRATION				
101-67001-53211	OTHER SUPPLIES	PULSE DESIGN INC	OSLAD TRAIL SIGN - BALANCE	1,030.00
101-67001-53212	PROGRAM SUPPLIES	AMERICAN GREEN DBA:	MEMORIAL DAY AND ARBOR DAY TREES	325.00
		Total For Dept 67001 RECREATION ADMINISTRATION		1,355.00
Dept 67935 RECREATION DANCE				
101-67935-54306	EQUIPMENT RENTAL	TOWNSHIP HIGH SCHOOL DISTRICT 214	APA DANCE RECITAL VENUE - MAY 5-7 WHEELING HS	4,667.62
		Total For Dept 67935 RECREATION DANCE		4,667.62
Dept 67965 RECREATION ATHLETICS				
101-67965-52115	RECREATION PROGRAM SERVICE	LINCOLNSHIRE TENNIS MGMT INC	SPRING 1 PICKLEBALL AND TENNIS #24727	1,463.63
		Total For Dept 67965 RECREATION ATHLETICS		1,463.63
		Total For Fund 101 GENERAL		**182,694.33**
Fund 202 MOTOR FUEL TAX				
Dept 36001 PUBLIC WORKS ADMINISTRATION				
202-36001-52701	MAINT-BLDGS & GROUNDS	MEADE, INC	MAIN ST SIGNAL MAINT	200.00
202-36001-53201	ELECTRICITY	COMMONWEALTH EDISON	45 S OLD RAND RD	28.72
202-36001-53201	ELECTRICITY	COMMONWEALTH EDISON	280 CLAIRVIEW DR	33.11
		Total For Dept 36001 PUBLIC WORKS ADMINISTRATION		261.83
		Total For Fund 202 MOTOR FUEL TAX		**261.83**
Fund 207 SPECIAL EVENTS FUND				
Dept 67603 RECREATION FARMERS MARKET				
207-67603-52115	RECREATION PROGRAM SERV	JENNINGS, CHARLES K	FARMERS MARKET BAND - 06/02	200.00
		Total For Dept 67603 RECREATION FARMERS MARKET		200.00
Dept 67699 RECREATION MISC SPECIAL EVENTS				
207-67699-53212	PROGRAM SUPPLIES	AMERICAN GREEN DBA:	MEMORIAL DAY AND ARBOR DAY TREES	375.00
		Total For Dept 67699 RECREATION MISC SPECIAL EVENTS		375.00
		Total For Fund 207 SPECIAL EVENTS FUND		**575.00**

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Fund 214 TIF #2 DOWNTOWN				
Dept 10490 GENERAL GOVERNMENT TIF				
214-10490-54307	RENTAL PROPERTY TAXES	LAKE COUNTY COLLECTOR	PROPERTY TAXES - 1ST INST	2,384.58
		Total For Dept 10490 GENERAL GOVERNMENT TIF		2,384.58
		Total For Fund 214 TIF #2 DOWNTOWN		**2,384.58**
Fund 227 DISPATCH CENTER				
Dept 24220 POLICE DISPATCH				
227-24220-53209	UNIFORMS	GALL'S PARENT HOLDINGS LLC	SHOES, FLEECE, BADGE, PANTS - LEUTHOUDOM	292.14
227-24220-53209	UNIFORMS	GALL'S PARENT HOLDINGS LLC	NAME TAG - LEUTHOUDOM	14.73
227-24220-53209	UNIFORMS	GALL'S PARENT HOLDINGS LLC	SPEED ASSAULT RETURN - YANGO	(144.00)
227-24220-53209	UNIFORMS	RISICATO DESIGNS LLC	DISPATCH JACKETS	539.68
		Total For Dept 24220 POLICE DISPATCH		702.55
		Total For Fund 227 DISPATCH CENTER		**702.55**
Fund 310 TIF #1 DEBT SERVICE				
Dept 10490 GENERAL GOVERNMENT TIF				
310-10490-56603	INTEREST	BANK OF NEW YORK MELLON	DEBT SERVICE PRINCIPAL AND INTEREST	206,842.50
310-10490-56603	INTEREST	BANK OF NEW YORK MELLON	DEBT SERVICE PRINCIPAL AND INTEREST	23,475.00
310-10490-56605	PAYING AGENT FEES	BANK OF NEW YORK MELLON	PAYING AGENT FEE 2016A	750.00
		Total For Dept 10490 GENERAL GOVERNMENT TIF		231,067.50
		Total For Fund 310 TIF #1 DEBT SERVICE		**231,067.50**
Fund 401 VILLAGE CAPITAL PROJECTS				
Dept 36001 PUBLIC WORKS ADMINISTRATION				
401-36001-55251	LAND IMPROVEMENTS	APEX LANDSCAPING, INC	PROMENADE RENDERING	1,000.00
401-36001-55251	LAND IMPROVEMENTS	APEX LANDSCAPING, INC	PROMENADE RENDERING	500.00
401-36001-55251	LAND IMPROVEMENTS	PRO-SAFETY, INC	MARKING PAINT	192.00
401-36001-55252	BLDG & BLDG IMPROVEMENTS	G.E. RIDDIFORD COMPANY INC	ROOF REPLACEMENT POLICE FACILITY	185,058.00
401-36001-55252	BLDG & BLDG IMPROVEMENTS	HOME DEPOT CREDIT SERVICES	PROMENADE DECK MATERIALS	33.97
401-36001-55252	BLDG & BLDG IMPROVEMENTS	MARTIN ENTERPRISES HEATING/AIR COND	BCB AC UNITS	13,032.00
		Total For Dept 36001 PUBLIC WORKS ADMINISTRATION		199,815.97
		Total For Fund 401 VILLAGE CAPITAL PROJECTS		**199,815.97**

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Fund 405 NHR CAPITAL PROJECTS				
Dept 36001 PUBLIC WORKS ADMINISTRATION				
405-36001-53416	CONCRETE & ASPHALT	FISCHER BROS FRESH CONCRETE, INC.	CONCRETE #119496	784.88
405-36001-53416	CONCRETE & ASPHALT	FISCHER BROS FRESH CONCRETE, INC.	CONCRETE #119554 4/28	1,273.75
405-36001-55253	INFRASTRUCTURE IMPROVEMT	THORNE ELECTRIC INC.	RRFB - FLASHING BEACON FOR LIFETIME	20,945.00
		Total For Dept 36001 PUBLIC WORKS ADMINISTRATION		23,003.63
		Total For Fund 405 NHR CAPITAL PROJECTS		**23,003.63**
Fund 501 WATER & SEWER				
Dept 00000				
501-00000-15001	PREPAID EXPENDITURES	CORE & MAIN LP	SA ANNUAL PORTAL HOSTING - 5/23 - 5/24	2,415.28
501-00000-21205	LC TREATMENT CHARGE PAYABLE	LAKE COUNTY PUBLIC WORKS DEPT.	2023 1ST QTR COLLECTIONS	538,601.42
501-00000-21206	WATER BILLING REFUNDS	RAHABY, MOUYYAD	UB REF - A/C #000915-04 FINAL	37.88
501-00000-21455	LC CONNECTION FEE PAYABLE	LAKE COUNTY PUBLIC WORKS DEPARTMENT	LC CONNECTION - 1186 SYCAMORE DR	4,030.00
		Total For Dept 00000		545,084.58
Dept 36001 PUBLIC WORKS ADMINISTRATION				
501-36001-52111	OTHER PROFESSIONAL SVCS	CINTAS CORPORATION #2	UNIFORMS/MATS - 04/27	41.90
501-36001-52111	OTHER PROFESSIONAL SVCS	CINTAS CORPORATION #2	UNIFORMS/MATS 05/04	44.15
501-36001-52201	VILLAGE ATTORNEY	KLEIN THORPE & JENKINS	LEGAL SERVICES - MAR 2023	578.07
501-36001-53203	TELEPHONE & DATA SVCS	PEERLESS NETWORK INC	ANALOG LINES - MAY 2023	140.00
501-36001-53204	CELL PHONES & PAGERS	AT & T	CELL PHONES - WTR/CS/PW - MAY 2023	149.63
501-36001-53209	UNIFORMS	ELEGANT EMBROIDERY INC	SHORT SLEEVE SHIRTS	675.00
501-36001-56603	INTEREST	BANK OF NEW YORK MELLON	DEBT SERVICE 2016B INTEREST	4,200.00
501-36001-56603	INTEREST	BANK OF NEW YORK MELLON	DEBT SERVICE PRINCIPAL AND INTEREST	8,000.00
		Total For Dept 36001 PUBLIC WORKS ADMINISTRATION		13,828.75
Dept 36530 PUBLIC WORKS WATER BILLING				
501-36530-52111	OTHER PROFESSIONAL SVCS	CORE & MAIN LP	SA ANNUAL PORTAL HOSTING - 5/23 - 5/24	4,830.72
501-36530-52111	OTHER PROFESSIONAL SVCS	DATAPROSE, LLC	WATER BILL PROCESSING - APR 2023	653.13
501-36530-52112	PROFESSIONAL ACCOUNTING	BAKER TILLY VIRCHOW KRAUSE, LLP	FISCAL AUDIT 2022	1,700.00
501-36530-53206	POSTAGE & SHIPPING	DATAPROSE, LLC	WATER BILL PROCESSING - APR 2023	2,635.90
		Total For Dept 36530 PUBLIC WORKS WATER BILLING		9,819.75
Dept 36550 PUBLIC WORKS WATER SERVICE				
501-36550-52607	WATER SAMPLE ANALYSIS	SUBURBAN LABORATORIES, INC.	WATER SAMPLE ANALYSIS	607.30

VILLAGE OF LAKE ZURICH

WARRANT REPORT - 05/15/2023

$1,294,545.06

GL Number	GL Desc	Vendor	Invoice Description	Amount
501-36550-53201	ELECTRICITY	CONSTELLATION NEW ENERGY, INC.	WELL #8	6,852.65
501-36550-53201	ELECTRICITY	CONSTELLATION NEW ENERGY, INC.	WELL #11	112.77
501-36550-53201	ELECTRICITY	CONSTELLATION NEW ENERGY, INC.	WELL #12	623.64
501-36550-53201	ELECTRICITY	CONSTELLATION NEW ENERGY, INC.	WELL #7	1,256.81
501-36550-53201	ELECTRICITY	CONSTELLATION NEW ENERGY, INC.	WELL #9	4,808.79
501-36550-53201	ELECTRICITY	CONSTELLATION NEW ENERGY, INC.	WELL #10	5,959.98
501-36550-53202	NATURAL GAS	NICOR GAS COMPANY	NATURAL GAS - WELL #7	385.47
501-36550-53202	NATURAL GAS	NICOR GAS COMPANY	NATURAL GAS - WELL #8	464.86
501-36550-53202	NATURAL GAS	NICOR GAS COMPANY	NATURAL GAS - WELL #9	258.55
501-36550-53211	OTHER SUPPLIES	HD SUPPLY INC	HYDRANT PARTS	422.07
501-36550-53211	OTHER SUPPLIES	LZ ACE LLC	PAINT BRUSHES	14.08
501-36550-53211	OTHER SUPPLIES	MID AMERICAN WATER OF WAUCONDA INC	HYDRANT GREASE	248.00
501-36550-53211	OTHER SUPPLIES	SES	CHLORINE GAS DETECTORS	3,994.90
501-36550-53405	BLDG & GROUND MAINT SUPP	HOME DEPOT CREDIT SERVICES	TOILET REPAIR SUPPLIES FOR NW PUMP STATION	20.98
501-36550-53414	CHEMICALS	MIDWEST SALT LLC	BULK WTR COND SALT - WELL #8	3,029.74
501-36550-53414	CHEMICALS	MIDWEST SALT LLC	BULK WTR COND SALT - WELL #10	3,029.74
501-36550-55254	MACHINERY & EQUIPMENT	CONCENTRIC INTEGRATION, LLC	2022 SCADA SOFTWARE UPDATE	13,050.00
		Total For Dept 36550 PUBLIC WORKS WATER SERVICE		45,140.33
Dept 36560 PUBLIC WORKS SEWER SERVICE				
501-36560-52111	OTHER PROFESSIONAL SVCS	BAXTER & WOODMAN, INC	2023 PRETREATMENT ASSISTANCE	2,735.00
501-36560-52111	OTHER PROFESSIONAL SVCS	STATE INDUSTRIAL PRODUCTS CORP	HYDROGEN SULFIDE REDUCTION PRGM QUENTIN/NW PUMP STATS	5,149.99
501-36560-53201	ELECTRICITY	COMMONWEALTH EDISON	ELECTRICITY VACUUM PRIME STRUCTURES	28.47
501-36560-53201	ELECTRICITY	COMMONWEALTH EDISON	ELECTRICITY/SANITARY FLOW CONTROL	49.14
501-36560-53201	ELECTRICITY	CONSTELLATION NEW ENERGY, INC.	PUMP/LIFT STATION - 825 W MAIN ST	722.34
501-36560-53201	ELECTRICITY	CONSTELLATION NEW ENERGY, INC.	PUMP/LIFT STATION - 1080 HONEY LAKE RD	48.83
501-36560-53201	ELECTRICITY	CONSTELLATION NEW ENERGY, INC.	PUMP/LIFT STATION - 719 CYPRESS BRIDGE RD	55.70
501-36560-53201	ELECTRICITY	CONSTELLATION NEW ENERGY, INC.	PUMP/LIFT STATION - 1150 DEERPATH RD	86.24
501-36560-53201	ELECTRICITY	CONSTELLATION NEW ENERGY, INC.	PUMP/LIFT STATION - 90 S PLEASANT RD	153.69
501-36560-53201	ELECTRICITY	CONSTELLATION NEW ENERGY, INC.	PUMP/LIFT STATION - 1115 BETTY DR	33.11
501-36560-53201	ELECTRICITY	CONSTELLATION NEW ENERGY, INC.	PUMP/LIFT STATION - 1005 MARCH ST	84.37
501-36560-53201	ELECTRICITY	CONSTELLATION NEW ENERGY, INC.	PUMP/LIFT STATION - 700 OLD MILL GROVE RD	94.89
501-36560-53201	ELECTRICITY	CONSTELLATION NEW ENERGY, INC.	PUMP/LIFT STATION - 620 CHURCH ST	274.18
501-36560-53201	ELECTRICITY	CONSTELLATION NEW ENERGY, INC.	PUMP/LIFT STATION - 61 W MAIN ST	102.54
501-36560-53201	ELECTRICITY	CONSTELLATION NEW ENERGY, INC.	PUMP/LIFT STATION - 1100 QUENTIN RD	1,725.97
501-36560-53201	ELECTRICITY	CONSTELLATION NEW ENERGY, INC.	PUMP/LIFT STATION - 1160 BRISTOL TRAIL	219.03
501-36560-53201	ELECTRICITY	CONSTELLATION NEW ENERGY, INC.	PUMP/LIFT STATION - 1297 BERKSHIRE LN	279.95
501-36560-53201	ELECTRICITY	CONSTELLATION NEW ENERGY, INC.	PUMP/LIFT STATION - 750 N RAND RD	2,497.92

VILLAGE OF LAKE ZURICH

WARRANT REPORT - 05/15/2023

$1,294,545.06

GL Number	*GL Desc*	*Vendor*	*Invoice Description*	*Amount*
501-36560-53201	ELECTRICITY	CONSTELLATION NEW ENERGY, INC.	PUMP/LIFT STATION - 1160 THORNDALE LN	304.18
501-36560-53211	OTHER SUPPLIES	1ST AYD CORPORATION	SEWER JETTING SUPPLIES	482.54
501-36560-53211	OTHER SUPPLIES	MID AMERICAN WATER OF WAUCONDA INC	HYDRANT GREASE	124.00
501-36560-53405	BLDG & GROUND MAINT SUPP	HOME DEPOT CREDIT SERVICES	TOILET REPAIR SUPPLIES FOR NW PUMP STATION	26.14
501-36560-53408	LIFT STATION PARTS & SUP	LAI, LTD	AIR RELIEF VALVES/NW PUMP STATION	9,915.85
		Total For Dept 36560 PUBLIC WORKS SEWER SERVICE		25,194.07
		Total For Fund 501 WATER & SEWER		**639,067.48**
Fund 603 RISK MANAGEMENT				
Dept 10001 GENERAL GOVERNMENT ADMINISTRATION				
603-10001-52114	LIABILITY INSURANCE CLAIMS	INTERGOVERNMENTAL RISK MGMT AGENCY	IRMA MARCH 2023	5,252.94
		Total For Dept 10001 GENERAL GOVERNMENT ADMINISTRATION		5,252.94
		Total For Fund 603 RISK MANAGEMENT		**5,252.94**
Fund 615 EQUIPMENT REPLACEMENT				
Dept 36001 PUBLIC WORKS ADMINISTRATION				
615-36001-55254	MACHINERY & EQUIPMENT	ADAMS STEEL SERVICE & SUPPLY, INC	ALUM FD TRAILER	322.00
615-36001-55254	MACHINERY & EQUIPMENT	MOTOR PARTS & EQUIPMENT CORP	JUNC BOX	57.94
615-36001-55262	VEHICLES - FIRE	KNOX ASSOCIATES, INC	KEY SECURE 245	1,146.00
		Total For Dept 36001 PUBLIC WORKS ADMINISTRATION		1,525.94
		Total For Fund 615 EQUIPMENT REPLACEMENT		**1,525.94**
Fund 710 PERFORMANCE ESCROW				
Dept 00000				
710-00000-25201	BUILDING PERMIT DEPOSITS	ABC	BD BOND REF - PERMIT #BBD22-0553	105.00
710-00000-25201	BUILDING PERMIT DEPOSITS	ABC	BD BOND REF - PERMIT #BBD22-0414	105.00
710-00000-25201	BUILDING PERMIT DEPOSITS	BARBER, WILLIAM & CATHIE L	BD PAYMENT REF - PERMIT #PB21-0162	105.00
710-00000-25201	BUILDING PERMIT DEPOSITS	BIANCHI, JEAN & ANTHONY	BD BOND REF - PERMIT #BBD23-0095	105.00
710-00000-25201	BUILDING PERMIT DEPOSITS	BORDELON, LISA	BD PAYMENT REF - PERMIT #PB21-0237	105.00
710-00000-25201	BUILDING PERMIT DEPOSITS	BRIGHT PLANET SOLAR	BD BOND REF - PERMIT #BBD22-0663	105.00
710-00000-25201	BUILDING PERMIT DEPOSITS	BRS FIELD OPS	BD PAYMENT REF - PERMIT #PB21-0410	105.00
710-00000-25201	BUILDING PERMIT DEPOSITS	CEITHAML, PETER & SEPLOW,STEPHANIE	BD PAYMENT REF - PERMIT #PB21-0567	105.00
710-00000-25201	BUILDING PERMIT DEPOSITS	CORCORAN, JOHN	BD PAYMENT REF - PERMIT #PB21-0504	105.00
710-00000-25201	BUILDING PERMIT DEPOSITS	DRZEWIECKI, CORAL & SHEPECK, CHRIS	BD BOND REF - PERMIT #BBD23-0096	3,570.00
710-00000-25201	BUILDING PERMIT DEPOSITS	FELDCO FACTORY	BD PAYMENT REF - PERMIT #PB21-0556	105.00

VILLAGE OF LAKE ZURICH

WARRANT REPORT - 05/15/2023

$1,294,545.06

GL Number	GL Desc	Vendor	Invoice Description	Amount
710-00000-25201	BUILDING PERMIT DEPOSITS	HOME DEPOT USA INC	BD PAYMENT REF - PERMIT #PB21-0662	105.00
710-00000-25201	BUILDING PERMIT DEPOSITS	HOME DEPOT USA INC	BD PAYMENT REF - PERMIT #PB21-0328	105.00
710-00000-25201	BUILDING PERMIT DEPOSITS	HOMUTH, DOUG	BD PAYMENT REF - PERMIT #PB21-0431	105.00
710-00000-25201	BUILDING PERMIT DEPOSITS	KANDEFER CONSTRUCTION, INC	BD BOND REF - PERMIT #BBD22-0670	105.00
710-00000-25201	BUILDING PERMIT DEPOSITS	KAPLAN PAVING	BD PAYMENT REF - PERMIT #PB21-0147	105.00
710-00000-25201	BUILDING PERMIT DEPOSITS	KLEPPINGER, MICHAEL E & LISA M	BD PAYMENT REF - PERMIT #PB21-0150	105.00
710-00000-25201	BUILDING PERMIT DEPOSITS	MARTIN, TERYL	BD BOND REF - PERMIT #BBD22-0576	105.00
710-00000-25201	BUILDING PERMIT DEPOSITS	MATRIX BASEMENT SYSTEMS INC	BD PAYMENT REF - PERMIT #PB21-0485	105.00
710-00000-25201	BUILDING PERMIT DEPOSITS	MG2	BD PAYMENT REF - PERMIT #PB21-0118	105.00
710-00000-25201	BUILDING PERMIT DEPOSITS	OWEN, MARK & HEATHER	BD BOND REF - PERMIT #BBD23-0080	105.00
710-00000-25201	BUILDING PERMIT DEPOSITS	PAPAGUS GYROS	BD PAYMENT REF - PERMIT #PB21-0190	510.00
710-00000-25201	BUILDING PERMIT DEPOSITS	PONIKARCZYK, ANNA	BD BOND REF - PERMIT #BBD22-0202	105.00
710-00000-25201	BUILDING PERMIT DEPOSITS	RAINBOW SIGNS INC	BD PAYMENT REF - PERMIT #PB21-0558	105.00
710-00000-25201	BUILDING PERMIT DEPOSITS	REGENCY HOME REMODELING	BD PAYMENT REF - PERMIT #PB21-0090	105.00
710-00000-25201	BUILDING PERMIT DEPOSITS	RENEWAL BY ANDERSON	BD BOND REF - PERMIT #BBD23-0085	105.00
710-00000-25201	BUILDING PERMIT DEPOSITS	SCHROLL, GORDON	BD PAYMENT REF - PERMIT #PB21-0716	105.00
710-00000-25201	BUILDING PERMIT DEPOSITS	SUNRUN INSTALLATION INC	BD BOND REF - PERMIT #BBD22-0458	105.00
710-00000-25201	BUILDING PERMIT DEPOSITS	THE HOLLAND DESIGN GROUP	BD BOND REF - PERMIT #BBD23-0113	105.00
710-00000-25201	BUILDING PERMIT DEPOSITS	VOLKAN SIGN & LIGHTING INC	BD BOND REF - PERMIT #BBD22-0366	105.00
710-00000-25201	BUILDING PERMIT DEPOSITS	WAYNE, JURIS	BD PAYMENT REF - PERMIT #PB21-0488	105.00
710-00000-25502	PEG CABLE FEES	COMCAST CABLE COMMUNICATIONS MGMT	COMBINED INTERNET - APR/MAY 2023	896.31
		Total For Dept 00000		8,021.31
		Total For Fund 710 PERFORMANCE ESCROW		**8,021.31**
Fund 720 PAYROLL CLEARING				
Dept 00000				
720-00000-22404	SUPPLEMENTAL LIFE INS PAYABLE	NCPERS-IL IMRF - 0157	GROUP LIFE INSURANCE - MAY	172.00
		Total For Dept 00000		172.00
		Total For Fund 720 PAYROLL CLEARING		**172.00**

VILLAGE OF LAKE ZURICH

WARRANT REPORT - 05/15/2023

$1,294,545.06

GL Number	*GL Desc*	*Vendor*	*Invoice Description*	*Amount*
			Fund Totals:	
			Fund 101 GENERAL	182,694.33
			Fund 202 MOTOR FUEL TAX	261.83
			Fund 207 SPECIAL EVENTS FUND	575.00
			Fund 214 TIF #2 DOWNTOWN	2,384.58
			Fund 227 DISPATCH CENTER	702.55
			Fund 310 TIF #1 DEBT SERVICE	231,067.50
			Fund 401 VILLAGE CAPITAL PROJECTS	199,815.97
			Fund 405 NHR CAPITAL PROJECTS	23,003.63
			Fund 501 WATER & SEWER	639,067.48
			Fund 603 RISK MANAGEMENT	5,252.94
			Fund 615 EQUIPMENT REPLACEMENT	1,525.94
			Fund 710 PERFORMANCE ESCROW	8,021.31
			Fund 720 PAYROLL CLEARING	172.00
				$ 1,294,545.06

COMMUNITY DEVELOPMENT DEPARTMENT

505 Telser Road
Lake Zurich, Illinois 60047

Phone (847) 540-1696
Fax (847) 726-2182
LakeZurich.org

At the Heart of Community

AGENDA ITEM 6C

MEMORANDUM

Date: May 15, 2023

To: Ray Keller, Village Manager RK

From: Sarosh Saher, Community Development Director

CC: Tim Verbeke, Planner
Mary Meyer, Building Services Supervisor

Re: Zoning Application for 405 North Rand Road – Special Use Permit
BBQ'd Productions Bar and Grill

Issue: Mr. Kristopher Schoenberger, representing HWS Productions LLC, (the "Applicant"), and the operator of the restaurant on the premises known as "BBQ'd Productions Bar and Grill" has filed a zoning application for the property at 405 North Rand Road (the "Subject Property"). Specifically, the applicant is seeking:

- Special Use Permit approval for the establishment of live entertainment accessory to permitted eating places and exterior lighting within the B-3 Regional Shopping Business District.

Village Strategic Plan: This agenda item is consistent with the following strategic objectives

- Expand the Village's role as a major regional economic hub in Lake County
- Continue Route 12 Corridor Development
- Become more business friendly and customer oriented

Analysis: The property is located in the vicinity of the northwest corner of North Rand Road and Ravinia Terrace/North Old Rand Road. The Applicant has owned and operated the current restaurant at the property since 2017.

The Applicant is also the owner and operator of the adjacent property at 377 North Rand Road which is undergoing renovation to establish a new restaurant to be known as "Station 52 Trucking Company Bar and Grill" located immediately adjacent to the south.

BBQ's Productions Bar and Grill has been in operation since 2017. The Applicant has been offering live music entertainment since its inception. Additionally, the exterior of the building has been illuminated with accent lighting since that time as well. These uses are allowed through approval of a Special Use Permit. The Applicant has therefore submitted his request for the necessary Special Use Permit to bring the property and its operations into compliance.

No changes to the location, design and operation of the restaurant land use, building or its site design features are proposed at this time. For reference, hours of operation of the restaurant facility are Monday – Thursday 11:00 a.m. – 9:00 p.m., Friday and Saturday 11:00 a.m. to 11:00 p.m. and Sunday 11:00 a.m. to 9:00 p.m.

The Planning and Zoning Commission (PZC) opened the public hearing on January 18, 2023, to consider the application. At the hearing, an adjacent resident testified in objection to the application and brought a number of issues that concerned her to the attention of the PZC and staff. These included issues related to the lighting, fence, landscape material removal, music on the rear deck and the odors emanating from the barbeque smoker on the premises. The PZC therefore continued the hearing until April to allow the Applicant time to address these concerns.

During that time period, the Applicant worked with staff to demonstrate how the various issues would be addressed. The Applicant addressed the most significant of these issues, which was that of the lighting, landscaping and the smoker at the rear of the property.

Following the close of the hearing and deliberation, the PZC voted 5-0 in favor of recommending approval of the Special Use Permits, with no additional conditions other than those provided by Staff which were adopted as findings of the PZC. The video stream from the PZC meetings can be accessed via the following links:
January 18 meeting - https://play.champds.com/lakezurichil/event/76
April 19 meeting - https://play.champds.com/lakezurichil/event/85

Recommendation: At their meeting on April 19, 2023, the Planning and Zoning Commission recommended approval of the Special Use Permits incorporating the conditions for approval provided by staff in its report.

Staff concurs with the PZC and therefore recommends approval of the attached ordinance, with its specific attachments based on the following conditions for approval that are contained within said ordinance:

1. Substantial conformance with the following documentation submitted as part of the application subject to revisions required by Village Staff and applicable governmental agencies:
   a. Zoning Application and Cover Letter and description dated December 14, 2022, prepared by Kristopher Schoenberger representing HWS Productions, LLC.
   b. Exhibit A: Legal Description of the Subject Property

c. Proof of ownership by HWS Productions, LLC and its manager Kristopher Schoenberger dated October 13, 2016.
d. Plat and Topographical Survey prepared by Teratek Inc, dated October 23, 2017.
e. Site Plans for 405 and 377 North Rand Road prepared by Kang Architect dated March 29, 2022 and last updated on January 10, 2023.
f. Pictorial renditions of the building views, received on December 15, 2022, prepared by Kristopher Schoenberger depicting the exterior building lighting locations.
g. Illumination Plan prepared by Vertical Lighting Controls dated April 14, 2023.
h. Site Landscape Plan prepared by AM Woodland dated February 2, 2022.

2. The live entertainment shall be conducted within the interior of the restaurant building. At no time shall live entertainment be conducted in areas outside of the building such as parking lots, driveways and patios.

3. Amplified music (not live entertainment) may be offered on the rear patio through sound amplification devices contingent upon the following conditions:
   - No sound amplification device such as amplifiers and speakers are allowed during the following hours:
     a. Between 10:00pm and 9:00am on Thursday, Friday, and Saturday; and
     b. Between 9:00pm and 9:00am on Sunday, Monday, Tuesday, and Wednesday.

4. The accent lighting shall be restricted to the blue and white color lights installed under the eaves of the building. The lighting shall be designed to direct light in a downward direction to illuminate the immediately adjacent wall and ground and shall not negatively impact surrounding residential property. The illumination shall be steady and not depict any flashing, movement or other attention getting configuration.

5. The exterior illumination levels for the parking lot and site lighting shall not exceed 0.5 foot-candles along the property lines. The maximum exterior illumination at any point on the interior of the property shall not exceed 10 foot-candles.

6. The gate within the fence that runs along the rear of the property shall either be kept locked at all times, to eliminate the inappropriate use of the Village Park (Betty Park) behind the Subject Property and to eliminate the incentive for customers of the restaurant to park on Betty Drive while entering the premises through this gate. If retained, the gate shall only be used with the permission of the owner/manager of the restaurant.

7. The smoke stack shall be raised to the highest point that is practicably possible to prevent smoke from impacting surrounding property to the west. If security for the smoker at the rear is a concern, the smoker unit may be screened with a fence and a locked gate for security to remove the need for the bright lights at the rear.

8. The special use constituting the establishment known as "BBQ'd Productions Bar and Grill" shall be located within and associated with the building on the property addressed at 405 North Rand Road and shall be allowed to continue under successive ownership, so long as the general location, design and operation of the approved land uses are in substantial conformance with the approvals granted by this ordinance. Such Special Use for live entertainment only shall expire if this restaurant use ceases operating at the property for a period of more than 365 days.

9. The development shall be in compliance with all other applicable codes and ordinances of the Village of Lake Zurich.

- Approval Ordinance including the following exhibits
  - Exhibit A – Legal description of the subject property
  - Exhibit B – April 19, 2023 staff reports and planning and zoning commission recommendation/conditions and accompanying documentation and correspondence.

VILLAGE OF LAKE ZURICH
ORDINANCE NO. 2023-04-510

AN ORDINANCE APPROVING A SPECIAL USE PERMIT
"BBQ'd Productions Bar and Grill," 405 North Rand Road

WHEREAS, HWS Productions LLC, represented by Mr. Kristopher Schoenberger is the applicant and owner ("Applicant" and "Owner") for a special use permit for the property at 405 North Rand Road ("Subject Property") and legally described in Exhibit A hereto; and

WHEREAS, the Subject Property is located within the Village's B-3 Regional Shopping Business District and is currently operated by Applicant as a restaurant known as "BBQ'd Productions Bar and Grill," such use being classified a permitted use in the B-3 Regional Shopping Business District; and

WHEREAS, Applicant currently also owns the property at 377 North Rand Road currently being renovated for use as "Station 52 Trucking Company Bar and Grill" restaurant use immediately adjacent to the south of the Subject Property; and

WHEREAS, Applicant currently operates the restaurant bar and grill at the Subject Property for the hours of operation stated in their Application as Monday – Thursday 11:00 a.m. – 9:00 p.m., Friday and Saturday 11:00 a.m. to 11:00 p.m. and Sunday 11:00 a.m. to 9:00 p.m., and offers outdoor dining between the months of May and October of each year on an existing patio along the side elevation of the restaurant building; and

WHEREAS, Applicant seeks special use permit approvals to provide live entertainment and to use certain exterior design lighting on the Subject Property; and

WHEREAS, the Applicant has filed zoning application PZC 2023-03, dated December 14, 2022 (the "Application") seeking the approval of the following:

- Special Use Permit approval for the establishment of live entertainment accessory to permitted eating places and exterior lighting within the B-3 Regional Shopping Business District ("Special Use Permits").

WHEREAS, in compliance with the law, and the requirements of the Village of Lake Zurich Zoning Code, notice was published on December 24, 2022, in The Daily Herald, and the Village posted a public hearing sign on the Subject Property, both the

newspaper and sign notices informing the public of a public hearing to be held before the Lake Zurich Planning and Zoning Commission ("PZC") on January 18, 2023, to consider the Application for this requested zoning authority and approval; and

WHEREAS, the PZC opened the required public hearing on January 18, 2023, but continued the hearing to allow the Applicant additional time to address issues related to the lighting, fence, landscape material removal, music on the rear deck and the odors emanating from the barbeque smoker on the Subject Property that were brought to the attention of the PZC and Village by an adjacent resident; and

WHEREAS, the Applicant worked with staff and demonstrated how the issues described in the preceding paragraph would be addressed and addressed the most significant of these issues, namely the lighting, landscaping and the smoker at the rear of the Subject Property; and

WHEREAS, the Applicant presented these remedies to Village Staff which were subsequently presented to the PZC at the continued public hearing on April 19, 2023; and

WHEREAS, the PZC received and considered the report dated April 19, 2023, of the Community Development Department, setting forth the background information and the evaluation, findings and recommendations regarding the Application, based on the applicable standards of the Village Code ("STAFF REPORT"), which was provided to the PZC for the continued public hearing, addressing the request for approval of said Special Use Permits to allow for the establishment and operation of live entertainment accessory to permitted eating places and the use of exterior design lighting at the Subject Property in the B-3 Regional Shopping Business District; and

WHEREAS, the PZC considered all information presented by the Applicant, surrounding residents and interested parties and Village Staff, and the applicable factors required under of the Zoning Code; and, after the conclusion of the continued public hearing, the PZC recommended that the Board of Trustees approve the Special Use Permits requested in this Application, subject to those conditions of approval recommended by Village staff in the STAFF REPORT; and

WHEREAS, the Mayor and Board of Trustees of the Village of Lake Zurich met on May 15, 2023, and considered the findings and recommendations of the PZC, including the STAFF REPORT dated May 15, 2023, all consisting of 12 pages, said required zoning standards, findings and recommendations attached hereto as Exhibit B and having considered all of the facts and circumstances affecting the Application and these recommended approvals, the Mayor and Board of Trustees have determined that the applicable standards related to these special use approvals have been met.

NOW, THEREFORE, BE IT ORDAINED by the Mayor and Board of Trustees of the Village of Lake Zurich, Lake County, Illinois, as follows:

SECTION 1: ADOPTION AND INCORPORATION OF RECITALS. The foregoing recitals, findings, recommendations and plans are incorporated herein as findings and requirements of the Mayor and Board of Trustees, and Exhibits referenced herein are made a part of and incorporated into this Ordinance and related approval, except as otherwise provided below.

SECTION 2: GRANT OF SPECIAL USE PERMITS. The Mayor and Board of Trustees, pursuant to the authority vested in them under the laws of the State of Illinois and Chapter 4 (Section 9-4-3) and Chapter 19 (Sections 9-19-3 through 9-19-5) of the Lake Zurich Zoning Code, hereby grant the following approval, based on the STAFF REPORT dated April 19, 2023, and final findings and recommendations of the PZC dated, all consisting of 12 pages, attached hereto as **Exhibit B**, and submitted as part of the zoning application:

- Special Use Permit approval for the establishment of live entertainment accessory to permitted eating places and exterior lighting, all for the Subject Property, within the B-3 Regional Shopping Business District as described as follows:

    1. *Live Entertainment:* The Applicant proposes to offer live music within the restaurant building approximately two to three times a year. This activity is proposed to be low-key and take place within the interior of the building. Live entertainment can be offered during the stated hours of operation.

    2. *Exterior Design Lighting:* The Applicant proposes the use of accent lighting on portions of the exterior elevations of the restaurant building on the Subject Property. The lighting will be installed below the eaves of the building using blue/white lighting consisting of RGB LED modules as accent colors. The lighting will be designed to be illuminated in compliance with the requirements outlined in Chapter 8, Article B entitled "Exterior Lighting" of the Lake Zurich Zoning Code.

And subject to the following conditions for approval:

1. Substantial conformance with the following documentation submitted as part of the application subject to revisions required by Village Staff and applicable governmental agencies:
    a. Zoning Application and Cover Letter and description dated December 14, 2022, prepared by Kristopher Schoenberger representing HWS Productions, LLC.
    b. Exhibit A: Legal Description of the Subject Property
    c. Proof of ownership by HWS Productions, LLC and its manager Kristopher Schoenberger dated October 13, 2016.
    d. Plat and Topographical Survey prepared by Teratek Inc, dated October 23, 2017.

e. Site Plans for 405 and 377 North Rand Road prepared by Kang Architect dated March 29, 2022 and last updated on January 10, 2023.
f. Pictorial renditions of the building views, received on December 15, 2022, prepared by Kristopher Schoenberger depicting the exterior building lighting locations.
g. Illumination Plan prepared by Vertical Lighting Controls dated April 14, 2023.
h. Site Landscape Plan prepared by AM Woodland dated February 2, 2022.

2. The live entertainment shall be conducted within the interior of the restaurant building. At no time shall live entertainment be conducted in areas outside of the building such as parking lots, driveways and patios.

3. Amplified music (not live entertainment) may be offered on the rear patio through sound amplification devices contingent upon the following conditions:
   - No sound amplification device such as amplifiers and speakers are allowed during the following hours:
     a. Between 10:00pm and 9:00am on Thursday, Friday, and Saturday; and
     b. Between 9:00pm and 9:00am on Sunday, Monday, Tuesday, and Wednesday.

4. The accent lighting shall be restricted to the blue and white color lights installed under the eaves of the building. The lighting shall be designed to direct light in a downward direction to illuminate the immediately adjacent wall and ground and shall not negatively impact surrounding residential property. The illumination shall be steady and not depict any flashing, movement or other attention getting configuration.

5. The exterior illumination levels for the parking lot and site lighting shall not exceed 0.5 foot-candles along the property lines. The maximum exterior illumination at any point on the interior of the property shall not exceed 10 foot-candles.

6. The gate within the fence that runs along the rear of the property shall either be kept locked at all times, to eliminate the inappropriate use of the Village Park (Betty Park) behind the Subject Property and to eliminate the incentive for customers of the restaurant to park on Betty Drive while entering the premises through this gate. If retained, the gate shall only be used with the permission of the owner/manager of the restaurant.

7. The smoke stack shall be raised to the highest point that is practicably possible to prevent smoke from impacting surrounding property to the west. If security for the smoker at the rear is a concern, the smoker unit may be screened with a fence and a locked gate for security to remove the need for the bright lights at the rear.

8. The special use constituting the establishment known as "BBQ'd Productions Bar and Grill" shall be located within and associated with the building on the

property addressed at 405 North Rand Road and shall be allowed to continue under successive ownership, so long as the general location, design and operation of the approved land uses are in substantial conformance with the approvals granted by this ordinance. Such Special Use for live entertainment only shall expire if this restaurant use ceases operating at the property for a period of more than 365 days.

9. The development shall be in compliance with all other applicable codes and ordinances of the Village of Lake Zurich.

SECTION 3: FINDINGS IN SUPPORT OF APPROVAL OF GRANT OF SPECIAL USE PERMITS. The findings, conditions and recommendations as set forth in the STAFF REPORT dated April 19, 2023, and the PZC recommendations, all consisting of 12 pages, along with the filings provided to the PZC, Chapter 4 (Section 9-4-3) and Chapter 19 of the Lake Zurich Zoning Code, are hereby accepted as the Board's own, are incorporated herein by this reference and shall be made a part of the official record for the Application.

SECTION 4: SEVERABILITY. If any section, paragraph, subdivision, clause, sentence or provision of this Ordinance shall be adjudged by any Court of competent jurisdiction to be invalid, such judgment shall not affect, impair, invalidate or nullify the remainder thereof, which remainder shall remain and continue in full force and effect.

SECTION 5: CONFLICTS**.** All ordinances or parts of ordinances in conflict herewith are hereby repealed to the extent of such conflict.

SECTION 6: EFFECTIVE DATE. This Ordinance shall be in full force and effect upon its passage and approval, as provided by law.

PASSED THIS _____ day of May, 2023.

Ayes:

Nays:

Absent:

Abstain:

APPROVED this _____ day of May, 2023.

_____
Mayor Tom Poynton

_____
Village Clerk
Kathleen Johnson

EXHIBIT A

Legal description of the Subject Property

LOT 1 IN KLEIN SUBDIVISION, BEING A SUBDIVISION OF PART OF THE SOUTHWEST QUARTER OF SECION 18, TOWNSHIP 43 NORTH, RANGE 10, EAST OF THE THIRD PRINCIPAL MERIDIAN, IN LAKE COUNTY, ILLINOIS, ACCORDING TO THE PLAT THEREOF RECORDED SEPTEMBER 2, 2008 AS DOCUMENT 6393319 IN LAKE COUNTY, ILLINOIS.

Parcels Involved: 14-18-306-009

EXHIBIT B

April 19, 2023 staff reports and planning and zoning commission recommendation/conditions and accompanying documentation and correspondence

At the Heart of Community

COMMUNITY SERVICES DEPARTMENT
Building and Zoning Division

505 Telser Road
Lake Zurich, Illinois 60047

(847) 540-1696
Fax (847) 726-2182
LakeZurich.org

APPLICATION PZC 2023-03 **AGENDA ITEM 4.A**
PZC Hearing Opened: January 18, 2023
PZC Continued Consideration: April 19, 2023

STAFF REPORT

To: Chairperson Stratman and Members of the Planning & Zoning Commission

From: Sarosh Saher, Community Development Director

CC: Mary Meyer, Building Services Supervisor
Tim Verbeke, Planner

Date: April 19, 2023

Re: PZC 2023-03 – 405 North Rand Road – BBQ'd Productions Bar and Grill
Special Use Permit
Continued Consideration

SUBJECT

Mr. Kristopher Schoenberger, representing HWS Productions LLC, (the "Applicant" and "Owner") requests a Special Use permit for live entertainment and exterior lighting at the property located at 405 North Rand Road within the B-3 Regional Shopping Business district.

GENERAL INFORMATION

Requested Action:	Special Use Permit
Current Zoning:	B-3 Regional Shopping Business District
Current Use:	Restaurant (Eating Place 5812)
Property Location:	405 North Rand Road
Applicant and Owner:	Kristopher Schoenberger representing HWS Productions LLC
Staff Coordinator:	Tim Verbeke, Planner

Staff Report
APPLICATION PZC 2023-03

Community Development Department
PZC Hearing Date: April 19, 2023

LIST OF EXHIBITS

A. Legal Description
B. Public Hearing Sign
C. Site Photos
D. Aerial Map
E. Zoning Map
F. Parcel Map
G. Development Application and Attachments
H. Development Review Comments

BACKGROUND

Mr. Kristopher Schoenberger, representing HWS Productions LLC, (the "Applicant" and "Owner"), requests a Special Use Permit at the property at 377 North Rand Road known as BBQ'd Productions Bar and Grill, and legally described in Exhibit A attached hereto (the "Subject Property"). The Applicant has operated the restaurant since 2017.

The Applicant filed an application with the Village of Lake Zurich received on December 15, 2022 (the "Application") seeking:

- Special Use Permit approval for live entertainment accessory to permitted eating places, and exterior lighting within the B-3 Regional Shopping Business District

The Application for the Special Use Permit for live entertainment and exterior lighting at the property was presented by Ms. Moriah Schoenberger, wife of the Applicant, Mr. Kristopher Schoenberger. At the hearing, an adjacent resident testified in objection to the application and brought a number of issues that concerned her to the attention of the PZC and staff. These included issues related to the lighting, fence, landscape material removal, music on the rear deck and the odors emanating from the barbeque smoker on the premises. The PZC therefore continued the continued the hearing in February and March to allow the Applicant time to address these concerns.

Staff has met with the Applicants on more than one occasion and has brought to their attention the various issues that need to be addressed. The Applicant has indicated that they have addressed the most significant of these issues, which is that of the lighting and landscaping and intends to provide additional justification on the issue of the smoker.

The Subject Property is located within the Village's B-3 Regional Shopping Business District. The property is located just north of the intersection of North Rand Road and Old Rand Road.

The Applicant is also the owner of the property to the south at 377 North Rand Road and intends to remodel the property for a new restaurant known as "Station 52 Trucking Company Bar and Grill."

Proposal

BBQ's Productions Bar and Grill has been in operation since 2017. The Applicant has been offering live music entertainment since its inception. Additionally, the exterior of the building has been illuminated with accent lighting since that time as well. These uses are only allowed through approval of a Special Use Permit. The Applicant has therefore submitted his request for the necessary Special Use Permit to bring the property and its operations into compliance.

No changes to the location, design and operation of the restaurant land use, building or its site design features are proposed at this time.

Parking will be maintained in conformance with the requirements of the parking code. The requirement for parking is 1 space for each 3 persons of design capacity, for a total maximum load of 180 occupants. The number of spaces required by code is 60. The Applicant has 80 spaces on the property.

The Applicant currently owns the Subject Property and the property to the south at 377 North Rand Road which is proposed to be operated as a bar and grill. By virtue of unified control of both properties, the Applicant proposed to provide a vehicular connection between the two properties. The connection will allow for sharing of parking spaces and also provide traffic from the Subject Property with the ability to access Ravinia Terrace through the property to the south at 377 North Rand Road. Vehicular traffic will then have the benefit of access to northbound Rand Road.

Pursuant to public notice published on December 24, 2022, in the Daily Herald, a public hearing has been scheduled with the Lake Zurich Planning & Zoning Commission for January 18, 2023, to consider the Application. The Village also posted a public hearing sign on the Subject Property (Exhibit B).

Analysis

It should be noted that the primary uses at the property, namely the restaurant (Eating places (5812)), the bar area (Drinking places (5813) accessory to permitted eating places) are permitted to be established on the property by right.

Approval of the following special use and features are begin requested, which are either classified as special uses, or require conditions that will accompany this special use permit:

1. *Live Entertainment:* The Applicant proposes to occasionally offer live music within the restaurant 2-3 times a year. The entertainment is low key and performed within the interior of the restaurant.

2. *Exterior Accent Lighting*: Since its opening in 2017 the Applicant had installed blue/white accent lighting on the exterior and interior of the building as part of the company colors to signify the meaning behind who and what the company is. According to the Applicant, "…the lighting is in representation for our support of Law Enforcement, for the Men and Woman on the force and for those who have passed in the line of duty. As a former member

of the Law Enforcement Community (CSO Round Lake Beach Police 2008-2009) this was and is important to us. We install our accent lighting at all our locations, and did so here when we opened in 2017. We have received many compliments from the Community at how pretty our building looks, and how many appreciate the reasons for why we support the law enforcement community." The lighting is designed to face downwards toward the building/ground to illuminate these areas.

While this type of lighting is allowed, its unique and specific design and application will be formalized by the Special Use Permit. The Village has not received any complaints regarding the accent lighting from adjacent property owners.

Hours of operation of the restaurant facility are Monday – Thursday 11:00 a.m. – 9:00 p.m., Friday and Saturday 11:00 a.m. to 11:00 p.m. and Sunday 11:00 a.m. to 9:00 p.m.

Staff offers the following additional information:

A. **Courtesy Review.** Due to the low impact of this project, its location along the Rand Road commercial corridor where such uses are traditional and customary, and that it has been in operation since 2017, courtesy review was not recommended.

B. **Zoning History.** The restaurant building at the Subject Property was constructed in 1999. Prior to that, the property was operated as a miniature golf course known as Cozzi's Miniature Golf and Games established in the 1970s. In 1999, the facility was granted a Special Use Permit through Ordinance 99-12-1010 for the expansion of the golf course. In 2008, the golf course closed and the property was re-subdivided into its current smaller land area, while conveying the northerly portion to the property owner to the north. JJ Twig's Pizza and Pub operated a restaurant on the premises between 2009 and 2015. The current restaurant, BBQ'd Productions has operated on the premises since 2017.

The property has been zoned within a commercial zoning classification since its development. It is currently zoned within the B-3 Regional Shopping Business district.

C. **Surrounding Land Use and Zoning.** The subject property is located on Route 12, which is a major commercial arterial. The land immediately to the north is zoned within the B-3 Regional Shopping district and is currently vacant. The property to the west is a village-owned open space at the end of the cul-de-sac of Betty Drive and zoned within the OS Open Space district. The properties to the south and east are zoned within the B-1 Local Community Business District and contain the adjacent restaurant "Station 52" owned by the Applicant to the south and the recently completed Lifetime Fitness facility to the east.

D. **Trend of Development.** The subject property is located along the thriving Route 12 / Rand Road commercial corridor that traverses the northern side of the Village. The accessibility and high visibility from a major north-south arterial such as Route 12 makes the Subject Property a desirable location for its current use.

E. **Zoning District**. Three (3) zoning districts are provided for business and commercial uses. When taken together, these districts are intended to permit development of property for the full range of business and commercial uses needed to serve the citizens of Lake Zurich and the surrounding suburban area.

The B-3 Regional Shopping District is intended to provide locations for major retail centers. The regulations are designed to encourage a broad range of attractive retail and compatible service uses in those centers.

GENERAL FINDINGS

As it relates to the proposed Special Use Permit, Chapter 19 of the Zoning Code entitled "Special Use Permits" provides for special uses that have some special impact or uniqueness that requires a careful review of their location, design, configuration, and special impact to determine, against fixed standards, the desirability of permitting their establishment on any given site. They are uses that may or may not be appropriate in a particular location depending on a weighing, in each case, of the public need and benefit against the local impact and effect. The standards for special uses examine the location, design and operational characteristics of a use. Staff offers the following findings on specific sections of the Code.

Standards for Special Use Permits

A. General Standards. No special use permit shall be recommended or granted pursuant to this Chapter unless the applicant shall establish that:

1. Code and Plan Purposes. The proposed use and development will be in harmony with the general and specific purposes for which this Code was enacted and for which the regulations of the district in question were established and with the general purpose and intent of the official Comprehensive Plan.

   Staff Response: Standard met. The business will continue to remain in substantial conformance with the purpose and intent of the B-3 Regional Shopping Business District, and the land use designation of the adopted Comprehensive Plan.

2. No Undue Adverse Impact. The proposed use and development will not have a substantial or undue adverse effect upon adjacent property, the character of the area, or the public health, safety, and general welfare.

   Staff Response: Standard met. The business is consistent with commercial-oriented development along the Route 12 corridor.

   Live Entertainment: Standard met: The proposed live entertainment will be operated entirely within the enclosed building.

The illumination levels for the parking lot and site lighting shall not exceed 0.5 foot-candles along the periphery of the property.

As measured by staff, the illumination at the rear lot line was below the minimum required 0.5 foot-candles

The maximum illumination on any portion of the property shall not exceed 10 foot-candles.

The lighting that was utilized on the building consisted of lighting within the eaves - consisting of 2 rows of accent lighting – one white colored and one blue colored. Additionally, there were the original can-lights that were also utilized. The combination of the 3 light sources created the high illumination levels.

As measured by staff in January, the illumination immediately around the building was around 20 foot-candles. However, the Applicant took measures to reduce the illumination levels with the removal of the can lights.

A lighting plan has been submitted that shows current reduced lighting immediately around the building. The illumination immediately around the building averages around 4.5 to 8.8 foot-candles. This is less than the maximum required illumination by code and will meet the standard.

3. No Interference with Surrounding Development. The proposed use and development will be constructed, arranged, and operated so as not to dominate the immediate vicinity or to interfere with the use and development of neighboring property in accordance with the applicable district regulations.

Staff Response: Standard Met. The property is surrounded by commercial uses on three sides and residential uses and open space on the west side. The restaurant has been operating on this site since 2017 and has not created any adverse impact by virtue of its land use, parking, exterior lighting or activity.

The Applicant has planted of 9 larger shade trees – Autumn Blaze Maples along the rear of the property along the existing 6-foot high fence. Additional landscape material is proposed at the northwest corner of the parking lot to add screening that will reduce the impact on the adjacent residences.

The complaint of the smoker has not been verified by staff. The smoker unit is located at the rear of the building with a smoke stack that emits wood burning and other food related smoke. Staff has recommended that the smoke stack be raised to a greater height so that the smoke is allowed to dissipate away from the rear of the property.

If security for the smoker at the rear is a concern, necessitating the night lights to keep it safe staff recommends screening the smoker unit with a fence and a

locked gate for security which would remove the need for the bright lights at the rear.

4. Adequate Public Facilities. The proposed use and development will be served adequately by essential public facilities and services such as streets, public utilities, drainage structures, police and fire protection, refuse disposal, parks, libraries, and schools, or the applicant will provide adequately for such services.

   Staff Response: The property is currently served with adequate public utilities and services provided by the village.

5. No Traffic Congestion. The proposed use and development will not cause undue traffic congestion nor draw significant amounts of traffic through the surrounding streets.

   Staff Response: Standard met. The Applicant currently owns the Subject Property and the property to the south at 377 North Rand Road which is proposed to be operated as a bar and grill. By virtue of unified control of both properties, the Applicant proposes to provide a vehicular connection between the two properties. The connection will allow for sharing of parking spaces and also provide traffic from the Subject Property with the ability to access Ravinia Terrace through the property to the south at 377 North Rand Road. Vehicular traffic will then have the benefit of access to northbound Rand Road.

   The connection will allow for disbursement of traffic onto southbound and northbound Rand Road further relieving congestion.

6. No Destruction of Significant Features. The proposed use and development will not result in the destruction, loss, or damage of any natural, scenic, or historic feature of significant importance.

   Staff Response: Not applicable. The property on which the land use is proposed has been previously developed. There are therefore no features of natural, scenic, or historic importance that will be affected.

7. Compliance with Standards. The proposed use and development complies with all additional standards imposed on it by the particular provision of this Code authorizing such use.

   Staff Response: Standard met. There are no additional standards imposed on the land use by the code. Staff will ensure that all standards of the code or those additional conditions recommended by the PZC and Village Board be met.

8. Positive Effect. The proposed special use creating a positive effect for the zoning district, its purpose, and adjacent properties shall be placed before the benefits of the petitioner.

Staff Response: Standard met. The restaurant will continue the utilization of the property in a manner that it has always been used. Proximity to the other restaurant owned by the Applicant will create a unique pair of themed restaurants at this corner.

B. Special Standards for Specified Special Uses. When the district regulations authorizing any special use in a particular district impose special standards to be met by such use in such district, a permit for such use in such district shall not be recommended or granted unless the applicant shall establish compliance with such special standards.

Staff Response: Standard met. Staff has not identified any additional special standards required for the proposed Special Use Permit.

C. Considerations. In determining whether the applicant's evidence establishes that the foregoing standards have been met, the Plan Commission and the Board of Trustees shall consider:

1. Benefit. Whether and to what extent the proposed use and development at the particular location requested is necessary or desirable to provide a service or a facility that is in the interest of the public convenience or that will contribute to the general welfare of the neighborhood or community.

Staff Response: Standard met. Enhancing the building with a thriving business will benefit the Village of Lake Zurich and its residents.

2. Alternative Locations. Whether the purposes of the zoning code can be met by the location of the proposed use and development in some other area or zoning district that may be more appropriate than the proposed site.

Staff Response: The Applicant is currently the owner of the property and has operated the restaurant at this location since 2017. The Applicant is not looking to relocate the restaurant to another location.

3. Mitigation of Adverse Impacts. Whether all steps possible have been taken to minimize any substantial or undue adverse effects of the proposed use and development on the immediate vicinity through building design, site design, landscaping, and screening.

Staff Response:
Live Entertainment: Standard met. The live entertainment will be conducted within the enclosed building.

Exterior Lighting: The Applicant proposes to remove the can lights under the eaves thereby greatly reducing the illumination levels around the building. The blue and white lights will remain to keep with the theme of the restaurant.

A lighting plan has been submitted that shows proposed reduced lighting immediately around the building. The illumination immediately around the building averages around 4.5 to 8.8 foot-candles. This is less than the maximum required illumination by code and will meet the standard.

RECOMMENDATION

The recommendation of the Planning and Zoning Commission should be based on the standards included in the following Sections of the Lake Zurich Municipal Code:

- Section 9-19-3: Standards for Special Use Permits

Based on the review of staff, the standards for approval will be met and therefore staff recommends that the Planning and Zoning Commission make these standards a part of the official record of the Application.

Staff of the Community Development Department therefore recommends the approval of Application PZC 2023-03, subject to the following conditions:

1. Substantial conformance with the following documentation submitted as part of the application subject to revisions required by Village Staff and applicable governmental agencies:
   a. Zoning Application and Cover Letter and description dated December 14, 2022, prepared by Kristopher Schoenberger representing HWS Productions, LLC.
   b. Exhibit A: Legal Description of the Subject Property
   c. Proof of ownership by HWS Productions, LLC and its manager Kristopher Schoenberger dated October 13, 2016.
   d. Plat and Topographical Survey prepared by Teratek Inc, dated October 23, 2017.
   e. Site Plans for 405 and 377 North Rand Road prepared by Kang Architect dated March 29, 2022 and last updated on January 10, 2023.
   f. Pictorial renditions of the building views, received on December 15, 2022, prepared by Kristopher Schoenberger depicting the exterior building lighting locations.
   g. Illumination Plan prepared by Vertical Lighting Controls dated April 14, 2023.
   h. Site Landscape Plan prepared by AM Woodland dated February 2, 2022.

2. The live entertainment shall be conducted within the interior of the restaurant building. At no time shall live entertainment be conducted in areas outside of the building such as parking lots, driveways and patios.

3. The accent lighting shall be restricted to the blue and white color lights installed under the eaves of the building. The lighting shall be designed to direct light in a downward direction

to illuminate the immediately adjacent wall and ground and shall not negatively impact surrounding residential property. The illumination shall be steady and not depict any flashing, movement or other attention getting configuration.

4. The gate within the fence that runs along the rear of the fence shall either be kept locked at all times or removed, to eliminate the inappropriate use of the Village Park (Betty Park) behind the Subject Property and remove the incentive for customers to park on Betty Drive. While entering the premises through this gate.

5. The smoke stack be raised to the highest point that is practically possible to prevent smoke from impacting surrounding property to the west. If security for the smoker at the rear is a concern, the smoker unit may be screened with a fence and a locked gate for security which would remove the need for the bright lights at the rear.

6. The special use constituting the establishment known as "BBQ'd Productions Bar and Grill" shall be located within and associated with the building on the property addressed at 405 North Rand Road and shall be allowed to continue under successive ownership, so long as the general location, design and operation of the approved land uses are in substantial conformance with the approvals granted by this ordinance. Such Special Use for live entertainment only shall expire if this restaurant use ceases operating at the property for a period of more than 365 days.

7. The development shall be in compliance with all other applicable codes and ordinances of the Village of Lake Zurich.

Respectfully Submitted,

Tim Verbeke, Planner

Staff Report
APPLICATION PZC 2023-03

Community Development Department
PZC Hearing Date: April 19, 2023

LAKE ZURICH PLANNING & ZONING COMMISSION
FINAL FINDINGS & RECOMMENDATIONS

405 NORTH RAND RD – BBQ'D PRODUCTIONS
January 18, 2023

The Planning & Zoning Commission recommends approval of Application PZC 2023-03, and the Planning & Zoning Commission adopts the findings as contained within the Staff Report dated January 18, 2023 for this Application and subject to any changes or approval conditions as listed:

1. Substantial conformance with the following documentation submitted as part of the application subject to revisions required by Village Staff and applicable governmental agencies:
   a. Zoning Application and Cover Letter and description dated December 14, 2022, prepared by Kristopher Schoenberger representing HWS Productions, LLC.
   b. Exhibit A: Legal Description of the Subject Property
   c. Proof of ownership by HWS Productions, LLC and its manager Kristopher Schoenberger dated October 13, 2016.
   d. Plat and Topographical Survey prepared by Teratek Inc, dated October 23, 2017.
   e. Site Plans for 405 and 377 North Rand Road prepared by Kang Architect dated March 29, 2022 and last updated on January 10, 2023.
   f. Pictorial renditions of the building views, received on December 15, 2022, prepared by Kristopher Schoenberger depicting the exterior building lighting locations.
   g. Illumination Plan prepared by Vertical Lighting Controls dated April 14, 2023.
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2. The live entertainment shall be conducted within the interior of the restaurant building. At no time shall live entertainment be conducted in areas outside of the building such as parking lots, driveways and patios.

3. The accent lighting shall be restricted to the blue and white color lights installed under the eaves of the building. The lighting shall be designed to direct light in a downward direction to illuminate the immediately adjacent wall and ground and shall not negatively impact surrounding residential property. The illumination shall be steady and not depict any flashing, movement or other attention getting configuration.

4. The gate within the fence that runs along the rear of the fence shall either be kept locked at all times or removed, to eliminate the inappropriate use of the Village Park (Betty Park) behind the Subject Property and remove the incentive for customers to park on Betty Drive. While entering the premises through this gate.

5. The smoke stack be raised to the highest point that is practically possible to prevent smoke from impacting surrounding property to the west. If security for the smoker at the rear is a concern, the smoker unit may be screened with a fence and a locked gate for security which would remove the need for the bright lights at the rear.

6. The special use constituting the establishment known as "BBQ'd Productions Bar and Grill" shall be located within and associated with the building on the property addressed at 405 North Rand Road and shall be allowed to continue under successive ownership, so long as the general location, design and operation of the approved land uses are in substantial conformance with the approvals granted by this ordinance. Such Special Use for live entertainment only shall expire if this restaurant use ceases operating at the property for a period of more than 365 days.

7. The development shall be in compliance with all other applicable codes and ordinances of the Village of Lake Zurich.

☒ Without any further additions, changes, modifications and/or approval conditions.

☐ With the following additions, changes, modifications and/or approval conditions:

Planning & Zoning Commission Chairman

EXHIBIT A
LEGAL DESCRIPTION OF SUBJECT PROPERTY

LOT 1 IN KLEIN SUBDIVISION, BEING A SUBDIVISION OF PART OF THE SOUTHWEST QUARTER OF SECION 18, TOWNSHIP 43 NORTH, RANGE 10, EAST OF THE THIRD PRINCIPAL MERIDIAN, IN LAKE COUNTY, ILLINOIS, ACCORDING TO THE PLAT THEREOF RECORDED SEPTEMBER 2, 2008 AS DOCUMENT 6393319 IN LAKE COUNTY, ILLINOIS.

Parcels Involved: 14-18-306-009

EXHIBIT B
PUBLIC HEARING SIGN AT SUBJECT PROPERTY

Analysis of Ms. Planell's written testimony
Submitted to PZC on January 18, 2023
(Note: all dimensions referred to within this document are obtained from Lake County maps online, Lake County's GIS system.)

The following clarifies or confirms statements made by Ms. Planell in her testimony submitted to the PZC on January 18, 2023.

I would have come forward earlier but in a state of concern about doing so, since three separate individuals advised that my home may be burned down in the middle of the night for lodging complaints on this property, as was overheard.
Staff can neither confirm nor deny that these statements were made.

Distance of home from Subject Property.
Ms. Planell claims that her home is approximately 25 feet from the property line of 405 N. Rand Road
Ms. Planell resides at 936 Betty Drive. The residential property at 950 Betty Drive is located in between her property and the Subject Property. The shortest distance between Ms. Planell's property and the Subject Property is approx. 70 feet.

The length of the rear lot line of the Subject Property is 208.13 feet. Of this length, 165 feet back up to the open space of Betty Park and the right-of-way of Betty Drive. The remaining 25.3 feet backs up to the property at 950 Betty Drive.

Additionally, staff has also measured the nearest distance between the buildings on both properties. The distance between the home at 936 Betty Drive and Restaurant building at 405 N Rand Road = 190 feet.

Discussion on Permits.
The following permits were obtained by the Subject Property owner, since 2017 when the restaurant was established.

- Commercial Interior Buildout #17020030 – 2017-02-24
    - interior work – new bar (framing work), painting, wallpaper, new cash registers, cleaning, hanging shelves, replacing ceiling tiles, new flooring. New plumbing (floor sink, floor drain and cleanout) and electrical work. New smoker under same hood in kitchen.
    - Lake County health department review and approval
    - Occupancy and Business License
- Temporary Use/Special Event Permit #17090066 – 2017-09-11
    - Fund raising event – "Event for Alyssa Matney"
    - Raffle Permit
- Parking lot #18050072 – 2018-09-17
- Fence Permit #PB18-0418 – 2019-01-03
- Permanent Sign #PB21-0495 2021-05-21

Note: Ms. Planell offered that the Subject Property owner had only obtained permits for the parking lot, fence and permanent sign. The information she received was based on a FOIA submitted on January 10, 2023 requesting information since 9-29-2017, which therefore did not include the two permits issued prior to that date. All permits issued on or after that date were provided. Ms. Planell was therefore

unaware that the Subject Property owner had applied for the commercial buildout permit during the initial establishment of the restaurant in February 2017.

Live music.
Ms. Planell stated that the Subject Property owner advertised that he was adding live music to his outdoor venue last summer.
Staff was made aware of that and reached out to the property owner to obtain the necessary Special Use Permit, which he applied for as part of this application. The proposal is to have live music within the interior of the restaurant only.

The rear outdoor patio offers amplified music through a sound amplification devices, staff has advised the Subject Property owner of the hours allowed for sound amplification systems. The requirements are as follows:

No sound amplification device such as amplifiers and speakers are allowed during the following hours:

a. Between 10:00pm and 9:00am on Thursday, Friday, and Saturday; and
b. Between 9:00pm and 9:00am on Sunday, Monday, Tuesday, and Wednesday.

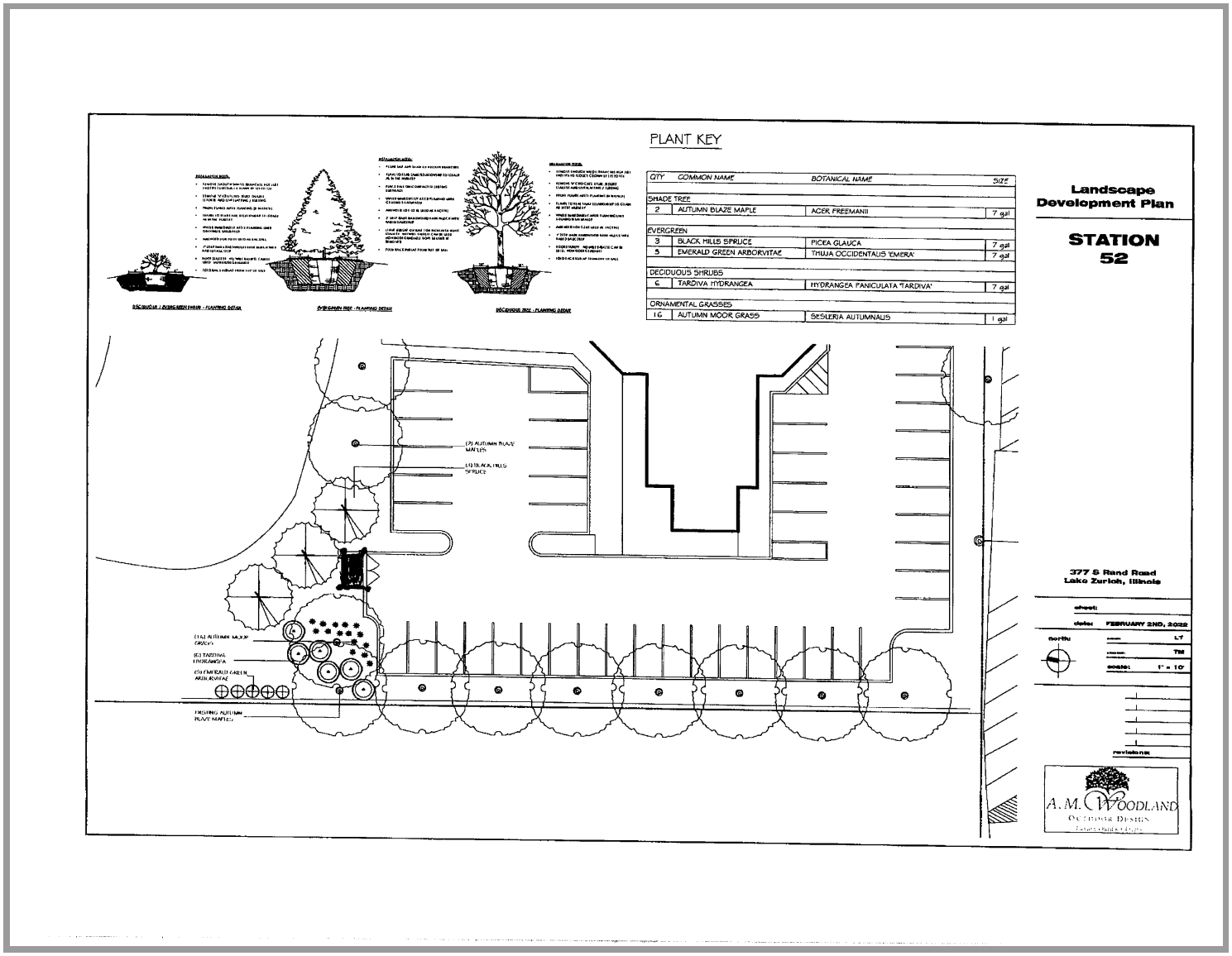
The Applicant has been advised and has agreed that no live entertainment will be permitted outdoors on the patio or any other portion of the property. All the live entertainment that is proposed will need to be conducted inside the building as originally stated in the application.

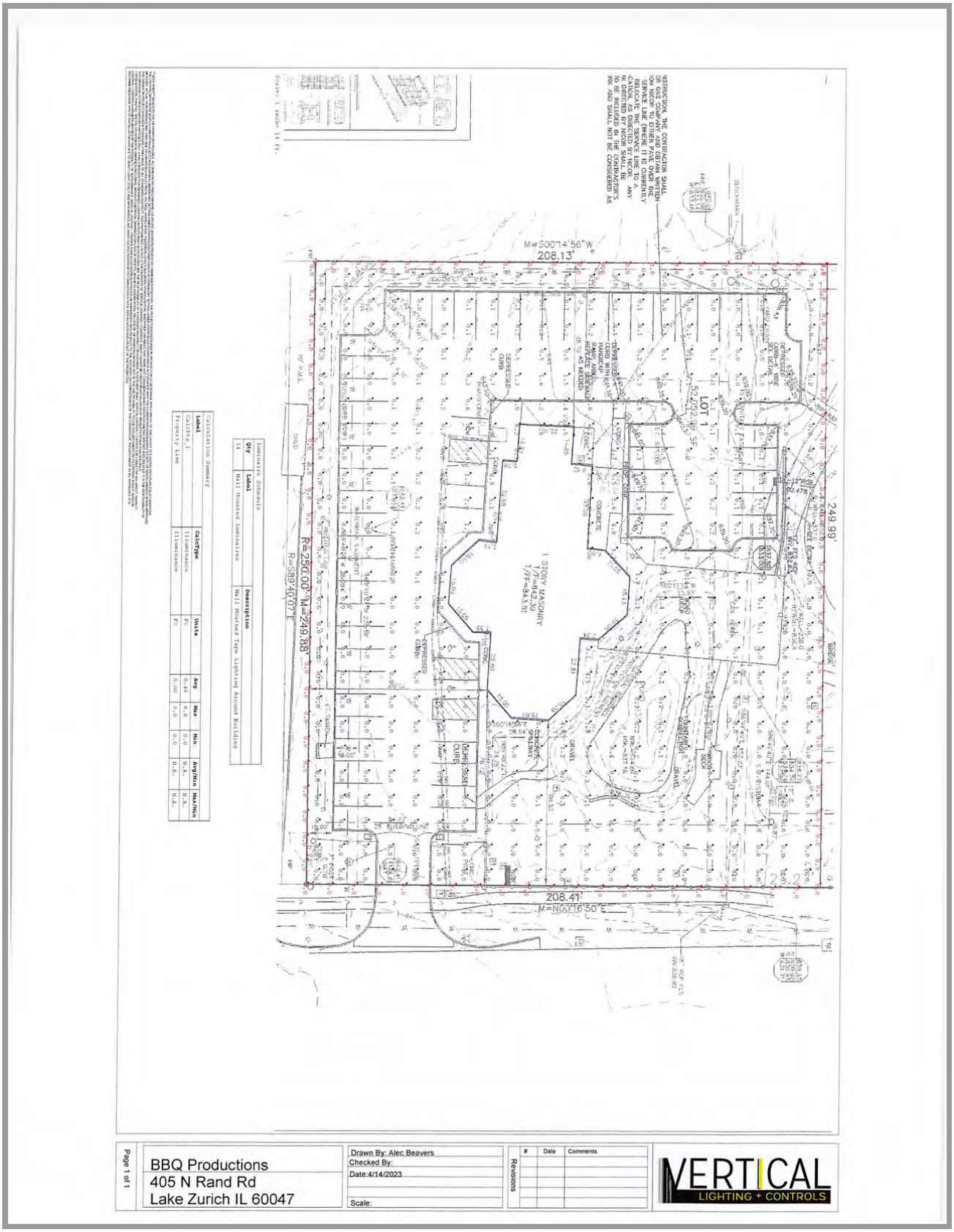
Gate within rear fence.
The rear fence did not include a gate in the permit from 2018. There is no provision in the code that prevents a gate from being installed as long as it is maintained in a good state of repair. Additionally, village staff is not aware that the Subject Property's customers are parking on Betty Drive.
However, the Applicant has been advised that if access to the rear of the property is not necessary, staff recommends that the gate either be removed or locked. This will also remove the perception that the Village Park (Betty Park) behind the Subject Property is being inappropriately used, or that customers are parking on Betty Drive and entering the premises through this gate.

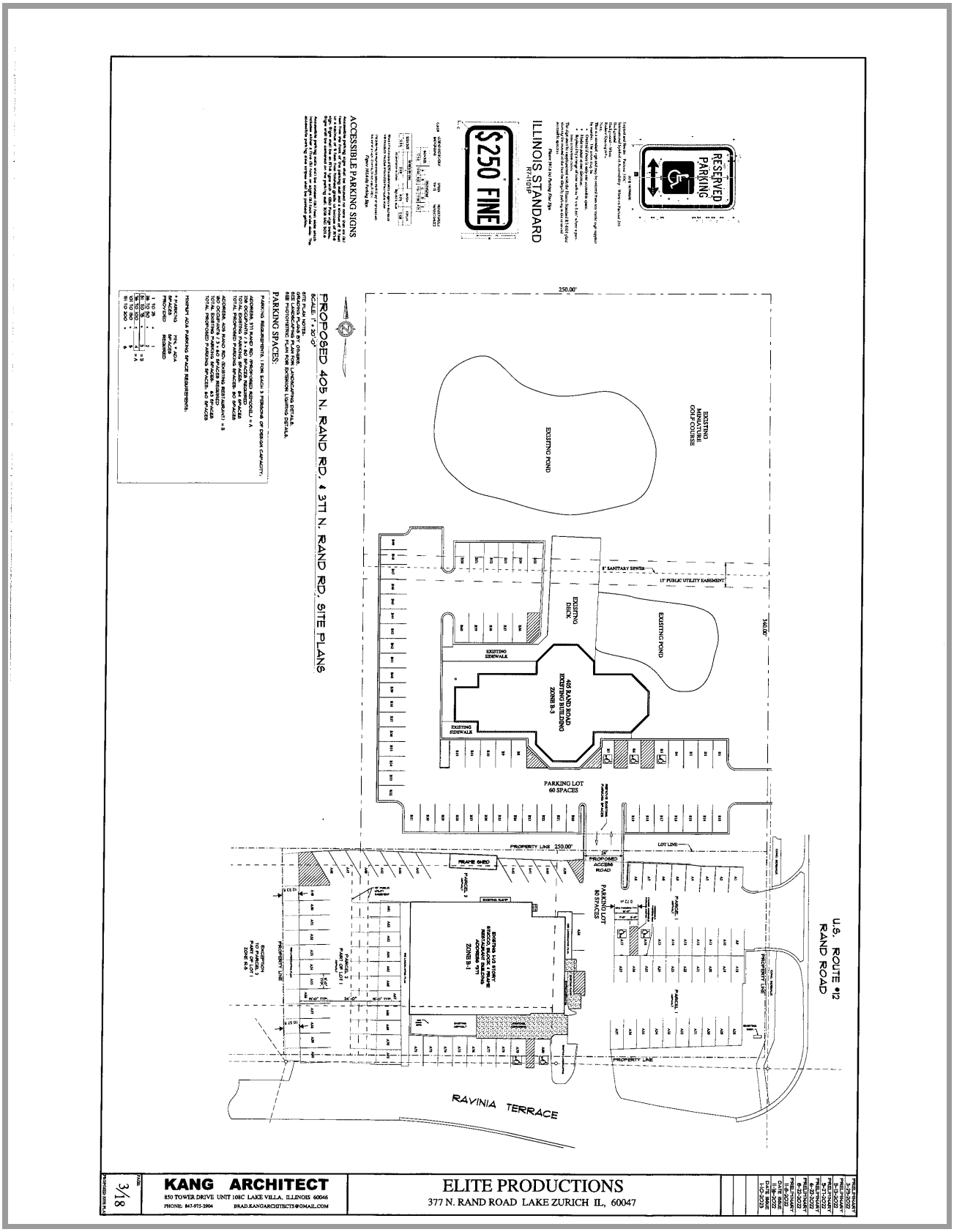
The outdoor smoker unit. The smoker unit is located at the rear of the building with a smoke stack that emits wood burning and other food smoking materials. Staff has recommended that the smoke stack may be raised to a greater height so that the smoke is allowed to dissipate away from the rear of the property. Also, staff is not aware whether the smoker received Lake County Health Department approval when it was installed.

If security for the smoker at the rear is a concern, necessitating the night lights to keep it safe staff recommends screening the smoker unit with a fence and a locked gate for security which would remove the need for the bright lights at the rear.

Code references.
Ms. Planell's comments make a number of references to the Lake County Municipal Code regarding landscape requirements, noise requirements, and lighting requirements. While the purpose and intent of these regulations may be similar, Lake Zurich follows regulations in the Lake Zurich Municipal Code for these requirements. The details are different.


PLANT KEY
QTY COMMON NAME BOTANICAL NAME SIZE
SHADE TREE
2 AUTUMN BLAZE MAPLE ACER FREEMANII 7 gal
EVERGREEN
3 BLACK HILLS SPRUCE PICEA GLAUCA 7 gal
5 EMERALD GREEN ARBORVITAE THUJA OCCIDENTALIS 'EMERA' 7 gal
DECIDUOUS SHRUBS
6 TARDIVA HYDRANGEA HYDRANGEA PANICULATA 'TARDIVA' 7 gal
ORNAMENTAL GRASSES
16 AUTUMN MOOR GRASS SESLERIA AUTUMNALIS 1 gal
Landscape Development Plan
STATION 52
377 S Rand Road
Lake Zurich, Illinois
date: FEBRUARY 2ND, 2022
north
scale: 1" = 10'
revisions
A.M. WOODLAND
OUTDOOR DESIGN


M=S00°14'56"W
208.13'
LOT 1
52,252 SF
1 STORY MASONRY
FF=842.00
BF=834.50
249.99'
R=250.00'
R=S89°40'07"E
M=249.88'
208.41'
M=N00°16'50"E
Calculation Summary
Luminaire Schedule
Wall Mounted Luminaire
Wall Mounted Tape Lighting Around Building
BBQ Productions
405 N Rand Rd
Lake Zurich IL 60047
Drawn By: Alec Beavers
Checked By:
Date:4/14/2023
Scale:
Revisions
VERTICAL
LIGHTING + CONTROLS


RESERVED PARKING
ILLINOIS STANDARD R7-1101P
$250 FINE
ACCESSIBLE PARKING SIGNS
PROPOSED 405 N. RAND RD. & 377 N. RAND RD. SITE PLANS
SCALE: 1" = 30'-0"
PARKING SPACES:
PARKING REQUIREMENTS: 1 FOR EACH 3 PERSONS OF DESIGN CAPACITY.
ADDRESS: 377 RAND RD. PROPOSED RESTAURANT = A
TOTAL EXISTING PARKING SPACES: 84 SPACES
TOTAL PROPOSED PARKING SPACES: 80 SPACES
ADDRESS: 405 RAND RD.: EXISTING RESTAURANT = B
TOTAL EXISTING PARKING SPACES: 83 SPACES
TOTAL PROPOSED PARKING SPACES: 80 SPACES
THIRTY ADA PARKING SPACE REQUIREMENTS:
TOTAL PARKING SPACES PROVIDED: 164
ADA SPACES REQUIRED: 4
ADA SPACES PROVIDED: 5
EXISTING POND
EXISTING GOLF COURSE
EXISTING DECK
EXISTING SIDEWALK
405 RAND ROAD EXISTING BUILDING ZONED B-3
PARKING LOT 60 SPACES
PARKING LOT 80 SPACES
PROPERTY LINE 250.00'
LOT LINE
24' PROPOSED ACCESS ROAD
8" SANITARY SEWER
15' PUBLIC UTILITY EASEMENT
340.00'
377 RAND ROAD EXISTING BUILDING ZONED B-1
PROPOSED ADDITION
EXISTING RAMP
PARCEL 1
PARCEL 2
EXCEPTION OF PART OF LOT 1 ZONE R-3
34.00'
U.S. ROUTE #12 RAND ROAD
RAVINIA TERRACE
KANG ARCHITECT
850 TOWER DRIVE UNIT 108C LAKE VILLA, ILLINOIS 60046
PHONE: 847-975-2904 BRAD.KANGARCHITECTS@GMAIL.COM
ELITE PRODUCTIONS
377 N. RAND ROAD LAKE ZURICH IL, 60047
DATE: 3/18
PRELIMINARY 3-25-2022
PRELIMINARY 4-13-2022
PRELIMINARY 5-2-2022
PRELIMINARY 6-2-2022
PRELIMINARY 7-5-2022
PRELIMINARY 8-2-2022
PRELIMINARY 9-6-2022
PRELIMINARY 10-4-2022
DATE ISSUED
PROPOSED SITE PLAN

PUBLIC WORKS DEPARTMENT

505 Telser Road
Lake Zurich, Illinois 60047

(847) 540-1696
Fax (847) 726-2182
LakeZurich.org

At the Heart of Community

ACTION ITEM 6d

MEMORANDUM

Date: May 9, 2023

To: Ray Keller, Village Manager RK

From: Michael J. Brown, Director of Public Works

Subject: **Adoption of the 2022 Lake County All-Natural Hazards Mitigation Plan**

Issue: The 2022 Lake County All-Natural Hazards Mitigation Plan (ANHMP) has been conditionally approved by the Illinois Emergency Management Agency (IEMA), and the Federal Emergency Management Agency (FEMA). The plan now requires Lake County Municipalities to adopt the current plan by resolution approved by the Village Board.

Village Strategic Plan: This agenda item is consistent with the following Goals and Objectives of the Strategic Plan.

- **Goal – Infrastructure Investment**: Address issues of storm water management, including detention pond maintenance and preservation of wetlands and green space.

Background: As Lake County Illinois is subject to flooding, tornadoes, severe summer and winter storms, and other natural hazards that can damage property, close businesses, disrupt traffic, and present a public health and safety hazard, the preparation and adoption of a community mitigation plan is a requirement of the Federal Emergency Management Agency.

In order for Lake County to be eligible for federal mitigation funds under Section 104 of the Disaster Mitigation Act of 2000 (42 USC 5165), and under 44 CFR (Code of Federal Regulations) Part 201.

In 2017 Lake County Stormwater Management Commission in collaboration with Lake County municipalities prepared and adopted the 2017 Lake County All-Natural Hazards Mitigation Plan. Per FEMA, an update is required every five (5) years to stay eligible for federal mitigation funds.

Analysis: In 2022, Lake County held three (3) meetings with participating municipalities in January, February, March, and April, to review the ANHMP's goals and action items, and to draft

an updated plan that included public input. As a result, the partner agencies were able to compile and include in the update mitigation activities/improvements throughout Lake County over the last 5 years.

A draft of the updated ANHMP was made available for public review and sent to Illinois Emergency Management Agency (IEMA) and FEMA for review and approval. Both agencies have provided a conditional approval with full approval after each Lake County Municipality adopts the update through a resolution.

Recommendation: Approve the Resolution adopting the 2022 Lake County update to the All-Natural Hazard Mitigation Plan.

W/Attachments:

1. 2022 Resolution
2. Executive Summary
3. 2022 Lake County All-Natural Hazards Mitigation Plan
4. ANHMP FAQs

VILLAGE OF LAKE ZURICH

RESOLUTION NO. 2023-05-_____

A RESOLUTION OF THE VILLAGE OF LAKE ZURICH ADOPTING THE 2022 LAKE COUNTY ALL-NATURAL HAZARDS MITIGATION PLAN

WHEREAS, Lake County is subject to flooding, tornadoes, severe summer and winter storms, and other natural hazards that can damage property, close businesses, disrupt traffic, and present a public health and safety hazard; and,

WHEREAS, the Lake County Hazard Mitigation Planning Committee has prepared and recommended the 2022 update of Lake County All-Natural Hazards Mitigation Plan that reviews the County's options to protect people and reduce damage from hazards; and,

WHEREAS, the Lake County and Lake County municipalities prepared and adopted the 2017 Lake County All-Natural Hazards Mitigation Plan and the 2022 Lake County All-Natural Hazards Mitigation Plan is an update required by the Federal Emergency Management Agency; and,

WHEREAS, the 2022 Lake County All-Natural Hazards Mitigation Plan was developed as a multi-jurisdictional plan and has been submitted and approved by Illinois Emergency Management Agency and the Federal Emergency Management Agency; and,

WHEREAS, the recommended 2022 Lake County All-Natural Hazards Mitigation Plan has been widely circulated for review by residents and federal, state, and regional agencies and has been supported by those reviewers; and,

WHEREAS, the preparation and adoption of a community mitigation plan is a requirement of the Federal Emergency Management Agency in order for Lake County to be eligible for federal mitigation funds under Section 104 of the Disaster Mitigation Act of 2000 (42 USC 5165), and under 44 CFR (Code of Federal Regulations) Part 201.

NOW, THEREFORE, BE IT RESOLVED that the 2022 Lake County All-Natural Hazards Mitigation Plan is hereby adopted as an official plan of the Village of Lake Zurich, and

BE IT FURTHER RESOLVED, that Director Mike Brown is the hereby appointed as the Village's representative on the Lake County Mitigation Planning Committee and will keep the Village appraised of the mitigation action items undertaken by or reported to the Lake County Hazard Mitigation Planning Committee; and

BE IT FURTHER RESOLVED, the Village Clerk is hereby requested to distribute a certified copy of this Resolution to the Lake County Stormwater Management Commission.

ADOPTED by the President and the Village Board of Trustees of the Village of Lake Zurich, Illinois, this 15th day of May 2023, pursuant to a roll call vote as follows:

AYES:
NAYS:
ABSENT:

APPROVED by me this ____ day of May, 2023

_____
Village President

_____
Village Clerk

LakeCounty

STORMWATER MANAGEMENT COMMISSION

Lake County All Natural Hazards Mitigation Plan – 2022 Update
Frequently Asked Questions

What is the Lake County All Natural Hazards Mitigation Plan (ANHMP)?
The ANHMP addresses natural hazards that may impact Lake County and identifies activities to prevent, prepare for, and respond to, potential hazards (e.g., earthquakes, tornados, floods, snow, wind, hail, ice).

Why was the ANHMP developed?
The adoption of an ANHMP and the update of it every 5 years allows Lake County and participating Lake County municipalities to be eligible for federal disaster mitigation grants. The ANHMP also provides credit for communities that participate in FEMA's Community Rating System (CRS), which reduces flood insurance costs in those communities.

Who developed the ANHMP?
The ANHMP was developed by Lake County and participating Lake County municipalities.

What is the update "process"?
Our update process included three (3) meetings with participating municipalities in January, February, March, and April, 2022 to review the ANHMP's goals and action items, and to draft an updated plan. Updates on mitigation activities over the last 5 years are included in the plan. Public input and comments were also solicited. A draft of the updated ANHMP was made available for public review and sent to Illinois Emergency Management Agency (IEMA) and FEMA for review and approval. Once approved, plan adoption will be recommended to the County and participating municipalities.

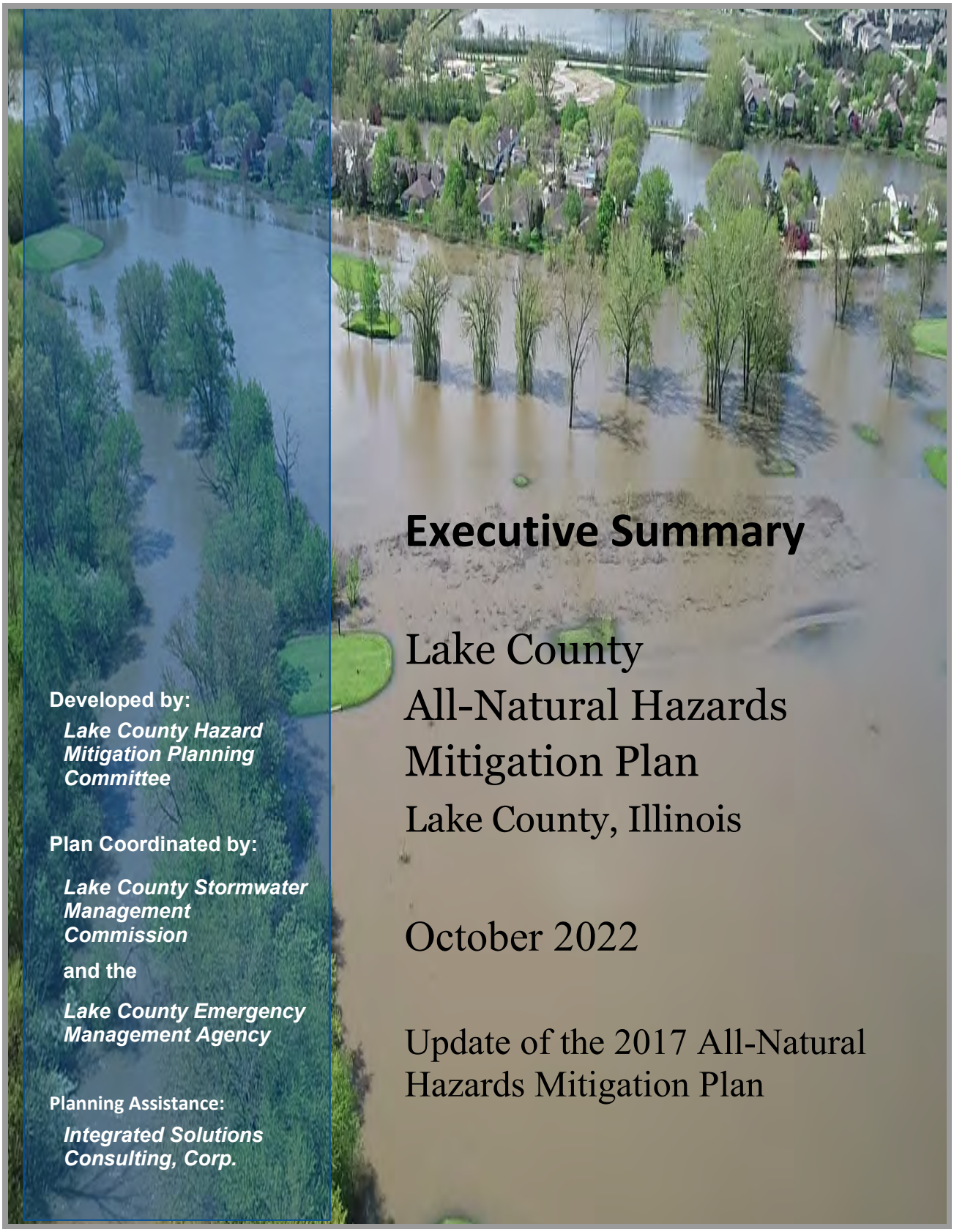
The ANHMP is considered multi-jurisdictional.
Each government agency must adopt the ANHMP to maintain federal eligibility. The County Board adoption of the ANHMP is for unincorporated areas of the County. Each municipality must adopt the ANHMP covering their corporate boundaries.

How do we adopt the ANHMP?
By resolution. Communities have been provided with a sample adoption resolution and instructions on where to send a copy of the resolution for IEMA and FEMA's records.

If we don't adopt the 2022 ANHMP, is our community eligible for federal disaster assistance?
Yes, the ANHMP is not tied to disaster assistance. The ANHMP is required for mitigation project grants from the Hazard Mitigation Grant Program (HMGP), Flood Mitigation Assistance (FMA), Building Resilient Infrastructure, and Communities (BRIC), and the Rehabilitation of High Hazard Potential Dam (HHPD) Grant program. It is prudent to have an adopted hazard mitigation plan.

Who will implement the Hazard Mitigation Plan?
Municipalities and Lake County upon plan adoption, and with other local government partners, will implement the ANHMP, *as resources (staff time and funding) are available*. An example of a joint effort may be the development of common public information materials.

Who do we contact about the ANHMP update?
Feel free to contact Sharon Østerby of the SMC at sosterby@lakecountyil.gov or 847-377-7706.


Executive Summary
Lake County
All-Natural Hazards
Mitigation Plan
Lake County, Illinois
October 2022
Update of the 2017 All-Natural Hazards Mitigation Plan
Developed by:
Lake County Hazard Mitigation Planning Committee
Plan Coordinated by:
Lake County Stormwater Management Commission
and the
Lake County Emergency Management Agency
Planning Assistance:
Integrated Solutions Consulting, Corp.

Executive Summary

In 2006, Lake County and participating Lake County municipalities developed and adopted the first *Lake County Countywide All-Natural Hazards Mitigation Plan (ANHMP)*. The Federal Emergency Management Agency (FEMA), through the Disaster Mitigation Act of 2000 (DMA 2000) and the Stafford Act require that a community develop and adopt a FEMA-approved natural hazard mitigation ANHMP to be eligible for hazard mitigation grant funds. DMA 2000 and the Stafford Act require that the mitigation ANHMP be updated and re-adopted every five years to maintain grant eligibility. This 2022 ANHMP is the third update of the 2006 ANHMP. The ANHMP is multi-jurisdictional, meaning the county and its participating municipalities must adopt the ANHMP.

This ANHMP meets all FEMA planning requirements including those of the FEMA National Flood Insurance Program (NFIP) and Community Rating System (CRS). The ANHMP allows Lake County and its participating communities to receive Hazard Mitigation Assistance Program (HMA) grant funding from FEMA to fund mitigation projects. CRS allows participating communities to earn credit towards discounts in flood insurance premiums. More can be learned about these programs at: http://www.fema.gov/hazard-mitigation-grant-program.

> "Hazard mitigation is defined as any sustained action taken to reduce or eliminate long-term risk to life and property from a hazard event."
>
> *FEMA*

While this ANHMP meets federal planning requirements, it has also been prepared to address protection of life, health, and safety, and to reduce damage to property and infrastructure from natural hazards. This ANHMP assesses the natural hazards that affect Lake County, sets mitigation goals, considers mitigation efforts currently being implemented, evaluates additional mitigation strategies, and recommends mitigation actions to be implemented over the next five years. The mitigation actions are designed to protect the people and assets of Lake County and are intended to be implemented by the public and the private sectors.

ANHMP Development

The ANHMP update was conducted with the input of the Lake County Hazard Mitigation Planning Committee (HMPC), which includes Lake County departments and agencies, Lake County municipalities and other stakeholders. The HMPC has been in place since the development of the 2006 ANHMP and has been meeting annually. The efforts of the HMPC were coordinated by the Lake County Stormwater Management Commission (SMC) and Lake County Emergency Management Agency (LCEMA).

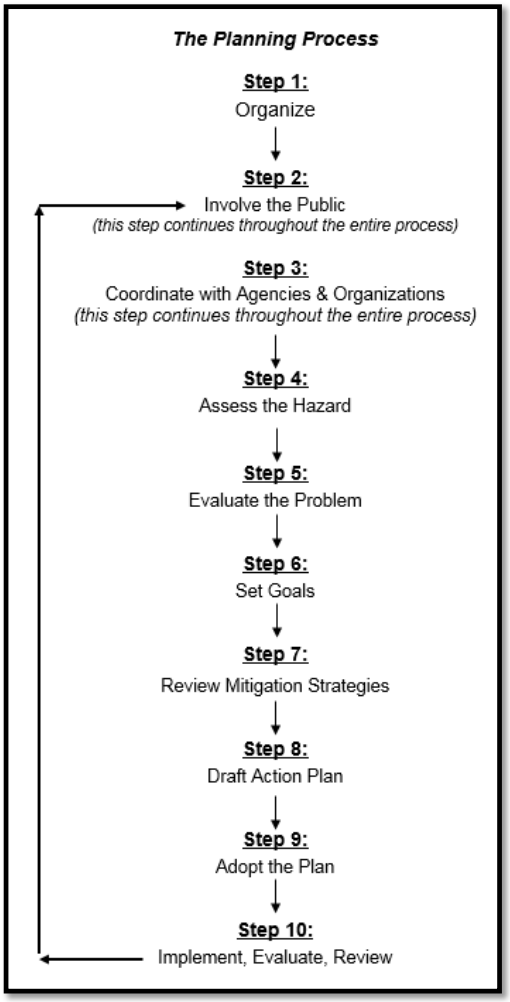
The update of the ANHMP was based on discussion and data provided by the participating municipalities as they followed the recommended 10-step planning process. An ANHMP introduction and a description of the planning process are presented in Chapters 1 and 2. Natural hazards that can impact Lake County have been assessed in Chapter 3. Goals and guidelines established by the HMPC are presented in Chapter 4. Six mitigation strategies and a capabilities assessment of Lake County are examined in Chapter 5. The ANHMP action plan is detailed in

Chapter 6, and procedures for monitoring and maintaining this ANHMP are included in Chapter 7.

Chapter Summary:

Planning Process

The HMPC followed a 10-step planning process to update the ANHMP. The HMPC met five times from January to April 2022. The HMPC reviewed the hazards and their effects on people and property, considered a variety of ways to reduce and prevent damage, and recommended the most appropriate and feasible measures for implementation. Existing plans and programs were reviewed during the planning process. It should be underscored that this ANHMP does not replace other planning efforts, such as community comprehensive plans, or the Lake County Comprehensive Stormwater Management Plan. This ANHMP complements those efforts.



The public was invited to participate through several concurrent means, including HMPC meetings, online surveys, paper surveys, press releases, newsletter articles, and the Lake County website. A public meeting was held on April 19, 2022, at the Central Permit Facility in Libertyville, Illinois. The public comment period opened on February 17, 2023.

Natural Hazard Risk Assessment

The HMPC reviewed all potential natural hazards that could impact Lake County, and evaluated them based on their causes, their likelihood of occurring, and their impact on people, property, critical facilities, and the local economy. The information was based on available technical studies and reports by the participating agencies and communities and on their past experiences.

The final approved plan will be available on the SMC website at: [Stormwater Management Commission | Lake County, IL (lakecountyil.gov)]

Hazard Mitigation Goals and Guidelines

The goals of the ANHMP were reviewed and reaffirmed by the HMPC. The ANHMP goals are to:

Goal 1. Protect the lives, health, and safety of the people of Lake County from the impacts and effects of natural hazards.

Goal 2. Protect public services, utilities, and critical facilities from potential damage from natural hazard events.

Goal 3. Mitigate existing buildings to protect against damage from natural hazard events.

Goal 4. Ensure that new developments do not create new exposures of people and property to damage from natural hazards.

Goal 5. Mitigate to protect against economic and transportation losses due to natural hazards.

Chapter 4 presents guidelines developed by the HMPC to achieving the above goals and to facilitate the development of hazard mitigation action items.

Hazard Mitigation Strategies

The HMPC considered mitigation strategies for the natural hazards shown on page ES-2. The HMPC reviewed current preventive mitigation measures being implemented by the county and municipalities. Preventive measures include activities such as building codes and the enforcement of the Lake County Watershed Development Ordinance. Lake County is strong in preventive measures through floodplain regulations and sustainable projects.

Property protection mitigation measures are used to modify buildings or property subject to existing damage. The HMPC agreed that special attention should be given to floodplain areas and designated repetitively flooded areas. SMC should continue with their voluntary floodplain acquisition program. Many measures can be implemented by the property owners, such as dry and wet floodproofing. Appropriate government activities include public information, technical assistance, and financial support. Emphasis has also been placed on critical facilities, particularly on understanding their vulnerability to wind and severe storm hazards.

Natural resource protection activities are aimed at preserving (or in some cases restoring) natural areas. These activities include preserving wetlands, control of erosion and sedimentation, stream restoration, and urban forestry management. Urban forestry programs are encouraged to protect utility lines from damage caused by trees during wind and ice storms.

The HMPC called for a better understanding of flood and other hazards to improve emergency management – preparedness, response, and recovery.

Structural mitigation projects such as the regional detention basins are still important components of the county's comprehensive watershed management program. Additional watershed studies are still needed. The HMPC also recommended that each community establish a formal and regular program of drainage system maintenance and examine drainage improvements.

The HMPC identified numerous subject areas that would benefit from a coordinated public information program to focus on residents and property owners obtaining proper insurance and ways for people to protect themselves and their property from natural hazards.

Mitigation Action Plan

The action plan outlines the recommended activities and initiatives to be implemented over the next five years. It is understood that implementation is contingent on the availability of resources (staff and funding). The action plan identifies those responsible for implementing the action items, and when they are to be completed.

Mitigation actions are not limited to those listed in the action plan. Other recommendations in this ANHMP (Chapter 5) should be implemented as opportunities arise.

Plan Adoption

This ANHMP serves to recommend mitigation measures for Lake County. Adoption is also a requirement for recognition of the ANHMP by FEMA for mitigation funding programs.

The adoption of this *Lake County All-Natural Hazards Mitigation Plan* will be done by resolution of the county board, the city councils, and boards of trustees of each participating municipality. The municipal resolutions will adopt each action item that is pertinent to the community and a person responsible for it will be assigned. With adoption, the county and each municipality are individually eligible to apply for FEMA mitigation grant funding.

Summary

This 2022 update to the ANHMP was developed by the Lake County HMPC as a multi-jurisdictional ANHMP to meet federal mitigation planning requirements. This ANHMP updated the examination of natural hazards facing Lake County, establishes mitigation goals, evaluates, and highlights the existing mitigation activities underway in Lake County, and recommends a mitigation action plan for the county and participating jurisdictions to undertake in the next five years. The mitigation efforts included in this ANHMP are for protecting people, property, and

other assets of Lake County. Some action items are ongoing efforts while others are new. Implementation of all action items is contingent on the availability of staff and funding.

This ANHMP will be adopted by resolution by the Lake County Board and each participating jurisdiction. This ANHMP will be implemented and maintained through both countywide and individual initiatives as funding and resources become available.

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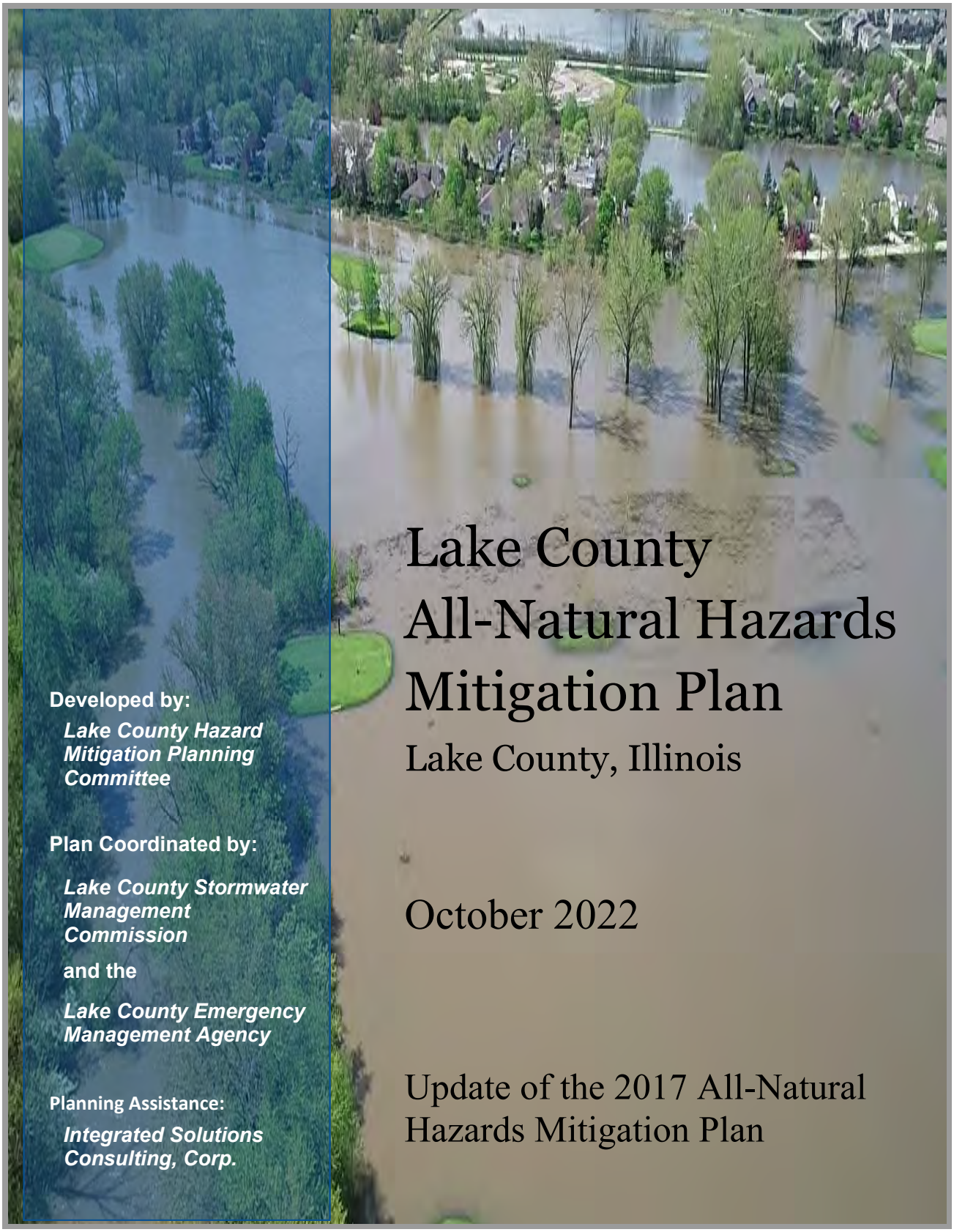
Lake County
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Executive Summary

In 2006, Lake County and participating Lake County municipalities developed and adopted the first *Lake County Countywide All-Natural Hazards Mitigation Plan (ANHMP)*. The Federal Emergency Management Agency (FEMA), through the Disaster Mitigation Act of 2000 (DMA 2000) and the Stafford Act require that a community develop and adopt a FEMA-approved natural hazard mitigation ANHMP to be eligible for hazard mitigation grant funds. DMA 2000 and the Stafford Act require that the mitigation ANHMP be updated and re-adopted every five years to maintain grant eligibility. This 2022 ANHMP is the third update of the 2006 ANHMP. The ANHMP is multi-jurisdictional, meaning the county and its participating municipalities must adopt the ANHMP.

This ANHMP meets all FEMA planning requirements including those of the FEMA National Flood Insurance Program (NFIP) and Community Rating System (CRS). The ANHMP allows Lake County and its participating communities to receive Hazard Mitigation Assistance Program (HMA) grant funding from FEMA to fund mitigation projects. CRS allows participating communities to earn credit towards discounts in flood insurance premiums. More can be learned about these programs at: http://www.fema.gov/hazard-mitigation-grant-program.

> "Hazard mitigation is defined as any sustained action taken to reduce or eliminate long-term risk to life and property from a hazard event."
>
> *FEMA*

While this ANHMP meets federal planning requirements, it has also been prepared to address protection of life, health, and safety, and to reduce damage to property and infrastructure from natural hazards. This ANHMP assesses the natural hazards that affect Lake County, sets mitigation goals, considers mitigation efforts currently being implemented, evaluates additional mitigation strategies, and recommends mitigation actions to be implemented over the next five years. The mitigation actions are designed to protect the people and assets of Lake County and are intended to be implemented by the public and the private sectors.

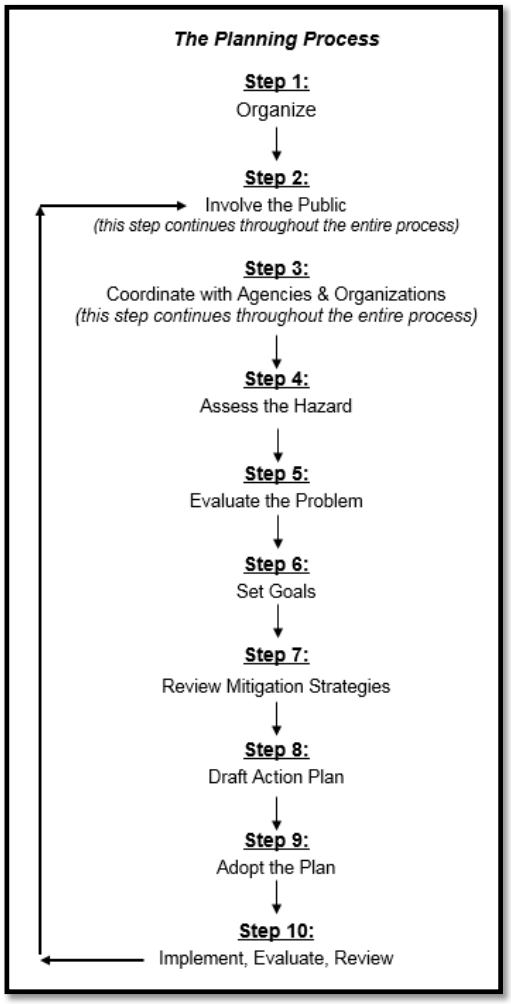
ANHMP Development

The ANHMP update was conducted with the input of the Lake County Hazard Mitigation Planning Committee (HMPC), which includes Lake County departments and agencies, Lake County municipalities and other stakeholders. The HMPC has been in place since the development of the 2006 ANHMP and has been meeting annually. The efforts of the HMPC were coordinated by the Lake County Stormwater Management Commission (SMC) and Lake County Emergency Management Agency (LCEMA).

The update of the ANHMP was based on discussion and data provided by the participating municipalities as they followed the recommended 10-step planning process. An ANHMP introduction and a description of the planning process are presented in Chapters 1 and 2. Natural hazards that can impact Lake County have been assessed in Chapter 3. Goals and guidelines established by the HMPC are presented in Chapter 4. Six mitigation strategies and a capabilities assessment of Lake County are examined in Chapter 5. The ANHMP action plan is detailed in Chapter 6, and procedures for monitoring and maintaining this ANHMP are included in Chapter 7.

Chapter Summary:
Planning Process

The HMPC followed a 10-step planning process to update the ANHMP. The HMPC met five times from January to April 2022. The HMPC reviewed the hazards and their effects on people and property, considered a variety of ways to reduce and prevent damage, and recommended the most appropriate and feasible measures for implementation. Existing plans and programs were reviewed during the planning process. It should be underscored that this ANHMP does not replace other planning efforts, such as community comprehensive plans, or the Lake County Comprehensive Stormwater Management Plan. This ANHMP complements those efforts.



The public was invited to participate through several concurrent means, including HMPC meetings, online surveys, paper surveys, press releases, newsletter articles, and the Lake County website. A public meeting was held on April 19, 2022, at the Central Permit Facility in Libertyville, Illinois. The public comment period opened on February 17, 2023.

Natural Hazard Risk Assessment

The HMPC reviewed all potential natural hazards that could impact Lake County, and evaluated them based on their causes, their likelihood of occurring, and their impact on people, property, critical facilities, and the local economy. The information was based on available technical studies and reports by the participating agencies and communities and on their past experiences.

The final approved plan will be available on the SMC website at:
https://www.lakecountyil.gov/553/Stormwater-Management-Commission

Hazard Mitigation Goals and Guidelines

The goals of the ANHMP were reviewed and reaffirmed by the HMPC.
The ANHMP goals are to:

Goal 1. Protect the lives, health, and safety of the people of Lake County from the impacts and effects of natural hazards.

Goal 2. Protect public services, utilities, and critical facilities from potential damage from natural hazard events.

Goal 3. Mitigate existing buildings to protect against damage from natural hazard events.

Goal 4. Ensure that new developments do not create new exposures of people and property to damage from natural hazards.

Goal 5. Mitigate to protect against economic and transportation losses due to natural hazards.

Chapter 4 presents guidelines developed by the HMPC to achieving the above goals and to facilitate the development of hazard mitigation action items.

Hazard Mitigation Strategies

The HMPC considered mitigation strategies for the natural hazards shown on page ES-2. The HMPC reviewed current preventive mitigation measures being implemented by the county and municipalities. Preventive measures include activities such as building codes and the enforcement of the Lake County Watershed Development Ordinance. Lake County is strong in preventive measures through floodplain regulations and sustainable projects.

Property protection mitigation measures are used to modify buildings or property subject to existing damage. The HMPC agreed that special attention should be given to floodplain areas and designated repetitively flooded areas. SMC should continue with their voluntary floodplain acquisition program. Many measures can be implemented by the property owners, such as dry and wet floodproofing. Appropriate government activities include public information, technical assistance, and financial support. Emphasis has also been placed on critical facilities, particularly on understanding their vulnerability to wind and severe storm hazards.

Natural resource protection activities are aimed at preserving (or in some cases restoring) natural areas. These activities include preserving wetlands, control of erosion and sedimentation, stream restoration, and urban forestry management. Urban forestry programs are encouraged to protect utility lines from damage caused by trees during wind and ice storms.

The HMPC called for a better understanding of flood and other hazards to improve emergency management – preparedness, response, and recovery.

Structural mitigation projects such as the regional detention basins are still important components of the county's comprehensive watershed management program. Additional watershed studies are still needed. The HMPC also recommended that each community establish a formal and regular program of drainage system maintenance and examine drainage improvements.

The HMPC identified numerous subject areas that would benefit from a coordinated public information program to focus on residents and property owners obtaining proper insurance and ways for people to protect themselves and their property from natural hazards.

Mitigation Action Plan

The action plan outlines the recommended activities and initiatives to be implemented over the next five years. It is understood that implementation is contingent on the availability of resources (staff and funding). The action plan identifies those responsible for implementing the action items, and when they are to be completed.

Mitigation actions are not limited to those listed in the action plan. Other recommendations in this ANHMP (Chapter 5) should be implemented as opportunities arise.

Plan Adoption

This ANHMP serves to recommend mitigation measures for Lake County. Adoption is also a requirement for recognition of the ANHMP by FEMA for mitigation funding programs.

The adoption of this *Lake County All-Natural Hazards Mitigation Plan* will be done by resolution of the county board, the city councils, and boards of trustees of each participating municipality. The municipal resolutions will adopt each action item that is pertinent to the community and a person responsible for it will be assigned. With adoption, the county and each municipality are individually eligible to apply for FEMA mitigation grant funding.

Summary

This 2022 update to the ANHMP was developed by the Lake County HMPC as a multi-jurisdictional ANHMP to meet federal mitigation planning requirements. This ANHMP updated the examination of natural hazards facing Lake County, establishes mitigation goals, evaluates, and highlights the existing mitigation activities underway in Lake County, and recommends a mitigation action plan for the county and participating jurisdictions to undertake in the next five years. The mitigation efforts included in this ANHMP are for protecting people, property, and other assets of Lake County. Some action items are ongoing efforts while others are new. Implementation of all action items is contingent on the availability of staff and funding.

This ANHMP will be adopted by resolution by the Lake County Board and each participating jurisdiction. This ANHMP will be implemented and maintained through both countywide and individual initiatives as funding and resources become available.

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Chapter 1: Introduction

Lake County, located in northeastern Illinois, is subject to natural hazards. Flooding, severe summer and winter storms, extreme cold and heat, and tornadoes are the most significant natural hazards that affect Lake County. These are some of the natural hazards that have the potential to threaten both life and property.

Significant tornadoes struck the county in 1965, 1996, 1997 and in 2015. Historically, flooding has been the most damaging and disruptive natural hazard in Lake County. Historical flooding in the Des Plaines watershed in 1986 caused over $6 million in property damage. Major flood events were also experienced in 1993, 1996, 2000, 2004, 2013 and 2017. Lake County can also experience dangerous winds. High winds reaching 66 miles per hour were recorded as recently as 2002 and 100 miles per hour in July 2011. The county is also susceptible to severe storms. The latest severe winter storm occurred in early 2015 where parts of Lake County received up to 22 inches of snow. During this storm, winds reached up to 52 miles per hour. In April 2013, severe storms with intense rainfall created substantial flooding in urban areas, areas outside of the mapped floodplains and caused flood damage throughout much of northeastern Illinois.

Lake County understands the importance of addressing natural hazards to minimize damage and reduce chances for loss of life. Lake County mitigation programs include the implementation of the countywide Lake County Watershed Development Ordinance, developed by the Stormwater Management Commission (SMC) in 1992 to regulate new development so that flood problems do not increase and to limit building activities in the floodplain. Also, the SMC established a Floodplain Buyout Program to remove high-risk flood-prone property from flood problem areas. Since its establishment in 1997, this program has acquired over 200 properties using Federal Emergency Management Agency (FEMA) Hazard Mitigation Assistance program funding and state and local funds. Lake County and its municipalities enforce building codes to protect structures from wind and seismic hazards.

Lake County and the planning committee developed and adopted the Lake County All-Natural Hazards Mitigation Plan (ANHMP) in 2006 as a multi-jurisdictional plan. The ANHMP was updated in 2012 and 2017. This Lake County ANHMP is an update to the 2017 plan.

1.1 Purpose of the Plan

The ANHMP allows Lake County and the participating communities to be eligible for Hazard Mitigation Grant funding through the FEMA the Hazard Mitigation Assistance (HMA) program. The HMA program includes the Hazard Mitigation Grant program, the Pre-Disaster Mitigation program, and the Flood Mitigation Assistance funds. The HMA program administers the hazard mitigation components of the Disaster Mitigation Act of 2000 (Public Law 106-390) and the Stafford Act. Both acts require communities

to develop and adopt a FEMA-approved natural hazard mitigation plan before mitigation grant funds can be awarded.

This ANHMP meets all of FEMA's hazard mitigation planning requirements including those of the FEMA National Flood Insurance Program's (NFIP) and the Community Rating System (CRS). CRS allows participating communities to earn credit towards discounts in flood insurance premiums. HMA requires that mitigation plans be updated and readopted every five years. The Lake County SMC has received mitigation grant dollars from FEMA because of the ANHMP, and these grants have benefited property owners in incorporated and unincorporated communities of Lake County.

The ANHMP has also been prepared so that Lake County and participating communities can take a proactive approach to reduce the impact of natural hazards. The ANHMP identifies the hazards affecting the county, assesses vulnerability to the hazards, determines those hazards that have the greatest effect, determines the capability of local government to implement mitigation actions, and then recommends actions that will avoid or minimize the vulnerabilities to the hazards.

Mitigation, as defined by the FEMA, is "sustained action to reduce or eliminate the long-term risk to people and property from hazards and their effects." By evaluating the county's geography, geology, climatology, economics, infrastructure, land use controls, development regulations and expected growth, we can better understand natural hazard vulnerabilities. By exercising foresight when evaluating new development and redevelopment, and by taking actions to reduce the risk to the existing built environment, harm to people and damage to property from natural hazards can be reduced.

1.2 Organization of the Plan

This update of the ANHMP has been organized into seven chapters:

Chapter 1: **Introduction** – includes the ANHMP's purpose and organization, provides an overview of the county, a summary of Lake County land use, base maps, and a summary of critical facilities.

Chapter 2: **Planning Process** – presents the planning process followed for this update and summarized the changes made since the 2012 ANHMP. This chapter includes communities represented on the Lake County Hazard Mitigation Planning Committee.

Chapter 3: **Risk Assessme**nt – discusses the natural hazards that can impact Lake County as well as the summary of changes to these hazards found during the update process.

Chapter 4: **Mitigation Goals** – presents the Lake County mitigation goals and guidelines.

Chapter 5: **Mitigation Strategies and Capabilities Assessment** – provides a description of six mitigation strategy categories and summarized mitigation activities already underway in Lake County and recommendations for additional activities. The chapter also considers the current capabilities of the county and each municipality for implementing additional mitigation measures.

Chapter 6: **Action Plan** – discusses the consideration of countywide and community-specific mitigation action items to be implemented as staff and funding resources allow.

Chapter 7: **Plan Maintenance** – discussed plan adoption, outlines the ANHMP maintenance and monitoring efforts, continued public participation, and evaluating the plan.

1.3 Lake County Overview

Lake County is the most northeastern county in Illinois and is part of the Chicago metropolitan area along with Cook, Will, Kane and DuPage Counties. The county seat is Waukegan, Illinois. The total area of Lake County is 1,368 square miles: with a land area of 448 square miles and the remaining area being water. Elevations in the county range from 957 feet above sea level to 580 feet above sea level. Land in the county slopes to the southeast. Much of the water area in Lake County is Lake Michigan.

The county is composed of 53 individual communities (some partially in other counties) and 18 Townships. Lake County borders McHenry County to the west, Cook County to the south, and Lake Michigan to the east. Lake County is 23.5 miles from north to south. At its widest point, the southern county border, Lake County is 22.6 miles from east to west. A map of Lake County and its municipalities is provided in Exhibit 1: Lake County Municipalities, and a map of the townships is provided in Exhibit 2: Lake County Townships.

Exhibit 1: Lake County Municipalities

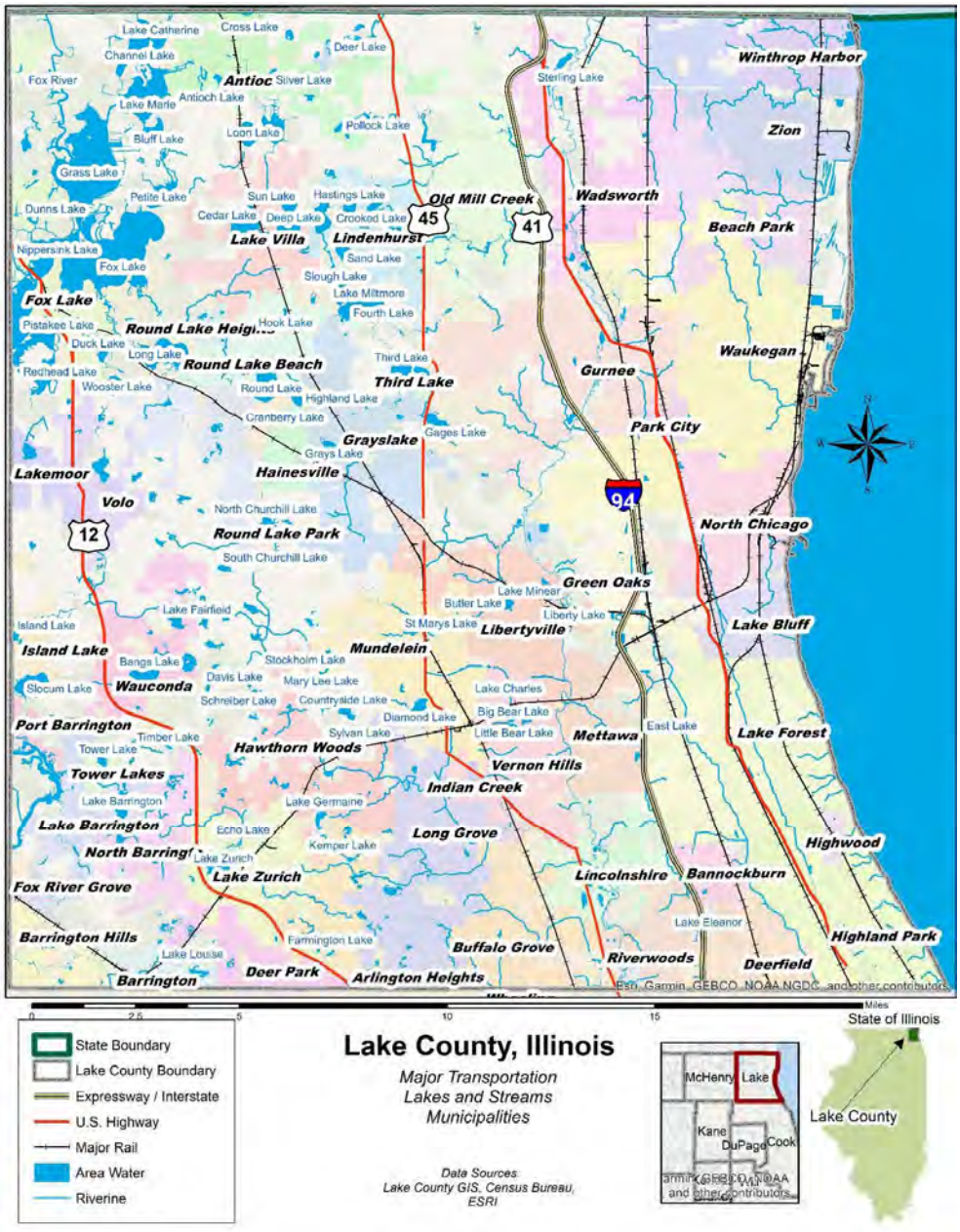


Exhibit 2: Lake County Townships

Watersheds: Lake County has four main watersheds; the Fox River, the Des Plaines River, Lake Michigan, and the North Branch Chicago River. The Fox River and the Des Plaines River originate in Wisconsin. The Fox River flows southwest through Lake County and into McHenry County. Des Plaines River and North Branch Chicago River flow south into Cook County.

Climate: Lake County has a temperate climate. Mean daily average temperatures during the winter in Lake County range from 20 to 32 degrees Fahrenheit. During the summer, this range is between 64-75°F. July is the hottest month in Lake County with an average temperature of 82°F, while January is the coldest at 14.8°F. The highest recorded temperature in the Chicago Metro area was 105°F in 1934. The total average annual precipitation is 36.1 inches.

Population: Lake County has a population of 714,342 and a population density of 1,572 people per square mile (2020 U.S. Census). There are approximately 269,378 housing units within the county. Lake County is the third most populated county in Illinois behind Cook County and DuPage County. The Lake County population makes up approximately 5.6% of the total population in the State of Illinois. The most populated municipality is the City of Waukegan with 89,321 people in the 2020 U.S. Census.

Population growth is overall increasing in the county, although the rate of growth has decreased since the 2000 census. Lake County and has grown in population 1.4% from 2010 to 2020; a higher percent change in the last decade than both Cook and DuPage Counties. This rate of growth is much higher than the growth rate of the entire state of Illinois, which had a negative growth rate from 2010 to 2020. The Chicago Metropolitan Agency has projected population growth to continue for Lake County, with a projected population of over 950,000 by the year 2040, with 327,000 households. This would represent population growth rate of over 30% from 2010 figures, and a 25% housing growth rate. Population data from the 2020 Census are presented in Table 1.

Employment: In 2020, the estimated workforce in Lake County was 320,154 people. The county's manufacturing sector employs the most people, accounting for 19.2% of the total workforce. Other notable sectors include retail trade (13.6%), heath care and social assistance (11.3%) and finance and insurance (7.8%).

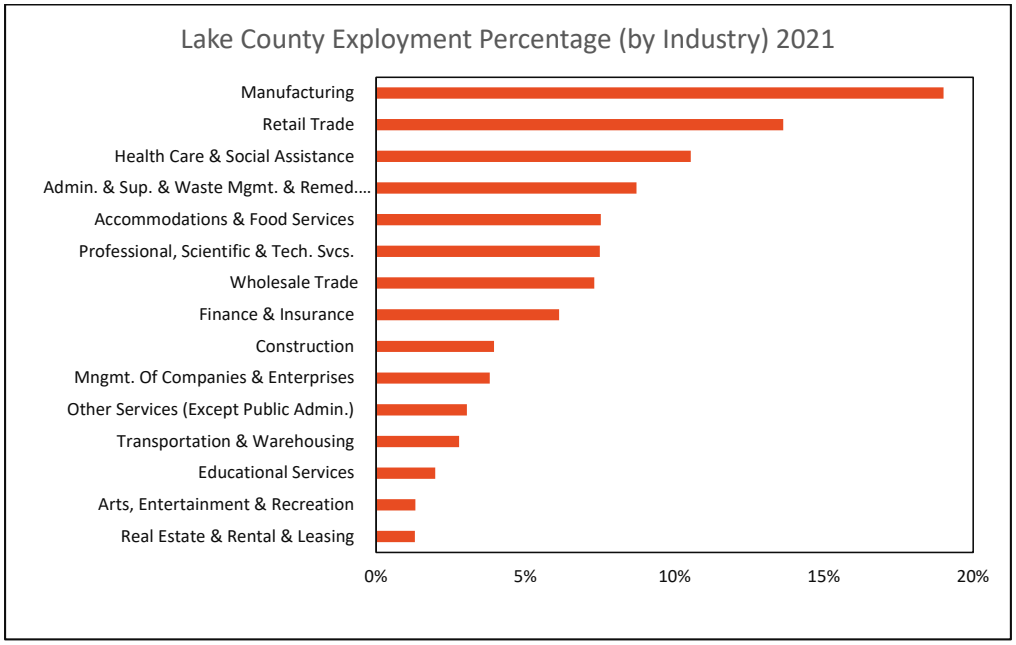
Figure 1: Lake County Employment demonstrates the employment breakdown by sector in Lake County. The top employer in Lake County is the Great Lakes Naval Station operated by the U.S. Department of Navy. Great Lakes Station employs approximately 26,200 people. The Great Lakes Station serves as the Navy's largest training center and is the largest military installation of any kind in the state of Illinois. The second largest employer in Lake County is Abbott Laboratories which employs approximately 13,000 people.

Table 1: Lake County Township Population Data

	Lake County		
Township	**2010 Population**	**2020 Population**	**2040 Population Projected**
Antioch Township	27,745	27,535	44,400
Avon Township	65,001	63,708	91,008
Benton Township	18,951	19,082	29,434
Cuba Township	16,826	17,292	18,765
Ela Township	42,654	45,287	50,724
Fremont Township	32,337	33,422	43,646
Grant Township	26,523	28,051	36,679
Lake Villa Township	40,276	39,796	53,306
Libertyville Township	53,139	54,192	64,852
Moraine Township	34,129	33,946	49,232
Newport Township	6,770	6,831	9,701
Shields Township	39,062	37,685	31,506
Vernon Township	67,095	71,377	86,024
Warren Township	64,841	65,883	79,332
Wauconda Township	21,730	23,628	35,089
Waukegan Township	90,893	90,386	105,419
West Deerfield Township	31,077	31,586	39,942
Zion Township	24,413	24,655	27,283
Total:	**703,462**	**714,342**	**896,341**

Sources: 2010, 2020 U.S. Census

Figure 1: Lake County Employment



Source: U.S. Bureau of Labor Statistics

Schools: According to Illinoisschools.com Lake County has 51 public elementary and high school districts. They are shown in Exhibit 3: Lake County Elementary School Districts and Exhibit 4: Lake County High School Districts. Colleges include College of Lake County in Grayslake (also in Vernon Hills and Waukegan), Lake Forest College in Lake Forest, Trinity International University in Deerfield, and Rosalind Franklin University in North Chicago.

Exhibit 3: Lake County Elementary School Districts

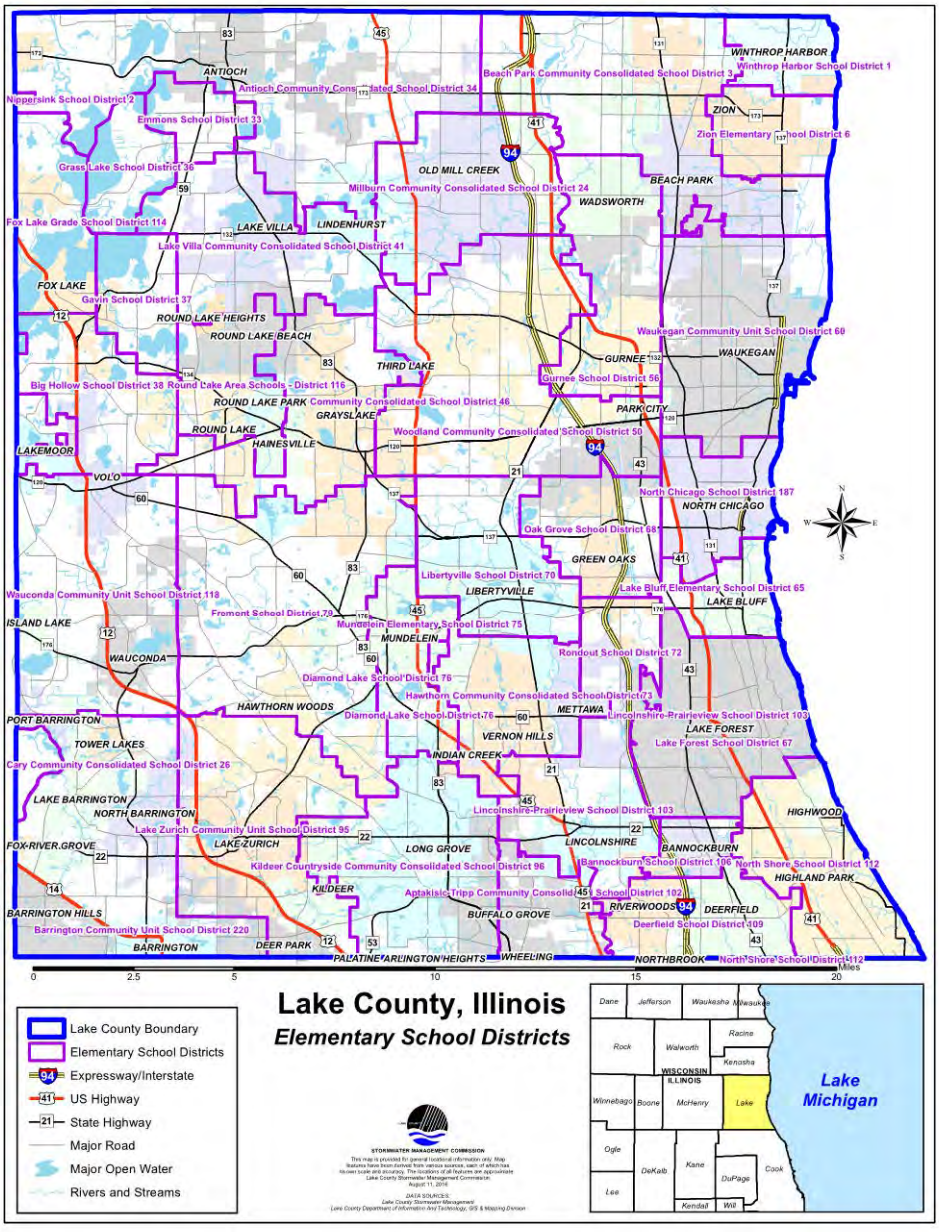
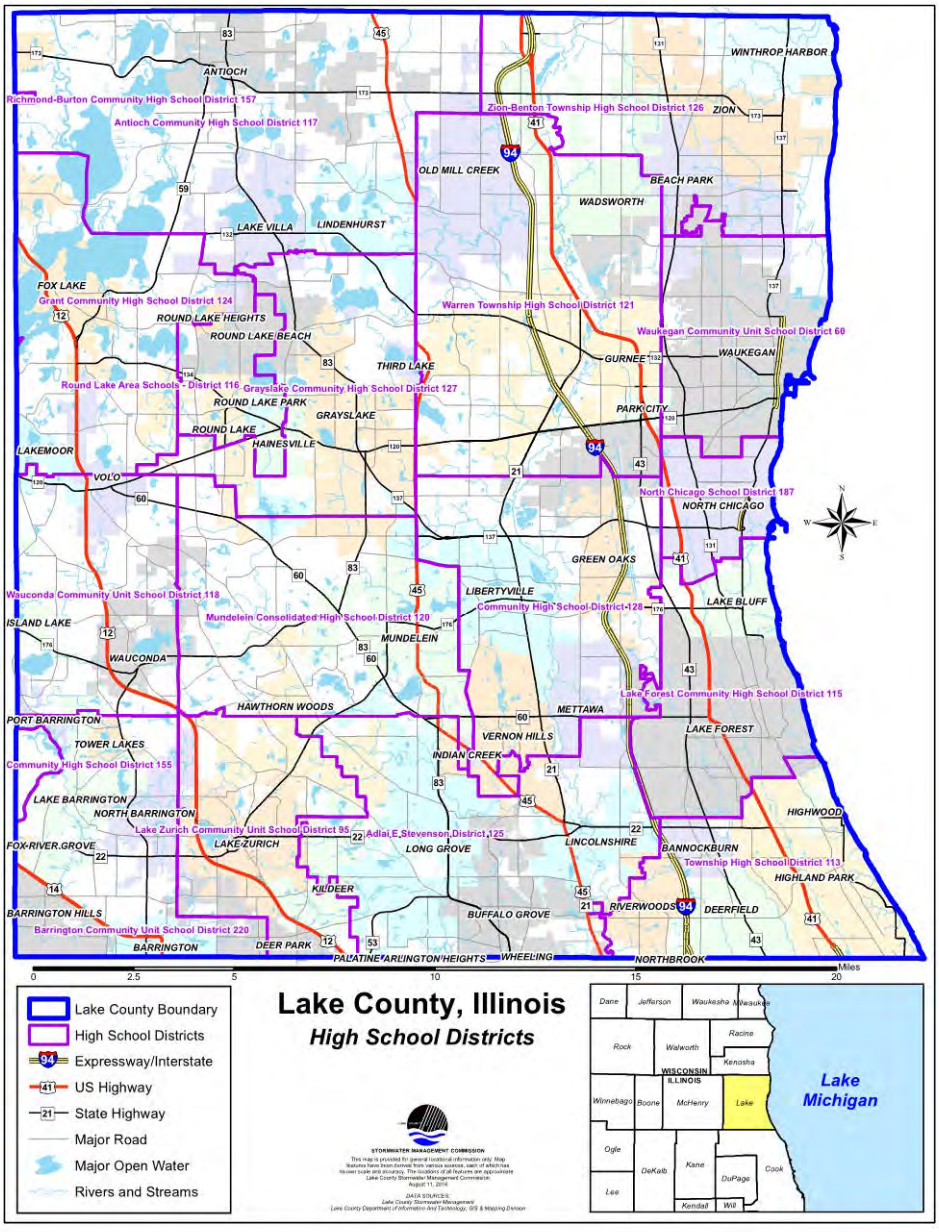


Exhibit 4: Lake County High School Districts



1.4 Lake County Land Use and Development

Current Land Use: Lake County covers approximately 448 square miles of land area. Approximately 16% of Lake County is in the 100-year floodplain. The most current Lake County land use data is presented in **Error! Reference source not found.** and Table 2: Current Land Use. Total residential land use is the largest land use in Lake County, accounting for over 26% of the land. Public and private open space is also a large land use, accounting for over 19% of the total land area. Exhibit 5: Lake County Current Land Use shows current land use in Lake County.

Figure 3: Lake County Future Land Use Percentiles

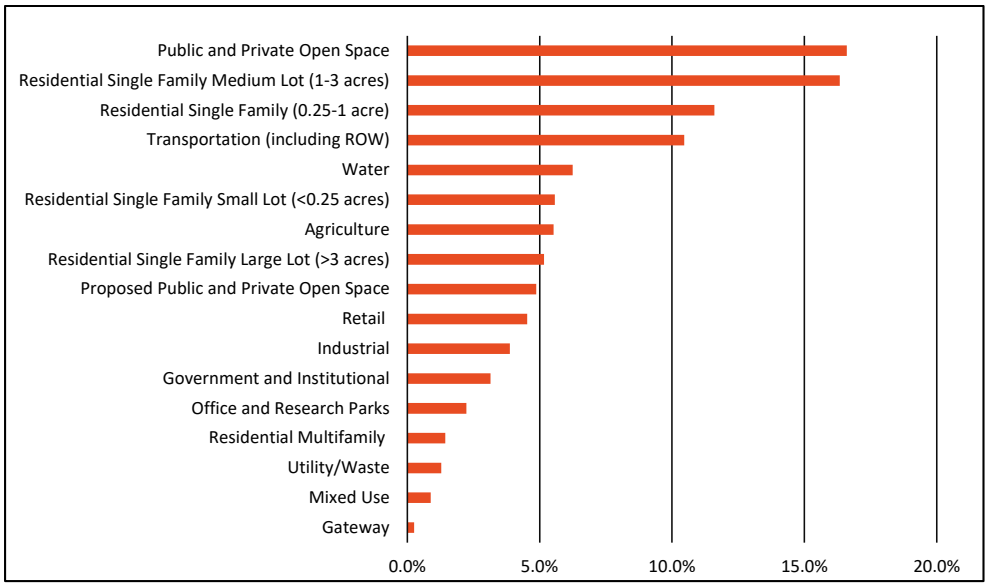


Figure 3: Future Land Use and Table 3: Planned Future Land Uses demonstrate the estimated future land uses within Lake County between 2020-2030. Areas to be designated for public and private open space utilize the most future land area in Lake County, accounting for over 20% of land. Single family residential lots from 0.25 to 1-acre account for nearly 12% of future use, while single family medium residential lots from 1 to 3 acres account for over 16%. Future land used for transportation purposes is estimated at over 10%.

Development Trends: Development is expected to continue throughout Lake County. As mentioned above, the Chicago Metropolitan Agency for Planning has projected that Lake County

will grow to 327,000 households by the year 2040, from the current estimate of 253,386. This would represent over a 25% housing growth rate from 2010 figures.

Lake County places high importance on protecting its environmental resources, which includes lakes, rivers, and open spaces. Many communities have identified green space as an important quality of life factor in Lake County.

Exhibit 6: Lake County Environmental Resources **Inventory** shows the location of developed areas, Illinois Natural Areas Inventory Areas, Illinois biological survey stream corridors, protected conservation-oriented open space, other public and private open space, surface water including floodplains, floodways, wetlands, Stormwater Management Commission Flood Hazard Mitigation Areas, areas of steep slopes and areas of hydric soils. This data has been used by Lake County in the development of future comprehensive plans to allow for policies and actions by county agencies and the municipalities that respect environmental and cultural resources, while accommodating desirable development.

Figure 2: Lake County Current Land Use

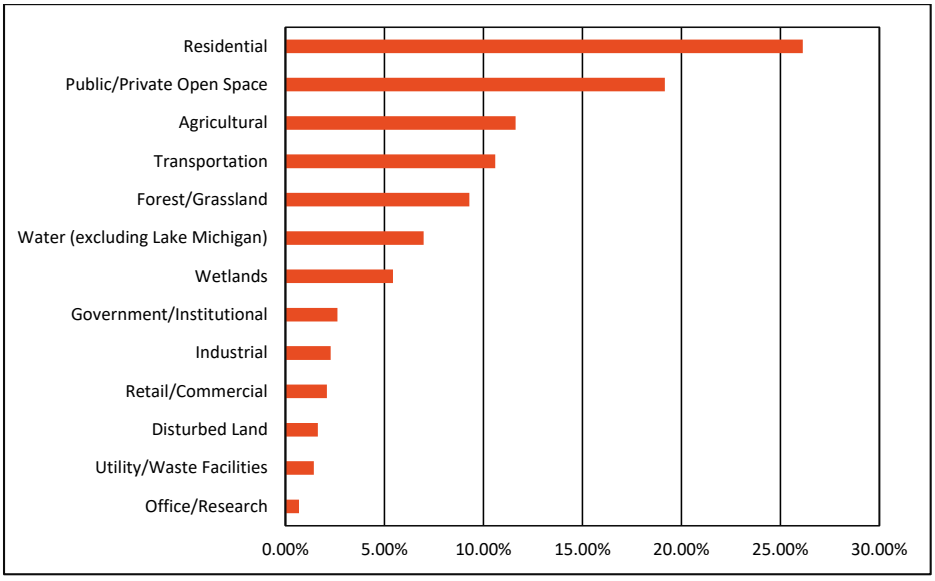


Table 2: Current Land Use

Land Use	Acres	Percent
Agricultural	35,021	11.63%
Disturbed Land	4,938	1.64%
Forest/Grassland	27,970	9.29%
Government/Institutional	7,931	2.63%
Industrial	6,874	2.28%
Office/Research	2,046	0.68%
Public/Private Open Space	57,745	19.17%
Residential	78,748	26.14%
Retail/Commercial	6,318	2.10%
Transportation	31,945	10.60%
Utility/Waste Facilities	4,298	1.43%
Water (excluding Lake Michigan)	21,032	6.98%
Wetlands	16,369	5.43%
Total	**301,234**	**100.00%**

Figure 3: Lake County Future Land Use Percentiles

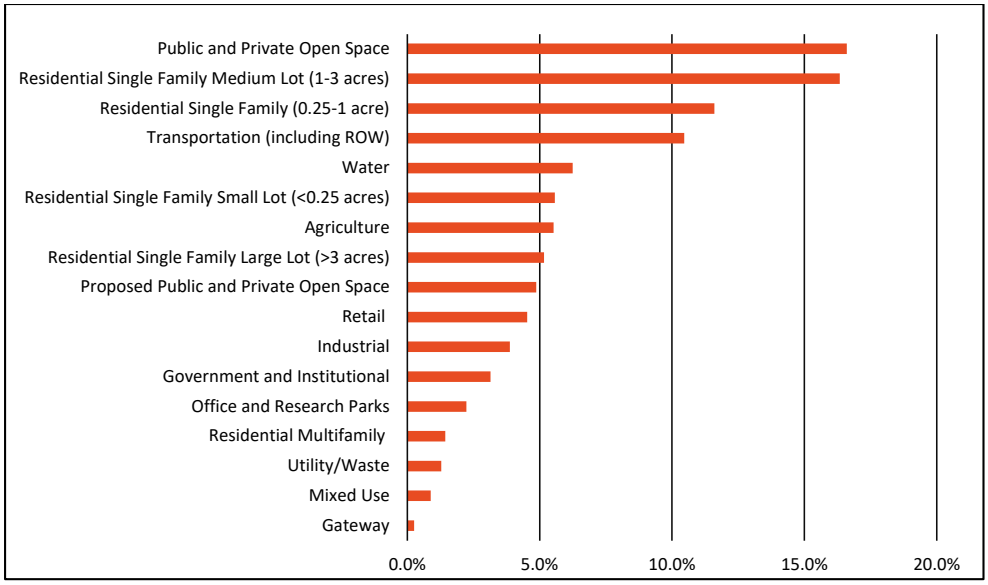


Table 3: Planned Future Land Uses

Land Use	Acres	Percent
Gateway*	798	0.26%
Mixed Use	2,640	0.88%
Utility/Waste	3,869	1.28%
Residential Multifamily	4,301	1.43%
Office and Research Parks	6,721	2.23%
Government and Institutional	9,458	3.14%
Industrial	11,651	3.87%
Retail	13,636	4.53%
Proposed Public and Private Open Space	14,659	4.87%
Residential Single-Family Large Lot (> 3 acres)	15,536	5.16%
Agriculture	16,648	5.53%
Residential Single-Family Small Lot (< 0.25 acres)	16,775	5.57%
Transportation (Including ROW)	31,483	10.46%
Residential Single Family (0.25 - 1 acre)	34,944	11.60%
Residential Single-Family Medium Lot (1 -3 acres)	49,202	16.34%
Public and Private Open Space	49,972	16.60%
Water	18,830	6.25%
Total	**301,122**	**100%**
*Gateway is an entrance through a wall, fence or where there is a gate		

Exhibit 5: Lake County Current Land Use

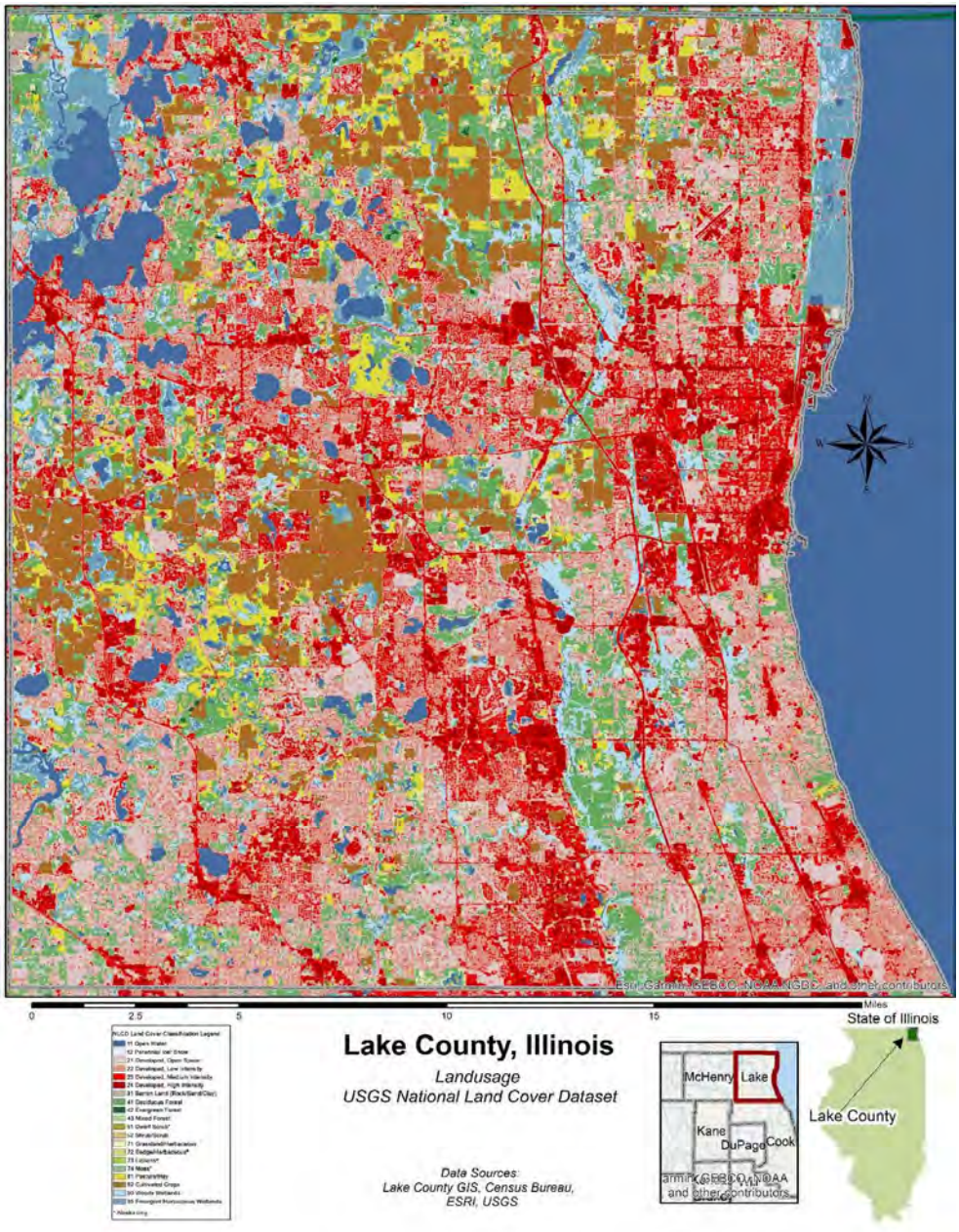
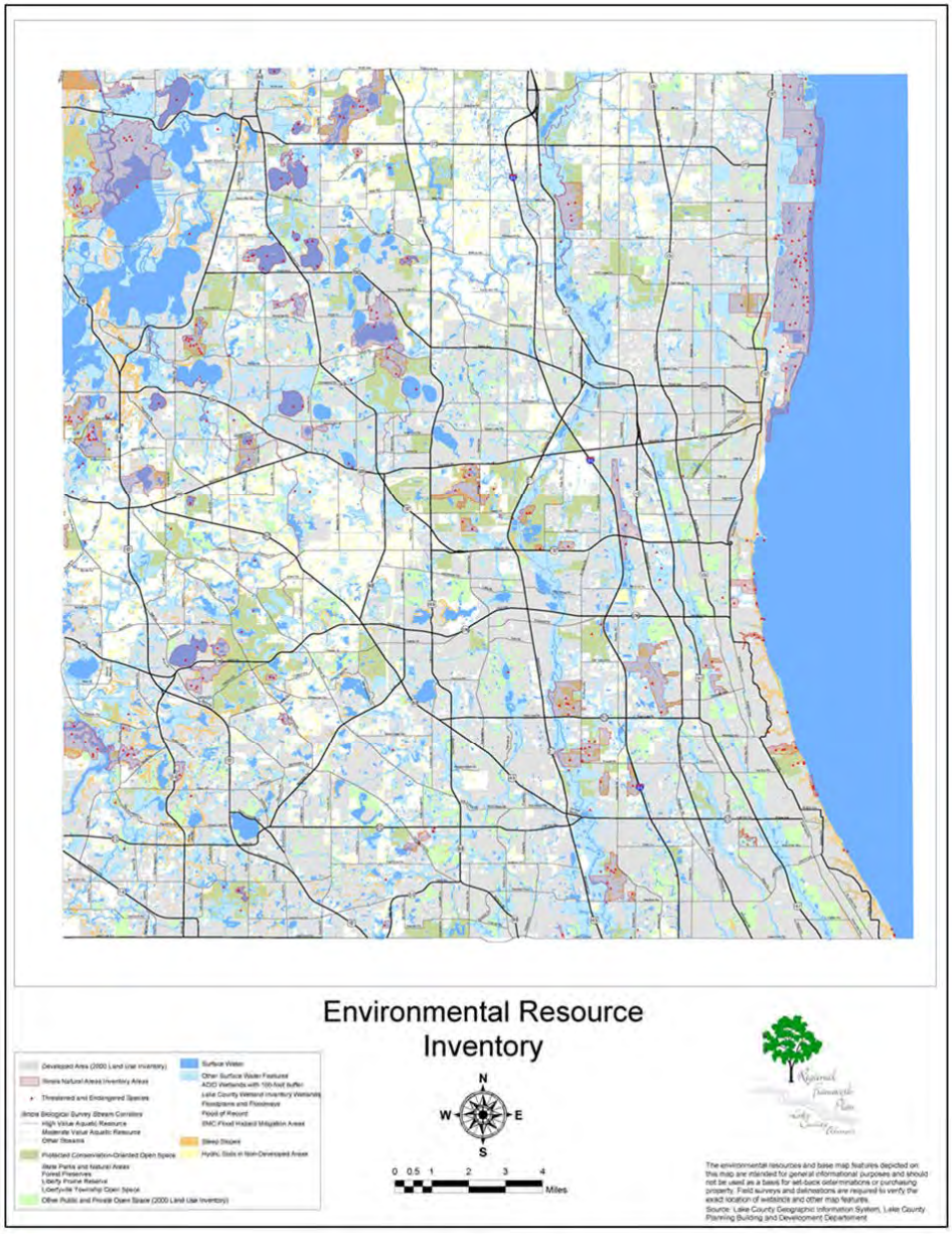


Exhibit 6: Lake County Environmental Resources Inventory



1.5 Lake County Critical Facilities

Critical facilities are buildings and infrastructure whose exposure or damage can affect the wellbeing of a large group. The continued operation of critical facilities is vital to preparedness, response, and recovery from any sort of event. Critical facilities are generally placed into two categories:

- Buildings or locations vital to public safety and the disaster response and recovery effort, such as police and fire stations and communication systems.

- Buildings or locations that, if damaged, would create secondary disasters. Examples of such buildings or locations are hazardous materials facilities and nursing homes.

Critical facilities are not strictly defined by any agency. For this mitigation planning effort, categories of critical facilities were used, including county, municipal and township facilities, police and fire stations, public, educational/school facilities, places of assembly, medical and health care, facilities for special needs populations, transportation, and infrastructure. Critical facilities were identified by the county and each municipality for the ANHMP update. Lake County GIS Department maintained a database and GIS layers for critical facilities, however the County made use of this planning opportunity to update the critical facilities list.

Table 4: Lake County Critical Facilities and Exhibit 7: Lake County Critical Facilities present the critical facility data for Lake County. Table 4 summarizes critical facilities located in the 100-year floodplain. There are 39 critical facilities in the 100-year floodplain. Further investigation into critical facility locations, use of critical facility mapping, and protection of critical facilities is discussed in Chapters 3 and 5 of this ANHMP.

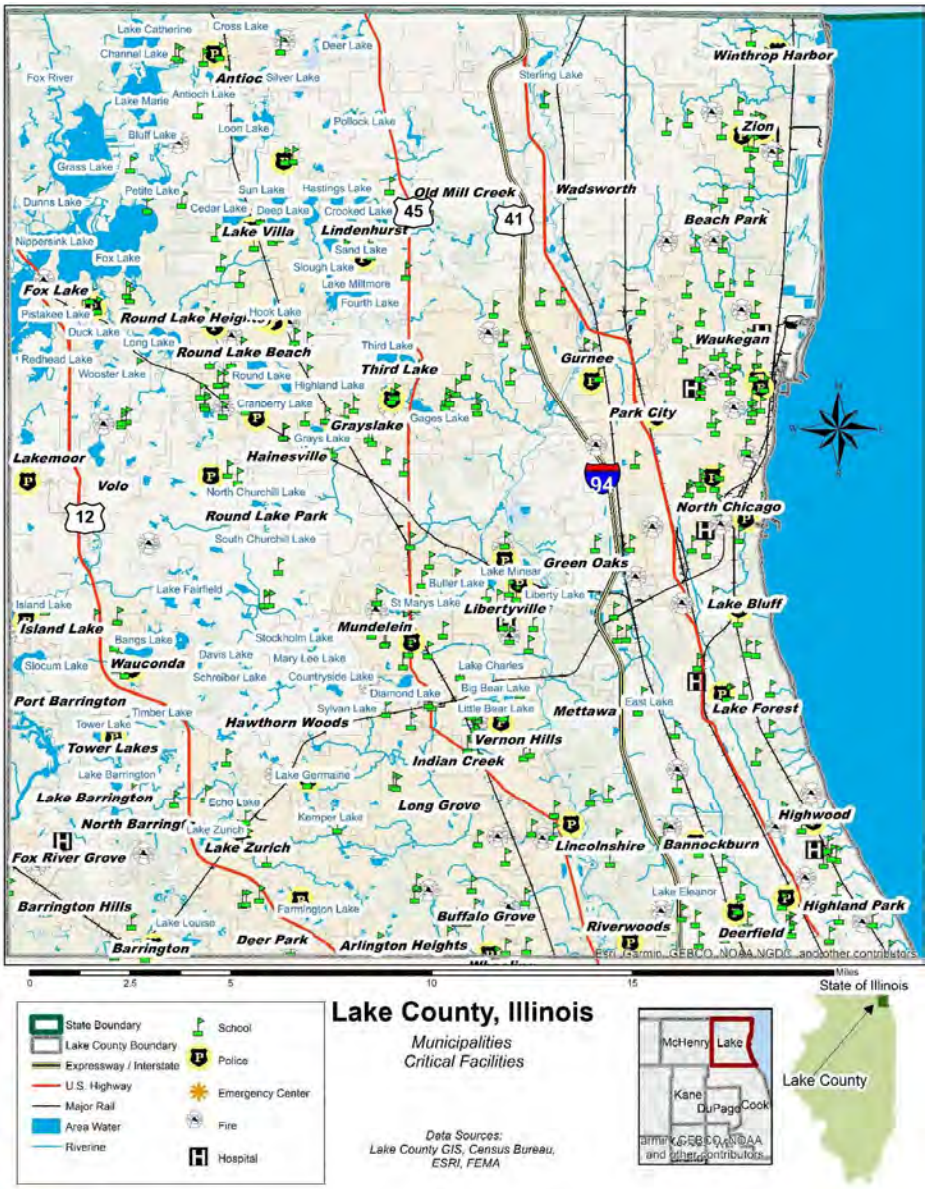
Table 4: Lake County Critical Facilities

Critical Facility Category	Number
Airports	7
City Halls	44
College /Universities	21
Fire Departments	65
Government Buildings	17
Health Department Offices	18
Helipads	11
Hospitals	9
Libraries	29
Metra Rail Stations	31
Museums	40
Nursing Home/Long Term Care Facilities	66
Police Stations	42
Schools	309
Township Offices	25
TOTAL	**714**

Table 5: Lake County Critical Facilities Located in the 100-year Floodplain

Critical Facility Category	Number
Airport Runway / Airfield	1
Amusement / Water Park	1
Auditorium / Concert Hall / Theater / Opera House	1
Golf Course	3
Hotel / Motel	1
Lake / Pond	1
Park	30
Shopping Mall / Complex	1
Total	**39**

Exhibit 7: Lake County Critical Facilities



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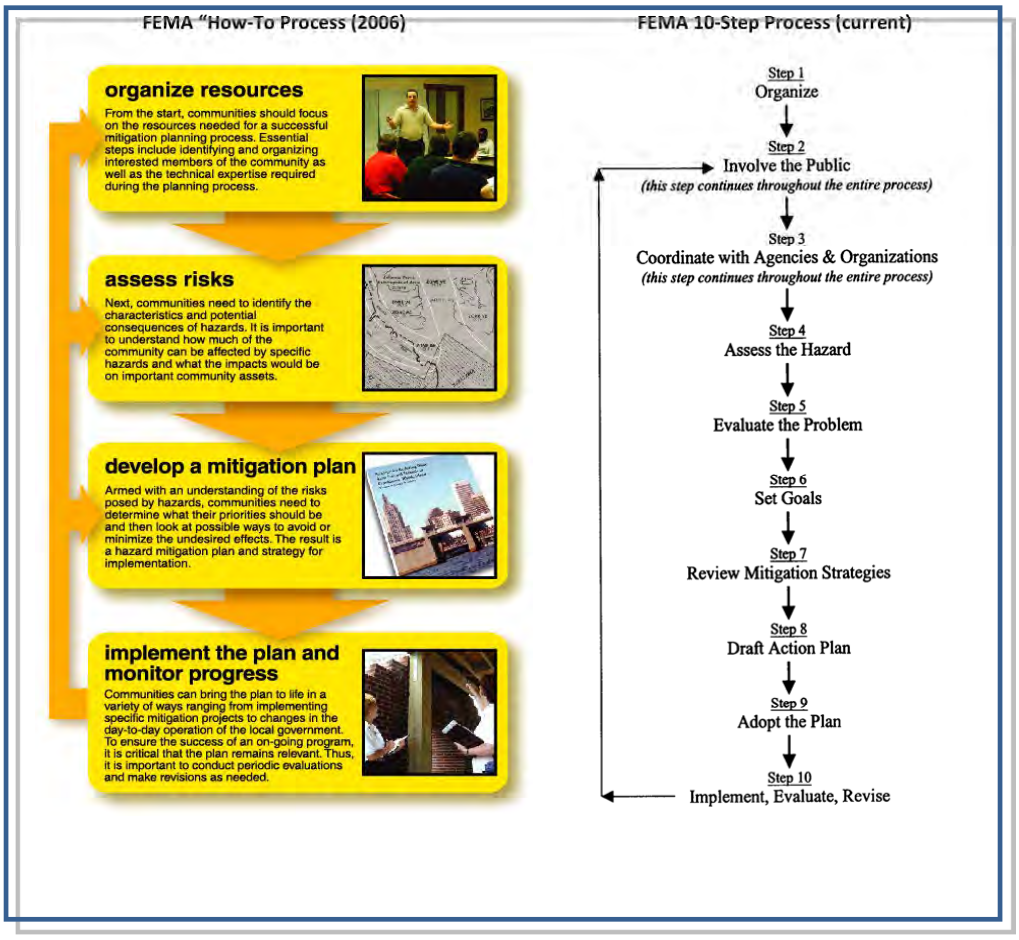
Chapter 2: Planning Process

2.1 Planning Approach

The Lake County ANHMP was first developed in 2006 utilized the four phases or steps of hazard mitigation planning as recommended by FEMA in the "State and Local Mitigation Planning How-To Guides" (FEMA 386-1 to 4) for the Disaster Mitigation Act (DMA) and the Hazard Mitigation Assistance (HMA) program. The 2012 and 2017 update of the ANHMP expanded the planning phases to the 10-step approach recommended by FEMA through the Community Rating System (CRS) program, shown in Figure 4.

Figure 4: Mitigation Planning Process Steps Comparison



For the 2022 update to the ANHMP, the FEMA 10-step process was again utilized, while ensuring that the requirements for DMA/HMA were met. The FEMA 10-step process provides Lake County with a more tailored approach to the ANHMP update and allows the ANHMP to qualify for credit under the CRS program. The Lake County Hazard Mitigation Planning Committee (HMPC) includes several Lake County departments and agencies and Lake County municipalities. The HMPC has been meeting annually since 2006. Regional, state, and federal agencies were invited to join the HMPC for the update of the ANHMP, and all meetings were open to the public. Participating members of the HMPC as well as all participants who attended one or more meetings are presented in Appendix A. Some small municipalities were represented by the Lake County staff.

A kickoff meeting with Lake County staff was held in January 2022. The HMPC met five times from January to April 2022 for the ANHMP update. The efforts of the HMPC were coordinated by the Lake County Stormwater Management Commission (SMC), Lake County Emergency Management Agency (LCEMA) and the Lake County Department of Planning, Building and Development. Other County departments participated and provided support for the plan update.

2.2 Update Process – Organization and Coordination

The HMPC was brought together for the first meeting in ANHMP update process in January 2022. Lake County village boards and city councils provided SMC with "letters of intent" for participation in the 2022 ANHMP update at the time of the SMC grant application to the Illinois Emergency Management Agency. Municipalities are asked to adopt a resolution of participation for each subsequent update of the AHNMP.

Opportunities for neighboring counties in both Illinois and Wisconsin, agencies, nonprofits, and other interested parties to be involved in the planning process were made available, including:

- American Red Cross
- Chicago Metropolitan Agency for Planning
- City of North Chicago, Public Works
- Federal Emergency Management Agency
- Fox Waterway Agency
- Great Lakes Naval Station
- Illinois Department of Natural Resources, Office of Water Resources
- Illinois Department of Natural Resources, State Water Survey
- Illinois Emergency Management Agency
- Insurance Services Office, Community Rating System

- Kenosha County
- McHenry County Planning & Development
- National Weather Service
- U.S. Army Corps of Engineers
- U.S. Department of Agriculture, Natural Resources Conservation Service
- U.S. Department of Agriculture,
- Soil & Water Conservation District
- U.S. Fish and Wildlife
- U.S. State Geological Survey

Coordination (Step 3) with these organizations was accomplished through meetings, phone conversations and/or e-mail exchanges. During the planning process, the interested agencies were kept informed and invited to provide any comments in time for the public meeting.

Existing plans and programs of other agencies were reviewed throughout the planning process. Plans reviewed and incorporated are discussed further in Chapter 5.1.1 and in Table 44.

Public Involvement: Step 2 of the planning process was to obtain input from the public, particularly property owners that have been affected by natural hazards. The public was invited to participate through several concurrent means, including:

- Contact with HMPC members and their organizations
- A standing invitation to attend HMPC meetings
- Public surveys through local print, social media, and county websites.
- Press releases provided to local newspapers and included in the Lake County "E-Newsletter" and newspaper coverage

The ANHMP update process and HMPC meetings were publicized through social media, the Lake County SMC website, community newsletters, emails, and local newspapers. Examples of public involvement efforts are provided in Appendix B.

Lake County residents were invited to provide public input to the planning process through "Alchemer," an online survey tool. The web link was included in news releases and promoted by HMPC members. The survey was open from March 1 through March 21, 2022. Twenty questions were presented, and results were used to evaluate the prioritization of natural hazards and to develop a sense of citizens' understanding of their mitigation needs. Residents from 45 communities participated in the survey. Respondents ranked power outages, severe summer storms, severe winter storms, tornadoes, extreme heat, groundwater flood and flooding as hazard events of greatest concern.

Public meeting: A public meeting was held on April 19, 2022, at the Lake County Stormwater Management Building in Libertyville Illinois, to engage the public in the planning process and solicit feedback on mitigation initiatives throughput the county as well as identify personal mitigation activities homeowners could participate in.

The 2022 draft *Lake County All-Natural Hazards Mitigation Plan* was made available at the SMC website. Per SMC's own policies, adjacent jurisdictions and state and regional agencies were invited to review the draft during a 30-day comment period. Press releases included where the public could view the plan and forward comments. The public comment period extended from

Hazard Assessment and Problem Evaluation: Steps 4 and 5 make up the updated ANHMP risk assessment (Chapter 3). The natural hazards identified are based on previous plans, a 2011 HMPC prioritization exercise, and hazard events that occurred in Lake County between 2017 and 2022. During the February 2022 HMPC meeting, the hazard prioritization was reviewed, and a new hazard ranking methodology was adopted.

Chapter 3 examines the hazards, including a hazard assessment (what causes the hazard and the likelihood of occurrence), and provides a vulnerability assessment that estimates the impact of the hazard on life, health, property (e.g., homes, businesses, and critical facilities). The tasks involved with conducting the risk assessment for this plan included hazard identification, inventory of community assets vulnerable to the hazards, hazard events profile, magnitude, history, probability, impacts, flood insurance claims, repetitive losses, flood audits, future development trends, and mapping these components. Data was collected from all participating communities from January through April 2022 for the update of Chapter 3.

Developing Goals: Mitigation planning goals were developed by the HMPC for the update of the ANHMP. A goal setting exercise was conducted for the 2017 plan update. The goals and guidelines (objectives) presented in Chapter 3 were reaffirmed at the February 2022 HMPC meeting.

Mitigation Strategy: For the 2017 update of the ANHMP, mitigation strategies were developed for all priority natural hazards discussed in the risk assessment and are presented in Chapter 5. The mitigation strategies are organized into six general categories and all measures were reviewed in relationship to the goals guidelines. The six mitigation categories include: preventive measures, property protection, resource protection, emergency services, structural measures, and public information activities. The mitigation strategy recommendations and the capabilities of Lake County presented in Chapter 5 were updated based on the HMPC discussion at the March 2022 meeting, and the data collected from all participating communities from January through April 2022.

Action Plan: At the March 2022 HMPC Meeting and the April 2022 Jurisdictional workshops an updated action plan was formulated. Both countywide and community-specific action items were considered. The 2017 ANHMP action items were evaluated along with new action items formulated because of recent hazard events and based on new opportunities. Appendix D provides a summary of changes made from the 2017 action plan to the current action plan.

2.3 Plan Adoption and Implementation

The County Board will adopt the 2022 ANHMP for the unincorporated areas of Lake County and the individual municipalities will adopt the plan for the incorporated areas (Action Item

1). The Lake County Stormwater Management Commission (SMC) was previously listed as a stakeholder in the planning process, for the 2022 ANHMP update the SMC is considered a full participant in the plan update process and will adopt the ANHMP in such capacity. Implementation of the updated ANHMP and the implementation steps were discussed at the February and March 2022 meetings of the HMPC. Plan maintenance approach is discussed in Chapter 7 (and Action Item 2).

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Chapter 3: Risk Assessment

This chapter provides a risk assessment of natural hazards that could impact Lake County. The risk assessment is a continuation of previous ANHMP updates. Hazards have been evaluated based on HMPC input received from meetings and questionnaires. Hazard information has also been updated based on natural hazard events over the past five years, and available data and mapping. The risk assessment for priority hazards such as severe storms and floods includes a hazard analysis and a vulnerability assessment. Other hazards, such as earthquakes and dam failure, include only a hazard profile in this ANHMP update. The vulnerability assessment includes a hazard profile which includes a description of the nature of the hazard, past occurrences and damages, and the likelihood or probability of the hazard occurring in the future. Lake County assets, when applicable, have been examined to estimate potential exposure and potential losses attributable to natural hazards. A summary of the risk assessment for Lake County is provided at the end of this chapter.

3.1 Natural Hazards in Lake County

A key step in preventing disaster losses in Lake County is developing a comprehensive understanding of the hazards that pose risks to its communities. The risk assessment terms in Table 7 can be found throughout this ANHMP.

Table 6: Defined Risk Assessment Terms

HAZARD	Event or physical conditions that have the potential to cause fatalities, injuries, property damage, infrastructure damage, agricultural loss, damage to the environment, interruption of business, other types of harm or loss
RISK	Product of a hazard's likelihood of occurrence and its consequence to society
VULNERABILITY	Degree of susceptibility and resilience of the community and environment to hazards

Source: Federal Emergency Management Agency, 2001

The local risk assessment summary is a process or application of a methodology for evaluating risk as defined by probability and frequency of occurrence of a hazard event, exposure to people and property to the hazard, and consequences of that exposure. Different methodologies exist for assessing the risk of hazard events, ranging from qualitative to quantitative.

A list of potential hazards was re-reviewed by the HMPC to determine if the classification of high, moderate, and low-risk hazards described in the 2017 ANHMP were still applicable. A 2022 survey of the HMPC indicated that these hazards should be included in the ANHMP. A natural hazard screening worksheet/survey was then completed to create a list of possible hazards that could affect Lake County. Committee members were asked to rank the impact or consequences on their community, assess the frequency, and area of vulnerability for each hazard.

The risk rating for each hazard in every participating jurisdiction summarized on Appendix A were determined by adding impact, occurrence, and vulnerability scores according to values

assigned to impact factors for each hazard. Full category definitions and ranking results are available in Appendix B.

Priority natural hazards were selected for analysis from that review. Hazards were ranked to provide structure and prioritize the mitigation goals and actions discussed in this ANHMP. Based on these ratings, a priority of high, moderate, or low was assigned to each hazard. The hazards ranked as being of highest concern for the 2022 ANHMP are severe summer storm, severe winter storm, power outages, and tornado.

Table 7: Hazard Risk Ranking Summary

Hazard Ranking	Hazard Event	Category
1	Severe Summer Storm	High
2	Severe Winter Storm	High
3	Power Outages	High
4	Tornado	Moderate
5	Extreme Heat	Moderate
6	Flood	Moderate
7	Drought	Moderate
8	Groundwater Flooding	Moderate
9	Earthquake	Low
10	Erosion	Low
11	Dam Failure	Low
12	Seiche	Low

Table 8 presents a list of all disaster and emergency declarations that have occurred in Lake County, according to the FEMA through October 2022. This list presents the foundation for identifying what hazards pose the greatest risk within Lake County.

Table 8: Presidential Disaster (DR) & Emergency Declarations (EM) in Lake County

Declaration	Declaration Date	Event Details
FEMA DR-194	April 25, 1965	Tornadoes, Severe Storms, and Flooding
FEMA DR-227	April 25, 1967	Tornadoes
FEMA DR-373	April 26, 1973	Severe Storms, Flooding
FEMA EM-3068	January 16, 1979	Blizzards and Snowstorms
FEMA DR-776	October 7, 1986	Severe Storms and Flooding
FEMA DR-997	July 9, 1993	Great Midwest Flood
FEMA DR-1110	April 23, 1996	Tornadoes, Severe Storms
FEMA EM-3134	January 8, 1999	Winter Snowstorm
FEMA EM-3161	January 17, 2001	Severe Winter Storm
FEMA EM-3230	September 7, 2005	Hurricane Sheltering
FEMA DR-1729	September 25, 2007	Severe Storms and Flooding
FEMA EM-3283	March 13, 2008	Snow
FEMA DR-1771	June 24, 2008	Severe Storms and Flooding

Table 8: Presidential Disaster (DR) & Emergency Declarations (EM) in Lake County

Declaration	Declaration Date	Event Details
FEMA DR-1960	March 17, 2011	Severe Winter Storm and Snowstorm
FEMA DR-4116	May 10, 2013	Severe Storms, Straight-Line Winds and Flooding

Note that six federal disasters were declared which included Lake County since the adoption of the 2006 ANHMP. Cook County to the south of Lake County had two disasters declared: DR-1800 for flooding on September 13, 2008, and DR-1935 for flooding in July-August 2010. Lake County was impacted by these events, but damage did not warrant the county being included in the declaration.

Based on the input from the HMPC and the record of hazard events in Lake County, priorities from the 2016 ANHMP were reevaluated at the February 2022 update meeting. It was decided that the pandemic would not be included in the 2022 ANHMP since it is addressed throughout other planning mechanisms within the county. Lake County priority hazards include:

- Flood
- Tornado
- Severe Summer Storms
- Severe Winter Storms
- Dam Failure
- Shoreline and Coastal Erosion
- Ravine Erosion
- Drought
- Earthquake
- Power Outages

Some of these hazards can be interrelated. For example, severe thunderstorms can produce high winds which can cause tornado activity. Thus, discussion of these hazards may overlap where necessary throughout this risk assessment. Also, some hazardous elements include lightning and hail activity; discussion of seiche and derechos. The risk assessments for priority hazards such as severe storms and floods includes a hazard analysis and a vulnerability assessment. Other hazards, such as earthquakes and dam failure, include only a hazard profile in this ANHMP update. While the HMPC understands that power outage is most often a secondary hazard to natural hazards, they felt it should be evaluated and mitigation strategies should be identified.

Table 9 summarized the status of hazards considered in the ANHMP risk assessment from the 2006 to this 2022 update. As shown, hazards were either *continued*, *deleted*, *changed*, or *new* hazards were identified.

Table 9: Evaluation of Hazards for Inclusion in 2022 Risk Assessment

YEAR ADDED	TYPE OF HAZARD	STATUS	TYPE OF HAZARD
2006	Flood	Continued	Flood
2006	High Wind	Continued	Severe Summer Storms
2006	Severe Thunderstorm	Continued	
2006	Hail	Continued	
2006	Severe Winter Storm	Continued	Severe Winter Storm
2006	Tornado	Continued	Tornado
2006	Dam Failure	Continued	Dam Failure
2006	Ravine Bank Erosion	Continued	Riverine and Ravine
2006	Lake Erosion	Continued	Shoreline Erosion
2006	Extreme Heat	Continued	Temperature Extremes (Heat and Cold)
2012	Drought	Continued	Drought
2012	Earthquake	Continued	Earthquake
2017	Power Outages	Continued	Power Outages

3.2 Summary of Lake County Assets

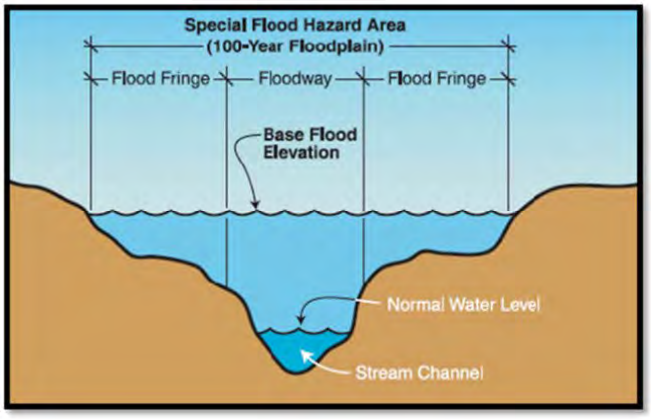
Lake County assets include people, buildings, infrastructure, businesses, and institutions, the land, and natural resources. Chapter 1 of this ANHMP presents population, workforce, land use, development trend and critical facility data. Assets were derived from the county critical facilities database in conjunction with FEMA HAZUS MH critical asset inventory lists. A detailed listing of assets is in Appendix B along with the hazard area tabular data for each hazard.

3.3 Flood

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. As illustrated in Figure 5, floodplains are lowlands, adjacent to rivers, streams, and creeks that are subject to recurring floods. Flash floods, usually resulting from heavy rains or rapid snowmelt, can flood areas not typically subject to flooding, including urban areas. Extreme cold temperatures can cause streams and rivers to freeze, causing ice jams and creating flood conditions.

Floods are considered hazards when people and property are affected. In Illinois, flooding occurs commonly and can occur during any season of the year from a variety of sources. Pipelines, bridges, and other infrastructure can be damaged when high water combines with flood debris. Basement flooding can cause extensive damage for homeowners. Flooding can also cause extensive damage to crop lands. Several factors determine the severity of floods, including rainfall intensity and duration, topography, and ground cover.

Figure 5: Description of a Floodplain



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. There are two types of riverine flooding:

- **Flash floods** can occur anywhere when a large volume of water flows or melts during a brief period, usually from slow moving thunderstorms or rapid snowmelt. Because of the localized nature of flash floods, clear definitions of hazard areas do not exist. These types of floods often occur rapidly with significant impacts. Rapidly moving water only a few inches deep can lift people off their feet, and only a depth of one to two feet is needed to sweep cars away. Most flood deaths result from flash floods.

- **Overbank flooding** is the most common form of riverine flooding and occurs when water surpasses the banks of a river or stream of any size.

Urban flooding or local drainage problems can occur anywhere in Lake County. Most local drainage problems result in shallow flooding on roads, yards and, sometimes, in buildings.

In some areas, a development is in a drainage way or in a depressional ponding area. Inadequately maintained drainage ditches, undersized storm sewers, and failing tile drains or storm sewers are common causes of local flooding.

Houses with drive-down garages are susceptible to street flooding and local drainage problems.

Local drainage problems have the greatest damage impact on homes with drive-down basement garages and split-level homes in low lying areas. In the case of drive-down garages, water accumulating on the street finds a low driveway and fills a home's basement. Split-level homes provide easy access for surface floodwaters to enter through the ground level windows.

Since much of Lake County was once tiled to provide drainage for farmland, failed or inadequate drain tiles can be a large problem in the developing areas of the county if not properly addressed. Many tiles are old and were not designed to handle the stormwater loads that current development produces. The same is also true for older undersized storm sewer systems. Most storm drains and road culverts in place today are not designed to carry more than the 10-year storm.

Depressional flooding is common in Lake County. Lake County has a gently rolling landscape that includes many depressional areas left from the Wisconsin Glacial Period. The widespread problem with development in many of these depressional areas is that there is no natural outlet for runoff. Some depressions are former wetlands that are drained with field tiles originally installed to make them farmable. In many cases the tiles are old, in disrepair, and often have limitations for handling the increased volumes of runoff that result from development. When the drainage system for depressional areas becomes overloaded, runoff will simply fill up a depression. Without an adequate outlet, the floodwater will remain until it evaporates, seeps into the ground or trickles through a tile.

Sanitary Sewer Backups There are few combined sewers in Lake County where stormwater and wastewater discharges are transported in the same pipe system. Therefore, most of the sanitary sewer backups are caused by infiltration of stormwater into the sanitary sewer pipes, leaky utility access holes and inappropriate connections from residential storm drains, roof drains and sump pumps to sanitary sewer lines. In some places, excess stormwater in sanitary sewers causes utility access hole covers to lift off, and sewage finds its way into rivers and lakes via the storm drainage system. The contamination of surface waters with sewage degrades water quality by adding fecal coliform and excess nutrients that reduce dissolved oxygen in the water and can lead to the spread of communicable diseases. Beach closures and swimming bans are a common result.

Erosion and Sedimentation Areas prone to the most erosion damage are the bluffs and ravines, lake shores, and high energy flow streams. Channelized stream reaches are less stable and more erosive than meandering sections. Erosion will be discussed in 3.11 Soil Erosion - Shoreline, Coastal and Ravine.

3.3.1 Lake County Watersheds

There are four major watersheds in Lake County, which are shown in **Error! Reference source not found.** along with 26 subwatersheds:

The **Fox River Watershed** is located on the western side of Lake County. The Fox River originates in Wisconsin and flows into the Fox Chain O' Lakes. A summary of the Fox River Watershed is presented in Table 10.

The water surface elevations in the Chain O' Lakes are controlled by the Stratton Lock and Dam (McHenry Lock and Dam, which is in McHenry County and operated by the IDNR-OWR. labels components of the Stratton Lock and Dam. Most days, discharge at the lock and dam allow safe lake levels for boat navigation and property protection. During flood events, sluice gates are opened to allow flood flows to pass downstream, however discharges must be balanced between potential flood damage in Lake County and potential flood damage in McHenry County. The construction activities involving the replacement of the existing sluice gates have been suspended as of the date of this this plan update and are awaiting construction funding appropriation is from the January 2012 "Operation of the Stratton and Algonquin Dams" IDNR-OWR report and shows their operational constraints that has for opening and closing the Stratton Dam gates.

The rural Fox River watershed has the greatest number of septic impacts with approximately 50 flood problem areas affected. Generally, lake area homes experience the highest level of septic impact. Almost half of the Fox watershed sites that suffer from septic damage are in the Upper Fox subwatershed in the Chain O' Lake's area.

The report is available online at:

https://www.dnr.illinois.gov/WaterResources/Documents/StrattonAlgonquinDams.pdf

Exhibit 8: Lake County 100-Year Floodplain and Floodway

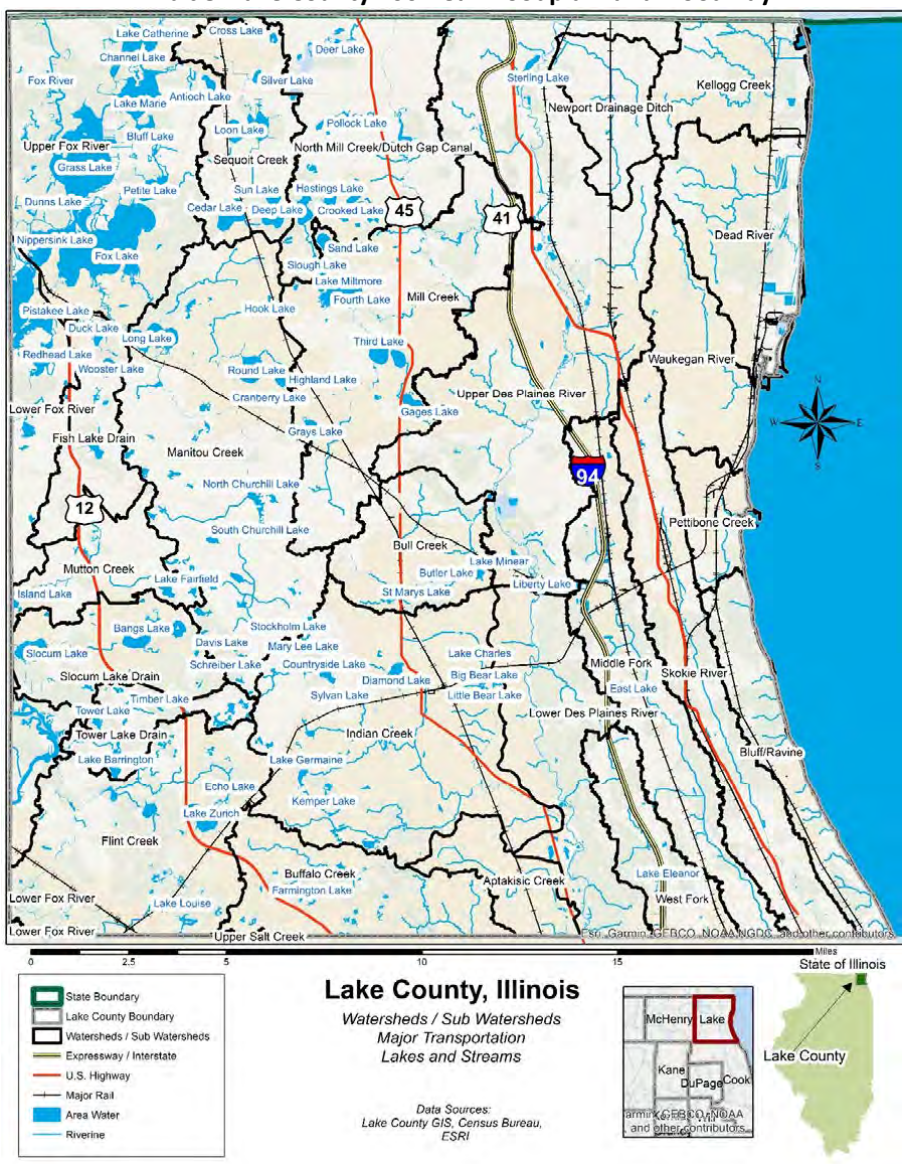
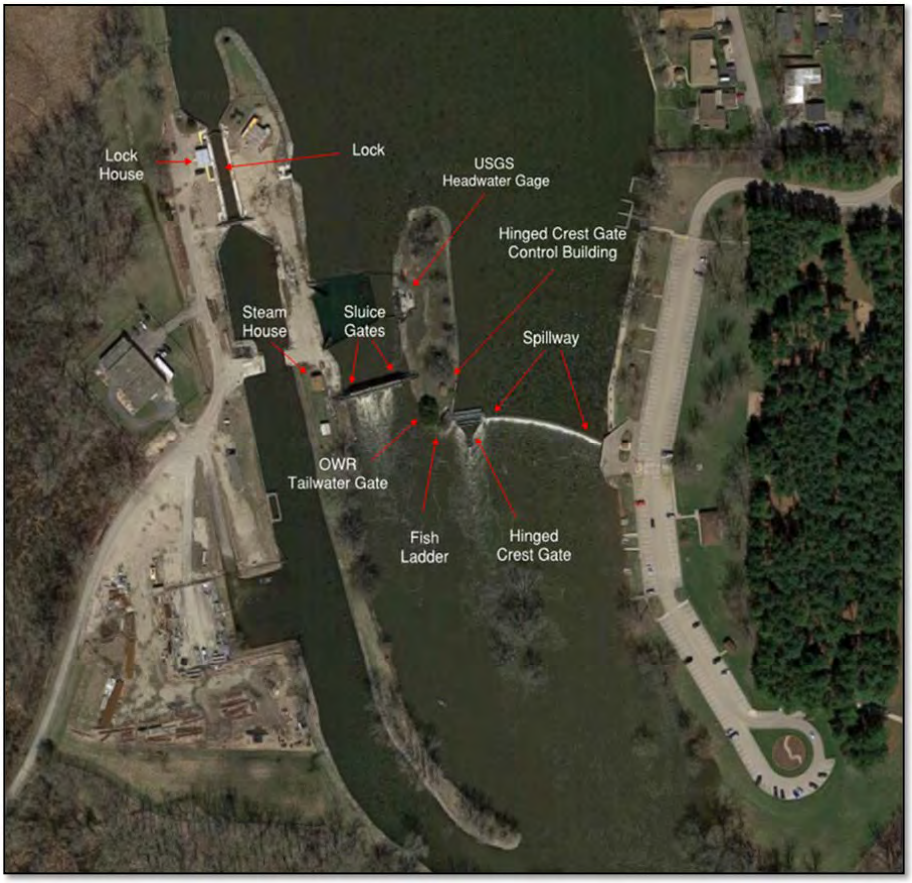
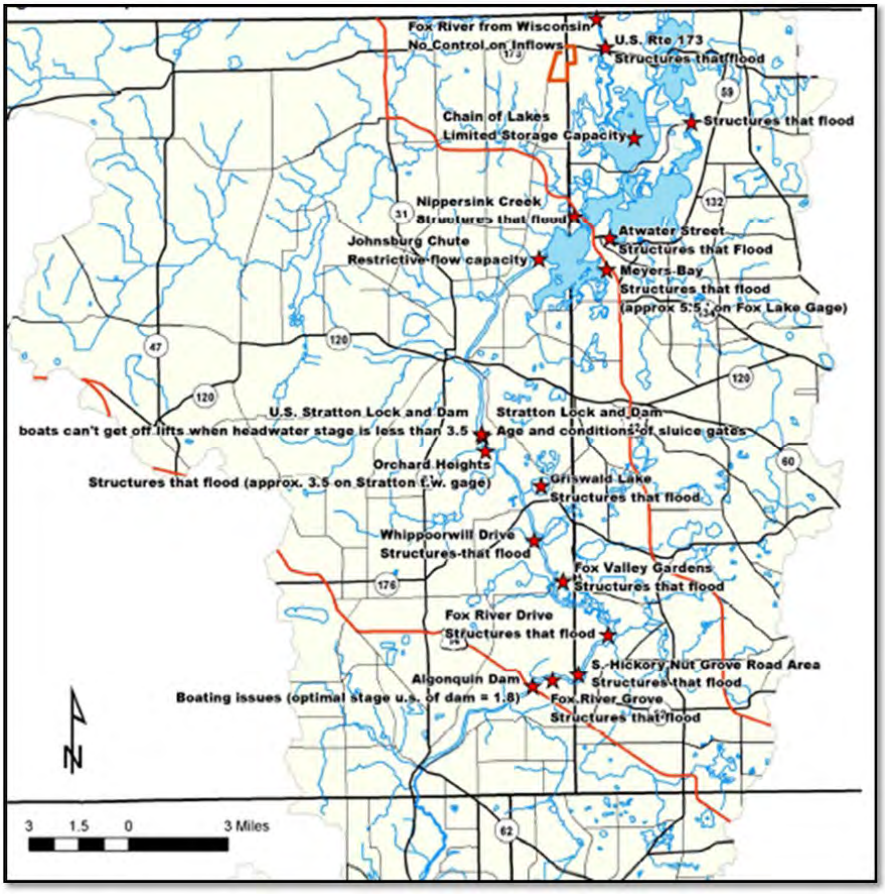


Figure 6: Plan View of Stratton Lock and Dam



Source: IDNR-OWR

Figure 7: Operational Constraints at Stratton Lock and Dam



Source: IDNR-OWR

Watershed-based plans have been developed for Fish Lake Drain (Update in Progress), Flint Creek (2018), Manitou Creek (Update In Progress), Sequoit Creek (2004) and 9 Lakes Watershed (2014) and are available at:

Fish Lake Drain:	http://www.lakecountyil.gov/DocumentCenter/Home/View/10955
Manitou Creek:	http://www.lakecountyil.gov/DocumentCenter/Home/View/3961
Sequoit Creek :	http://www.lakecountyil.gov/DocumentCenter/Home/View/3937
9 Lakes Watershed-Based Plan:	http://www.lakecountyil.gov/DocumentCenter/Home/View/10927
Flint Creek:	https://www.lakecountyil.gov/DocumentCenter/View/24315

Table 10: Fox River Watershed in Lake County

Fox River Watershed:			
Area:	**Municipalities:**		
163 square miles	Antioch	Lakemoor	Round Lake Park
35% of County	Barrington	Lake Barrington	Tower Lakes
	Barrington Hills	Lake Villa	Volo
Public Land:	Fox Lake	Lake Zurich	Wauconda
12,816 acres	Fox River Grove	North Barrington	
	Hainesville	Round Lake	
Wetlands:	Hawthorn Woods	Round Lake Beach	
35,196 acres	Island Lake	Round Lake Heights	
Subwatersheds:	**Area (mi^2):**	**Townships:**	
Upper Fox	32.7	Antioch	
Sequoit Creek	15.3	Avon	
Lower Fox	8.4	Cuba	
Fish Lake Drain	38.4	Ela	
Manitou Creek	9.4	Fremont	
Mutton Creek	10.9	Grant	
Slocum Lake Drain	11.0	Lake Villa	
Tower Lake Drain	10.2	Wauconda	
Flint Creek	26.7		

The Upper Des Plaines River watershed is in northeastern Illinois, Lake and Cook Counties, and Kenosha and Racine Counties in southeastern Wisconsin. A summary of the watershed is presented in Table 11: Des Plaines River Watershed in Lake County. The Upper Des Plaines is subject to significant flooding caused by lack of channel capacity of the mainstem of the Des Plaines River and tributaries to carry major flows during storms. Historical flooding in 1986 and 1987 resulted in over $100 million in damage.

The main stems of the Fox and Des Plaines Rivers have flood characteristics that are vastly different from the other two major watersheds of the county. The Fox and Des Plaines Rivers experience their worst floods from rain events that last at least a few days, or from a series of small rain events over a longer duration. The greatest flooding along the Fox and Des Plaines occurred following longer rain events. The floods of 1960 and 1986 resulted from long steady rains which eventually overwhelmed the available floodplain storage and set new flood stage records on the Fox and Des Plaines Rivers respectively.

The 1986 event resulted from 10 days of widespread steady rain. It took the Des Plaines 4 weeks to pass this floodwater. For the larger Fox River, the time to pass this flood was 6 weeks. In comparison, the smaller watershed of the Skokie River drained down to normal only a few days after the rains ended. Long-duration rain events on snowpacks can also cause major flooding on the larger rivers.

Exhibit 8 of this ANHMP show the lakes located within the Fox River and Des Plaines River Watersheds. The lakes are a resource and a concern when the Fox River and Des Plaines Rivers are at flood stage for extended periods and lake levels are elevated as a result.

Table 11: Des Plaines River Watershed in Lake County

Des Plaines River Watershed				
Area:	**Municipalities:**			
202 mi²	Antioch	Indian Creek	Mundelein	
42% of County	Beach Park	Kildeer	Old Mill Creek	
	Buffalo Grove	Lake Villa	Riverwoods	
Public Land:	Deer Park	Lake Zurich	Round Lake Beach	
11,730 acres	Grayslake	Libertyville	Round Lake Park	
	Green Oaks	Lincolnshire	Third Lake	
Wetlands:	Gurnee	Lindenhurst	Vernon Hills	
20,595 acres	Hainesville	Long Grove	Wadsworth	
	Hawthorn Woods	Mettawa	Wheeling	
Subwatersheds:	**Area (mi²):**	**Townships:**		
North Mill Creek	21.5	Antioch	Lake Villa	Waukegan
Newport Drain	8.4	Avon	Libertyville	West Deerfield
Mill Creek	3.1	Benton	Newport	Zion
Upper Des Plaines	53	Ela	Vernon	
Bull Creek/Bull's Brook	12.3	Freemont	Warren	
Indian Creek	37.7			
Lower Des Plaines	18.2			
Buffalo Creek	13.7			
Aptakisic Creek	6.3			

Watershed-based plans have been developed for Mill Creek (2014), Buffalo Creek (2015), North Mill Creek (2015), Bull Creek (2008) and Indian Creek (2006) and are available at:

Mill Creek: http://www.lakecountyil.gov/documentcenter/view/12203

Buffalo Creek: http://www.lakecountyil.gov/documentcenter/view/12897

North Mill Creek: http://www.lakecountyil.gov/documentcenter/view/12897

Bull Creek: http://www.lakecountyil.gov/documentcenter/view/11017

Indian Creek: http://www.lakecountyil.gov/documentcenter/view/11363

North Branch Chicago River Watershed is noted for three long and narrow subwatersheds surrounding the three forks of the North Branch of the river. A summary of the watershed is presented in Table 12. Floods on the subwatersheds are determined by the direction of a storm. The worst flooding is caused by storms that move from north to south. The runoff moves under the storm front and concentrates as it goes downstream. Storms that pass east

to west produce smaller floods, and storms that pass south to north produce the smallest floods.

The worst floods are caused by day-long rain events, but because the watershed is so narrow, intense rain events can cause severe local flooding. The flood of record on the Skokie River in Highland Park was caused by a thunderstorm that rained only in the southern end of the watershed. Because of the channelization of these three forks, floodwaters usually drain away in just a few days.

For more information on the North Branch Chicago River Watershed, see the "North Branch Chicago River Watershed-Based Plan" (2008) for Lake and Cook Counties, Illinois, which is available the SMC website at:

North Branch Chicago River: http://www.lakecountyil.gov/DocumentCenter/Home/View/10615

Table 12: North Branch of the Chicago River Watershed in Lake County

North Branch Chicago River Watershed			
Area:	**Municipalities:**		
202 square miles	Bannockburn	Highwood	North Chicago
11% of County	Deerfield	Lake Bluff	Park City
Public Land:	Green Oaks	Lake Forest	Riverwoods
1,655 acres	Gurnee	Lincolnshire	Waukegan
Wetlands:	Highland Park	Mettawa	
4,390 acres			
Subwatersheds:	**Area (mi^2):**	**Townships:**	Vernon
West Fork	8.6	Deerfield	Warren
Middle Fork	19.8	Libertyville	Waukegan
Skokie River	21.9	Shields	West Deerfield

Along **Lake Michigan** there are several small subwatersheds dominated by urban conditions. In these watersheds, systems of storm drains deliver runoff to ravines that drain into the lake. A summary of the watershed is presented in Table 13. Intense rain events overwhelm the storm drains and can cause significant localized flooding problems. The rapid rise and fall of water levels and velocities in the ravines have resulted in severe erosion. Unusual events like meteorological tsunamis (or meteotsunamis) can also occur on Lake Michigan. Meteotsunamis are large waves, similar to tsunami-waves, but are driven by air-pressure disturbances caused by fast-moving stormfronts.

Table 13: Lake Michigan Watersheds in Lake County

Lake Michigan Watersheds		
Area:	**Municipalities:**	
59.3 square miles	Beach Park	North Chicago
12% of County	Highwood	Winthrop Harbor
Public Land:	Highland Park	Waukegan
5,215 acres	Lake Bluff	Zion
Wetlands:	Lake Forest	*Naval Station Great Lakes
12,532 acres		
Subwatersheds:	**Area (mi^2):**	**Townships:**
Kellogg Creek	8.9	Benton
Dead River	18.7	Deerfield
Waukegan River	17.6	Shields
Pettibone Creek	4.2	Waukegan
Bluff/Ravine	9.9	West Deerfield
		Zion

Watershed-based management plans have been developed for Kellogg Creek (2008), Dead River (2008), and the Waukegan River (2007) by the Lake County SMC. They are available at the Lake County SMC website. Also, more information on the all the Lake County watersheds can
be found at:

Kellogg Creek: http://www.lakecountyil.gov/DocumentCenter/Home/View/10571

Dead River: http://www.lakecountyil.gov/DocumentCenter/Home/View/10891

Waukegan River: http://www.lakecountyil.gov/DocumentCenter/View/10904

3.3.2 Flood Hazard Profile

Error! Reference source not found.9 shows mapped regulatory floodplains and floodways in Lake County, which cover 57,143 acres. Mapped regulatory floodplains are defined as the area of land which is inundated with water during 100-year flood events. 100-year floods are defined as having a 1% chance of occurring in any given year, although this probability does not consider a changing climate. For a historical comparison of flooding in Lake County, the USGS Hydrologic Atlas (1963, 1968) places 52,898 acres within areas inundated as part of today's regulatory floodplains and floodways. Lake County has also identified over 487 areas that cover 8,590 acres of land with local drainage and flooding problems as of 2022. Over half of these areas reside outside of regulatory floodways and floodplains. Table 14 shows the percent of area land use in the Lake County 100-year floodplain, and a summary of the floodplain land area is shown in Table 15.

Exhibit 9: Lake County 100-Year Floodplain and Floodway

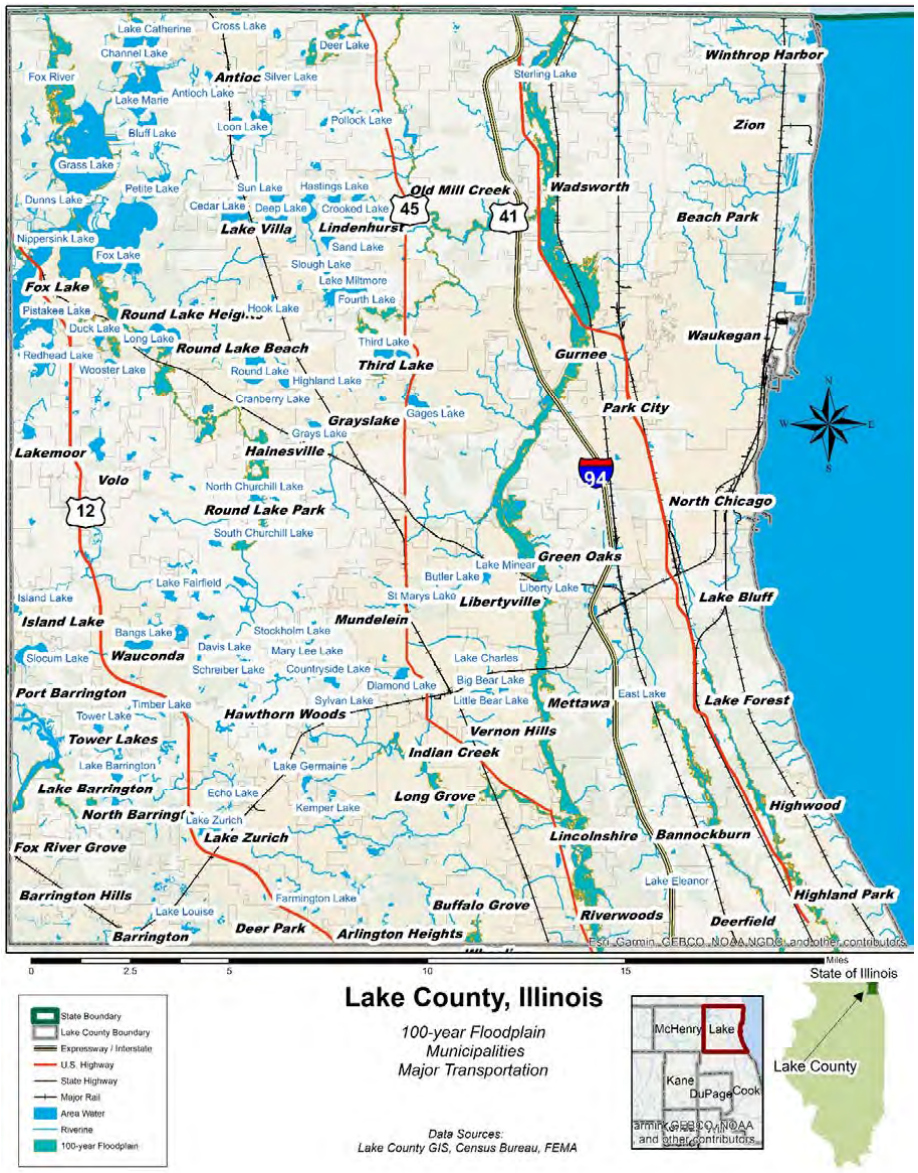


Table 14: Lake County Floodplain Land Use

Floodplain Land Use	Acres	Percent of Floodplain
Agricultural	1,533.244702	2.68%
Disturbed Land	44.330565	0.08%
Forest/Grassland/Beach	2,030.657896	3.56%
Government/Institutional	279.55817	0.49%
Industrial	222.871604	0.39%
Office/Research	34.805843	0.06%
Public/Private Open Space	18,821.62418	32.96%
Rail	67.347523	0.12%
Residential	2,246.286854	3.93%
Retail/Commercial	422.154306	0.74%
Transportation	1,022.357028	1.79%
Utilities/Waste Facilities	712.36183	1.25%
Water (excluding Lake Michigan)	21,072.8151	36.90%
Wetlands	8,601.26772	15.06%
TOTAL	**57,111.68332**	**100.0%**

Table 15: Lake County Estimate of Flood Prone Land

Flood Areas	Acres	Square Miles	% of County Area
Floodplains	41,564.80	64.9	13.79%
Floodways	13,155.90	20.6	4.37%
500 Year	4,707.20	7.4	1.56%
Flood of Record	51,778.80	80.9	17.18%

The floodplains mapped in **Error! Reference source not found.**9 and the data in have been developed from the FEMA Flood Insurance Rate Maps (FIRMs) for Lake County effective on September 18, 2013, and February 17, 2016. The Lake County Flood Insurance Study (FIS) is dated February 17, 2016. As of the 2022 ANHMP update this information remains the latest available data provided via the FEMA map service center.

SMC Flood Problem Areas Inventory: In 1995 – 1996 the SMC conducted a flood damage inventory to identify flood problem areas. This was done with contacts and personal interviews with cities, villages, townships, homeowner associations, county agencies, county board members, private organizations, and individuals. Updates have been conducted in subsequent years for various watershed portions.

Problem sites were identified by subwatersheds and numbered. A standardized "Flood Problem Areas" information worksheet was developed for each site and pertinent information was added as it was obtained. A resident input questionnaire was also developed to gather additional information on local flooding problems. The problem areas were included in the county's GIS database. Over 300 identified flood problem sites were field inspected to verify problem area

boundaries, assess the flood problem, and identify suitable mitigation solutions for the flood hazard area. The inventory only identifies areas experiencing historic flood damage to property and infrastructure. Flooding of open space and vacant land were not inventoried or mapped.

A summary of the Flood Problem Area Inventory is provided in Table 16 for the major Lake County watersheds and

Exhibit 10 shows the mapped flood problem areas. The inventory is updated as watershed plans are developed or updated. The most recent update occurred in 2022. Note that a flood problem site may include multiple buildings, roads, or other infrastructure, and more than one type of flooding may occur at a problem site.

Table 16: Lake County Flood Problem Area Inventory Summary - 2022

Type of Flooding & Number of Sites	Fox River	Des Plaines River	Lake Michigan	North Branch Chicago River	Total
Overbank Flooding	87	45	4	24	160
Local Drainage Problems	58	74	34	30	196
Depressional Flooding	67	40	4	8	93
Storm Sewer Backup	0	0	3	4	7
Sanitary Sewer/ Septic Failure	7	7	4	3	21
Associated Erosion	1	3	10	0	14
Total:	**220**	**169**	**59**	**69**	**491**

Flood Problem Site Locations:	Fox River	Des Plaines River	Lake Michigan	North Branch Chicago River	Total
Floodplain	71	20	3	9	103
Critical Facilities Subject to Flooding or Closure*	80	85	47	41	253
Outside Floodplain	144	126	66	51	387
Floodway**	5	24	3	12	44
Roads and Bridges Threatened by Flooding	186	135	62	60	443
Total:	**486**	**390**	**181**	**173**	**1230**

*Includes all critical facilities assets including HAZUS inventory assets
**Sites reported multiple problems in these categories

An examination of National Flood Insurance Policies and Flood Insurance claims highlights the number of communities that have been impacted by past flooding. Table 17 shows Lake County community flood insurance coverage and flood insurance claims from 1978 to 2017. Note that policies are shown for an entire community, including the portions of communities in other counties. The policy coverage in Lake County is about the same as it was in the 2012 ANHMP, but the total claims paid amount increased by $6 million, and is most likely due to the April 2013 and the July 2017 flood events. Since several Lake County municipalities are within other counties, it is difficult to separate claims for properties in Lake County versus other counties. During the 2022 plan update NFIP claims data was unavailable from FEMA; therefore, previous data provided in the 2017 ANHMP is considered the best available data.

More information is available about Lake County flooding at:

http://www.lakecountyil.gov/3510/Flood-Information

Exhibit 10: Lake County "Flood Problem Areas"

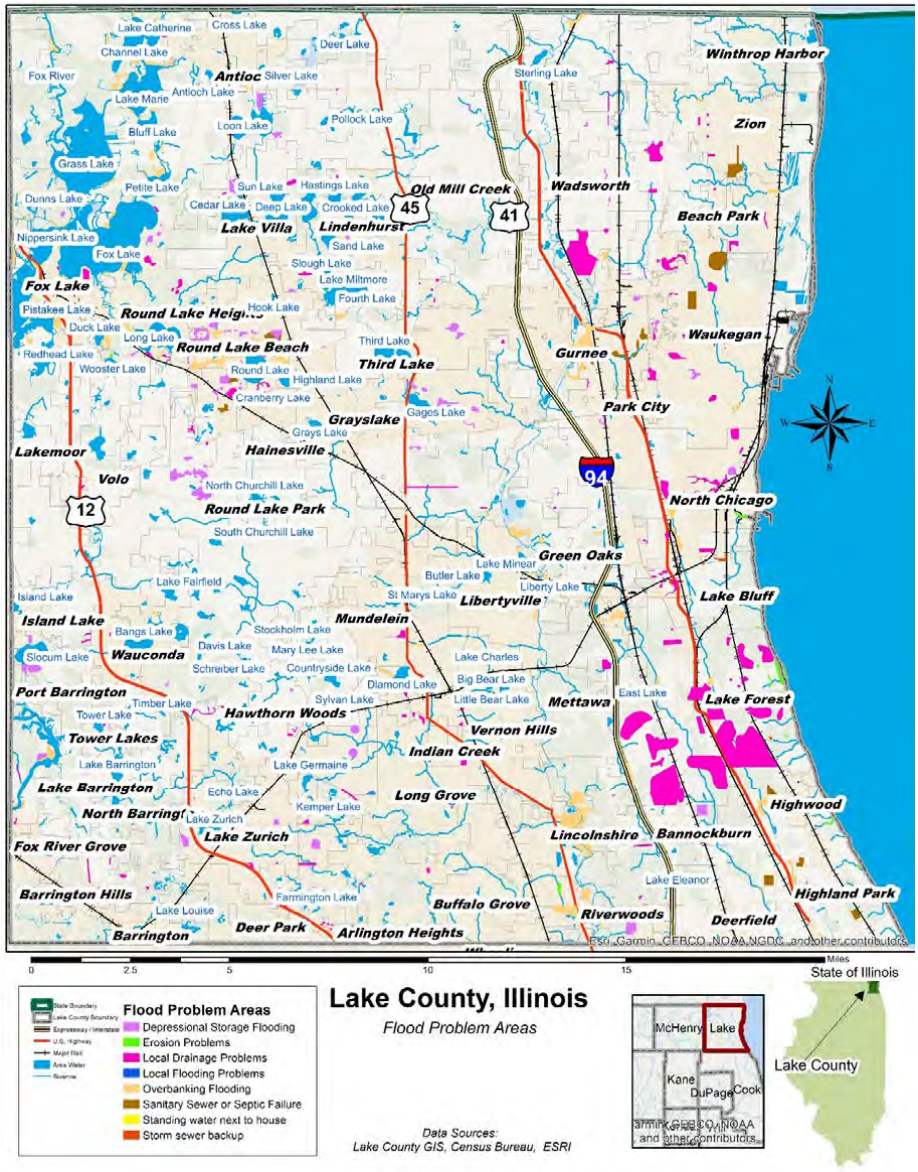


Table 17: Lake County NFIP Flood Insurance Active Policies & Claims (9/30/2021)

Community	NFIP CID	Number of Active Policies	Total Premium	Total Coverage	Number of Claims*	Total Paid
Village of Antioch	170358	79	$80,203	$16,801,200	71	$788,569
Village of Bannockburn	170359	3	$1,195	$1,050,000	0	$ -
Village of Barrington*	170057	36	$18,330	$8,713,600	20	$320,931
Village of Barrington Hills*	170058	13	$13,823	$3,680,700	4	$53,648
Village of Beach Park	171022	31	$31,584	$6,158,300	10	$96,438
Village of Buffalo Grove*	170068	63	$46,324	$15,664,300	3	$3,149
Village of Deer Park*	171028	5	$4,183	$1,725,000	4	$26,319
Village of Deerfield*	170361	144	$108,783	$39,742,600	124	$1,304,698
Village of Fox Lake*	170362	303	$323,156	$60,926,500	200	$2,068,425
Village of Fox River Grove*	170477	31	$38,051	$6,966,100	1	$3,712
Village of Grayslake	170363	61	$56,852	$13,419,800	4	$14,412
Village of Green Oaks	170364	14	$16,936	$3,317,000	2	$3,689
Village of Gurnee	170365	119	$188,636	$34,587,300	68	$2,372,380
Village of Hainesville		1	$333	$280,000	0	$ -
Village of Hawthorn Woods	170366	14	$16,433	$3,795,000	1	$4,309
City of Highland Park	170367	161	$167,868	$45,566,100	61	$217,120
City of Highwood	171033	0	$ -	$ -	0	$ -
Village of Indian Creek	170369	0	$ -	$ -	0	$ -
Village of Island Lake*	170370	35	$24,526	$7,955,700	1	$743
Village of Kildeer	170371	19	$22,694	$5,520,000	1	$27,352
Village of Lake Barrington	170372	17	$12,504	$4,568,400	3	$20,807
Village of Lake Bluff	170373	10	$3,660	$2,871,800	0	$ -
City of Lake Forest	170374	68	$63,553	$18,716,100	18	$85,980
Village of Lake Villa	170375	14	$10,270	$3,239,600	10	$25,827
Village of Lake Zurich	170376	15	$6,291	$3,980,000	6	$54,425
Village of Lakemoor*	170915	31	$24,331	$4,368,300	0	$ -
Village of Libertyville	170377	149	$199,286	$35,587,000	45	$488,974
Village of Lincolnshire	170378	113	$113,929	$32,609,800	27	$1,167,991
Village of Lindenhurst	170379	10	$4,910	$2,599,000	7	$78,790
Village of Long Grove	170380	39	$38,345	$12,166,200	3	$13,267
Village of Mettawa	170381	5	5059	$1,530,000	1	$8,558
Village of Mundelein	170382	48	$49,580	$11,808,700	11	$59,544
Village of North Barrington	170383	19	$14,713	$ 5,395,900	2	$25,381
City of North Chicago	170384	10	$4,540	$1,641,500	7	$31,161
Village of Old Mill Creek	170385	0	$ -	$ -	1	$7,433
City of Park City	170386	30	$13,835	$4,973,300	0	$ -
Village of Port Barrington*	170478	44	$47,485	$9,757,600	38	$390,094
Village of Riverwoods	170387	90	$86,894	$28,749,100	20	$218,401
Village of Round Lake	170388	15	$14,672	$2,548,700	10	$22,465
Village of Round Lake Beach	170389	218	$201,300	$32,868,600	67	$417,458
Village of Round Lake Heights	170390	6	$9,751	$1,323,500	8	$63,899

Table 17: Lake County NFIP Flood Insurance Active Policies & Claims (9/30/2021)

Village of Round Lake Park	170391	17	$9,991	$4,024,900	1	$11,642
Village of Third Lake	170392	4	$3,849	$1,090,000	0	$ -
Village of Tower Lakes	170393	5	$7,507	$1,305,000	0	$ -
Village of Vernon Hills	170394	24	$10,135	$4,360,900	1	$245
Village of Volo	171042	1	$1,440	$ 500,000	0	$ -
Village of Wadsworth	170395	8	$7,412	$1,986,400	1	$3,699
Village of Wauconda	170396	36	$34,052	$7,705,600	21	$156,817
City of Waukegan	170397	77	$83,218	$17,610,200	10	$410,921
Village of Wheeling	170173	813	$921,455	$172,221,300	126	$1,174,048
Village of Winthrop Harbor	170398	10	$4,219	$2,596,000	2	$21,534
City of Zion	170399	9	$10,253	$1,851,600	11	$94,665
Unincorporated Lake County	170357	964	$901,931	$197,120,500	412	$4,412,615
TOTALS		**4051**	**$4,080,280**	**$909,544,700**	**1444**	**$16,772,535**

* Since 1978

During the 2022 ANHMP Update process updated NFIP data was not made available from FEMA. This data provided is from the previous plan but is still considered the best available data.

3.3.3 Repetitive Flood Loss Properties

FEMA uses several definitions for repetitive loss structures. Since Lake County and many Lake County municipalities participate in the CRS, the CRS definition of repetitive loss is used in the plan. A "repetitive loss structure" is a flood-insured structure that has received two or more flood insurance claim payments of more than 25% of the market value within any 10-year period. A summary repetitive loss is in provided in Table 18.

The repetitive flood loss structures are located throughout the county but are more concentrated in the Fox River Watershed.

The repetitive loss properties were examined for this ANHMP update. Repetitive flood loss areas include one or more repetitive loss properties and the neighboring or nearby properties subject to similar flood damage. The repetitive loss areas numbers and names are shown in Table 18.

The naming convention used for the repetitive flood loss areas in 0 is: [Community Name – Subwatershed (or Lake) Name]. Each repetitive loss area has additional properties within the area. Neighboring or nearby properties with similar flood problems are included in the area. The total number of properties within a repetitive loss area are identified by the Lake County Planning, Building and Development Department for the CRS. PB&D also maintains the description of the cause of flooding at each area and the CRS-required list of addresses. The SMC assists the PB&D with this effort.

Table 18: Lake County Repetitive Loss Structures (2022)

Community	Number of Repetitive Loss Properties as of 11/1/2022	Mitigated	Remaining Repetitive Losses
Village of Antioch	7	3	4
Village of Barrington	1	0	1
Village of Beach Park	4	0	4
Village of Deerfield	15	5	10
Village of Fox Lake*	40	7	33
Village of Gurnee	15	6	9
City of Highland Park	10	2	8
Village of Lake Bluff	1	1	0
City of Lake Forest	1	1	0
Village of Libertyville	2	1	1
Village of Lincolnshire	10	0	10
Village of Lindenhurst	3	1	2
Village of North Barrington	1	0	1
City of North Chicago	9	0	9
Village of Port Barrington	2	0	2
Village of Riverwoods	3	2	1
Village of Round Lake	1	0	1
Village of Round Lake Beach	8	1	7
Village of Round Lake Heights	2	2	0
Village of Spring Grove	1	0	1
Village of Wadsworth	1	0	1
Village of Wauconda	2	0	2
Village of Waukegan	1	0	1
Village of Winthrop Harbor	1	0	1
Unincorporated Lake County	83	11	72
TOTALS	**222**	**41**	**181**

Since 2000, Lake County has conducted "flood audits" in repetitive loss areas. Table 19 shows the number of repetitive loss properties in each community. Many of the properties included in the properties that are shown as "To Be Audited" are within areas that had other flood audits conducted between 2000 and 2006. Mitigation of repetitive flood loss structures are discussed further in Chapter 5.

Table 19: Lake County Repetitive Flood Loss Area Numbers and Names

Rep. Loss Area Number	Rep. Loss Area Name	Number of Rep. Loss Properties in Area
1	Antioch - Channel Lake	1
2	Beach Park - Dead River	3
3	County - Channel Lake	3
4	County - Countryside Lake	1
5	County - Flint Creek	1
6	County - Forest Lake	1
7	County - Fox Lake 1	1
8	County - Grass Lake	1
9	County - Lake Marie	10
10	County - Local 1	1
11	County - Local 2	1
12	County - Lower Des Plaines 2	2
13	County - Lower Fox River 1	3
14	County - Lower Fox River 2	2
15	County - Lower Fox River 3	1
16	County - Nippersink Lake 1	1
17	County - Nippersink Lake 2	1
18	County - Petite Lake	1
20	County - Skokie River	1
21	County - Slocum Lake	4
22	County - Upper Des Plaines 1	2
23	County - Upper Des Plaines 2	1
24	County - Upper Des Plaines 3	1
25	County - Upper Fox River	2
26	Fox Lake - Duck Lake 1	5
27	Fox Lake - Duck Lake 2	2
28	Fox Lake - Fox Lake 2	1
29	Fox Lake - Fox Lake 3	9
30	Fox Lake - Fox Lake 4	1
31	Fox Lake - Pistakee Lake 1	8
32	Fox Lake - Pistakee Lake 2	2
34	Gurnee - Des Plaines River	9
35	Highland Park - Middle Fork	1
36	Highland Park - Skokie River 1	1
37	Highland Park - Skokie River 2	1
38	Highland Park - Skokie River 3	1
39	Highland Park - Skokie River 4	1
40	Lake Forest - Bluff/Ravine	1
41	Lake Forest - Skokie River	1
42	Libertyville - Lower Des Plaines	1
43	Libertyville - Minear Lake	1
44	Libertyville -Des Plaines River	3
45	Lincolnshire - Des Plaines River	1
46	Lindenhurst - Local 1	1
47	Lindenhurst - Local 2	1
48	Riverwoods - Local	1
49	Round Lake - Local	1
50	Round Lake - Round Lake Drain	2
51	Round Lake Beach - Local	1
52	Round Lake Beach - Round Lake Drain 1	1
53	Round Lake Beach - Round Lake Drain 2	1
54	Round Lake Heights - Round Lake Drain	1
55	Wauconda - Bangs Lake	1
56	Waukegan - Dead River	1

Table 20: "Flood Audited" Repetitive Loss Properties in Lake County

Community	Audited Repetitive Loss Properties	Repetitive Loss Properties to Be Audited
Village of Antioch	0	1
Village of Beach Park	0	3
Village of Fox Lake	7	21
Village of Gurnee	1	8
City of Highland Park	3	2
City of Lake Forest	2	0
Village of Libertyville	0	5
Village of Lincolnshire	1	0
Village of Lindenhurst	1	1
Village of Riverwoods	1	0
Village of Round Lake	1	2
Village of Round Lake Beach	1	2
Village of Round Lake Heights	0	1
Village of Wauconda	0	1
City of Waukegan	1	0
Lake County (Unincorporated Areas)	12	30
Totals:	**31**	**77**
Total Properties = 108		

3.3.4 Past Floods and Future Flood Frequency

National Centers for Environmental Information (NCEI), maintained by the National Oceanic and Atmospheric Administration, records weather events as they are submitted for record. The NCEI has a record of the flooding in Lake County from 1996 to 2022, which are summarized in Table 22 and Table 23. Other small floods most likely occurred that did not get recorded. The NCEI data recorded no injuries or deaths with these events.

1986 Flood: Northeastern Illinois received almost one inch of rain daily from September 21 through October 4. On some days, there was as much as three inches. Over this two-week period, the Des Plaines watershed received up to 12.9 inches of rain compared to the normal monthly amount of 3 inches. The flooding in Lake County killed four people. One person drowned when his boat capsized, and three people had heart attacks fighting the flood.

On September 25, 2004, the river was two feet over flood stage and high enough to reach buildings. This flooding along with flooding in the Fox River/Chain of Lakes watershed resulted in a disaster declaration by the President on October 7 for Cook, Lake, Kane, and Lake Counties. The worst flooding in Lake County was in the Village of Gurnee, where approximately 100 buildings were flooded. Based on the flood insurance claims, they suffered an average of $10,000 in damage.

Most severely affected were the public properties. Gurnee Grade School suffered structural damage when the northern half settled, cracking the walls and the roof. The Viking Junior High School was flooded. The police station basement floor buckled from hydrostatic pressure. The fire station was not damaged, but it was surrounded by flood water and due to

the closing of the Grand Avenue Bridge over the Des Plaines River part of the equipment had to be moved to the other side of the river.

The May 2004 flood attracted national attention and was destructive on a wide scale. River flooding was recorded across Lake County and portions of Cook and Lake counties, as well as local flash flooding from individual storms that occurred during that month. The river flooding, mainly on the Des Plaines River, had some origins in southern Wisconsin, but affected the river channel through Lake County and south into Cook County. Monthly rainfall totals peaked over ten inches across Lake and Cook counties, while six inches or more were observed further south including into northwest Indiana.

Throughout Lake County, overbank flooding occurs most extensively along the Des Plaines River. Recorded moderate and major flood event years are shown in Table 24.
Record crests occurred in the following years: 1938, 1960, 1979, 1986, 2004, 2009, 2010, 2011, 2013, 2014, and 2017.

Table 21: Des Plaines River Flooding in Lake County

Major Flooding		Moderate Flooding	
Year	**Gauge Location(s)**	**Year**	**Gauge Location(s)**
1960	Lincolnshire	1948	Lincolnshire
1976	Russell	1950	Lincolnshire
1978	Russell	1960	Gurnee
1986	Russell, Gurnee	1976	Gurnee
2001	Russell	1979	Gurnee
2004	Gurnee	1993	Gurnee
2007	Russell	2000	Gurnee, Russell
2009	Russell	2009	Lincolnshire
2013	Gurnee, Lincolnshire	2013	Russell
2017	Russell, Lincolnshire	2018	Lincolnshire
2019	Russell, Gurnee	2019	Gurnee, Lincolnshire
		2020	Lincolnshire

Source: National Weather Service (NWS)

Since the 2017 ANHMP update, 14 flood related events have been reported via the NCEI totaling an estimated $12,795,000 in property damages. The most notable event occurred on July 12, 2017, accounting for $12,700,000 of these total damages. According to NCEI reports, torrential rainfall across much of Lake County during the morning of July 12th producing widespread flash flooding and major river flooding. Numerous roads were impassable and tree limbs were blown down. In Mundelein, numerous houses flooded. Since 2000, 36 flood events have occurred that did not result in any reported property damages.

Table 22: Past Occurring Flood Events with Property Damage in Lake County

Location	Date	Type	Property Damage
Wildwood/Chittenden	9/3/2018	Flash Flood	$70,000
Forrest Lake	10/14/2017	Flash Flood	$25,000
Barrington Hills	7/12/2017	Flash Flood	$12,700,000
Channel Lake	4/17/2013	Flash Flood	$4,700,000
Channel Lake	5/13/2010	Flash Flood	$500,000
Russell	8/23/2007	Flood	$100,000
Lake Bluff	8/7/2007	Flash Flood	$10,000
Knollwood	3/21/2007	Flash Flood	$50,000
Total:			**$18,155,000**

Source: National Center for Environmental Information (NCEI)

The Village government estimated its cost for flood fighting and reconstruction to be over $200,000. Damage to the Gurnee Grade School, the Viking Junior High School and the school district offices were estimated at $1.2 million. Damage to Park District property was estimated at $43,000. For additional historical and flooding information reference the Gurnee Flood Mitigation Plan at the Village of Gurnee. The average annual damage in Lake County for the flood was $9.2 million.

Flooding in Arrowhead Park, Round Lake Heights, 2017

Reported flood events over the past 36 years provide a framework for determining the future occurrence in terms of frequency for such events. The probability of the county and its municipalities experiencing a flood event can be difficult to quantify but based on historical record of 59 flood events since 1986, it can reasonably be assumed that a flooding event has occurred every 8 months (0.61 years) from 1986 through 2022.

[(Current Year) 2022] subtracted by [(Historical Year) 1986] = 36 Years on Record

[(Years on Record)36] divided by [(Number of Historical Events) 59] = .61

Historic frequency calculates that there is likely a 100% chance of flash flooding and overland flooding occurring each year. Though unlikely, it is possible to have two 100-year flood events (1% chance per year), or even two 500-year floods (.2% chance per year) events occur within years, or even months, of each other.

3.3.5 Vulnerability - Impacts of Flooding

Lake County's population is expected to continue to grow and for development to continue. Lake County is currently susceptible to flooding and it should be anticipated that flood risk

will continue to grow. Lake County is undertaking several activities to abate this potential increase in flood risk, including the implementation of the Lake County Watershed Development Ordinance and comprehensive planning to protect against new flood damages (these efforts are summarized in Chapter 4). However, Lake County is part of four large watersheds and cannot regulate development in Wisconsin. Life, health and safety, buildings, critical facilities, infrastructure, and the economy are all affected by flooding in Lake County. As part of the vulnerability assessment conducted for Lake County, a HAZUS MH Flood Model 100-year event was used. The summary damage estimates are listed in the graphic below. The full HAZUS MH report is in Appendix E of the ANHMP.

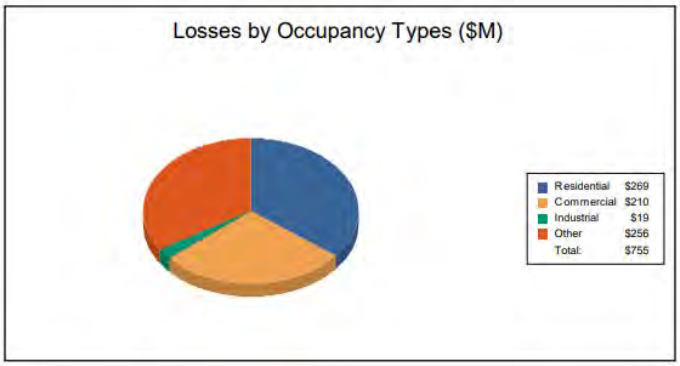
Health and safety: Safety during a flood, whether from overbank flooding or groundwater flooding (basements), is a concern. If clean-up after a flood is not properly done, then health problems can develop due to mold. Flooding roads and viaducts are dangerous. People continue to be at risk when driving through floodwaters; fast moving waters are a hazard to people inside and outside of cars. The highest flood depths are at the Fox River, but stormwater flooding away from the floodplain in Lake County can also threaten lives, as emphasized in the death during the 1982 flood event.

Impact to health and safety due to flooding is considered **moderate**.

Damage to Buildings: Building losses are broken into two categories: direct building losses and business interruption losses. Direct building losses are the estimated costs to repair or replace the damage caused to the building and its contents. Business interruption losses are the losses associated with inability to operate a business because of the damage sustained during the flood. Business interruption losses also include the temporary living expenses for those people displaced from their homes because of the flood. The total building-related losses were 369.80 million dollars. 51% of the estimated losses were related to the business interruption of the region. The residential occupancies made up 35.65% of the total loss. The figure below provides a summary of the losses associated with the building damage.

Figure 8: Building-related Economic Loss Estimates (Millions of Dollars)

Category	Area	Residential	Commercial	Industrial	Others	Total
Building Loss						
	Building	132.58	21.66	4.97	6.86	166.07
	Content	66.88	67.08	11.84	55.23	201.02
	Inventory	0.00	1.38	1.25	0.09	2.71
	Subtotal	**199.46**	**90.11**	**18.05**	**62.18**	**369.80**
Business Interruption						
	Income	5.98	48.72	0.21	47.32	102.22
	Relocation	33.71	13.42	0.32	17.42	64.87
	Rental Income	15.84	9.71	0.05	1.81	27.42
	Wage	14.10	48.53	0.39	127.37	190.39
	Subtotal	**69.62**	**120.38**	**0.97**	**193.92**	**384.89**
ALL	**Total**	**269.08**	**210.49**	**19.03**	**256.09**	**754.69**



Source: HAZUS

Critical Facilities and Infrastructure: SMC data shows 39 of 2,883 critical facilities are located within the 100-year (1% chance of flooding each year) floodplain. It is assumed that all critical facilities in the floodplain could be closed due to flooding.

Impact to critical facilities due to flooding is considered **moderate**.

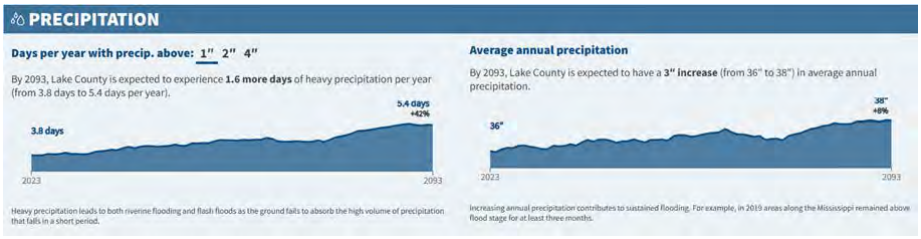
Economic Impact: Flood damage to businesses is difficult to estimate. Businesses that are disrupted by floods often must be closed. They lose their inventories, customers cannot reach them, and employees are often busy protecting or cleaning up their flooded homes. Business can be disrupted regardless of the business being in the floodplain when customers and clients cannot reach their location. As with flooded roads, public expenditures on flood fighting, sandbags, fire department calls, clean-up and repairs to damaged public property affect all residents of the county, not just those in the floodplain.

Therefore, overall economic impact to businesses is **high**.

Multi-Jurisdictional Differences: From data presented in section 3.3.2 Flood Hazard Profile, most of Lake County is vulnerable to flooding. The communities of Lake Bluff, Highwood,

Highland Park, North Chicago, and Winthrop Harbor are subject to coastal flooding from Lake Michigan.

Climate Change Considerations: Climate change is increasing the possibility for increased occurrences of flooding due to factors like increases in annual precipitation and intense rainfall becoming more common. Winter and spring precipitation contribute to flood risk in the Midwest and are projected to increase by up to 30% by the end of this century. Heavy precipitation events in the Midwest have increased in frequency and intensity since 1901 and are projected to increase through this century.[1] According to data provided by Neighborhoods At Risk "Neighborhoods at Risk (headwaterseconomics.org)," in the 70-year projection shown below, Lake County communities could experience an increased rate of precipitation of 3" per year with an estimated 1.6 additional days of heavy precipitation.



3.4 Tornado

Wind can be defined as the motion of air relative to the earth's surface. The horizontal component of the three-dimensional flow and the near-surface wind phenomenon are the most significant aspects of the hazard. Extreme windstorm events are associated with extratropical and tropical cyclones, winter cyclones, and severe thunderstorms and accompanying mesoscale offspring such as tornadoes and downbursts. Winds vary from zero at ground level to 200-mph in the upper atmospheric jet stream at 6 to 8 miles above the earth's surface.

The damaging effects of windstorms associated with hurricanes may extend distances of more than 100 miles from the center of storm activity. Severe thunderstorms can produce wind downbursts and microbursts, as well as tornadoes. Severe windstorms result in as many as 1,200 tornadoes annually.

A **tornado** is a violent windstorm characterized by a twisting, funnel-shaped cloud extending to the ground. Tornadoes are most often generated by thunderstorm activity (but sometimes result from hurricanes or tropical storms) when cool, dry air intersects and overrides a layer of warm, moist air forcing the warm air to rise rapidly. The damage caused by a tornado is a result of high wind velocities and wind-blown debris. According to the National Weather Service, tornado wind speeds can range between 30 to more than 300 miles per hour. They are more likely to occur during the spring and early summer months of March through June and are most likely to form in the late afternoon and early evening. Most tornadoes are a few dozen yards wide and touchdown briefly, but even small, short-lived tornadoes can inflict tremendous damage. Destruction ranges from minor to catastrophic depending on the intensity, size, and duration of the storm. Structures made of light materials such as mobile

homes are most susceptible to damage. Each year, an average of over 1,000 tornadoes is reported nationwide, resulting in an average of 80 deaths and 1,500 injuries (NOAA).

The Enhanced Fujita Scale, also known as the "EF-Scale," measures tornado strength and associated damages. The EF-Scale, shown in Table 23, is an update to the earlier Fujita scale that was published in 1971. It classifies United States tornadoes into six intensity categories based upon the estimated maximum winds occurring within the wind vortex. The EF-Scale has become the definitive metric for estimating wind speeds within tornadoes based upon the damage done to buildings and structures since it was implemented through the National Weather Service in 2007.

Table 23: Enhanced Fujita Scale and Associated Damage

EF-Scale Number	Wind Speed (MPH)	Type of Damage Possible
EFO	**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; mobile 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; mobile 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.

The Storm Prediction Center has developed damage indicators to be used with the Enhanced Fujita Scale for several types of buildings but can also be used to classify any high wind event. Some of the indicators for different building types are shown in table below.

Table 24: Institutional Buildings

Damage Description	Wind Speed Range (Expected in Parentheses)
Threshold of visible damage	59-88 MPH (72 MPH)
Loss of roof covering (<20%)	72-109 MPH (86 MPH)
Damage to penthouse roof & walls, loss of rooftop HVAC equipment	75-111 MPH (92 MPH)
Broken glass in windows or doors	78-115 MPH (95 MPH)
Uplift of lightweight roof deck & insulation, significant loss of roofing material (>20%)	95-136 MPH (114 MPH)
Façade components torn from structure	97-140 MPH (118 MPH)
Damage to curtain walls or other wall cladding	110-152 MPH (131 MPH)
Uplift of pre-cast concrete roof slabs	119-163 MPH (142 MPH)
Uplift of metal deck with concrete fill slab	118-170 MPH (146 MPH)
Collapse of some top building envelope	127-172 MPH (148 MPH)
Considerable damage to building envelope	178-268 MPH (210 MPH)

Source: Storm Prediction Center, 2009

Table 25: Educational Institutions (Elementary Schools, High Schools)

Damage Description	Wind Speed Range (Expected in Parentheses)
Threshold of visible damage	55-83 MPH (68 MPH)
Loss of roof covering (<20%)	66-99 MPH (79 MPH)
Broken windows	71-106 MPH (87 MPH)
Exterior door failures	83-121 MPH (101 MPH)
Uplift of metal roof decking; significant loss of roofing material (>20%); loss of rooftop HVAC	85-119 MPH (101 MPH)
Damage to or loss of wall cladding	92-127 MPH (108 MPH)
Collapse of tall masonry walls at gym, cafeteria, or auditorium	94-136 MPH (114 MPH)
Uplift or collapse of light steel roof structure	108-148 MPH (125 MPH)
Collapse of exterior walls in top floor	121-153 MPH (139 MPH)
Most interior walls of top floor collapsed	133-186 MPH (158 MPH)
Destruction of a large section of building envelope	163-224 MPH (192 MPH)

Source: Storm Prediction Center, 2009

Table 26: Metal Building Systems

Damage Description	Wind Speed Range (Expected in Parentheses)
Threshold of visible damage	54-83 MPH (67 MPH)
Inward or outward collapsed of overhead doors	75-108 MPH (89 MPH)
Metal roof or wall panels pulled from the building	78-120 MPH (95 MPH)
Column anchorage failed	96-135 MPH (117 MPH)
Buckling of roof purlins	95-138 MPH (118 MPH)
Failure of X-braces in the lateral load resisting system	118-158 MPH (138 MPH)
Progressive collapse of rigid frames	120-168 MPH (143 MPH)
Destruction of building	132-178 MPH (155 MPH)

Source: Storm Prediction Center, 2009

Table 27: Electric Transmission Lines

Damage Description	Wind Speed Range (Expected in Parentheses)
Threshold of visible damage	70-98 MPH (83 MPH)
Broken wood cross member	80-114 MPH (99 MPH)
Wood poles leaning	85-130 MPH (108 MPH)
Broken wood poles	98-142 MPH (118 MPH)
Broken or bent steel or concrete poles	115-149 MPH (138 MPH)
Collapsed metal truss towers	116-165 MPH (141 MPH)

Source: Storm Prediction Center, 2009

Intense winds can also occur outside of tornadoes, severe thunderstorms, and winter storms. These winds typically develop with intense pressure gradients and gusty frontal passages. The closer and stronger two systems (one high pressure, one low pressure) are, the stronger the pressure gradient, and therefore, the stronger the winds are.

Downburst winds, which can cause more widespread damage than a tornado, occur when air is carried into a storm's updraft, cools rapidly, and comes rushing to the ground. Cool air is denser than warm air, and therefore, wants to fall to the surface. On warm summer days, when the cool air can no longer be supported up by the storm's updraft, or an exceptional downdraft develops, the air crashes to the ground in the form of intense winds. These winds are forced horizontally when they reach the ground and can cause considerable damage. These types of intense winds can also be referred to as straight-line winds. Downbursts with a diameter of less than 2.5 miles are called microbursts and those with a diameter of 2.5 miles or greater are called macrobursts. A derecho, or bow echo, is a series of downbursts associated with a line of thunderstorms. This type of phenomenon can extend for hundreds of miles and contain wind speeds greater than 100 mph.

3.4.1 Tornado Hazard Profile

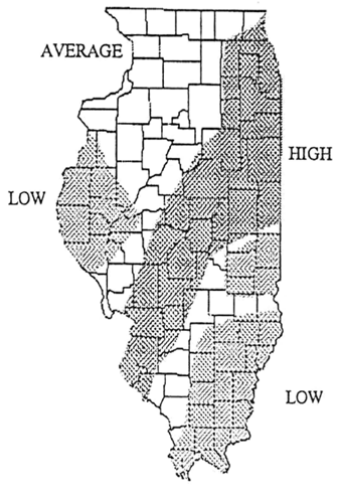
Next to flooding and winter storms, tornadoes are the most prevalent natural hazard in Lake County. The southeast half of Lake County is in a belt of high tornado frequency. Warnings for Lake County come from the National Weather Service office in Romeoville, IL. Peak tornado occurrences extend from March through May as past records indicate in . According to the University of South Carolina's Hazards and Vulnerability Research Institute (SHELDUS) as well as the NCEI, Lake County has been impacted by 19 tornado events since 1957. Tornado touchdown locations are shown in Exhibit 11.

Past Occurrences: In April 1965, a tornado caused considerable property damage estimated to cost about $500,000 in the western part of Gurnee. A tornado that struck Zion on April 19, 1996, caused enough damage to result in a federal disaster declaration for the county. Two people were injured, and damage was estimated at $ 6.6 million. It was rated an F2 with a path between Lindenhurst and Gurnee in Lake County.

On May 18, 1997, Gurnee had another F2 touchdown. No damage or injuries were reported. Adequate prediction methods have not been developed for tornadoes, so a good warning system is the only defense. The most devastating was the March 28, 1920, F3 tornado that killed 8 people and injured 100. This tornado went through 3 counties, Kane, Cook, and Lake. It followed a path from southeast of La Fox to the south side of Elgin to Wauconda. A second notable event occurred on April 11, 1965, when Lake and McHenry Counties were struck by an F4 tornado. The tornado killed 6 people and injured 75. The tornado began in Crystal Lake and went on an 11-mile path that was as wide as 400 yards. Damage was estimated at $1.5 million.

Other notable tornado events occurred on April 21, 1967, when an F4 killed one person and injured 100, the tornado struck Fox River Grove, Barrington Hills, and Lake Zurich, producing a damage path nine miles long. Lake Zurich was hardest hit with 140 homes destroyed and 463 damaged, and damage was estimated at $10 million (USA Today Weather, January 6, 1999). On September 28, 1972, an F4 tornado injured 20 people in Lake County. The tornado followed a 5-mile path and damage was estimated at $1 million. According to local historians on June 3, 1860, a destructive tornado swept the southern end of Lake County. In 2020, a tornado with peak winds of 90 mph touched down south of Route 173 near Channel Lake in Lake County. Mainly tree damage occurred along the path in Lake County with several trees uprooted with some minor structural damage just south of the state line.

Tornado Frequency



Source: Illinois Emergency Management Agency

Exhibit 11: Lake County Tornado Touch Downs

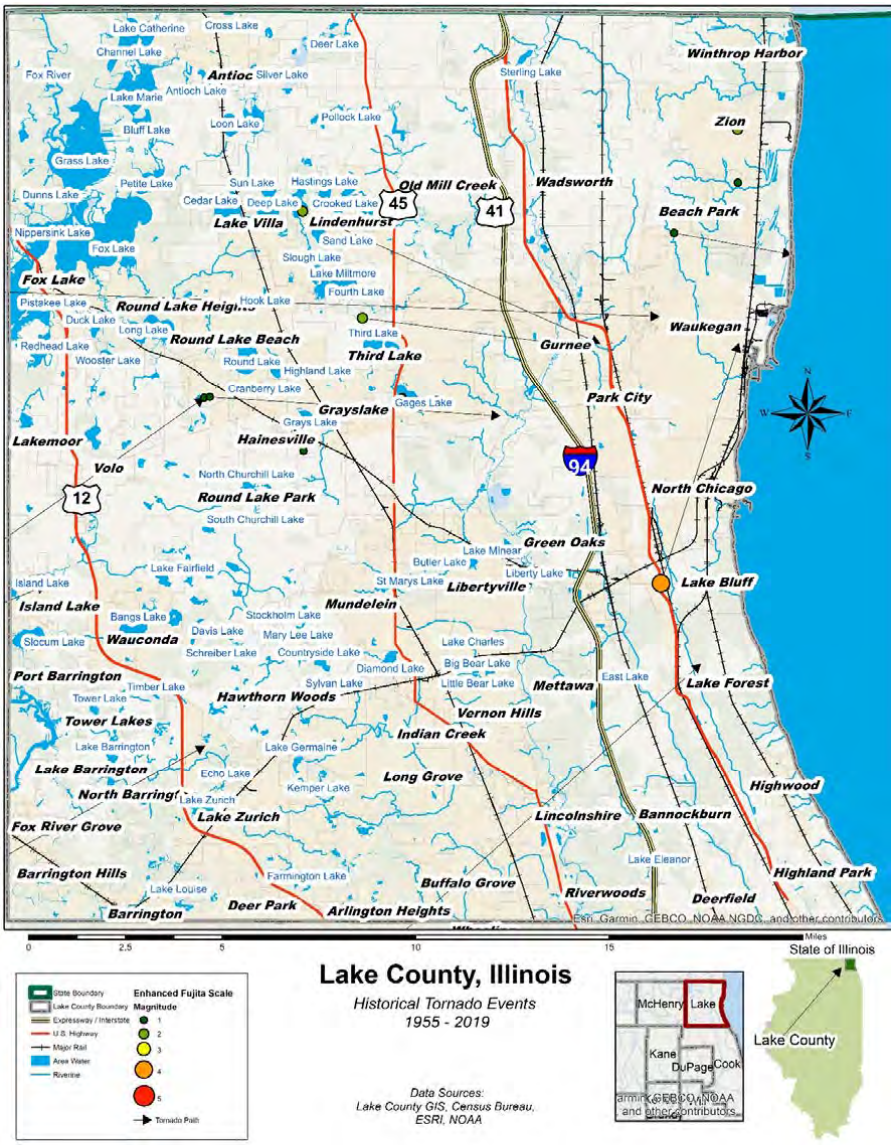


Table 28: Lake County Tornado History (1957-2022) (NCEI)

Location	Date	Magnitude	Death	Injuries	Property Damage	Crop Damage
Countywide	3/14/1957	F1	0	0	$3000	$0
Countywide	10/9/1958	F2	0	0	$2,500,000	$0
Countywide	4/11/1965	F4	0	0	$0	$0
Countywide	4/11/1965	F2	0	0	$250,000	$0
Countywide	4/11/1965	F1	0	0	$250,000	$0
Countywide	4/21/1967	F4	1	97	$2,500,000	$0
Countywide	9/28/1972	F4	0	20	$2,500,000	$0
Countywide	6/20/1974	F0	0	0	0K	$0
Countywide	11/10/1975	F1	0	0	$25,000	$0
Countywide	4/20/1976	F2	0	2	$25,000	$0
Countywide	8/9/1979	F1	0	0	$25,000	$0
Countywide	7/6/1986	F0	0	0	$0	$0
Countywide	6/29/1990	F1	0	0	$25,000	$0
Zion	4/19/1996	F2	0	2	$6,600,000	$0
Lindenhurst	5/18/1997	F2	0	0	$0	$0
Zion	4/18/2002	F0	0	0	$0	$0
Round Lake	9/02/2015	F0	0	0	$1,000,000	$0
(UGN) Waukegan Airport	09/03/2019	EF1	0	1	$0	$0
Channel Lake	08/10/2020	EF1	0	0	$0	$0
Totals:			**1**	**122**	**$15,703,000**	**$0**

There have been significant tornadoes in the Chicago metropolitan area. The deadliest tornado occurred on April 21, 1967, during an outbreak of 5 significant tornadoes. One tornado formed in Palos Hills in Cook County and traveled through Oak Lawn and the south side of Chicago. Thirty-three people died, and 500 people were injured by this 200-yard-wide tornado that traveled 16 miles and caused over $50 million in damage. A second tornado in this weather system ripped through the southwest portion of Lake County destroying around 50 homes, damaging over 200 others, and demolishing Seth Paine Elementary School. The funnel began above the Police Headquarters of the Village of Barrington Hills at around 4:50 p.m. At 5:05 p.m. it struck Seth Paine at Miller Road and Route 22. It continued to the Acorn Acres Estates and severely damaged the Old Zeman Brewery on Gilmer Road east of Route 63. The only F5 tornado in the Chicago metropolitan area was on August 28, 1990. This tornado formed near Oswego and passed through Plainfield and Joliet (a 16-mile path). The tornado killed 29, injured 350, and caused $165 million in damage.

Additional information was provided by the Village of Antioch regarding the April 19, 1996, Zion tornado. The wind damage that occurred in Antioch and along Highway 173 from Harvard to Zion (with the windstorm finally called a tornado in Zion) resulted in major damage throughout the Village of Antioch and Antioch Township. Several roofs were ripped off

buildings, numerous trees went down, at least one house had the entire side of it removed, and numerous other damages occurred because of this tornado.

Future Probability: With 19 occurrences over a 59-year period, the likelihood of a tornado hitting somewhere in the county is 0.288 (29%) in any given year, and from 1957 to 2022 a tornado has occurred once every 3.5 years.

[(Current Year) 2022] subtracted by [(Historical Year) 1957] = 65 Years on Record

[(Years on Record) 65] divided by [(Number of Historical Events) 19] = 3.42

Assuming a tornado affects one square mile and there are 470.55 square miles in Lake County, the odds of a tornado hitting any square mile in the County is 1 in 1,633 tornadoes each year or a 0.0006% chance. FEMA notes that approximately 1,000 tornadoes occur each year in the United States. Illinois is ranked number 8 in the United States in terms of tornadoes and 6 in terms of number of killer tornadoes between January 1, 1950, and September 30, 2003. Tornadoes are most likely to occur between March and June, but a tornado can occur at any time under the right circumstances. Over half of the tornadoes hit between 3:00 and 7:00 PM. Therefore, the probability of a tornado occurring in Illinois is high.

3.4.2 Vulnerability – Tornado Impact

All of Lake County is vulnerable to tornadoes. Past tornadoes have been deadly and have led to disaster declarations in Lake County. The potential for loss of life and significant property damage is growing in Lake County as the population and number of buildings increases. All assets located in Lake County can be considered at risk from tornadoes and wind events. This includes 714,342people based on 2020 census, or 100% of the County's population and all critical facilities, structures, and infrastructure.

Health and Safety: Vulnerability to residents and buildings is as the county grows in population and building counts. Fifteen deaths and over 200 injuries have been attributed to tornadoes in Lake County. On average, Illinois experiences 4 tornado–related deaths each year. Based on tornado history in Illinois, advanced warning and taking appropriate shelter appears to be the best mitigation method for preventing death and injury.

Based on national statistics for 1970-1980, for every person killed by a tornado, 25 people were injured, and 1,000 people received some sort of emergency care.

Residents living in mobile 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.

Impact to health and safety for severe winter storms is considered **high**.

Damage to Buildings: Structures within the direct path of a tornado vortex are often reduced to rubble. However, structures adjacent to the tornadoes path are often severely damaged by high winds flowing into the tornado vortex, known as inflow winds, or by debris. The buildings adjacent to the tornado path can be significantly impacted depending on the design and materials used in the building construction. Although tornadoes strike at random, making all buildings vulnerable, three types of structures are more likely to suffer damage:

- Mobile homes
- Homes on crawlspaces (more susceptible to lift)
- Buildings with large spans, such as airplane hangars, gymnasiums, and factories

To assess potential for building damage, several tornado scenarios have been developed and presented below. Based on an analysis conducted by the State of Illinois for the 2010 Illinois Natural Hazard Mitigation Plan, Lake County buildings have a median value of $198,200. The scenarios below calculate estimated tornado damages and assume a damage area of 5 square miles.

1) Average Lake County building density tornado damages:

5 mi^2 x 581 houses/mi^2 = 2,905 homes damaged

2,905 homes x $228,600 per home x 50% of value damaged = **$419 million**

2) Rural area average building density:

5 mi^2 x 80 houses/mi^2 = 400 homes damaged

400 homes x $228,600 per home x 50% of value damaged = **$58 million**

3) Urban area (Waukegan) average building density:

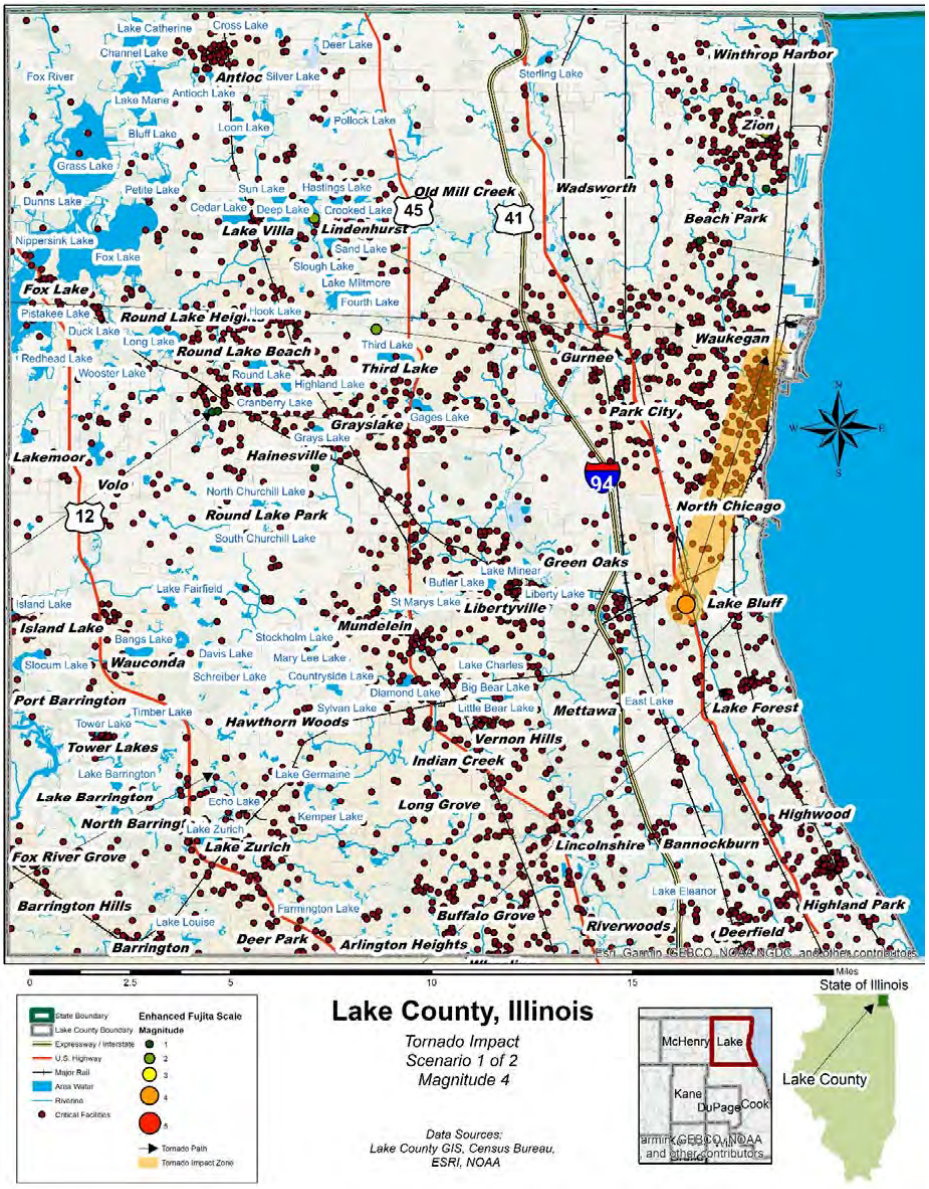
5 mi^2 x 1,208 houses/mi^2 = 6,040 homes damaged

6,040 homes x $228,600 per home x 50% of value damaged = **$872 million**

For a 5-square mile area the County's average exposure to tornado damage ranges from $50 to $60 million. Impact to buildings due to tornadoes is considered **high**.

A tornado scenario was developed for the 2022 ANHMP update following a "what-if" approach that simulated location-based damages. The September 1972 F4 tornado track was chosen from NOAA's Storm Prediction Centre database for the scenario, and the track was shifted over a heavily populated area with numerous critical assets. A 0.25-mile buffer was added to represent the wind field area associated with the tornado. The resulting analyses identified 80 critical facilities within the potential damage swath (see Appendix A). Exhibit 12 below depicts the scenario track and includes the buffer area as well as impacted critical facilities.

Exhibit 12: Critical Asset Tornado Scenario Map (1974 F4 Shifted Track)



Damage to Critical Facilities: Because a tornado can hit anywhere in the county, all categories of critical facilities are susceptible to being hit. Schools are a concern due to their large numbers of people present, either during school or as a storm shelter, and due to having large

indoor areas, such as gyms and theaters. Impact to critical facilities for tornadoes is **moderate** since facilities are spread throughout the county.

Economic Impact: The major impact of a tornado on the local economy is damage to businesses and infrastructure. A heavily damaged business, especially already unprofitable ones, often must be closed.

Infrastructure damage is usually limited to above-ground utilities, such as power lines. Damage to roads and railroads is also localized. If transportation routes cannot be repaired promptly, alternate routes are usually available. Public expenditures include search and rescue, shelters, and emergency protection measures. The largest expenses are for repairs to public facilities, clean-up, and disposal of debris. Most public facilities are insured so the economic impact on the local funds is likely to be moderate.

Economic impact due to tornadoes is considered **moderate.**

Multi-Jurisdictional Differences: Each municipality in the county has an equal susceptibility to high winds from tornadic activity. Deteriorating older homes and aluminum-clad mobile homes continue to remain highly susceptible to wind events.

Climate Change Considerations: Climate change may be attributed to increases in tornado frequency. The confidence level for links between climate change and tornadoes is still low due to weaknesses in climate modeling, but this may change in the coming years as climate models improve in accuracy. Long-term tornado trend projection confidence is low due to low availability of observations.[2]

3.5 Severe Summer Storms

Dangerous and damaging aspects of severe storms are tornadoes, hail, lightning strikes, flash flooding, and winds associated with downbursts and microbursts. Thunderstorms associated with intense winds, heavy precipitation, and lightning strikes can all be hazardous. Intense winds and tornadoes can take down trees, damage structures, tip high profile vehicles, and create high velocity flying debris. Large hail can damage crops, dent vehicles, break windows, and injure or kill livestock, pets, and people. Severe storm weather conditions can exist during any season in Lake County, but they are referred to as severe summer storms to distinguish them from the severe winter storms addressed in this ANHMP.

Waukegan, IL - September 2019
Source: National Weather Service. Photo taken by Spencer Dant

Thunderstorms affect relatively small areas when compared to hurricanes and winter storms. 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 basic 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.

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. Positively charged ice particles rise to the top of the cloud and negatively charged ones 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 lightning.

Hail develops when a super cooled droplet of rain collects a layer of ice and becomes a hail stone. It continues to grow while sustained by an updraft. Once the hail stone cannot be held up any longer by the updraft, it falls to the ground. Hail up to 2.75 inches in diameter, nearly the size of a baseball, were reported in Lake County in 1967 according to the NCEI. Nationally, hailstorms cause nearly $1 billion in property and crop damage annually as peak activity typically coincides with peak agricultural seasons. Severe hailstorms also cause considerable damage to buildings and automobiles but rarely result in loss of life.

Table 29: Hail Size Reference

Common Object	Size In Diameter (in.)
Pea	0.25”
Penny or Dime	0.75”
Quarter	1.00”
Half Dollar	1.25”
Golf Ball	1.75”
Tennis Ball	2.50”
Baseball	2.75”
Grapefruit	4.00”

3.5.1 Severe Storm Hazard Profile

Lake County is subject to severe storms ranging from thunderstorms to hurricane related rain, such as Hurricane Ike in September 2008. Severe storms which have the potential to cause flash flooding, tornadoes, downbursts, and debris. The severe storms profile in this section is primarily concerned with damage from hail, high winds, lightning, and other storm effects such as seiches.

Reported severe weather events over the past 62 years provide an acceptable framework for determining the magnitude of such storms that can be expected and planned for accordingly. FEMA places this region in Zone IV (250 MPH) for structural wind design (FEMA P-361, 2021). Large hail can damage structures, break windows, dent vehicles, ruin crops, and kill or injure people and livestock. Based on past occurrences, hail sizes greater than 3 inches in diameter are possible and should be accounted for in future planning activities. Non-tornadic, thunderstorm and non-thunderstorm winds over 100 mph should also be considered in future

planning initiatives. These types of winds can remove roofs, move mobile homes, topple trees, take down utility lines, and destroy poorly built or weak structures. A downburst is a small area of rapidly descending rain and rain-cooled air beneath a thunderstorm. The winds produced from a downburst often travel in one direction, and the worst damage is usually on the forward side of the downburst. The width of such a storm can range from 20 to 65 miles, and the length can reach 100 miles or more. Damaging, straight line winds are much more common than tornadoes and their damage is often incorrectly attributed to tornadoes. There have been 104 recorded hail events associated with thunderstorms that have either directly or indirectly impacted Lake County since 1963. These events are listed in and mapped in Exhibit 13.

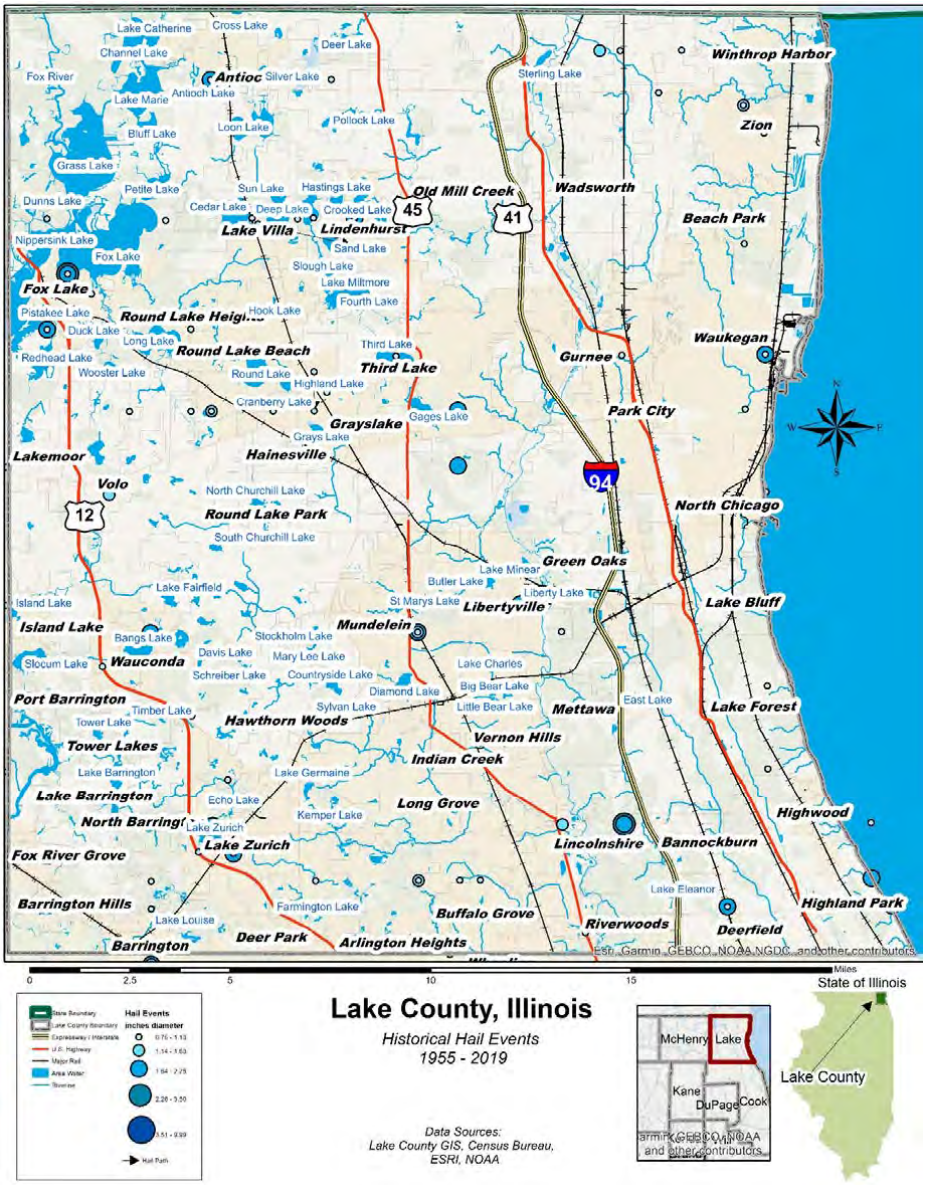
Lake County has been fortunate in that no deaths or injuries have been reported because of hail. In addition, there has been no property or crop damage attributed to hail within the county.

There have been 206 recorded severe wind events associated with thunderstorms that have either directly or indirectly impacted Lake County since 1960. The specifics of these events are shown in Table 30. Lake County, along with the rest of Illinois, is classified into Upper Midwest Wind Zone IV as shown in Figure 9. Zone IV is classified by winds with potential to reach up to 250 mph.

**Table 30: High Wind Events in Lake County (2011-2022)
with Recorded Deaths, Injuries or Damages (NCEI)**

Location	Date	Magnitude	Deaths	Injuries	Property Damage
Winthrop Harbor	6/30/2011	65 kts.	0	0	$5,000
Zion	6/30/2011	70 kts.	0	0	$5,000
Beach Park	6/30/2011	65kts.	0	0	$40,000
Unincorporated Lake County	6/30/2011	78 kts.	0	0	$500,000
Highland Park	6/21/2011	60 kts.	0	0	$5,000
Deerfield	6/21/2011	65 kts.	0	0	$2,000
Mundelein	6/21/2011	60 kts.	0	0	$2,000
Libertyville	6/21/2011	60 kts.	0	0	$10,000
Unincorporated Lake County *(SE Crooked Lake)*	7/11/2011	55 kts.	0	0	$1,000
Antioch	7/11/2011	55 kts.	0	0	$10,000
Riverwoods	7/11/2011	60 kts.	0	0	$30,000
Lindenhurst	8/30/2013	50 kts.	0	0	$5,000
Antioch	11/17/2013	50 kts.	0	0	$1,000
Lakemoor	6/21/2014	60 kts.	0	0	$10,000
Unincorporated Lake County *(E. of Old Oak Lake)*	6/21/2014	60 kts.	0	0	$20,000
Wauconda	6/14/2017	50 kts. EG	0	0	$50,000
Antioch	6/28/2017	65 kts. EG	0	0	0.00K
Buffalo Grove	7/12/2017	50 kts. EG	0	0	0.00K
Waukegan	2/20/2018	55 kts. EG	0	0	0.00K
Waukegan Mem Apartments	7/1/2018	57 kts. MG	0	0	0.00K
North Barrington	9/25/2018	55 kts. EG	0	0	0.00K
Lake (zone)	2/24/2019	55 kts. MG	0	0	0.00K
Island lake	6/30/2019	50 kts. EG	0	0	0.00K
North Barrington	6/30/2019	55 kts. EG	0	0	0.00K
North Barrington	7/2/2019	50 kts. EG	0	0	0.00K
Antioch	9/11/2019	52 kts. EG	0	0	0.00K
North Barrington	9/13/2019	55 kts. EG	0	0	0.00K
Lake (zone)	11/27/2019	50 kts. EG	0	0	0.00K
Island Lake	6/9/2020	50 kts. EG	0	0	0.00K
Grayslake	6/26/2020	55 kts. EG	0	0	0.00K
Libertyville	7/9/2020	52 kts. EG	0	0	0.00K
Barrington	8/10/2020	60 kts. EG	0	0	0.00K
Round Lake Heights	8/10/2020	65 kts. EG	0	1	0.00K
Antioch	11/10/2020	60 kts. EG	0	0	0.00K
Lake (zone)	3/10/2021	50 kts. EG	0	0	0.00K
Lake (zone)	3/11/2021	52 kts. MG	0	0	0.00K
Antioch	4/29/2021	55 kts. MG	0	0	0.00K
Antioch	7/29/2021	50 kts. EG	0	0	0.00K
Lake Barrington	7/29/2021	55 kts. EG	0	0	0.00K
Buffalo Grove	8/10/2021	60 kts. EG	0	0	0.00K
Fox Lake	8/11/2021	60 kts. EG	0	0	0.00K
Williams Park	9/7/2021	60 kts. EG	0	0	0.00K
Vernon Hills	9/7/2021	55 kts. EG	0	0	0.00K
Highwood	9/7/2021	60 kts. EG	0	0	0.00K
Lake (zone)	12/15/2021	55 kts. MG	0	0	0.00K
(Ugn) Waukegan Airport	3/5/2022	54 kts. MG	0	0	0.00K
Lake (zone)	4/14/2022	55 kts. MG	0	0	0.00K
Prairie view	6/13/2022	50 kts. EG	0	0	0.00K
Antioch	6/15/2022	60 kts. EG	0	0	0.00K
Barrington Hills	7/4/2022	55 kts. EG	0	0	0.00K
Lake Bluff	7/21/2022	55 kts. EG	0	0	0.00K
Lakemoor	7/23/2022	60 kts. EG	0	0	0.00K
TOTAL PROPRETY DAMAGE COSTS:					**$696,000**

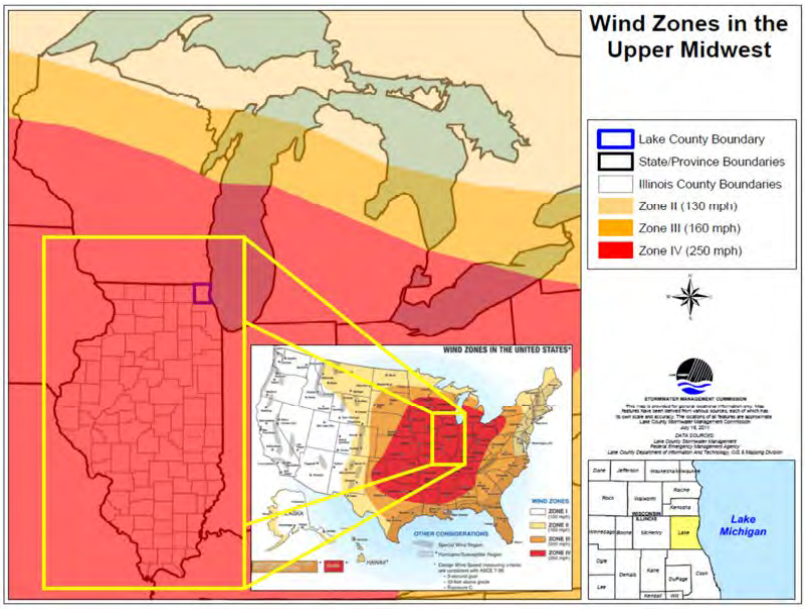
Exhibit 13: Lake County Hail over 0.75”



On April 19, 1996, a storm system moved into northern Lake County around 11:00 PM. These storms downed power lines and trees at Fox Lake, Chain O'Lakes, and West of Antioch. Multiple buildings in the County were damaged, including homes and barns. Twenty-six homes in Wadsworth were damaged, as well as multiple planes at the Waukegan Regional Airport. This storm led to two injuries, including a 5-year-old boy being taken to the hospital. The storm caused damages of $5,000,000 to properties. The July 2011 wind event is discussed in section 3.13 Summary of Natural Hazards Risk Assessment.

Reported high wind events strikes over the past 62 years provide an acceptable framework for determining the future occurrence in terms of frequency for such events. The probability of the County and its municipality experiencing a high wind event associated with damages or injury can be difficult to quantify, but based on historical record of 206 high wind events since 1960 that have either caused damages to buildings and infrastructure or resulted in an injury or death, it can reasonably be assumed that this type of event has occurred once every 0.30 years from 1960 through 2022 or a frequency of 4 months.

Figure 9: Upper Midwest Wind Zones



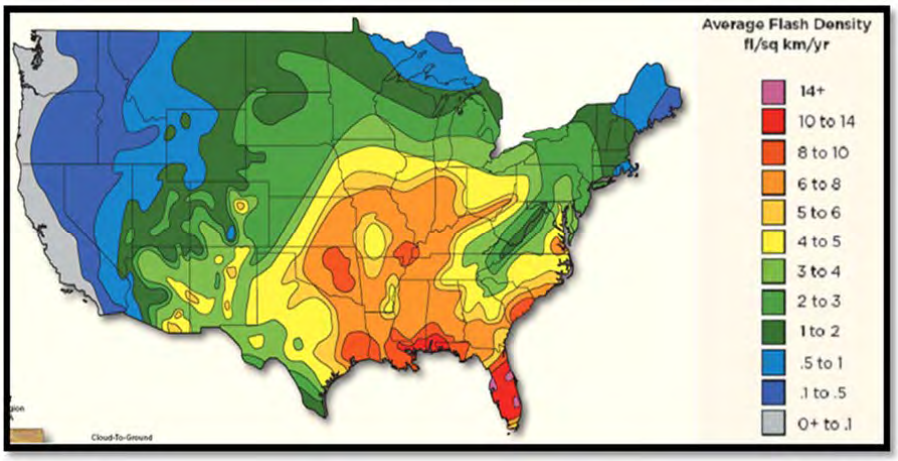
[(Current Year) 2022] subtracted by [(Historical Year) 1960] = 62 Years on Record

[(Years on Record) 62] divided by [(Number of Historical Events) 206 [severe wind events] = 0.30

Furthermore, the historic frequency calculates that there is a 100% chance of this type of event occurring each year.

Lightning: Except in cases where significant forest or range fires are ignited, lightning generally does not result in disasters. For the period of 1995 to 2011, NOAA reported one death, 3 injuries, and 18 damage reports in Lake County, as shown in Table 31. The property damage losses were primarily the result of lightning strikes to houses. The $500,000 loss in 1998 was the result of a strike to a home with a million-dollar value. The strike resulted in considerable damage to the roof and attic of the building. Lake County recorded lightning strikes are mapped in Figure 10.

Figure 10: Flash Density Associated with Lightning Strike



Source : www.lightningsafety.noaa.gov (NOAA)

Reported lightning strikes over the past 27 years provide an acceptable framework for determining the future occurrence in terms of frequency for such events. The probability of the County and its municipality experiencing a lightning strike associated with damages or injury can be difficult to quantify but based on historical record of 22 lightning strikes since 1995 that have either caused damages to buildings and infrastructure or resulted in an injury or death, it can reasonably be assumed that this type of event has occurred once every year 1.23 years) from 1995 through 2022.

[(Current Year) 2022] subtracted by [(Historical Year) 1995] = 27 Years on Record

[(Years on Record) 27] divided by [(Number of Historical Events) 22] = 1.23

Furthermore, the historic frequency calculates that there is a 100% chance of this type of event occurring each year.

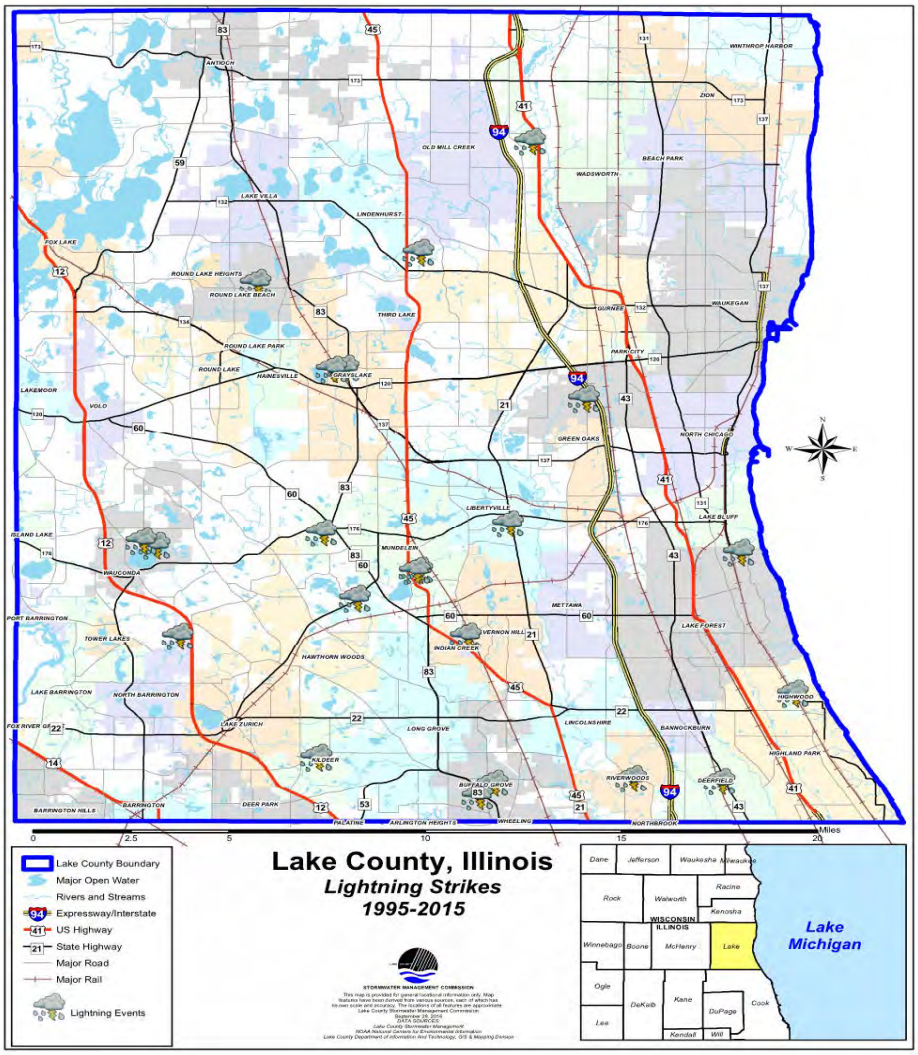
Table 31: Lightning Strikes in Lake County (1995-2022) (NCEI)

Location	Date	# Of Fatalities	# Of Injuries	Property Damages
Round Lake Beach	8/9/1995	0	1	$0
Highwood	8/9/1995	0	1	$5,000
Waukegan	5/28/1998	0	0	$500,000
Kildeer	9/11/2000	0	0	$100,000
Libertyville	9/22/2000	0	0	$25,000
Buffalo Grove	6/3/2002	1	1	$0
Riverwoods	7/7/2003	0	0	$0
Vernon Hills	5/30/2006	0	0	$75,000
Wadsworth	5/30/2006	0	0	$200,000
Grayslake	8/24/2006	0	0	$40,000
Buffalo Grove	8/24/2006	0	0	$200,000
Wauconda	4/25/2008	0	0	$15,000
Wauconda	4/25/2008	0	0	$25,000
Lake Villa	6/5/2008	0	0	$10,000
Diamond Lake	7/11/2008	0	0	$130,000
Mundelein	8/4/2008	0	0	$50,000
Ivanhoe	6/7/2009	0	0	$200,000
Deerfield	6/18/2010	0	0	$5,000
North Barrington	8/8/2010	0	0	$100,000
Mundelein	9/21/2010	0	0	$10,000
Wauconda	6/9/2011	0	0	$150,000
Grayslake	7/22/2011	0	1	$0
Forest Lake	9/19/2013	0	0	$25,000
Highland Park	8/28/2018	0	2	$0
Round Lake Hts.	9/20/2018	0	3	$0
	Total	**1**	**8**	**$1,865,000**

A **seiche** is a situation where lake water ahead of the storms is piled up along the downwind shore (e.g., Indiana and Michigan) and then sloshes back (e.g., to Illinois) and forth across the lake for several hours. Seiche events impact the greater Chicago area, along with Lake County, around once a year, according to Jim Alsopp, Warning Coordination Meteorologist, of the Chicago National Weather Service Office. This occurs when a line of severe thunderstorms with intense winds moves from NW to SE across the southern part of Lake Michigan. Because of the shape of the lake, the results are high waves which cause the lake level to rise rapidly. He said that they get a minor seiche about once per year where the water levels rise about 2 to 3 feet along the piers on Lake Michigan. In 1954, a 10-foot seiche wave caused eight deaths in Chicago and lakeshore damage along the Illinois Lake Michigan shoreline.

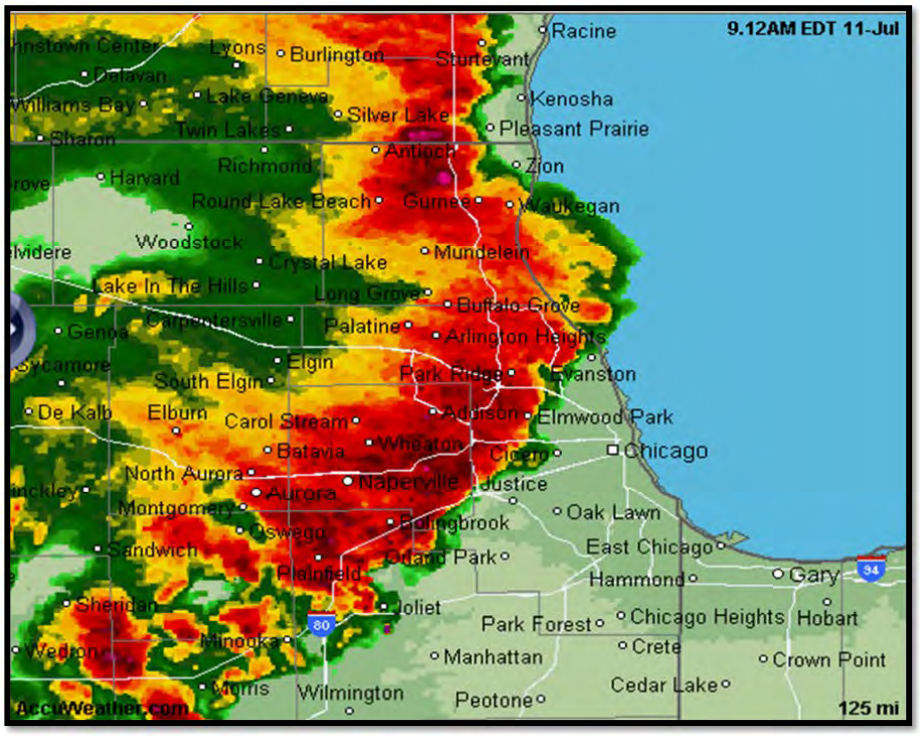
The most significant seiche event in the greater Chicago area occurred on June 26, 1954. On that date, a seiche formed because of a storm moving from NW to SE across Lake Michigan. This storm produced winds of up to 60 mph and caused a seiche to develop and strike the coast of Lake Michigan near Michigan City, Indiana. This seiche was then deflected by the shore and sent in a NW trajectory. It took more than an hour for that seiche to reach Chicago and created 10-foot waves. It struck the North Avenue Pier and swept fishermen into the lake. Most were rescued, however, eight drowned because of the incident. There have been no reported seiche events since the 2017 ANHMP update.

Exhibit 14: Lake County Lightning Events



In July 2011, Northern Illinois was impacted by a derecho (also known as a land hurricane). A derecho is a widespread, long-lived windstorm that is associated with a band of rapidly moving showers or thunderstorms. The storm radar is shown in Figure 11.

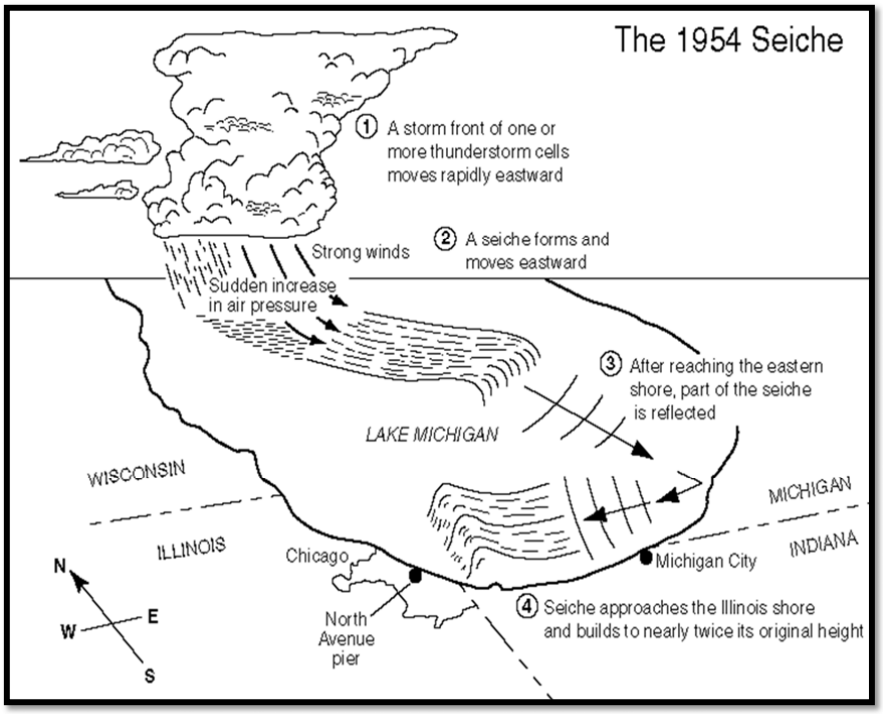
Figure 11: July 2011 Northern Illinois Derecho



Source: National Weather Service

This derecho, as it moved across Lake Michigan, produced recorded wind speeds exceeding 80 mph. These excessive winds forced water from the western side of Lake Michigan to the east. Once the derecho cleared and the winds subsided, the water began to rush back towards the west bank of Lake Michigan. As a result, a seiche warning was issued for the Chicago Lakefront up into Wisconsin. A 2-foot rise in the waters on the western edge of the Lake. Figure 12 shows a schematic diagram of a 1954 Lake Michigan seiche.

Figure 12: 1954 Lake Michigan Seiche



Source: Illinois State Geological Survey (ISGS)

3.5.2 Vulnerability–Severe Summer Storms Impact

Lake County is subject to severe "summer" storms throughout the year. Severe storms have the potential to cause flash flooding, tornadoes, downbursts, and debris. The severe storms profile in this section (3.5 Severe Summer Storms) is primarily concerned with damage from hail, high winds, lightning, and other storm affects.

All assets located in Lake County can be considered at risk from severe summer storms. This includes 714,342 people, or 100 percent of the county's population and all buildings and infrastructure within the county.

Health and Safety: Three deaths and 31 injuries have been attributed to severe storms in Lake County. The threat to life and safety is present with severe thunder, lighting and windstorms. Hail rarely causes loss of life. No special health problems are attributable to thunderstorms, other than the potential for tetanus and other diseases that arise from injuries and damaged property. Impact to health and safety for severe summer storms is considered **moderate**.

Damage to Buildings and Critical Infrastructure: Damage to roofs and siding and cars is frequently reported because of hail events. Depending on the hail size and wind severity,

damage to awnings, glass, and siding can also occur. Critical facilities tend to be as vulnerable to severe storm damage as residences.

The critical infrastructure typically of most concern during a severe storm is the electrical supply. Winds, lightning, falling branches and trees can damage substations, transformers, poles, and power lines.

Impact to buildings and critical facilities for severe summer storms is considered **moderate**.

Economic Impact: Communications can be disrupted by lightning. Signal disruptions due to lightning are common. In addition, communication lines, antennas, and towers can suffer damage from lightning and downed branches/trees. However, with the common occurrence of severe summer storms, recovery is relatively quick by utility companies. The economic impact of severe summer storms is considered **low**.

Multi-Jurisdictional Differences: Each municipality in the county has an equal susceptibility to severe storms and lightning. Predictability again causes a great problem when discussing the probability of damage from high wind events. Accurately predicting the time, location, and extent of damage by a thunderstorm or other severe weather events is difficult. However, thunderstorm events with high wind and dangerous lightning, are highly possible to occur across the county. These storms are prominent in the early spring and continue through late fall. If located in a densely populated area of the county, it is easy to estimate damages in the millions of dollars from these events.

Climate Change Considerations: Heavy summer precipitation is very likely to become more frequent and more intense with additional global warming.[3] Climate models consistently project environmental changes that would support an increase in the frequency and intensity of severe thunderstorms that combine tornadoes, hail, and winds (high confidence), but there is low confidence in the details of the projected increase.[4]

3.6 Severe Winter Storms

Lake County has been impacted by varying intensities of winter weather over the last century; however, the occurrence of severe winter weather in the county is relatively infrequent. Severe winter weather can cause hazardous driving conditions, communications and electrical power failure, community isolation and can adversely affect business continuity. This type of severe weather may include one or more of the following winter factors:

Lake County
Source: David Christensen

Blizzards, as defined by the National Weather Service, are a combination of sustained winds or frequent gusts of 35 mph or greater and visibilities of less than a quarter mile from falling or blowing snow for 3 hours or more. A blizzard, by definition, does not indicate heavy amounts of snow, although they can happen together. The falling or blowing snow usually creates large drifts from the intense winds. The reduced visibilities make travel, even on foot, particularly treacherous. The intense winds may also support dangerous wind chills. Ground blizzards can develop when intense winds lift snow off the ground and severely reduce visibilities.

Heavy snow in enormous quantities may fall during winter storms. Six inches or more in 12 hours or eight inches or more in 24 hours constitute conditions that may significantly hamper travel or create hazardous conditions. The National Weather Service issues warnings for such events. Smaller amounts can also make travel hazardous but result in minor inconveniences most often. Heavy, wet snow before leaf abscission in the autumn or after trees have leafed out in the spring can break tree branches and cause power outages.

Ice storms develop when a layer of warm (above freezing), moist air aloft coincides with a shallow cold (below freezing) pool of air at the surface. As snow falls into the warm layer of air, it melts to rain, and then freezes on contact when hitting the frozen ground or cold objects at the surface, creating a smooth layer of ice. This phenomenon is called freezing rain. Similarly, sleet occurs when the rain in the warm layer subsequently freezes into pellets while falling through a cold layer of air at or near the Earth's surface. Extended periods of freezing rain can lead to accumulations of ice on roadways, walkways, power lines, trees, and buildings. Almost any accumulation can make driving and walking hazardous. Thick accumulations can bring down trees and power lines.

3.6.1 Severe Winter Storm Hazard Profile

The science of meteorology and records of severe weather are not quite sophisticated enough to identify what areas of the county are at greater risk for damages. Therefore, all areas of the county are assumed to have the same winter weather risk countywide.

Severe winter weather can result in the closing of primary and secondary roads, particularly in rural locations, loss of utility services, and depletion of oil heating supplies. Environmental impacts often include damage to shrubbery and trees due to heavy snow loading, ice build-up, and/or high winds which can break limbs or even bring down large trees. Gradual melting of snow and ice provides excellent groundwater recharge; however, high temperatures following a heavy snowfall can cause rapid surface water runoff and severe flash flooding.

The State of Illinois has an extensive history of severe winter weather. In the winter of 2011, the state was hit by a series of winter storms. These storms included ice storms, followed by unseasonably warm temperatures and high rainfall totals, all of which resulted in extensive flooding and mudslides. This series of storms resulted in Presidential Declaration FEMA-DR-1960-IL. This declaration provided over eighty-four million dollars in recovery funds. These funds included Public Assistance and Hazard Mitigation Grant funds.

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

Winter weather is a common occurrence in Illinois throughout the winter and early spring months. According to the NCEI, there have been 65 winter events in Lake County since 1994 (Table 32). The potential severities of winter storms are often difficult to predict, but through identifying various indicators of weather systems, and tracking these indicators, it provides means of monitoring winter weather. Understanding the historical frequency, duration, and spatial extent of winter weather assists in determining the likelihood and potential severity of future occurrences.

Table 32: Severe Winter Storms in Lake County (1994-2022) (NCEI)

Event Type	Date	Event Type	Date
Winter Storm	12/6/1994	Winter Storm	12/19/2008
Heavy Snow	1/18/1995	Winter Storm	1/9/2009
Winter Storm	12/8/1995	Winter Storm	3/28/2009
Winter Storm	1/9/1997	Winter Storm	12/26/2009
Winter Storm	1/15/1997	Winter Storm	1/7/2010
Heavy Snow	11/14/1997	Winter Storm	2/9/2010
Heavy Snow	1/8/1998	Winter Storm	12/11/2010
Heavy Snow	3/9/1998	Winter Storm	1/31/2011
Heavy Snow	1/1/1999	Blizzard	2/1/2001
Heavy Snow	3/8/1999	Winter Storm	1/20/2012
Heavy Snow	2/8/2000	Winter Storm	2/23/2012
Blizzard	12/11/2000	Heavy Snow	2/7/2013
Winter Storm	1/31/2002	Heavy Snow	2/26/2013
Winter Storm	3/2/2002	Winter Storm	3/5/2013
Winter Storm	3/4/2003	Heavy Snow	2/4/2014
Heavy Snow	1/4/2005	Blizzard	2/1/2015
Winter Storm	1/20/2006	Heavy Snow	11/20/2015
Winter Storm	11/30/2006	Winter Storm	2/8/2018
Winter Storm	12/1/2006	Winter Storm	11/25/2018
Blizzard	2/13/2007	Winter Storm	1/18/2019
Blizzard	2/25/2007	Winter Storm	1/27/2019
Winter Storm	12/4/2007	Ice Storm	2/5/2019
Heavy Snow	12/15/2007	Ice Storm	2/11/2019
Heavy Snow	12/31/2007	Winter Storm	4/14/2019
Winter Storm	1/29/2008	Winter Storm	1/25/2021
Winter Storm	1/31/2008	Winter Storm	1/30/2021
Winter Storm	2/1/2008	Winter Storm	2/15/2021
Winter Storm	2/5/2008	Winter Storm	1/1/2022
Winter Storm	3/21/2008		

Heavy Snowstorms can immobilize a region and paralyze a city. These events can strand commuters, close airports, stop supplies from reaching their destinations and disrupt emergency and medical services. Accumulations of snow can cause roofs to collapse and knock down trees and power lines. Rural homes and farms may become isolated and unprotected livestock may be lost. The cost of snow removal, repairing damage, and the loss of business can have economic impacts on cities and towns.

Reported heavy snow events over the past 28 years provide an acceptable framework for determining the future occurrence in terms of frequency for such events. The probability of the County and its municipalities experiencing a winter storm event can be difficult to quantify but based on a historical record of 56 winter storm events since 1994, it can reasonably be assumed that this type of event has occurred once every 0.50 years from 1994 through 2022.

[(Current Year) 2022] subtracted by [(Historical Year) 1994] = 28 Years on Record
[(Years on Record) 28] divided by [(Number of Historical Events) 56] = 0.50

The historic frequency calculates that there is a 100% chance of a severe winter storm event occurring each year.

Ice accumulations can lead to downed trees, utility poles and communication towers. Ice can disrupt communications and power while utility companies repair severe damage. Even small accumulations of ice can be extremely dangerous to motorists and pedestrians. Bridges and overpasses are particularly dangerous because they freeze before other surfaces. An ice storm is a type of winter storm characterized by freezing rain. The US National Weather Service defines an ice storm as a storm which results in the accumulation of at least 0.25 inch of ice on exposed surfaces.

Five ice storms were recorded by the NCEI on January 26, 1997, December 1 and December 11, 2007, and on February 5 and 11, 2019. The December 1, 2007, event had $1,000 of recorded damage. The ice storms in 2019 led to tree limb and power line damage in some areas.

The probability of the county and its municipalities experiencing an ice event can be difficult to quantify but based on historical record of five ice events since 1994, it can reasonably be assumed that this type of event has occurred once every 5.6 years from 1950 through 2022.

[(Current Year) 2022] subtracted by [(Historical Year) 1994] = 28 Years on Record
[(Years on Record) 28] divided by [(Number of Historical Events) 5] = 5.6

The historic frequency calculates that there is a 18% chance of this type of event occurring each year, but it is recognized that ice storm conditions that may be coupled with snowstorm events may mean that the frequency may be greater than the data presents.

3.6.2 Vulnerability - Winter Storm Impact

All of Lake 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 a 48-hour period at least twice

a year. In Illinois, severe winter storm losses since 1950 average an estimated $102 million, annually. Severe weather storms can immobilize large areas with rural areas being particularly impacted by impassable roads.

Health and Safety: Health hazards related to walking and snow removal are frequent and life-threatening. Falls, particularly to the elderly, can result in severe injury including fractures, broken bones, and shattered hips. Middle-aged and older adults are susceptible to heart attacks from shoveling snow. An average of six deaths per year are attributable to winter storms in Illinois.

While vehicular accidents are often caused by the driver's lapse in judgment, the weather and its impact on roads are also a major factor. Blowing snow, ice and slush create slippery pavement making vehicle travel less safe during and immediately following winter storms. The injuries and deaths that occur when winter storms are present could be reduced through mitigation.

While most injuries caused by snow and ice storms result from vehicle accidents, about 25% of all winter storm injuries occur to people caught outside in a storm. Windchill magnifies the impact of cold temperatures by increasing the rate of heat loss and lowering body temperature at faster rates. Frostbite (damage to tissue) to hands, feet, ears, and nose, and hypothermia (lowering of body temperature below 95° F) are common winter storm injuries.

Impact to health and safety for severe winter storms is considered **moderate**.

Damage to Buildings and Critical Infrastructure: Information gathered from residents of Lake County indicates snow and ice accumulations on communication, power lines, and key roads pose the most frequent infrastructure problems. Accumulations on above-ground electrical lines often create power outages. These power outages vary from several hours to several days.

Dangerous driving conditions frequently occur during and shortly after severe winter storms. State and county roads in Lake County that experience repeated drifting result in road closures and greater susceptibility to accidents. When transportation is disrupted, schools close, emergency services are delayed, some businesses close, and some government services are delayed.

There is a financial cost to road departments. An average snowstorm is defined as requiring 12 hours of work each day for two days, consuming approximately 40 tons of road salts, and 600 gallons of fuel to maintain county roads in Lake County. Highway departments and road district budget for snow removal, but budgets can easily be exceeded.

Impact to buildings and critical facilities for severe winter storms is considered **moderate**.

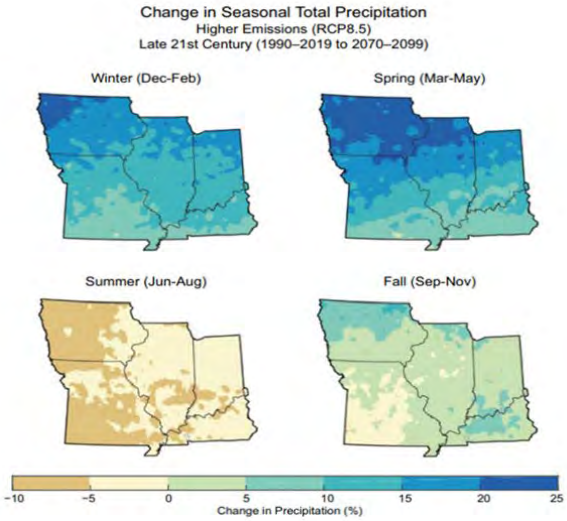
Economic Impact: Loss of power means businesses and manufacturing concerns must close. Loss of access due to snow or ice-covered roads has a similar effect. There are also impacts when people cannot get to work, to school, or to the store.

Economic impact for severe winter storms is considered **low**.

Multi-Jurisdictional Differences: Each municipality in the county has an equal susceptibility to severe winter storms and most storms impact the entire county and the northeastern Illinois region.

Climate Change Considerations: Climate change is expected to cause a shift to warmer winters, fewer snow days, and more winter rainfall. The number of freezing winter nights has decreased in Illinois. By the end of the 21st century, unprecedented warming of 4–9°F under the lower scenario and 8–14°F under the higher scenario is likely in Illinois. This is likely to be accompanied by a longer growing season, and less severe extreme cold.[5] For the end of the 21st century and the higher scenario, substantial increases in precipitation are projected for winter (+10% to +20%). By the end of the century, the statewide average winter precipitation is projected to change from 7–9 inches under the higher scenario (RCP8.5). The maps below show projected changes (%) in the seasonal total precipitation for late 21st century under a higher) scenario for the Midwestern United States for winter (upper left), spring (upper right), summer (lower left), and fall (lower right). All projected values are shown as changes compared with 1990–2019 averages.

Figure 13: Percentage of Change in Precipitation by Season



Sources: NCICS and The University of Edinburgh.

3.7 Drought

Drought is a normal part of virtually all climates, including areas with high and low average rainfall. It is caused by a deficiency of precipitation and can be aggravated by other factors such as hot temperatures, high winds, and low relative humidity.

Droughts can be grouped into meteorological, hydrologic, agricultural, and socioeconomic categories. Representative definitions commonly used to describe the types of droughts are summarized below:

> **Meteorological** drought is defined solely on the degrees of dryness, expressed as a departure of actual precipitation from an expected average or normal amount based on monthly, seasonal, or annual time scales.
>
> **Hydrologic** drought generally last longer than agricultural droughts, and result in below-average streamflow, depletion in reservoir storage, or shortages in groundwater supplies, which can cause severe impacts to water supplies. A hydrological drought usually only occurs if there has been below-normal precipitation for 6 or more months. It can last 1 to 2 years or even longer in rare cases.
>
> **Agricultural** drought is defined principally in terms of soil moisture deficiencies relative to water demands crops during the growing season.
>
> **Socioeconomic** drought associates the supply and demand of economic goods or services with elements of meteorological, hydrologic, and agricultural drought. Socioeconomic drought occurs when the demand for water exceeds the supply because of a weather-related supply shortfall. The incidence of this type of drought can increase because of a change in the amount of rainfall, a change in societal demands for water (or vulnerability to water shortages), or both.

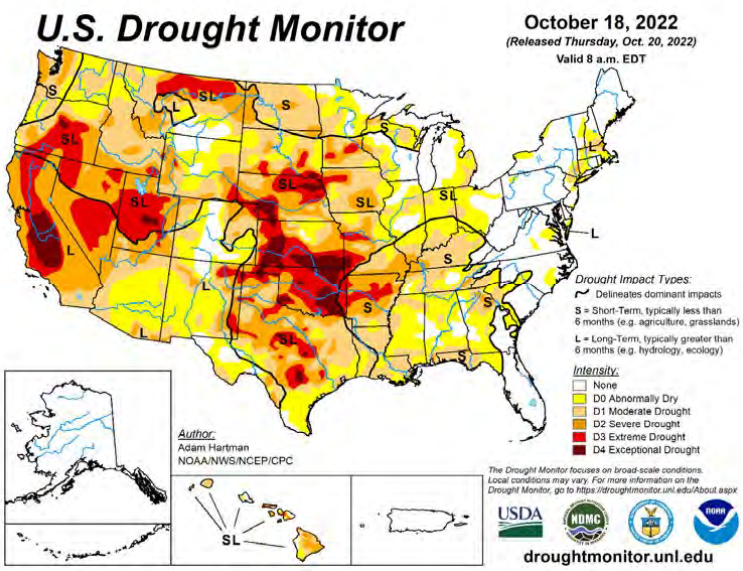
The Standardized Precipitation Index (SPI) is a drought index based on the probability of an observed precipitation deficit occurring over a given prior period. The assessment periods considered range from 1 to 36 months. The variable time scale allows the SPI to describe drought conditions important for a range of meteorological, agricultural, and hydrological applications. For example, soil moisture conditions respond to precipitation deficits occurring on a relatively brief time scale, whereas groundwater, streamflow, and reservoir storage respond to precipitation deficits arising over many months.

3.7.1 Drought Hazard Profile

There is no commonly accepted approach for assessing risk associated with droughts given the varying types and indices. Drought risk is based on a combination of the frequency, severity, and spatial extent (the physical nature of drought) and the degree to which a population or activity is vulnerable to the effects of drought. The degree of Lake County's vulnerability to drought depends on the environmental and social characteristics of the region and is measured by its ability to anticipate, cope with, resist, and recover from drought.

Mapping of the current drought status is published by US Drought Monitor, which is produced through a partnership between the National Drought Mitigation Center at the University of Nebraska-Lincoln, the United States Department of Agriculture, and the National Oceanic and Atmospheric Administration:

https://droughtmonitor.unl.edu/



Due to the nature of drought, it is extremely difficult to predict, but through identifying various indicators of drought, and tracking these indicators, it provides us with a crucial means of monitoring drought. Understanding the historical frequency, duration, and spatial extent of drought assists in determining the likelihood and potential severity of future droughts. The characteristics of past droughts provide benchmarks for projecting similar conditions into the future. The probability of Lake County and its municipalities experiencing a drought event can be difficult to quantify but based on historical record of 20 droughts since 2005, it can reasonably be assumed that this type of event has occurred once every .85 years from 2005 through 2022.

The Palmer Drought Severity Index (PDSI) was developed by Wayne Palmer in the 1960s and uses temperature and rainfall information in a formula to determine dryness. It has become the semi-official drought index. The Palmer Index is most effective in determining long term drought—a matter of several months—and is not as good with short-term forecasts (a matter of weeks). It uses a 0 as normal, and drought is shown in terms of minus numbers; for example, minus 2 is moderate drought, minus 3 is severe drought, and minus 4 is extreme drought. The index is shown below in Table 33.

Table 33: Drought Severity Classification

Drought Severity	Return Period (Years)	Description of Possible Impacts	DROUGHT MONITORING INDICES		
			Standardized Precipitation Index (SPI)	NDMC* Drought Category	Palmer Drought Index
Minor Drought	3 to 4	Going into drought; short-term dryness slowing growth of crops or pastures; fire risk above average. Coming out of drought; some lingering water deficits; pastures or crops not fully recovered.	-0.5 to -0.7	D0	-1.0 to -1.9

Table 33: Drought Severity Classification

Drought Severity	Return Period (Years)	Description of Possible Impacts	DROUGHT MONITORING INDICES		
			Standardized Precipitation Index (SPI)	NDMC* Drought Category	Palmer Drought Index
Moderate Drought	5 to 9	Some damage to crops or pastures; fire risk high; streams, reservoirs, or wells low, some water shortages developing, or imminent, voluntary water use restrictions requested.	-0.8 to -1.2	D1	-2.0 to -2.9
Severe Drought	10 to 17	Crop or pasture losses likely; fire risk very high; water shortages common; water restrictions imposed	-1.3 to -1.5	D2	-3.0 to -3.9
Extreme Drought	18 to 43	Major crop and pasture losses; extreme fire danger; widespread water shortages or restrictions	-1.6 to -1.9	D3	-4.0 to -4.9
Exceptional Drought	44 +	Exceptional and widespread crop and pasture losses; exceptional fire risk; shortages of water in reservoirs, streams, and wells creating water emergencies	Less than -2	D4	-5.0 or less

Source: National Drought Mitigation Center

The following summarizes the previous occurrences as well as the extent or severity of the drought events in Lake County:

Information obtained from the Illinois Emergency Management Agency shows three reported drought events in Lake County between 1983 and August 31, 2009. Comprehensive damage information was either unavailable or none was recorded for any of the events. Also, no drought-related injuries or deaths were reported. In 1983, all 102 Illinois counties were proclaimed state disaster areas because of hot temperatures and insufficient precipitation beginning in mid-June.

In 1988, approximately half of the counties in Illinois (including Lake County) were impacted by drought conditions, although none of the counties were proclaimed state disaster areas. Disaster relief payments exceeding $382 million were paid to landowners and farmers because of this drought.

In 2005, drought conditions impacted much of the state, including Lake County. Dry conditions reached a historic level of severity in some parts of Illinois and ranked as one of the three most severe droughts in Illinois based on 112 years of data. According to the NCEI this drought, listed from June 2005 to February 2006, had no significant property damage loss since 2005, and no significant damages to agriculture have occurred either.

From May 18, 2021, through March 1, 2022, there were an additional 11 reported events of drought through the (NCEI) database. During this time drought conditions ranged from severe to extreme throughout most of Lake County and northern Illinois. No significant property damage or loss of life occurred due to the drought conditions.

The chance of a drought occurring in any year is most likely less than 10 percent, but droughts can extend over multiple years. “Hotter summer temperatures will increase the severity of naturally occurring droughts and, with lengthier dry spells, increase the risk of flash droughts, which start and intensify rapidly.”

The National Oceanic and Atmospheric Administration Paleoclimatology Program studies drought by analyzing records from tree rings, lake and dune sediments, archaeological remains, historical documents, and other environmental indicators to obtain a broader picture of the frequency of droughts in the United States. According to their research, "…paleoclimatic data suggest that droughts as severe as the 1950's drought have occurred in central North America several times a century over the past 300-400 years, and thus we should expect (and plan for) similar droughts in the future. The paleoclimatic record also indicates that droughts of a much greater duration than any in the 20th century have occurred in parts of North America as recently as 500 years ago." Based on this research, the 1950's drought situation could be expected approximately once every 50 years or 20% chance every ten years. An extreme drought, worse than the 1930's "Dust Bowl," has an approximate probability of occurring once every 500 years or a 2% chance of occurring each decade. (NOAA, 2003). Although this data is outdated, it is the most recent that is easily A 500-year drought with a severity comparable to the 1930's that destroys the agricultural economy and can increase the likelihood of Earthquake/Seismic Activities is an example of an exceptional drought event.

Impacts to vegetation and wildlife can include death from dehydration and spread of invasive species or disease because of stressed conditions. Fire suppression has decreased the prevalence of the drought-tolerant tree species, such as oak, hickory, and pine, while increasing the abundance of species with higher moisture requirements, such as maples. This results in greater risk of declines in forest health and productivity as the frequency of drought conditions increases.[7]Environmental impacts are more likely at the interface of the human and natural world. The loss of crops or livestock due to drought can have far-reaching economic effects. Wind and water erosion can alter the visual landscape and dust can damage property. Water-based recreational resources are affected by drought conditions.

3.7.2 Vulnerability – Drought Impacts

Health and Safety: Drought events affect the entire county in any one of the four drought categories discussed above. The majority of Lake County and its municipalities use groundwater for drinking water. With the anticipated growth in the total county population, this will be a growing concern. The agricultural community will continue to be affected by droughts that are predicted to worsen under the increasing impacts of climate change. All communities in Lake County are subject to drought-related impacts. A drought, however, evolves slowly over time and the population typically has ample time to prepare for its effects. Should a drought impact the water available for public water systems or individual wells, the availability of clean drinking water could be compromised. This situation would require emergency actions and could possibly overwhelm the local government and financial resources.

Damage to Buildings and Critical Infrastructure: Drought had negligible impact on buildings. Possible losses/impacts to critical facilities include the loss of critical function due to low water supplies. Severe droughts can negatively affect drinking water supplies. Should a public water system be affected, the losses could total into the millions of dollars if outside water is shipped in. Private springs/wells could also dry up. Possible losses to infrastructure include the loss of potable water.

Economy Impact: The largest economic impact of drought is to agriculture. While livestock can be impacted, the greatest concern is for row crops and produce.

Multi-Jurisdictional Differences: Due to the nature of drought, all jurisdictions within Lake County are expected to be impacted equally due to drought conditions.

Climate Change Considerations: Over the last 120 years, mean precipitation has increased from 5 to 20%, varying across the state, and the number of 2-inch rain days in Illinois has increased by 40%, reflecting major regional changes in the hydrologic cycle. Over the same time period, extreme droughts have become less common. As average daily temperature in Illinois increase, hotter summer temperatures will increase the severity of naturally occurring droughts and, with lengthier dry spells, increase the risk of flash droughts, which start and intensify rapidly.

The agricultural community will continue to be affected by droughts that are predicted to worsen under the increasing impacts of climate change. Climate change may increase risks of inadequate surface water supply in drought conditions as surface water supply is often limited by low streamflow unless it is augmented by in-channel or off-channel storages. More intense summer droughts could result in lower water tables during peak pumping conditions in the summer, potentially reducing the sustainability of the groundwater resource used in water supply. As mentioned previously, most of Lake County relies on groundwater for drinking water.

Drought is likely to be a concern in Illinois in some years even if annual precipitation increases as projected due to the three following factors. First, increased temperatures will lead to more evaporation from soils (evapotranspiration) and potentially increase demand for irrigation due to drier soils. Secondly, summer precipitation is projected to decrease, especially by late century under the higher emission scenario. Lastly, there is strong evidence that the distribution of precipitation will change over time, with more heavy rain events and a possible increase in the maximum number of consecutive dry days.[6]

3.8 Earthquake

An earthquake is the motion or trembling of the ground produced by sudden displacement of rock usually within the upper 10–20 miles of the Earth's crust. Earthquakes can affect hundreds of thousands of square miles, cause damage to property measured in the tens of billions of dollars, result in loss of life and injury to hundreds of thousands of persons, and disrupt the social and economic functioning of the affected area. Most property damage and earthquake-related deaths are caused by the failure and collapse of structures due to ground shaking which is dependent upon amplitude and duration of the earthquake (FEMA, 1997).

The impact an earthquake event has on an area is typically measured in terms of earthquake intensity. Intensity is most commonly measured using the Modified Mercalli Intensity (MMI) Scale based on direct and indirect measurements of seismic effects. A detailed description of the Modified Mercalli Intensity Scale is shown in Table 34.

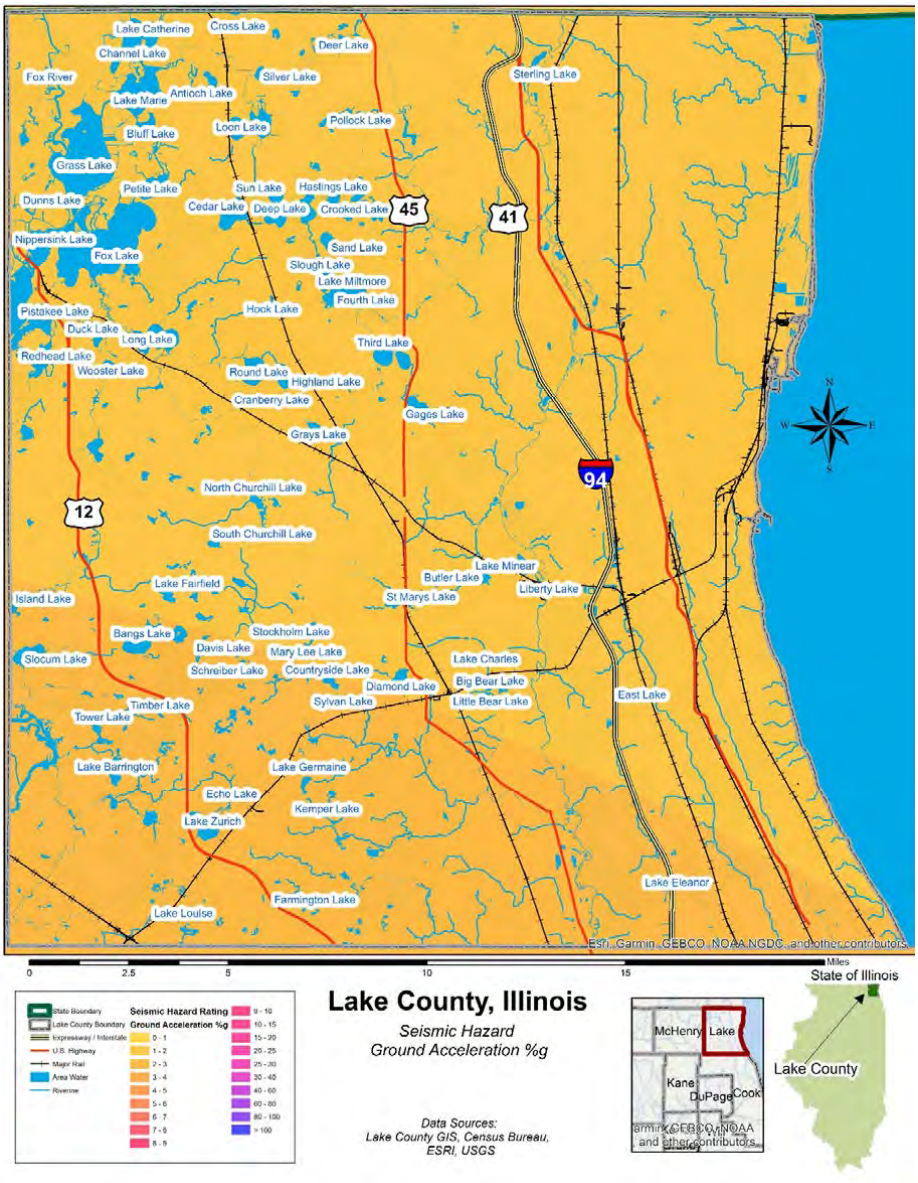
Table 34: Modified Mercalli Intensity

Scale	Intensity	Description of Effects	Corresponding Richter Scale Magnitude
I	Instrumental	Detected only on seismographs	<4.2
II	Feeble	Some people feel it	
III	Slight	Felt by people resting; like a truck rumbling by	
IV	Moderate	Felt by people walking	
V	Slightly Strong	Sleepers awake; church bells ring	<4.8
VI	Strong	Trees sway; suspended objects swing; objects fall off shelves	<5.4
VII	Very Strong	Mild alarm, walls crack, plaster falls	<6.1
VIII	Destructive	Moving cars uncontrollable, masonry fractures, poorly constructed buildings damaged	<6.9
IX	Ruinous	Some houses collapse, ground cracks, pipes break open	
X	Disastrous	Ground cracks profusely, many buildings destroyed, liquefaction and landslides widespread	<7.3
XI	Very Disastrous	Most buildings and bridges collapse, roads, railways, pipes and cables destroyed, general triggering of other hazards	<8.1
XII	Catastrophic	Destruction, trees fall, ground rises and falls in waves	>8.1

One way to express an earthquake's severity is to compare its acceleration to the normal acceleration due to gravity. Peak ground acceleration (PGA) measures the strength of ground movements in this manner. PGA represents the rate in change of motion of the earth's surface during an earthquake as a percent of the established rate of acceleration due to gravity. The lack of noticeable activity in Lake County can be partly attributed to the PGA. PGA is partly determined by what soils and bedrocks are present in the area.

In Lake County, the PGA is relatively low. Lake County is in the border area of eight (8) to six (6) PGA. This is interpreted as the area having the possibility of eight (8) percent to six (6) percent of gravities acceleration listed as 1g. These numbers would be denoted as 0.08g and 0.06g respectively. When the peak acceleration nears 0.1g, damage may be caused to poorly constructed buildings while acceleration nearing 0.2 would create loss of balance and greater damage to lesser quality structures.

Exhibit 15: Lake County Seismic Hazard Ground Acceleration Map



3.8.1 Earthquake Hazard Profile

Southern Illinois lies on the immediate boundary of the New Madrid fault, centrally located at New Madrid, Missouri. This fault has created significant activity over the last 200 years. The most intense activity occurred in the years 1811-1812. Two earthquakes estimated to be 7's on the Richter scale hit the New Madrid Fault. However, Lake County is located on the edge of the New Madrid fault area. According to the USGS-National Seismic Hazard Mapping Project (NSHMP), Lake County is predicted to have only a 2-3% chance of a magnitude 5.0 or greater earthquake over a 100-year period.

Illinois has recorded 364 earthquakes over the last two centuries. Most earthquakes have had epicenters in the Southern portion of the state and have not been felt in Lake County. Recent Earthquakes in Illinois are shown in Table 35.

An earthquake in northern Illinois occurred on February 10, 2010, at around 4:00 a.m. USGS recorded the earthquake as 3.8 in magnitude with the epicenter at Pingree Grove in Kane County and was felt in Lake County. Prior to that, a 5.2 earthquake on April 18, 2008, with epicenter in Wabash County, Illinois, was felt in Lake County. As shown in Figure 14 people in Lake County reported feeling the earthquake. People can report to USGS through their "Did You Feel It" website. USGS classified the Lake County reports from the April 2008 earthquake as "II" or weak. According to the USGS there have been no reports of earthquakes from 2017 to the current ANHMP update.

The future probability of earthquakes in Illinois is 100%, however the probability for a seismic event with the epicenter within Lake County is low. A large magnitude event in southern Illinois will be felt in Lake County, though the event would most likely cause limited structural damage in Lake County. Primarily historic and masonry buildings would be damaged.

Table 35: Recent Earthquakes in Illinois

Richter Scale	Date	Epicenter
5.0	May 10, 1987	Near Lawrenceville, IL
4.5	Sep. 28, 1989	15 miles south of Cairo, IL
4.7	Apr. 27, 1989	15 miles SW of Caruthersville, MO
4.6	Sep. 26, 1990	10 miles south of Cape Girardeau, MO
4.6	May 3, 1991	10 miles west of New Madrid, MO
4.2	Feb. 5, 1994	Lick Creek-Goreville Area
4.2	June 28, 2004	10 miles NNW of Ottawa, IL
5.2	April 18, 2008	Wabash County, Illinois
3.8	February 10, 2010	Pingree Grove, Kane County, IL
3.2	November 4, 2013	Summit, Cook County, IL
2.9	March 25, 2015	Lake in the Hills, McHenry County
3.4	May 29, 2015	Fairfield, Wayne County, IL

Sources: 2010 and 2013 Illinois Natural Hazard Mitigation Plan, and USGS

3.8.2 Vulnerability – Earthquake Impact

As mentioned previously, Lake County has peak acceleration much below that number, thus providing a buffer from most seismic activity. However, to the proximity to the New Madrid

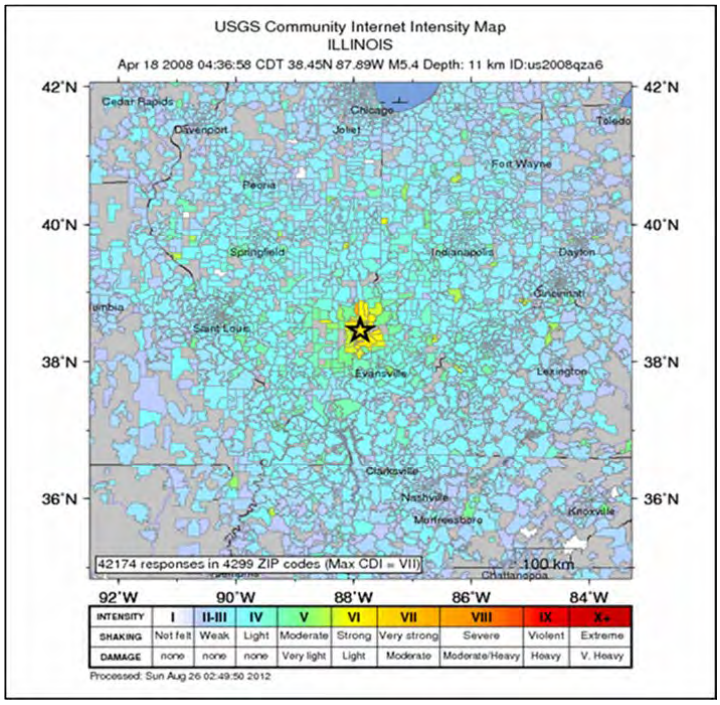
Fault Line, the State of Illinois could be subject to an earthquake with a magnitude of 7.0 or more. Northern Illinois has had earthquakes with magnitudes of four and five in the previous century. These events are infrequent, and thus, predicting the amount of damage would be difficult due to a lack of history of events with epicenters in Lake County. The most active seismic county in proximity to Lake is Cook County, with eight recorded events.

Health and Safety: Health and safety concerns due to earthquakes for the people of Lake County is low.

Damage to Buildings and Critical Infrastructure: As mentioned, historic and masonry buildings could be damaged by a large southern Illinois. Most other buildings, and especially those built under a building code, would have little or no damage. Some content damage can be expected if items fall from shelves.

Figure 14: "Did You Feel It" Reports for April 18, 2008, Earthquake

in Wabash County, Illinois



Economic Impacts: Potential for business loss due to earthquakes is low, however environmental impacts of earthquakes can be numerous, particularly if indirect impacts are considered. Some examples are shown below, but are unlikely to occur in Lake County:

- Induced tsunamis and flooding or landslides
- Poor water quality

- Damage to vegetation
- Breakage in sewage or toxic material containment
- Breakage of natural gas and other pipelines that serve Lake County
- Induced tsunamis and flooding or landslides
- Poor water quality
- Damage to vegetation
- Breakage in sewage or toxic material containment
- Breakage of natural gas and other pipelines that serve Lake County

Multi-Jurisdictional Differences: All Lake County jurisdictions can be impacted by earthquakes.

Climate Change Considerations: Although research on links between earthquakes and climate change is currently limited, some data suggest that drought (specifically extended ones that deplete rhizosphere soil moisture and/or groundwater loss/extraction) can influence earthquakes.[9]

3.9 Dam Failure

A dam is defined as a barrier constructed across a watercourse for storage, control, or diversion of water. Dams typically are constructed of earth, rock, concrete, or mine tailings. A dam failure is the collapse, breach, or other failure, often resulting in down-stream flooding.

A dam impounds water in the upstream area, referred to as the reservoir. The amount of water impounded is measured in acre-feet. An acre-foot is the volume of water that covers an acre of land to a depth of one foot. As a function of upstream topography, even a very small dam may impound or detain many acre-feet of water. Two factors influence the potential severity of a full or partial dam failure: the amount of water impounded, and the density, type, and value of development and infrastructure located downstream.

Dam failures typically occur when spillway capacity is inadequate and excess flow overtops the dam, or when internal erosion (piping) through the dam or foundation occurs. Complete failure occurs if internal erosion or overtopping results in a complete structural breach, releasing a high-velocity wall of debris-laden water that rushes downstream.
Dam failures can result from any one or a combination of the following causes:

- Prolonged periods of rainfall and flooding, which cause most failures
- Inadequate spillway capacity, resulting in excess overtopping flows
- Internal erosion caused by embankment or foundation leakage or piping
- Improper maintenance, including failure to remove trees, repair internal seepage problems, replace lost material from the cross section of the dam and abutments, or maintain gates, valves, and other operational components
- Improper design, including the use of improper construction materials and construction practices
- Negligent operation, including the failure to remove or open gates or valves during high flow periods
- Failure of upstream dams on the same waterway
- Landslides into reservoirs, which cause surges that result in overtopping
- High winds, which can cause significant wave action and result in substantial erosion

- Earthquakes, which typically cause longitudinal cracks at the tops of the embankments, which can weaken entire structures

Dam failure hazards are localized impacts and affect inundation areas downstream of the dam. Discharge from a dam breach is usually several times the 1% chance flood, called the probable maximum flood, and requires a dam breach analysis (hydraulic modeling study) to accurately estimate. Determining the impact of flooding due to dam failure is difficult to accomplish, especially for estimating loss of life. Loss of life is a function of the time of day, warning time, awareness of those affected and failure scenarios. Many dam safety agencies have used "population at risk," a more quantifiable measurement of the impact to human life, rather than "loss of life." Population at risk is the number of people in structures within the inundation area that would be subject to significant personal danger, if they took no action to evacuate. The impacts of a dam failure are contingent on many factors and, therefore, cannot be concisely described.

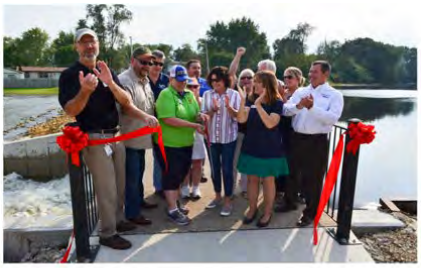
When they do occur, dam or levee failures can have a greater environmental impact than that associated with a flood event. Substantial amounts of sediment from erosion can alter the landscape changing the ecosystem. Hazardous materials can be carried away from flooded out properties and distributed throughout the floodplain. Industrial and agricultural chemicals and wastes, solid wastes, raw sewage, and common household chemicals comprise most of hazardous materials spread by flood waters along the flood zone, polluting the environment and contaminating private property and the community's water supply.

Dam owners or operators are responsible for creating an Emergency Action Plan (EAP) that includes suggestions for dam protection, and procedures to notify emergency management authorities to conduct Emergency Operation Plans (EOPs). According to FEMA, an EOP defines the scope of preparedness and emergency management activities for a specific jurisdiction. EOPs are the responsibility of the governing jurisdiction at the state and local levels. Pre-event planning that can include risk assessment, plan preparation, and public outreach are also important components for reducing dam failure risk and potential damage.

3.9.1 Dam Hazard Profile

Although no dam failures have been reported in Lake County, Grandwood Park Lake Dam was reported to have increased flooding issues starting in 2012 and being in danger of collapse in following years. The 2016 Mill Creek Watershed Plan determined a need for dam rehabilitation after analyzing the dam structure, embankment, and local impacts. LCSMC launched a dam rehabilitation project in 2018 in collaboration with partners including Grandwood Park and the Grandwood Park Park District. The project was successfully completed in 2019 and resulted in a reduced flood hazard.

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 mis-operation, should it occur. The hazard potential classification does not reflect in any way on the current condition of the dam (e.g., safety, structural integrity, flood routing capacity).



Ribbon cutting at Grandwood Park Lake Dam Grand Reopening on Sept 20, 2019.

State and federal classifications are the two primary dam hazard potential classification systems utilized in Lake County. Illinois dam classifications are defined under Ill. Admin. Code tit. 17, § 3702.30)., and used to permit construction, operation, and maintenance of dams 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 in one of three classes according to the degree of threat to life and property in the event of dam failure:

Class I: "dams that are located where failure has a high probability to cause 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 for 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, a 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 for 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 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 for 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 type areas where people are seldom present and where there are few structures." Similar to FEMA Low Hazard Potential.

Dams in Lake County are listed in Table 36. Not listed is the Stratton Lock and Dam in McHenry. A potential failure of the Stratton Dam at the Stratton Lock and Dam would have a significant impact on the Fox Chain O' Lakes in Lake County, but the condition of the dam and the locks are closely monitored by IDNR-OWR.

The Federal Emergency Management Agency (FEMA) categorizes dams "according to the degree of adverse incremental consequences of a failure or mis-operation 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**: dams where failure or mis-operation results in no probable loss of human life and low economic and/or environmental losses. Losses are principally limited to the owner's property.
2. **Significant Hazard Potential:** dams where failure or mis-operation 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**: dams where failure or mis-operation will probably cause loss of human life.

The location of all Lake County dams is mapped in Exhibit 16. An EAP is not required by the State of Illinois but is strongly recommended by the Illinois Department of Natural Resources. To find out if an EAP is in place, contact your State or emergency management agency, or visit the National Inventory of Dams website: http://nid.usace.army.mil

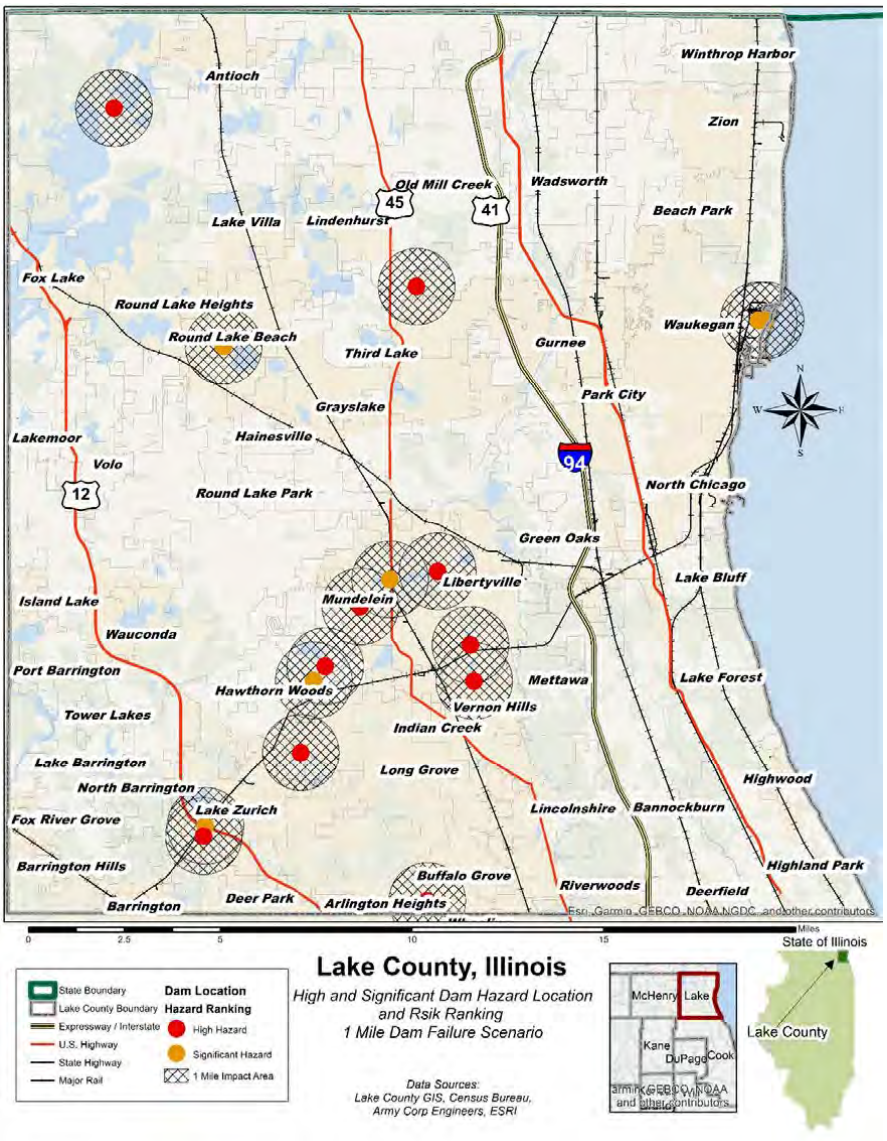
Table 36: State Dam Hazard Classifications for Lake County

Name of Dam	Stream	Hazard Potential	Class
Buffalo Creek	Buffalo Creek	High	I
Countryside Lake	Indian Creek	High	I
Forest Lake	Tributary to Indian Creek	High	I
Hawthorn Parkway	Seavey Drainage Ditch	High	I
Lake Charles	Seavey Drainage Ditch	High	I
St. Mary's Lake	Bull Creek	High	I
Tullamore	Seavey Drainage Ditch	High	I
Lancaster Court	Trib. Flint Creek	High	II
Coopers Farm Sediment Storage	Lake Marie - Off stream	High	N/A
Grandwood Lake	Mill Creek	High	N/A
Round Lake	Trib. Manitou Creek	Significant	II
Gray Hawk Center	Tributary of Flint Creek - Off stream	Significant	N/A
Loch Lomond	Bull Creek	Significant	N/A
Sylvan Lake	Trib. Indian Creek	Significant	N/A
Waukegan Station East Ash Pond	Trib. Lake Michigan	Significant	N/A
Waukegan Station West Ash Pond	Trib. Lake Michigan	Significant	N/A
Barclay Station Detention	Aptakisic Creek	Low	N/A
Countryside Landfill	Avon-Fremont Drainage Ditch	Low	N/A
Hawthorn Woods Country Club WWTP	Tributary of Indian Creek - Off stream	Low	N/A
Lake Amy	Cotton Creek-Off stream	Low	N/A
Lake Linden	Trib. Hastings Lake	Low	N/A
Lakeland Estates	Trib. Fox River	Low	N/A
Pond 2a	Trib. Fish Lake	Low	N/A
Rasmussen Lake	North Mill Creek	Low	N/A
Slocum Lake	Slocum Lake Ditch	Low	N/A
Timber Lake	Trib. Tower Lake	Low	N/A
Tower Lake	Trib. Fox River	Low	N/A
White Lake	Trib. Hastings Creek	Low	N/A
Lake Zurich Retail Center	No name	N/A	II

Table 37: Name of Dam and National Inventory of Dam (NID) ID

Name of Dam	Owner	City	Water Course	Type	Height (Ft)	Length (Ft)	Max Storage (AF)	Max Discharge (ft^3/s)
Waukegan Station East Ash Pond NID IL50696	Midwest Generation, LLC	Waukegan	Trib Lake Michigan	RE	20	N/A	120	N/A
Waukegan Station West Ash Pond NID IL50697	Midwest Generation, LLC	Waukegan	Trib Lake Michigan	RE	20	N/A	140	N/A
Round Lake NID IL00593	Village Of Round Lake Beach	Round Lake Beach	Trib Manitou Creek	RE	9	140	1484	187
Sylvan Lake NID IL00640	Sylvan Lake Homeowners Association	Long Grove	Trib Indian Creek	RE	15	120	207	N/A
Pond 2a NID IL55122	DRH Cambridge Homes	Volo	Trib Fish Lake	RE	8	180	125	395
Gray Hawk Center NID IL55044	Hamilton Partners, Inc.	Lake Zurich	Trib Flint Creek - Offstream	RE	8	450	19	N/A
Hawthorn Woods Country Club WWTP NID IL55113	Toll II WHCC Lp	Hawthorn Woods	Trib Indian Creek - Offstream	RE	17	1300	154	N/A
Loch Lomond ID IL00652	Loch Lomond POA	Mundelein	Bull Creek	RE	14	550	321	2823
Coopers Farm NID IL55139	IDNR	Antioch	Lake Marie - Offstream	RE	13	2500	6	N/A
Forest Lake NID IL00638	Ela Township Highway Dept.	Hawthorne Woods	Trib Indian Creek	RE	11	125	561	1684
Countryside Lake NID IL01001	Countryside Lake Association	Long Grove	Indian Creek	RE	9	165	934	1292
St. Mary's Lake NID IL00654	Archdiocese Of Chicago	Libertyville	Bull Creek	PG	12	389	966	320
Lake Charles NID IL01149	Village Of Vernon Hills	Vernon Hills	Seavey Drainage Ditch	CN	9	390	494	4800
Barclay Station Detention NID IL50192	PENOBSCOT	Vernon	Aptakisic Creek	Other	9	560	200	700
Tullamore NID IL50260	Mundelein Park & Recreation District	Mundelein	Seavey Drainage Ditch	RE	17	600	106	1000
Countryside Landfill NID IL55008	Waste Management	Grayslake	Avon-Fremont Drainage Ditch	RE	13	960	66	N/A
Hawthorn Parkway NID IL55031	Village Of Vernon Hills	Vernon Hills	Seavey Drainage Ditch	RE	9	200	910	N/A
Lancaster Court NID IL55174	Columbus Nova	Deer Park	Trib Flint Creek	RE	8	240	N/A	N/A
Grandwood Lake NID IL55177	Grandwood Park Park District	Grandwood Park	Mill Creek	RE	N/A	N/A	N/A	N/A
Tower Lake NID IL00630	Tower Lakes Improvement Association	Fox River Grove	Trib Fox River	RE	12	200	421	N/A
Lake Linden NID IL00646	Morton Engel	Lindenhurst	Trib Hastings Lake	RE	10	600	169	N/A
Slocum Lake NID IL50007	Williams Park Improvement Association	Wauconda	Slocum Lake Ditch	RE	8	30	900	185
Lake Amy NID IL00636	Oak Hollow Farm	Wauconda-Offstream	Cotton Creek-Offstream	RE	18	370	62	N/A
Rasmussen Lake NID IL01181	Lake County Forest Preserve District	Millburn-Offstream	North Mill Creek	RE	19	600	370	N/A
Timber Lake NID IL00632	Michael Graff	Tower Lake	Trib Tower Lake	RE	20	320	292	N/A
White Lake NID IL00644	Neumann Homes, Inc.	Hickory Corners-Offstream	Trib Hastings Creek	RE	11	650	217	N/A
Buffalo Creek NID IL50013	MWRD	Long Grove	Buffalo Creek	RE	27	620	1695	19684
Lakeland Estates NID IL00614	Tower Lakes Improvement Association	Tower Lake	Trib Fox River	RE	9	140	87	N/A

Exhibit 16: High and Significant Dam Hazard Locations



A dam can fail at any time, given the right circumstances. However, the probability of future occurrence is 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 for

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. Since dam failures are often exacerbated by flooding, the probability of dam failures can be associated with projected flood frequencies. Dam structures on the Des Plaines River can cause impairment to riverine natural dynamics, instream hydraulics, instream habitat and floodplain habitats. Lake County removed the last two dams on the Des Plaines River in Lake County in 2016.

3.9.2 Vulnerability – Dam Failure Impact

Dam-breach analyses and the mapping of potential dam breach inundation areas are the most appropriate means for examining the impact to people and to property. A vulnerability analysis for dam failure for the dams listed has not been conducted for the dams listed in due to insufficient data. Vulnerability analyses can be conducted as individual dam failure analyses and inundation mapping are completed. Exhibit 16 identifies significant and high hazard dams as well as a 1-mile buffer area around the identified dams. The intersect function was utilized within the ArcGIS ArcMap application to identify critical facilities that fall within a 1-mile radius of these areas. This methodology was developed to provide a baseline of areas of potential concern due to data limitations related to available inundation mapping. Based on the analyses performed, 291 critical facilities fall within the 1-mile buffer areas throughout Lake County. A full listing of these assets is included in Appendix B.

Jurisdiction	Severe Winter Storm	Tornado	Severe Summer Storm	Extreme Heat	Flood	Drought	Groundwater Flood	Earthquake	Erosion	Dam Failure	Seiche	Power Outage
Antioch	H	H	H	M	H	L	VL	L	VL	L	VL	H
Bannockburn	H	M	H	H	M	L	H	L	L	VL	VL	H
Barrington	H	H	H	L	M	M	L	L	VL	VL	VL	M
Barrington Hills	H	H	H	H	H	M	H	L	L	M	L	H
Beach Park	H	H	H	M	L	M	M	H	M	VL	L	H
Buffalo Grove	H	H	H	H	M	M	VL	L	M	L	M	H
Deer Park,	H	H	H	H	M	M	M	M	M	M	L	H
Deerfield	M	M	M	M	M	M	VL	VL	M	VL	VL	M
Fox Lake	H	H	H	H	H	H	H	H	M	M	L	H
Fox River Grove	VL	VL	VL	VL	VL	VL	VL	VL	VL	VL	VL	VL
Grayslake	L	M	M	L	M	L	L	VL	VL	VL	VL	L
Green Oaks	H	M	H	M	M	L	L	VL	VL	VL	VL	L
Gurnee	H	H	H	H	H	H	H	L	M	VL	VL	H
Hainesville	H	H	H	H	H	H	H	M	L	L	VL	H
Hawthorn Woods	H	H	H	M	L	L	M	L	VL	VL	VL	L

Jurisdiction	Severe Winter Storm	Tornado	Severe Summer Storm	Extreme Heat	Flood	Drought	Groundwater Flood	Earthquake	Erosion	Dam Failure	Seiche	Power Outage
Highland Park	H	H	H	H	H	M	M	M	H	VL	L	H
Highwood	H	H	H	H	H	H	M	H	L	L	L	H
Indian Creek	H	H	H	M	M	L	L	L	L	VL	VL	M
Island Lake	H	M	M	H	H	L	H	VL	VL	VL	VL	L
Kildeer	H	H	M	M	M	M	M	H	M	VL	VL	H
Lake Barrington	H	L	H	H	M	L	M	L	H	M	M	H
Lake Bluff	H	M	H	M	M	VL	VL	L	H	VL	L	M
Lake County	H	H	H	H	H	M	H	L	L	M	L	H
Lake Forest	H	L	H	H	H	M	M	VL	M	VL	L	H
Lake Villa	H	H	H	H	H	H	H	M	L	VL	VL	H
Lake Zurich	H	H	M	M	M	L	M	VL	L	L	VL	L
Lakemoor	H	H	H	H	H	H	M	M	L	VL	L	H
Libertyville	L	M	M	M	M	M	L	L	L	L	VL	M
Lincolnshire	H	M	H	L	H	L	L	VL	M	L	L	H
Lindenhurst	H	H	M	M	M	L	M	L	L	VL	H	H
Long Grove	M	M	M	M	M	L	M	M	M	VL	L	M
Mettawa	M	M	H	H	M	M	H	H	VL	VL	VL	M
Mundelein	H	L	H	H	M	L	M	L	H	M	M	H
North Barrington	H	H	H	L	M	M	L	L	VL	VL	VL	M
North Chicago	H	L	H	H	H	L	L	VL	L	VL	VL	H
Park City	H	H	H	H	H	H	VL	VL	M	VL	VL	M
Port Barrington	H	H	H	H	H	H	H	M	M	M	L	H
Riverwoods	M	M	M	M	M	L	M	L	M	VL	L	M
Round Lake	H	H	H	H	M	M	M	H	M	VL	VL	H
Round Lake Beach	H	M	H	M	H	M	H	L	H	L	M	H
Round Lake Heights	H	H	H	H	H	M	M	M	M	VL	VL	H
Round Lake Park	H	H	H	H	H	H	H	M	H	L	VL	H
Third Lake	M	M	H	M	M	M	VL	VL	H	M	VL	H
Tower Lake	M	M	M	M	M	M	M	L	M	L	L	H
Vernon Hills	H	H	H	M	L	L	L	VL	L	VL	VL	M
Volo	H	H	M	M	M	VL	VL	M	VL	VL	VL	M
Wadsworth	M	M	H	H	M	M	H	H	VL	VL	VL	M
Wauconda	H	M	H	H	M	M	M	L	M	VL	VL	H
Waukegan	H	M	H	H	M	M	M	L	M	VL	VL	H
Winthrop Harbor	M	H	H	H	H	H	M	H	H	M	VL	H
Zion	H	L	H	H	H	M	H	M	H	VL	VL	H

Appendix B.

Multi-Jurisdictional Differences: Most Lake County communities have a dam located within their jurisdiction, as shown in Exhibit 16. Nine of the eleven Class I and II dams listed in Table 36 are in the Des Plaines River Watershed (Buffalo Creek, Bull Creek, Indian Creek, and Seavey Drainage Ditch). The other two dams (Class II) are within the Fox River Watershed (Manitou Creek and unnamed).

Climate Change Considerations: Increases in rainfall may outpace dam capacities depending on their maximum storage. See

Name of Dam	Stream	Hazard Potential	Class
Buffalo Creek	Buffalo Creek	High	I
Countryside Lake	Indian Creek	High	I
Forest Lake	Tributary to Indian Creek	High	I
Hawthorn Parkway	Seavey Drainage Ditch	High	I
Lake Charles	Seavey Drainage Ditch	High	I
St. Mary's Lake	Bull Creek	High	I
Tullamore	Seavey Drainage Ditch	High	I
Lancaster Court	Trib. Flint Creek	High	II
Coopers Farm Sediment Storage	Lake Marie - Off stream	High	N/A
Grandwood Lake	Mill Creek	High	N/A
Round Lake	Trib. Manitou Creek	Significant	II
Gray Hawk Center	Tributary of Flint Creek - Off stream	Significant	N/A
Loch Lomond	Bull Creek	Significant	N/A
Sylvan Lake	Trib. Indian Creek	Significant	N/A
Waukegan Station East Ash Pond	Trib. Lake Michigan	Significant	N/A
Waukegan Station West Ash Pond	Trib. Lake Michigan	Significant	N/A
Barclay Station Detention	Aptakisic Creek	Low	N/A
Countryside Landfill	Avon-Fremont Drainage Ditch	Low	N/A
Hawthorn Woods Country Club WWTP	Tributary of Indian Creek - Off stream	Low	N/A
Lake Amy	Cotton Creek-Off stream	Low	N/A
Lake Linden	Trib. Hastings Lake	Low	N/A
Lakeland Estates	Trib. Fox River	Low	N/A
Pond 2a	Trib. Fish Lake	Low	N/A
Rasmussen Lake	North Mill Creek	Low	N/A
Slocum Lake	Slocum Lake Ditch	Low	N/A
Timber Lake	Trib. Tower Lake	Low	N/A
Tower Lake	Trib. Fox River	Low	N/A
White Lake	Trib. Hastings Creek	Low	N/A
Lake Zurich Retail Center	No name	N/A	II

Table 37 to reference dam storage capacity.

3.10 Temperature Extremes

Extreme temperatures can be dangerous due to the way that they affect individuals who are exposed to them. Extreme heat is usually defined through a combination of temperature and humidity. Extreme cold is based on the temperature with wind chill. The recorded extreme heat events have occurred from June through September. Recorded extreme cold events in Northern Illinois have occurred from December through February. Extreme temperatures can be dangerous to people and crops.

Extreme heat is characterized by temperatures that hover 10 degrees or more above the average high temperature of a region for several days to several weeks. In comparison, a heat wave is generally defined as a period of at least three consecutive days above 90°F. Extreme heat is the number one weather-related killer in the United States. It causes more fatalities each year than floods, lightning, tornadoes, and hurricanes combined.

Table 38: Relationship between Heat Index & Heat Disorders

Heat Index (°F)	Heat Disorders
80°F – 90°F	Fatigue is possible with prolonged exposure and/or physical activity.
90°F – 105°F	Heat cramps, heat exhaustion and heat stroke possible with prolonged exposure and/or physical activity.
105°F – 130°F	Heat cramps, heat exhaustion and heat stroke likely; heat stroke possible with prolonged exposure and/or physical activity.
130°F or Higher	Heat stroke highly likely with continued exposure.

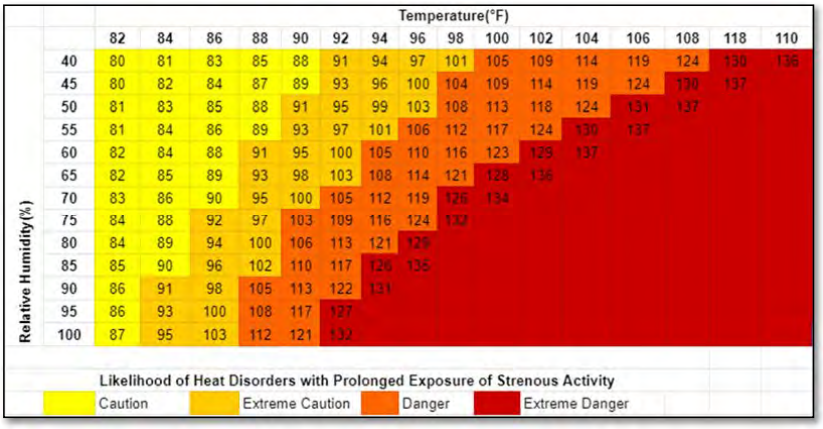
Source: NOAA

In the Midwest, summers tend to combine both high temperature and high humidity. Heat disorders generally have to do with a reduction or collapse of the human body's ability to shed heat due to circulatory changes or a chemical (salt) imbalance caused by too much sweating. When the body heats too quickly to cool itself safely, or when too much fluid is lost through dehydration or sweating, the body temperature rises, and heat-related illnesses may develop. The heat index, or apparent temperature, is what the temperature feels like to the human body when relative humidity is combined with air temperature. When relative humidity is high, the rate of sweat evaporation decreases and increases the apparent temperature. A high heat index increases the risk for heat disorders. shows heat index levels depending on the humidity and temperature.

The most significant extreme heat event recorded by the NCEI in the area occurred in 1995. According to NOAA, an intense heat wave affected northern Illinois from Wednesday, July 12 through Sunday, July 16, 1995. The 1995 heat wave tied or broke several temperature records at Rockford and Chicago. But what set this heat wave apart from others was the extremely high humidity. Dew point temperatures peaked in the lower 80s late Wednesday the 12th and Thursday the 13th and were generally in the middle and upper 70s through the rest of the hot spell. The combined and cumulative effects of several days of high temperatures, high humidity, intense July sunshine (100% possible sunshine recorded at O'Hare Airport in Chicago July 13) and light winds took their toll. 583 people died because of the heat in Chicago and surrounding areas. Lake County recorded 1 death in Ingleside because of this heat wave.

Since 2017 the NCEI has reported 2 events of heat and excessive heat. In July 2017, peak afternoon heat indices were between 110 to 115 degrees. A notable heat wave persisted from June 13 to June 16 in 2022, with highs in the 90s each day. No injuries or deaths were attributed to the events.

Figure 15 NOAA's National Weather Service Heat Index



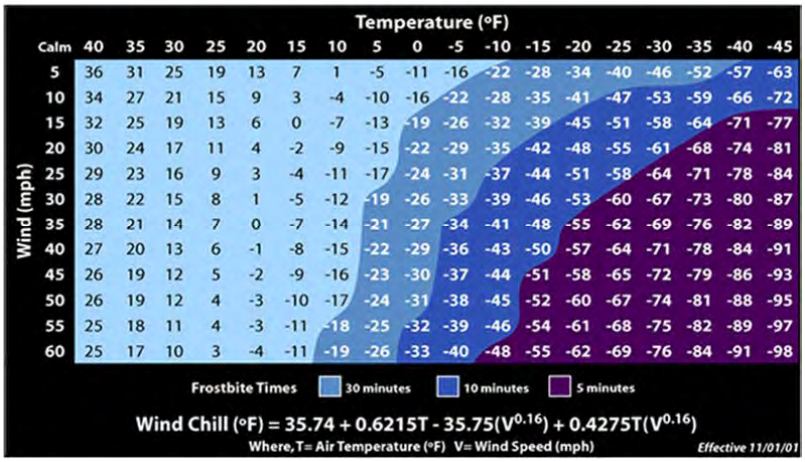
Relative Humidity(%)	82	84	86	88	90	92	94	96	98	100	102	104	106	108	118	110
40	80	81	83	85	88	91	94	97	101	105	109	114	119	124	130	136
45	80	82	84	87	89	93	96	100	104	109	114	119	124	130	137	
50	81	83	85	88	91	95	99	103	108	113	118	124	131	137		
55	81	84	86	89	93	97	101	106	112	117	124	130	137			
60	82	84	88	91	95	100	105	110	116	123	129	137				
65	82	85	89	93	98	103	108	114	121	128	136					
70	83	86	90	95	100	105	112	119	126	134						
75	84	88	92	97	103	109	116	124	132							
80	84	89	94	100	106	113	121	129								
85	85	90	96	102	110	117	126	135								
90	86	91	98	105	113	122	131									
95	86	93	100	108	117	127										
100	87	95	103	112	121	132										

Extreme Cold: The term "extreme cold" can have varying definitions in hazard identification. Generally, extreme cold events refer to a prolonged period (days) with extremely cold temperatures. An extreme cold event to the National Weather Service can refer to a single day of extreme or record-breaking day of sub-zero temperatures. Extended or single day extreme cold events can be hazardous to people and animals, and cause problems with buildings and transportation. An extreme cold event occurred on January 29, 2019, that lasted approximately two days. The coldest temperature in Chicago in 34 years was recorded during the 2019 event, and highs on January 30 were only in the negative double digits.

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

Exposure to extreme wind chills can be life threatening. The NOAA's chart below shows the Wind Chill Index as it corresponds to various temperatures and wind speeds. As an example, if the air temperature is 5°F and the wind speed is 10 miles per hour, then the wind chill would be -10°F. As wind chills approach -19°F and below, there is an increased likelihood that continued exposure will lead to individuals developing cold-related illnesses.

Figure 16: Wind Chill Chart



Frostbite and hypothermia are both extreme cold-related illnesses that result when individuals are exposed to extreme temperatures and wind chills, in many cases, because of severe winter storms. The following describes the symptoms associated with each.

Frostbite. During exposure to extremely cold weather the body reduces circulation to the extremities (i.e., feet, hands, nose, cheeks, ears, etc.) to maintain its core temperature. If the extremities are exposed, then this reduction in circulation coupled with the cold temperatures can cause the tissue to freeze. Frostbite is characterized by a loss of feeling and a white or pale appearance. At a wind chill of -19°F, exposed skin can freeze in as little as 30 minutes. See medical attention immediately if frostbite is suspected. It can permanently damage tissue and in severe cases can lead to amputation.

Hypothermia. Hypothermia occurs when the body begins to lose heat faster than it can produce it. As a result, the body's temperature begins to fall. If an individual's body temperature falls below 95°F, then hypothermia has set in, and immediate medical attention should be sought. Hypothermia is characterized by uncontrollable shivering, memory loss, disorientation, incoherence, slurred speech, drowsiness, and exhaustion. Left untreated, hypothermia will lead to death. Hypothermia occurs most commonly at very cold temperatures but can occur at cool temperatures (above 40°F) if an individual is not properly clothed or becomes chilled.

Extreme cold is also responsible for several fatalities each year. Threats, such as hypothermia and frostbite, can lead to loss of fingers and toes or cause permanent kidney, pancreas, and liver injury and even death. Major winter storms can last for several days and be accompanied by high winds, freezing rain or sleet, heavy snowfall, and cold temperatures. Fifty percent of cold-related injuries happen to people over sixty years of age. More than seventy-five percent happen to males, and almost twenty percent occur within the home.

Extreme cold, in extended periods, although infrequent, could occur throughout the winter months in Lake County. Heating systems compensate for the cold outside. Most people limit their time outside during extreme cold conditions, but common complaints usually include pipes freezing and cars refusing to start. When cold temperatures and wind combine, dangerous wind chills can develop.

Table 39: Cold Weather Threat Levels

Excessive Cold Threat Level	Threat Level Descriptions
Extreme	**"An extreme threat to life and property from excessive cold."** It is likely that wind chill values will drop to -35F or below for 3 hours or more. Or, lowest air temperatures less than or equal to -20F
High	**"A high threat to life and property from excessive cold."** It is likely that wind chill values will drop to -28F to -35F for 3 hours or more. Or, lowest air temperature -15F to -20F.
Moderate	**"A moderate threat to life and property from excessive cold."** It is likely that wind chill values will drop to -20F to -28F or below for 3 hours or more. Or, lowest air temperature -10F to -15F.
Low	**"A low threat to life and property from excessive cold."** It is likely that wind chill values will drop to -15F to -20F or below for 3 hours or more. Or, lowest air temperature -5F to -10F.
Very Low	**"A very low threat to life and property from excessive cold."** It is likely that wind chill values will drop to -10F to -15F or below for 3 hours or more. Or, lowest air temperature zero to -5F.
Non-Threatening	**"No discernable threat to life and property from excessive cold."** Cold season weather conditions are non-threatening.

3.10.1 Extreme Temperature Hazard Profile

Table 40 shows the past extreme heat events in northeastern Illinois. 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 12 to July 16. The high of 106°F (41°C) on July 13 was the second warmest July temperature (warmest being 110°F (43°C) set on July 23,1934) since records began at Chicago Midway International Airport in 1928. Nighttime low temperatures were unusually high; in the upper 70s and lower 80s°F (about 26°C) as well. Record humidity levels also accompanied the hot weather. The heat index reached 119°F (48°C) at O'Hare airport, and 125°F (52°C) at Midway Airport.

Table 40: Extreme Heat Events in Lake County (1995-2022)

Location	Date	# of Fatalities	# of 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
Lake County	July 19, 2019	0	0
Lake County	June 14, 2022	0	0
TOTALS		**695**	**0**

No damage was reported with the recorded extreme heat events. Reported high heat events over the past 16 years provide an acceptable framework for determining the future occurrence in terms of frequency for such events. The probability of the county and its municipalities experiencing a high heat event can be difficult to quantify but based on a historical record of 4 heat events since 1995, it can reasonably be assumed that this type of event has occurred once every 6.75 years from 1995 through 2022.

[(Current Year) 2022] subtracted by [(Historical Year) 1995] = 27 Years on Record

[(Years on Record) 27] divided by [(Number of Historical Events) 4] = 6.75

The historic frequency calculates that there is an 18% chance of an extreme heat event occurring each year.

Extreme Cold: Table 41 shows the recorded extreme cold events for northeastern Illinois.

Reported extreme cold events over the past 21 years provide a framework for determining the future occurrence in terms of frequency for such events. The probability of the county and its municipalities experiencing an extreme cold event can be difficult to quantify but based on a historical record of 12 extreme cold events occurring since 1996, it can be estimated that this type of event has occurred once every 1.75 years from 1996 through 2022.

Table 41: Extreme Cold Events in Lake County (1996-2022)

Location	Date	# of Fatalities	# of Injuries
Northeast Illinois	2/2/1996	3	0
Northeast Illinois	1/23/2003	1	0
Northeast Illinois	1/29/2004	0	0
Northeast Illinois	2/18/2006	1	0
Northeast Illinois	2/3/2007	0	0
Northeast Illinois	2/10/2008	0	0
Northeast Illinois	12/21/2008	0	0
Northeast Illinois	1/15/2009	0	0
Northeast Illinois	1/06/2014	0	0
Lake County	01/29/2019	0	0
Lake County	02/14/2021	0	0
Lake County	01/26/2022	0	0
TOTALS		5	0

[(Current Year) 2022] subtracted by [(Historical Year) 1996] = 26 Years on Record

[(Years on Record) 26] divided by [(Number of Historical Events) 12] = 2.17

The historic frequency calculates that there is a 46% chance of an extreme cold event occurring each year.

3.10.2 Vulnerability – Extreme Temperature Impact

In Illinois, vulnerability to extreme heat has primarily impacted the elderly and persons with pre-existing health problems who live in high-rise buildings or other housing with inadequate ventilation or cooling systems. Since these housing conditions are not prevalent in Lake County, extreme heat is considered a lower priority hazard. If land-use changes elevate the risk from extreme heat, a vulnerability analysis can be conducted when this Plan is updated. Extreme cold can affect all ages.

Health and Safety: Lake County, like most areas of the Midwest, is very vulnerable to extreme heat. Urban areas are exposed more acutely to the dangers of extreme heat due to heat being retained in asphalt and concrete and being released at night. This effect brings little relief to the area even in the nighttime. People are at risk for heat stroke or sun stroke, heat exhaustion, and

dehydration. Children and the elderly are most at risk. Loss of life is common with extreme heat events.

Loss of life is also common with extreme cold events. Safety is also a large concern during extreme cold events, and numerous injuries can occur, including frostbite and other accidents. Therefore, the impact on people due to extreme heat and extreme cold is **high**.

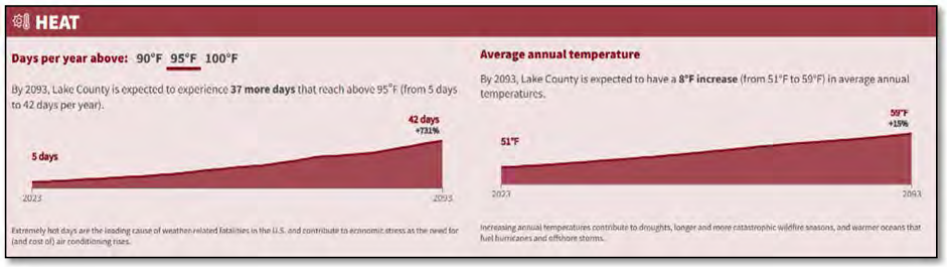
Damage to Buildings: Heat has little or no impact on structures. Extreme cold can cause water pipes to burst, but there is limited other damage. Impact on buildings is **low**.

Damage to Critical Facilities: Extreme heat can have an impact on the demand on electric utilities, otherwise the impact to critical facilities due to extreme heat is **low**. Extreme cold can have an impact on community-owned water mains that can burst.

Economic Impact: Economic impact of extreme heat and extreme cold is **low**.

Multi-Jurisdictional Differences: All of Lake County is at risk with extreme temperatures.

Climate Change Considerations: The frequency intensity of extreme heat events is increasing in Illinois due to climate change. By the end of the century, the annual hottest 5-day maximum temperature in northern Illinois is projected to increase from 92°F to a range of 96–104°F under the lower scenario and 100–110°F under the higher scenario (RCP8.5).[2] According to data provided by Neighborhoods At Risk, Lake County could experience an average annual temperature increase of 8 degrees and experience an additional 37 days that reach above 95 degrees.



3.11 Soil Erosion - Shoreline, Coastal and Ravine

Erosion is a natural process. Streams, riverbanks, and lake shorelines in their natural state erode slowly, and then often re-stabilize with vegetative growth. Changes in shorelines due to development, changed or removed vegetation, or higher frequencies of flooding destabilize shorelines and accelerate erosion. Erosion can be destructive to property and put structures at risk. Lake County is affected by three types of erosion: shoreline, coastal, and ravine.

> *"Erosion may be the result of naturally occurring inputs, such as precipitation, or human intervention in the form of urban development, forestry, mining, flow diversions, flood regulation, navigation, and other activities. The basic premise is that streams are constantly attempting to attain a state of balance involving the stream geometry (dimensions, pattern, profile), the properties of the stream bed, the bank material, and the external inputs imposed. "*
>
> *FEMA Riverine Erosion Hazard Areas, 9/99*

3.11.1 Shoreline Erosion Hazard Profile

Shoreline erosion, for purposes of this discussion, includes the erosion conditions associated with rivers, streams, and inland lakes in Lake County. Erosion can generate streambank or shoreline loss and accumulate and/or deposit sediment downstream or within the lake. Shoreline erosion can alter the location of the stream (centerline). The flow velocities in eroded streams are also altered and can exacerbate the erosion conditions.

These conditions can be created due to an alteration of the shoreline or due to the changing water levels in the stream or the lake. Development and urbanization create more runoff – and create runoff more often. This means that streams must carry more water and carry it more often, and at higher velocities. The higher velocity flows can strip vegetation and carry soil and sediment. Scour along the banks and in the stream or river is created by the higher velocity flows. The fluctuating stream levels impact the vegetation along the streams and the vegetation can be lost. Channelized stream reaches are less stable and more erosive than meandering sections.

Along lakes, higher lake levels can impact both the vegetation and the soil along the shoreline. Velocity is not a concern alone inland lake shores, but wave action from wind or boats can compound the impact of higher lake levels.

When eroded, soil is transported downstream, and the sediment can reduce the carrying capacity of streams and can fill culverts. The rate of shoreline erosion is difficult to estimate. Water quality is impacted by erosion.

All eroded sediment is eventually deposited where water flow slows (i.e., lakes, wetlands, stream channels or floodplains). The site where sediment accumulates may be far from the eroded area. Sedimentation can block culverts and ditches, cause the loss of channel conveyance, and reduce floodplain storage, thereby creating or worsening flooding problems. In addition to exacerbating flood problems, excessive sediment loads degrade water quality and recreational assets. Sediment removal can be very expensive and may be cost prohibitive.

3.11.2 Coastal Erosion Hazard Profile

Illinois is included in the 34 coastal states of the United States due to Lake Michigan and Lake County is subject to coastal erosion. Coastal Erosion is measured as the rate of change in the position or horizontal displacement of a shoreline over a period of time. It is generally associated

with storm surges, hurricanes, windstorms, and flooding hazards, and may be exacerbated by human activities such as boat wakes, shoreline hardening, and dredging.

Coastal erosion is a hydrologic hazard defined as the wearing away if land and loss of beach, shoreline, or dune material because of natural coast processes or manmade influences. It can be manifested as recession and degradation of major dune systems or development of steep scarps along the near shore beach face. Natural coastal processes that cause coastal erosion include the actions of winds, waves, and currents. Human influences include construction of seawalls, jetties, navigation inlets and dredging, boat wakes and other interruptions of physical processes. Natural or human caused, coastal erosion is a "destroyer hazard," meaning that the land is lost or destroyed because of the erosion.

Coastal erosion is the landward displacement of the shoreline caused by the forces of waves and currents (as defined by the US National Oceanic and Atmospheric Administration). It is the process that affects the landmass of an area as a consequence of a body of water acting upon it. Lake County is bordered entirely on the east by Lake Michigan, and the southern two-thirds of the Lake Michigan shoreline includes steep slopes that are affected by erosion. Other areas of the Lake Michigan shoreline can be impacted by changing lake levels.

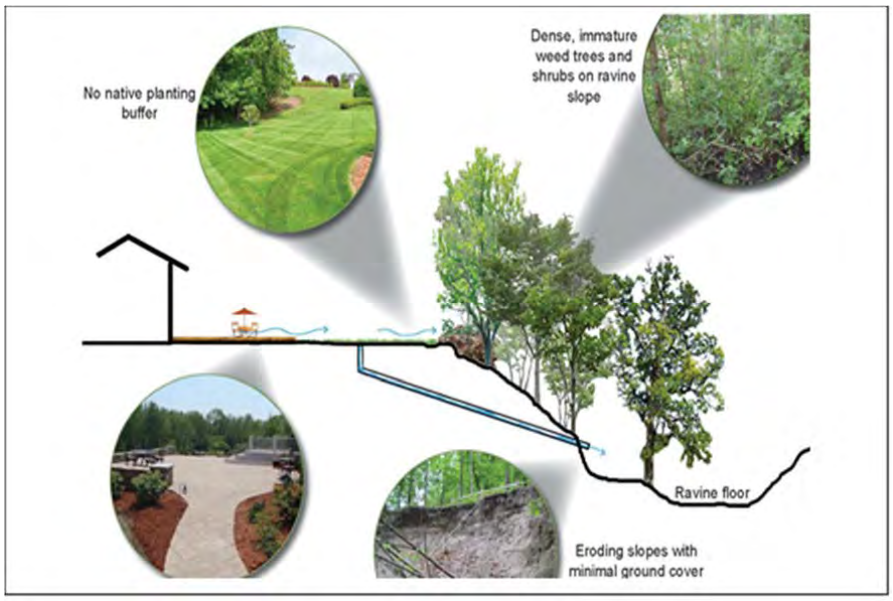
The shoreline of Lake Michigan is not static. "The historical record of coastal change along the Illinois shore of Lake Michigan indicates that the most dynamic coastal area in the state of Illinois is located between the Illinois-Wisconsin state line and the Waukegan Harbor" (ISGS, 1998:1). Erosion and accretion create a constant need to dredge harbor areas and fill along the shoreline.

3.11.3 Ravine Erosion Hazard Profile

The steeper the channel and the greater the runoff volume, then the higher the flow velocity and the greater the erosion potential. Similarly, the steeper the bank, the more potential there is for instability and erosion. Areas prone to the most erosion damage are the ravines. Ravine erosion is of concern to Lake County's Lake Michigan Watershed. Flowing water has the energy to erode most of the soils in Lake County.

Figure 17 is from the Openlands' "Landowner's Guide: Ravine and Tableland Preservation," (2013). It shows the tree growth that, with potentially shallow roots, can tear away the bank with high flow velocities. The graphic also shows an outfall pipe well above the ravine floor that can erode the bank, even when the ravine is dry, with flow coming from pipes.

Figure 17: Ravine and Tableland Preservation



3.11.4 Vulnerability - Erosion Hazard Impact

Erosion in the ravines commonly threatens sanitary sewers, roads, and building foundations. Lake erosion affects boat facilities, septic systems and building foundations. Erosion on fast flowing streams may threaten bridges and roads and may also encroach on septic systems and foundations. Bank erosion impacts can potentially affect 4.58% of Lake County. This consists of areas with slopes 8% or greater, which translates to approximately 13,900 acres out of a total of approximately 303,600 acres in Lake County. This percentage is for all of Lake County, both inland and coastal slopes.

The greatest potential for erosion occurs on steep slopes. According to the Lake County Regional Framework Plan, steep slopes, 8% and greater in Lake County cover approximately 16,895 acres, or 18.52 square miles, which translates into approximately 4% of the County area.

A coastal erosion hazard can potentially affect 4% of the communities within Lake County (per the Regional Framework Plan). To provide the most accurate information for each affected community in Lake County, aerial maps should be overlaid with coastal erosion maps to determine the location of potentially impacted structures. The information should then be ground-proofed to determine the number and type of impacted structures. This information will identify the magnitude of potential impacts that coastal erosion can cause to the County, specifically determining the number of structures located along the shoreline of Lake Michigan. This activity should be considered during the next 5-year update.

Highland Park, Highwood, Lake Bluff, Lake Forest, and North Chicago are potentially affected by coastal erosion; however, the risk is low to structures in these communities.

Beach Park, Illinois

Property in several communities, including Beach Park, are being impacted by ravine erosion. Heavy rainfall and flooding events have created unstable slopes along Bull Creek. These slopes continue to slump and slide. Foundations can potentially be compromised by a slope failure. The homes could potentially be destroyed and injury or the loss of life could result.

The potential of bank erosion in Lake County is relatively **high** due to the number of steep ravines and coastal slopes, streams, and channels in the Lake Michigan Watersheds. There has been no recorded history, however, of landslides in Lake County.

Multi-Jurisdictional Differences: The communities of Lake Bluff, Lake Forest, Highwood, Highland Park, North Chicago, and Winthrop Harbor are subject to coastal flooding from Lake Michigan.

Climate Change Considerations: Increased precipitation and more intense rain events associated with climate change will increase soil erosion. Warmer temperatures increase rates of evaporation and plant transpiration, leading to more moisture in the atmosphere, more precipitation overall, and heavier precipitation events. This phenomenon is best described as an acceleration of the water cycle. This acceleration leads to problems like more flooding, increased soil erosion, reduced water quality, and the disruption of activities such as farming and transportation. The changing pattern of increased overall precipitation and heavy precipitation events is happening throughout the Midwest.

Additional research is needed to fully understand this coastal and shoreline erosion to predict climate change related impacts on Lake County's coastline. "Warmer future temperatures will result in more evaporation (from the Lake) and evapotranspiration (from soils) during the summer and winter, when there is expected to be less future lake ice. Although some studies (e.g., Lofgren and Rouhana 2016; Notaro et al. 2015) have suggested modest changes in future lake levels of a few inches' decrease or increase, there is significant uncertainty in these projections. Because of the potential for higher lake levels to damage coastal infrastructure and increase coastal erosion, there is substantial concern about the potential for projected increases of winter and spring precipitation to increase lake levels."

3.12 Power Outage

Overview: Although power outages are classified as technological disasters, they are a common secondary effect of natural disasters and were chosen to be included in the 2022 update to the ANHMP. A power outage is the loss of electrical power in a facility or community. Power outages can cause the failure of key systems such as lighting, heating, air conditioning, ventilation, computer systems, life support, and water pumping stations, sewage treatment, telecommunications, and many others. Failure of one or more of these systems in jurisdictions can cause life safety or health concerns.

Power outages may be the cause of several natural disasters; most commonly wind events, or the cause of a manmade incident such as accidental cutting of a power line. The most common scenarios of natural disasters resulting in power outages include:

- Winds may blow down trees or tree limbs which fall onto power lines, breaking them (most common).
- High winds may blow down utility poles snapping power lines.
- Ice and snow may weigh down power lines causing breakage.

Construction or maintenance operations may also accidentally cut power lines. Most of these incidents are localized to a small area.

A power outage may last anywhere from several minutes to weeks. The duration of the outage depends on several factors including: size and scope of the disaster, type of facilities affected, availability of response resources by the utility owner. ComEd owns most of the electrical utility infrastructure within Lake County.

Measurements: Power outages are measured by the number of facilities or the percentage of a jurisdiction without electrical power. A power outage may affect only one single family house, or an area spanning entire states in extreme cases.

The size and scope of the natural disaster affects the quantity of customers impacted. Existing utility infrastructure may also affect the quantity of outages throughout the jurisdiction.

Historical Events: A July 11, 2011, wind event was termed a “derecho” by the National Weather Service. More recently, on August 10, 2020, a large line of thunderstorms called a derecho swept across the Midwest and created an EF-1 tornado in the Rogers Park neighborhood of Chicago. A derecho is “a widespread, long-lived windstorm. Derechos are associated with bands of rapidly moving showers or thunderstorms variously known as bow echoes, squall lines, or quasi-linear convective systems.”

The National Weather Service provided the following description of the August 2020 event:

> “A well-organized and long-lived complex of storms produced widespread severe wind damage across Iowa, northern Illinois, and northern Indiana during the day on Monday, August 10. Much of this severe wind was significant (75+ mph winds) resulting in many downed trees, several toppled-over semi-trucks,

> and many communities receiving at least some minor structural damage. Within the broader area of severe winds, 15 tornadoes were confirmed across northern Illinois and northwest Indiana."

See Figure 11 for the National Weather Service radar image of the storm event. Estimates**.** Local officials estimated that nearly one million customers lost power across northern Illinois at the height of the derecho and some people were without power for several days. The August 2020 derecho blew down trees, tree limbs and powerlines throughout Lake County. Communities instituted special plans for coordinating the clean-up efforts of property owners and for collecting and removing trees and other debris.

Property Damage: Lack of power rarely causes damage to facilities. Secondary effects due to lack of power, such as freezing pipes may cause extreme localized property damage.

Damage to Critical Facilities: Many critical facilities throughout Lake County have partial or complete backup power sources such as standby generators which will automatically start up when electrical power is lost. Facilities that typically have back up power generation include Hospitals, Police and Fire Stations, and Emergency Operations Centers (EOCs).

Smaller systems such as computers, life support, alarm and telecommunications systems may have a local Uninterrupted Power Supply (UPS) directly attached to maintain power during a disaster.

Health and Safety: Loss of electrical power can cause an immediate significant threat to life safety and public health. Critical facilities such as hospitals, nursing homes, and long-term care facilities are dependent upon electricity to maintain life support systems. First responder facilities such as police and fire departments require power to ensure effective emergency response efforts. Lack of power at these facilities can potentially place residents within the jurisdiction in immediate danger.

Public health may be negatively affected due to the sanitation systems that require electricity to function. Water treatment facilities and restaurants require sufficient power to ensure drinking water and food are treated properly. Lack of electricity at these locations may cause both short- and long-term health issues.

Downed live power lines also pose an immediate life safety issue. Live power lines on the ground or close to the ground because of a storm can kill or severely injure anyone who comes in contact with them. Vehicles or facilities in contact with live downed power lines are also susceptible to damage and the people within them are susceptible to injury or death.

Economic Impact: Businesses without power may be unable to process transactions, or maintain adequate heating/cooling regulations, and therefore be forced to close until power is restored. The actual dollar amount of economic impact is dependent upon the size, scope, and duration of the power outage.

Climate Change Considerations: Critical infrastructure may be challenged by increases in flooding or be in poor condition in lower-income communities. Individuals who are dependent

on home medical equipment (or even refrigeration to keep insulin and other medicines cool) may also lose their life-saving medical support during power outages.

3.13 Summary of Natural Hazards Risk Assessment

This risk assessment examines natural hazards that could impact Lake County. This section summarized the impact of the hazards on Lake County and presents conclusions that can be drawn from the assessment.

3.13.1 Impact of the Hazards

The impacts of the hazards are summarized according to the four major concerns:

- Health and safety
- Damage to buildings
- Damage to critical facilities and infrastructure
- Economic impact

The Low-Moderate-High ratings discussed on page 3-4 of this Chapter were used to classify the impacts of the hazards for the four major areas of concern. This approach allows for a better understanding of the risk or vulnerability and allows for updates or refinements to the ANHMP risk assessment in future plans. The HMPC discussed the findings to determine the overall impact the priority hazards on the County and the municipalities. The hazards and their impact are shown in Table 46, "Summary of Lake County Natural Hazards." The different columns on the table represent the following:

- **Annual Chance or Frequency:** The annual chance column in the table shows the likelihood of occurrence in any given year. These numbers are discussed in the "Frequency" section of each hazard.
- **Impact Location:** The location and area affected by a single occurrence is shown.
- **Square Miles Impacted:** The portion of the County that is vulnerable to the hazard.
- **Value of vulnerable property:** The property damage exposure computed in
- 3.2 Summary of Lake County Assets of this Chapter.
- **Potential Damage:** The range of potential damage that could occur for the square miles impacted and the value of exposed property.
- **Impact on Health and Safety**: This category relates to health and safety hazards. Ratings of high, medium, or low are

shown.

- **Impact on Buildings:** The vulnerability of structural damage to buildings or other property damage.
- **Critical Facilities:** The types of critical facilities and infrastructure that are affected are listed.
- **Economic Impact:** Typical impacts on businesses and utilities are listed in this column.

Hazard	Annual Chance	Impact Location	Square Miles Affected	Impact on			
				Health & Safety	Buildings	Critical Facilities	Economy
Floods	1%	Floodplains	89.3	Moderate	High	Moderate	High
Floods	10%	(Local Drainage)	448	Moderate	Moderate	Moderate	Moderate
Tornado	0.01%	Countywide	10	High	High	Moderate	Moderate
Tornado	30%	Communities	5	High	High	Moderate	Moderate
Severe Summer Storms	100%	Communities	448	Moderate	Moderate	Moderate	Low
Severe Winter Storms	100%	Countywide	448	Moderate	Moderate	Moderate	Low
Drought	1%	Countywide	448	High	Moderate	Low	Moderate
Earthquake	100%	Countywide	448	Low	Low	Moderate	Low
Dam Failure	0%	Countywide	448	--	--	--	--
Extreme Temperatures	18%	Countywide	448	High	Low	Low	Low
Erosion	--	Countywide	36				
Power Outage		Countywide					

The county, all municipalities, other agencies, and institutions involved in this ANHMP are exposed to all identified hazards. This is due to the relatively flat topography of the County. While the County still has agricultural use, the residents and business are equally impacted by the identified natural hazards as the urban areas. Flooding in the floodplain has been considered, for example, but it is understood that flooding is not limited to floodplain areas. Community impact does vary by degree between larger and smaller communities based on population and number of buildings.

Appendix A shows the Lake County hazard identification by community and township for the natural hazards evaluated in Table 45. The findings of the hazard analysis and profile of Chapter 2 and the vulnerability assessment were used as the foundation of goals and guidelines and mitigation activities developed in Chapter 5.

3.13.2 Comparison to State of Illinois 2018 Natural Hazard Mitigation

The Illinois Emergency Management Agency (IEMA) hazard rating system has five levels:

IEMA Hazard Rating	ANHMP Rating
Very Low	Low
Low	Moderate
Medium	
High	High
Severe	

The IEMA hazard rating levels are based on historical/probability, vulnerability, severity of impact and population. The 2018 Illinois Natural Hazard Mitigation Plan utilized improved historical and damage information in the risk assessment and hazard rating levels were adjusted for many counties.

Table 42: IEMA Hazard Ratings for Lake County

Hazard	IEMA Rating 2013	IEMA Rating 2018 (Rank of All Counties)	ANHMP Rating
Floods	Elevated (99 of 102)	Medium (57 of 102)	High/Moderate
Tornado	Elevated (51 of 102)	Medium (76 of 102)	High
Severe Storms and Wind	Severe	Severe (72 of 102)	Moderate
Severe Winter Storms	High	High	Moderate
Drought	Guarded	Medium (55 of 102)	Moderate
Earthquake	Guarded	Low/Medium	Low
Extreme Heat	Guarded	Medium (69 of 102)	Low

IEMA's hazard ratings for Lake County identified natural hazards in the 2013 and 2018 Illinois Natural Hazard Mitigation Plan and are shown in Table 42.

The 2018 Illinois Natural Hazard Mitigation Plan raised the rating for tornado hazards in Lake County from elevated to high. The rating for severe winter storms was reduced to high, and extreme heat was reduced to guarded. The 2013 IEMA ratings for Lake County are somewhat comparable with the summary of impacts in Table 48 of this Chapter for all hazards shown in Table 48. IEMA's 2013 analysis placed Lake County 99th of 102 counties for loss estimation for floods. However, the 2013 Illinois Natural Hazard Mitigation Plan shows Lake County having 5 flood-related disaster declarations from 1981 to 2013, and Lake County is number 11 on the list of counties with the most repetitive flood loss properties. IEMA used a risk assessment software

called HAZUS. HAZUS relies on default building data and other factors that may have led to a poor analysis for Lake County.

The risk assessment for this ANHMP plan places severe summer storms as "moderate" and IEMA rates them as "severe." This difference may be due to the ANHMP associating flooding that results from severe summer storms with floods and IEMA makes use of the information from disaster declarations that may be for severe storms, but the result of the severe storm is flooding.

Overall, IEMA's risk assessment for the State is a generalized examination of counties. IEMA's assessment certainly serves to provide a review of the Lake County risk assessment provided in this ANHMP.

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Chapter 4: Mitigation Goals

The Hazard Mitigation Planning Committee (HMPC) established the goals for this ANHMP. The goals were developed to reflect community priorities, to be consistent with current countywide planning efforts, and in consideration of the impact of each natural hazard that affects Lake County. In June 2011, the HMPC participated in three exercises to outline the mitigation goals and for mitigation guidelines. The results of the exercise are summarized below to show how the ANHMP goals and guidelines were developed. The goals and guidelines included in this chapter were reviewed in February 2022 by the HMPC and re-affirmed as appropriate for Lake County and its municipalities through 20.

4.1 Community Priorities and Plan Direction

To better understand community priorities, HMPC members selected their top five choices to create a list of potential priorities. For community priorities, the top 5 selected responses were:

1. Improve employment opportunities
2. Improve roads and highways
3. Improve/get more businesses
4. Provide a safe place to live and work
5. Improve water quality

For the second and third exercises, "What to Focus On" and "How to Fund and Implement," HMPC members worked in groups and the top five choices of each table were shared with the entire group. The results from group to group for each of the exercises were very similar.

For the exercise "What to Focus On," the top five responses given by the small groups included:

1. Protecting people's lives
2. Protecting public health
3. Protecting streets and utilities
4. Protecting public services
5. Protecting existing buildings

For the exercise "How to Fund and Implement," the top five responses given by the small groups included:

6. Make people aware of how they can protect themselves
7. Make people aware of the hazards they face
8. Develop public/private partnerships
9. Help people protect themselves
10. New developments should pay full cost of protection measures

4.2 Goals and Guidelines

From the above responses, the goals and guidelines listed below were developed. The goals represent the mitigation activity outcome, and the guidelines represent the best methods to work towards the goals. At the July 2011 meeting, the HMPC reviewed the goals and guidelines. The goals and guidelines presented in this chapter are the foundation of the Action Plan, presented in Chapter 6.

The ANHMP goals are listed below:

Goal 1) Protect the lives, health, and safety of the people of Lake County from the impact and effects of natural hazards.

Goal 2) Protect public services, utilities, and critical facilities from potential damage from natural hazard events.

Goal 3) Mitigate existing buildings to protect against damage from natural hazard events.

Goal 4) Ensure that new developments do not create new exposures of people and property to damage from natural hazards.

Goal 5) Mitigate to protect against economic and transportation losses due to natural hazards.

The following guidelines are for achieving the goals and to facilitate the development of hazard mitigation action items:

Guideline 1) Focus natural hazards mitigation efforts on floods, tornadoes, severe summer and winter storms, dam failure, erosion, extreme temperatures, and drought

Guideline 2) Make people aware of the hazards they face and focus mitigation efforts on measures that allow property owners and service providers to help themselves.

Guideline 3) Identify specific projects to protect lives and mitigate damage where cost-effective and affordable.

Guideline 4) Use available local funds, when necessary, to protect public services, critical facilities, lives, health and safety from natural hazards.

Guideline 5) Develop and foster public agency and private property owner partnerships to fund and implement mitigation measures and examine equitable approaches for the local cost of mitigation, such as user fees.

Guideline 6) Strive to improve and expand business, transportation and education opportunities in Lake County in conjunction with planned mitigation efforts.

4.3 Consistent with Other Plans

The developed goals and guidelines were compared to the goals included in the following plans, and found to be consistent and supporting:

Lake County Comprehensive Stormwater Management Plan, 2016

Lake County Regional Framework Plan, amended in October 2014

Goals from the ANHMP should be incorporated into other plans of the County and municipalities, as deemed appropriate.

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Chapter 5: Mitigation Strategies and Capability Assessment

This chapter examines the hazard mitigation activities that are currently being implemented in Lake County, examines various hazard mitigation strategies that can be undertaken in the future, and assesses the capabilities of Lake County and the municipalities for implementing some of these future mitigation measures.

As described in Chapter 1, Lake County is a growing county in both population and development. Chapter 3 presents the priority hazards identified in this ANHMP (**Error! Reference source not found.**) as flood, tornado, severe summer and winter storms and drought, and earthquakes. Other hazards include dam failure and landslides. The HMPC concluded that these are priority hazards from both a countywide and a community specific perspective. For example, while there are no mapped floodplains in the Village of Indian Creek, flooding impacts the residents of Indian Creek as they travel to work or school, and mitigation efforts undertaken by Lake County for severe winter storms benefits the entire county as people travel to work or school.

This chapter presents a comprehensive list of hazard mitigation recommendations that provide a menu of options for the development of the action plan presented in Chapter 6 of this ANHMP and presents an assessment of Lake County and the municipalities' capability of implementing these measures. These alternatives are consistent with the ANHMP goals presented in Chapter 4. All mitigation strategies recommended in this chapter are available to all communities, and communities are not specifically identified for each strategy. Throughout this Chapter reference is made to the Lake County Stormwater Management Commission (SMC) and the Lake County Watershed Development Ordinance (WDO). The SMC has regulatory, project and funding authority for stormwater, floodplain, wetland and water quality management in both the corporate and unincorporated areas of Lake County. The WDO sets watershed development standards that exceed NFIP and state minimum requirements. The technical committee of the SMC includes SMC staff and municipal staff. They meet monthly to evaluate the implementation of and compliance with the WDO, and to provide input of watershed planning efforts undertaken by the SMC. The Lake County Emergency Management Agency (LCEMA) hosts a similar committee to foster countywide approaches to hazard mitigation and emergency response.

Six basic strategies may be applied to mitigate the potential damage to property and impact to health and safety from natural hazards. Each strategy includes mitigation measures that are appropriate for different conditions, as shown in

Table 43: Natural Hazard Mitigation Activities. For instance, planning and regulation measures as preventative strategies are more appropriate for developing areas, while property protection strategies are approaches for existing development and buildings.

A considerable number of hazard mitigation measures are already being implemented either throughout Lake County or with certain areas of the County. For example, the administration and enforcement of building codes provides protection of buildings from wind, flood and earthquake events. Preventive and natural resources protection measures are provided through the implementation of the Lake County stormwater management program.

Table 43: Natural Hazard Mitigation Activities

Natural Hazards:	Preventive	Property Protection	Emergency	Resource Protection	Structural Measures	Public Information
Floods (100-year/10-year)	x	x	x	x	x	x
Tornado/High Wind	x	x	x			x
Severe Summer Storms/Hail	x	x	x	x	x	x
Severe Winter Storms	x		x			x
Dam Failure	x		x	x	x	x
Wildfire	x	x	x	x		x
Erosion	x	x		x	x	x
Extreme Heat						x
Extreme Cold		x	x			x
Sewer Backup	x			x		x
Drought	x			x		x
Groundwater	x			x		x

Both the ongoing Lake County mitigation efforts and additional mitigation approaches are discussed below. At the end of each section relevant recommendations are listed. Note that specific project locations are not identified with many of the recommendations. For many recommendations, numerous project locations exist. Selection of specific project areas, for floodplain acquisition projects for example, is related to the voluntary interest of property owners and the commitment of community funds. It is understood that project locations will be included in various project scopes of work as they are developed.

The following sections provide more detailed discussions of the six hazard mitigation strategies.

5.1 Preventive Measures

As the name implies, preventive measures are designed to keep flooding problems from getting worse. They ensure that future development does not increase flood damage and include actions that maintain the drainage system's capacity to carry away floodwaters. The cost of implementing most prevention measures is relatively low in comparison to most remedial measures to reduce future damage. Preventive measures include activities such as:

- Planning and Zoning
- Watershed Regulations
- Building Codes
- Standards for Manufactured Homes
- Critical Facility Construction Requirements
- Lake County Green Guide

5.1.1 Planning and Zoning

"Planning" can cover a variety of community plans including, but not limited to, comprehensive plans, land use plans, transportation plans, capital improvement plans, and economic development plans. While plans generally have limited authority, they reflect what the community would like to see happen in the future. Plans also guide other local measures such as capital improvements and the development of ordinances.

Comprehensive land use plans generally identify how a community should be developed. Use of the land can be tailored to match flooding hazards, typically by reserving flood prone areas for parks, recreational trails, open space, golf courses, or similar compatible uses. Lake County adopted the *Lake County Regional Framework Plan* in 2007 and is currently in the process of updating that plan.

Development in Lake County is also directed by the 2002 *Lake County Comprehensive Stormwater Management Plan* adopted by the Lake County Stormwater Management Commission (SMC) to address county-wide stormwater planning needs and watershed regulations. The first countywide *County Comprehensive Stormwater Management Plan* was adopted in 1990 in response to worsening flooding, drainage and water quality problems. SMC has developed several watershed-based plans for four major watersheds of the county including:

Fox River Watershed: Fish Lake Drain, Flint Creek, Manitou Creek and Sequoit Creek
Des Plaines River Watershed: North Mill Creek, Bull Creek and Indian Creek
North Branch Chicago River Watershed: North Branch of the Chicago River (Lake & Cook Counties)
Lake Michigan Watershed: Kellogg Creek, Dead River and the Waukegan River

Adopted and draft plans and other information on the ongoing SMC planning efforts are available at: Lake County Watershed Plans

A zoning ordinance regulates development by dividing the community into zones or districts and setting development criteria for each district. Zoning can be used to control development so that existing flood problems are not worsened, and new flood problems are not created.

The Lake County zoning ordinance, applicable to the unincorporated areas of Lake County, uses the overlay zoning approach. The Lake County ordinance classifies floodplains, wetlands, lakes, ponds, drainage ways and drainage way soils with other natural resources as "natural resource protection areas." This classification requires that a pre-determined ratio of open space be met for developments impacting the designated natural resources.

In addition, site development regulations limit the uses allowed in floodplains. Allowable uses, depending upon the underlying zoning district, may include parks, golf courses, boating facilities, parking lots, roads, nurseries, and others.

Many Lake County municipalities have incorporated floodplain development restrictions into their zoning ordinances. A review of municipal zoning ordinances for development of the 1990 Comprehensive Stormwater Management Plan found that 19 of 29 zoning ordinances reviewed

included floodplain districts/requirements. (Forty ordinances were collected for the county's 51 municipalities, but only the 29 that were dated 1970 or later were reviewed.) Since the adoption of the WDO in 1992, additional municipalities and the County of Lake have incorporated the floodplain development restrictions of the WDO into their zoning and development ordinances.

Subdivision ordinances specifically govern how land will be subdivided into lots and regulate standards for infrastructure provided by the developer including roads, sidewalks, utilities, stormwater detention, storm sewers and drainage ways. Building codes should establish flood protection standards for all structures. Table **44**47 provides a list of community plans and ordinances.

5.1.2 Watershed Development Regulations

As noted above, the WDO has been in place in Lake County since 1992. The goal of the WDO is to ensure that new development does not increase existing stormwater problems or create new ones. The WDO establishes minimum countywide standards for stormwater management, including floodplains, detention, soil erosion/sediment control, water quality treatment, and wetlands.

The WDO is implemented by the SMC or by "Certified Communities." Forty-one of the 52 municipalities in the county are standard Certified Communities. The designation allows those communities to enforce WDO standards within their own jurisdictions, except for isolated wetlands. SMC reviews isolated wetlands unless a community becomes "Wetland Certified." Table 45 shows the Lake County "Certified Communities".

Table 44: Lake County Plans and Ordinances

Community	Comprehensive Plan	Stormwater Mgmt. Plan	Capital Improvement Plan	Land Use Plan Only	Zoning Ordinance	Subdivision Ordinance	Historical Preservation Ordinance
Village of Antioch	Yes	Yes			Yes	Yes	
Village of Bannockburn			Yes		Yes	Yes	
Village of Barrington	Yes	Yes	Yes	Yes	Yes		
Village of Barrington Hills					Yes		
Village of Beach Park					Yes		
Village of Buffalo Grove	Yes	Yes	Yes	Yes	Yes	Yes	
Village of Deer Park	Yes				Yes		
Village of Deerfield	Yes	Yes	Yes	Yes	Yes	Yes	
Village of Fox Lake	Yes					Yes	
Village of Fox River Grove	Yes		Yes		Yes	Yes	
Village of Green Oaks	Yes	Yes		Yes	Yes	Yes	
Village of Gurnee		Yes	Yes		Yes	Yes	
Village of Hainesville	Yes				Yes	Yes	
Village of Hawthorn Woods	Yes	Yes			Yes	Yes	
City of Highland Park	Yes	Yes	Yes		Yes	Yes	Yes
Village of Highwood					Yes		

Table 44: Lake County Plans and Ordinances

Community	Comprehensive Plan	Stormwater Mgmt. Plan	Capital Improvement Plan	Land Use Plan Only	Zoning Ordinance	Subdivision Ordinance	Historical Preservation Ordinance
Village of Indian Creek					Yes		
Village of Island Lake	Yes	Yes		Yes	Yes	Yes	
Village of Kildeer	Yes		Yes	Yes	Yes		
Village of Lake Barrington	Yes	Yes	Yes	Yes	Yes	Yes	
Village of Lake Bluff	Yes	Yes	Yes	Yes	Yes	Yes	Yes
City of Lake Forest	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Village of Lake Villa	Yes	Yes			Yes	Yes	
Village of Lake Zurich	Yes		Yes	Yes			Yes
Village of Lakemoor	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Village of Libertyville	Yes		Yes	Yes	Yes	Yes	
Village of Lincolnshire	Yes		Yes	Yes	Yes	Yes	
Village of Lindenhurst	Yes	Yes			Yes		
Village of Long Grove	Yes				Yes	Yes	
Village of Mettawa					Yes		
Village of Mundelein	Yes	Yes	Yes	Yes	Yes	Yes	
Village of North Barrington	Yes				Yes	Yes	
City of North Chicago			Yes		Yes	Yes	
Village of Old Mill Creek	Yes				Yes		
City of Park City					Yes	Yes	
Village of Port Barrington		Yes			Yes	Yes	
Village of Riverwoods	Yes				Yes	Yes	
Village of Round Lake	Yes	Yes		Yes	Yes	Yes	
Village of Round Lake Beach	Yes	Yes			Yes	Yes	
Village of Round Lake Heights	Yes				Yes	Yes	
Village of Round Lake Park	Yes	Yes	Yes	Yes	Yes	Yes	
Village of Tower Lakes	Yes	Yes			Yes	Yes	
Village of Third Lake					Yes		
Village of Vernon Hills	Yes		Yes	Yes	Yes	Yes	
Village of Volo	Yes				Yes	Yes	
Village of Wadsworth	Yes				Yes	Yes	
Village of Wauconda	Yes	Yes	Yes	Yes	Yes	Yes	
Village of Winthrop Harbor					Yes		
Village of Wheeling	Yes				Yes		
City of Zion	Yes				Yes		
Naval Station Great Lakes							
Lake County	Yes		Yes	Yes	Yes	Yes	

For unincorporated areas, the Lake County Planning, Building and Development Department (PB&D) is the permitting agency. SMC is the permitting agency for Non-Certified Communities. Even in Certified Communities, however, certain floodway and floodplain development applications are forwarded to SMC for review and approval. A WDO Permit is required for major and minor development, and public road construction. Table 45 shows the Certified Community status for the WDO and provided the Community Identification Numbers (CID) for the Lake County communities that participate in the National Flood Insurance Program (NFIP).

The WDO requires major improvements to existing buildings and all new building to have the lowest floor including the basement elevated to the Flood Protection Elevation (FPE), which is 2 feet above the base flood (or 100-year) elevation.

The NFIP sets the minimum floodplain regulation requirements for local floodplain ordinances. The State of Illinois enforces floodway standards that go beyond the NFIP minimum standards. Standards in the WDO reflect state and federal requirements for floodplain regulation and address specific Lake County flooding problems that occur in depressional storage areas and in unmapped floodplains/floodways.

To address flooding in unmapped floodplains, the WDO definition of a regulatory floodplain includes smaller tributaries subject to more than one square mile of drainage, and depressional areas, not associated with streams, that have a storage volume of 0.75-acre feet or more when inundated by the base flood.

Many Lake County municipal ordinances exceed the WDO standards in one aspect or another. The WDO ensures minimum requirements are met but does not prohibit individual communities from implementing stricter standards to protect their property owners from flooding. The WDO includes detention requirements that control the rate of stormwater release from developments. The allowable release rate is the determinant of the volume of stormwater that needs to be detained. The WDO specifies a uniform release rate for the entire County regardless of watershed. Although the WDO addresses the rate of stormwater release, it does fully regulate the increased volume of runoff. The increased volume of runoff ultimately collects in these large river basins resulting in higher flood elevations. Some runoff volume is addressed through the water quality requirement in the WDO.

Table 45: Lake County WDO Certified Communities

Community	Certified	IWLC Review	CID	Community	Certified	IWLC Review	CID
Village of Antioch	X	X	170358	Village of Lindenhurst	X	X	170379
Village of Bannockburn	X	X	170359	Village of Long Grove	X	X	170380
Village of Barrington	X		170057	Village of Mettawa	X[2]	X	170381
Village of Barrington Hills	X		170058	Village of Mundelein	X		170382
Village of Beach Park ❖			171022	Village of North Barrington	X	X	170383
Village of Buffalo Grove	X		170068	City of North Chicago	X		170384
Village of Deer Park	X	X	170028	Village of Old Mill Creek	X	X	170385
Village of Deerfield	X		170361	City of Park City			170386
Village of Fox Lake	X[2]		170362	Village of Port Barrington	X		170478
Village of Fox River Grove	X	X	170477	Village of Riverwoods	X	X	170387
Village of Grayslake	X[2]		170363	Village of Round Lake	X	X	170388
Village of Green Oaks	X	X	170364	Village of Round Lake Beach	X		170389
Village of Gurnee	X		170365	Village of Round Lake Heights	X		170390
Village of Hainesville	X	X	171005	Village of Round Lake Park	X	X	170391
Village of Hawthorn Woods	X	X	170366	Village of Third Lake	X		170392
City of Highland Park	X		170367	Village of Tower Lakes			170393
City of Highwood	X	X	--	Village of Vernon Hills	X		170394
Village of Indian Creek			--	Village of Volo	X[2]	X	171042
Village of Island Lake	X	X	170370	Village of Wadsworth ❖			170395
Village of Kildeer	X	X	170371	Village of Wauconda	X	X	170396
Village of Lake Barrington	X	X	170372	City of Waukegan	X[2]		170397
Village of Lake Bluff	X		170373	Village of Wheeling			170173
City of Lake Forest	X		170374	Village of Winthrop Harbor ❖			170398
Village of Lake Villa	X		170375	City of Zion ❖			170399
Village of Lake Zurich	X		170376	Lake County Forest Preserve			
Village of Lakemoor			170915	Lake County Public Roads			
Village of Libertyville	X		170377	County of Lake		X	170357
Village of Lincolnshire ❖			170378				

https://www.lakecountyil.gov/2343/Certified-Communities
IWLC = Isolated Waters of Lake County
X [1] Conditional IWLC Certification
X [2] Conditional Standard Certification
❖ Issues Single Family Home Permits (Minor Development Category)

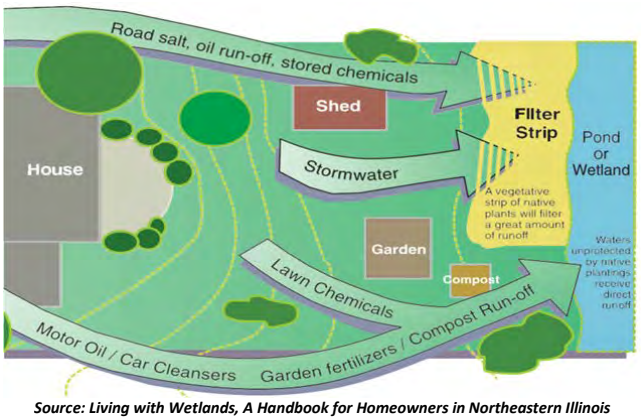
Other aspects of the WDO are discussed in 5.3 Resource Protection of this Chapter including erosion protection. The WDO was updated in October 2021 by the SMC and the assistance of the SMC's Technical Advisory Committee (TAC). More information and WDO resource documents are provided on the SMC Website: Lake County Watershed Development Ordinance WDO.

5.1.3 Best Management Practices

Stormwater Best Management Practices (BMPs) are used to help ensure longevity and improve the health of Lake County's watersheds. BMPs are a practice or combination of practices that are an effective, practicable means of preventing or reducing the amount of pollution generated by nonpoint sources. All stakeholders, including homeowners, businesses, organizations, and municipalities can implement BMPs. BMPs can be as simple as using phosphorous-free fertilizer to a more complex activity like a project restoring a large section of degraded streambank. BMPs can slow stormwater runoff and improve water quality.

The SMC website provides specific BMPs for different stakeholder groups: www.lakecountyil.gov/2261/Stormwater-Best-Practices.

Figure 18: BMP Example for Stormwater Runoff



Source: Living with Wetlands, A Handbook for Homeowners in Northeastern Illinois

BMPs can be integrated before, during, and after development. BMPs will not only help the environment, but in many cases, they also can save you time and money. Every BMP is beneficial to the environment regardless of its relative cost, but it is the unique combination of implementing BMPs for each property that will help establish a healthy watershed.

The WDO includes many water quality provisions that are within site development, detention, erosion control and wetland standards. **Error! Reference source not found.** shows the goal of the water quality impacts that can occur without water quality provisions incorporated into site design.

5.1.4 Building Codes

The administration and enforcement of building codes is one of the most effective approaches for addressing natural hazard mitigation. Building codes protect new structures from damage by tornadoes, high winds, snowstorms, and earthquakes. When properly designed, and constructed according to code, the average building can withstand the impacts of most of these natural events.

Additional hazard protection standards for all new, improved, or repaired buildings can be incorporated into the local building code. Provisions that should be included are:

- Making sure roofing systems will handle high winds and expected snow loads.
- Providing special standards for tying the roof, walls, and foundation together to resist the effects of wind.
- Requiring new buildings to have tornado "safe rooms."
- Including insulation standards that ensure protection from extreme heat and cold as well as energy efficiency.
- Regulating overhanging masonry elements that can fall during an earthquake.
- Ensuring that foundations are strong enough for earth movement and that all structural elements are properly connected to the foundation.
- Mandating overhead sewers for all new basements to prevent sewer backup.
- Includes NFIP minimum standards for structures built in A Zones (riverine flooding) and V Zones (coastal flooding).

The predominate model building codes being adopted by communities are the International Code series (I-Codes), including the International Residential Code (IRC) and the International Building Code (IBC). The I-Codes require buildings to be built to the "design flood elevation" or DFE, which in effectively the base flood elevation (BFE) or 100-year elevation. Note that the WDO establishes a flood protection elevation (FPE), which is 2 feet above the BFE, so the WDO requirements exceed the I-Codes.

The most recent version of the I-Codes is 2021. Some Lake County communities enforce the BOCA code, but most communities administer and enforce the IRC and IBC.

Fortified Homes: The Institute for Business and Home Safety (IBHS) has a set of recommendations to strengthen a building to better resist the impacts of natural hazards that go beyond building codes. The specific requirements for a protected or a "fortified" home are available through the IBHS website at https://disastersafety.org. On the web site, a postal code (zip code) can be entered, and regional recommendations are made for maintenance, new construction and businesses.

New construction should also include the construction of an underground shelter or "safe room" at the first-floor level to protect the lives of the occupants. A building code could require them in new construction. Tornado safe rooms are discussed further in section 5.2 Property Protection of this chapter.

Code Administration: Enforcement of code standards is very important. Adequate inspections are needed during 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. The BCEGS is similar to the National Flood Insurance Program (NFIP) Community Rating System and the century-old fire insurance rating scheme.

With BCEGS, building permit programs are reviewed and scored, a class 1 community is the best, and a class 10 community has little or no program.

Code Official Training: 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.

5.1.5 Standards for Manufactured Homes

Manufactured or "mobile" homes are usually not regulated by local building codes. They are built in a factory in another state and are shipped to a site. They do have to meet construction standards set by the U.S. Department of Housing and Urban Development's National Manufactured Home Construction and Safety Standards. These standards apply uniformly across the country and it is illegal for a local unit of government to require additional construction requirements. Local jurisdictions may regulate the location to these structures and their on-site installation.

The greatest mitigation concern with manufactured housing is protection from damage by wind. The key to local mitigation of wind damage to mobile homes is proper installation. The Illinois Mobile Home Act and Manufactured Home Tie Down Code are enforced by the Illinois Department of Public Health (IDPH). The State code includes equipment and installation standards. Installation must be done in accordance with manufacturers' specifications. There is a voluntary program for installers to be trained and certified.

Following the installation of a manufactured home, installers must send the state a certification that they have complied with the State's tied own code. Inspections are only done if complaints are made regarding an installation.

In addition to code standards to protect the mobile home from high winds is the need to protect the occupants. There are no state or federal requirements for shelters in mobile home parks.

5.1.6 Critical Facility Construction

Critical facilities, defined in Chapter 1 for purposes of this ANHMP, are generally constructed with public funds. The exception is usually health care facilities. The source of public funds can be federal, state, or local. State of Illinois and federal government executive orders require higher flood protection standards for critical facilities when funded with state or federal dollars. Both orders require compliance when state or federal funds are used for the construction or permitting of any critical facility. Both the state and federal orders have consistent interpretations of "critical facilities."

Illinois Executive Order 2006-05 requires that State agencies which plan, promote, regulate, or permit activities, as well as those which administer grants or loans in the State's floodplain areas, must ensure that all projects meet the standards of the State floodplain regulations or the NFIP, whichever is more stringent. The State Executive Order also guarantees the State's eligibility for certain types of federal disaster assistance. Critical facilities must be protected to the 500-year level (see box on following page).

Excerpt from Illinois Executive Order 5 (2006):

2. *All State Agencies engaged in any development within a Special Flood Hazard Area shall undertake such development in accordance with the following:*
   - A. *All development shall comply with all requirements of the National Flood Insurance Program (44 C.F.R. 59-79) and with all requirements of 92 Illinois Administrative Code Part 700 or 92 Illinois Administrative Code Part 708, whichever is applicable.*
   - B. *In addition to the requirements set forth in preceding Section A, the following additional requirements shall apply where applicable:*
     1. *All new Critical Facilities shall be located outside of the floodplain. Where this is not practicable, Critical Facilities shall be developed with the lowest floor elevation equal to or greater than the 500-year frequency flood elevation or structurally dry flood proofed to at least the 500-year frequency flood elevation.*
     2. *All new buildings shall be developed with the lowest floor elevation equal to or greater than the Flood Protection Elevation or structurally dry flood proofed to at least the Flood Protection Elevation.*
     3. *Modifications, additions, repairs or replacement of existing structures may be allowed so long as the new development does not increase the floor area of the existing structure by more than twenty (20) percent or increase the market value of the structure by fifty (50) percent, and does not obstruct flood flows. Floodproofing activities are permitted and encouraged, but must comply with the requirements noted above.*
3. *State Agencies which administer grants or loans for financing development within Special Flood Hazard Areas shall take all steps within their authority to ensure that such development meets the requirements of this Order.*
4. *State Agencies responsible for regulating or permitting development within Special Flood Hazard Areas shall take all steps within their authority to ensure that such development meets the requirements of this Order.*

The Illinois Department of Natural Resources-Office of Water Resources is required by the Order to assist state agencies with flood hazard information and assistance to carry out the Executive Order. Unfortunately, no agency has the authority to enforce the Executive Order.

The Federal Executive Order 11988 has similar floodplain standards for federal agencies. Compliance with Federal Executive Order 11988 must be met for all "pass through" federal funding. These standards ensure that federal and state resources and funds are not being used for inappropriate and dangerous floodplain development. The 500-year flood protection level is also used for critical facilities in Executive Order 11988.

5.1.7 Other Preventive Measures

Many times, after a flood, flood victims say they would have taken steps to protect themselves if only they had known they had a flood prone property. Three regulations, one federal and two state, require that a potential buyer of a parcel be told of any flood hazard.

Federal law: Federally regulated lending institutions must advise applicants for a mortgage or other loan that is to be secured by an insurable building that the property is in a floodplain as shown on the Flood Insurance Rate Map (FIRM). Flood insurance is required for buildings located within the 100-year floodplain if the mortgage or loan is federally insured. This program does not apply to flood prone areas that are not mapped on the FIRMs. Flood prone areas that are frequently not mapped include the floodplains of smaller channels and many depressional areas. Depressional area flooding is a significant problem. The use of older flood studies in rapidly developing areas also results in outdated floodplain maps that do not reflect the actual flood risk.

Illinois Compiled Statutes: Chapter 55, Section 5/3-5029 requires that all subdivision plats must show whether any part of the subdivision is located in a Special Flood Hazard Area.

Illinois Residential Real Property Disclosure Act: This law, which went into effect on October 1, 1994, requires a seller to tell a potential buyer if the seller is aware of any flooding or basement leakage problem, if the property is located in a floodplain, or if the seller has flood insurance. The law is not wholly reliable because the seller must be aware of a problem and willing to state it on the disclosure form. Due to the sporadic occurrence of flood events, a property owner may legitimately not be aware of potential flooding problems with a property being sold or purchased.

5.1.8 Preventive Measure Recommendations

Complete current and accurate floodplain maps for all Lake County watersheds and submit to FEMA for adoption.

The County and municipalities that participate in the NFIP should ensure that they fully and properly administer and enforce the requirements of the NFIP.

The County and municipalities should ensure that they fully enforce all provisions of the WDO and the forthcoming amendments.

Communities that have not adopted the International Series of Codes should do so, and on a regional basis, municipal and County code enforcement staffs should work together to develop building code language to strengthen new buildings against damage by high winds, tornadoes, and hail.

All communities should work to improve code administration and enforcement and should also be trained on implementing the codes that are applicable to hazard mitigation.

The adequacy or current requirements for manufactured home and recreational vehicle parks for protection from natural hazards should be examined, especially concerns pertaining to placement in flood prone areas, tie downs and sheltering.

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.

Communities (certified and non-certified) need to understand and consistently enforce the WDO, and the TAC should continue their efforts in these areas.

Communities should consider joining the NFIP's CRS program. For the municipalities already involved in CRS, they should work to improve their CRS class.

Communities should encourage the use of back-up power sources or generators to address power outages.

5.2 Property Protection

Property protection measures are used to modify or remove buildings subject to flood damage rather than to keep floodwaters away. Because of the widespread extent of flood damage

caused by shallow, low velocity flooding in Lake County, traditional flood control structures such as levees and reservoirs are generally not economically justifiable in most areas. Individual property protection measures are usually the most preferred and cost-effective flood mitigation measures in these circumstances. Many property protection measures do not affect a building's appearance or uses, making them particularly appropriate for historical sites and landmarks.

Although most property protection measures are paid for and implemented by individual property owners, there is increasing government interest and cost-share funding available for building relocation and acquisition, which are permanent solutions to flood damage. While property protection is viewed as the property owner's responsibility, local governments can actively support and promote private efforts by providing technical assistance and incentives. Property protection measures include activities such as:

- Building Acquisition/Relocation
- Building Elevation, Floodproofing or Barriers
- Building Structural Retrofitting
- Insurance

5.2.1 Building Acquisition/Relocation

Acquisition ensures that buildings in a flood prone area will cease to be subject to damage. The major difference is that acquisition is undertaken by a government agency, so the cost is not borne by the property owner, and the land is converted to an appropriate public use such as a park. Acquiring and clearing buildings from the floodplain, or severe ravine or other erosion areas, is not only the best long-term flood protection measure, it also is a way to convert a problem area into a community asset that can provide environmental and recreational benefits. Building acquisition can address issues including flooding, severe storms, dam failure, and erosion.

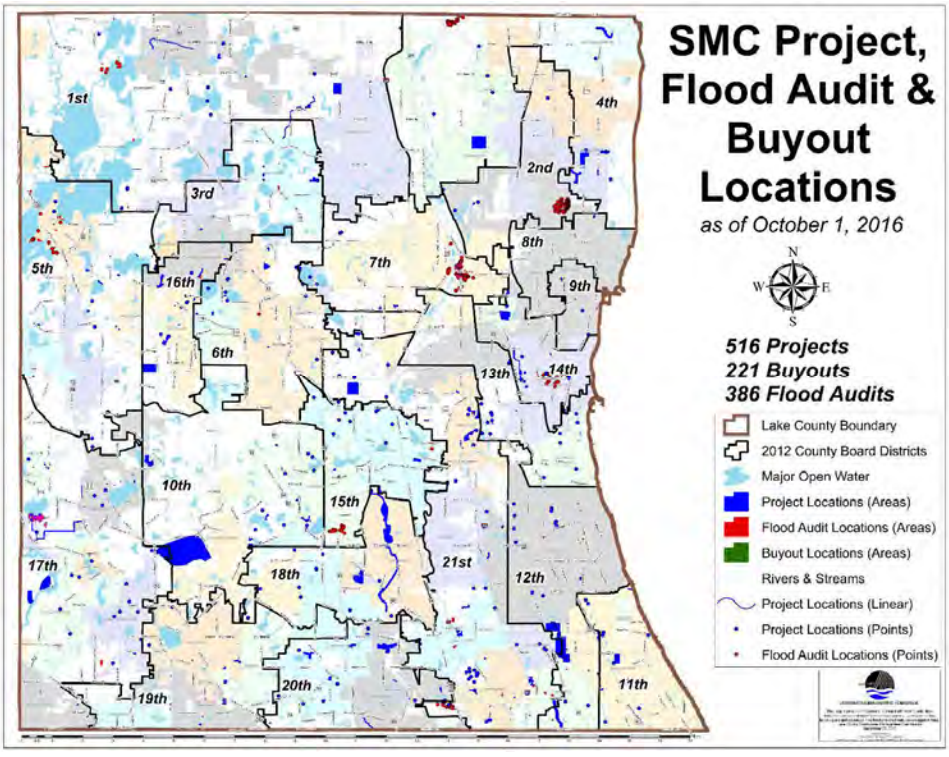
Building demolition in progress in Fox Lake

The Village of Gurnee purchased properties in the 1990s when they came up for sale in the floodway. In 1997, the SMC began coordinating the county's acquisition projects in Sturm Subdivision and William's Park, two of the most repetitively flood damaged locations in the county. Acquisition funds were provided though the FEMA Hazard Mitigation Assistance Programs. Since then, SMC has coordinated several additional FEMA Hazard Mitigation grant applications for the acquisition of flood prone properties in Fox Lake, Gurnee, Lake Forest, Lindenhurst, Round Lake Beach, and areas of unincorporated Lake County.

To date, dozens of repetitive flood loss and floodplain properties have been acquired throughout Lake County. The FEMA funds are provided through IEMA to cover 75% of project costs. Cost share funds (25%) have been provided by the participating municipalities and the SMC. The structures on the acquired properties have been demolished and the property converted to open space.

Exhibit **17** shows the location of SMC flood audit and floodplain buyout locations. SMC currently has two grant applications under review with FEMA which includes sixteen properties throughout the county.

Exhibit 17: Lake County SMC Flood Audit and Floodplain Buyout Locations



Building Relocation: Moving a building to higher ground is the surest and safest way to protect it from flooding. While almost any building can be moved, the cost goes up for heavier structures, such as those made of brick, and for large or irregularly shaped buildings. Building relocation is generally cost-effective where flooding is relatively severe and/or frequent. Buildings that have suffered structural damage or contamination from frequent or long duration flooding should not be considered for relocation.

While relocation is typically the responsibility of the building owner, government-sponsored loans or grants may be available for cost-share. Communities and county-wide agencies could play a greater role in building relocation by improving public and local official awareness of this option, identifying and prioritizing buildings or properties well-suited for relocation, and by locating potential cost-share funds to assist individual property owners.

5.2.2 Building Elevation, Floodproofing or Barriers

Elevation: Raising or elevating a house above the flood level protects the structure and contents from flood damage. When flooding occurs, water levels stay below the main floor, causing no damage to the structure or its contents. Raising a building above the flood level is less expensive than acquiring it or moving it and can be less disruptive to a neighborhood. Commonly practiced in flood prone areas nationwide, this protection technique is required by law for new and substantially damaged residences located in a 100-year floodplain.

Although flood damage can be reduced significantly or eliminated through building elevation, there are some limitations to remaining in a flood prone location. While the building itself is elevated sufficiently to be protected from flood damage, flooding may isolate the building making it inaccessible. In addition, flood waters can result in a loss of utility service in flooded areas making the building uninhabitable even though it is not damaged, and pollutant contamination in floodwaters will still threaten health and safety.

This house was elevated one foot above the base flood elevation of the Des Plaines River (prior to the adoption of the WDO).

As with acquisitions, structural elevation projects are voluntary. SMC has determined that cost-share for elevation projects is required from the homeowner and are best pursued by municipalities rather than the county.

Barriers: Constructing barriers, such as floodwalls and berms, can keep floodwaters from reaching a building. Berms are commonly used in areas subject to shallow flooding. Not considered engineered structures, berms are made by regrading or filling an area. Low floodwalls may be built around stairwells to protect the basement and lower floor of a split-level home.

Example of floodwall protection.

By keeping water away from the building walls, the problems of seepage and hydrostatic pressure are reduced.

Use of floodwalls and berms must also include a plan to install drainpipes and/or sump pumps to handle leaks and water seepage through or under the barrier, and to get rid of water that may collect inside

the barrier. Care must be taken in the design, location and installation of berms or floodwalls to ensure that floodwaters are not inadvertently pushed onto an adjacent property.

Floodproofing*:* Floodproofing covers measures that provide either wet floodproofing or dry floodproofing. In areas where there is shallow flooding, dry floodproofing measures can be used to prevent water from entering some buildings. A wet floodproofing strategy will allow water to enter the building, but moves damageable belongings, appliances, and utilities out of harm's way.

Dry Floodproofing*:* Dry floodproofing is a combination of practices that are used to seal a building against floodwaters. Walls, floors, and all openings must be sealed and made watertight. Buildings with crawlspaces generally cannot be dry flood proofed because water can seep under walls into the crawlspace. However, buildings on slabs and buildings with basements can benefit from dry floodproofing.

Dry Floodproofing - Buildings on slab

-Walls are coated with waterproofing compounds or plastic sheeting.

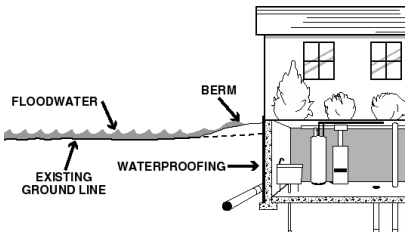
-Openings, such as doors, windows, sewer lines and vents, are closed either permanently, with removable shields, or with sandbags.

Dry Floodproofing - Buildings with basements

-Waterproofing compound is applied to the walls before fill is placed against the side of the house.

-Installation of a subsurface drain tile and sump pumps is necessary to handle water that will naturally seep through the fill.

-Surface water is kept away from the walls with backfill (see illustration).



A structural engineer should be consulted to design the dry floodproofing measures due to the need to address hydrostatic pressure against foundation walls that occur during floods.

Wet Floodproofing: Wet floodproofing provides damage protection from floodwaters that cannot be kept out of a building. It is a relatively simple means of making sure that nothing gets damaged when floodwaters enter the building. Wet floodproofing includes some of the least expensive and easiest mitigation practices to install. Wet floodproofing

approaches range from moving valuable items to a higher floor to rebuilding the floodable area. At the very least, several low-cost steps can be taken to wet flood proof a structure. Simply moving furniture and electrical appliances out of the flood prone area of the building can

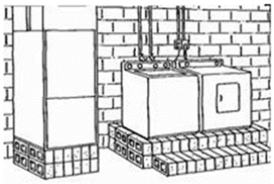
prevent thousands of dollars in damages. Wet floodproofing measures work wherever there is a level above the flood zone to which items can be relocated; in general, wet floodproofing does not work for one-story houses where living areas get flooded.

Wet Flood Proofing:

-Everything subject to damage by water or sediment is moved to a higher level or out of the building.

-For example, the electrical panel and the furnace should be relocated to an upper floor.

-Where flooding is not expected to be deep, items needing protection may be placed on platforms or blocks.



Sewer backup protection: Basement flooding can occur when the sanitary system overloads with stormwater and backs sewage up into the basement through the sanitary line. Even when sanitary and storm waters are carried in separate pipes, and they are though nearly all of Lake County, sewer backup can occur when cross connections between the storm and sanitary sewers exist, or if there are infiltration or inflow problems into the lines.

Houses which have downspouts, footing drain tile, and/or a sump pump connected to the sanitary sewer service may be inundated when heavy rains overload the system. Installing secondary power systems including back-up batteries or generator powered pump systems will ensure that the pumps continue to function during power outages. In addition to these sources, sanitary lines can also be inundated by stormwater by way of runoff infiltration into old leaky pipes or where the sanitary utility access holes are not properly sealed. Several Lake County communities experience very high sewage flows following heavy rain events. As in the case of Wauconda, some wastewater treatment plants cannot adequately treat the heavy volume of combined stormwater and sewage, so the plant is bypassed, and sewage is discharged directly to surface waters untreated.

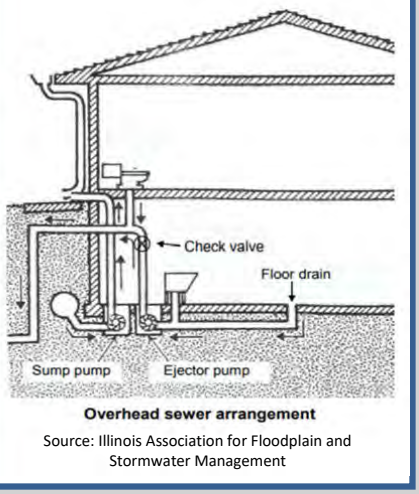
One-Way Drain Plug Protection

If allowed by the local code, sump pumps, downspouts and footing drains should be disconnected from the sanitary sewer line and the rain and groundwater directed out onto the ground, away from the building. The solution to stormwater overload of the sanitary system also includes the need for timely maintenance of sanitary lines, including periodic televising and cleaning of the sanitary sewer lines to remove tree roots and other blockages, repairing or replacing pipe where it leaks, and upgrading old wastewater treatment facilities that are inadequate for the existing level of use. Until sanitary infiltration is fixed, a property owner may use four approaches to protect sanitary sewer openings from backup. Floor drain plugs or floor

drain standpipes can be installed to keep water from flowing out of the floor drain into the building. However, these may not be effective if water gets deep enough in the sewer system to flow out of the next lowest opening, which is likely to be a toilet or utility sink.

Overhead sewers and backup valves are more expensive, but more secure for this circumstance. An overhead sewer keeps water in the sewer line during a backup. A backup valve allows sewage to flow out, while preventing backups from entering the building.

Septic system modification: In Lake County, septic failure is a common secondary result of flooding. Having septic tanks pumped as needed during periods of ponding, soil saturation or following a flood is one method of maintaining the usefulness of septic systems. In cases where the size of a single septic tank is inadequate, a second tank should be installed.



Overhead sewer arrangement

Source: Illinois Association for Floodplain and Stormwater Management

A second strategy to improve septic usefulness during high water periods would be to install an alternative system. The Wisconsin Mound septic system is constructed in soil, gravel, and sand layers above the existing grade. The Wisconsin Mound may function better than traditional systems during high groundwater periods, but even their usefulness is limited under flood conditions.

5.2.3 Building Structural Retrofitting

Tornado Retrofitting: Tornado retrofitting measures include constructing an underground shelter or "safe room" at the first-floor level to protect the lives of the occupants. Safe rooms are built by connecting all parts of the shelter together (walls, roof, and foundation) using adequate fasteners or tie downs. This helps hold the safe room together when the combination of high wind and pressure differences work to pull the walls and ceiling apart. The walls of the safe room are constructed out of plywood and metal sheeting to protect people from windborne missiles (flying debris) with the intense winds of a tornado. More information on safe rooms can be found in FEMA Publication 320.

Another retrofitting approach for tornadoes and high winds is to secure the roof, walls and foundation with adequate fasteners or tie downs. This helps hold the building together when the combination of high wind and pressure differences work to pull the building apart. This measure also applies to manufactured homes.

A third tornado and high wind protection modification is to strengthen garage doors, windows, and other large openings. If winds break the building's "envelope," the pressures on the structure are greatly increased. Impact-resistant glass is also recommended for high wind or tornado protection.

Severe Storm Retrofitting: Retrofitting approaches to protect private or public buildings from the effects of **thunderstorms** include:

- Shelters
- Storm shutters
- Lightning rods
- Strengthening connections and tie-downs (similar to tornado retrofitting)
- Impact-resistant glass in windowpanes
- Surge protectors at electrical outlets

Also, roofs can be replaced with materials less susceptible to damage by hail, such as modified asphalt or formed steel shingles.

Winter Storm Retrofitting: Winter storm retrofitting measures include improving insulation on older buildings and relocating water lines from outside walls to interior spaces. Windows can be sealed or covered with an extra layer of glass (storm windows) or plastic sheeting. Roofs can be retrofitted to shed heavy loads of snow and prevent ice dams that form when snow melts.

Earthquake Retrofitting–Buildings: Earthquakes, or seismic events, present two hazards for buildings and people – a hazard for the structure itself and a hazard for the building's contents (non-structural hazard). Earthquake retrofitting measures for the structure include:

- Removing masonry overhangs that will fall onto the street during shaking
- Bracing the walls of the building provides structural stability
- Bolting sill plates to the foundation

These measures can be very expensive and should be considered for buildings on a case-by-case basis. Measures that protect against non-structural seismic hazards typically involve small modifications. Retrofitting activities for non-structural hazards include:

- Tying down appliances, water heaters, bookcases, and fragile furniture so they will not fall over during a quake
- Installing latches on drawers and cabinet doors
- Mounting picture frames and mirrors securely
- Installing flexible utility connections for water and gas lines
- Anchoring and bracing propane tanks and gas cylinders

These approaches can be very cost effective and have little or no impact on the appearance of a building, yet they are important measures for keeping buildings safer and protecting lives during earthquake events.

While these simple and inexpensive measures may be cost effective for a home or business, they may not be sufficient for protection of critical facilities. Fire stations need to be sure that they can open their doors and hospitals must be strong enough to continue operating during the shocks and aftershocks. Again, critical facilities should be evaluated on a case-by-case basis.

Earthquake Retrofitting–Infrastructure and Lifelines: Infrastructure hardening, attention to lifelines and bridge strengthening are crucial elements of earthquake mitigation. From FEMA Publication Number 271, *Seismic Design Guidelines and Standards for Lifelines* (1996): Lifelines are the public works and utility systems that support most human activities: individual, family, economic, political, and cultural. The various lifelines can be classified under the following five systems: electric power, gas and liquid fuels, telecommunications, transportation, and water supply and sewers.

The first step in protecting lifeline systems is the prioritization of critical facilities, utility systems, and other infrastructure. The involvement of state agencies, such as the Illinois Department of Transportation, is important. The involvement of private owners of utility systems is also important. FEMA, through the National Earthquake Hazard Reduction Program (NEHRP) and the Central United States Earthquake Consortium offer technical guidance on retrofitting approaches.

5.2.4 Insurance

Insurance does not prevent flooding or flood damage; it helps an owner protect their property investment by paying for repairs and replacement of items damaged in a flood. While a typical homeowner's insurance policy does not cover a property for flood damage, flood insurance coverage is available through the National Flood Insurance Program, as is additional basement backup insurance.

National Flood Insurance: In Lake County forty-three municipalities and the County participate in the National Flood Insurance Program (NFIP). Flood insurance is required as a condition of certain types of federal aid and most bank loans and mortgages for buildings located in the 100-year floodplains identified on the FEMA Flood Insurance Rate Maps.

While the NFIP requires flood insurance for those at greatest risk, there are several weaknesses in the program. Many of the buildings subject to flooding in Lake County are not located in the 100-year floodplain as identified on the FEMA maps. In addition, many policy holders drop flood insurance following a period of dry years or after their mortgage is paid off, and/or do not buy enough insurance to cover their total risk (for instance for building contents).

Despite the federal law, it is estimated that fewer than 1 in 4 floodplain properties are covered under NFIP (Flood Hazard Mitigation in Northeastern Illinois, 1995). Nationally, 25% of NFIP claims are for flood damage to buildings located outside of the 100-year floodplain (the

insurance requirement zone). In Lake County, approximately 30% of the flood insurance policies are for properties outside the floodplain.

Table 46 shows the number of insurance policies for each Lake County community. CID in is the NFIP community identification number.

Flood insurance is available for anyone, regardless of building location, and premiums are lower if your structure is not in a mapped floodplain. For this reason, if there is any risk of flood damage to a property, it is prudent to have flood insurance.

There are ramifications for not having insurance required by the NFIP when future flood damage occurs. If property owners who were required to purchase insurance as a condition of receiving disaster assistance for a previous flood dropped the policy, they would lose their right to any future disaster assistance. In addition, under-insured public buildings will have the amount of flood insurance they should have carried deducted from any disaster assistance they may be eligible for after a flood.

Community Rating System (CRS): FEMA created the NFIP's CRS program in 1990. It is designed to recognize floodplain management and other watershed management activities that go beyond NFIP minimum requirements. Communities that participate in the NFIP can apply for the CRS. When appropriate applications and reviews are completed, a community is awarded a CRS class rating. Residents and property owners of that community then qualify for a flood insurance premium rate reduction that ranges from 5 to 45 percent. CRS credit is provided for 18 creditable activities, organized under four categories:

- Public Information
- Mapping and Regulations
- Flood Damage Reduction
- Flood Preparedness

The CRS is a voluntary program and is modeled after the fire insurance rating system. Insurance premiums are adjusted based on the rating of the community. Numerous watershed and floodplain management activities in Illinois and Lake County exceed the minimum NFIP requirements and therefore earn communities notable CRS credit.

Community Rating System			
CRS		Premium Reduction	
Class	Credit Points	SFHA*	Non-SFHA
1	4,500+	45%	10%
2	4,000 – 4,499	40%	10%
3	3,500 – 3,999	35%	10%
4	3,000 – 3,499	30%	10%
5	2,500 – 2,999	25%	10%
6	2,000 – 2,499	20%	10%
7	1,500 – 1,999	15%	5%
8	1,000 – 1,499	10%	5%
9	500 – 999	5%	5%
10	0 – 499	0	0

Community Rating System			
CRS		Premium Reduction	
Class	Credit Points	SFHA*	Non-SFHA

*SFHA = Special Flood Hazard Area

Credit points are then earned from the following categories, listed by activity number:

Public Information		Flood Damage Reduction	
310	Elevation Certificates	510	Floodplain Management Planning
320	Map Information	520	Acquisition and Relocation
330	Outreach Projects	530	Flood Protection
340	Hazard Disclosure	540	Drainage System Maintenance
350	Flood Protection Library		
360	Flood Protection Assistance		
370	Flood Insurance Promotion		
Mapping and Regulations		**Warning and Response**	
410	Floodplain Mapping	610	Flood Warning and Response
420	Open Space Preservation	620	Levees
430	Higher Regulatory Standards	630	Dams
440	Flood Data Maintenance		
450	Stormwater Management		

Table 46: Lake County Flood Insurance Status

NFIP CID	CRS Class	Community	Flood Insurance Policies as of 9/30/2021	NFIP CID	CRS Class	Community	Flood Insurance Policies as of 9/30/2021
170358		Village of Antioch	8	170378	5	Village of Lincolnshire	10
170359		Village of Bannockburn	0	170379		Village of Lindenhurst	3
170057		Village of Barrington	1	170380		Village of Long Grove	2
170058		Village of Barrington Hills	0	170381		Village of Mettawa	0
171022		Village of Beach Park	4	170382		Village of Mundelein	0
170068	7	Village of Buffalo Grove	0	170383		Village of North Barrington	1
170028		Village of Deer Park	0	170384		City of North Chicago	9
170361	6	Village of Deerfield	18	170385		Village of Old Mill Creek	--
170362		Village of Fox Lake	42	170386		City of Park City	0
		Village of Fox River Grove	0		7	Village of Port Barrington	2
170363		Village of Grayslake	0	170387	6	Village of Riverwoods	4
170364		Village of Green Oaks	0	170388		Village of Round Lake	1
170365	6	Village of Gurnee	15	170389		Village of Round Lake Beach	10
171005		Village of Hainesville	0	170390		Village of Round Lake Heights	2
170366		Village of Hawthorn Woods	0	170391		Village of Round Lake Park	0
170367	8	City of Highland Park	12	170392		Village of Third Lake	0
171033		City of Highwood	--	170393		Village of Tower Lakes	0
170369	NO SFHA	Village of Indian Creek	--	170394		Village of Vernon Hills	0
170370		Village of Island Lake	0	171042		Village of Volo	0
170371		Village of Kildeer	0	170395		Village of Wadsworth	1

Table 46: Lake County Flood Insurance Status

NFIP CID	CRS Class	Community	Flood Insurance Policies as of 9/30/2021	NFIP CID	CRS Class	Community	Flood Insurance Policies as of 9/30/2021
170372		Village of Lake Barrington	0	170396		Village of Wauconda	2
170373		Village of Lake Bluff	0	170397		City of Waukegan	0
170374	7	City of Lake Forest	3	170173	6	Village of Wheeling	0
170375		Village of Lake Villa	0	170398		Village of Winthrop Harbor	1
170376		Village of Lake Zurich	0	170399		City of Zion	0
170915		Village of Lakemoor	0	170357	6	Lake County	91
170377	6	Village of Libertyville	3				

Table 46 shows the CRS class for Lake County and the Lake County municipalities that currently participate in the CRS. The CRS class rating and insurance premium reductions are shown in the table below. Properties in the FEMA Special Flood Hazard Areas (SFHAs), or the 100-year floodplain, receive a 5 percent premium reduction for every improvement in the CRS class. Properties outside the SFHA already have a reduced premium (since they are outside the floodplain), and therefore have a lower premium reduction than properties in the SFHA.

Basement Backup Insurance: The NFIP will cover seepage and sewer backup for an additional deductible provided there is a general condition of flooding in the area that was the proximate cause of the basement getting wet. Several insurance companies offer coverage for damages incurred should a sump pump fail or sewer line back up. Most exclude damage from surface flooding that would be covered by the NFIP.

Other Insurance: Insurance is also available for earthquakes other hazards such as sinkholes. Most of these coverages are included to a property policy as a policy rider.

5.2.5 Repetitive Flood Loss Properties

Chapter 3 discusses the Lake County and Lake County community repetitive loss properties (properties with two federal flood insurance claims of at least $1,000 in any 10-year period). Protecting repetitive loss buildings is a priority with FEMA and IEMA mitigation funding programs.

The factors listed below should be used to determine appropriate property protection measures for repetitive loss properties. The criteria used are based on several studies that have identified appropriate measures based on flood and building conditions. While a cost/benefit study was not conducted on each property, these guidelines show which measures are cost-effective.

- "High hazard areas" are areas in the floodway or where the 100-year flood is two or more feet over the first floor.
- Buildings in high hazard areas or in less than good condition should be acquired and demolished.
- Buildings with basements and split-level foundations in high hazard areas should be acquired and demolished. They are too difficult to elevate and the hydrostatic pressures on the walls from deeper

flooding make them too risky to protect in place.

- Buildings subject to shallow flooding from local drainage should be protected through area-wide flood control or sewer improvement projects.
- Buildings in good condition on crawlspaces should be elevated or relocated.
- Buildings in good condition on slab, basement, or split-level foundations subject to shallow flooding (less than 2 feet) can be protected by barriers and dry floodproofing.
- Recent flood claims: Some properties have not had a flood insurance claim for 30 years, indicating that some measure has probably been put in place to protect the property from repetitive flooding.

These criteria are general, and recommendations for individual structures should be made only after a site inspection. Other extenuating circumstances may also alter the recommendations. Lake County has used the above direction in the development of "flood audits" that have been performed in repetitive loss areas. Repetitive loss areas were first identified during the development of the 2004 Draft Lake County Flood Mitigation Plan (around 2000). Letters were sent to property owners within selected repetitive loss areas to determine their interest in having a flood audit done for their property. Combined, SMC and Gurnee have conducted over 400 flood audits.

As discussed in Section 3.3.3 Repetitive Flood Loss Properties, and shown in Table 18 and of Chapter 3 of this ANHMP, there are over 100 properties on the Lake County repetitive loss list, located in 18 municipalities and unincorporated Lake County. The repetitive loss properties were grouped into 56 Repetitive Loss Areas (see Table 19). Of the remaining repetitive loss properties, about half have had flood audits (see Table 20). A flood audit also means that SMC at one time coordinated with the property owners about the flood audit process and the potential for mitigation project funding.

Though a number of repetitive loss properties have not been audited, many are in areas where nearby properties were audited. All the properties are single family homes. Of the 30 plus audited properties, all but two are single family residential.

A notable number of unmitigated repetitive loss properties are located on or near major Lake County lakes. When flooding occurs on the Fox Chain of Lakes, the flooding lasts for weeks. Long flood periods can also be experienced for properties along the Des Plaines River. During the flood audit, the range of flood mitigation options presented in the ANHMP will be investigated.

5.2.6 Property Protection Recommendations

- All buildings and critical facilities in the floodplain, SMC problem areas and depressional storage areas, with priority given to buildings or facilities in the floodway, should be mitigated, to the extent that the measures are cost effective and feasible.
- All buildings and critical facilities in or out of the floodplain and subject to damage due to erosion, should be mitigated, to the extent that the measures are cost effective and feasible. For example, the homes being impacted

in the Bull Creek Watershed in Beach Park.

- Identified repetitive flood loss areas should be further investigated through flood audits, and flood prone structures should be mitigated.
- SMC should continue to conduct flood audits and to pursue hazard mitigation grants for the acquisition of properties that are cost effective and have interested property owners.
- Investigate property-owner incentives for elevations, barriers and floodproofing.
- Establish and disseminate guidelines for local officials for determining what mitigation measures are appropriate to protect property for various circumstances for floods, severe storms, wind events (microbursts), tornadoes and other priority hazards in Lake County.
- Available property protection and public education materials for all priority hazards should be consolidated and tailored for Lake County. Materials should address measures that can help owners reduce their exposure to damage by natural hazards and the different types of insurance coverage that are available.
- Critical facilities, including lift stations and other infrastructure facilities, should be audited to determine their vulnerability and hazard mitigation needs, including back-up power needs during power outages.
- Mitigation projects should be pursued for vulnerable critical facilities, including public facilitates and health-care related facilities. Each public entity should protect its own publicly owned facilities with appropriate mitigation measure(s), except where efficiencies allow for joint funding and joint projects.
- The availability of tornado shelters or safe rooms in Lake County should be investigated.
- Safe rooms should be constructed wherever needed in Lake County with priority given to schools and critical faculties.
- Develop action plan to identify and remedy illicit hook ups and sewer infiltration that maps and prioritizes problem areas for remediation. This can be done as a county coordinated community program in conjunction with NPDES Phase 2 requirements.
- Encourage business recovery plans.
- Feasible mitigation projects should be funded through grants or through capital funding.
- All property owners should be encouraged to determine if they are adequately insured for natural hazards.
- Each public entity (county, community, schools, and other agencies) should evaluate its own properties, with a priority given to critical facilities, to determine vulnerabilities to damage from natural hazards.

5.3 Resource Protection

Natural resource protection measures serve to restore or preserve the natural functions of the floodplain and other components of the watershed storage and drainage system. Adverse impacts caused by various natural hazards can also be addressed through resource protection methods. These measures are implemented by a variety of public and private parties ranging from local park districts, forest preserves and regulatory agencies to land developers and farmers. The Liberty Prairie Reserve is an example of resource protection. Other resource protection measures include activities such as:

- Open space preservation
- Wetland protection
- Erosion and sediment control
- Streambank restoration
- Groundwater protection
- Urban forestry
- Historic and natural area protection

Liberty Prairie Reserve

The Liberty Prairie Reserve is located in the area bordered by Routes 120 and 137 from north to south, and Route 21 and Prairie Crossing on Route 45 from east to west. The Reserve is a unique example of open space preservation that is a combination of public and private ownership. 1,500 acres of the 2,500-acre reserve is currently protected as open space. The natural landscape of the Reserve, combined with agricultural and residential land uses, has been protected through both outright acquisition and conservation easements.

5.3.1 Open Space Preservation

Open space preservation throughout a watershed is important for a variety on natural hazard and environmental reasons. Preserving floodplains and natural sites of water storage, such as wetlands and low-lying areas maintain the existing stormwater storage capacities of an area. These sites can also serve as recreational areas, greenway corridors, provide habitat for local flora and fauna, and improve water quality. Open space may also be maintained as a park, golf course, or in agricultural use.

Upland areas within a watershed may be key to limiting runoff that will worsen flooding problems, important for water quality and groundwater recharge. Purchase of land is the most common approach to open space preservations; however, other methods can be considered in addition. More affordable examples of open space preservation practices include the purchase or dedication of an easement that limits use of the parcel in exchange for a tax abatement or as a condition of development approval, and the purchase of development rights for a property.

In Lake County, the Forest Preserve District, local park districts and townships have prevented millions of dollars of flood damage through the foresighted acquisition of floodplain. The Lake County Forest Preserve District alone owns nearly 7,000 acres of land adjacent to the Des Plaines River, over 1,000 acres along the Skokie, Middle and West Forks of the North Branch of Chicago River, and about 300 acres adjacent to the Fox River.

The Des Plaines River Trail is an excellent example of floodplain open space that serves the entire community.

Source: Lake County Forest Preserve District.

Parks and golf courses follow the course of the Skokie River providing areas of floodplain storage. Private not-for-profit organizations are also active in preserving open space in Lake County. These groups include Lake Forest Open lands, Lake Bluff Open lands, Liberty Prairie Conservancy, and the Lake County Land Conservancy.

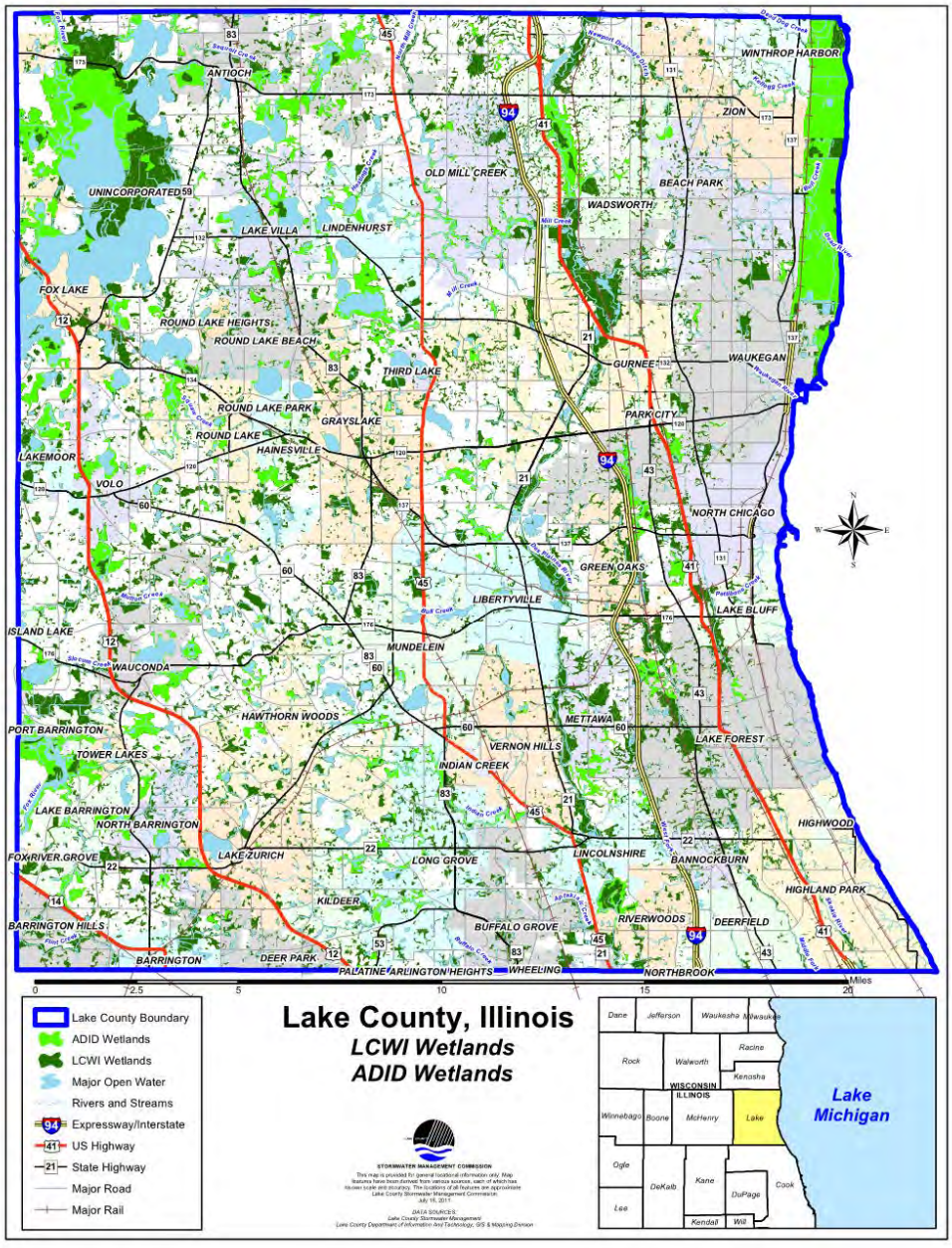
5.3.2 Wetland Protection Regulations & Soil Erosion and Sediment Control

Wetlands are usually found in floodplains or depressional areas. They provide numerous natural and beneficial functions that warrant protection. Exhibit 18 shows the open water and lake areas of Lake County wetland protection along rivers and around the lakes is critical for water quality and ecosystem protection.

Wetlands located in the Waters of the U.S. (WOUS) are regulated by the U.S. Army Corps of Engineers (Corps). Local wetland programs are important for addressing gaps in the federal regulations, particularly for smaller wetlands, unregulated activities, and indirect hydrologic impacts. Local wetland programs can require undisturbed buffers be maintained around wetlands.

The WDO provides standards for the isolated wetlands no longer under the jurisdiction of the Corps. If your project may impact a wetland, you are required to submit a Jurisdictional Determination to determine if the wetland is an Isolated Waters of Lake County (IWLC) or a WOUS.

Exhibit 18: Lake County Wetlands



As rain hits the ground, especially where there is bare soil as on farm fields and at construction sites, soil is picked up and washed downstream. This erosion of soil produces sediment that may end up in waterways far from the eroded area. Erosion also occurs along streambanks and shorelines as the volume and velocity of flow or wave action destabilize and wash away the soil.

Sediment suspended in the water tends to 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. The impact of erosion from construction sites can be controlled by methods like ditch checks and silt fences. Proper placement and maintenance of erosion protection is important to prevent sediment accumulation in waterways.

Example of a strawbale ditch check to prevent erosion.
Source: City of Milwaukee

Lake County's SMC, United States Army Corps of Engineers, United States Department of Agriculture, and the Natural Resources Conservation Service all have intergovernmental agreements in place to ensure proper and appropriate soil erosion and sediment control measures are installed and maintained on various development sites. The three agencies meet quarterly to coordinate on potential site violations.

BMP discussed in section

5.1.3 Best Management Practices of this Chapter are also important for wetland protection and erosion and sediment control.

5.3.3 Stream Restoration

Our understanding of the need for stream, streambank and riparian environment protection has grown significantly in the past decades. Eroding streambanks negatively impact our infrastructure (bridges and culvert blockages), impact property, and degrade the water quality. Terminology for "stream restoration" can differ, but the objective is to return streams, streambanks, and adjacent land to a reference ecosystem (that is typically based off its historical trajectory).

A key component of these efforts is to use appropriate plantings along the banks that resist erosion. This may involve retrofitting the shoreline with shrubs, wetland plants, and/or rolls of landscape material covered with a natural fabric that decompose 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
- Increases the beauty of the land and property value
- Prevents property loss due to erosion
- Provides recreational opportunities, such as hunting, fishing, and bird watching
- Reduces long term maintenance costs

The last bullet deserves special attention. Studies have shown that after establishing appropriate vegetation, long term maintenance costs are lower than if the banks were concrete. The Natural Resources Conservation Service estimates that over a 10-year period, the combined costs of installation and maintenance of a natural landscape may be one-fifth of the cost for conventional landscape maintenance, e.g., mowing turf grass.

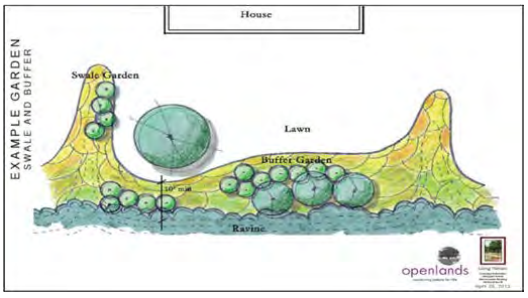
It is worth noting that rivers will take the most efficient or shortest path as the waters flows downstream. Because of debris, scour and other factors, a stream might meander through an area. During a flood, though, the stream will attempt to straighten itself or adjust its course. This is a natural occurrence, but manmade influences on this cycle should be minimized.

5.3.4 Erosion Protection

The Lake County WDO includes provision for address erosion with new development or redevelopment. Existing developments and property owners can take steps to reduce the potential for erosion.

The "Landowner's Guide to Ravine and Tableland Preservation," (2013) by Openlands is one resource guide available to help. A link to this guide is available on the Lake County website (SMC and Lake Michigan Watershed). The guide encourages limiting runoff to ravines, ensuring that sewer outfalls are at the ravine floor, and the planting and maintenance of native vegetation and trees in buffer areas along the ravine. Though written for ravine and tableland, the recommendations in the

Figure 19: Erosion Resistant Garden



guide for good practices and vegetation are applicable to any shoreline or streambank in the County. Figure 19 is an example garden from the Landowner's Guide.

The Illinois Department of Natural Resources, Office of Water Resources (IDNR-OWR) have developed the "Illinois Coastal Management Program." Their 2011 report includes a section on "Coastal Erosion Assessment and Planning." Permit from IDNR-OWR are required for coastal projects. Small projects fall under General Permits. Hardening of the coastline or other structures require a regular permit.

5.3.5 Groundwater Protection

Groundwater concerns in Lake County pertain to both groundwater quantity (or groundwater availability) and groundwater quality. The quantity of groundwater and groundwater recharge depends on the ability of runoff to reach a pervious surface where it can become seepage. Urban runoff reaching a storm sewer, for example, which discharges into a stream, is effectively lost from the groundwater system.

The quantity and the rate that water that seeps into the ground, and becomes stored groundwater, varies based on land use, soils, season, temperature, and more. The quality of the groundwater is influenced by several factors. Several types of ground cover, soils and aggregate layers have differing abilities to filter the infiltrating waters. Because of human activity, much of the rain or snow melt runoff that becomes seepage has many opportunities to collect pollutants. Pollutants need to be filtered back out either while the water is still above ground, or when it is seeping through the ground. Because soils and aggregate layers may not have the ability to fully "treat" the seepage before it becomes groundwater, it is essential to reduce the human-caused pollutants.

All groundwater was at one-time surface water. Rain and snowmelt seeps or infiltrates into the ground. Water that infuriates through the soil can eventually reach aquifers where groundwater is stored. Aquifers can be shallow, perched, deep, confined, unconfined, etc. Aquifer types and estimates of sizes can be mapped. Often the mapping of aquifer recharge areas is similar in shape and size as surface watershed boundary maps.

5.3.6 Urban Forestry

Most damages caused by wind, ice and snowstorms is to trees. Downed trees and branches break utility lines and damage buildings, parked vehicles, and anything else that was under them. A forestry program (urban or rural) can reduce the damage potential of trees.

Urban foresters or arborists can select hardier trees which can better withstand high wind and ice accumulation. Only trees that attain a height less than the utility lines should be allowed along the power and telephone line rights-of-way.

By having stronger trees, programs of proper pruning, and on-going evaluation of the trees, communities can prevent considerable damage to their tree population. A properly written and enforced urban forestry plan can reduce liability, alleviate the extent of fallen trees and limbs caused by wind and ice build-up, and provide guidance on repairs and pruning after a storm. Such a plan helps a community qualify to be a Tree City USA.

To qualify as a Tree City USA community must meet four standards established by The Arbor Day Foundation and the National Association of State Foresters:

- A Tree Board or Department
- A Tree Care Ordinance
- A Community Forestry Program with an Annual Budget of at Least $2 Per Capita
- An Arbor Day Observance and Proclamation

Communities Participating in Tree City USA

Village of Antioch	Village of Grayslake	Village of Lake Zurich	Village of Port Barrington
Village of Bannockburn	Village of Gurnee	Village of Libertyville	Village of Tower Lakes
Village of Barrington	Village of Hawthorne Woods	Village of Lincolnshire	Village of Vernon Hills
Village of Buffalo Grove	City of Highland Park	Village of Lindenhurst	Village of Wauconda
Village of Deer Park	Village of Lake Bluff	Village of Mundelein	Village of Wheeling
Village of Deerfield	City of Lake Forest	Village of North Barrington	

5.3.7 Historic and Natural Area Protection

Lake County has over 90 homes, hotels, other buildings, and districts included on the National Register of Historic Places. Additional sites are maintained by the Lake Forest/Lake Bluff Historical Society, the Fox Lake-Grant Township Historical Society, the Grayslake Historical Society, and the Waukegan Historical Museum. The historic sites are vulnerable to hazards. It is difficult to protect the structures from hazards due to their historic nature, but it is important to consider should any mitigation opportunities be presented.

There are also ten historic bridges in Lake County that are listed in the “Historic Bridges of the U.S.” list as shown in Table 50.

Table 47: Historic Bridges in Lake County

Community and Crossing					
	Road or Path	**Bridge Type**	**Status**	**Year Built**	**Year of Rehab.**
Highland Park - Ravine Bridges					
	Central Avenue	Concrete Arch	Open to Traffic	1935	--
	Dean Avenue Bridge	Truss	Open to Traffic	1928	1965
	South Deere Park Drive	Arch	Open to Traffic	--	--
Lake Forest - Ravine Bridges					
	Bluffs Edge Drive	Steel arch	Open to Pedestrians	1896	--
	Lake Road	Arch	Open to Traffic	1912	1978
	Ringwood Road	Arch	Open to Traffic	1913	1995
	Walden Lane (1 & 2)	Steel Arches	Open to Traffic	1914	1995
Long Grove - Buffalo Creek Crossing					
	Coffin Road	Truss	Open to Traffic	1925	1981
Waukegan - Waukegan River Crossing					
	Genesee Street	Three-span Arch	Open to Traffic	1913	1984

Source: Bridgehunter.com

5.3.8 Resource Protection Recommendations

- Municipal comprehensive plans, land use plans and zoning ordinances should incorporate open space provisions that will protect properties from flooding and preserve wetlands, groundwater quality and recharge, and farmland.
- An open space network should be designated and mapped based on the information collected in data layers for the area-wide conservation and development map. Soils, historic, archeological, or cultural sites and recreation potential should also be added as considerations for designation of land in the open space network.
- Communities should implement an urban forestry program that qualifies them to become a Tree City, USA.
- The public and decision makers should be informed about the hazard mitigation benefits of restoring rivers, wetlands, and other natural areas.
- Better monitoring and enforcement of BMP performance.
- Complete watershed assessments and plans that incorporate specific BMPs based on watershed condition for all 26

of Lake County's subwatersheds.

5.4 Emergency Services

Emergency services measures protect people during and after a flood. The primary responsibility for protecting lives and property from natural hazards lies with the local government. Lake County and many cities and villages have emergency management offices to coordinate warning, response, and recovery during a disaster. Lake County Emergency Management Agency (LCEMA) is operated through the County Administrator's Office. At the state level, local emergency management programs are coordinated by the Illinois Emergency Management Agency (IEMA).

In Illinois, all counties, and those communities with populations greater than 10,000 are required by law to have a state-accredited emergency services and disaster program. Municipal emergency management programs respond to disaster situations that occur in their corporate boundaries. The LCEMA is responsible for all unincorporated areas in the county and incorporated communities that do not implement their own emergency management program. Emergency management programs include activities such as:

- Emergency Planning
- Threat Recognition
- Warning
- Response
- Recovery & Mitigation
- Critical Facility Protection

5.4.1 Emergency Planning

An emergency operations plan (EOP) ensures that all response needs are addressed and that all response activities are appropriate for the expected threat. EOPs require frequent reviews to keep contact names and telephone numbers current and to make

sure that supplies and equipment that will be needed are still available. EOPs should be critiqued and revised after disasters and exercises to take advantage of the lessons learned and changing conditions. The end result is a coordinated effort implemented by people who have experience working together so that available resources will be used in the most efficient manner.

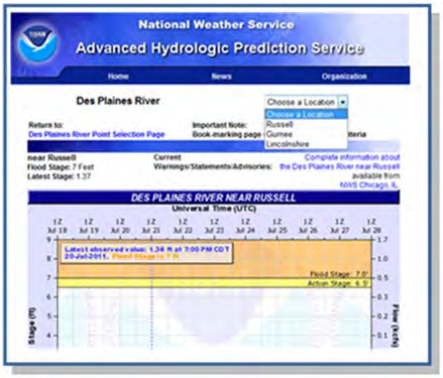
The LCEMA maintains and implements the County's EOP, and is responsible for the review of EOPs developed by the municipalities. LCEMA also facilitates emergency management exercises with the municipalities. Lake County has a Local Emergency Planning Committee (LEPC) that meets quarterly. The LEPC has a number of County departments represented, several municipalities, the American Red Cross, heath care, area employers, and other members.

All Lake County municipalities have emergency management personnel, and the majority of municipalities have either developed and adopted EOPs or are developing EOPs. All communities are working towards National Incident Management System (NIMS) compliance. Most communities have rooms that are converted into EOCs.

Mutual aid agreements are in place throughout the county for fire, police, emergency management, public health, and public works. These agreements (MABAS, ILEAS, IPWMAN, IEMMAS, PHMAS) can be utilized in any phase of an emergency or disaster.

5.4.2 Threat Recognition

The first step in responding to a flood, tornado, storm, or other natural hazard is to know when weather conditions are such that an event could occur. With a proper and timely threat recognition system, adequate warnings can be disseminated. Effective threat recognition is key for emergency managers and local officials to protect life, health, safety and property from the impact of natural hazards.



Floods: A complete flood threat recognition system measures rainfall, snow conditions, soil moisture, and stream flows upstream to calculate the time and height of the flood crest downstream.

The National Weather Service (NWS) tracks precipitation, monitors river stages and issues flood crest forecasts during potential flood situations. The NWS continuously relays weather information through radio transmissions, and flood forecasts are also available via the Internet. A system of stream and rain gages jointly operated by the United States Geological Survey (USGS) and the SMC supplement that data available to the NWS.

Table 48 shows NWS prediction locations for the Des Plaines and Fox Rivers. Stages are unique to a location and sometime difficult to relate to upstream or downstream locations. The creation of flood stage maps is one alternative to understanding a predicted flood stage and the extent of a flood inundation area.

Tornadoes and Thunderstorms: The NWS is the prime agency for detecting meteorological threats, such as tornadoes and thunderstorms. Severe weather warnings are transmitted through the Illinois State Police's Law Enforcement Agencies Data System (LEADS) and through the NOAA Weather Radio System. For tornadoes and thunderstorms, local emergency managers can provide more site-specific and timely recognition by sending out NWS trained spotters to watch the skies when the NWS issues a watch or warning.

Winter Storms: The NWS is again the prime agency for predicting winter storms. Severe snowstorms can often be forecasted days in advance of the expected event, which allows time for warning and preparation. Though more difficult, the NWS can also forecast ice storms.

Table 48: NWS Flood Forecast Points

River/Location	Action Stage (ft.)	Flood Stage (ft.)
Des Plaines River		
Russell	6.5	7.0
Gurnee	6.5	7.0
Lincolnshire	11.5	12.5
Des Plaines	4.5	5.0
Fox River		
Antioch	--	739
Stratton L&D	3.5	4.0

Other Hazards: Lake County dispatch centers receive other severe weather alerts from the LEADS system. These alerts are issued by the Illinois State Police who monitor the NOAA Weather Wire, or through their monitoring of NOAA weather radios. Police and fire stations, schools, county and municipal buildings, and some private facilities have been issued Weather Radios, or they are notified over the EAS from the LCEMA.

Figure 20: Flood Forecast and Rain and Stream Gage Links

IL Dept. of Natural Resources (IDNR): https://www.dnr.illinois.gov/WaterResources/Pages/Surveillance.aspx

National Weather Service (NWS): http://www.weather.gov

United States Geological Service (USGS): https://waterdata.usgs.gov/il/nwis/rt

5.4.3 Warning

Earlier and accurate warning leads to better response. Most warning programs have two levels of notification:

*A **flood watch**:* conditions are right for flooding.
*A **flood warning**:* a flood has started or is expected to occur in the community.

Warning notifications may be disseminated by the community in a variety of ways, including:

- Outdoor warning sirens
- Sirens on public safety vehicles
- Commercial or public radio or TV stations
- The Weather Channel
- Cable TV emergency news inserts
- Reverse 911
- Telephone trees/mass telephone notification
- NOAA Weather Radio
- Tone-activated receivers in key facilities
- Door-to-door contact
- Mobile public-address systems
- Cellular phone text messages
- E-mail or social media notifications

Multiple or redundant systems are most effective if people do not hear one warning, they may still get the message from another part of the system. Just as important as issuing a warning is telling people what to do. Warning programs should have a public information aspect. For example, people need to know the difference between a tornado warning (when they should seek shelter in a basement) and a flood warning (when they should stay out of basements). The Village of Lake Zurich recently dedicated $500,000 in its 2015-2016 budget to install a system that sends text or email alerts warning of potential flood conditions.

The Lake County Administrator is the officially designated Public Information Officer during an emergency. The Emergency Management Coordinator (EMC) assists him. The Lake County Sheriff's Office is responsible for operating a dispatch center. The dispatch center communicates with all county departments and is responsible for disseminating warning information to the public and notifying key response personnel during an emergency.

The County has its own radio network for emergencies called the Radio Amateur Civil Emergency Services (RACES) that maintains a school warning system and can also tie into hospitals and nursing homes in an emergency. Lake County schools, businesses and several County agencies have installed 156.210 MHz warning radio receivers for early notification. If the situation warrants, the County Board Chairman, or his alternate, notify the EMC to activate the Emergency Alert System (EAS). The public warning system for natural and technological disasters includes the Outdoor Warning Siren Alert Tone.

Outdoor warning sirens have been installed in many locations throughout the county. (Areas in the county where the outdoor warning sirens are insufficient have been identified by Emergency Services.)

Several the designated sirens can be activated manually at the siren site during a disaster. Community EMA coordinators, fire chiefs, mayors and police chiefs are authorized to activate these systems. The siren is a signal to the public to turn on televisions or radios to an emergency broadcast station where emergency public information and instructions on the type of protective actions that need to be taken are broadcast.

There is also a Lake County Public Emergency Notification System (PENS) that uses tone activated police radios. In addition to the EAS and radio system, the EMC also passes flood warning information to affected communities and townships by telephone. The fire and police departments provide mobile sirens and public-address systems, and door-to-door notifications when necessary. The EMC is responsible for notifying the IEMA Communications Center of all disaster warnings.

StormReady: The NWS 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.

Have more than one way to receive severe weather warnings and 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 NWS is a good measure of a community's emergency warning program for weather hazards. Currently, the following Lake County communities are StormReady communities:

Village of Gurnee

Village of Hawthorne Woods

Village of Libertyville

5.4.4 Response

The protection of life and property is the goal of effective emergency response. Concurrent with threat recognition and issuing warnings, a community should respond with actions that can prevent or reduce damage and injuries. Typical actions and responding parties include the following:

- Activating the emergency operations center (emergency management)
- Closing streets or bridges (police or public works)
- Shutting off power to threatened areas (utility company)
- Passing out sand and sandbags (public works)
- Ordering an evacuation (chief elected official)
- Holding children at school/releasing children from school (school district)
- Opening evacuation shelters (Red Cross)
- Monitoring water levels (engineering)
- Security and other protection measures (police)

Once a threat is recognized, the priority is to alert others through the warning system. The second priority is to respond with actions that can prevent or reduce damage or injury. When resources at the local level and state level are insufficient to deal with a large-scale flood emergency, assistance is available from the federal government.

Response plans ensure that all response activities are appropriate for the expected hazard. The *Lake County Emergency Operations Plan (EOP)* was updated in 2014.
Table 49 identifies, as an example, the typical flood response assignments in Lake County.

Table 49: Lake County Flood Response Assignments

Activating the emergency operations center: ↳ Lake County Emergency Management Agency (EMA) Coordinator coordinates emergency response of all county agencies
Sandbagging certain areas: ↳ EMA office provides bags and has Sandbagger machine, public works or township road department coordinate operations with citizen volunteers
Maintaining highway system: storm sewers, streets, bridges: ↳ Lake County Division of Transportation (signs/marking, debris removal, storm sewer and drainage structure repair)
Closing streets or bridges: ↳ Police/sheriff's department coordinated with appropriate road authority
Protecting water supplies & wastewater treatment facilities: ↳ Department of Public Works
Shutting off power to threatened areas:

Utility companies
Releasing children from school: School districts
Ordering an evacuation: Lake County Board Chairman, Sheriff's Office, Mayor, local police
Opening evacuation shelters - providing welfare services: EOC, Townships, Red Cross, Salvation Army, Lake County Chaplains, Catholic Charities
Guarding sandbag walls, evacuated areas & other protection measures: Local police/Sheriff

However, the HMPC feels that the EOP should be supplemented with emergency response teams for issues relating to the health department and mitigation opportunities.

Various county departments and agencies are responsible for maintaining their own emergency management procedures and response equipment. The EOP identifies and describes the activities of county departments and agencies responsible for event response. The LCEMA supports and coordinates municipal disaster response. As mentioned above, about 30 Lake County municipalities maintain and implement their own EOPs.

5.4.5 Critical Facility Protection

A summary of Lake County critical facilities is presented in Chapter 1. Protecting critical facilities during a disaster is the responsibility of the facility owner or operator. However, if they are not prepared for an emergency, the rest of the community could be impacted. If a critical facility is damaged, workers and resources may be unnecessarily drawn away from other disaster response efforts. If such a facility is adequately prepared by the owner or operator, it will be better able to support the community's emergency response efforts.

Protecting critical facilities during a hazard event is a vital part of any emergency service effort. If a critical facility is flooded, for example, workers and resources may be unnecessarily drawn away from protecting the rest of the community. If such a facility is prepared, it will be better able to support the community's flood response efforts.

Most critical facilities have full-time professional managers or staff is responsible for the facility during a disaster. These people often have their own emergency response plans. State law requires hospitals, nursing homes, and other public health facilities to develop such plans.

The LCEMA maintains lists of critical facilities in the County, but the information is not compiled for all critical facilities. It is the individual community or township's responsibility to plan for critical facility response within their jurisdiction.

5.4.6 Recovery and Mitigation

Preventing dangers to health and safety is critical after a hazard event. Recovery plans should identify appropriate measures to take. Recovery plans also should identify which agencies will be responsible for carrying out these measures.

Appropriate measures for protecting public health and safety include:

- Providing safe drinking water
- Inspection of shelter food preparation and distribution facilities
- Inspection of food facilities prior to re-opening after flooding
- Insure adequate sanitary facilities for sheltered population
- Providing appropriate inoculations
- Cleaning up debris and garbage
- Regulating reconstruction to ensure that it meets all code requirements

The EOP covers responsibilities for most of these measures. Within Lake County, the police, sheriff, or reserves are responsible for protecting evacuated areas. Depending on road authority, the Tollway Authority, Illinois Department of Transportation (395 miles), Lake County Department of Transportation (270 miles) or the Township highway departments (530 miles) are responsible for clearing roads. A response and recovery checklist are included in the Highways Appendix of the EOP.

The Lake County Health Department, in cooperation with the Public Works Department and the appropriate water treatment agencies (including JAWA), test the water supply throughout the emergency to insure it has not been contaminated. The Health Department is also responsible for inspection of food services, runs necessary inoculation programs, and will check private wells and septic systems that have been flooded within 14 days of request. The Public Health Appendix of the EOP includes a response and recovery checklist that covers these responsibilities excluding the checking of private wells and septic systems. The Lake County Red Cross is responsible for the operation of shelters.

While the EOP is silent about flood clean up responsibilities, the LCEMA office supports community efforts at cleanup and debris removal from curbside (citizens are required to get the trash and debris to the curb).

Appropriate post-disaster mitigation actions include, but are not limited to:

- Conducting a public information effort to advise residents about mitigation measures they can incorporate into their

reconstruction work

- Evaluating damaged public facilities to identify mitigation measures that can be included during repairs
- Acquiring substantially or repeatedly damaged properties from willing sellers
- Planning for long-term mitigation activities
- Applying for post-disaster mitigation funds

5.4.7 Emergency Services Recommendations

- All communities should strive to obtain a StormReady designation.
- Continue to update emergency operations plans for the County and continue to develop municipal emergency operations plans with a NIMS compliant template.
- Continue work for NIMS compliance for the County and all municipalities and provide training on NIMS and Incident Command Structure (ICS) for all first responders and other identified personnel for compliance.
- Improve information sharing between Lake County, municipal/township agencies, and services providers, such as ComEd, during and after natural hazard events. Systems should be put in place to help ensure that response and recovery efforts are coordinating and well communicated.
- Add a "Flood Annex" to the Lake County Emergency Operations Plan.
- Establish an emergency response assessment teams, including a mitigation team and a health department team.
- Response procedures for severe storm and high wind hazards should be incorporated in all emergency operations planning and response where appropriate.
- Incorporate more proactive flood response activities in emergency plans. (i.e., identify and closely monitor known problem constrictions in drainage system; system of monitoring lake levels by lake associations for lakes with associated flood problem areas; guidance to property owners on when and how to turn off utilities during flood)
- Standardize and improve system of flood damage reporting by the county, townships, and municipalities in computerized database format.
- The County and communities should ensure that alternative power sources are available at critical structures and shelters.
- Establish a "You Are Not Alone" program for seniors and the handicapped.
- Install and maintain lightning detection systems for population and/or active sites.
- Emergency operations centers at the County and in municipalities should be evaluated for effectiveness and functionality and modified appropriately.
- The County and all municipalities should have a fully operational emergency operations center and a secondary location.
- Conduct annual emergency response training exercises and table-top exercises. Look for multi-jurisdiction training

opportunities.

- Develop a disaster recovery strategy for the County and municipalities that includes the identification of mitigation efforts.
- Investigate adequacy and research funding opportunities for emergency warning and response equipment, including outdoor weather warning sirens, generators for critical facilities, and other warning systems.
- Develop flood stage maps for the County's major streams to make use of gaging networks, warning systems and GIS mapping capabilities.
- The County should provide more information to communities regarding stream gage readings and emergency response actions.
- Research funding for additional rainfall and river gages.
- Also, the County and community should look to expand the National Weather Service observer's network.
- Continue use and funding of the County's Reverse-911 system and utilize other applications of that system for natural hazard warning and response.
- Develop emergency transportation plans that allow for emergency coordination and evacuation (routing).
- Maintain and update snow removal plans.

5.5 Structural Measures

Structural projects are projects that are constructed to protect people, buildings, and infrastructure from damage due to natural hazards. Preventing damage due to flooding is the primary focus of structural projects. Structural projects are usually funded by public agencies. Structural measures include activities such as:

Watershed Planning	Improving Crossways/Roadways
Regional Flood Control	Drainage & Storm Sewer Improvements
Management of Existing Dams	

5.5.1 Watershed Planning

A watershed is an area of land draining to a river or stream. It includes rivers, streams, lakes, and wetlands. Everyone lives in a watershed, and everyone contributes to the health of the watershed. Communities are often time in more than one watershed. 8 shows the Lake County Watersheds. The major watersheds of Lake County are the Fox River Watershed, the Des Plaines River Watershed, the Lake Michigan Watershed, and the North Branch of the Chicago River Watershed.

In the 1970s and 1980s the watershed was studied by state and federal agencies (IDNR-OWR, the Corps and NRCS) for purposes of FEMA floodplain mapping and for purposes of identifying flood control projects to address existing flooding. Watershed studies are based on hydrologic (rainfall-runoff) models and hydraulic (extent and depth of flooding) models. As development has expanded throughout Lake County, these models have become increasingly less reliable for depicting the full extent of the 100-year flood, for example. As funds become available, SMC has

been remodeling watershed sub-basins and developing watershed plans. Completed and underway watershed studies in Lake County include:

SMC and County Board Adopted Watershed Based Plans:

- Des Plaines River Watershed-Based Plan (Des Plaines) (Adopted 2018)
- Bull Creek/Bull's Brook Watershed-Based Plan (Des Plaines) (Adopted March 2009)
- Fish Lake Drain Watershed-Based Plan (Fox River) (Adopted March 2009)
- Indian Creek Watershed-Based Plan (Des Plaines River) (Adopted March 2009)
- North Branch of the Chicago River Watershed-Based Plan (Chicago River) (Adopted May 2008)
- Sequoit Creek Watershed Plan (Fox River) (Adopted July 2004)
- Manitou Creek Watershed Plan (Fox River) (Adopted May 2004)
- North Mill Creek/Dutch Gap Watershed-Based Plan (Des Plaines) (Adopted 2012)
- Dead River Watershed-Based Plan (Lake Michigan) (Adopted 2008)
- Kellogg Creek Watershed-Based Plan (Lake Michigan) (Adopted 2008)
- Newport Drain Watershed Plan (Des Plaines)
- Flint Creek Watershed-Based Plan (Fox River) (Adopted 2018)
- Waukegan River Watershed Plan (Lake Michigan)

Watershed studies conducted in the 1970s and 1980s did not examine wetlands, critical environmental areas, or water quality. Current watershed plans examine these issues as well as flood issues. Many the watershed plans list homes that should be further examined for flood proofing. Other plans collected flooding questionnaire from residents within the projects. These efforts expand the database of SMC flood problem areas (shown in

Exhibit in Chapter 3) and adds to the list of properties that need a flood audit from the SMC.

5.5.2 Regional Flood Control

Structural flood control measures are used to prevent floodwaters from reaching properties, thus preventing damage. These measures generally involve construction of man-made structures to control water flows. Because of their size and cost, structural projects typically are implemented with the help of state or federal flood control agencies such as the IDNR-OWR, the Corps, and the NRCS.

Since structural flood control is generally the most expensive type of mitigation measure in terms of installation costs, maintenance requirements and environmental impacts, a thorough alternative assessment should be conducted before choosing a structural flood control measure. In some circumstances, smaller structural flood control measures may be included in a package of several recommended measures for a project area where non-structural measures would not be practical or effective.

Because larger structural flood control projects have regional or watershed-wide implications, they are often planned at a regional level by the state and federal agencies that provide most of the project funding. Nonetheless, communities should participate in and coordinate with regional flood control studies to insure they are practical, effective and have community acceptance.

Flood control studies have been done by federal and state agencies on the North Branch of the Chicago, Des Plaines and Fox Rivers. Some recommendations from these studies for reservoirs and levees have been constructed, others have not.

Three flood control reservoirs have been constructed in Lake County on the North Branch of the Chicago River. Following study recommendations made by the Soil Conservation Service (1974) and the Corps (1988), the Duffy Lane Reservoir was constructed in 1990, and the Atkinson Road and Deerfield Reservoirs were completed in 1992. Buffalo Creek Reservoir, north of Lake Cook Road has also been constructed to protect properties in Cook County.

5.5.3 Management of Existing Dams

IDNR-OWR manages the state's dam safety program that requires dam permits and operations and maintenance plans. The strictness of the permit requirements and plans is dependent on several factors including the level of hazard caused by dam failure, dam height and impoundment capacity.

The primary determinant is dam hazard. Dams are rated as being either Class I, II, or III hazard depending on the damage risk for surrounding and downstream people and properties. As discussed in section 3.9 Dam Failure in Chapter 3 of this ANHMP, there are 32 dams in Lake County under IDNR-OWR's jurisdiction. The Stratton Lock and Dam in McHenry is not included in the Lake County list but is of high concern to Lake County.

In Lake County dams are largely managed and controlled by a municipality, lake or homeowners' association, drainage district or private property owner. There is no county established inspection program or operations and maintenance requirement. The Lake County Watershed Development Ordinance (WDO) requires that the appropriate IDNR-OWR permit (or letter indicating that no permit is required) be received for all projects requiring a dam prior to the issuance of a WDO permit.

Dam Risk Reduction Measures:

Risk reduction measures can be implemented by any entity that may be affected by or is at risk from a dam failure, including state and local governments; communities; dam owners and operators; and individual property and business owners.

The most effective risk reduction occurs when all parties—from the state government to community agencies to dam owners to at-risk individuals—are aware of each other's actions and coordinate them effectively. No entity can act alone and expect to be successful. Working together maximizes risk reduction in every phase of the risk reduction process (pre-event, mid-event/response, and post-event/recovery).

Risk reduction measures aimed at reducing the likelihood of a dam failure and improving the resilience of those impacted by a potential dam failure should be tailored to the needs of all stakeholders. Stakeholders must understand their roles and responsibilities to ensure effective risk reduction and incident management. Strategies, frameworks, initiatives, plans, and procedures must be flexible and adaptable to the unique and dynamic environment created by each disaster. One of the initial critical steps is identifying the at-risk population and

understanding each stakeholder's mission, objectives, obligations, and expectations for risk reduction. Ensuring effective communication among stakeholders will improve coordination among the various entities, particularly following a dam failure.

5.5.4 Improving 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 too small culvert that is serving as a constrictor creating backwater and causing localized 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.

5.5.5 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.

"Debris" refers to a wide range of blockage materials that may include tree limbs and branches that accumulate naturally, or large items of trash or lawn waste accidentally or intentionally dumped into channels, drainage swales or detention basins. In addition to sediment, debris and weedy vegetation removal, drainage maintenance can also involve using best management practices (BMPs) to stabilize eroding shorelines or streambanks. Maintenance of detention ponds may also require revegetation or repairs of the restrictor pipe, berm, or overflow structure.

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.

In Lake County, parks, public works or highway departments, the Forest Preserve District, or the drainage districts where rights-of-way are established, or easements have been granted generally perform channel maintenance activities. Channel maintenance and restoration have also been a part of several river/stream projects such as the pool/riffle installation of the Waukegan River restoration project, and streambank stabilization using bioengineering along sections of Flint Creek in Barrington and Lake Zurich and the West Fork of the North Branch of the Chicago River in Deerfield.

In the case of detention ponds, generally a property owners' association is responsible for maintenance at residential developments. Detention ponds on public properties are maintained by the appropriate government jurisdiction.

Lake County allocated money for fiscal year 1998 to establish a drainage improvement fund for small projects in unincorporated Lake County. The Lake County Planning and Development Department (PB&D) is establishing the procedure for expenditure of these funds.

In addition to this fund, Watershed Management Board (WMB) and Community Development Block Grant (CDBG) funding have been used for drainage system improvements in the past. WMB funding is administered by the SMC and awarded on a competitive basis as 50% cost-share funding for projects sponsored by communities. CDBG funds are administered by the PB&D based on recommendations by the Community Development Commission.

There is currently no coordinated program or maintenance standards established at the county-level to consistently perform on-going drainage maintenance. Maintenance is typically done on an as-needed basis in response to problems or complaints about blockages or erosion. In many cases property owners must consent to the maintenance program. This may require legal negotiations to obtain maintenance easements.

In Illinois, the responsibility for drainage way maintenance on private property, when no easements have been granted, is with the individual private property owner. This generally results in very little maintenance being accomplished.

The SMC developed "A Citizen's Guide for Riparian Area Management," which educates landowners about debris removal and riparian landscaping. SMC anticipates adopting stream maintenance standards in the future to provide guidance and consistency for maintenance in Lake County.

5.5.6 Structural Measure Recommendations

- SMC and communities should investigate the need and ability to improve the capacity of drainage systems.
- Drainage studies, for both system capacity and detention needs, should be conducted for local drainage problem areas, as identified, and areas should be included in the SMCs mapping of flood problem areas.
- Communities should undertake steps to reduce inflow and infiltration into sewer system to reduce sewer backups.
- Develop, adopt and implement protocol for drainage system maintenance standards countywide (waterways, swales, detention basins, levees, reservoirs).
- Study the feasibility of structural flood control projects within Lake County watersheds and pursue funding for feasible projects.
- Provide preventative maintenance for susceptible landslide areas.
- Pursue funding for studies and construction of feasible local and regional drainage projects.

5.6 Public Information

Mitigation of all-natural hazards can be accomplished through effective public information activities. This is also true for addressing health issues and pandemics. Public information activities advise property owners, renters, businesses, and local officials about hazards and ways

to protect people and property. These activities can motivate people to take the steps necessary to protect themselves and others. A successful hazard mitigation program involves a public information strategy and involves both the public and private sectors. Public information includes activities such as:

Library and website resources
Outreach projects
Technical assistance

Individual property owners usually implement property protection measures; therefore, a community mitigation program should include measures to encourage and assist owners in protecting their property from flood damage. Public information activities advise property owners, and potential property owners, about flood hazards and how to protect lives and property from the hazards.

In addition to raising awareness about the hazards of flooding, public information activities also educate community residents and businesses about the beneficial functions local floodplains provide. These activities are usually implemented by a public information office but can also be the basis for developing a cooperative program with several different local agencies or departments.

A community has passive and active ways to inform residents about flood hazards and damage mitigation. Passive ways to provide information include providing reference materials and map information in the public library, at government agency offices and on a web page. Active approaches include outreach projects and providing technical assistance. Four measures for a public outreach program are considered in this plan.

5.6.1 Library and Website Resources

- Community libraries are an obvious place for residents to seek information about flooding and flood protection. Maintaining and updating library resources with this information is an effective public information strategy, since most people turn to the library when they want to research a topic.
- In addition to maintaining a resource file, libraries also frequently sponsor their own public information campaigns that might include displays, lectures and newsletter articles. Arranging one of these types of activities with the library can support and augment county or municipal public information campaigns on flooding.
- In Lake County, information on flood awareness and response is currently available at the SMC, LCEMA and other Lake County department websites, and at the American Red Cross office in Mundelein.
- SMC has developed and distributes many brochures to other agencies and the public that address flood mitigation and response and serves as a clearinghouse for flood information available from the state and federal government and other agencies. Examples of SMC publications include:
- Guides for homeowners on riparian area management and maintenance of subdivision stormwater Best

Management Practices

- A "who to call" list for drainage and flooding problems.
- SMC also maintains flood hazard information on its homepage through the Lake County website. The American Red Cross, the Federal Emergency Management Agency and the Illinois Department of Natural Resources Office of Water Resources also have print materials available in their office libraries.

5.6.2 Outreach Projects

In addition to supplying information in a passive manner through library resources, a community may want to engage in several more proactive approaches directed to those people at greatest risk. Proactive approaches reach out to people and give them information, even when they do not ask for it. Outreach projects are designed to encourage people to seek out more information on flood protection. They may include:

- Mailing notices to flood prone property owners to introduce the idea of property protection
- Holding workshops, "open houses" or other special events
- Distribution of "how to" brochures, videos or handbooks to property owners' associations, (or to individuals upon request)
- Presentations at meetings of neighborhood groups
- Providing programs and information at public venues such as malls or fairs
- Media blitzes, including newspaper articles, and radio and television news releases and interview shows, and Lake County TV cable channel

To be most effective, outreach projects should include information on property protection measures that homeowners can apply and be locally designed and tailored to meet local conditions.

The county sponsored its first official "Flood Awareness Week" in 1997. SMC organized weeklong activities that were co-sponsored by various County departments and agencies involved in flood hazard awareness and response. A day-long workshop was held for planners, realtors, and insurance agents. Other events included an evening program for the public that included several segments including an overview of the County's flood hazard; an introduction of all the local players in flood response, flood protection and mitigation; and "where to go" or "who to call" for help. Flood awareness and safety messages and publications are permanently featured on SMC's website.

5.6.3 Technical Assistance

In one-on-one sessions with property owners, community officials such as code enforcement staff or building inspectors can provide advice and information on identifying flood hazards at the site, correcting local drainage problems, floodproofing, dealing with contractors, and funding. More intensive assistance for highly flood prone properties may include conducting a "flood audit" that includes a written report covering remedial measures. Formal "flood audits" are currently not provided as a county service.

Several county agencies advise residents on flood risk and flood protection. The SMC provides advice and technical assistance to property owners associations, municipal governments and other local government units for areas that experience flooding on a watershed or regional scale. The PB&D offers technical assistance to property owners in unincorporated Lake County that experience relatively minor drainage and flooding problems.

Municipalities are responsible for providing this assistance within their jurisdictions, although not all have a system to do so, leaving some municipal residents without help. The appropriate municipal contact is generally the public works department.

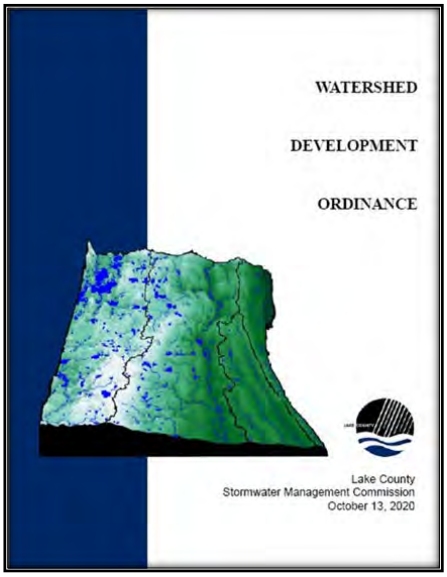
The Lake County Health Department provides technical guidance related to septic system failure and well contamination. Because flood events occur on an unpredicted and often infrequent basis, a good public information program is necessary for a successful flood mitigation program. When flood mitigation measures involve multiple partners or property owners, the acceptance of a flood mitigation proposal may rely upon an educated partnership and public. A public information program is also necessary to make private property owners aware of the options available to protect themselves from future flood damage, and to convince them that flood mitigation is a good expenditure of their funds.

5.6.4 Public Information Recommendations

- LCEMA, SMC and other county agencies should build a county-wide partnership for coordinated delivery of public information materials and activities.
- Communities in the NFIP should provide floodplain information for property owners.
- Communities in the NFIP should promote flood insurance to residents and property owners.
- Develop and implement a system to coordinate the distribution of flood mitigation and response guidance materials for pre-flood outreach to at risk property owners.
- Increase outreach to community plan departments and commissions to strengthen local understanding and review of development proposals and their compliance with WDO standards.
- Educate property owners on safe rooms. Prepare informational materials on how to construct safe rooms in homes and other buildings.
- Develop a method that helps identify safe rooms and encourages their use.
- Educate property owners and residents about safety during severe summer and winter storms.
- Provide information to property owners and residents about safe use of generators and safe cooking during power outages.
- Provide information that identifies locations of cooling and warming shelters.

5.7 Capability Assessment Summary

Lake County and the municipalities have notable existing capabilities to minimize future vulnerabilities to hazards. Section 5.1 Preventive Measures discusses the plans, ordinances, and programs that can help prevent or minimize possible future impacts of hazards. The WDO addressed new development, but also strives to mitigate the impact of existing development. Tables throughout this chapter also summarize and highlight community activities, and other sections of this chapter depict activities underway to address existing vulnerabilities.



The Lake County government arrangement allows communities to take individual mitigation projects or to participate with the county. For example, communities can pursue their own buyouts, or they can participate with the SMC to address environmental and demolition/restoration needs. Municipalities have the choice of relying on the county for watershed development issues or making their own determinations through the WDO Certified Community approach. Communities have numerous mutual aid agreements, and LCEMA is working to reduce overall vulnerability.

The constraints facing Lake County and the communities include both limited staff resources and funds that can be directed toward implementing hazard mitigation actions. To a great extent, communities will need to rely on technical and financial assistance from regional, state and federal resources to effectively implement hazard mitigation actions over the next five years. The current economy has severely limited funding throughout Lake County.

During the development of this draft Hazard Mitigation Plan and after reviewing other recent planning initiatives, it is clear that municipalities have the capability to bring together citizens, government representatives, and local officials to work closely together in crafting a better future for their communities. That same cooperative effort, if joined with the appropriate technical and financial assistance from regional, state, and federal resources, can be harnessed to implement the priority hazard mitigation actions described in Section 6 on this plan. A sustained effort by the citizens, staff, and local officials can create a more sustainable and disaster resistant future for Lake County.

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Chapter 6: Action Plan

This chapter contains the 2022 ANHMP Action Plan. The action items presented in this Chapter were developed from the action items presented in the 2017 ANHMP, from the HMPC meetings and discussions, and the list of mitigation recommendations presented in Chapter 5.

6.1 Development of Current Action Plan

The Action Plan included in this Chapter was developed by the HMPC as part of this ANHMP update and the 2022 update.

All action items, whether listed specifically for a community or not, and all recommendations included with the mitigation strategies in Chapter 5 of the ANHMP should be considered for funding should IEMA or FEMA mitigation grant opportunities arise for any community that participated in this 2022update.

Action Items: For this 2022 update, the HMPC discussed the effectiveness of the 2017 action plan and action items. Most all 2017 action times applied to most all communities. For the 2022 plan development, the County and communities identified action items applicable to the County and to the communities. Next the communities identified action items to be undertaken with the update. The community specific action items are listed in Section

Table 51: Summary of 2022 Action Items and ANHMP Goals

		Action Item to Be Implemented By:				
No.	Action Item:	Lake County Board	Lake County	Municipal Boards & Councils	Municipal Staff	Other Stakeholders
1	Adoption	✓		✓		
2	Monitor & Maintain		✓		✓	
3	Incorporate ANHMP in Other Plans	✓	✓	✓	✓	✓
4	Implement WDO & NFIP		✓		✓	
5	Public Information		✓		✓	✓
6	Alternate Power Sources				✓	✓
7	Mitigation of Critical Facilities		✓		✓	✓
8	Capacity of Drainage Systems		✓		✓	
9	Maintain Drainage Systems		✓		✓	
10	Property Protection Projects		✓		✓	✓
11	Reduce Inflow and Infiltration				✓	
12	Wind Mitigation & Safe Rooms	✓	✓	✓		
13	Tree City USA				✓	
14	NIMS Compliance	✓	✓	✓	✓	✓
15	Improve Building Codes		✓		✓	
16	Seek Grant Funding		✓		✓	
17	StormReady		✓		✓	
18	Emergency Response		✓		✓	
19	Response & Recovery Information	✓	✓		✓	✓
20	CRS Participation		✓		✓	

Table 51: Summary of 2022 Action Items and ANHMP Goals

		Action Item to Be Implemented By:				
No.	**Action Item:**	**Lake County Board**	**Lake County**	**Municipal Boards & Councils**	**Municipal Staff**	**Other Stakeholders**
21	Continue to map natural hazard impacts and continue vulnerability assessments		✓			
22	SMC Flood Mitigation Projects		✓			
23	Development of Flood Stage Maps		✓			
24	Snow removal plan		✓		✓	
25	Utility tree trimming		✓		✓	
26	Sump Pump Disconnects		✓		✓	
27	Local Drainage Studies		✓		✓	
28	Increase Detention		✓		✓	
29	Investigate Countywide Warning System		✓		✓	
30	Investigate Future Conditions and the Impact on Depth and Frequency of Flooding		✓		✓	
31	Lincolnshire Creek Improvements				✓	
32	Mitigate Septic Discharge, Leaching into Waterways		✓		✓	
33	Implement the FFRMS				✓	
34	(A)Bank Stabilization, (B) Resize culvert, (C) Stormwater Conveyance Improvements and (D) Update Building Codes.			✓	✓	
35	Catch basins			✓	✓	
36	(A)Alternate power source, (B)Streambank stabilization and (C)Increase culvert capacity			✓	✓	
37	(A)Expand swale system and (B) Increase stormwater flow capacity			✓	✓	
38	Increase storm sewer capacity			✓	✓	
39	Shoreline stabilization			✓	✓	
40	Increase detention volume at Highlands Subdiv.			✓	✓	
41	Drainage improvements and additional storm sewer			✓	✓	
42	(A)Flood buyouts, (B) New electronic sign,(C)Shoreline stabilization and (D)New storage shed for emergency supplies			✓	✓	
43	Implement program to review and clear retention pond culverts			✓	✓	
44	(A) Drainage Ditch Streambank Stabilization , (B) Shoreline Stabilization, (C) Inflow & Infiltration (I/I) Mitigation, (D) Lagoons and outfall channel, and (E) Mutton Creek Streambank Stabilization			✓	✓	
45	Yeoman Creek bank stabilization			✓	✓	
46	(A,B)Residential Buyouts or Elevation,. (C,D) Drainageway Restoration/Conveyance		✓			
47	(A,B) Restoration/Conveyance and (C) Flood Access/Elevate Roadway at Liden Ave		✓			
48	(A,B) Drainage Infrastructure, (C,D) Residential Buyouts or Elevations		✓			
49	(A,B,C,D) Drainage Infrastructure improvements		✓			
50	(A) Dam Replacement at Sylvan Lake Dam, (B,C,D) Infrastructure enhancements		✓			
51	(A,B) Drainageway Restoration/Conveyance, (C) Drainage Infrastructure and (D) Flood buyouts or elevations		✓			

Table 51: Summary of 2022 Action Items and ANHMP Goals

		Action Item to Be Implemented By:				
No.	**Action Item:**	**Lake County Board**	**Lake County**	**Municipal Boards & Councils**	**Municipal Staff**	**Other Stakeholders**
52	(A,B,C,D,E,F) Drainage Infrastructure improvements		✓			
53	(A) Levee Enhancements, (B,C,D,E,F,G,H) Drainage Infrastructure and (I)Stormwater storage		✓			
54	(A,B) Flood Access/Elevate Roadway (C,D) Residential Buyouts or Elevations		✓			
55	(A,B,C,D,E) Drainage Infrastructure improvements		✓			
56	(A) Residential Buyouts or Elevations, (B,C,D) Drainage Infrastructure and (E) Flood Proofing		✓			
57	(A,B,C,D,E,F,G,H,I,J,K,L,M) Drainage Infrastructure, (N,O) Drainageway Restoration/Conveyance and (P,Q,R) Stormwater Storage		✓			
58	(A) Residential Buyouts or Elevations at and (B) Creek conveyance		✓			
59	(A,B) Drainage Infrastructure improvements		✓			
60	Drainage Infrastructure improvements		✓			
61	(A) Improve Northwood Subdivision Stormwater Transmission and Storage, (B) Stabilize & Enhance Arboretum Club Shoreline, (C) Emergency Operations Center Communications Equipment, (D) Enhanced Emergency Communications Program			✓	✓	

6.3 Action Items by Community of this Chapter.

Like the recommendations made with the mitigation strategies presented in Chapter 5, all action items presented in this Chapter are available to all communities. All action items in this Chapter and all recommendations in Chapter 5 should be taken to be elements of this ANHMP, and therefore eligible items for funding with FEMA mitigation grant funds.

Prioritization: Action items are prioritized within this Chapter in the order that they are presented, beginning with Action Item 1. The Action Items 1 through 4 are called for in the FEMA mitigation planning guidance. The prioritization of remaining action times was established based on HMPC discussions, and the number of communities included in the action item. Appendix E shows the action items in priority order. The action items address the priority hazards discussed in Chapter 3 and the goals and guidelines presented in the Chapter 4. shows the action items in priority order as associates them with the hazard mitigation goals of this ANHMP.

Action item format: Action items assign responsibilities and deadlines to the appropriate agencies. Each action item contains a brief description and a section for the responsible agency, the deadline for accomplishing the action item, the costs (and potential funding sources), and the benefits. Potential funding sources include the FEMA Hazard Mitigation Assistance programs: The Hazard Mitigation Grant Program (HMGP), the Building Resilient Infrastructures and Communities (BRIC), and the Flood Mitigation Assistance Program (FMA).

The action items are summarized in **Error! Reference source not found.**53 and show the agency assignments. While this Chapter provides the action items in a priority order, all action items should be implemented if staff time and/or funding becomes available ahead of other action times. The relationship between the goals and guidelines are shown in **Error! Reference source not found.**.

Please note, based on a hazard event, opportunity, property owner interest or available funding, the county or the communities may choose to implement a lower priority action prior over a higher priority action, or implement a recommendation included in Chapter 5 of this ANHMP that is not included in this action plan, and request grant funding. All mitigation opportunities should be considered.

6.2 Lake County ANHMP Priority Action Items

Lake County and Lake County municipalities and other appropriate agencies will work to implement the following action items in the next five years as staff and funding resources allow:

Action Item 1: Plan Adoption

The County Board, City Councils, Boards of Trustees, and other governing boards, as appropriate, will adopt this Lake County All-Natural Hazards Mitigation Plan (ANHMP) update by resolution. Each agency resolutions should adopt the pertinent action items contained in this Chapter of the ANHMP.

Responsible Agency: County Board, City Councils, Village Boards, Boards of Trustees.
Deadline: 6 months.
Cost: Staff time.

Benefits: Adoption of the updated ANHMP ensures that County, municipalities, and other agencies are authorized to implement the action items with available resources.
Plan Reference: Chapters 2 and 7.

Action Item 2: Participation on the Hazard Mitigation Planning Committee and Plan Monitoring and Maintenance

A Lake County Local Planning Committee (HMPC) meeting will be held at least once a year to evaluate and monitor progress on implementation of the ANHMP, and to organize for the next update of this ANHMP. An annual report should be submitted to the County Board by the HMPC as an information item.

Responsible Agency: Lake County Stormwater Management Commission (SMC) and Lake County Emergency Management Agency (LCEMA) and the HMPC.
Deadline: HMPC to meet each year. A five-year update is required for FEMA's mitigation funding programs.
Cost: Staff time.
Benefits: A monitoring system helps ensure that responsible agencies continue to be aware of their assignments. The Plan should be evaluated considering progress, changed conditions, and new opportunities.
Plan Reference: Chapters 2 and 7.

Action Item 3: Incorporate ANHMP into Other County and Municipal Plans

As noted in Table **44**47, Lake County communities have a variety of plans and ordinances in place. Actions identified in this ANHMP should be incorporated into comprehensive, stormwater management, capital improvement, land-use, and emergency management plans, zoning ordinances, building codes, and post-disaster mitigation policies and procedures. Each jurisdiction participating in this ANHMP will be responsible for reviewing their plans, ordinances, and policies and, as appropriate, revising those documents.

Each community that has adopted this mitigation plan will take the following actions to facilitate the incorporation of mitigation actions into their plans and ordinances:

Within one year of the adoption of the ANHMP by the community, the lead individual for each community (emergency manager, public works director, engineer, or planner) will lead a local committee that will complete an evaluation of the Villages Plans, Codes and Ordinances to determine those that need to be modified to incorporate the action items of the ANHMP.

When the plans, codes or ordinances are updated or modified for any purpose, a recommendation will be made to make the modifications noted in number 1 above.

Next time the ANHMP is updated or modified, a review will be completed within one year of adoption to determine if any additional modifications must be made to local plans, codes, or ordinances.

Responsible Agency: County Board, City Councils, Village Boards, Boards of Trustees, and County and municipal offices.
Deadline: 5 years.
Cost: Staff time.

Benefits: Adoption of the updated ANHMP ensures that County, municipalities, townships, and other agencies are authorized to implement the action items with available resources.
Plan Reference: Chapter 5, Section 5.1 Preventive Measures.

Action Item 4: Continued Implementation of the WDO and NFIP Requirements

Lake County and municipalities, whether certified or non-certified, should continue to fully implement and enforce the Lake County Watershed Development Ordinance (WDO) for all applicable developments. The WDO incorporates the NFIP minimum standards, and while the Planning, Building and Development (PB&D) administers the WDO for unincorporated Lake County, all NFIP municipalities are still ultimately responsible for ensuring that development within the regulatory floodplain meets the NFIP minimum standards.

Responsible Agency: SMC, PB&D, and municipal NFIP coordinators.
Deadline: Ongoing.
Cost: Staff time.
Benefits: Community compliance with the NFIP is essential.
Plan Reference: Chapter 5, Section 5.1 Preventive Measures.

Action Item 5: Improve Natural Hazards Public Information Efforts with focus on the Promotion of Flood Insurance and How People Can Protect Themselves and Their Property

Education regarding natural hazards that can impact Lake County should be provided to all Lake County property owners and residents. Many public information efforts have been implemented, but these efforts should be improved to reach people more effectively and to provide effective messages regarding life, health and safety and property protection. Public information and education efforts should focus on severe summer and winter storms, floods and tornadoes and materials should be developed specifically for Lake County and tailored to Lake County needs.

Responsible Agency: LCEMA, SMC, HMPC, Lake County Health Department (LCHD), LCDOT and municipalities.
Cost: Staff time and publication costs.
Benefits: A county-based approach is the most cost-effective approach and will offer the greatest benefit. Public information efforts can address nearly every natural hazard and more than one hazard can be discussed with an audience at one time.
Plan Reference: Chapter 5.

Action Item 6: Identify Needs and Obtain Alternate Power Sources for Critical Facilities and Shelters

The July 2011 storms in Lake County highlighted the need for alternate power sources at critical facilities. The HMPC recognizes that FEMA mitigation funds are not available for this action item but recognizes the importance of all agencies and facility and shelter owners determining back-up power source needs and obtaining equipment and/or service.

Responsible Agency: Emergency management agencies and facility and shelter owners.
Deadline: 36 months.
Cost: Variable.
Benefits: Adoption of the updated ANHMP ensures that County, municipalities, townships and other agencies are authorized to implement the action items with available resources.

Plan Reference: Chapter 5, Section 5.4 Emergency Services.

Action Item 7: Review of Critical Facilities and Implement of Appropriate Mitigation Measures

Critical facilities should be evaluated to determine their vulnerability to tornadoes, severe storms and floods. The availability of safe rooms and sheltering should be reviewed. Critical facilities have been mapped in the County's GIS. As the County further examines building footprints and floodplains as part of the stormwater management program, the review of critical facilities should be included. Approximately 20 Lake County critical facilities are in the floodplain, and other critical facilities are vulnerable to wind and severe storms. Where necessary, critical facilities should be mitigated and protected from identified natural hazards.

Responsible Agency: SMC, LCEMA, GIS Division, municipalities, critical facility owners.
Deadline: 24 months.
Cost: Staff time. Potential funding sources include HMGP, BRIC, and FMA.
Benefits: Critical facilities that can function during hazard events allow for better protection of people and property. Shelters and safe rooms save lives. Review and mitigation of critical facilities will benefit Lake County through preparedness, response and recovery.
Plan Reference: Chapter 5, Section 5.2 Property Protection and 5.4 Emergency Services.

Action Item 8: Improve Capacity of Drainage Systems and/or Provide Additional Storage of Flood Waters

When opportunities arise and when downstream areas are not adversely impacted (or mitigated), communities should strive to increase the capacity of drainage systems. Drainage improvements may include opening restrictive culverts or bridges, storm sewer improvements, etc. When appropriate and when opportunities are identified, the systems should be augmented with additional detention or retention to reduce runoff rates and runoff volumes.

Responsible Agency: SMC, LCDOT, municipal public works and engineering.
Deadline: Ongoing.
Cost: Staff time and project-specific costs.
Benefits: Local flooding outside of the floodplain and riverine (floodplain) flooding can be reduced.
Plan Reference: Chapter 5, Section 5.5 Structural Measures.

Action Item 9: Implement Maintenance Programs for Drainage Systems, Including Streambank and Ravine Stabilization Efforts

The County, municipalities, and townships should develop and implement formal and regular drainage system maintenance programs. This effort should include the inspection of privately maintained drainage facilities. It is understood that each municipality and township will make these considerations based on available staffing and financial resources. Both urban and rural streams need maintenance. Also, bridges and culverts (active or abandoned) that restrict flood flows should be evaluated. The removal or enlargement of stream crossings, in cases where a modification will not cause an increase in downstream flooding, should be considered and funded. Streambank and ravine or shoreline stabilization efforts should also be evaluated and implemented. Public information should be provided to property owners on how best to protect streambanks and shorelines.

Responsible Agency: Lake County, municipalities, and townships. This can include public works departments, township road districts, or other appropriate departments or offices.
Deadline: 36 months.
Cost: Staff time and equipment.
Benefits: Development and agriculture have led to a reduction of stream capacity, and upstream flooding as a result may be increasing. A restoration of stream capacity may mitigate upstream damage, enhance stream, and water quality. Regular maintenance can protect both structures and property. Regular maintenance can also be more cost effective than major maintenance efforts that are done on an as-needed basis.
Plan Reference: Chapter 5, Section 5.5 Structural Measures.

Action Item 10: Implement Property Protection Projects for Flood Mitigation

Properties that are exposed to flood damage, severe storms, and severe erosion throughout Lake County should be protected through property protection measures where regional structural projects are not feasible. Property protection measures should include, but not be limited to, acquisition, elevation, floodproofing, or retrofitting. Priority should be given to repetitive loss properties and homes subject to the impacts of severe erosion, however, all flood prone properties (floodplain, depressional storage or SMC problem areas) including critical facilities should be included.

Responsible Agency: SMC, municipal NFIP coordinators.

Community Specific Action Item for: Lake County and NFIP municipalities, including (by watershed):

Des Plaines River: Antioch, Beach Park, Buffalo Grove, Deer Park, Grayslake, Green Oaks, Gurnee, Hainesville, Hawthorn Woods, Kildeer, Lake Villa, Lake Zurich, Libertyville, Lincolnshire, Lindenhurst, Long Grove, Mettawa, Mundelein, Old Mill Creek, Riverwoods, Round Lake Beach, Third Lake, Vernon Hills, and Wadsworth

Fox River: Antioch, Fox Lake, Fox River Grove, Hainesville, Hawthorn Woods, Island Lake, Lake Barrington, Lake Villa, Lake Zurich, Lakemoor, North Barrington, Round Lake, Round Lake Beach, Round Lake Heights, Round Lake Park, Tower Lakes, Volo, and Wauconda

North Branch Chicago River: Bannockburn, Deerfield, Green Oaks, Gurnee, Highland Park, Highwood, Lake Bluff, Lake Forest. Lincolnshire, Mettawa, North Chicago, Park City, Riverwoods, and Waukegan

Lake Michigan: Beach Park, Highland Park, Lake Bluff, Lake Forest, North Chicago, Winthrop Harbor, Waukegan, and Zion

Deadline: Ongoing.
Cost: Identified per project. Potential funding sources include HMGP, BRIC, and FMA.
Benefits: Properties will be protected from future flooding and from severe erosion. Also, the exposure of the NFIP will be reduced for insured and repetitive loss buildings. There will also be a reduction in emergency response as structures are protected or removed from flood prone areas.
Plan Reference: Chapter 5, Section 5.2 Property Protection.

Action Item 11: Reduce Inflow and Infiltration to Protect Against Sewer Backups

Municipalities should evaluate options and implement programs to reduce the inflow and infiltration of stormwater into the sanitary sewer system to reduce the wastewater treatment plant flow during severe storm and flood events. Efforts can be undertaken on a regional basis.

Responsible Agency: Municipalities.
Deadline: 36 months.
Cost: Staff time and equipment.
Benefits: When inflow and infiltration is reduced, the risk of sewage overflows or untreated discharge into the Lake County river system are avoided. Also, sewer backups can be avoided and damage to buildings can be reduced.
Plan Reference: Chapter 5, Section 5.2 Property Protection and 5.5 Structural Measures.

Action Item 12: Identify Wind Mitigation Opportunities for the Protection of Buildings, and to Provide Safe Rooms and Sheltering

Wind mitigation, and safe rooms and sheltering, needs can arise though planning efforts, building design efforts, and retrofitting opportunities. When needs, safety, and sheltering deficiencies are identified, alternatives for providing mitigation should be developed and funding sought.

Responsible Agency: All Lake County agencies and municipal departments.
Deadline: 5 years.
Cost: Project specific.
Benefits: Prevent loss of life.
Plan Reference: Chapter 5, Section 5.1 Preventive Measures, 5.2 Property Protection and 5.4 Emergency Services.

Action Item 13: Continue Participation or Consider Participation in Tree City USA (Urban Forestry)

Lake County municipalities that are Tree City USA communities will maintain their status in the nationwide program, and communities that are not in the program will consider joining the program. It is understood that each municipality will make these considerations based on available staffing and financial resources.

Responsible Agency: Public works department or another appropriate municipal department.
Deadline: 24 months.
Cost: $2 per capita, staff time.
Benefits: Urban forestry programs provide mitigation against severe winter and summer storms, and high wind events. The loss of trees is prevented along with the protection of power, telephone, and cable services. Damage to vehicles and buildings from falling limbs is also prevented.
Plan Reference: Chapter 5, Section 5.3 Resource Protection.

Action Item 14: Continue Work for NIMS Compliance

The county and all municipalities should ensure that they are NIMS compliant. Training opportunities for all first responders and other identified personnel on NIMS and ICS should be shared will all agencies.

Responsible Agency: County Board, City Councils, Village Boards, Boards of Trustees, County and municipal offices.
Deadline: Ongoing.
Cost: Staff time.
Benefits: All officials trained in NIMS allows for better hazard preparedness, response and recovery.
Plan Reference: Chapter 5, Section 5.4 Emergency Services.

Action Item 15: Improve Building Codes and Building Code Enforcement

Communities that have not adopted the International Code series of building codes should do so, and for all communities, future code revisions should be pursued to strengthen new buildings against damage by high winds, tornadoes, hail, earthquakes, and flooding. The Building Code Effectiveness Grading Schedule (BCEGS) program is designed to evaluate the code adoption and enforcement efforts of a community, with emphasis on natural hazard mitigation. The County and most municipalities participate in BCEGS, and communities should strive to improve their rating to a 4/4, if not already attained. Requiring tornado "safe rooms" in certain structures should be considered. The floodplain provisions (design flood elevation) should also be considered in conjunction with the Lake County WDO.

Training should be developed and conducted for building department staff on building code administration, enforcement, the natural hazards aspects of the International Codes, regulation of mobile home installation, flood provisions, and any other provisions applicable to hazard mitigation.

Responsible Agency: County and municipal building code departments.
Deadline: Ongoing.
Cost: Staff time and cost of training.
Benefits: Effective implementation and enforcement of building codes provides mitigation for severe summer and winter storms, including wind events, floods and earthquakes. Through rigorous enforcement of the latest available codes, utilizing adequately staffed and trained code enforcement professionals; these efforts will be reflected through more favorable BCEGS classifications.
Plan Reference: Chapter 5, Section 5.1 Preventive Measures

Action Item 16: Seek Mitigation Grant Funding for Additional Mitigation Planning and Cost Beneficial Projects

The County, municipalities, other agencies and institutions should apply for mitigation grant funding through available IEMA and FEMA programs for mitigation planning and mitigation projects. As required by IEMA and FEMA programs, projects must be cost beneficial. FEMA hazard mitigation funding including BRIC, HMGP, FMA and Section 406 of the Stafford Act (for facilities and infrastructure damaged due to a presidentially declared disaster) should be considered.

Responsible Agency: Lake County, municipalities, other agencies, and institutions.
Community Specific Action Item for: Lake County and ALL interested municipalities.
Deadline: As needed.
Cost: 25% of plan or project cost (non-federal share). Potential funding sources include HMGP, BRIC, and FMA.

Benefits: The County, municipalities, townships, other agencies and institutions, along with residents and property owners, would benefit from the available grant funding. The request for grant funding also allows the HMPC to benefit from the mitigation planning effort.
Plan Reference: Chapter 5

Action Item 17: Continue Participation or Consider Participation in StormReady

Lake County municipalities that are National Weather Service StormReady communities will maintain their status in the nationwide program, and Lake County communities, other agencies, and colleges should consider joining the StormReady program. The StormReady program has been developed to provide communities guidelines to improve the timeliness and effectiveness of hazardous weather-related warnings for the public.

Responsible Agency: LCEMA, municipal EMA, police and fire, other agencies, and institutional emergency managers.
Deadline: 24 months.
Cost: Staff time, and equipment purchases for some communities.
Benefits: By meeting StormReady requirements, the County, communities and institutions will be better able to detect impending weather hazards and disseminate warnings as quickly as possible. Given the County's population, all efforts to prevent injury, save lives, and protect property are of high value.
Plan Reference: Chapter 5, Section 5.4 Emergency Services

Action Item 18: Improve Emergency Response and Develop Assessment Teams

Lake County and the municipalities should work to improve emergency response and to develop assessment teams for emergency management response, health department concerns and needs and for post-disaster mitigation.

If a community waits until a disaster occurs to plan post-disaster mitigation policies and procedures, they are too late. The time to prepare is before the disaster occurs. Preparation includes assigning post disaster tasks to:

- Determine the extent of the damages, including whether the structures are substantially damaged as defined in the WDO
- Determine the health and safety needs
- Ensure that the public is aware of actions that they should be taking, and that the community is taking to mitigate damages, as well as encouraging property owners and renters to work with their insurance agents to help cover their losses
- Ensuring that residents have the proper permits before repairing structures and ensuring that the repair is completed according to code
- Determine what mitigation actions are appropriate given the extent of damages
- Determine whether any temporary permit and construction moratoriums need to be put in place after the disaster

Response teams should be developed through the LCEMA and other county agencies and the HMPC. Individuals that may be needed for post disaster activities should be trained, should be

aware of their potential assignments and should prepare documents that they may need to use after the disaster occurs.

Responsible Agency: LCEMA, LCHD, SMC, PB&D, municipalities, and other agencies.
Deadline: 18 months.
Cost: Staff time.
Benefits: This action ensures that the needs of the county can be addresses quickly after a hazard event and to pursue mitigation opportunities as the earliest possible time.
Plan Reference: Chapter 5, Section 5.4 Emergency Services.

Action Item 19: Enhance Response and Recovery Information Sharing and Collaboration and Identify Additional Training Opportunities

Improve information sharing between Lake County, municipal/township agencies and services providers, such as ComEd, during and after natural hazard events. Systems should be put in place to help ensure that response and recovery efforts are coordinating. Additional training opportunities should be identified, including annual exercises and tabletop exercises.

Responsible Agency: LCEMA, municipal EMAs, utility companies.
Deadline: Ongoing.
Cost: Staff time.
Benefits: Regular maintenance of streams, drainage ways and stormwater Best Management Practices will help reduce localized flooding problems.
Plan Reference: Chapter 5, Section 5.4 Emergency Services.

Action Item 20: Continue Participation or Consider Participation in the NFIP's Community Rating System

Municipalities that participate in the NFIP should consider participating in the Community Rating System (CRS). Lake County and several communities already participate in CRS, and they should also continue their participation.

Responsible Agency: Municipal NFIP administrators.
Deadline: Ongoing.
Cost: Staff time.
Benefits: The CRS program saves property owners money on flood insurance premiums, and it has been shown to be effective for both comprehensive watershed management and emergency response planning. Lake County and the municipalities enforce higher regulatory standards than FEMA and participate in many creditable CRS activities.
Plan Reference: Chapter 5, Section 5.2 Property Protection.

Action Item 21: Continue to Map Natural Hazard Impacts and Continue Vulnerability Assessments

Lake County should continue to identify the number and type of existing structures, infrastructure, and critical facilities at risk to natural hazards and to map available data and information. Also, the potential dollar losses from vulnerable hazards should be assessed and used to evaluate potential hazard mitigation projects.

Responsible Agency: SMC and LCEMA.

Deadline: Ongoing.
Cost: Staff time.
Benefits: This will ensure that Lake County takes a consistent approach to hazard mitigation, and develops other plans with the protection of life, health, safety, business, and property in mind.
Plan Reference: Chapter 5, Section 5.1 Preventive Measures and 5.4 Emergency Services.

Action Item 22: Continue with Identification and Implementation of SMC Flood Mitigation Projects

Based on the findings in Chapter 3 of this ANHMP, it is important for the Lake County SMC to continue with their watershed management efforts for the purpose of flood mitigation in unincorporated Lake County and within the Lake County municipalities. The SMC should continue making use of their annual funding and available FEMA grant funding to provide flood mitigation. Based on the number of SMC flood problem areas identified (see Table 16), the SMC recognized the Des Plaines River and the Fox River watersheds as priority areas.

Priority actions for the **Des Plaines River Watershed** in the next five years include:

- Floodplain buyout program
- Floodplain remapping/studies for Newport Creek, Indian Creek, Bull Creek, and Mill Creek
- Watershed planning/coordination for Des Plaines River - Phase II, North Mill Creek, Newport Creek, Bull Creek, and Indian Creek

Involved communities: Antioch, Beach Park, Buffalo Grove, Green Oaks, Grayslake, Gurnee, Hainesville, Hawthorn Woods, Indian Creek, Kildeer, Lake Forest, Lake Zurich, Libertyville, Lincolnshire, Lindenhurst, Long Grove, Mettawa, Mundelein, Old Mill Creek, Park City, Riverwoods, Round Lake Beach, Round Lake Park, Third Lake, Vernon Hills, Wadsworth, Wheeling, Zion

Priority actions for the **Fox River Watershed** in the next five years include:

- Floodplain buyout program
- Floodplain remapping/studies for Fish Lake Drain, Sequoit Creek, Manitou Creek, and Round Lake Drain/Eagle Creek/Long Lake
- Watershed planning/coordination for Fish Lake Drain

Involved communities: Antioch, Barrington, Barrington Hills, Deer Park, Fox Lake, Fox River Grove, Grayslake, Hainesville, Hawthorn Woods, Island Lake, Lake Barrington, Lake Villa, Lake Zurich, Lakemoor, Lindenhurst, Mundelein, North Barrington, Port Barrington, Round Lake, Round Lake Beach, Round Lake Heights, Round Lake Park, Tower Lakes, Wauconda, Volo.

Priority actions for the **North Branch of the Chicago River Watershed** in the next five years include:

- Increase flood storage capacity and detention
- Floodplain buyout program
- Watershed planning/coordination for Skokie River
- Flood response/damage assessments

Involved communities: Bannockburn, Deerfield, Green Oaks, Gurnee, Highland Park, Highwood, Lake Bluff, Lake Forest, Lincolnshire, Mettawa, Park City, North Chicago, Riverwoods, Waukegan.

Priority actions for the **Lake Michigan Watershed** in the next five years include:

- Floodplain buyout program
- Floodplain remapping/studies for Kellogg Creek
- Watershed planning/coordination for Dead Creek and Kellogg Creek
- Flood response/damage assessments

Involved communities: Beach Park, Highland Park, Highwood, Lake Forest, Lake Bluff, North Chicago, Wadsworth, Waukegan, Winthrop Harbor, Zion.

Ongoing and anticipated efforts of the SMC in the next five years for **all four major watersheds** include:

- Flood response/damage assessments
- Local drainage project cost-share program
- Rain gauge program
- GIS mapping and countywide base flood elevation layer, LOMA/LOMRs
- Implementation of Watershed Development Ordinance (WDO)

Responsible Agency: SMC.
Deadline: Based on SMC annual budget and available grant funding.
Cost: Project specific.
Benefits: All of Lake County benefits from the continuation of the SMC's countywide efforts for the protection of property, transportation, and health and safety during minor and major flood events.
Plan Reference: Chapter 3, Section

3.3 **Flood**, and Chapter 5.

Action Item 23: Develop of Flood Stage Maps

Flood stage maps should be developed to show varying depths of flooding and the respective area of inundation for floodplain areas within Lake County's major watersheds. The maps should be developed by watershed based on available hydrologic and hydraulic models. Flood stage maps can be used by all agencies to determine early protection actions.

Responsible Agency: SMC, LCEMA, and GIS Division.
Deadline: Based on available grant funding.

Cost: Approximately, $100,000. Potential funding sources include HMGP, BRIC, and FMA.
Benefits: Flood stage mapping would provide a depiction of the most at-risk structures, intersections, and utilities in the floodplain. They would aid in mitigation project planning. Most importantly, they would provide data for emergency response (and response planning) and allow communities to assess and identify needed resources.
Plan Reference: Chapter 5, Section 5.4 Emergency Services.

Action Item 24: Develop or Enhance the Community's Snow Removal Plan

Severe winter storms are a priority hazard for Lake County. People and businesses are impacted by heavy snow and blizzard conditions. Impassable roads are a problem for emergency services. Products and techniques for clearing roads or dealing with icy conditions are changing. Some of the newer approaches help protect the environment.

Responsible Agency: Municipalities, Townships.
Deadline: Based on available grant funding.
Cost: Staff time for the development of enhanced plans.
Benefits: Reduced community costs if efficiencies are found. Savings for businesses that can remain open are some of the other benefits. Emergency services should also be improved.
Plan Reference: Chapter 5, Section 5.4 Emergency Services.

Action Item 25: Utility Tree Trimming

Trees and branches on power lines is a common hazard. Down power lines can impact significant areas. More attention and better scheduling (rotation) of tree trimming would benefit communities and unincorporated Lake County.

Responsible Agency: Communities and utility companies.
Deadline: Ongoing.
Cost: Community staff time to coordinate with utility companies.
Benefits: Safety and fewer power outages.
Plan Reference: Chapter 5, Section 5.2 Property Protection.

Action Item 26: Sump Pump Disconnects

Sump pumps, when operating property can keep basements dry from rainwater that collects around foundations. In many areas of the county, sump pumps discharge directly into the underground sewer system. The discharge contributes to the amount of sanitary sewage that needs to be treated at wastewater treatment plants or contributes to the total runoff that storm sewers need to carry. This action item calls for the disconnection of sump pump discharge from the sewer system(s), and for the discharge to be above ground. This could be to lawns or French drains. Communities should consider changes in regulations to accomplish the disconnects; other communities could consider rebate or other incentive programs.

Responsible Agency: Communities.
Deadline: Next five years.
Cost: Staff time, and funding of potential rebate efforts.
Benefits: Less runoff allowed in the sanitary or combined sewer system reduces the potential for sewage backup. Less pump discharge in the stormwater system reduces flood heights.
Plan Reference: Chapter 5, Section 5.2 Property Protection.

Action Item 27: Conduct Local Drainage Studies

Urban flooding and local drainage issues should be investigated by communities and by the SMC to determine alternatives to reduce the impact of flooding to buildings and infrastructure.

Responsible Agency: Municipalities and SMC.
Deadline: A study typically has a year's timeframe.
Cost: Dependent on the size of the area to be studies or the number of buildings in the area.
Benefits: Reduced flood losses and community disruption.
Plan Reference: Chapter 5, Section 5.2 Property Protection and 5.5 Structural Measures.

Action Item 28: Increase Stormwater Detention Capacity

Where opportunities are identified, additional stormwater detention capacity should be created. This may include the expansion of storage capacity at existing sites or new sites. While the Lake County WDO required storage of runoff due to developed, a large remedial effort is needed to detain and retain stormwater from older development.

Responsible Agency: Municipalities and SMC.
Deadline: Based on opportunities that arise.
Cost: Varies by project.
Benefits: Reduced flood losses and community disruption.
Plan Reference: Chapter 5, Section 5.5 Structural Measures

Action Item 29: Investigate Countywide Warning System

Warning dissemination for natural hazard events is key to protecting life and safety. Some areas of the County have some warning systems in-place. Additional warning systems should be investigated that would be effective for various seasons and various patterns of populated locations (e.g., daytime or nighttime). The investigation should examine alternatives, costs, potential phasing, and so forth.

Responsible Agency: Lake County EMA and municipal EMA (LEPC).
Deadline: 5 years.
Cost: Staff time and potential study costs.
Benefits: Better protected population.
Plan Reference: Chapter 5, Section 5.4 Emergency Services.

Action Item 30: Investigate Future Conditions and the Impact on Depth and Frequency of Flooding

Future conditions can include new development, redevelopment or changing weather and weather patterns, and should be investigated with new studies or updates to existing studies to determine potential increases in flood characteristics (depth and extent) and in frequency.

Responsible Agency: SMC.
Deadline: Ongoing.
Cost: Incremental cost to future study efforts.
Benefits: Flood damage resilience.
Plan Reference: Chapter 5, Section 5.5 Structural Measures.

Action Item 31: Lincolnshire Creek Improvements
Lincolnshire Creek in Lincolnshire should be studied to identify alternatives to reduce flood losses.

Responsible Agency: Village of Lincolnshire.
Deadline: To be determined.
Cost: To be determined.
Benefits: Reduced flood losses and impact to residents.
Plan Reference: Chapter 5, Section 5.5 Structural Measures.

Action Item 32: Mitigate Septic Discharge; Leaching into Waterways
Maintenance of septic systems is important for the protection of water quality for both surface water and groundwater. Preventing ground water pollution from failing septic systems should be a priority of every community and every homeowner. Contamination of the ground water source can lead to pollution of local wells, lakes, streams, and ponds – exposing family, friends and neighbors to waterborne diseases and other health risks. When a septic system fails, inadequately treated domestic waste can reach the ground water. Bacteria and viruses from human waste can cause dysentery, hepatitis, and typhoid fever. Many serious outbreaks of these diseases have been caused by contaminated drinking water. Nitrates and phosphates, also found in domestic wastewater, can cause excessive algae growth in lakes and streams called algal blooms. These blooms cause aesthetic problems and impair other aquatic life. Nitrate is also the cause of methemoglobinemia, or blue baby syndrome, a condition that prevents the normal uptake of oxygen in the blood of young babies.

Responsible Agency: SMC.
Deadline: Ongoing.
Cost: Staff time and printing of outreach information.
Benefits: Water quality.
Plan Reference: Chapter 5, Section 5.2 Property Protection and 5.5 Structural Measures.

Action Item 33: Implement the Federal Flood Risk Management Standard (FFRMS)
Executive Order 13690 calls for a flood protection standard for projects implemented with federal funds. New construction and substantial improvements implemented through private developers or property owners must meet the flood standard within the Lake County WDO, which is the base flood elevation plus 2 feet of freeboard. If a federal agency sets a standard because of the FFRMS, that exceeds the WDO standard, then communities must meet the higher standard when federal dollars are included in a community project.

Responsible Agency: All agencies.
Deadline: Ongoing.
Cost: Project specific.
Benefits: Lower flood insurance premiums (better insurance rating) and additional flood resiliency.
Plan Reference: Chapter 5, Section 5.1 Preventive Measures.

New Action Items 2022

Village of Beach Park

Action Item 34A: Improve/Enhance Manor Rd Culvert and Bull Creek Bank Stabilization

Responsible Agency: Village of Beach Park
Deadline: 2023-2024
Cost: $ 1,000,000
Funding Source: Grant funds/Village funds
Benefits: Reduced flooding and property damage, improved stormwater capacity and conveyance
Hazards Addressed: Erosion and Flood
Goals Addressed: 1,3 and 5
Priority: High

Action Item 34B: Resize Major Ave, culvert at Bull Creek
Responsible Agency: Village of Beach Park
Deadline: 2023-2024
Cost: $ 1,000,000
Funding Source: Village funds
Benefits: Reduced flooding and property damage, improved stormwater capacity and conveyance
Hazards Addressed: Erosion and Flood
Goals Addressed: 1,3 and 5
Priority: High

Action Item 34C: North Ave. Stormwater Conveyance Improvements
Responsible Agency: Village of Beach Park
Deadline: 2025-2026
Cost: $ 2,300,000
Funding Source: STP, SMC and Local Funds
Benefits: Reduced flooding and property damage, improved stormwater capacity and conveyance
Hazards Addressed: Erosion and Flood
Goals Addressed: 1,3 and 5
Priority: High

Action Item 34D: Update Building Codes to 2018 IBC
Responsible Agency: Village of Beach Park
Deadline: 2022
Cost: NA
Funding Source: NA
Benefits: Enhance resiliency and IBC compliance throughout the village.
Hazards Addressed: All Hazards
Goals Addressed: 3 and 4
Priority: High

Village of Buffalo Grove

Action Item 61A: Improve Northwood Subdivision Stormwater Transmission and Storage
Responsible Agency: Village of Buffalo Grove

Deadline: 2025
Cost: $11,800,000
Funding Source: Local & grant funds
Benefits: Flood mitigation to 19 streets and dozens of properties in Buffalo Grove and unincorporated Lake County
Hazards Addressed: Flood
Goals Addressed: 1, 2, 3, 5
Priority: High

Action Item 61B: Stabilize & Enhance Arboretum Club Shoreline
Responsible Agency: Village of Buffalo Grove
Deadline: 2027
Cost: $2,500,000
Funding Source: Local & grant funds
Benefits: Benefits to public safety, flood mitigation (local & downstream), water quality
Hazards Addressed: Erosion, drought tolerance, flood
Goals Addressed: 1, 2
Priority: Medium

Action Item 61C: Emergency Operations Center Communications Equipment
Responsible Agency: Village of Buffalo Grove
Deadline: 2025
Cost: $250,000
Funding Source: Local & grant funds
Benefits: Improved emergency management utilizing aging communication equipment as a back-up for operational continuity during emergency events.
Hazards Addressed: All
Goals Addressed: 1, 2
Priority: High

Action Item 61D: Enhanced Emergency Communications Program
Responsible Agency: Village of Buffalo Grove
Deadline: TBD pending CRM development completion
Cost: $150,000
Funding Source: Local & grant funds
Benefits: Enhanced emergency communications to businesses and residents enabling local authorities to send more targeted communications during disaster events.
Hazards Addressed: All
Goals Addressed: 1
Priority: Medium

Fox River Water Agency

Action Item 35: Catch basins at border near Illinois/Wisconsin and the mouths of tributaries flowing into the river

Responsible Agency: Fox River Watershed Agency
Deadline: 2024
Cost: $10,000,000
Funding Source: NA
Benefits: Prevention of sediment deposits
Hazards Addressed: Dam Failure, Erosion, Flood and Severe Summer Storms
Goals Addressed: 1,2,4 and 5
Priority: High

Village of Gurnee

Action Item 36A: Identify needs and obtain alternate power source for critical facilities, supply generator with ATS at Lee Ave. lift station and generator backup at Westgate lift station.
Responsible Agency: Village of Gurnee
Deadline: 2023
Cost: $50,000
Funding Source: Utility fund/local
Benefits: Provide backup power supply.
Hazards Addressed: All Hazards
Goals Addressed: 1,2 and 3
Priority: High

Action Item 36B: Streambank stabilization along Swanson Trig tributary east of CP Railroad, West of Union Pacific Railroad, South of 132 and North of Washington St.
Responsible Agency: Village of Gurnee
Deadline: 2025
Cost: TBD
Funding Source: TBD
Benefits: Implementing programs to enhance drainage systems
Hazards Addressed: Erosion
Goals Addressed: 1 and 3
Priority: Medium

Action Item 36C: Increase culvert flow capacity at Grove Ave.
Responsible Agency: Village of Gurnee
Deadline: 2024
Cost: $20,000
Funding Source: Capital funds/local
Benefits: Prevent flood overtopping
Hazards Addressed: Erosion and Flood
Goals Addressed: 2 and 5
Priority: Medium

Village of Kildeer

Action Item 37A: Expand village swale system to increase stormwater flow capacity.
Responsible Agency: Village of Kildeer

Deadline: 2023
Cost: $200,000
Funding Source: Grant funds
Benefits: Prevent flooding at Andover and Hickory Hill Rd, Grove Rd, Pine Lake Circle, Cambridge Dr, Buffalo Run and Cliffside Dr.
Hazards Addressed: Erosion and Flood
Goals Addressed: 1,2 and 3
Priority: High

Action Item 37B: Increase stormwater flow capacity by resizing culvert at Buffalo Run and Cliffside Dr.
Responsible Agency: Village of Kildeer
Deadline: 2023
Cost: $250,000
Funding Source: Grant funds
Benefits: Reduce damages to village streets and private property
Hazards Addressed: Erosion and Flood
Goals Addressed: 1,2 ,3 and 4
Priority: High

Village of Lake Bluff

Action Item 38: Increase storm sewer capacity to drain West Scranton viaduct.
Responsible Agency: Village of Lake Bluff
Deadline: 2030
Cost: $10,000,000
Funding Source: Grant funds
Benefits: Protect public safety and business access
Hazards Addressed: Flood and Severe Summer Storm
Goals Addressed: 1,2 and 5
Priority: High

Village of Lake Zurich

Action Item 39: Shoreline stabilization at Buffalo Creek
Responsible Agency: Village of Lake Zurich
Deadline: 2024
Cost: TBD
Funding Source: Grant funds
Benefits: Protect area from erosion
Hazards Addressed: Erosion and Flood
Goals Addressed: 1
Priority: Medium

Village of Libertyville

Action Item 40: Increase detention volume at Highlands subdivision phase 1 including reconstruction of Nicholas Dowden Park South for detention storage.
Responsible Agency: Village of Libertyville
Deadline: 2023
Cost: $7,000,000
Funding Source: Grant funds
Benefits: Prevent structure/building damage and loss of roadways
Hazards Addressed: Flood, Groundwater, and Severe Summer Storms
Goals Addressed: 1, 3 and 5
Priority: High

Village of Lincolnshire

Action Item 41: Windsor Dr. area drainage improvements, adding additional storm sewer to reduce roadway flooding.
Responsible Agency: Village of Lincolnshire
Deadline: 2023
Cost: $4,500,000
Funding Source: Grant funds and stormwater management fees
Benefits: Prevent roadway and park flooding
Hazards Addressed: Flood and Severe Summer Storms
Goals Addressed: 1, 2 and 5
Priority: High

Village of Port Barrington

Action Item 42A: Flood buyouts of homes in floodplain
Responsible Agency: Village of Port Barrington
Deadline: Ongoing
Cost: $150,000
Funding Source: Grant funds
Benefits: Removal of homes from floodplain
Hazards Addressed: Flood
Goals Addressed: 1, 2,3,4 and 5
Priority: High

Action Item 42B: Purchase new electronic sign for village entrance to provide emergency notifications.
Responsible Agency: Village of Port Barrington
Deadline: 2023
Cost: $25,000
Funding Source: Grant funds
Benefits: Enhance public notifications of emergencies.
Hazards Addressed: All Hazards
Goals Addressed: 1, 2,3,4 and 5
Priority: High

Action Item 42C: Shoreline stabilization of natural island in Nielson Channel.
Responsible Agency: Village of Port Barrington
Deadline: TBD
Cost: $150,000
Funding Source: Grant funds
Benefits: Decrease erosion in the area
Hazards Addressed: Erosion
Goals Addressed: 1, 2,3,4 and 5
Priority: High

Action Item 42D: Construction of new storage shed for emergency response supplies including sandbag and bagging equipment.
Responsible Agency: Village of Port Barrington
Deadline: 2022
Cost: $8,000
Funding Source: FMA
Benefits: Increase longevity of response and recovery materials
Hazards Addressed: All Hazards
Goals Addressed: 1, 2,3,4 and 5
Priority: Low

Village of Volo

Action Item 43: Implement program to review and clear retention pond culverts utilized for stormwater drainage.
Responsible Agency: Village of Volo
Deadline: Ongoing
Cost: $1,000 annually
Funding Source: TBD
Benefits: TBD
Hazards Addressed: Flood
Goals Addressed: 1, 2,3,4 and 5
Priority: High

Village of Wauconda

Action Item 44A: Bangs Lake Drainage Ditch Streambank Stabilization
Streambank stabilization, improved drainage capacity and flow, improved water quality for Bangs Lake Drainage Ditch from Bangs Lake in Wauconda to Slocum Lake in Slocum Lake (Approx. 3 miles)

Responsible Agency: Villages of Wauconda & Slocum Lake, Slocum Lake Drainage District, Wauconda Township
Deadline: TBD
Cost: $ 9,504,000
Funding Source: TBD
Benefits: Reduced shoreline erosion, improved drainage capacity & flow, improved water quality

Hazards Addressed: Erosion, Flood and Severe Summer Storms
Priority: High

Action Item 44B: Circle Channel Shoreline Stabilization Project
Shoreline Stabilization, volume enhancements and water quality improvements to the Circle Channel of Bangs Lake in Wauconda, Illinois.

Responsible Agency: Village of Wauconda
Deadline: TBD
Cost: $ 2,265,600
Funding Source: TBD
Benefits: Reduced shoreline erosion, improved drainage, and water quality.
Hazards Addressed: Erosion, Flood and Severe Summer Storms
Priority: High

Action Item 44C: Inflow & Infiltration (I/I) Mitigation
Excess rain and groundwater entering the sewer system through inflow & infiltration has a negative Impact on the sewer system and wastewater treatment plant capacity. The limitation of the system because I/I leads to increase sanitary sewer surcharging, overflows (SSOs) and basement back-ups (BBs).

Responsible Agency: Village of Wauconda
Deadline: 2027 Projected Completion
Cost: $ 1,489,000
Funding Source: Sewer & Water fees
Benefits: Reduced property damage from BBs and reduced environmental impacts of SSOs. More efficient wastewater treatment and conveyance.
Hazards Addressed: Flood and Severe Summer Storms
Priority: High

Action Item 44D: Larkdale Lagoons and Outfall Channel
The shoreline stabilization of the lagoons and outfall channel (Approx. 1.6 miles) would protect Property and improve stormwater capacity and flow of stormwater

Responsible Agency: Village of Wauconda
Deadline: TBD
Cost: $ 3,780,000
Funding Source: TBD
Benefits: Reduced property loss and improved drainage capacity & flow
Hazards Addressed: Erosion, Flood and Severe Summer Storms
Priority: High

Action Item 44E: Mutton Creek Streambank Stabilization
Streambank stabilization and capacity improvements for a 2.51-mile segment of Mutton Creek.
Responsible Agency: Village of Wauconda
Deadline: TBD
Cost: $ 7,944,000

Funding Source: TBD
Benefits: Reduced erosion and improved capacity and flow
Hazards Addressed: Erosion, Flood and Severe Summer Storms
Priority: Low

Action Item 44F: Develop a Stormwater Master Plan
The development of a Stormwater Master Plan will provide the Village with a long-term plan to address flooding and related stormwater management issues over the next several decades.
Responsible Agency: Village of Wauconda
Deadline: January 2023
Cost: $ 40,000
Funding Source: TBD
Benefits: Reduced flooding and property damage, improved stormwater capacity and conveyance
Hazards Addressed: Erosion, Flood and Severe Summer Storms
Priority: High

City of Waukegan

Action Item 45: Yeoman Creek bank stabilization.
Responsible Agency: City of Waukegan
Deadline: 2026
Cost: $5,000,000
Funding Source: TBD
Benefits: Prevent erosion and reduce stormwater backup for residential structures, businesses and roadway flooding.
Hazards Addressed: Erosion, Flood and Severe Summer Storms
Goals Addressed: 1,3 and 5
Priority: High

Unincorporated Lake County

Antioch Township

Action Item 46 (A, B, C, D): Residential Buyouts or Elevations **(A)** West Loon Lakes and **(B)** Loon Lakes. Drainageway Restoration/Conveyance at Sequoit Creek TWP Range Sections **(C)** 46-10-16 and **(D)** 46-10-17.
Responsible Agency: Lake County
Deadline: TBD All
Cost: (A, B) TBD, (C) $500K-$1.5M, (D) $500K-$1.5M
Funding Source: Federal, State & Local
Benefits: Reduce flood losses and enhance drainage capacities.
Hazards Addressed: Erosion, Flood and Severe Summer Storms
Goals Addressed: 1,3,4 and 5
Priority: (A, B) Medium, (C, D) Low

Avon Township

Action Item 47 (A, B, C,): Drainageway Restoration/Conveyance at **(A)** Gages Lake Drain and **(B)** Four Corner's Basin and (C) Flood Access/Elevate Roadway at Liden Ave.
Responsible Agency: Lake County
Deadline: (A, B, C, D) TBD
Cost: (A,) $500K-$1M, (B) $500K-$1M, (C, D) TBD
Funding Source: Federal, State & Local
Benefits: Reduce flood losses and enhance drainage capacities.
Hazards Addressed: Erosion, Flood and Severe Summer Storms
Goals Addressed: 1,3,4 and 5
Priority: (A, B) High, (C,) Medium

Cuba Township

Action Item 48 (A, B, C, D): Drainage Infrastructure at **(A)** North Oaks and **(B)** Chicago Highlands. Residential Buyouts or Elevations at **(C)** Snuff Valley Rd and **(D)** Pioneer Grove Rd.
Responsible Agency: Lake County
Deadline: (A, B) 2025-2026, (C)TBD
Cost: (A,) $1M-$2M, (B) $1M-$2M, (C) $2M-$3M
Funding Source: Federal, State & Local
Benefits: Reduce flood losses and enhance drainage capacities.
Hazards Addressed: Erosion, Flood and Severe Summer Storms
Goals Addressed: 1,3,4 and 5
Priority: (A, B, C, D) Medium

Ela Township

Action Item 49 (A, B, C, D): Drainage Infrastructure enhancements at **(A)** Abbey Glenn Subdivision, **(B)** Forest Lake Subdivision. **(C)** Forest Lake Subdivision, and **(D)** Echo Lake.
Responsible Agency: Lake County
Deadline: (A, B, C) 2027, (D)TBD
Cost: (A,) $1M-2M, (B) $1M-2M, (C) $1M-2M (D) $500K-$1M
Funding Source: Federal, State & Local
Benefits: Reduce flood losses and enhance drainage capacities.
Hazards Addressed: Erosion, Flood and Severe Summer Storms
Goals Addressed: 1,3,4 and 5
Priority: (A, B, C) High, (D) Medium

Fremont Township

Action Item 50 (A, B, C, D): (A) Dam Replacement at Sylvan Lake Dam. Drainage Infrastructure at **(B)** Lake Fairfield Estates Subdivision., **(C)** Summer Hill Estates Subdivision. and **(D)** Diamond Lake.
Responsible Agency: Lake County
Deadline: (A,) 2025-2026, (B, C, D)TBD
Cost: (A,) $2M, (B) $500K-1.5M, (C) $500K-1.5M (D) $500K-$1.5M
Funding Source: Federal, State & Local
Benefits: Reduce flood losses and enhance drainage capacities.
Hazards Addressed: Erosion, Flood and Severe Summer Storms
Goals Addressed: 1,3,4 and 5
Priority: (A,) High, (B, C, D) Medium

Grant Township

Action Item 51 (A, B, C, D): Drainageway Restoration/Conveyance at **(A)** Four Corner's Basin and **(B)** Fish Lake Drain. **(C)** Drainage Infrastructure at Duck Lake Woods. **(D)** Residential Buyouts or Elevations at Meyers Bayview Terrace.
Responsible Agency: Lake County
Deadline: (A,) 2027, (B, C, D) TBD
Cost: (A,) $1M-$2M, (B) $500K-1.5M, (C) $500K-1.5M (D) TBD
Funding Source: Federal, State & Local
Benefits: Reduce flood losses and enhance drainage capacities.
Hazards Addressed: Erosion, Flood and Severe Summer Storms
Goals Addressed: 1,3,4 and 5
Priority: (A,) High, (C, D) Medium, (B) Low

Lake Villa Township

Action Item 52 (A, B, C, D, E, F): Drainage Infrastructure at Venetian Village Subdivision. TWP Range Sections **(A)** 45-10-02, **(B**) 45-10-10, **(C)** Fox Lake Hills Chesney Area, **(D)** Orchard Gardens of Fox Lake Hills, **(E)** Sand Lake Outlet and **(F)** Cedar Crest Subdivision
Responsible Agency: Lake County
Deadline: (A,) 2027, (B) 2027, (C) 2026-2027, (D, E) TBD, (F) 2027-2028
Cost: (A,) $1M-$2M, (B) $1M-$2M, (C) $2M-$3M (D) $500K-$1.5M, (E) $500K-$1.5M, (F) $500K-$1.5M
Funding Source: Federal, State & Local
Benefits: Reduce flood losses and enhance drainage capacities.
Hazards Addressed: Erosion, Flood and Severe Summer Storms
Goals Addressed: 1,3,4 and 5
Priority: (A, B, C) High, (D, E, F) Medium

Libertyville Township

Action Item 53 (A, B, C, D, E, F, G, H, I): (A) Levee Enhancements at North Libertyville Estates Subdivision Drainage Infrastructure at **(B)** Winchester Road Soccer Complex, **(C)** Bull Creek

Subdivision, **(D)** Countryside Manor Subdivision, **(E)** Japar Industrial Park, **(F)** Bradley Road Industrial Park, **(G)** Old School Forest Preserve., and **(H)** Terre Fair Subdivision **(I)** Stormwater Storage at Casey Rd Open Space.
Responsible Agency: Lake County
Deadline: (A,) 2025-2026, (B, C, D, E,F) TBD,(G, H, I) 2027
Cost: (A,) $3M, (B) $500K-$1.5M, (C) $500K-$1.5M (D) $500K-$1.5M, (E) $500K-$1.5M, (F) $500K-$1.5M, (G) $500K-$1.5M, (H) $500K-$1.5M, (I)$3M
Funding Source: Federal, State & Local
Benefits: Reduce flood losses and enhance drainage capacities.
Hazards Addressed: Erosion, Flood and Severe Summer Storms
Goals Addressed: 1,3,4 and 5
Priority: (A) High, (B, C, D, E, F) Medium, (G, H, I) Low

Newport Township

Action Item 54 (A, B, C, D): Flood Access/Elevate Roadway at Russell Road TWP Range Sections **(A)** 46-11-02, **(B)** 46-11-03. Residential Buyouts or Elevations at Russel TWP Sections **(C)** 46-11-02 and **(D)** 46-11-03.
Responsible Agency: Lake County
Deadline: (A, B) 2026-2027, (C, D) TBD
Cost: (A,) $2M-$3M, (B) $2M-$3M, (C) TBD (D) TBD
Funding Source: Federal, State & Local
Benefits: Reduce flood losses and enhance drainage capacities.
Hazards Addressed: Erosion, Flood and Severe Summer Storms
Goals Addressed: 1,3,4 and 5
Priority: (A, B) High, (C, D) Medium

Shields Township

Action Item 55 (A, B, C, D, E): Drainage Infrastructure at **(A)** Arden Shores Subdivision, **(B)** North Shore Properties Subdivision, **(C)** Terrace Oaks, (D) Rockland Manor Subdivision and **(E)** Basilwood Subdivision
Responsible Agency: Lake County
Deadline: (A, B, C, D, E) TBD
Cost: (A) $500K-$1.5M, (B) $500K-$1.5M, (C) $500K-$1.5M, (D) $500K-$1.5M, (E) $500K-$1.5M
Funding Source: Federal, State & Local
Benefits: Reduce flood losses and enhance drainage capacities.
Hazards Addressed: Erosion, Flood and Severe Summer Storms
Goals Addressed: 1,3,4 and 5
Priority: (A, B, C, D) Medium

Vernon Township

Action Item 56 (A,B,C,D,E): (A) Residential Buyouts or Elevations at Pekara Subdivision Drainage Infrastructure at **(B)** Prairie View, **(C)** Horatio Gardens Subdivision, and **(D)** Woodbine Estates Subdivision **(E)** Flood Proofing at Aptakisic Creek Commercial Area.

Responsible Agency: Lake County
Deadline: (A, B, C) TBD, (D, E) 2027
Cost: (A) TBD (B) $500K-$1.5M, (C) $500K-$1.5M, (D) $500K-$1.5M, (E) $500K
Funding Source: Federal, State & Local
Benefits: Reduce flood losses and enhance drainage capacities.
Hazards Addressed: Erosion, Flood and Severe Summer Storms
Goals Addressed: 1,3,4 and 5
Priority: (A) High, (B, C) Medium, (D, E) Low

Warren Township

Action Item 57 (A, B, C, D, E, F, G, H, I, J, K, L, M, N, O, P, Q, R): Drainage Infrastructure at **(A)** Del-Mar Woods Subdivision, **(B)** Wooded Glen Gardens Subdivision,**(C)** Grandwood Dr & Rt 132, **(D)** Tangueray Meadows Subdivision, **(E)** Warren Twp High School, **(F)** North Shore Lands, **(G)**Orchard Valley Pond, **(H)** Gages Lake Rd & Rt 45, **(I)** Warren Twp High School, **(J)** Woodland Meadows Subdivision **(K)** Wildwood on Gages Lake Subdivision, **(L)** Pinewood Creek Subdivision, **(M)** Wildwood on Gages Lake Subdivision, and Gages Lake Subdivision Drainageway Restoration/Conveyance at **(N)** Hunt Club Farms Lake drain and **(O)** Lambs Corner Creek. Stormwater Storage at **(P)** Deerpath Subdivision headwaters, **(Q)**Grandwood Park Subdivision Headwaters and (R)Summerfields Subdivision
Responsible Agency: Lake County
Deadline: (A, B, D, N, P, Q, R) 2025-2026, (C) 2027, (E, F, G, H, I, J, K, L, M) TBD
Cost: (A) $2M-$3M (B) $1M-$2M, (C) $500K-$1.5M, (D) $500K-$1.5M, (E) $500K-$1.5M, (F) $500K-$1.5M, (G) $500K-$1.5M, (H) $500K-$1.5M, (I) $500K-$1.5M, (J) $500K-$1.5M, (K) $500K-$1.5M, (L) $3M, (M) $500K-$1.5M, (N) $1M-$2M, (O) $500K-$1.5M, (P) $3M, (Q) $3M, (R) $2M-$3M
Funding Source: Federal, State & Local
Benefits: Reduce flood losses and enhance drainage capacities.
Hazards Addressed: Erosion, Flood and Severe Summer Storms
Goals Addressed: 1,3,4 and 5
Priority: (A, B, C, D, N, P, Q, R) High, (E, H, I, J, K, L) Medium, (F, G, M, O) Low

Wauconda Township

Action Item 58 (A, B): (A) Residential Buyouts or Elevations at Williams Park Subdivision. **(B)** Creek Conveyance at Fiddle Creek
Responsible Agency: Lake County
Deadline: (A, B) TBD
Cost: (A) TBD (B) $750K
Funding Source: Federal, State & Local
Benefits: Reduce flood losses and enhance drainage capacities.
Hazards Addressed: Erosion, Flood and Severe Summer Storms
Goals Addressed: 1,3,4 and 5
Priority: (A, B) Medium

Waukegan Township

Action Item 59 (A, B): Drainage Infrastructure at **(A)** North Shore Highlands and **(B)** North Shore Lands.
Responsible Agency: Lake County
Deadline: (A,) 2026-2027, (B) TBD
Cost: (A) $2M-$3M (B) $500K-$1.5M
Funding Source: Federal, State & Local
Benefits: Reduce flood losses and enhance drainage capacities.
Hazards Addressed: Erosion, Flood and Severe Summer Storms
Goals Addressed: 1,3,4 and 5
Priority: (A) High, (B) Medium

West Deerfield Township

Action Item 60: Drainage Infrastructure at Del-Mar Woods Subdivision
Responsible Agency: Lake County
Deadline: 2025-2026
Cost: $1M-$2M
Funding Source: Federal, State & Local
Benefits: Reduce flood losses and enhance drainage capacities.
Hazards Addressed: Erosion, Flood and Severe Summer Storms
Goals Addressed: 1,3,4 and 5
Priority: High

Village of Buffalo Grove

Action Item 61 (A, B, C, D): See Page 6-16.

Table 50: Summary of 2022 ANHMP Hazard Mitigation Action Items

		Action Item to Be Implemented By:				
No.	**Action Item:**	**Lake County Board**	**Lake County**	**Municipal Boards & Councils**	**Municipal Staff**	**Other Stakeholders**
1	Adoption	✓		✓		
2	Monitor & Maintain		✓		✓	
3	Incorporate ANHMP in Other Plans	✓	✓	✓	✓	✓
4	Implement WDO & NFIP		✓		✓	
5	Public Information		✓		✓	✓
6	Alternate Power Sources				✓	✓
7	Mitigation of Critical Facilities		✓		✓	✓
8	Capacity of Drainage Systems		✓		✓	
9	Maintain Drainage Systems		✓		✓	
10	Property Protection Projects		✓		✓	✓
11	Reduce Inflow and Infiltration				✓	
12	Wind Mitigation & Safe Rooms	✓	✓	✓		
13	Tree City USA				✓	
14	NIMS Compliance	✓	✓	✓	✓	✓
15	Improve Building Codes		✓		✓	
16	Seek Grant Funding		✓		✓	
17	StormReady		✓		✓	
18	Emergency Response		✓		✓	
19	Response & Recovery Information	✓	✓		✓	✓
20	CRS Participation		✓		✓	
21	Continue to map natural hazard impacts and continue vulnerability assessments		✓			
22	SMC Flood Mitigation Projects		✓			
23	Development of Flood Stage Maps		✓			
24	Snow removal plan		✓		✓	
25	Utility tree trimming		✓		✓	
26	Sump Pump Disconnects		✓		✓	
27	Local Drainage Studies		✓		✓	
28	Increase Detention		✓		✓	
29	Investigate Countywide Warning System		✓		✓	
30	Investigate Future Conditions and the Impact on Depth and Frequency of Flooding		✓		✓	
31	Lincolnshire Creek Improvements				✓	
32	Mitigate Septic Discharge; Leaching into Waterways		✓		✓	
33	Implement the FFRMS				✓	
34	(A)Bank Stabilization, (B) Resize culvert, (C) Stormwater Conveyance Improvements and (D) Update Building Codes.			✓	✓	
35	Catch basins			✓	✓	

Table 50: Summary of 2022 ANHMP Hazard Mitigation Action Items

		Action Item to Be Implemented By:				
No.	**Action Item:**	**Lake County Board**	**Lake County**	**Municipal Boards & Councils**	**Municipal Staff**	**Other Stakeholders**
36	(A)Alternate power source, (B)Streambank stabilization and (C)Increase culvert capacity			✓	✓	
37	(A)Expand swale system and (B) Increase stormwater flow capacity			✓	✓	
38	Increase storm sewer capacity			✓	✓	
39	Shoreline stabilization			✓	✓	
40	Increase detention volume at Highlands Subdiv.			✓	✓	
41	Drainage improvements and additional storm sewer			✓	✓	
42	(A)Flood buyouts, (B) New electronic sign,(C)Shoreline stabilization and (D)New storage shed for emergency supplies			✓	✓	
43	Implement program to review and clear retention pond culverts			✓	✓	
44	(A) Drainage Ditch Streambank Stabilization , (B) Shoreline Stabilization, (C) Inflow & Infiltration (I/I) Mitigation, (D) Lagoons and outfall channel, and (E) Mutton Creek Streambank Stabilization			✓	✓	
45	Yeoman Creek bank stabilization			✓	✓	
46	(A,B)Residential Buyouts or Elevation,. (C,D) Drainageway Restoration/Conveyance		✓			
47	(A,B) Restoration/Conveyance and (C) Flood Access/Elevate Roadway at Liden Ave		✓			
48	(A,B) Drainage Infrastructure, (C,D) Residential Buyouts or Elevations		✓			
49	(A,B,C,D) Drainage Infrastructure improvements		✓			
50	(A) Dam Replacement at Sylvan Lake Dam, (B,C,D) Infrastructure enhancements		✓			
51	(A,B) Drainageway Restoration/Conveyance, (C) Drainage Infrastructure and (D) Flood buyouts or elevations		✓			
52	(A,B,C,D,E,F) Drainage Infrastructure improvements		✓			
53	(A) Levee Enhancements, (B,C,D,E,F,G,H) Drainage Infrastructure and (I)Stormwater storage		✓			
54	(A,B) Flood Access/Elevate Roadway (C,D) Residential Buyouts or Elevations		✓			
55	(A,B,C,D,E) Drainage Infrastructure improvements		✓			
56	(A) Residential Buyouts or Elevations, (B,C,D) Drainage Infrastructure and (E) Flood Proofing		✓			
57	(A,B,C,D,E,F,G,H,I,J,K,L,M) Drainage Infrastructure, (N,O) Drainageway Restoration/Conveyance and (P,Q,R) Stormwater Storage		✓			
58	(A) Residential Buyouts or Elevations at and (B) Creek conveyance		✓			
59	(A,B) Drainage Infrastructure improvements		✓			
60	Drainage Infrastructure improvements		✓			
61	(A) Improve Northwood Subdivision Stormwater Transmission and Storage, (B) Stabilize & Enhance Arboretum Club Shoreline, (C) Emergency Operations Center Communications Equipment, (D) Enhanced Emergency Communications Program			✓	✓	

Table 51: Summary of 2022 Action Items and ANHMP Goals

		Action Item to Be Implemented By:				
No.	**Action Item:**	**Lake County Board**	**Lake County**	**Municipal Boards & Councils**	**Municipal Staff**	**Other Stakeholders**
1	Adoption	✓		✓		
2	Monitor & Maintain		✓		✓	
3	Incorporate ANHMP in Other Plans	✓	✓	✓	✓	✓
4	Implement WDO & NFIP		✓		✓	
5	Public Information		✓		✓	✓
6	Alternate Power Sources				✓	✓
7	Mitigation of Critical Facilities		✓		✓	✓
8	Capacity of Drainage Systems		✓		✓	
9	Maintain Drainage Systems		✓		✓	
10	Property Protection Projects		✓		✓	✓
11	Reduce Inflow and Infiltration				✓	
12	Wind Mitigation & Safe Rooms	✓	✓	✓		
13	Tree City USA				✓	
14	NIMS Compliance	✓	✓	✓	✓	✓
15	Improve Building Codes		✓		✓	
16	Seek Grant Funding		✓		✓	
17	StormReady		✓		✓	
18	Emergency Response		✓		✓	
19	Response & Recovery Information	✓	✓		✓	✓
20	CRS Participation		✓		✓	
21	Continue to map natural hazard impacts and continue vulnerability assessments		✓			
22	SMC Flood Mitigation Projects		✓			
23	Development of Flood Stage Maps		✓			
24	Snow removal plan		✓		✓	
25	Utility tree trimming		✓		✓	
26	Sump Pump Disconnects		✓		✓	
27	Local Drainage Studies		✓		✓	
28	Increase Detention		✓		✓	
29	Investigate Countywide Warning System		✓		✓	
30	Investigate Future Conditions and the Impact on Depth and Frequency of Flooding		✓		✓	
31	Lincolnshire Creek Improvements				✓	
32	Mitigate Septic Discharge, Leaching into Waterways		✓		✓	
33	Implement the FFRMS				✓	
34	(A)Bank Stabilization, (B) Resize culvert, (C) Stormwater Conveyance Improvements and (D) Update Building Codes.			✓	✓	
35	Catch basins			✓	✓	
36	(A)Alternate power source, (B)Streambank stabilization and (C)Increase culvert capacity			✓	✓	

Table 51: Summary of 2022 Action Items and ANHMP Goals

		Action Item to Be Implemented By:				
No.	**Action Item:**	**Lake County Board**	**Lake County**	**Municipal Boards & Councils**	**Municipal Staff**	**Other Stakeholders**
37	(A)Expand swale system and (B) Increase stormwater flow capacity			✓	✓	
38	Increase storm sewer capacity			✓	✓	
39	Shoreline stabilization			✓	✓	
40	Increase detention volume at Highlands Subdiv.			✓	✓	
41	Drainage improvements and additional storm sewer			✓	✓	
42	(A)Flood buyouts, (B) New electronic sign,(C)Shoreline stabilization and (D)New storage shed for emergency supplies			✓	✓	
43	Implement program to review and clear retention pond culverts			✓	✓	
44	(A) Drainage Ditch Streambank Stabilization , (B) Shoreline Stabilization, (C) Inflow & Infiltration (I/I) Mitigation, (D) Lagoons and outfall channel, and (E) Mutton Creek Streambank Stabilization			✓	✓	
45	Yeoman Creek bank stabilization			✓	✓	
46	(A,B)Residential Buyouts or Elevation,. (C,D) Drainageway Restoration/Conveyance		✓			
47	(A,B) Restoration/Conveyance and (C) Flood Access/Elevate Roadway at Liden Ave		✓			
48	(A,B) Drainage Infrastructure, (C,D) Residential Buyouts or Elevations		✓			
49	(A,B,C,D) Drainage Infrastructure improvements		✓			
50	(A) Dam Replacement at Sylvan Lake Dam, (B,C,D) Infrastructure enhancements		✓			
51	(A,B) Drainageway Restoration/Conveyance, (C) Drainage Infrastructure and (D) Flood buyouts or elevations		✓			
52	(A,B,C,D,E,F) Drainage Infrastructure improvements		✓			
53	(A) Levee Enhancements, (B,C,D,E,F,G,H) Drainage Infrastructure and (I)Stormwater storage		✓			
54	(A,B) Flood Access/Elevate Roadway (C,D) Residential Buyouts or Elevations		✓			
55	(A,B,C,D,E) Drainage Infrastructure improvements		✓			
56	(A) Residential Buyouts or Elevations, (B,C,D) Drainage Infrastructure and (E) Flood Proofing		✓			
57	(A,B,C,D,E,F,G,H,I,J,K,L,M) Drainage Infrastructure, (N,O) Drainageway Restoration/Conveyance and (P,Q,R) Stormwater Storage		✓			
58	(A) Residential Buyouts or Elevations at and (B) Creek conveyance		✓			
59	(A,B) Drainage Infrastructure improvements		✓			
60	Drainage Infrastructure improvements		✓			
61	(A) Improve Northwood Subdivision Stormwater Transmission and Storage, (B) Stabilize & Enhance Arboretum Club Shoreline, (C) Emergency Operations Center Communications Equipment, (D) Enhanced Emergency Communications Program			✓	✓	

6.3 Action Items by Community

Community-specific action items are listed below for each participating community in Lake County. These are action items that the communities will strive to implement in the next five years. As part of each community's adoption and implementation of this ANHMP, any action item listed in this chapter and any recommendation in Chapter 5 may be implemented should resources, including grant funds, become available.

Lake County

Action Item 1: Plan Adoption

Action Item 2: Participation on the Hazard Mitigation Planning Committee and Plan Monitoring and Maintenance

Action Item 3: Incorporate ANHMP into Other County and Municipal Plans

Action Item 4: Continued Implementation of the WDO and NFIP Requirements

Action Item 5: Improve Natural Hazards Public Information Efforts with focus on the Promotion of Flood Insurance and How People Can Protect Themselves and Their Property

Action Item 6: Identify Needs and Obtain Alternate Power Sources for Critical Facilities and Shelters

Action Item 7: Review of Critical Facilities and Implement of Appropriate Mitigation Measures

Action Item 8: Improve Capacity of Drainage Systems and/or Provide Additional Storage of Flood Waters

Action Item 9: Implement Maintenance Programs for Drainage Systems, Including Streambank and Ravine Stabilization Efforts

Action Item 10: Implement Property Protection Projects for Flood Mitigation

Action Item 12: Identify Wind Mitigation Opportunities for the Protection of Buildings, and to Provide Safe Rooms and Sheltering

Action Item 14: Continue Work for NIMS Compliance

Action Item 15: Improve Building Codes and Building Code Enforcement

Action Item 16: Seek Mitigation Grant Funding for Additional Mitigation Planning and Cost Beneficial Projects

Action Item 20: Continue Participation or Consider Participation in the NFIP's Community Rating System

Action Item 21: Continue to Map Natural Hazard Impacts and Continue Vulnerability Assessments

Action Item 22: Continue with Identification and Implementation of SMC Flood Mitigation Projects

Action Item 23: Develop of Flood Stage Maps

Action Item 29: Investigate Countywide Warning System

Action Item 30: Investigate Future Conditions and the Impact on Depth and Frequency of Flooding

Action Item 46: Residential Buyouts or Elevations (A) West Loon Lakes and (B) Loon Lakes. Drainageway Restoration/Conveyance at Sequiot Creek TWP Range Sections (C) 46-10-16 and (D) 46-10-17.

Action Item 47: Drainageway Restoration/Conveyance at (A) Gages Lake Drain and (B) Four Corner's Basin. (C) Flood Access/Elevate Roadway at Liden Ave.

Action Item 48: Drainage Infrastructure at (A) North Oaks and (B) Chicago Highlands . Residential Buyouts or Elevations at (C) Snuff Valley Rd and (D) Pioneer Grove Rd.

Action Item 49: Drainage Infrastructure enhancements at (A) Abbey Glenn Subdiv., (B) Forest Lake Subdiv. (C) Forest Lake Subdiv. and (D) Echo Lake.

Action Item 50: (A) Dam Replacement at Sylvan Lake Dam. Drainage Infrastructure at (B) Lake Fairfield Estates Subdiv., (C) Summer Hill Estates Subdiv. and (D) Diamond Lake.

Action Item 51: Drainageway Restoration/Conveyance at (A) Four Corner's Basin and (B) Fish Lake Drain. (C) Drainage Infrastructure at Duck Lake Woods. (D) Residential Buyouts or Elevations at Meyers Bayview Terrace.

Action Item 52: Drainage Infrastructure at Venetian Village Subdiv. TWP Range Sections (A) 45-10-02, (B) 45-10-10, (C) Fox Lake Hills Chesney Area, (D) Orchard Gardens of Fox Lake Hills, (E) Sand Lake Outlet and (F) Cedar Crest Subdiv.

Action Item 53: (A) Levee Enhancements at North Libertyville Estates Subdiv. Drainage Infrastructure at (B) Winchester Road Soccer Complex, (C) Bull Creek Subdiv., (D) Countryside Manor Subdiv., (E) Japar Industrial Park, (F) Bradley Road Industrial Park, (G) Old School Forest Preserve., and (H) Terre Fair Subdiv. (I) Stormwater Storage at Casey Rd Open Space.

Action Item 54: Flood Access/Elevate Roadway at Russell Road TWP Range Sections (A) 46-11-02, (B) 46-11-03. Residential Buyouts or Elevations at Russel TWP Sections (C) 46-11-02 and (D) 46-11-03.

Action Item 55: Drainage Infrastructure at (A) Arden Shores Subdiv., (B) North Shore Properties Subdiv.,(C) Terrace Oaks, (D) Rockland Manor Subdiv. and (E) Basilwood Subdiv.

Action Item 56: (A) Residential Buyouts or Elevations at Pekara Subdiv. Drainage Infrastructure at (B) Prairie View, (C) Horatio Gardens Subdiv., and (D) Woodbine Estates Subdiv. (E) Flood Proofing at Aptakisic Creek Commercial Area.

Action Item 57: Drainage Infrastructure at (A) Del-Mar Woods Subdiv., (B) Wooded Glen Gardens Subdiv.,(C) Grandwood Dr & Rt 132, (D) Tangueray Meadows Subdiv., (E) Warren Twp High School,(F) North Shore Lands, (G)Orchard Valley Pond, (H) Gages Lake Rd & Rt 45, (I) Warren Twp High School, (J) Woodland Meadows Subdiv. (K) Wildwood on Gages Lake Subdiv., (L) Pinewood Creek Subdiv., (M) Wildwood on Gages Lake Subdiv., and Gages Lake Subdiv. Drainageway Restoration/Conveyance at (N) Hunt Club Farms Lake drain and (O) Lambs Corner Creek. Stormwater Storage at (P) Deerpath Subdiv. headwaters, (Q)Grandwood Park Subd. headwaters and (R) Summerfields Subdiv.

Action Item 58: (A) Residential Buyouts or Elevations at Williams Park Subdiv. (B) Creek Conveyance at Fiddle Creek

Action Item 59: Drainage Infrastructure at (A) North Shore Highlands and (B) North Shore Lands.

Action Item 60: Drainage Infrastructure at Del-Mar Woods Subdiv.

Village of Antioch

Action Item 1: Plan Adoption

Action Item 2: Participation on the Hazard Mitigation Planning Committee and Plan Monitoring and Maintenance

Action Item 3: Incorporate ANHMP into Other County and Municipal Plans

Action Item 4: Continued Implementation of the WDO and NFIP Requirements

Action Item 5: Improve Natural Hazards Public Information Efforts with focus on the Promotion of Flood Insurance and How People Can Protect Themselves and Their Property

Action Item 10: Implement Property Protection Projects for Flood Mitigation

Action Item 12: Identify Wind Mitigation Opportunities for the Protection of Buildings, and to Provide Safe Rooms and Sheltering

Village of Bannockburn

Action Item 1: Plan Adoption

Action Item 2: Participation on the Hazard Mitigation Planning Committee and Plan Monitoring and Maintenance

Action Item 3: Incorporate ANHMP into Other County and Municipal Plans

Action Item 4: Continued Implementation of the WDO and NFIP Requirements

Action Item 5: Improve Natural Hazards Public Information Efforts with focus on the Promotion of Flood Insurance and How People Can Protect Themselves and Their Property

Action Item 6: Identify Needs and Obtain Alternate Power Sources for Critical Facilities and Shelters

Action Item 7: Review of Critical Facilities and Implement of Appropriate Mitigation Measures

Action Item 10: Implement Property Protection Projects for Flood Mitigation

Action Item 11: Reduce Inflow and Infiltration to Protect Against Sewer Backups

Action Item 12: Identify Wind Mitigation Opportunities for the Protection of Buildings, and to Provide Safe Rooms and Sheltering

Action Item 13: Continue Participation or Consider Participation in Tree City USA (Urban Forestry)

Action Item 14: Continue Work for NIMS Compliance

Action Item 15: Improve Building Codes and Building Code Enforcement

Action Item 16: Seek Mitigation Grant Funding for Additional Mitigation Planning and Cost Beneficial Projects

Action Item 17: Continue Participation or Consider Participation in StormReady

Village of Barrington

Action Item 1: Plan Adoption

Action Item 2: Participation on the Hazard Mitigation Planning Committee and Plan Monitoring and Maintenance

Action Item 3: Incorporate ANHMP into Other County and Municipal Plans

Action Item 4: Continued Implementation of the WDO and NFIP Requirements

Action Item 5: Improve Natural Hazards Public Information Efforts with focus on the Promotion of Flood Insurance and How People Can Protect Themselves and Their Property

Action Item 6: Identify Needs and Obtain Alternate Power Sources for Critical Facilities and Shelters

Action Item 7: Review of Critical Facilities and Implement of Appropriate Mitigation Measures

Action Item 8: Improve Capacity of Drainage Systems and/or Provide Additional Storage of Flood Waters

Action Item 9: Implement Maintenance Programs for Drainage Systems, Including Streambank and Ravine Stabilization Efforts

Action Item 10: Implement Property Protection Projects for Flood Mitigation

Action Item 11: Reduce Inflow and Infiltration to Protect Against Sewer Backups

Action Item 12: Identify Wind Mitigation Opportunities for the Protection of Buildings, and to Provide Safe Rooms and Sheltering

Action Item 13: Continue Participation or Consider Participation in Tree City USA (Urban Forestry)

Action Item 14: Continue Work for NIMS Compliance

Action Item 15: Improve Building Codes and Building Code Enforcement

Action Item 16: Seek Mitigation Grant Funding for Additional Mitigation Planning and Cost Beneficial Projects

Action Item 17: Continue Participation or Consider Participation in StormReady

Action Item 18: Improve Emergency Response and Develop Assessment Teams

Action Item 19: Enhance Response and Recovery Information Sharing and Collaboration and Identify Additional Training Opportunities

Action Item 20: Continue Participation or Consider Participation in the NFIP's Community Rating System

Action Item 24. Develop or Enhance the Community's Snow Removal Plan

Action Item 25. Utility Tree Trimming

Action Item 26. Sump Pump Disconnects

Action Item 27. Conduct Local Drainage Studies

Action Item 28. Increase Stormwater Detention Capacity

Village of Barrington Hills

Action Item 1: Plan Adoption

Action Item 2: Participation on the Hazard Mitigation Planning Committee and Plan Monitoring and Maintenance

Action Item 3: Incorporate ANHMP into Other County and Municipal Plans

Action Item 4: Continued Implementation of the WDO and NFIP Requirements

Action Item 11: Reduce Inflow and Infiltration to Protect Against Sewer Backups

Action Item 12: Identify Wind Mitigation Opportunities for the Protection of Buildings, and to Provide Safe Rooms and Sheltering

Action Item 13 Continue Participation or Consider Participation in Tree City USA (Urban Forestry)

Action Item 14: Continue Work for NIMS Compliance

Action Item 15: Improve Building Codes and Building Code Enforcement

Action Item 16: Seek Mitigation Grant Funding for Additional Mitigation Planning and Cost Beneficial Projects

Action Item 17: Continue Participation or Consider Participation in StormReady

Action Item 22: Continue with Identification and Implementation of SMC Flood Mitigation Projects

Village of Beach Park

Action Item 1: Plan Adoption

Action Item 2: Participation on the Hazard Mitigation Planning Committee and Plan Monitoring and Maintenance

Action Item 3: Incorporate ANHMP into Other County and Municipal Plans

Action Item 4: Continued Implementation of the WDO and NFIP Requirements

Action Item 5: Improve Natural Hazards Public Information Efforts with focus on the Promotion of Flood Insurance and How People Can Protect Themselves and Their Property

Action Item 6: Identify Needs and Obtain Alternate Power Sources for Critical Facilities and Shelters

Action Item 7: Review of Critical Facilities and Implement of Appropriate Mitigation Measures

Action Item 8: Improve Capacity of Drainage Systems and/or Provide Additional Storage of Flood Waters

Action Item 10: Implement Property Protection Projects for Flood Mitigation

Action Item 11: Reduce Inflow and Infiltration to Protect Against Sewer Backups

Action Item 12: Identify Wind Mitigation Opportunities for the Protection of Buildings, and to Provide Safe Rooms and Sheltering

Action Item 16: Seek Mitigation Grant Funding for Additional Mitigation Planning and Cost Beneficial Projects

Action Item 17: Continue Participation or Consider Participation in StormReady

Action Item 18: Improve Emergency Response and Develop Assessment Teams

Action Item 19: Enhance Response and Recovery Information Sharing and Collaboration and Identify Additional Training Opportunities

Action Item 20: Continue Participation or Consider Participation in the NFIP's Community Rating System

Action Item 32. Mitigate Septic Discharge; Leaching into Waterways

Action Item 34A: Improve/Enhance Manor Rd Culvert and Bull Creek Bank Stabilization

Action Item 34B: Resize Major Ave, culvert at Bull Creek

Action Item 34C: North Ave. Stormwater Conveyance Improvements

Action Item 34D: Update Building Codes to 2018 IBC

Village of Buffalo Grove

Action Item 1: Plan Adoption

Action Item 2: Participation on the Hazard Mitigation Planning Committee and Plan Monitoring and Maintenance

Action Item 3: Incorporate ANHMP into Other County and Municipal Plans

Action Item 4: Continued Implementation of the WDO and NFIP Requirements

Action Item 5: Improve Natural Hazards Public Information Efforts with focus on the Promotion of Flood Insurance and How People Can Protect Themselves and Their Property

Action Item 6: Identify Needs and Obtain Alternate Power Sources for Critical Facilities and Shelters

Action Item 7: Review of Critical Facilities and Implement of Appropriate Mitigation Measures

Action Item 8: Improve Capacity of Drainage Systems and/or Provide Additional Storage of Flood Waters

Action Item 9: Implement Maintenance Programs for Drainage Systems, Including Streambank and Ravine Stabilization Efforts

Action Item 10: Implement Property Protection Projects for Flood Mitigation

Action Item 12: Identify Wind Mitigation Opportunities for the Protection of Buildings, and to Provide Safe Rooms and Sheltering

Action Item 14: Continue Work for NIMS Compliance

Action Item 16: Seek Mitigation Grant Funding for Additional Mitigation Planning and Cost Beneficial Projects

Action Item 17: Continue Participation or Consider Participation in StormReady

Action Item 18: Improve Emergency Response and Develop Assessment Teams

Action Item 19: Enhance Response and Recovery Information Sharing and Collaboration and Identify Additional Training Opportunities

Action Item 24. Develop or Enhance the Community's Snow Removal Plan

Action Item 25. Utility Tree Trimming

Action Item 26. Sump Pump Disconnects

Action Item 27. Conduct Local Drainage Studies

Action Item 28. Increase Stormwater Detention Capacity

Action Item 29. Investigate Countywide Warning System

Action Item 61A: Improve Northwood Subdivision Stormwater Transmission and Storage

Action Item 61B: Stabilize & Enhance Arboretum Club Shoreline

Action Item 61C: Emergency Operations Center Communications Equipment

Action Item 61D: Enhanced Emergency Communications Program

Village of Deer Park

Action Item 1: Plan Adoption

Action Item 2: Participation on the Hazard Mitigation Planning Committee and Plan Monitoring and Maintenance

Action Item 3: Incorporate ANHMP into Other County and Municipal Plans

Action Item 4: Continued Implementation of the WDO and NFIP Requirements

Action Item 5: Improve Natural Hazards Public Information Efforts with focus on the Promotion of Flood Insurance and How People Can Protect Themselves and Their Property

Action Item 6: Identify Needs and Obtain Alternate Power Sources for Critical Facilities and Shelters

Action Item 7: Review of Critical Facilities and Implement of Appropriate Mitigation Measures

Action Item 8: Improve Capacity of Drainage Systems and/or Provide Additional Storage of Flood Waters

Action Item 9: Implement Maintenance Programs for Drainage Systems, Including Streambank and Ravine Stabilization Efforts

Action Item 10: Implement Property Protection Projects for Flood Mitigation

Action Item 12: Identify Wind Mitigation Opportunities for the Protection of Buildings, and to Provide Safe Rooms and Sheltering

Action Item 13: Continue Participation or Consider Participation in Tree City USA (Urban Forestry)

Action Item 14: Continue Work for NIMS Compliance

Action Item 17: Continue Participation or Consider Participation in StormReady

Action Item 18: Improve Emergency Response and Develop Assessment Teams

Village of Deerfield

Action Item 1: Plan Adoption

Action Item 2: Participation on the Hazard Mitigation Planning Committee and Plan Monitoring and Maintenance

Action Item 3: Incorporate ANHMP into Other County and Municipal Plans

Action Item 4: Continued Implementation of the WDO and NFIP Requirements

Action Item 5: Improve Natural Hazards Public Information Efforts with focus on the Promotion of Flood Insurance and How People Can Protect Themselves and Their Property

Action Item 6: Identify Needs and Obtain Alternate Power Sources for Critical Facilities and Shelters

Action Item 7: Review of Critical Facilities and Implement of Appropriate Mitigation Measures

Action Item 8: Improve Capacity of Drainage Systems and/or Provide Additional Storage of Flood Waters

Action Item 9: Implement Maintenance Programs for Drainage Systems, Including Streambank and Ravine Stabilization Efforts

Action Item 10: Implement Property Protection Projects for Flood Mitigation

Action Item 11: Reduce Inflow and Infiltration to Protect Against Sewer Backups

Action Item 12: Identify Wind Mitigation Opportunities for the Protection of Buildings, and to Provide Safe Rooms and Sheltering

Action Item 13: Continue Participation or Consider Participation in Tree City USA (Urban Forestry)

Action Item 15: Improve Building Codes and Building Code Enforcement

Action Item 16: Seek Mitigation Grant Funding for Additional Mitigation Planning and Cost Beneficial Projects

Action Item 19: Enhance Response and Recovery Information Sharing and Collaboration and Identify Additional Training Opportunities

Action Item 20: Continue Participation or Consider Participation in the NFIP's Community Rating System

Action Item 26. Sump Pump Disconnects

Action Item 27. Conduct Local Drainage Studies

Village of Fox Lake

Action Item 1: Plan Adoption

Action Item 2: Participation on the Hazard Mitigation Planning Committee and Plan Monitoring and Maintenance

Action Item 3: Incorporate ANHMP into Other County and Municipal Plans

Action Item 4: Continued Implementation of the WDO and NFIP Requirements

Action Item 5: Improve Natural Hazards Public Information Efforts with focus on the Promotion of Flood Insurance and How People Can Protect Themselves and Their Property

Action Item 11: Reduce Inflow and Infiltration to Protect Against Sewer Backups

Action Item 12: Identify Wind Mitigation Opportunities for the Protection of Buildings, and to Provide Safe Rooms and Sheltering

Village of Fox River Grove

Action Item 1: Plan Adoption

Action Item 2: Participation on the Hazard Mitigation Planning Committee and Plan Monitoring and Maintenance

Action Item 3: Incorporate ANHMP into Other County and Municipal Plans

Action Item 4: Continued Implementation of the WDO and NFIP Requirements

Action Item 5: Improve Natural Hazards Public Information Efforts with focus on the Promotion of Flood Insurance and How People Can Protect Themselves and Their Property

Action Item 10: Implement Property Protection Projects for Flood Mitigation

Action Item 12: Identify Wind Mitigation Opportunities for the Protection of Buildings, and to Provide Safe Rooms and Sheltering

Action Item 35: Catch basins at border near Illinois/Wisconsin and the mouths of tributaries flowing into the river

Village of Grayslake

Action Item 1: Plan Adoption

Action Item 2: Participation on the Hazard Mitigation Planning Committee and Plan Monitoring and Maintenance

Action Item 3: Incorporate ANHMP into Other County and Municipal Plans

Action Item 4: Continued Implementation of the WDO and NFIP Requirements

Action Item 5: Improve Natural Hazards Public Information Efforts with focus on the Promotion of Flood Insurance and How People Can Protect Themselves and Their Property

Action Item 8: Improve Capacity of Drainage Systems and/or Provide Additional Storage of Flood Waters

Action Item 9: Implement Maintenance Programs for Drainage Systems, Including Streambank and Ravine Stabilization Efforts

Action Item 10: Implement Property Protection Projects for Flood Mitigation

Action Item 11: Reduce Inflow and Infiltration to Protect Against Sewer Backups

Action Item 12: Identify Wind Mitigation Opportunities for the Protection of Buildings, and to Provide Safe Rooms and Sheltering

Action Item 13: Continue Participation or Consider Participation in Tree City USA (Urban Forestry)

Action Item 19: Enhance Response and Recovery Information Sharing and Collaboration and Identify Additional Training Opportunities

Village of Green Oaks

Action Item 1: Plan Adoption

Action Item 2: Participation on the Hazard Mitigation Planning Committee and Plan Monitoring and Maintenance

Action Item 3: Incorporate ANHMP into Other County and Municipal Plans

Action Item 4: Continued Implementation of the WDO and NFIP Requirements

Action Item 5: Improve Natural Hazards Public Information Efforts with focus on the Promotion of Flood Insurance and How People Can Protect Themselves and Their Property

Action Item 6: Identify Needs and Obtain Alternate Power Sources for Critical Facilities and Shelters

Action Item 7: Review of Critical Facilities and Implement of Appropriate Mitigation Measures

Action Item 8: Improve Capacity of Drainage Systems and/or Provide Additional Storage of Flood Waters

Action Item 9: Implement Maintenance Programs for Drainage Systems, Including Streambank and Ravine Stabilization Efforts

Action Item 10: Implement Property Protection Projects for Flood Mitigation

Action Item 12: Identify Wind Mitigation Opportunities for the Protection of Buildings, and to Provide Safe Rooms and Sheltering

Action Item 13: Continue Participation or Consider Participation in Tree City USA (Urban Forestry)

Action Item 15: Improve Building Codes and Building Code Enforcement

Action Item 17: Continue Participation or Consider Participation in StormReady

Action Item 20: Continue Participation or Consider Participation in the NFIP's Community Rating System

Village of Gurnee

Action Item 1: Plan Adoption

Action Item 2: Participation on the Hazard Mitigation Planning Committee and Plan Monitoring and Maintenance

Action Item 3: Incorporate ANHMP into Other County and Municipal Plans

Action Item 4: Continued Implementation of the WDO and NFIP Requirements

Action Item 5: Improve Natural Hazards Public Information Efforts with focus on the Promotion of Flood Insurance and How People Can Protect Themselves and Their Property

Action Item 6: Identify Needs and Obtain Alternate Power Sources for Critical Facilities and Shelters

Action Item 7: Review of Critical Facilities and Implement of Appropriate Mitigation Measures

Action Item 8: Improve Capacity of Drainage Systems and/or Provide Additional Storage of Flood Waters

Action Item 9: Implement Maintenance Programs for Drainage Systems, Including Streambank and Ravine Stabilization Efforts

Action Item 10: Implement Property Protection Projects for Flood Mitigation

Action Item 11: Reduce Inflow and Infiltration to Protect Against Sewer Backups

Action Item 12: Identify Wind Mitigation Opportunities for the Protection of Buildings, and to Provide Safe Rooms and Sheltering

Action Item 13: Continue Participation or Consider Participation in Tree City USA (Urban Forestry)

Action Item 14: Continue Work for NIMS Compliance

Action Item 15: Improve Building Codes and Building Code Enforcement

Action Item 16: Seek Mitigation Grant Funding for Additional Mitigation Planning and Cost Beneficial Projects

Action Item 17: Continue Participation or Consider Participation in StormReady

Action Item 18: Improve Emergency Response and Develop Assessment Teams

Action Item 19: Enhance Response and Recovery Information Sharing and Collaboration and Identify Additional Training Opportunities

Action Item 20: Continue Participation or Consider Participation in the NFIP's Community Rating System

Action Item 23: Develop Flood Stage Maps

Action Item 24. Develop or Enhance the Community's Snow Removal Plan

Action Item 36A: Identify needs and obtain alternate power source for critical facilities, supply generator with ATS at Lee Ave. lift station and generator backup at Westgate lift station.

Action Item 36B: Streambank stabilization along Swanson Trig tributary east of CP Railroad, West of Union Pacific Railroad, South of 132 and North of Washington St.

Action Item 36C: Increase culvert flow capacity at Grove Ave.

Village of Hainesville

Action Item 1: Plan Adoption

Action Item 2: Participation on the Hazard Mitigation Planning Committee and Plan Monitoring and Maintenance

Action Item 3: Incorporate ANHMP into Other County and Municipal Plans

Action Item 4: Continued Implementation of the WDO and NFIP Requirements

Action Item 5: Improve Natural Hazards Public Information Efforts with focus on the Promotion of Flood Insurance and How People Can Protect Themselves and Their Property

Action Item 10: Implement Property Protection Projects for Flood Mitigation

Action Item 12: Identify Wind Mitigation Opportunities for the Protection of Buildings, and to Provide Safe Rooms and Sheltering

Village of Hawthorn Woods

Action Item 1: Plan Adoption

Action Item 2 Participation on the Hazard Mitigation Planning Committee and Plan Monitoring and Maintenance

Action Item 3: Incorporate ANHMP into Other County and Municipal Plans

Action Item 4: Continued Implementation of the WDO and NFIP Requirements

Action Item 5: Improve Natural Hazards Public Information Efforts with focus on the Promotion of Flood Insurance and How People Can Protect Themselves and Their Property

Action Item 6: Identify Needs and Obtain Alternate Power Sources for Critical Facilities and Shelters

Action Item 7: Review of Critical Facilities and Implement of Appropriate Mitigation Measures

Action Item 8: Improve Capacity of Drainage Systems and/or Provide Additional Storage of Flood Waters

Action Item 9: Implement Maintenance Programs for Drainage Systems, Including Streambank and Ravine Stabilization Efforts

Action Item 10: Implement Property Protection Projects for Flood Mitigation

Action Item 12: Identify Wind Mitigation Opportunities for the Protection of Buildings, and to Provide Safe Rooms and Sheltering

Action Item 14: Continue Work for NIMS Compliance

Action Item 16: Seek Mitigation Grant Funding for Additional Mitigation Planning and Cost Beneficial Projects

Action Item 17: Continue Participation or Consider Participation in StormReady

Action Item 25. Utility Tree Trimming

City of Highland Park

Action Item 1: Plan Adoption

Action Item 2: Participation on the Hazard Mitigation Planning Committee and Plan Monitoring and Maintenance

Action Item 3: Incorporate ANHMP into Other County and Municipal Plans

Action Item 4: Continued Implementation of the WDO and NFIP Requirements

Action Item 5: Improve Natural Hazards Public Information Efforts with focus on the Promotion of Flood Insurance and How People Can Protect Themselves and Their Property

Action Item 6: Identify Needs and Obtain Alternate Power Sources for Critical Facilities and Shelters

Action Item 8: Improve Capacity of Drainage Systems and/or Provide Additional Storage of Flood Waters

Action Item 9: Implement Maintenance Programs for Drainage Systems, Including Streambank and Ravine Stabilization Efforts

Action Item 10: Implement Property Protection Projects for Flood Mitigation

Action Item 11: Reduce Inflow and Infiltration to Protect Against Sewer Backups

Action Item 12: Identify Wind Mitigation Opportunities for the Protection of Buildings, and to Provide Safe Rooms and Sheltering

Action Item 20: Continue Participation or Consider Participation in the NFIP's Community Rating System

Action Item 23: Develop Flood Stage Maps

Action Item 24. Develop or Enhance the Community's Snow Removal Plan

Action Item 32. Mitigate Septic Discharge; Leaching into Waterways

Village of Highwood

Action Item 1: Plan Adoption

Action Item 2: Participation on the Hazard Mitigation Planning Committee and Plan Monitoring and Maintenance

Action Item 3: Incorporate ANHMP into Other County and Municipal Plans

Action Item 4: Continued Implementation of the WDO and NFIP Requirements

Action Item 5: Improve Natural Hazards Public Information Efforts with focus on the Promotion of Flood Insurance and How People Can Protect Themselves and Their Property

Action Item 10: Implement Property Protection Projects for Flood Mitigation

Action Item 12: Identify Wind Mitigation Opportunities for the Protection of Buildings, and to Provide Safe Rooms and Sheltering

Village of Indian Creek

Action Item 1: Plan Adoption

Action Item 2: Participation on the Hazard Mitigation Planning Committee and Plan Monitoring and Maintenance

Action Item 3: Incorporate ANHMP into Other County and Municipal Plans

Action Item 4: Continued Implementation of the WDO and NFIP Requirements

Action Item 5: Improve Natural Hazards Public Information Efforts with focus on the Promotion of Flood Insurance and How People Can Protect Themselves and Their Property

Action Item 10: Implement Property Protection Projects for Flood Mitigation

Action Item 12: Identify Wind Mitigation Opportunities for the Protection of Buildings, and to Provide Safe Rooms and Sheltering

Village of Island Lake

Action Item 1: Plan Adoption

Action Item 2: Participation on the Hazard Mitigation Planning Committee and Plan Monitoring and Maintenance

Action Item 3: Incorporate ANHMP into Other County and Municipal Plans

Action Item 4: Continued Implementation of the WDO and NFIP Requirements

Action Item 5 Insurance and How People Can Protect Themselves and Their Property

Action Item 10: Implement Property Protection Projects for Flood Mitigation

Action Item 12: Identify Wind Mitigation Opportunities for the Protection of Buildings, and to Provide Safe Rooms and Sheltering

Village of Kildeer

Action Item 1: Plan Adoption

Action Item 2: Participation on the Hazard Mitigation Planning Committee and Plan Monitoring and Maintenance

Action Item 3: Incorporate ANHMP into Other County and Municipal Plans

Action Item 4: Continued Implementation of the WDO and NFIP Requirements

Action Item 5: Improve Natural Hazards Public Information Efforts with focus on the Promotion of Flood Insurance and How People Can Protect Themselves and Their Property

Action Item 6: Identify Needs and Obtain Alternate Power Sources for Critical Facilities and Shelters

Action Item 7: Review of Critical Facilities and Implement of Appropriate Mitigation Measures

Action Item 9: Implement Maintenance Programs for Drainage Systems, Including Streambank and Ravine Stabilization Efforts

Action Item 10: Implement Property Protection Projects for Flood Mitigation

Action Item 12: Identify Wind Mitigation Opportunities for the Protection of Buildings, and to Provide Safe Rooms and Sheltering

Action Item 15: Improve Building Codes and Building Code Enforcement

Action Item 16: Seek Mitigation Grant Funding for Additional Mitigation Planning and Cost Beneficial Projects

Action Item 18: Improve Emergency Response and Develop Assessment Teams

Action Item 24. Develop or Enhance the Community's Snow Removal Plan

Action Item 37A: Expand village swale system to increase stormwater flow capacity.

Action Item 37B: Increase stormwater flow capacity by resizing culvert at Buffalo Run and Cliffside Dr.

Village of Lake Barrington

Action Item 1: Plan Adoption

Action Item 2: Participation on the Hazard Mitigation Planning Committee and Plan Monitoring and Maintenance

Action Item 3: Incorporate ANHMP into Other County and Municipal Plans

Action Item 4: Continued Implementation of the WDO and NFIP Requirements

Action Item 5: Improve Natural Hazards Public Information Efforts with focus on the Promotion of Flood Insurance and How People Can Protect Themselves and Their Property

Action Item 7: Review of Critical Facilities and Implement of Appropriate Mitigation Measures

Action Item 8: Improve Capacity of Drainage Systems and/or Provide Additional Storage of Flood Waters

Action Item 9: Implement Maintenance Programs for Drainage Systems, Including Streambank and Ravine Stabilization Efforts

Action Item 10: Implement Property Protection Projects for Flood Mitigation

Action Item 11: Reduce Inflow and Infiltration to Protect Against Sewer Backups

Action Item 12: Identify Wind Mitigation Opportunities for the Protection of Buildings, and to Provide Safe Rooms and Sheltering

Action Item 13: Continue Participation or Consider Participation in Tree City USA (Urban Forestry)

Action Item 14: Continue Work for NIMS Compliance

Action Item 15: Improve Building Codes and Building Code Enforcement

Action Item 16: Seek Mitigation Grant Funding for Additional Mitigation Planning and Cost Beneficial Projects

Action Item 17: Continue Participation or Consider Participation in StormReady

Action Item 18: Improve Emergency Response and Develop Assessment Teams

Action Item 19: Enhance Response and Recovery Information Sharing and Collaboration and Identify Additional Training Opportunities

Village of Lake Bluff

Action Item 1: Plan Adoption

Action Item 2: Participation on the Hazard Mitigation Planning Committee and Plan Monitoring and Maintenance

Action Item 3: Incorporate ANHMP into Other County and Municipal Plans

Action Item 4: Continued Implementation of the WDO and NFIP Requirements

Action Item 5: Improve Natural Hazards Public Information Efforts with focus on the Promotion of Flood Insurance and How People Can Protect Themselves and Their Property

Action Item 8: Improve Capacity of Drainage Systems and/or Provide Additional Storage of Flood Waters

Action Item 9: Implement Maintenance Programs for Drainage Systems, Including Streambank and Ravine Stabilization Efforts

Action Item 10: Implement Property Protection Projects for Flood Mitigation

Action Item 11: Reduce Inflow and Infiltration to Protect Against Sewer Backups

Action Item 12: Identify Wind Mitigation Opportunities for the Protection of Buildings, and to Provide Safe Rooms and Sheltering

Action Item 13: Continue Participation or Consider Participation in Tree City USA (Urban Forestry)

Action Item 15: Improve Building Codes and Building Code Enforcement

Action Item 16: Seek Mitigation Grant Funding for Additional Mitigation Planning and Cost Beneficial Projects

Action Item 18: Improve Emergency Response and Develop Assessment Teams

Action Item 19: Enhance Response and Recovery Information Sharing and Collaboration and Identify Additional Training Opportunities

Action Item 38: Increase storm sewer capacity to drain West Scranton viaduct.

City of Lake Forest

Action Item 1: Plan Adoption

Action Item 2: Participation on the Hazard Mitigation Planning Committee and Plan Monitoring and Maintenance

Action Item 3: Incorporate ANHMP into Other County and Municipal Plans

Action Item 4: Continued Implementation of the WDO and NFIP Requirements

Action Item 5: Improve Natural Hazards Public Information Efforts with focus on the Promotion of Flood Insurance and How People Can Protect Themselves and Their Property

Action Item 10: Implement Property Protection Projects for Flood Mitigation

Action Item 12: Identify Wind Mitigation Opportunities for the Protection of Buildings, and to Provide Safe Rooms and Sheltering

Village of Lake Villa

Action Item 1: Plan Adoption

Action Item 2: Participation on the Hazard Mitigation Planning Committee and Plan Monitoring and Maintenance

Action Item 3: Incorporate ANHMP into Other County and Municipal Plans

Action Item 4: Continued Implementation of the WDO and NFIP Requirements

Action Item 5: Improve Natural Hazards Public Information Efforts with focus on the Promotion of Flood Insurance and How People Can Protect Themselves and Their Property

Action Item 6: Identify Needs and Obtain Alternate Power Sources for Critical Facilities and Shelters

Action Item 7: Review of Critical Facilities and Implement of Appropriate Mitigation Measures

Action Item 8: Improve Capacity of Drainage Systems and/or Provide Additional Storage of Flood Waters

Action Item 9: Implement Maintenance Programs for Drainage Systems, Including Streambank and Ravine Stabilization Efforts

Action Item 10: Implement Property Protection Projects for Flood Mitigation

Action Item 11: Reduce Inflow and Infiltration to Protect Against Sewer Backups

Action Item 12: Identify Wind Mitigation Opportunities for the Protection of Buildings, and to Provide Safe Rooms and Sheltering

Action Item 13: Continue Participation or Consider Participation in Tree City USA (Urban Forestry)

Action Item 14: Continue Work for NIMS Compliance

Action Item 15: Improve Building Codes and Building Code Enforcement

Action Item 16: Seek Mitigation Grant Funding for Additional Mitigation Planning and Cost Beneficial Projects

Action Item 18: Improve Emergency Response and Develop Assessment Teams

Action Item 19: Enhance Response and Recovery Information Sharing and Collaboration and Identify Additional Training Opportunities

Action Item 20: Continue Participation or Consider Participation in the NFIP's Community Rating System

Action Item 24. Develop or Enhance the Community's Snow Removal Plan

Village of Lake Zurich

Action Item 1: Plan Adoption

Action Item 2: Participation on the Hazard Mitigation Planning Committee and Plan Monitoring and Maintenance

Action Item 3: Incorporate ANHMP into Other County and Municipal Plans

Action Item 4: Continued Implementation of the WDO and NFIP Requirements

Action Item 5: Improve Natural Hazards Public Information Efforts with focus on the Promotion of Flood Insurance and How People Can Protect Themselves and Their Property

Action Item 6: Identify Needs and Obtain Alternate Power Sources for Critical Facilities and Shelters

Action Item 8: Improve Capacity of Drainage Systems and/or Provide Additional Storage of Flood Waters

Action Item 9: Implement Maintenance Programs for Drainage Systems, Including Streambank and Ravine Stabilization Efforts

Action Item 10: Implement Property Protection Projects for Flood Mitigation

Action Item 11: Reduce Inflow and Infiltration to Protect Against Sewer Backups

Action Item 12: Identify Wind Mitigation Opportunities for the Protection of Buildings, and to Provide Safe Rooms and Sheltering

Action Item 13: Continue Participation or Consider Participation in Tree City USA (Urban Forestry)

Action Item 14: Continue Work for NIMS Compliance

Action Item 15: Improve Building Codes and Building Code Enforcement

Action Item 16: Seek Mitigation Grant Funding for Additional Mitigation Planning and Cost Beneficial Projects

Action Item 24. Develop or Enhance the Community's Snow Removal Plan

Action Item 27. Conduct Local Drainage Studies

Action Item 39: Shoreline stabilization at Buffalo Creek

Village of Lakemoor

Action Item 1: Plan Adoption

Action Item 2: Participation on the Hazard Mitigation Planning Committee and Plan Monitoring and Maintenance

Action Item 3: Incorporate ANHMP into Other County and Municipal Plans

Action Item 4: Continued Implementation of the WDO and NFIP Requirements

Action Item 5: Improve Natural Hazards Public Information Efforts with focus on the Promotion of Flood Insurance and How People Can Protect Themselves and Their Property

Action Item 10: Implement Property Protection Projects for Flood Mitigation

Action Item 12: Identify Wind Mitigation Opportunities for the Protection of Buildings, and to Provide Safe Rooms and Sheltering

Village of Libertyville

Action Item 1: Plan Adoption

Action Item 2: Participation on the Hazard Mitigation Planning Committee and Plan Monitoring and Maintenance

Action Item 3: Incorporate ANHMP into Other County and Municipal Plans

Action Item 4: Continued Implementation of the WDO and NFIP Requirements

Action Item 10: Implement Property Protection Projects for Flood Mitigation

Action Item 12: Identify Wind Mitigation Opportunities for the Protection of Buildings, and to Provide Safe Rooms and Sheltering

Action Item 40: Increase detention volume at Highlands subdivision phase 1 including reconstruction of Nicholas Dowden Park South for detention storage.

Village of Lincolnshire

Action Item 1: Plan Adoption

Action Item 2: Participation on the Hazard Mitigation Planning Committee and Plan Monitoring and Maintenance

Action Item 3: Incorporate ANHMP into Other County and Municipal Plans

Action Item 4: Continued Implementation of the WDO and NFIP Requirements

Action Item 5: Improve Natural Hazards Public Information Efforts with focus on the Promotion of Flood Insurance and How People Can Protect Themselves and Their Property

Action Item 6: Identify Needs and Obtain Alternate Power Sources for Critical Facilities and Shelters

Action Item 7: Review of Critical Facilities and Implement of Appropriate Mitigation Measures

Action Item 8: Improve Capacity of Drainage Systems and/or Provide Additional Storage of Flood Waters

Action Item 9: Implement Maintenance Programs for Drainage Systems, Including Streambank and Ravine Stabilization Efforts

Action Item 10: Implement Property Protection Projects for Flood Mitigation

Action Item 12: Identify Wind Mitigation Opportunities for the Protection of Buildings, and to Provide Safe Rooms and Sheltering

Action Item 13: Consider Participation in Tree City USA (Urban Forestry)

Action Item 14: Continue Work for NIMS Compliance

Action Item 16: Seek Mitigation Grant Funding for Additional Mitigation Planning and Cost Beneficial Projects

Action Item 20: Continue Participation in the NFIP's Community Rating System

Action Item 24. Develop or Enhance the Community's Snow Removal Plan

Action Item 31. Lincolnshire Creek Improvements

Action Item 34: Des Plaines River Neighborhood Flood Protection

Action Item 41: Windsor Dr. area drainage improvements, adding additional storm sewer to reduce roadway flooding.

Village of Lindenhurst

Action Item 1: Plan Adoption

Action Item 2: Participation on the Hazard Mitigation Planning Committee and Plan Monitoring and Maintenance

Action Item 3: Incorporate ANHMP into Other County and Municipal Plans

Action Item 4: Continued Implementation of the WDO and NFIP Requirements

Action Item 5: Improve Natural Hazards Public Information Efforts with focus on the Promotion of Flood Insurance and How People Can Protect Themselves and Their Property

Action Item 10: Implement Property Protection Projects for Flood Mitigation

Action Item 12: Identify Wind Mitigation Opportunities for the Protection of Buildings, and to Provide Safe Rooms and Sheltering

Village of Long Grove

Action Item 1: Plan Adoption

Action Item 2: Participation on the Hazard Mitigation Planning Committee and Plan Monitoring and Maintenance

Action Item 3: Incorporate ANHMP into Other County and Municipal Plans

Action Item 4: Continued Implementation of the WDO and NFIP Requirements

Action Item 5: Improve Natural Hazards Public Information Efforts with focus on the Promotion of Flood Insurance and How People Can Protect Themselves and Their Property

Action Item 6: Identify Needs and Obtain Alternate Power Sources for Critical Facilities and Shelters

Action Item 7: Review of Critical Facilities and Implement of Appropriate Mitigation Measures

Action Item 8: Improve Capacity of Drainage Systems and/or Provide Additional Storage of Flood Waters

Action Item 10: Implement Property Protection Projects for Flood Mitigation

Action Item 11: Reduce Inflow and Infiltration to Protect Against Sewer Backups

Action Item 12: Identify Wind Mitigation Opportunities for the Protection of Buildings, and to Provide Safe Rooms and Sheltering

Action Item 13: Continue Participation or Consider Participation in Tree City USA (Urban Forestry)

Action Item 14: Continue Work for NIMS Compliance

Action Item 15: Improve Building Codes and Building Code Enforcement

Action Item 16: Seek Mitigation Grant Funding for Additional Mitigation Planning and Cost Beneficial Projects

Action Item 19: Enhance Response and Recovery Information Sharing and Collaboration and Identify Additional Training Opportunities

Action Item 20: Continue Participation or Consider Participation in the NFIP's Community Rating System

Village of Mettawa

Action Item 1: Plan Adoption

Action Item 2: Participation on the Hazard Mitigation Planning Committee and Plan Monitoring and Maintenance

Action Item 3: Incorporate ANHMP into Other County and Municipal Plans

Action Item 4: Continued Implementation of the WDO and NFIP Requirements

Action Item 5: Improve Natural Hazards Public Information Efforts with focus on the Promotion of Flood Insurance and How People Can Protect Themselves and Their Property

Action Item 10: Implement Property Protection Projects for Flood Mitigation

Action Item 12: Identify Wind Mitigation Opportunities for the Protection of Buildings, and to Provide Safe Rooms and Sheltering

Village of Mundelein

Action Item 1: Plan Adoption

Action Item 2: Participation on the Hazard Mitigation Planning Committee and Plan Monitoring and Maintenance

Action Item 3: Incorporate ANHMP into Other County and Municipal Plans

Action Item 4: Continued Implementation of the WDO and NFIP Requirements

Action Item 5: Improve Natural Hazards Public Information Efforts with focus on the Promotion of Flood Insurance and How People Can Protect Themselves and Their Property

Action Item 6: Identify Needs and Obtain Alternate Power Sources for Critical Facilities and Shelters

Action Item 7: Review of Critical Facilities and Implement of Appropriate Mitigation Measures

Action Item 8: Improve Capacity of Drainage Systems and/or Provide Additional Storage of Flood Waters

Action Item 9: Implement Maintenance Programs for Drainage Systems, Including Streambank and Ravine Stabilization Efforts

Action Item 10: Implement Property Protection Projects for Flood Mitigation

Action Item 11: Reduce Inflow and Infiltration to Protect Against Sewer Backups

Action Item 12: Identify Wind Mitigation Opportunities for the Protection of Buildings, and to Provide Safe Rooms and Sheltering

Action Item 13: Continue Participation or Consider Participation in Tree City USA (Urban Forestry)

Action Item 14: Continue Work for NIMS Compliance

Action Item 15: Improve Building Codes and Building Code Enforcement

Action Item 16: Seek Mitigation Grant Funding for Additional Mitigation Planning and Cost Beneficial Projects

Action Item 18: Improve Emergency Response and Develop Assessment Teams

Action Item 19: Enhance Response and Recovery Information Sharing and Collaboration and Identify Additional Training Opportunities

Action Item 20: Continue Participation or Consider Participation in the NFIP's Community Rating System

Village of North Barrington

Action Item 1: Plan Adoption

Action Item 2: Participation on the Hazard Mitigation Planning Committee and Plan Monitoring and Maintenance

Action Item 3: Incorporate ANHMP into Other County and Municipal Plans

Action Item 4: Continued Implementation of the WDO and NFIP Requirements

Action Item 5: Improve Natural Hazards Public Information Efforts with focus on the Promotion of Flood Insurance and How People Can Protect Themselves and Their Property

Action Item 6: Identify Needs and Obtain Alternate Power Sources for Critical Facilities and Shelters

Action Item 7: Review of Critical Facilities and Implement of Appropriate Mitigation Measures

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Action Item 11: Reduce Inflow and Infiltration to Protect Against Sewer Backups

Action Item 12: Identify Wind Mitigation Opportunities for the Protection of Buildings, and to Provide Safe Rooms and Sheltering

Action Item 13: Continue Participation or Consider Participation in Tree City USA (Urban Forestry)

Action Item 14: Continue Work for NIMS Compliance

Action Item 15: Improve Building Codes and Building Code Enforcement

Action Item 16: Seek Mitigation Grant Funding for Additional Mitigation Planning and Cost Beneficial Projects

Action Item 17: Continue Participation or Consider Participation in StormReady

Action Item 18: Improve Emergency Response and Develop Assessment Teams

Action Item 20: Continue Participation or Consider Participation in the NFIP's Community Rating System

City of North Chicago

Action Item 1: Plan Adoption

Action Item 2: Participation on the Hazard Mitigation Planning Committee and Plan Monitoring and Maintenance

Action Item 3: Incorporate ANHMP into Other County and Municipal Plans

Action Item 4: Continued Implementation of the WDO and NFIP Requirements

Action Item 5: Improve Natural Hazards Public Information Efforts with focus on the Promotion of Flood Insurance and How People Can Protect Themselves and Their Property

Action Item 10: Implement Property Protection Projects for Flood Mitigation

Action Item 12: Identify Wind Mitigation Opportunities for the Protection of Buildings, and to Provide Safe Rooms and Sheltering

Village of Old Mill Creek

Action Item 1: Plan Adoption

Action Item 2: Participation on the Hazard Mitigation Planning Committee and Plan Monitoring and Maintenance

Action Item 3: Incorporate ANHMP into Other County and Municipal Plans

Action Item 4: Continued Implementation of the WDO and NFIP Requirements

Action Item 5: Improve Natural Hazards Public Information Efforts with focus on the Promotion of Flood Insurance and How People Can Protect Themselves and Their Property

Action Item 10: Implement Property Protection Projects for Flood Mitigation

Action Item 12: Identify Wind Mitigation Opportunities for the Protection of Buildings, and to Provide Safe Rooms and Sheltering

City of Park City

Action Item 1: Plan Adoption

Action Item 2: Participation on the Hazard Mitigation Planning Committee and Plan Monitoring and Maintenance

Action Item 3: Incorporate ANHMP into Other County and Municipal Plans

Action Item 4: Continued Implementation of the WDO and NFIP Requirements

Action Item 5: Improve Natural Hazards Public Information Efforts with focus on the Promotion of Flood Insurance and How People Can Protect Themselves and Their Property

Action Item 10: Implement Property Protection Projects for Flood Mitigation

Action Item 12: Identify Wind Mitigation Opportunities for the Protection of Buildings, and to Provide Safe Rooms and Sheltering

Village of Port Barrington

Action Item 1: Plan Adoption

Action Item 2: Participation on the Hazard Mitigation Planning Committee and Plan Monitoring and Maintenance

Action Item 3: Incorporate ANHMP into Other County and Municipal Plans

Action Item 4: Continued Implementation of the WDO and NFIP Requirements

Action Item 5: Improve Natural Hazards Public Information Efforts with focus on the Promotion of Flood Insurance and How People Can Protect Themselves and Their Property

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Action Item 10: Implement Property Protection Projects for Flood Mitigation

Action Item 11: Reduce Inflow and Infiltration to Protect Against Sewer Backups

Action Item 12: Identify Wind Mitigation Opportunities for the Protection of Buildings, and to Provide Safe Rooms and Sheltering

Action Item 14: Continue Work for NIMS Compliance

Action Item 15 Improve Building Codes and Building Code Enforcement

Action Item 16: Seek Mitigation Grant Funding for Additional Mitigation Planning and Cost Beneficial Projects

Action Item 18: Improve Emergency Response and Develop Assessment Teams

Action Item 19: Enhance Response and Recovery Information Sharing and Collaboration and Identify Additional Training Opportunities

Action Item 20: Continue Participation or Consider Participation in the NFIP's Community Rating System

Action Item 42A: Flood buyouts of homes in floodplain

Action Item 42B: Purchase new electronic sign for village entrance to provide emergency notifications.

Action Item 42C: Shoreline stabilization of natural island in Nielson Channel.

Action Item 42D: Construction of new storage shed for emergency response supplies including sandbag and bagging equipment.

Village of Riverwoods

Action Item 1: Plan Adoption

Action Item 2: Participation on the Hazard Mitigation Planning Committee and Plan Monitoring and Maintenance

Action Item 3: Incorporate ANHMP into Other County and Municipal Plans

Action Item 4: Continued Implementation of the WDO and NFIP Requirements

Action Item 5: Improve Natural Hazards Public Information Efforts with focus on the Promotion of Flood Insurance and How People Can Protect Themselves and Their Property

Action Item 10: Implement Property Protection Projects for Flood Mitigation

Action Item 12: Identify Wind Mitigation Opportunities for the Protection of Buildings, and to Provide Safe Rooms and Sheltering

Action Item 17: Continue Participation or Consider Participation in StormReady

Action Item 18: Improve Emergency Response and Develop Assessment Teams

Action Item 20: Continue Participation or Consider Participation in the NFIP's Community Rating System

Village of Round Lake

Action Item 1: Plan Adoption

Action Item 2: Participation on the Hazard Mitigation Planning Committee and Plan Monitoring and Maintenance

Action Item 3: Incorporate ANHMP into Other County and Municipal Plans

Action Item 4: Continued Implementation of the WDO and NFIP Requirements

Action Item 5: Improve Natural Hazards Public Information Efforts with focus on the Promotion of Flood Insurance and How People Can Protect Themselves and Their Property

Action Item 8: Improve Capacity of Drainage Systems and/or Provide Additional Storage of Flood Waters

Action Item 9: Implement Maintenance Programs for Drainage Systems, Including Streambank and Ravine Stabilization Efforts

Action Item 10: Implement Property Protection Projects for Flood Mitigation

Action Item 11: Reduce Inflow and Infiltration to Protect Against Sewer Backups

Action Item 12: Identify Wind Mitigation Opportunities for the Protection of Buildings, and to Provide Safe Rooms and Sheltering

Action Item 13: Continue Participation or Consider Participation in Tree City USA (Urban Forestry)

Action Item 19: Enhance Response and Recovery Information Sharing and Collaboration and Identify Additional Training Opportunities

Village of Round Lake Beach

Action Item 1: Plan Adoption

Action Item 2: Participation on the Hazard Mitigation Planning Committee and Plan Monitoring and Maintenance

Action Item 3: Incorporate ANHMP into Other County and Municipal Plans

Action Item 4: Continued Implementation of the WDO and NFIP Requirements

Action Item 5: Improve Natural Hazards Public Information Efforts with focus on the Promotion of Flood Insurance and How People Can Protect Themselves and Their Property

Action Item 10: Implement Property Protection Projects for Flood Mitigation

Action Item 12: Identify Wind Mitigation Opportunities for the Protection of Buildings, and to Provide Safe Rooms and Sheltering

Village of Round Lake Heights

Action Item 1: Plan Adoption

Action Item 2: Participation on the Hazard Mitigation Planning Committee and Plan Monitoring and Maintenance

Action Item 3: Incorporate ANHMP into Other County and Municipal Plans

Action Item 4: Continued Implementation of the WDO and NFIP Requirements

Action Item 5: Improve Natural Hazards Public Information Efforts with focus on the Promotion of Flood Insurance and How People Can Protect Themselves and Their Property

Action Item 6: Identify Needs and Obtain Alternate Power Sources for Critical Facilities and Shelters

Action Item 7: Review of Critical Facilities and Implement of Appropriate Mitigation Measures

Action Item 10: Implement Property Protection Projects for Flood Mitigation

Action Item 12: Identify Wind Mitigation Opportunities for the Protection of Buildings, and to Provide Safe Rooms and Sheltering

Action Item 13: Continue Participation or Consider Participation in Tree City USA (Urban Forestry)

Action Item 14: Continue Work for NIMS Compliance

Action Item 15: Improve Building Codes and Building Code Enforcement

Action Item 17: Continue Participation or Consider Participation in StormReady

Action Item 18: Improve Emergency Response and Develop Assessment Teams

Action Item 19: Enhance Response and Recovery Information Sharing and Collaboration and Identify Additional Training Opportunities

Action Item 20: Continue Participation or Consider Participation in the NFIP's Community Rating System

Village of Round Lake Park

Action Item 1: Plan Adoption

Action Item 2: Participation on the Hazard Mitigation Planning Committee and Plan Monitoring and Maintenance

Action Item 3: Incorporate ANHMP into Other County and Municipal Plans

Action Item 4: Continued Implementation of the WDO and NFIP Requirements

Action Item 5: Improve Natural Hazards Public Information Efforts with focus on the Promotion of Flood Insurance and How People Can Protect Themselves and Their Property

Action Item 6: Identify Needs and Obtain Alternate Power Sources for Critical Facilities and Shelters

Action Item 10: Implement Property Protection Projects for Flood Mitigation

Action Item 11: Reduce Inflow and Infiltration to Protect Against Sewer Backups

Action Item 12: Identify Wind Mitigation Opportunities for the Protection of Buildings, and to Provide Safe Rooms and Sheltering

Action Item 13: Continue Participation or Consider Participation in Tree City USA (Urban Forestry)

Action Item 14: Continue Work for NIMS Compliance

Action Item 16: Seek Mitigation Grant Funding for Additional Mitigation Planning and Cost Beneficial Projects

Village of Third Lake

Action Item 1: Plan Adoption

Action Item 2: Participation on the Hazard Mitigation Planning Committee and Plan Monitoring and Maintenance

Action Item 3: Incorporate ANHMP into Other County and Municipal Plans

Action Item 4: Continued Implementation of the WDO and NFIP Requirements

Action Item 5: Improve Natural Hazards Public Information Efforts with focus on the Promotion of Flood Insurance and How People Can Protect Themselves and Their Property

Action Item 6: Identify Needs and Obtain Alternate Power Sources for Critical Facilities and Shelters

Action Item 7: Review of Critical Facilities and Implement of Appropriate Mitigation Measures

Action Item 8: Improve Capacity of Drainage Systems and/or Provide Additional Storage of Flood Waters

Action Item 9: Implement Maintenance Programs for Drainage Systems, Including Streambank and Ravine Stabilization Efforts

Action Item 10: Implement Property Protection Projects for Flood Mitigation

Action Item 11: Reduce Inflow and Infiltration to Protect Against Sewer Backups

Action Item 12: Identify Wind Mitigation Opportunities for the Protection of Buildings, and to Provide Safe Rooms and Sheltering

Action Item 14: Continue Work for NIMS Compliance

Action Item 15: Improve Building Codes and Building Code Enforcement

Action Item 16: Seek Mitigation Grant Funding for Additional Mitigation Planning and Cost Beneficial Projects

Action Item 17: Continue Participation or Consider Participation in StormReady

Action Item 18: Improve Emergency Response and Develop Assessment Teams

Action Item 19: Enhance Response and Recovery Information Sharing and Collaboration and Identify Additional Training Opportunities

Village of Tower Lakes

Action Item 1: Plan Adoption

Action Item 2: Participation on the Hazard Mitigation Planning Committee and Plan Monitoring and Maintenance

Action Item 3: Incorporate ANHMP into Other County and Municipal Plans

Action Item 4: Continued Implementation of the WDO and NFIP Requirements

Action Item 5: Improve Natural Hazards Public Information Efforts with focus on the Promotion of Flood Insurance and How People Can Protect Themselves and Their Property

Action Item 10: Implement Property Protection Projects for Flood Mitigation

Action Item 12: Identify Wind Mitigation Opportunities for the Protection of Buildings, and to Provide Safe Rooms and Sheltering

Village of Vernon Hills

Action Item 1: Plan Adoption

Action Item 2: Participation on the Hazard Mitigation Planning Committee and Plan Monitoring and Maintenance

Action Item 3: Incorporate ANHMP into Other County and Municipal Plans

Action Item 4: Continued Implementation of the WDO and NFIP Requirements

Action Item 5: Improve Natural Hazards Public Information Efforts with focus on the Promotion of Flood Insurance and How People Can Protect Themselves and Their Property

Action Item 6: Identify Needs and Obtain Alternate Power Sources for Critical Facilities and Shelters

Action Item 9: Implement Maintenance Programs for Drainage Systems, Including Streambank and Ravine Stabilization Efforts

Action Item 10: Implement Property Protection Projects for Flood Mitigation

Action Item 11: Reduce Inflow and Infiltration to Protect Against Sewer Backups

Action Item 12: Identify Wind Mitigation Opportunities for the Protection of Buildings, and to Provide Safe Rooms and Sheltering

Action Item 13: Continue Participation or Consider Participation in Tree City USA (Urban Forestry)

Action Item 15: Improve Building Codes and Building Code Enforcement

Action Item 17: Continue Participation or Consider Participation in StormReady

Action Item 18: Improve Emergency Response and Develop Assessment Teams

Village of Volo

Action Item 1: Plan Adoption

Action Item 2: Participation on the Hazard Mitigation Planning Committee and Plan Monitoring and Maintenance

Action Item 3: Incorporate ANHMP into Other County and Municipal Plans

Action Item 4: Continued Implementation of the WDO and NFIP Requirements

Action Item 5: Improve Natural Hazards Public Information Efforts with focus on the Promotion of Flood Insurance and How People Can Protect Themselves and Their Property

Action Item 6: Identify Needs and Obtain Alternate Power Sources for Critical Facilities and Shelters

Action Item 7: Review of Critical Facilities and Implement of Appropriate Mitigation Measures

Action Item 10: Implement Property Protection Projects for Flood Mitigation

Action Item 12: Identify Wind Mitigation Opportunities for the Protection of Buildings, and to Provide Safe Rooms and Sheltering

Action Item 13: Continue Participation or Consider Participation in Tree City USA (Urban Forestry)

Action Item 15: Improve Building Codes and Building Code Enforcement

Action Item 19: Enhance Response and Recovery Information Sharing and Collaboration and Identify Additional Training Opportunities

Action Item 43: Implement program to review and clear retention pond culverts utilized for stormwater drainage.

Village of Wadsworth

Action Item 1: Plan Adoption

Action Item 2: Participation on the Hazard Mitigation Planning Committee and Plan Monitoring and Maintenance

Action Item 3: Incorporate ANHMP into Other County and Municipal Plans

Action Item 4: Continued Implementation of the WDO and NFIP Requirements

Action Item 5: Improve Natural Hazards Public Information Efforts with focus on the Promotion of Flood Insurance and How People Can Protect Themselves and Their Property

Action Item 6: Identify Needs and Obtain Alternate Power Sources for Critical Facilities and Shelters

Action Item 8: Improve Capacity of Drainage Systems and/or Provide Additional Storage of Flood Waters

Action Item 9: Implement Maintenance Programs for Drainage Systems, Including Streambank and Ravine Stabilization Efforts

Action Item 10: Implement Property Protection Projects for Flood Mitigation

Action Item 12: Identify Wind Mitigation Opportunities for the Protection of Buildings, and to Provide Safe Rooms and Sheltering

Action Item 14: Continue Work for NIMS Compliance

Action Item 15: Improve Building Codes and Building Code Enforcement

Action Item 16: Seek Mitigation Grant Funding for Additional Mitigation Planning and Cost Beneficial Projects

Action Item 18: Improve Emergency Response and Develop Assessment Teams

Action Item 19: Enhance Response and Recovery Information Sharing and Collaboration and Identify Additional Training Opportunities

Village of Wauconda

Action Item 1: Plan Adoption

Action Item 2: Participation on the Hazard Mitigation Planning Committee and Plan Monitoring and Maintenance

Action Item 3: Incorporate ANHMP into Other County and Municipal Plans

Action Item 4: Continued Implementation of the WDO and NFIP Requirements

Action Item 5: Improve Natural Hazards Public Information Efforts with focus on the Promotion of Flood Insurance and How People Can Protect Themselves and Their Property

Action Item 10: Implement Property Protection Projects for Flood Mitigation

Action Item 12: Identify Wind Mitigation Opportunities for the Protection of Buildings, and to Provide Safe Rooms and Sheltering

Action Item 44A: Bangs Lake Drainage Ditch Streambank Stabilization

Action Item 44B: Circle Channel Shoreline Stabilization Project

Action Item 44C: Inflow & Infiltration (I/I) Mitigation

Action Item 44D: Larkdale Lagoons and Outfall Channel

Action Item 44E: Mutton Creek Streambank Stabilization

Action Item 44F: Develop a Stormwater Master Plan

City of Waukegan

Action Item 1: Plan Adoption

Action Item 2: Participation on the Hazard Mitigation Planning Committee and Plan Monitoring and Maintenance

Action Item 3: Incorporate ANHMP into Other County and Municipal Plans

Action Item 4: Continued Implementation of the WDO and NFIP Requirements

Action Item 5: Improve Natural Hazards Public Information Efforts with focus on the Promotion of Flood Insurance and How People Can Protect Themselves and Their Property

Action Item 6: Identify Needs and Obtain Alternate Power Sources for Critical Facilities and Shelters

Action Item 7: Review of Critical Facilities and Implement of Appropriate Mitigation Measures

Action Item 9: Implement Maintenance Programs for Drainage Systems, Including Streambank and Ravine Stabilization Efforts

Action Item 10: Implement Property Protection Projects for Flood Mitigation

Action Item 11: Reduce Inflow and Infiltration to Protect Against Sewer Backups

Action Item 12: Identify Wind Mitigation Opportunities for the Protection of Buildings, and to Provide Safe Rooms and Sheltering

Action Item 14: Continue Work for NIMS Compliance

Action Item 15: Improve Building Codes and Building Code Enforcement

Action Item 16: Seek Mitigation Grant Funding for Additional Mitigation Planning and Cost Beneficial Projects

Action Item 17: Continue Participation or Consider Participation in StormReady

Action Item 18: Improve Emergency Response and Develop Assessment Teams

Action Item 19: Enhance Response and Recovery Information Sharing and Collaboration and Identify Additional Training Opportunities

Action Item 20: Continue Participation or Consider Participation in the NFIP's Community Rating System

Action Item 24. Develop or Enhance the Community's Snow Removal Plan

Action Item 25. Utility Tree Trimming

Action Item 26. Sump Pump Disconnects

Action Item 27. Conduct Local Drainage Studies

Action Item 30. Investigate Future Conditions and the Impact on Depth and Frequency of Flooding

Action Item 45: Yeoman Creek bank stabilization.

Village of Winthrop Harbor

Action Item 1: Plan Adoption

Action Item 2: Participation on the Hazard Mitigation Planning Committee and Plan Monitoring and Maintenance

Action Item 3: Incorporate ANHMP into Other County and Municipal Plans

Action Item 4: Continued Implementation of the WDO and NFIP Requirements

Action Item 5: Improve Natural Hazards Public Information Efforts with focus on the Promotion of Flood Insurance and How People Can Protect Themselves and Their Property

Action Item 10: Implement Property Protection Projects for Flood Mitigation

Action Item 12: Identify Wind Mitigation Opportunities for the Protection of Buildings, and to Provide Safe Rooms and Sheltering

City of Zion

Action Item 1: Plan Adoption

Action Item 2: Participation on the Hazard Mitigation Planning Committee and Plan Monitoring and Maintenance

Action Item 3: Incorporate ANHMP into Other County and Municipal Plans

Action Item 4: Continued Implementation of the WDO and NFIP Requirements

Naval Station Great Lakes

Action Item 1: Plan Adoption

Action Item 2: Participation on the Hazard Mitigation Planning Committee and Plan Monitoring and Maintenance

Action Item 3: Incorporate ANHMP into Other Plans

Action Item 4: Continued Implementation of the WDO and NFIP Requirements

Action Item 6: Identify Needs and Obtain Alternate Power Sources for Critical Facilities and Shelters

Action Item 7: Review of Critical Facilities and Implement of Appropriate Mitigation Measures

Action Item 8: Improve Capacity of Drainage Systems and/or Provide Additional Storage of Flood Waters

Action Item 14: Continue Work for NIMS Compliance

Action Item 17: Continue Participation or Consider Participation in StormReady

Action Item 18: Improve Emergency Response and Develop Assessment Teams

Action Item 19: Enhance Response and Recovery Information Sharing and Collaboration and Identify Additional Training Opportunities

Action Item 21: Continue to Map Natural Hazard Impacts and Continue Vulnerability Assessments

Action Item 23: Develop of Flood Stage Maps

6.4 Implementation Strategy

It is the goal of Lake County, the participating municipalities and the HMPC to pursue the action items listed in this Chapter. However, as mentioned in Section 6.1 Development of Current Action Plan, the other recommendations included in the ANHMP (i.e., in Chapter 5) are no less important and should be implemented as opportunities arise.

Specific communities and/or neighborhoods are not identified with the action items. This was intentional to ensure that all mitigation efforts with private property owners are indeed voluntary and not perceived as dictated.

A number of the action items are best pursued as countywide efforts. Those action items are noted in **Error! Reference source not found.**. Also, the HMPC should continue to build partnerships and explore opportunities to leverage funds among state, federal, local, and private sources. “Stakeholders” in **Error! Reference source not found.** refers to other local, regional, state or federal agency, and/or the American Red Cross or the Lake County Forest Preserve District.

Plan monitoring and maintenance are discussed in Chapter 7 of this ANHMP.

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Chapter 7: Plan Maintenance

As discussed in Chapter 2, the Lake County Hazard Mitigation Planning Committee (HMPC) was created for the purpose of plan monitoring and maintenance. The membership of the HMPC included representative from the participating communities. The HMPC has been meeting annually and annual meeting reports are posted on the SMC and County websites. The HMPC meetings and reports proved useful in the development of the ANHMP and the HMPC efforts fostered mitigation in Lake County.

The HMPC is coordinated by the SMC and the LCEMA. At the onset of the 2012 update, communities were asked to pass resolutions of participation in the HMPC (then the LPC), and the 2012 ANHMP adoption resolutions included a statement by the communities for continued participation on the HMPC and at annual meetings.

7.1 Plan Adoption

Action Item 1 calls for all communities to adopt the 2022 ANHMP by resolution of the governing body within 6 months of the Lake County Boards adoption of this update. Adoption of the Plan ensures that County, municipalities, and other agencies are authorized to implement the action items with available resources. Adoption is also a requirement for recognition of the Plan by mitigation funding programs, including the Disaster Mitigation Act of 2000, the FEMA Flood Mitigation Assistance Program, and the National Flood Insurance Program's Community Rating System.

7.2 Maintenance and Monitoring

Maintenance and monitoring of the *Lake County Natural Hazards Mitigation Plan* are addressed in Action Item 2. This action item explains how and when this ANHMP will be reviewed, revised, and updated. The HMPC will continue to meet at least annually to discuss implementation of this ANHMP:

- Act as a forum for hazard mitigation issues
- Disseminate hazard mitigation ideas and activities to all participants
- Allow for continued public participation in the implementation and future revisions
- Ensure incorporation of ANHMP's goals and guidelines into other planning documents
- Investigate mitigation opportunities
- Report on progress and recommended changes to the County Board and each municipality

Reports on progress should be both submitted (in writing) to SMC and LCEMA and presented and discussed at the annual HMPC meeting. The annual reports will facilitate the 5-year ANHMP update.

Mitigation plans are required by FEMA to be updated every five years (44 Code of Federal Regulations, Part 201). Mitigation plans may be updated sooner if any substantial revisions are recommended to the Action Plan in any year. If substantial revisions are by the HMPC to the ANHMP, then the plan must be re-adopted by the county and the participating communities. The 2022 ANHMP will be updated within 5 years of FEMA's final approval. Final FEMA approval comes in the form of a letter that is issued once a community submits IEMA and FEMA a copy of their adoption resolution.

7.3 Continued Public Participation

Public participation of the ANHMP has included print articles, printed and online surveys, HMPC meetings open to the public and a public meeting. Comments on the planning process and the draft ANHMP were encouraged and welcome. The adopted ANHMP will be posted on the SMC website and links to exhibits (maps) included in the ANHMP will also be available. This will allow the public to view the maps at a better scale and more closely examine their community and their property. Public input and participation will be welcomed at the HMPC annual meetings. Other public information materials will be posted on the SMC and LCEMA websites and provided to the municipalities for website postings or print materials. Also, a public meeting will precede any amendments or updates to the plan.

7.4 Evaluating the Plan's Success

Evaluation of the ANHMP will not only include checking whether mitigation actions are implemented or not, but also assess their degree of effectiveness and assess whether other hazards need to be addressed. This will be accomplished by reviewing the qualitative benefits (or avoided losses) of the mitigation activities, to the extent possible. These findings will be compared with the mitigation goals the plan sets out to achieve. The HMPC will also evaluate whether mitigation actions need to be discontinued or modified in any way in light of new developments in the community. The progress will be documented by the HMPC and submitted to the County Board and municipal councils on an annual basis.

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Appendix A: Hazards Mitigation Planning Committee Hazard Exercise Ranking by Jurisdiction

Hazard Ranking Methodology:
The hazard ranking methodology was based on impact, occurrence, and vulnerability for each of the identified hazards. The table below indicates the overall hazard rankings for each of the participating jurisdictions based on the updated 2022 ranking criteria:
H=High, **M**=Moderate, **L**=Low and **VL**=Very Low.

Numerical values were assigned as follows:

- Impact: Values in the parentheses were assigned based on the degree of impact to people and property from the hazard event:
  - **Very Low Risk (1) =** An event with minimal impacts to people, property, no outside assistance required.
  - **Low Risk (2) =** An event with minor impact on people, property, local assistance may be required.
  - **Moderate Risk (3) =** An event that will impact people, property and/or community operations such that people need community assistance. A moderate amount of time will be needed for recovery. State or federal assistance may be required.
  - **High Risk (4) =** An event that will severely impact people, property and/or community operations. A significant amount of time will be needed for recovery. State and federal assistance will be required.

- **Occurrence:** Values in the parentheses were assigned based on the frequency of occurrence in years for the hazard event:
  - **Very Low (1) =** Occurs every 100-199 years.
  - **Low (2) =** Occurs every 30-99 years.
  - **Moderate (3) =** Occurs every 10-29 years**.**
  - **High (4) =** Occurs every 3-9 years.
  - **Very High (5) =** Occurs every 1-2 years

- **Areas of Vulnerability**: Values in the parentheses were assigned based on the total area exposed to the hazard event:
  - **Very Low (1) =** Minimal localized event.
  - **Low (2) =** Specific neighborhoods more vulnerable to the hazard (example: Cross streets or cul-de-sac where frequent flooding occurs). If low is selected, representatives of the jurisdiction were asked to identify specific locations for vulnerabilities.
  - **Moderate (3) =** Widespread, approximately 25% of planning area vulnerable.
  - **High (4) =** Widespread, approximately 50% of the planning area vulnerable.
  - **Very High (5) =** Substantial, entire planning area vulnerable.

Score Totals: 0-3= Very Low (VL), 4-6= Low (L), 7-9= Moderate (M), 10-14= High (H)

Hazards Mitigation Planning Committee Hazard Exercise Ranking by Jurisdiction (H=High, M=Moderate, L=Low and VL=Very Low)												
Jurisdiction	**Severe Winter Storm**	**Tornado**	**Severe Summer Storm**	**Extreme Heat**	**Flood**	**Drought**	**Groundwater Flood**	**Earthquake**	**Erosion**	**Dam Failure**	**Seiche**	**Power Outage**
Antioch	H	H	H	M	H	L	VL	L	VL	L	VL	H
Bannockburn	H	M	H	H	M	L	H	L	L	VL	VL	H
Barrington	H	H	H	L	M	M	L	L	VL	VL	VL	M
Barrington Hills	H	H	H	H	H	M	H	L	L	M	L	H
Beach Park	H	H	H	M	L	M	M	H	M	VL	L	H
Buffalo Grove	H	H	H	H	M	M	VL	L	M	L	M	H
Deer Park,	H	H	H	H	M	M	M	M	M	M	L	H
Deerfield	M	M	M	M	M	M	VL	VL	M	VL	VL	M
Fox Lake	H	H	H	H	H	H	H	H	M	M	L	H
Fox River Grove	VL	VL	VL	VL	VL	VL	VL	VL	VL	VL	VL	VL
Grayslake	L	M	M	L	M	L	L	VL	VL	VL	VL	L
Green Oaks	H	M	H	M	M	L	L	VL	VL	VL	VL	L
Gurnee	H	H	H	H	H	H	H	L	M	VL	VL	H
Hainesville	H	H	H	H	H	H	H	M	L	L	VL	H
Hawthorn Woods	H	H	H	M	L	L	M	L	VL	VL	VL	L
Highland Park	H	H	H	H	H	M	M	M	H	VL	L	H
Highwood	H	H	H	H	H	H	M	H	L	L	L	H
Indian Creek	H	H	H	M	M	L	L	L	L	VL	VL	M
Island Lake	H	M	M	H	H	L	H	VL	VL	VL	VL	L
Kildeer	H	H	M	M	M	M	M	H	M	VL	VL	H
Lake Barrington	H	L	H	H	M	L	M	L	H	M	M	H
Lake Bluff	H	M	H	M	M	VL	VL	L	H	VL	L	M
Lake County	H	H	H	H	H	M	H	L	L	M	L	H
Lake Forest	H	L	H	H	H	M	M	VL	M	VL	L	H
Lake Villa	H	H	H	H	H	H	H	M	L	VL	VL	H
Lake Zurich	H	H	M	M	M	L	M	VL	L	L	VL	L
Lakemoor	H	H	H	H	H	H	M	M	L	VL	L	H
Libertyville	L	M	M	M	M	M	L	L	L	L	VL	M
Lincolnshire	H	M	H	L	H	L	L	VL	M	L	L	H
Lindenhurst	H	H	M	M	M	L	M	L	L	VL	H	H
Long Grove	M	M	M	M	M	L	M	M	M	VL	L	M
Mettawa	M	M	H	H	M	M	H	H	VL	VL	VL	M
Mundelein	H	L	H	H	M	L	M	L	H	M	M	H
North Barrington	H	H	H	L	M	M	L	L	VL	VL	VL	M
North Chicago	H	L	H	H	H	L	L	VL	L	VL	VL	H

Hazards Mitigation Planning Committee Hazard Exercise Ranking by Jurisdiction (H=High, M=Moderate, L=Low and VL=Very Low)												
Jurisdiction	**Severe Winter Storm**	**Tornado**	**Severe Summer Storm**	**Extreme Heat**	**Flood**	**Drought**	**Groundwater Flood**	**Earthquake**	**Erosion**	**Dam Failure**	**Seiche**	**Power Outage**
Park City	H	H	H	H	H	H	VL	VL	M	VL	VL	M
Port Barrington	H	H	H	H	H	H	H	M	M	M	L	H
Riverwoods	M	M	M	M	M	L	M	L	M	VL	L	M
Round Lake	H	H	H	H	M	M	M	H	M	VL	VL	H
Round Lake Beach	H	M	H	M	H	M	H	L	H	L	M	H
Round Lake Heights	H	H	H	H	H	M	M	M	M	VL	VL	H
Round Lake Park	H	H	H	H	H	H	H	M	H	L	VL	H
Third Lake	M	M	H	M	M	M	VL	VL	H	M	VL	H
Tower Lake	M	M	M	M	M	M	M	L	M	L	L	H
Vernon Hills	H	H	H	M	L	L	L	VL	L	VL	VL	M
Volo	H	H	M	M	M	VL	VL	M	VL	VL	VL	M
Wadsworth	M	M	H	H	M	M	H	H	VL	VL	VL	M
Wauconda	H	M	H	H	M	M	M	L	M	VL	VL	H
Waukegan	H	M	H	H	M	M	M	L	M	VL	VL	H
Winthrop Harbor	M	H	H	H	H	H	M	H	H	M	VL	H
Zion	H	L	H	H	H	M	H	M	H	VL	VL	H

Appendix B: Critical Assets Within Hazard Area

Critical Assets withing 1-Mile of High Hazard Dams

Critical Assets within Tornado Scenario Area

Name	Address	City	Year Built
Stanton School	101 Hawthorne Ln	Fox Lake	1971
Kidsuccess	218 Washington St	Ingleside	1972
Round Lake Middle School	2000 Lotus Dr	Round Lake Height	1985
Indian Hill Elem School	1920 Lotus Dr	Round Lake Height	1985
Immanuel Evangelical School	1310 N Frolic Ave	Waukegan	1966
Fox Lake Police Department	301 State Highway 59	Fox Lake	1972
Round Lake Beach Police Department	1947 North Municipal Way	Round Lake Beach	1991
Round Lake Area Park District Police	241 Orchard Lane	Round Lake	1991
Fox Lake Fire Department Station 2	306 Washington Street	Fox Lake	1972
Greater Round Lake Fire Protection Dist.	861 East Hook Drive	Round Lake Beach	1991
Gurnee Fire Department Station 2	6581 Dada Drive	Gurnee	1993

Critical Assets within 100-Year Flood Area			
NAME	**OWNER TYPE**	**FEATURE**	**MUNICIPALITY**
Campbell Airport	Private	Airport Runway / Airfield	Grayslake
Crane's Landing Golf Club	Private	Golf Course	Lincolnshire
Marriott Theatre in Lincolnshire	Private	Auditorium / Concert Hall / Theater / Opera House	Lincolnshire
Adler Park	Municipal	Park	Libertyville
Cumnor Court Park	Municipal	Park	Deerfield
Esper Petersen Park	Municipal	Park	Gurnee
Gridley Farm	Municipal	Park	Long Grove
Herons Landing Park	Municipal	Park	Long Grove
Hidden Creek AquaPark	Municipal	Amusement / Water Park	Highland Park
Highland Pines Park	Municipal	Park	Long Grove
Larry Fink Memorial Park	Municipal	Park	Highland Park
Magnolia Park	Municipal	Park	Highland Park
Oak Hills	Municipal	Park	Long Grove
Old School Road Open Space	Municipal	Park	Mettawa
Red Top Park	Municipal	Park	Libertyville
Rivershire Park	Municipal	Park	Lincolnshire
Riverside Park	Municipal	Park	Libertyville
Rory David Park	Private	Park	Highland Park
Sleepy Hollow Park	Municipal	Park	Highland Park
Spring Lake Park	Municipal	Park	Lincolnshire
Stockbridge Wetland	Municipal	Park	Long Grove
Sugar Creek Park	Municipal	Park	Vernon Hills
Sullivan Woods	Municipal	Park	Vernon Hills
Trail Tree Park	Municipal	Park	Deerfield
Village Park - Waukegan	Municipal	Park	Waukegan
Lake Park	Municipal	Park	Gurnee
Adam's Park	Municipal	Park	Grandwood Park
Hidden Park	Municipal	Park	Grandwood Park
MacArthur Woods Forest Preserve	County	Park	
Nippersink Forest Preserve	County	Park	
Sedge Meadow Forest Preserve	County	Park	
West Skokie Nature Preserve	Non-Profit	Park	Lake Bluff
Half Day Forest Preserve	Private	Park	Lincolnshire
Depke Center	Private	Shopping Mall / Complex	Gurnee
Neal Marsh	Non-Profit	Park	Gurnee
The Links at Midlane	Private	Golf Course	Wadsworth
Buffalo Grove Golf Course	Municipal	Golf Course	Buffalo Grove
Lincolnshire Marriott Resort	Private	Hotel / Motel	Lincolnshire
Long Lake Open Space	State	Lake / Pond	Ingleside

Critical Assets within 500-Year Flood Area

NAME	OWNER	FEATURE	MUNICIPALITY
Highland Park Fire Department Station 34	Municipal	Fire Station / EMS Station	Highland Park
Campbell Airport	Private	Airport Runway / Airfield	Grayslake
Crane's Landing Golf Club	Private	Golf Course	Lincolnshire
Mother Rudd House Museum	Municipal	Museum	Gurnee
Marriott Theatre in Lincolnshire	Private	Concert Hall	Lincolnshire
Adler Park	Municipal	Park	Libertyville
Cumnor Court Park	Municipal	Park	Deerfield
Danny Cunniff Park	Municipal	Park	Highland Park
Esper Petersen Park	Municipal	Park	Gurnee
Gowe Park	Municipal	Park	Gurnee
Gridley Farm	Municipal	Park	Long Grove
Herons Landing Park	Municipal	Park	Long Grove
Hidden Creek AquaPark	Municipal	Amusement / Water Park	Highland Park
Highland Pines Park	Municipal	Park	Long Grove
Larry Fink Memorial Park	Municipal	Park	Highland Park
Magnolia Park	Municipal	Park	Highland Park
Oak Hills	Municipal	Park	Long Grove
Old School Road Open Space	Municipal	Park	Mettawa
Red Top Park	Municipal	Park	Libertyville
Rivershire Park	Municipal	Park	Lincolnshire
Riverside Park	Municipal	Park	Libertyville
Rory David Park	Private	Park	Highland Park
Sleepy Hollow Park	Municipal	Park	Highland Park
Spring Lake Park	Municipal	Park	Lincolnshire
Stockbridge Wetland	Municipal	Park	Long Grove
Sugar Creek Park	Municipal	Park	Vernon Hills
Sullivan Woods	Municipal	Park	Vernon Hills
Trail Tree Park	Municipal	Park	Deerfield
Village Park - Waukegan	Municipal	Park	Waukegan
Lake Park	Municipal	Park	Gurnee
Adam's Park	Municipal	Park	Grandwood Park
Hidden Park	Municipal	Park	Grandwood Park
Cahokia Flatwoods Forest Preserve	County	Park	
Captain Daniel Wright Woods Forest Preserve	County	Park	
MacArthur Woods Forest Preserve	County	Park	
Mill Creek Forest Preserve	County	Park	
Nippersink Forest Preserve	County	Park	
Sedge Meadow Forest Preserve	County	Park	
West Skokie Nature Preserve	Non-Profit	Park	Lake Bluff
Half Day Forest Preserve	Private	Park	Lincolnshire
Depke Center	Private	Shopping Mall / Complex	Gurnee
Neal Marsh	Non-Profit	Park	Gurnee
The Links at Midlane	Private	Golf Course	Wadsworth
Lyons Prairie and Marsh	Non-Profit	Park	Barrington
Buffalo Grove Golf Course	Municipal	Golf Course	Buffalo Grove
Colonial Court	Private	Shopping Mall / Complex	Riverwoods
Estonian House	Non-Profit	Community / Recreation Center	Riverwoods
Lincolnshire Marriott Resort	Private	Hotel / Motel	Lincolnshire
Long Lake Open Space	State	Lake / Pond	Ingleside
Lake County Public Works - Grandwood Park Water Tower	County	Water Tower	

Appendix C: HMPC Participation and Documentation

Lake County Hazard Mitigation Planning Committee (HMPC) and Participants

January 2022, Meeting

First Name	Last Name	Organization / Agency
Tom	Shaughnessy	Antioch Township
Darren	Monico	Buffalo Grove
Andrea	Larson	Buffalo Grove
Christofer	Nikkinen	City of Zion
Daniel	Eder	Lake County, Grayslake, Island Lake, Lindenhurst, Round Lake, Winthrop
Kurt	Baumann	Harbor
David	Ziegler	Gurnee
Nick	Leach	Gurnee
John	Malcolm	Hawthorn Woods
Ron	Milasano	Highland Park
Jake	Halley	Integrated Solutions Consulting
Leah	Rausch	ISC
Nia	Gumbs	ISC
Michael	Talbett	Kildeer
Geoff	Perry	Kildeer, Long Grove, Long Grove, Riverwoods
Al	Giertych	Lake County DOT
Domingo	Kaller	Lake County Emergency Management
REBECCA	KUMAR	Lake County Emergency Management Agency
Joel	Krause	Lake County PBD
Mike	Prusila	Lake County SMC
Mia	Gerace	Lake County SMC
Michael	Brown	Lake Zurich
Jeff	Cooper	Libertyville
Ernesto	Huaracha	Lake County SMC
Patrick	Bleck	Round Lake Heights & Round Lake Park
Scott	Firnbach	Round Lake Park
Kurt	Woolford	Lake County SMC
Sharon	Osterby	Lake County SMC
Brian	Frank	Lake County SMC
Robert	Palmer	South Barrington
Jeff	Laramy	Lake County SMC
Justin	Keenan	Village of Deerfield
Benjamin	Metzler	Village of Green Oaks
Heather	Galan	Village of Gurnee - Alternate
Erika	Frable	Village of Hawthorn Woods
Wally	Dittrich	Village of Lincolnshire
Sam	Barghi	Village of Lincolnshire
Jonathan	Meyer	Volo

February 2022, Meeting

First Name	Last Name	Organization/Agency
Tom	Shaughnessy	Antioch Township
Joesph	Wieser	Buffalo Grove Emergency Management
Robert	Phillips	Deerfield
Mike	Depouw	Ela Township
Alicia	Dodd	Fremont Township
Kurt	Baumann	Grayslake, Island Lake, Lindenhurst, Round Lake, and Winthrop Harbor
Benjamin	Metzler	Green Oaks
Ronald	Milanesio	Highland Park
Nia	Gumbs	ISC
Matt	Stanley	ISC
Jake	Halley	ISC
Glenn	Heistand	ISWS
Andrew	Heuser	Lake County
Ernesto	Huaracha	Lake County
Al	Giertych	Lake County Division of Transportation
Rebecca	Kumar	Lake County EMA
Daniel	Eder	Lake County EMA
Scott	Robertson	Lake County Health Dept.
Mike	Prusila	Lake County SMC
Brian	Frank	Lake County SMC
Sharon	Osterby	Lake County SMC
Mia	Gerace	Lake County SMC
Domingo	Kaller	Lake County SMC
Geoff	Perry	Long Grove, Riverwoods
Darren	Monico	Village of Buffalo Grove
Heather	Galan	Village of Gurnee
Nick	Leach	Village of Gurnee
John	Malcolm	Village of Hawthorn Woods
Michael	Talbett	Village of Kildeer
Michael	Brown	Village of Lake Zurich
Jeff	Cooper	Village of Libertyville
Sam	Bargi	Village of Lincolnshire Public Works
EJ	Kueker	Village of Port Barrington
Patrick	Bleck	Village of Round Lake Heights and Round Lake Park
Al	Falco	Village of Round Lake Park
Johnathan	Meyer	Village of Volo
Jacob	Mann	Village of Wauconda
Amy	Sarver	Warren Township
Mike	Reynolds	Wauconda

March 2022, Meeting

Michele	Bauman	Avon Township
Joseph	Wieser	Buffalo Grove
Ronald	Milanesio	City of Highland Park
Christofer	Nikkinen	City of Zion
Jairo	Rodriguez	Hainesville
Jacob	Wellbank	Hainesville and North Barrington
Matthew	Bartlett	Hawthorn Woods
Jake	Halley	Integrated Solutions Consulting
Nia	Gumbs	ISC
Michael	Talbett	Kildeer
Andrew	Heuser	Lake County
Daniel	Eder	Lake County
Sharon	Osterby	Lake County
REBECCA	KUMAR	Lake County Emergency Management Agency
Scott	Robertson	Lake County Health Dept.
Mia	Gerace	Lake County SMC
Mike	Prusila	Lake County SMC
Michael	Brown	Lake Zurich
Geoff	Perry	Long Grove, Riverwoods, Bannockburn, Lake Barrington
Patrick	Bleck	Round Lake Heights and Round Lake Park
Brian	Frank	SMC
Jeff	Laramy	SMC
Michelle	Pope	SMC
Arnold	Donato	Stormwater Management Commission
Domingo	Kaller	the county
Keli	Amato	The Village of Lake Zurich
MARK	TOBERMAN	TOWNSHIP HIGHWAY DEPARTMENT
Joel	Krause	Unincorporated Lake County
Michelle	Kozak	USACE
Kurt	Baumann	Various
Adrian	Marquez	Village of Beach Park
Andrea	Larson	Village of Buffalo Grove
Darren	Monico	Village of Buffalo Grove
Nick	Leach	Village of Gurnee
Jeff	Cooper	Village of Libertyville
Walter	Dittrich	Village of Lincolnshire
Sam	Barghi	Village of Lincolnshire
Ej	Kueker	Village of Port Barrington
DONNA	ERFORT	Village of Port Barrington
Al	Falco	Village of Round lake Park
Jacob	Mann	Village of Wauconda
Jacob	Wellbank	Villages of Hainesville and North Barrington
Jonathan	Meyer	Volo
Amy	Sarver	Warren Township
Mike	Reynolds	Wauconda

2. HMPC Meeting Agendas

November 5, 2021, Meeting Agenda:

Stormwater
MANAGEMENT COMMISSION
LAKE COUNTY, IL

DATE: 11/5/2021

PURPOSE: Introduction and Initial Kickoff Meeting

Introductions

Key Point of Contact

Next Steps: Contract, Project Work Plan Development

Plan Expiration Date and Other Key Dates (Grant deadlines, etc.**)**

Schedule

Online Planning System

Natural Hazard vs All Hazards

Hazards

- Flood
- Tornado
- Severe Summer Storm
- Severe Winter Storms
- Drought
- Earthquake
- Temperature Extremes
- Erosion – Shoreline, Coastal, Ravine
- Power Outage

HAZUS

Jurisdiction Stakeholders and Contact Information

Other Key Stakeholders

- GIS contact

Major Mitigation Projects

BRIC/HMGP

February 23, 2022, Meeting Agenda:

Lake County Countywide All-Natural Hazards Mitigation Plan (ANHMP)
2022 Hazard Mitigation Plan Update

Steering Committee, Meeting #2
February 23, 2022, | 1:00 – 3:00 PM (CST)

AGENDA

- Introductions
- Upcoming Meetings
- Hazard Mitigation Planning Recap
- Community Profile
- Mitigation Goals
- Hazard Identification
- Explain Impacts
    1. Risk Assessment
    2. Hazard Mapping and Vulnerabilities
    3. Community Survey
- Steering Committee Hazards Assessment Survey
- Next Steps

Support Team Contact
Matt Stanley
Integrated Solutions Consulting
Matt.Stanley@i-s-consulting.com
504.645.1616

March 23, 2022, Meeting Agenda:

Lake County Countywide All-Natural Hazards Mitigation Plan (ANHMP)
2022 Hazard Mitigation Plan Update

Planning Committee, Meeting #3
March 23, 2022, | 1:00 – 3:00 PM (CST)

AGENDA

- Introductions
- Community Survey Initial Results
- Planning Committee Survey Results/Hazard Rankings
- Mitigation Strategy
    1. Discuss action items status updates since 2020 ANHMP Annual Report
    2. April Workshop
- Upcoming Community Meetings and Workshop
- Next Steps

Support Team Contact
Matt Stanley
Integrated Solutions Consulting
Matt.Stanley@i-s-consulting.com
504.645.1616

Appendix D: Public Information Activities

Below are samples of public information and public involvement activities that were used during the development of the 2022 ANHMP update, including:

Press releases
Web site information
Lake County e-Newsletter
Public Survey via Alchemer
Alchemer Survey Summary
Public meeting and public comment announcements
Public meeting held on April 19, 2022
Frequently asked questions

Public Information Materials:

Press Releases:

Web Site Information:

Lake County e-Newsletter

Public Input Needed on All Natural Hazards Mitigation Plan update

Lake County and all interested municipalities are in the process of updating the Lake County All Natural Hazards Mitigation Plan (ANHMP). The ANHMP identifies activities and projects to reduce the damages caused by natural hazards such as tornadoes, floods, and severe summer and winter storms. Mitigation means anything that can be done to reduce the impact of a natural hazard.

Public input and comments are important and all Lake County residents and property owners are encouraged to complete a short survey that can be found on the Internet at: **https://www.surveymonkey.com/r/HSMTMRL**.

Survey responses provided will help Lake County prioritize natural hazards that could impact residents and property owners, and to determine how to be better prepared for natural hazard emergencies.

Public Survey via Alchemer:

To Whom It May Concern:

Lake County is conducting a study to better understand the preparedness needs and risk perceptions of its residents as part of the County's Hazard Mitigation Plan update process. To do so, a questionnaire has been distributed throughout the county, and you have been selected to participate. Your feedback is greatly needed and appreciated!

The questionnaire should only take about **10** minutes to complete. All responses will be kept confidential, and your participation is strictly voluntary. Your input will enable the County to better serve you.

DEADLINE
Please complete the survey by March 21, 2022.

Thank you for your participation.

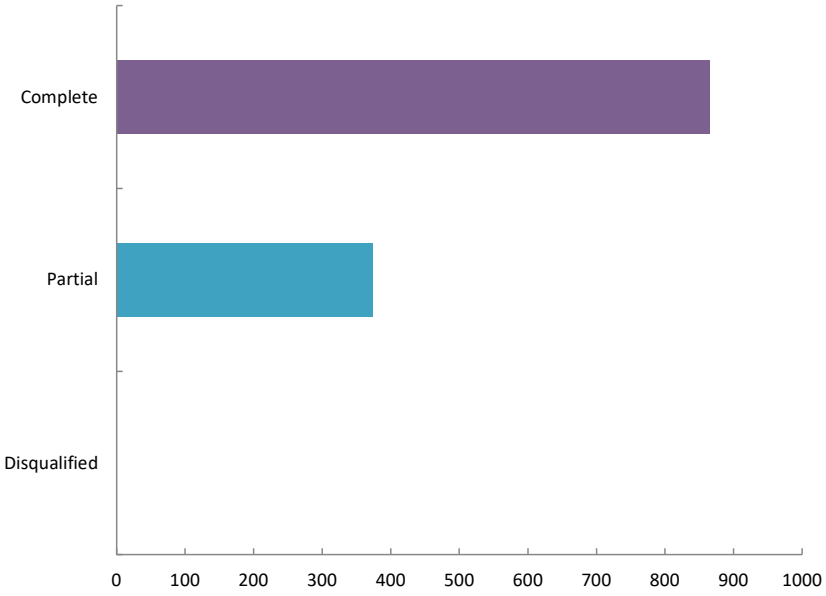
If you have any questions, please contact: **Sharon Osterby, Water Resource Professional Lake County Stormwater Management Commission, 847-377-7706.**

DEFINITIONS

Hazard Mitigation: The purpose of hazard mitigation planning is to identify policies and actions that can be implemented over the long term to reduce risk and future losses. Mitigation forms the foundation for a community's long-term strategy to reduce disaster losses and break the cycle of disaster damage, reconstruction, and repeated damage.

Public Survey Results:

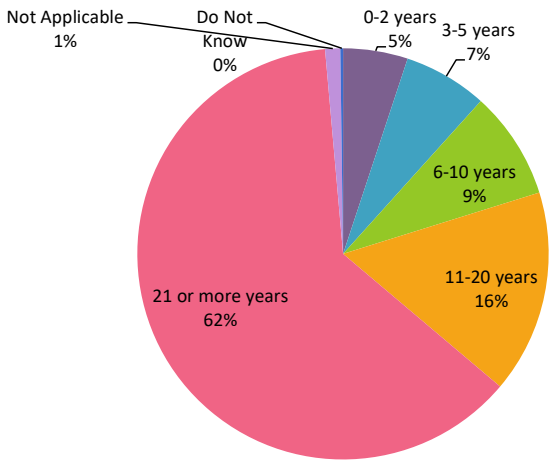
Report for 2022 Lake County, IL: Disaster Preparedness and Mitigation Questionnaire/Public Survey



	Count	Percent

Complete	865	69.8
Partial	374	30.2
Disqualified	0	0
Total	1,239	

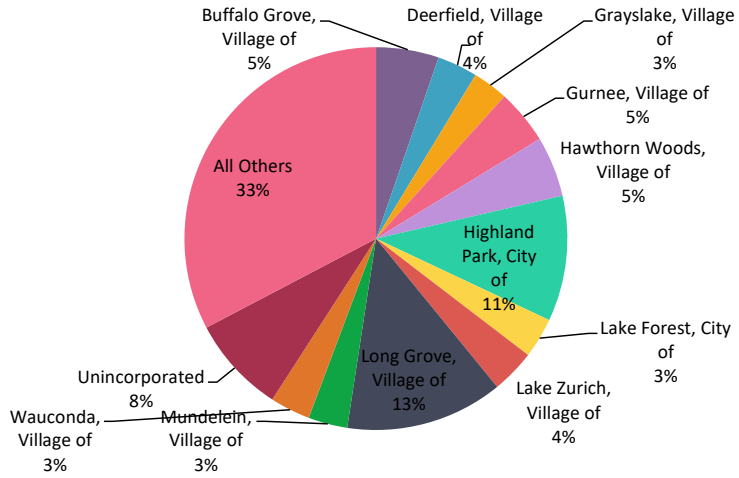
1. Approximately how many years have you lived or worked (if you are not a resident) in Lake County, Illinois?



Value	Percent	Count
0-2 years	5.1%	57
3-5 years	6.6%	74
6-10 years	8.5%	96
11-20 years	16.0%	180
21 or more years	62.5%	702
Not Applicable	1.2%	13

Do Not Know	0.2%	2
	Total	1,124

2.Please indicate the jurisdiction that best represents the location of your home address/place of residence.

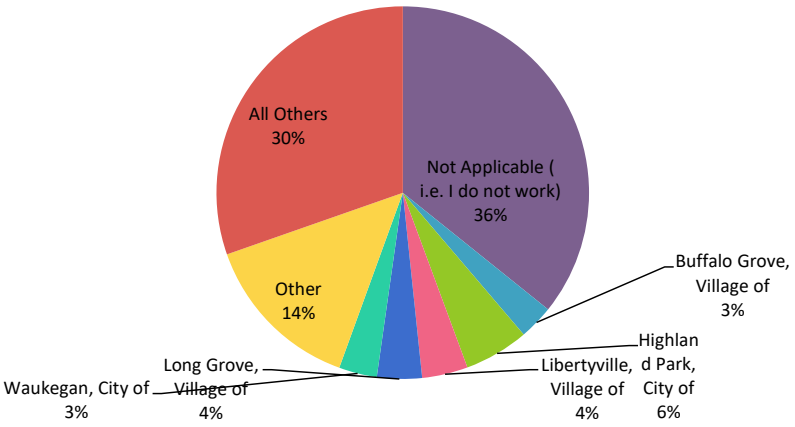


Value	Percent	Count
Antioch, Village of	2.1%	24
Bannockburn, Village of	0.1%	1
Barrington, Village of	0.8%	9
Beach Park, Village of	1.8%	20
Buffalo Grove, Village of	5.3%	59
Deer Park, Village of	1.6%	18
Deerfield, Village of	3.4%	38
Fox Lake, Village of	1.3%	15

Grayslake, Village of	3.0%	34
Green Oaks, Village of	0.9%	10
Gurnee, Village of	4.6%	52
Hainesville, Village of	0.4%	5
Hawthorn Woods, Village of	5.1%	57
Highland Park, City of	10.6%	119
Highwood, Village of	0.1%	1
Indian Creek, Village of	0.1%	1
Island Lake, Village of	0.5%	6
Kildeer, Village of	0.2%	2
Lake Bluff, Village of	1.2%	14
Lake Forest, City of	3.4%	38
Lake Villa, Village of	1.9%	21
Lake Zurich, Village of	3.7%	41
Libertyville, Village of	2.5%	28
Lincolnshire, Village of	2.0%	23
Lindenhurst, Village of	2.9%	32
Long Grove, Village of	13.3%	149
Mundelein, Village of	3.3%	37
North Barrington, Village of	0.4%	5
North Chicago, City of	0.1%	1

Port Barrington, Village of	0.2%	2
Riverwoods, Village of	0.4%	4
Round Lake, Village of	0.9%	10
Round Lake Beach, Village of	1.3%	15
Round Lake Heights, Village of	0.1%	1
Round Lake Park, Village of	0.7%	8
Third Lake, Village of	0.4%	4
Tower Lakes, Village of	0.4%	5
Vernon Hills, Village of	2.2%	25
Volo, Village of	1.0%	11
Wadsworth, Village of	1.0%	11
Wauconda, Village of	3.4%	38
Waukegan, City of	2.0%	23
Winthrop Harbor, Village of	0.4%	4
Zion, City of	0.8%	9
Unincorporated	8.2%	92
	Total	1,122

3.Please indicate the jurisdiction that best represents the location where you work (i.e., place of business).

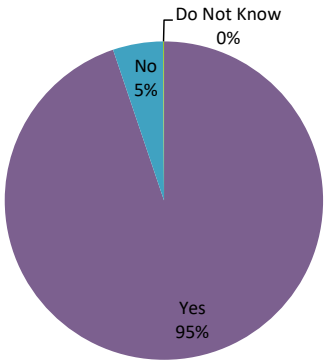


Value	Percent	Count
Not Applicable (i.e. I do not work)	35.8%	395
Antioch, Village of	0.3%	3
Bannockburn, Village of	0.3%	3
Barrington, Village of	1.2%	13
Beach Park, Village of	0.4%	4
Buffalo Grove, Village of	3.0%	33
Deer Park, Village of	0.6%	7
Deerfield, Village of	2.2%	24
Fox Lake, Village of	0.6%	7
Fox River Grove, Village of	0.1%	1
Grayslake, Village of	1.5%	17

Green Oaks, Village of	0.1%	1
Gurnee, Village of	2.9%	32
Hainesville, Village of	0.1%	1
Hawthorn Woods, Village of	1.6%	18
Highland Park, City of	5.6%	62
Highwood, Village of	0.1%	1
Indian Creek, Village of	0.1%	1
Island Lake, Village of	0.1%	1
Lake Bluff, Village of	0.6%	7
Lake Forest, City of	1.9%	21
Lake Villa, Village of	0.1%	1
Lake Zurich, Village of	2.6%	29
Libertyville, Village of	4.0%	44
Lincolnshire, Village of	1.7%	19
Lindenhurst, Village of	0.4%	4
Long Grove, Village of	3.9%	43
Mundelein, Village of	2.2%	24
North Barrington, Village of	0.4%	4
North Chicago, City of	1.6%	18
Old Mill Creek, Village of	0.1%	1
Port Barrington, Village of	0.1%	1

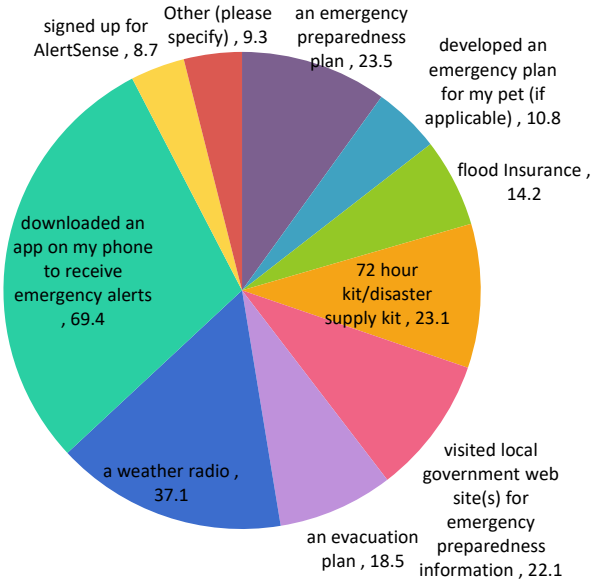
Riverwoods, Village of	0.6%	7
Round Lake, Village of	0.7%	8
Round Lake Beach, Village of	0.4%	4
Round Lake Park, Village of	0.4%	4
Tower Lakes, Village of	0.1%	1
Third Lake, Village of	0.2%	2
Vernon Hills, Village of	1.5%	17
Volo, Village of	0.3%	3
Wadsworth, Village of	0.3%	3
Wauconda, Village of	1.4%	15
Waukegan, City of	3.3%	36
Winthrop Harbor, Village of	0.1%	1
Zion, City of	0.5%	6
Other	14.1%	156
	Total	1,103

4.Do you have consistent, and stable internet access?



Value	Percent	Count
Yes	94.8%	924
No	5.1%	50
Do Not Know	0.1%	1
	Total	975

5.Please indicate those activities you have done to prepare for emergencies and disasters. Please select ALL that apply. I have…



Value	Percent	Count
an emergency preparedness plan	23.5%	198
developed an emergency plan for my pet (if applicable)	10.8%	91
flood Insurance	14.2%	120
72 hour kit/disaster supply kit	23.1%	195
visited local government web site(s) for emergency preparedness information	22.1%	186
an evacuation plan	18.5%	156
a weather radio	37.1%	313
downloaded an app on my phone to receive emergency alerts	69.4%	585

signed up for AlertSense	8.7%	73
Other (please specify)	9.3%	78

6. If you have an emergency supply kit, what items do you have in your kit? Please select ALL that apply.

Value	Percent	Count
I do not have an emergency/disaster supply kit	60.3%	532
Water	29.5%	260
Food (nonperishable)	26.3%	232
Battery-powered or hand crank radio and a NOAA Weather Radio with tone alert	23.5%	207
Flashlight	38.7%	341
First aid kit	34.2%	302
Extra batteries	29.7%	262
Whistle (to signal for help)	14.5%	128
Dust mask (to help filter contaminated air)	20.7%	183
Plastic sheeting and duct tape (to shelter in place)	11.9%	105
Moist towelettes, garbage bags and plastic ties (for personal sanitation)	19.5%	172
Wrench or pliers (to turn off utilities)	20.7%	183
Manual can opener (for food)	23.9%	211
Local maps	8.2%	72

Cell phone with chargers and a backup battery	21.4%	189
Prescription medications	17.2%	152
Non-prescription medications such as pain relievers, anti-diarrhea medication, antacids or laxatives	21.3%	188
Prescription eyeglasses and contact lens solution	13.8%	122
Infant formula, bottles, diapers, wipes and diaper rash cream	0.9%	8
Pet food and extra water for your pet	10.2%	90
Cash or traveler's checks	16.1%	142
Important family documents such as copies of insurance policies, identification and bank account records saved electronically or in a waterproof, portable container	13.6%	120
Sleeping bag or warm blanket for each person	18.7%	165
Complete change of clothing appropriate for your climate and sturdy shoes	13.4%	118
Fire extinguisher	20.2%	178
Matches in a waterproof container	12.8%	113
Feminine supplies and personal hygiene items	6.9%	61
Mess kits, paper cups, plates, paper towels and plastic utensils	15.6%	138
Paper and pencil	18.4%	162

Books, games, puzzles or other activities for children	7.4%	65
Other (please specify)	3.6%	32

7.Please indicate where you go to obtain emergency and disaster related information? Please select ALL that apply.

Value	Percent	Count
Local government web sites	59.7%	571
State government web sites	31.1%	298
Federal government web sites	30.1%	288
Web search	45.8%	438
Social media	30.8%	295
Voluntary organizations (example: American Red Cross, Salvation Army, etc.)	11.7%	112
Religious organization	3.6%	34
Local English-speaking television	40.9%	391
Local English-speaking radio	23.3%	223
Spanish-speaking television	0.8%	8
Local Spanish-speaking radio	0.4%	4
National news (radio and television)	41.9%	401
Print media - English (example: newspapers)	15.3%	146

Brochures and newsletters	5.2%	50
Word of mouth	26.5%	254
Other (please specify)	3.7%	35
Do not know	5.4%	52
Not applicable	1.5%	14

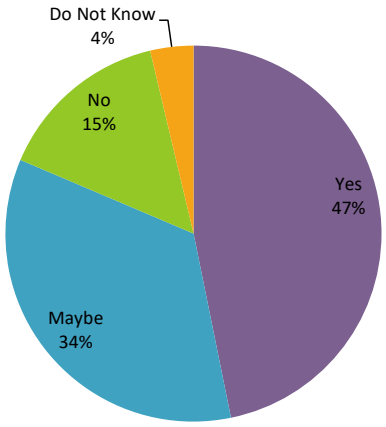
8.Would you agree or disagree with the following statements?

	Strongly Agree		Agree		Neither Agree nor Disagree		Disagree		Strongly Disagree		Do Not Know		Responses
	Count	Row %	Count	Row %	Count	Row %	Count	Row %	Count	Row %	Count	Row %	Count
Lake County is providing the services necessary to prepare me for a disaster.	34	3.5%	213	22.1 %	334	34. 6%	66	6.8%	40	4.1%	277	28.7%	964
I am familiar with Lake County's web site (www.lakecountyil.gov) and can easily obtain information about emergencies and disasters.	95	9.9%	345	36.0 %	234	24. 4%	125	13.0 %	40	4.2%	119	12.4%	958
During times of emergency, information	87	9.1%	374	39.2 %	248	26. 0%	24	2.5%	14	1.5%	208	21.8%	955

is provided in a format I can understand.													
I can easily obtain emergency information in times of crisis.	78	8.2%	390	41.0%	244	25.6%	48	5.0%	19	2.0%	173	18.2%	952

9.Please indicate how Lake County can better assist you in preparing for emergencies and disasters (example: provide preparedness materials in my language).

10.If a disaster (i.e. snow storm) impacted Lake County, knocking out electricity and running water, would your household be able to manage on its own for at least three (3) days?



Value	Percent	Count
Yes	46.8%	452
Maybe	34.6%	334
No	14.9%	144

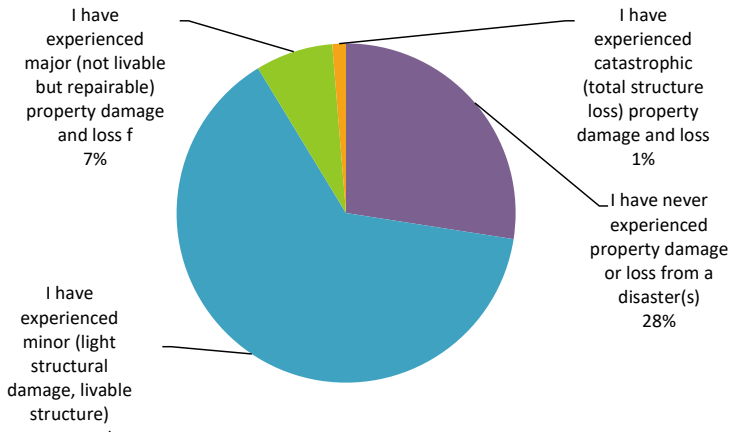
Do Not Know	3.7%	36
	Total	966

11. Do you believe that your household and/or place of business might ever be threatened by the following hazards? Please rate what hazards present the greatest risk. Low Risk = Low impact on threat to life and property damage Medium Risk = Medium impact on threat to life and property damage High Risk = High impact on threat to life and property damage

	Low Risk		Medium Risk		High Risk		Not Applicable		Responses
	Count	Row %	Count	Row %	Count	Row %	Count	Row %	Count
Severe Winter Storm	144	16.7%	395	45.8%	321	37.2%	2	0.2%	862
Tornado	196	22.8%	398	46.3%	263	30.6%	3	0.3%	860
Severe Summer Storm	87	10.1%	398	46.2%	372	43.2%	4	0.5%	861
Extreme Heat	268	31.2%	397	46.3%	190	22.1%	3	0.3%	858
Flood	420	49.1%	274	32.0%	156	18.2%	6	0.7%	856
Drought	366	42.9%	338	39.6%	136	15.9%	14	1.6%	854
Groundwater flooding	331	38.6%	335	39.1%	181	21.1%	10	1.2%	857
Earthquake	656	77.3%	110	13.0%	40	4.7%	43	5.1%	849
Erosion	575	67.6%	156	18.4%	59	6.9%	60	7.1%	850
Dam Failure	572	67.3%	49	5.8%	28	3.3%	201	23.6%	850
Seiche (wind driven	525	62.2%	57	6.8%	22	2.6%	240	28.4%	844

standing wave)									
Wildfire	566	66.6%	164	19.3%	51	6.0%	69	8.1%	850
Power Outages	106	12.4%	375	43.7%	375	43.7%	2	0.2%	858

12.Please select the answer that best describes your experience.



Value	Percent	Count
I have never experienced property damage or loss from a disaster(s)	27.5%	238
I have experienced minor (light structural damage, livable structure) property damage and loss from a disaster(s)	63.9%	553
I have experienced major (not livable but repairable) property damage and loss from a disaster(s)	7.4%	64
I have experienced catastrophic (total structure loss) property damage and loss from a disaster(s)	1.3%	11

	Total	866

13. If you have experienced any damage(s) or injury(ies) from a disaster, please list the hazard(s) that caused the damages/losses and/or injuries (Example: flooding, wind, winter storm)

14. If you have experienced any damage(s) or injury(ies) from a disaster, please indicate where this occurred (Example: my home, on a roadway or intersection, at work, on vacation, etc.)

15. If you have experienced any damage(s) or injury(ies) from a disaster, please describe the damages and/or injuries. (Example: basement flooded, roof was damaged, vehicle was damaged, broken bones, lacerations, etc.)

16. Based on YOUR PERCEPTION of your jurisdiction's hazards, to what degree of emphasis would you expect your jurisdiction to mitigate the following hazards? Mitigation definition: The purpose of mitigation planning is to identify policies and actions that can be implemented over the long term to reduce risk and future losses. Mitigation forms the foundation for a community's long-term strategy to reduce disaster losses and break the cycle of disaster damage, reconstruction, and repeated damage.

No Mitigation Needed = No mitigation on this hazard is expected or needed Low Priority = This hazard should be mitigated, but is not a high priority compared to other hazards
Medium Priority = It is important to mitigate this hazard
High Priority = It is a high priority to emphasize mitigation for this hazard

	No Mitigation Needed		Low Priority		Medium Priority		High Priority		Responses
	Count	Row %	Count	Row %	Count	Row %	Count	Row %	Count
Severe Winter Storm	66	7.8%	136	16.1%	310	36.8%	331	39.3%	843
Tornado	72	8.5%	159	18.8%	262	31.0%	351	41.6%	844
Severe Summer Storm	48	5.7%	145	17.2%	317	37.7%	331	39.4%	841

Extreme Heat	88	10.5%	289	34.6%	300	35.9%	159	19.0%	836
Flood	53	6.3%	171	20.4%	295	35.2%	320	38.1%	839
Drought	145	17.3%	362	43.3%	243	29.1%	86	10.3%	836
Groundwater	91	10.9%	281	33.8%	255	30.6%	205	24.6%	832
Earthquake	338	40.3%	344	41.1%	80	9.5%	76	9.1%	838
Erosion	255	30.4%	334	39.8%	172	20.5%	79	9.4%	840
Dam Failure	440	53.1%	240	29.0%	73	8.8%	76	9.2%	829
Seiche (wind driven standing wave)	514	61.5%	213	25.5%	71	8.5%	38	4.5%	836
Wildfire	235	28.1%	329	39.4%	171	20.5%	101	12.1%	836
Power Outages	17	2.0%	65	7.8%	259	31.0%	494	59.2%	835

17.If an evacuation was ordered for your area, please indicate how likely you would be to do the following.

	Very Likely		Somewhat Likely		Not Very Likely		Not Likely at All		Do Not Know		Not Applicable		Responses
	Count	Row%	Count	Row%	Count	Row%	Count	Row%	Count	Row%	Count	Row%	Count
Immediately evacuate as instructed.	440	51.8%	285	33.6%	70	8.2%	17	2.0%	36	4.2%	1	0.1%	849
I would first consult with family and friends outside my household before deciding to evacuate.	262	31.8%	266	32.3%	147	17.8%	112	13.6%	22	2.7%	15	1.8%	824
Wait and see how bad the situation is	108	13.0%	286	34.5%	234	28.2%	164	19.8%	25	3.0%	12	1.4%	829

going to be before deciding to evacuate.													
Refuse to evacuate no matter what.	9	1.1%	23	2.8%	133	16.2%	589	71.6%	33	4.0%	36	4.4%	823

18.What might prevent you from leaving your place of residence if there was an evacuation order? Please select ALL that apply.

Value	Percent	Count
Pet	26.7%	224
Livestock	0.6%	5
Job	5.5%	46
Need to care for another person	12.4%	104
Spouse/Significant Other won't leave	14.7%	123
Need to stay and protect property	23.7%	199
Lack of money	10.0%	84
No place to go	23.6%	198
No transportation	4.8%	40
Traffic	21.7%	182
Lack of gas/fuel for vehicle	17.9%	150
Disability/Health Issues	10.3%	86
Other (please specify)	4.4%	37
No obstacles would prevent me from evacuating	34.8%	292

I would refuse to evacuate no matter what	0.7%	6

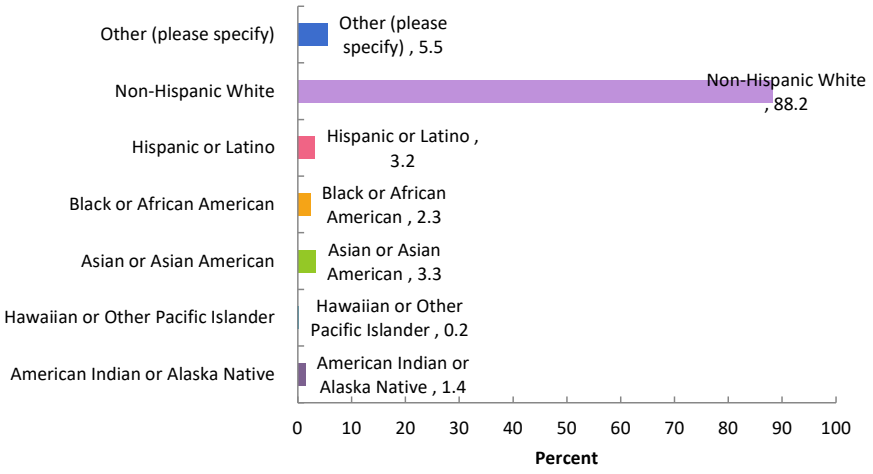
19.What type of structure do you live in?

Value	Percent	Count
Detached single family home	87.5%	752
Duplex, triplex, quadruple home	4.7%	40
Multi-family building – 2 stories or more (apartment/condo)	5.5%	47
Mobile home	0.2%	2
Manufactured home	1.4%	12
Do Not Know	0.1%	1
Other (please specify)	0.6%	5
	Total	859

20.How many persons, including yourself, are currently living in your household?

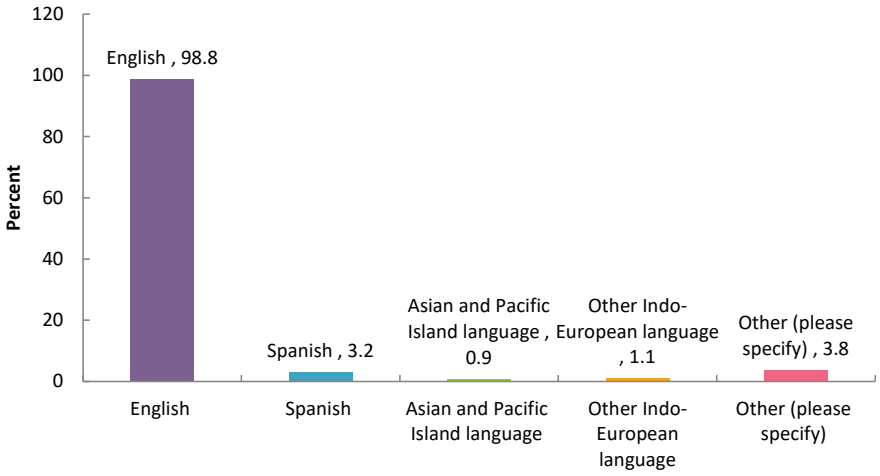
	Number of people in household		Responses
	Row %	Count	
Under age 5:	100.0%	431	431
Ages 6-10:	100.0%	435	435
Ages 11-19:	100.0%	474	474
Ages 20-44:	100.0%	513	513
Ages 45-64:	100.0%	620	620
Ages 65-79:	100.0%	595	595
Ages 80+	100.0%	430	430

21.Which of the following best describes your race/ethnicity? Please select ALL that apply.



Value	Percent	Count
American Indian or Alaska Native	1.4%	12
Hawaiian or Other Pacific Islander	0.2%	2
Asian or Asian American	3.3%	28
Black or African American	2.3%	19
Hispanic or Latino	3.2%	27
Non-Hispanic White	88.2%	739
Other (please specify)	5.5%	46

22.Please indicate the language(s) spoken in your household. Please select ALL that apply.



Value	Percent	Count
English	98.8%	839
Spanish	3.2%	27
Asian and Pacific Island language	0.9%	8
Other Indo-European language	1.1%	9
Other (please specify)	3.8%	32

Sixty respondents provided their e-mail address (compared to thirty-two in 2011).

1. Public meeting and public comment announcements:

STORMWATER MANAGEMENT COMMISSION

NOTICE OF PUBLIC HEARING AND COMMENT PERIOD
DRAFT LAKE COUNTY ALL NATURAL HAZARDS MITIGATION PLAN UPDATE

A public hearing on the Draft Lake Co. All Natural Hazards Mitigation Plan (ANHMP) Update will be held Friday, October 21, 2016, 12 noon, County Building, 18 N. County St., 10th floor, Waukegan, IL. The Draft Plan Update will be presented and public comments will be accepted until November 19, 2016. FEMA requires the ANHMP be updated every 5 years. The multi-jurisdictional plan update will allow participating communities to be eligible for natural hazard mitigation grant funding. The Draft Plan Update will be posted to: https://www.lakecountyil.gov/2369/All-Natural-Hazards-Mitigation-Plan. Written comments can be sent to: Lake Co. Stormwater Management Commission, 500 W. Winchester Rd., Suite 201, Libertyville, IL 60048 or emailed to stormwater@lakecountyil.gov.

"Public Meeting to Be Held on the Lake County All Natural Hazards Mitigation Plan"

The Lake County Hazard Mitigation Planning Committee is in the process of updating the Lake County All Natural Hazards Mitigation Plan. An update to the Plan is required every five years by the Federal Emergency Management Agency. A public meeting will be held on October 21 in Waukegan to review the proposed changes to the Plan.

The public is invited to attend this meeting and to provide comments on the Plan. The Plan identifies activities that can be undertaken by both the government and the private sector to reduce the safety hazards, health hazards, and property damage caused by floods, severe summer and winter storms, tornadoes, and other natural hazards.

The public meeting on Friday, October 21 at noon at the Lake County Building at 18 North County Street in Waukegan in the 10th Floor Assembly Room.

"Hazard mitigation" means doing everything that can be done to reduce the impact of the natural hazards on people and property. It does not necessarily mean controlling floodwaters or stopping tornadoes. These hazards are natural phenomena and, in many cases, mitigation means adjusting what people do in the face of this natural activity.

Lake County is subject to natural hazards that threaten life and health and have caused extensive property damage in the past. Again, while these hazards are acts of nature, the impacts on residents, public facilities, businesses, and private property can be reduced through hazard mitigation.

The update to the Lake County All Natural Hazards Mitigation Plan will be considered by the Lake County Board for adoption, and also for adoption by the Lake County municipalities that participated on the planning process. After the Plan is adopted, Lake County and the participating municipalities will continue to be eligible for hazard mitigation grant funding through the Illinois Emergency Management Agency and the Federal Emergency Management Agency.

For more information, contact Sharon Østerby of Lake County SMC at 847-377-7706.

2. Public meeting held:

Lake County Countywide All-Natural Hazards Mitigation Plan (ANHMP)
2022 Hazard Mitigation Plan Update

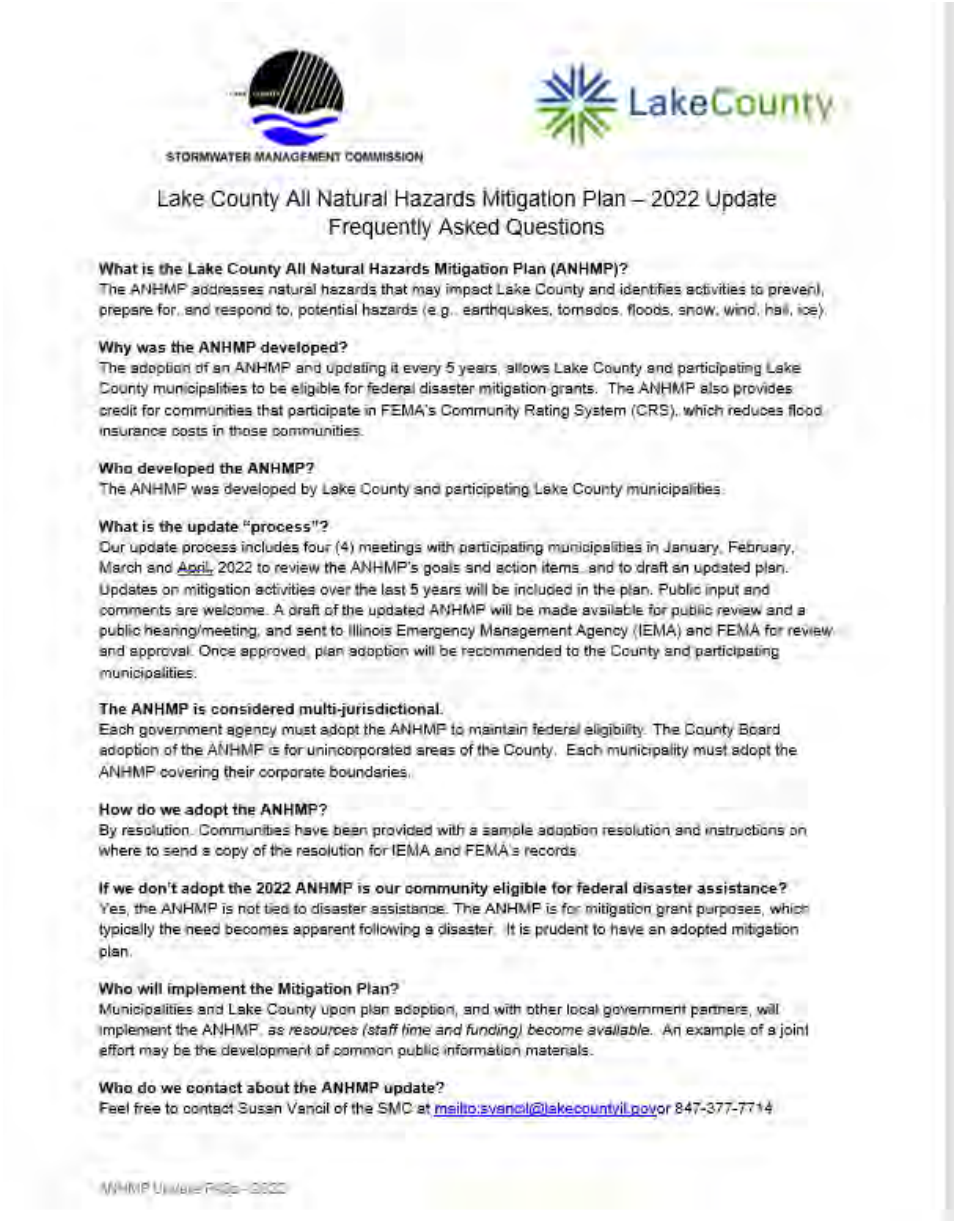
Public Meeting
April 19, 2022, | 6:00 – 7:00 PM (CST)

AGENDA

- **Introductions**
- **What is Hazard Mitigation?**
- **Hazard Mitigation Plan Overview**
- **Hazards of Greatest Concern for Citizens of Lake County**
- **Examples of Home-Owner/Individual Mitigation Actions**
- **Question/Answer Session**

Support Team Contact
Matt Stanley
Integrated Solutions Consulting
Matt.Stanley@i-s-consulting.com
504.645.1616

8. Frequently Asked Questions:



STORMWATER MANAGEMENT COMMISSION

LakeCounty

Lake County All Natural Hazards Mitigation Plan – 2022 Update
Frequently Asked Questions

What is the Lake County All Natural Hazards Mitigation Plan (ANHMP)?
The ANHMP addresses natural hazards that may impact Lake County and identifies activities to prevent, prepare for, and respond to, potential hazards (e.g., earthquakes, tornados, floods, snow, wind, hail, ice).

Why was the ANHMP developed?
The adoption of an ANHMP and updating it every 5 years, allows Lake County and participating Lake County municipalities to be eligible for federal disaster mitigation grants. The ANHMP also provides credit for communities that participate in FEMA's Community Rating System (CRS), which reduces flood insurance costs in those communities.

Who developed the ANHMP?
The ANHMP was developed by Lake County and participating Lake County municipalities.

What is the update "process"?
Our update process includes four (4) meetings with participating municipalities in January, February, March and April, 2022 to review the ANHMP's goals and action items, and to draft an updated plan. Updates on mitigation activities over the last 5 years will be included in the plan. Public input and comments are welcome. A draft of the updated ANHMP will be made available for public review and a public hearing/meeting, and sent to Illinois Emergency Management Agency (IEMA) and FEMA for review and approval. Once approved, plan adoption will be recommended to the County and participating municipalities.

The ANHMP is considered multi-jurisdictional.
Each government agency must adopt the ANHMP to maintain federal eligibility. The County Board adoption of the ANHMP is for unincorporated areas of the County. Each municipality must adopt the ANHMP covering their corporate boundaries.

How do we adopt the ANHMP?
By resolution. Communities have been provided with a sample adoption resolution and instructions on where to send a copy of the resolution for IEMA and FEMA's records.

If we don't adopt the 2022 ANHMP is our community eligible for federal disaster assistance?
Yes, the ANHMP is not tied to disaster assistance. The ANHMP is for mitigation grant purposes, which typically the need becomes apparent following a disaster. It is prudent to have an adopted mitigation plan.

Who will implement the Mitigation Plan?
Municipalities and Lake County upon plan adoption, and with other local government partners, will implement the ANHMP, *as resources (staff time and funding) become available*. An example of a joint effort may be the development of common public information materials.

Who do we contact about the ANHMP update?
Feel free to contact Susan Vancil of the SMC at mailto:svancil@lakecountyil.govor 847-377-7714

ANHMP Update FAQs - 2022

Lake County ANHMP Update – Public Input Needed

Lake County and all interested municipalities are in the process of updating the Lake County All Natural Hazards Mitigation Plan. The Mitigation Plan identifies activities and projects to reduce the damages caused by natural hazards such as tornadoes, floods, and severe summer and winter storms. Mitigation means anything that can be done to reduce the impact of a natural hazard.

Public input and comments are important to the Mitigation Plan update. All Lake County residents and property owners are encouraged to complete a short survey that can be found on the Internet at: _ https://survey.alchemer.com/s3/6719034/2022-Lake-County-IL-Disaster-Preparedness-and-Mitigation-Questionnaire-copy

Survey responses provided will help Lake County prioritize natural hazards that could impact residents and property owners, and to determine how to be better prepared for natural hazard emergencies.

Upcoming Plan Update Meetings

The Hazard Mitigation Planning Committee (HMPC) will be meeting on the following dates for the purpose of drafting the 2017 update to the ANHMP.

Wednesday, March 23, 2022 at 1:00 p.m. – 2:30 p.m.
Wednesday, April 20, 2022 at 1:00 p.m. – 2:00 p.m.

For more information and to follow the plan update process:
https://www.lakecountyil.gov/2369/All-Natural-Hazards-Mitigation-Plan

ANHMP Update FAQs - 2022

Appendix E: Progress on 2017 Action Plan & Comparison to Current Action Plan

The 2017 All Natural Hazards Mitigation Plan (ANHMP) contained 22 action items that all communities included in their adoption of the ANHMP. The 2017 action items were developed by the Local Planning Committee, which is now the Hazard Mitigation Planning Committee (HMPC). Most action items from 2017 were carried over into the 2022 update of the ANHMP by the HMPC, however the HMPC did reprioritize several action items.

Appendix E's table below gives a status of the 2017 action items and shows a comparison to the 2022 action items. Community representatives were asked to submit specific community action items, and these items were addressed in the 2022 ANHMP.

2017 Action Plan Status and 2022 Action Plan Updates

	2017 Plan Action Item	Status/Progress		2022 Plan Action Item	Change/Update/Priority
1.	Plan Adoption	Completed	34A.	Village of Beach Park: Improve/Enhance Manor Rd Culvert and Bull Creek Bank Stabilization	New (High)
2.	Participation on the Hazard Mitigation Planning Committee and Plan Monitoring and Maintenance	Completed/Ongoing	34B.	Village of Beach Park: Resize Major Ave, culvert at Bullcreek	New (High)
5.	Improve Natural Hazards Public Information Efforts with focus on the Promotion of Flood Insurance and How People Can Protect Themselves and Their Property	Ongoing	34C.	Village of Beach Park: North Ave. Stormwater Conveyance Improvements	New (High)
23.	Develop of Flood Stage Maps	Ongoing	34D.	Village of Beach Park: Update Building Codes to 2018 IBC	New (High)
18.	Improve Emergency Response and Develop Assessment Teams	Completed/Ongoing	35.	Village of Fox River: Catch basins at border near Illinois/Wisconsin and the mouths of tributaries flowing into the river	New (High)

3.	Incorporate ANH MP into Other County and Municipal Plans	Ongoing	36A.	Village of Gurnee: Identify needs and obtain alternate power source for critical facilities, supply generator with ATS at Lee Ave. lift station and generator backup at Westgate lift station.	New (High)
10.	Implement Property Protection Projects for Flood Mitigation	Ongoing	36B.	Village of Gurnee: Streambank stabilization along Swanson Trig tributary east of CP Railroad, West of Union Pacific Railroad, South of 132 and North of Washington St.	New (Medium)
21.	Continue to Map Natural Hazard Impacts and Continue Vulnerability Assessments	Ongoing	36C.	Village of Gurnee: Increase culvert flow capacity at Grove Ave.	New (Medium)
7.	Review of Critical Facilities and Implement of Appropriate Mitigation Measures	Completed/Ongoing	37A.	Village of Kildeer: Expand village swale system to increase stormwater flow capacity.	New (High)
16.	Seek Mitigation Grant Funding for Additional Mitigation Planning and Cost Beneficial Projects	Ongoing	37B.	Village of Kildeer: Increase stormwater flow capacity by resizing culvert at Buffalo Run and Cliffside Dr.	New (High)
4.	Continued Implementation of the WDO and NFIP Requirements	Ongoing	38.	Village of Lake Bluff: Increase storm sewer capacity to drain West Scanton viaduct.	New (High)
8.	Improve Capacity of Drainage Systems and/or Provide Additional Storage of Flood Waters	Completed/Ongoing	39.	Village of Lake Zurich: Shoreline stabilization at Buffalo Creek	New (Medium)
9.	Implement Maintenance Programs for Drainage Systems, Including Streambank and Ravine Stabilization Efforts	Completed/Ongoing	40.	Village of Libertyville: Increase detention volume at Highlands subdivision phase 1 including reconstruction of Nicholas Dowden Park South for detention storage.	New (High)
19.	Enhance Response and Recovery Information Sharing and Collaboration	Ongoing	41.	Village of Lincolnshire: Windsor Dr. area drainage improvements, adding	New (High)

	and Identify Additional Training Opportunities			additional storm sewer to reduce roadway flooding	
14.	Continue Work for NIMS Compliance	Ongoing	42A.	Village of Port Barrington: Flood buyouts of homes in floodplain	New (High)
6.	Identify Needs and Obtain Alternate Power Sources for Critical Facilities and Shelters	Completed/Ongoing	42B.	Village of Port Barrington: Purchase new electronic sign for village entrance to provide emergency notifications.	New (High)
15.	Improve Building Codes and Building Code Enforcement	Ongoing	42C.	Village of Port Barrington: Shoreline stabilization of natural island in Nielson Channel.	New (High)
20.	Continue Participation or Consider Participation in the NFIP's Community Rating System	Ongoing	42D.	Village of Port Barrington: Construction of new storage shed for emergency response supplies including sandbag and bagging equipment.	New (Low)
11.	Reduce Inflow and Infiltration to Protect Against Sewer Backups	Completed/Ongoing	43.	Village of Volo: Implement program to review and clear retention pond culverts utilized for stormwater drainage.	New (High)
13.	Continue Participation or Consider Participation in Tree City USA (Urban Forestry)	Ongoing	44A.	Village of Wauconda: Bangs Lake Drainage Ditch Streambank Stabilization	New (High)
17.	Continue Participation or Consider Participation in StormReady	Ongoing	44B.	Village of Wauconda: Circle Channel Shoreline Stabilization Project	New (High)
12.	Identify Wind Mitigation Opportunities for the Protection of Buildings, and to Provide Safe Rooms and Sheltering	Ongoing	44C.	Village of Wauconda: Inflow & Infiltration (I/I) Mitigation	New (High)
22.	Continue with Identification and Implementation of SMC Flood Mitigation Projects	Completed/Ongoing	44D.	Village of Wauconda: Larkdale Lagoons and Outfall Channel	New (High)

24.	Develop or Enhance the Community's Snow Removal Plan	Ongoing/Annually	44E.	Village of Wauconda: Mutton Creek Streambank Stabilization	New (High)
25.	Utility Tree Trimming	Ongoing	44F.	Village of Wauconda: Develop a Stormwater Master Plan	New (High)
26.	Sump Pump Disconnects	Ongoing	45.	City of Waukegan: Yeoman Creek bank stabilization	New (High)
27.	Conduct Local Drainage Studies	Ongoing			
28.	Increase Stormwater Detention Capacity	Completed/Ongoing			
29.	Investigate Countywide Warning System	Completed/Ongoing			
30.	Investigate Future Conditions Impact on Depth and Frequency of Flooding	Ongoing			
31.	Lincolnshire Creek Improvements	Completed/Ongoing			
32.	Mitigate Septic Discharge; Leaching into Waterways	Ongoing			
33.	Implement the FFRMS	Ongoing			

Appendix F: 2022 Unincorporated Lake County New Actions

2022 Unincorporated Lake County New Actions			
Action #	**Action Item**	**Status**	**Priority**
46. **A, B, C, D**	Antioch Township, Residential Buyouts or Elevations **(A)** West Loon Lakes and **(B)** Loon Lakes. Drainageway Restoration/Conveyance at Sequoit Creek TWP Range Sections **(C)** 46-10-16 and **(D)** 46-10-17.	***New***	(A, B) Medium (C, D) Low
47. **A, B, C**	Avon Township, Drainageway Restoration/Conveyance at **(A)** Gages Lake Drain and **(B)** Four Corner's Basin. **(C)** Flood Access/Elevate Roadway at Liden Ave.	***New***	(A, B) High (C)Medium
48. **A, B, C, D**	Cuba Township, Drainage Infrastructure at **(A)** North Oaks and **(B)** Chicago Highlands. Residential Buyouts or Elevations at **(C)** Snuff Valley Rd and **(D)** Pioneer Grove Rd.	***New***	(A, B, C, D) Medium
49. **A, B, C, D**	Ela Township, Drainage Infrastructure enhancements at **(A)** Abbey Glenn Subdivision, **(B)** Forest Lake Subdivision **(C)** Forest Lake Subdivision, and **(D)** Echo Lake.	***New***	(A, B, C) High (D)Medium
50. **A, B, C, D**	Fremont Township, **(A)** Dam Replacement at Sylvan Lake Dam. Drainage Infrastructure at **(B)** Lake Fairfield Estates Subdivision, **(C)** Summer Hill Estates Subdivision and **(D)** Diamond Lake.	***New***	(A)High (B, C, D) Medium
51. **A, B, C, D**	Grant Township, Drainageway Restoration/Conveyance at **(A)** Four Corner's Basin and **(B)** Fish Lake Drain. **(C)** Drainage Infrastructure at Duck Lake Woods. **(D)** Residential Buyouts or Elevations at Meyers Bayview Terrace.	***New***	(A) High (C, D) Medium (B)Low
52. **A, B, C, D, E, F**	Lake Villa Township, Drainage Infrastructure at Venetian Village Subdivision TWP Range Sections **(A)** 45-10-02, **(B)** 45-10-10, **(C)** Fox Lake Hills Chesney Area, **(D)** Orchard Gardens of Fox Lake Hills, **(E)** Sand Lake Outlet and **(F)** Cedar Crest Subdivision	***New***	(A, B, C) High (D, E, F) Medium
53. **A, B, C, D, E, F, G, H, I**	Libertyville Township, **(A)** Levee Enhancements at North Libertyville Estates Subdivision Drainage Infrastructure at **(B)** Winchester Road Soccer Complex, **(C)** Bull Creek Subdivision, **(D)** Countryside Manor Subdivision, **(E)** Japar Industrial Park, **(F)** Bradley Road Industrial Park, **(G)** Old School Forest Preserve., and **(H)** Terre Fair Subdivision **(I)** Stormwater Storage at Casey Rd Open Space.	***New***	(A)High (B, C, D, E, F) Medium (G, H, I) Low
54. **A, B, C, D**	Newport Township, Flood Access/Elevate Roadway at Russell Road TWP Range Sections **(A)** 46-11-02, **(B)** 46-11-03. Residential Buyouts or Elevations at Russel TWP Sections **(C)** 46-11-02 and **(D)** 46-11-03.	***New***	(A, B) High (C, D) Medium
55. **A, B, C, D**	Shields Township, Drainage Infrastructure at **(A)** Arden Shores Subdivision, **(B)** North Shore Properties Subdivision, **(C)** Terrace Oaks, (D) Rockland Manor Subdivision and **(E)** Basilwood Subdivision	***New***	(A, B, C, D) Medium
56. **A, B, C, D**	Vernon Township, **(A)** Residential Buyouts or Elevations at Pekara Subdivision Drainage Infrastructure at **(B)** Prairie View, **(C)** Horatio Gardens Subdivision, and **(D)** Woodbine Estates Subdivision **(E)** Flood Proofing at Aptakisic Creek Commercial Area.	***New***	(A)High (B, C,) Medium (D, E) Low
57. **A, B, C, D, E, F, G, H, I, J, K, L, M, N, O, P, Q, R**	Warren Township, Drainage Infrastructure at **(A)** Del-Mar Woods Subdivision, **(B)** Wooded Glen Gardens Subdivision, **(C)** Grandwood Dr & Rt 132, **(D)** Tangueray Meadows Subdivision, **(E)** Warren Twp High School, **(F)** North Shore Lands, **(G)**Orchard Valley Pond, **(H)** Gages Lake Rd & Rt 45, **(I)** Warren Twp High School, **(J)** Woodland Meadows Subdivision **(K)** Wildwood on Gages Lake Subdivision, **(L)** Pinewood Creek Subdivision, **(M)** Wildwood on Gages Lake Subdivision, and Gages Lake Subdivision Drainageway Restoration/Conveyance at **(N)** Hunt Club Farms Lake drain and **(O)** Lambs Corner Creek. Stormwater Storage at **(P)** Deerpath Subdivision headwaters, **(Q)**Grandwood Park Subdivision headwaters And **(R)**Summerfields Subdivision	***New***	(A, B, C, D, N, P, Q, R) High (E, H, I, J, K, L) Medium (F, G, M, O) Low
58. **A, B**	Wauconda Township, **(A)** Residential Buyouts or Elevations at Williams Park Subdivision **(B)** Creek Conveyance at Fiddle Creek	***New***	(A, B) Medium
59. **A, B**	Waukegan Township, Drainage Infrastructure at **(A)** North Shore Highlands and **(B)** North Shore Lands.	***New***	(A)High (B)Medium
60. **A**	West Deerfield Township, **(A)** Drainage Infrastructure at Del-Mar Woods Subdivision	***New***	(A)High

Appendix G: HAZUS MH Flood Report

Hazus: Flood Global Risk Report

Region Name:	LakeCounty_IL
Flood Scenario:	Full
Print Date:	Wednesday, October 26, 2022

Disclaimer:
This version of Hazus utilizes 2010 Census Data.
Totals only reflect data for those census tracts/blocks included in the user's study region.

The estimates of social and economic impacts contained in this report were produced using Hazus loss estimation methodology software which is based on current scientific and engineering knowledge. There are uncertainties inherent in any loss estimation technique. Therefore, there may be significant differences between the modeled results contained in this report and the actual social and economic losses following a specific Flood. These results can be improved by using enhanced inventory data and flood hazard information.

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General Description of the Region

Hazus is a regional multi-hazard loss estimation model that was developed by the Federal Emergency Management Agency (FEMA) and the National Institute of Building Sciences (NIBS). The primary purpose of Hazus is to provide a methodology and software application to develop multi-hazard losses at a regional scale. These loss estimates would be used primarily by local, state and regional officials to plan and stimulate efforts to reduce risks from multi-hazards and to prepare for emergency response and recovery.

The flood loss estimates provided in this report were based on a region that included 1 county(ies) from the following state(s):

- Illinois

Note:
Appendix A contains a complete listing of the counties contained in the region.

The geographical size of the region is approximately 471 square miles and contains 15,941 census blocks. The region contains over 242 thousand households and has a total population of 703,462 people (2010 Census Bureau data). The distribution of population by State and County for the study region is provided in Appendix B.

There are an estimated 238,762 buildings in the region with a total building replacement value (excluding contents) of 130,102 million dollars. Approximately 91.82% of the buildings (and 79.55% of the building value) are associated with residential housing.

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Building Inventory

General Building Stock

Hazus estimates that there are 238,762 buildings in the region which have an aggregate total replacement value of 130,102 million dollars. Table 1 and Table 2 present the relative distribution of the value with respect to the general occupancies by Study Region and Scenario respectively. Appendix B provides a general distribution of the building value by State and County.

Table 1
Building Exposure by Occupancy Type for the Study Region

Occupancy	Exposure ($1000)	Percent of Total
Residential	103,489,740	79.5%
Commercial	16,575,746	12.7%
Industrial	5,709,798	4.4%
Agricultural	293,520	0.2%
Religion	1,007,469	0.8%
Government	426,912	0.3%
Education	2,598,532	2.0%
Total	**130,101,717**	**100%**

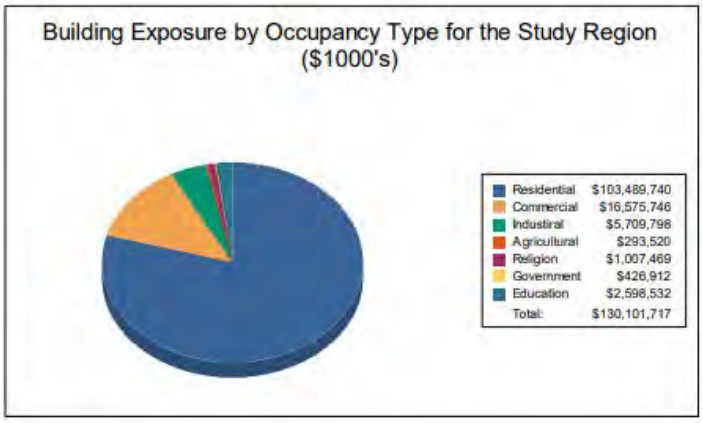

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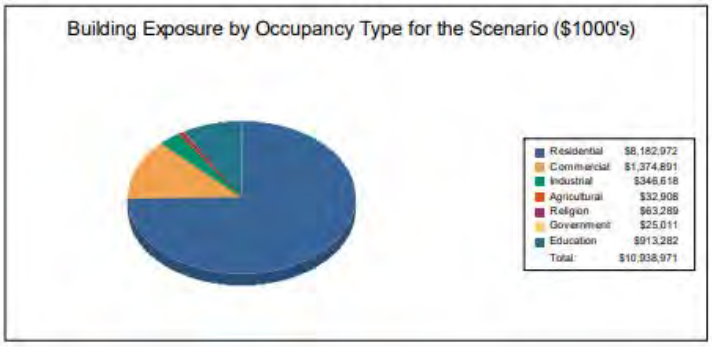
Table 2
Building Exposure by Occupancy Type for the Scenario

Occupancy	Exposure ($1000)	Percent of Total
Residential	8,182,972	74.8%
Commercial	1,374,891	12.6%
Industrial	346,618	3.2%
Agricultural	32,908	0.3%
Religion	63,289	0.6%
Government	25,011	0.2%
Education	913,282	8.3%
Total	**10,938,971**	**100%**



Essential Facility Inventory

For essential facilities, there are 9 hospitals in the region with a total bed capacity of 968 beds.
There are 309 schools, 64 fire stations, 42 police stations and 1 emergency operation center.

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Flood Scenario Parameters

Hazus used the following set of information to define the flood parameters for the flood loss estimate provided in this report.

Study Region Name:	LakeCounty_IL
Scenario Name:	Full
Return Period Analyzed:	100
Analysis Options Analyzed:	No What-Ifs

Study Region Overview Map

Illustrating scenario flood extent, as well as exposed essential facilities and total exposure

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Building Damage

General Building Stock Damage

Hazus estimates that about 558 buildings will be at least moderately damaged. This is over 79% of the total number of buildings in the scenario. There are an estimated 3 buildings that will be completely destroyed. The definition of the 'damage states' is provided in the Hazus Flood Technical Manual. Table 3 below summarizes the expected damage by general occupancy for the buildings in the region. Table 4 summarizes the expected damage by general building type.

Total Economic Loss (1 dot = $300K) Overview Map

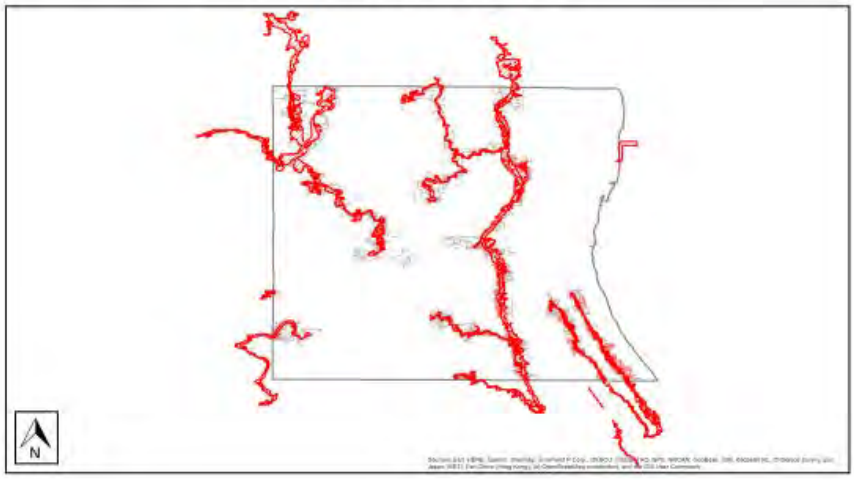

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Table 3: Expected Building Damage by Occupancy

	1-10		11-20		21-30		31-40		41-50		>50	
Occupancy	**Count**	**(%)**	**Count**	**(%)**	**Count**	**(%)**	**Count**	**(%)**	**Count**	**(%)**	**Count**	**(%)**
Agriculture	0	0	0	0	0	0	0	0	0	0	0	0
Commercial	1	20	4	80	0	0	0	0	0	0	0	0
Education	5	83	1	17	0	0	0	0	0	0	0	0
Government	0	0	0	0	0	0	0	0	0	0	0	0
Industrial	0	0	1	100	0	0	0	0	0	0	0	0
Religion	0	0	0	0	0	0	0	0	0	0	0	0
Residential	354	39	399	44	107	12	32	4	11	1	3	0
Total	**360**		**405**		**107**		**32**		**11**		**3**	

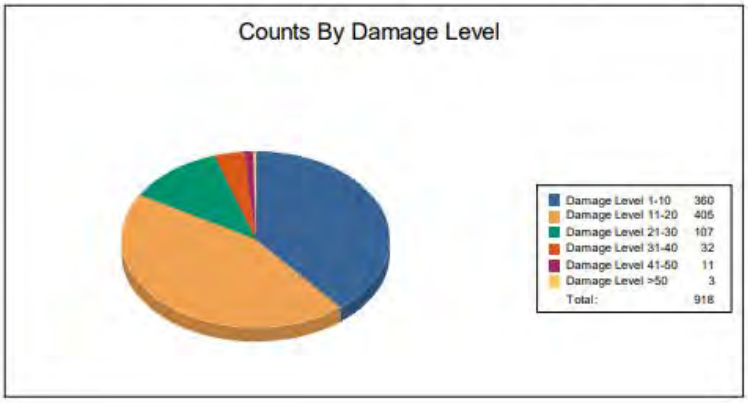

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Table 4: Expected Building Damage by Building Type

Building Type	1-10		11-20		21-30		31-40		41-50		>50	
	Count	(%)	Count	(%)	Count	(%)	Count	(%)	Count	(%)	Count	(%)
Concrete	1	100	0	0	0	0	0	0	0	0	0	0
ManufHousing	0	0	0	0	0	0	0	0	0	0	0	0
Masonry	67	43	73	46	12	8	4	3	1	1	0	0
Steel	1	100	0	0	0	0	0	0	0	0	0	0
Wood	289	38	328	44	95	13	28	4	10	1	3	0

Essential Facility Damage

Before the flood analyzed in this scenario, the region had 968 hospital beds available for use. On the day of the scenario flood event, the model estimates that 968 hospital beds are available in the region.

Table 5: Expected Damage to Essential Facilities

Classification	Total	# Facilities		
		At Least Moderate	At Least Substantial	Loss of Use
Emergency Operation Centers	1	0	0	0
Fire Stations	64	1	0	1
Hospitals	9	0	0	0
Police Stations	42	0	0	0
Schools	309	0	0	0

If this report displays all zeros or is blank, two possibilities can explain this.

(1) None of your facilities were flooded. This can be checked by mapping the inventory data on the depth grid.

(2) The analysis was not run. This can be tested by checking the run box on the Analysis Menu and seeing if a message box asks you to replace the existing results.

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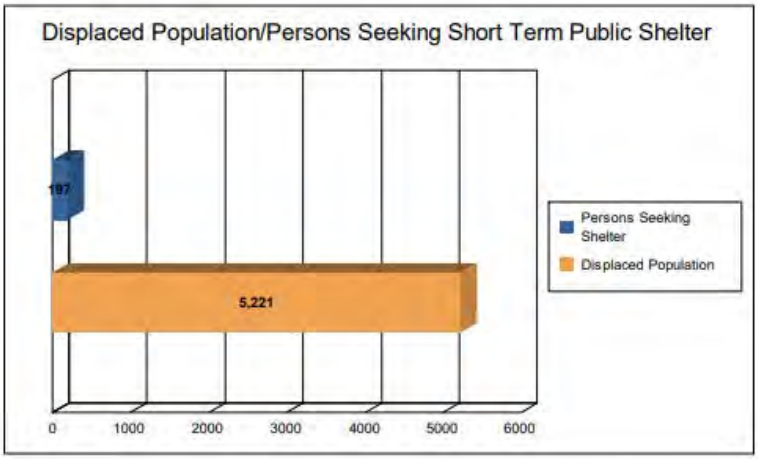
Social Impact

Shelter Requirements

Hazus estimates the number of households that are expected to be displaced from their homes 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 1,740 households (or 5,221 of people) will be displaced due to the flood. Displacement includes households evacuated from within or very near to the inundated area. Of these, 197 people (out of a total population of 703,462) will seek temporary shelter in public shelters.



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Economic Loss

The total economic loss estimated for the flood is 754.69 million dollars, which represents 6.90 % of the total replacement value of the scenario buildings.

Building-Related Losses

The building losses are broken into two categories: direct building losses and business interruption losses. The direct building losses are the estimated costs to repair or replace the damage caused to the building and its contents. The business interruption losses are the losses associated with inability to operate a business because of the damage sustained during the flood. Business interruption losses also include the temporary living expenses for those people displaced from their homes because of the flood.

The total building-related losses were 369.80 million dollars. 51% of the estimated losses were related to the business interruption of the region. The residential occupancies made up 35.65% of the total loss. Table 6 below provides a summary of the losses associated with the building damage.

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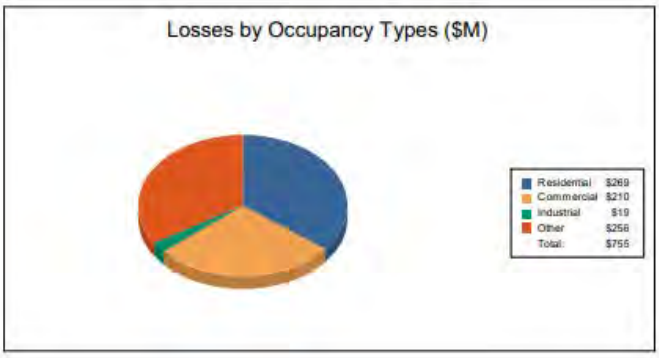
Table 6: Building-Related Economic Loss Estimates

(Millions of dollars)

Category	Area	Residential	Commercial	Industrial	Others	Total
Building Loss						
	Building	132.58	21.86	4.97	6.86	166.07
	Content	66.88	67.08	11.84	55.23	201.02
	Inventory	0.00	1.38	1.25	0.09	2.71
	Subtotal	**199.46**	**90.11**	**18.05**	**62.18**	**369.80**
Business Interruption						
	Income	5.98	48.72	0.21	47.32	102.22
	Relocation	33.71	13.42	0.32	17.42	64.87
	Rental Income	15.84	9.71	0.05	1.81	27.42
	Wage	14.10	48.53	0.39	127.37	190.39
	Subtotal	**69.62**	**120.38**	**0.97**	**193.92**	**384.89**
ALL	**Total**	**269.08**	**210.49**	**19.03**	**256.09**	**754.69**



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Appendix B: Regional Population and Building Value Data

	Population	Building Value (thousands of dollars)		
		Residential	Non-Residential	Total
Illinois				
Lake	703,462	103,489,740	26,611,977	130,101,717
Total	**703,462**	**103,489,740**	**26,611,977**	**130,101,717**
Total Study Region	**703,462**	**103,489,740**	**26,611,977**	**130,101,717**

Appendix H: Resolutions and FEMA Approval

[To be inserted.]

OFFICE OF THE VILLAGE MANAGER

70 East Main Street
Lake Zurich, Illinois 60047

(847) 438-5141
LakeZurich.org

At the Heart of Community

AGENDA ITEM 6E

MEMORANDUM

Date: May 9, 2023

To: Ray Keller, Village Manager RK

From: Michael Duebner, Management Services Director

Subject: Liquor License Issuance

Issue: Sergio's Restaurants, Inc /dba Sergio's Fresh Mexican Grill located at 660 East Route 22 has requested a full-service restaurant Class-A Liquor License for the dispensing of alcoholic beverages and Class-V Video Gaming License.

Analysis: Sergio's Restaurants, Inc has operated a full-service restaurant in the Village since 2001 and expanded seating into an adjacent vacant space in 2018. The restaurant has not applied for a liquor license previously despite customer requests. As alcoholic beverage service and video gaming is available at other Lake Zurich restaurants, Sergio's desires to enhance their dining experience in similar fashion.

The owner has completed the application, submitted documentation and passed the background check for issuance of a Class-A Liquor License for dispensing of alcoholic beverages and Class-V Video Gaming License.

Recommendation: Consideration and approval of the proposed ordinance to issue Class-A and Class-V Liquor Licenses to Sergio's Restaurants, Inc and amend the number of liquor and video gaming licenses issued.

w/Attachments: Ordinance issuing a Class-A and Class-V license and amending the license counts.

VILLAGE OF LAKE ZURICH

ORDINANCE NO. 2023-05-514

ORDINANCE AMENDING TITLE 3 OF CHAPTER 3 OF THE VILLAGE OF LAKE ZURICH MUNICIPAL CODE TO INCREASE AUTHORIZED CLASS A – FULL SERVICE RESTAURANT AND CLASS – V VIDEO GAMING LIQUOR LICENSES FOR SERGIO'S RESTAUNRANTS INC DOING BUSINESS AS SERGIO'S FRESH MEXICAN GRILL LOCATED AT 660 EAST ROUTE 22

NOW, THEREFORE, BE IT ORDAINED by the Mayor and the Board of Trustees of the Village of Lake Zurich, Lake County, Illinois, as follows:

SECTION 1: The number of **Class A – Restaurant Full Service** liquor licenses authorized by section 3-3b-14 of Chapter 3 of Title 3 of the Village Code of the Village of Lake Zurich is hereby **increased** by one for ***Sergio's Mexican Grill*** located at ***660 East Route 22*** in accordance with the Village Code of the Village of Lake Zurich. Issuance of the license is subject to the approval and action of the Local Liquor Commissioner of the Village of Lake Zurich.

SECTION 2: The number of **Class V – Video Gaming** liquor licenses authorized by section 3-3b-14 of Chapter 3 of Title 3 of the Village Code of the Village of Lake Zurich is hereby **increased** by one for ***Sergio's Mexican Grill*** located at ***660 East Route 22*** in accordance with the Village Code of the Village of Lake Zurich. Issuance of the license is subject to the approval and action of the Local Liquor Commissioner of the Village of Lake Zurich.

SECTION 3: This Ordinance shall be in full force and effect immediately upon its passage and approval as provided by law.

SECTION 4: That if any provision of this ordinance or application thereof to any entity or person or circumstance is declared invalid or held to be unlawful, such declaration or holding shall not affect the validity of any other portion or provision of this Ordinance and such declaration or holding shall be severable from the remainder hereof.

314495_1

SECTION 5: That Section 3-3B-14 of Chapter 3 of Title 3 of the Lake Zurich Municipal Code entitled "NUMBER OF LICENSES" be and is hereby further amended with the corresponding number of licenses in each class, shown with bold letters with underscoring below:

Class	Description	Maximum Number Issued
A	Restaurant Full Service	~~18~~ **19**
A-1	Restaurant Outdoor Café Full Service	14
B	Retail Sales and Delivery	16
B-1	Annual Tasting Add-On	4
B-2	Single Event Add-On	0
C	Retail Sales Convenience	7
E	Club	1
F	Single Private Event	0
G	Single Public Event	0
G-1	Multiple Public Event	1
H	Complimentary Dispensing of Beer & Wine	1
I	Indoor Interactive Sports Facilities	1
K	Gift Boutique	0
M	BYOB Corkage	0
N	Craft Distillery	1
O	Off-Site Catering	0
P	Craft Brewery	2
R	Outdoor Concession / Beer Garden	1
V	Video Gaming	~~16~~ **17**
W	Boutique Wine & Sparking Beverage	1
Y	Brew Pub	0

ADOPTED this 15th day of May, 2023 by the following vote:

Ayes: _____

Nays: _____

Absent: _____

APPROVED by the Mayor on this _____ day of May, 2023.

Tom Poynton, MAYOR

Kathleen Johnson, VILLAGE CLERK

_____ _____

314495_1

COMMUNITY DEVELOPMENT DEPARTMENT

505 Telser Road
Lake Zurich, Illinois 60047

Phone (847) 540-1696
Fax (847) 726-2182
LakeZurich.org

At the Heart of Community

AGENDA ITEM 6F

MEMORANDUM

Date: May 15, 2023

To: Ray Keller, Village Manager RK

From: Sarosh Saher, Community Development Director

CC: Tim Verbeke, Planner
Mary Meyer, Building Services Supervisor

Re: Wildwood Estates of Lake Zurich - Adjustment to Final Plan Encroachment of Accessory Structures into Rear Yard

Issue: Mr. Gregory Schmitt representing Wildwood of Lake Zurich, LLC (the "Applicant" and "Owner") is a partner in the development of Wildwood Estates of Lake Zurich, has filed an Adjustment to the Final Plan for Wildwood Estates of Lake Zurich ("Subject Property") to allow for decks and other enclosed structures to encroach into the rear yard setback of all lots within the Subdivision. Specifically, the Applicant is seeking approval of the following:

- Adjustment to the Final Plan approved by Ordinance 2020-09-384 to allow for decks and other attached enclosed structures to encroach no more than 10 feet into the rear yard setback of all duplex lots.

The Application had originally been scheduled for Village Board consideration on the April 17, 2023 agenda, but was pulled due to stormwater management issues that arose during the last heavy rain event, in early April. At that time, the silt fences were breached allowing silt-laden water to leave the development area into the adjacent wetland. However, following the issue of a Notice of Violation of the stormwater ordinance, the developers completed repairs and mitigation of the damage to the wetland areas and the project is back on track.

Village Strategic Plan: This agenda item is consistent with the following objectives under Goal #2 – Development:

- Development: Become more business friendly and customer oriented.

Background: Development is currently under way at the Subject Property. A PUD was approved for the construction of 24 duplex residential homes on 12 lots at the Subject Property. Approval was granted through Village Ordinance No. 2020-09-384 on September 21, 2020.

Ordinance No. 2020-09-384 provided for three residential duplex home models to be constructed in various combinations of duplex pairs located on the 12 lots of the subdivision. Due to the lower number (3) of proposed models, the developer had proposed to stagger the front elevations of the buildings from the street so as not to create a monotonous look along Honey Lake Road. However, the staggered configuration did not leave much room for decks and other attached enclosed structures to be constructed at the rear of the homes.

The Applicant is therefore requesting additional relief to allow for attached decks and other covered structures at the rear of the buildings to encroach into the rear yard setback. The requested encroachment is no greater than 10 feet. The modification is proposed at the rear of all lots that back up to the approximately 28 acres of open space that contains the detention areas, wetlands and unimproved open space and will therefore have no impact on surrounding residential properties in the area.

Analysis: All covered structures are currently required to be constructed outside of the 30-foot rear yard setback. This includes the primary residential buildings and any attached covered accessory structures such as covered decks (including decks covered with trellises and pergolas), three-season porches, sunrooms, room additions, etc. While the residential district zoning code provides exceptions for a number of specified structures and uses to be located within setback, it does not permit the encroachment of the requested covered structures.

The Applicant was previously granted zoning relief from the requirements of side yard setbacks through Ordinance No. 2020-09-384. The Applicant is now requesting additional relief on the rear yard setback as follows:

1. Rear Yards
   a. Zoning Code Section 9-3-11.C.3 requires a minimum rear yard setback of 30 feet for residential buildings and structures in the R-6 multiple-family residential district.
      The Applicant is requesting that certain structures including covered decks (including decks covered with trellises and pergolas), three-season porches, and sunrooms be allowed to encroach no more than 10 feet into the rear yard setback.

The Planning and Zoning Commission (PZC) considered the application at a public hearing on March 15, 2023. There were no objections to the proposal from any adjacent property owners. At the close of the hearing, the PZC voted 7-0 to recommend approval of the proposal without any further conditions for approval:

The video from the PZC meeting can be accessed via the link:
https://play.champds.com/lakezurichil/event/81

A detailed evaluation and summary of the project can be found in the Staff Report that was provided to the Planning and Zoning Commission, which is a part of the attached Ordinance.

Recommendation: At their meeting on March 15, 2023, the PZC recommended approval of the Final Plan Adjustment incorporating the conditions for approval provided by staff in its report.

Staff therefore recommends approval of the attached ordinance, with its specific attachments based on the following conditions for approval that are contained within the accompanying approval ordinance:

1. Substantial conformance with the following documentation submitted as part of the application subject to revisions and updates required by Village Staff and applicable governmental agencies:
   a. Cover letter and Zoning Application dated February 21, 2023, prepared and submitted by Mr. Gregory Schmitt of Wildwood of Lake Zurich, LLC.
   b. Exhibit A: Legal Description of the Subject Property.
   c. Site Plans of typical lots, for the purpose of depicting the proposed rear yard setback modifications, Sheets A0.1, A0.2 and A0.3, prepared by Purohit Architects dated March 1, 2023.

2. In order to achieve an enhanced street appeal along Honey Lake Road, the buildings on each duplex lot shall be staggered using one of the following three setback configurations:
   a. Lots selected to be constructed with the largest setback configuration shall have a setback of no less than 38 feet from the street lot line;
   b. Lots selected to be constructed with the middle setback configuration shall have setbacks of no less than 32 feet and no greater than 34 feet from the street lot line; and
   c. Lots selected to be constructed with the smallest setback configuration shall be have setbacks of no greater than 28 feet from the street lot line.

3. The staggered duplex lots shall meet both the following conditions:
   a. No two adjacent duplex lots shall be constructed at the same setback configuration from the front lot line;
      And
   b. No less than 4 duplex lots shall be developed with the largest setback configuration (2.a), and no less than 4 duplex lots shall be developed with the smallest setback configuration (2.c). Modifications to these staggered setback configurations shall only be approved by action of the Lake Zurich Village Board of Trustees.

4. This adjustment to the previously approved Final Plan shall only grant amendments to the rear yard setback as provided for in Ordinance No. 2020-09-384 and pursuant to Section 9-3-11.C.3. "Minimum Yards, Rear" of the Lake Zurich Municipal Code. All remaining provisions, terms and conditions provided for within Ordinance No. 2020-09-384 shall remain in full force and effect.

5. No increase in the amount of encroachment into the rear yard shall be permitted without further adjustment of the Final Plan. Such further adjustment to the Final Plan shall require consideration of the request by the Planning and Zoning Commission through the public hearing process with final approval by the Lake Zurich Village Board.

6. No variations in the rear yard setback requirements shall be granted to individual fee simple lots owned by individual property owners. Such condition shall be memorialized in the Home Owners Associations Declarations of Covenants, Rights and Restrictions.

7. The construction of the buildings, structures and remaining development shall be in compliance with all other applicable codes and ordinances of the Village of Lake Zurich.

Attachments:

- Approval Ordinance including the following exhibits:
  - Exhibit A – legal description of the Subject Property
  - Exhibit B –Findings and Recommendations of the Planning and Zoning Commission (PZC) and accompanying Exhibits

VILLAGE OF LAKE ZURICH

ORDINANCE NO. 2023-04-510

AN ORDINANCE APPROVING AN ADJUSTMENT TO FINAL PLAN THROUGH AMENDMENT OF ORDINANCE No. 2020-09-384
Wildwood Estates of Lake Zurich – Rear Yard Setback Encroachment

WHEREAS, Wildwood of Lake Zurich, LLC ("Owner") of the property at 1121-1235 Honey Lake Road, said property collectively referred to as Wildwood Estates of Lake Zurich (the "Subject Property"), and legally described in Exhibit A attached hereto; and

WHEREAS, Mr. Gregory Schmitt is the Applicant (the "Applicant") for an adjustment to the final plan previously approved by Ordinance 2020-09-384 to represent the Owner; and

WHEREAS, the Subject Property was granted approval of a Planned Unit Development (PUD) through Ordinance No. 2020-09-384 entitled "An Ordinance Rezoning Newly Annexed Property within an R-6 Multiple-Family Residential District, and OS Open Space District, and Granting Approval of a Planned Unit Development, Development Concept and Final Plan and Modifications to the Zoning and Land Development Code for a Residential Subdivision. *(Wildwood Estates of Lake Zurich at 24909 Signal Hill Road (Hummel Property)* on the 21st day of September, 2020(the "Ordinance"); and

WHEREAS, the Ordinance provided for the development of the property with 24 new duplex homes on 12 lots and approximately 28 acres of open land that contains the detention areas, wetlands and unimproved open space; and

WHEREAS, said Ordinance provided for lots to be developed on the Subject Property with rear yard setbacks that are thirty (30) feet in depth; and

WHEREAS, due to the lower number (3) of proposed residential models, the Applicant seeks to stagger the front elevations of the residences from the street enhance the street appeal along Honey Lake Road; and

WHEREAS, this proposed staggered configuration will require the encroachment of decks and other attached enclosed structures within the rear yard setback at the rear of the homes; and

WHEREAS, Applicant wishes to construct accessory attached covered decks and other covered structures at the rear of the buildings which will encroach into the rear yard setback, said encroachment being no greater than ten (10) feet; and

WHEREAS, the encroachment is proposed at the rear of all lots that back up to the approximately 28 acres of open land and will therefore have no impact on surrounding residential properties in the area; and

WHEREAS, Section 9-22-11 entitled "Adjustments to Final Plan During Development" provides for changes to a final plan authorized by an approved PUD, for either "Minor Adjustments", as defined at Section A of Subsection 9-22-11 or "Major Adjustments", as defined at Subsection B of Section 9-22-11; and

WHEREAS, the Applicant has filed zoning application PZC 2022-07, dated February 21, 2023, (the "Application") seeking the approval of the following for the Subject Property:

- Adjustment to the Final Plan approved by Ordinance 2020-09-384 to allow for decks and other attached enclosed structures to encroach no more than 10 feet into the rear yard setback of all duplex lots.

And

WHEREAS, any request for an adjustment to a final plan during development which does not meet the specific criteria for a Minor Adjustment set forth at Subsection A of Section 9-22-11 must be processed as a Major Adjustment pursuant to Section B of Section 9-22-11 of the Zoning Code; and

WHEREAS, this request by Applicant for this Adjustment to the Final Plan does not meet the criteria for a Minor Adjustment at Subsection A of Section 9-22-11 and has therefore been processed as a Major Adjustment pursuant to Section B or Section 9-22-11 of the Zoning Code; and

WHEREAS, in compliance with the law, and the requirements of the Zoning Code, notice was published on February 27, 2023, in The Daily Herald, and the Village of Lake Zurich ("Village) posted a public hearing sign on the Subject Property on February 27, 2023, both the newspaper and sign notices informing the public of a public hearing to be held before the Lake Zurich Planning and Zoning Commission (the "PZC") on March 15, 2023, to consider the Application for this requested zoning authority and approval; and

WHEREAS, the PZC received and considered the STAFF REPORT dated March 15, 2023, which was provided to the PZC for the meeting, addressing the request for approval of said Adjustment to the Final Plan, to allow for the encroachment of accessory attached covered decks and other covered structures at the rear of the buildings by no greater than ten (10) feet; and considered all information presented by the Applicant, and the applicable standards and factors required under the Zoning Code; and, after the conclusion of the public hearing, the PZC recommended that the Board of Trustees

approve the zoning approvals requested in this Application, subject to those changes or conditions of approval recommended by Village staff in said STAFF REPORT; and

WHEREAS, the Mayor and Board of Trustees of the Village of Lake Zurich met on April 17, 2023, and considered the findings and recommendations of the PZC, including the STAFF REPORT dated March 15, 2023, all consisting of 7 pages, the findings and recommendations attached hereto as Exhibit B and having considered all of the facts and circumstances affecting the Application and these recommended approvals, the Mayor and Board of Trustees have determined that the applicable standards under the zoning code related to this zoning approval have been met.

NOW, THEREFORE, BE IT ORDAINED by the Mayor and Board of Trustees of the Village of Lake Zurich, Lake County, Illinois, as follows:

SECTION 1: ADOPTION AND INCORPORATION OF RECITALS. The foregoing recitals, findings, recommendations, exhibits and plans are incorporated herein as findings and requirements of the President and Board of Trustees as Exhibit B referenced herein and made a part of and incorporated into this Ordinance and related approval, except as otherwise provided below.

SECTION 2: GRANT OF ADJUSTMENT OF FINAL PLAN. The Mayor and Board of Trustees, pursuant to the authority vested in them under the laws of the State of Illinois and Chapter 22 of the Lake Zurich Zoning Code, hereby grant the following approvals, as shown and provided in the STAFF REPORT dated March 15, 2023, and final findings and recommendations of the PZC, all consisting of 7 pages:

- Adjustment to the Final Plan approved by Ordinance 2020-09-384 to allow for decks and other attached enclosed structures to encroach no more than 10 feet into the rear yard setback of all duplex lots.

And subject to the following conditions for approval:

1. Substantial conformance with the following documentation submitted as part of the application subject to revisions and updates required by Village Staff and applicable governmental agencies:
   a. Cover letter and Zoning Application dated February 21, 2023, prepared and submitted by Mr. Gregory Schmitt of Wildwood of Lake Zurich, LLC.
   b. Exhibit A: Legal Description of the Subject Property.
   c. Site Plans of typical lots, for the purpose of depicting the proposed rear yard setback modifications, Sheets A0.1, A0.2 and A0.3, prepared by Purohit Architects dated March 1, 2023.

2. In order to achieve an enhanced street appeal along Honey Lake Road, the buildings on each duplex lot shall be staggered using one of the following three setback configurations:
   a. Lots selected to be constructed with the largest setback configuration shall have a setback of no less than 38 feet from the street lot line;

b. Lots selected to be constructed with the middle setback configuration shall have setbacks of no less than 32 feet and no greater than 34 feet from the street lot line; and
c. Lots selected to be constructed with the smallest setback configuration shall be have setbacks of no greater than 28 feet from the street lot line.

3. The staggered duplex lots shall meet both the following conditions:
   a. No two adjacent duplex lots shall be constructed at the same setback configuration from the front lot line;
   And
   b. No less than 4 duplex lots shall be developed with the largest setback configuration (2.a), and no less than 4 duplex lots shall be developed with the smallest setback configuration (2.c). Modifications to these staggered setback configurations shall only be approved by action of the Lake Zurich Village Board of Trustees.

4. This adjustment to the previously approved Final Plan shall only grant amendments to the rear yard setback as provided for in Ordinance No. 2020-09-384 and pursuant to Section 9-3-11.C.3. "Minimum Yards, Rear" of the Lake Zurich Municipal Code. All remaining provisions, terms and conditions provided for within Ordinance No. 2020-09-384 shall remain in full force and effect.

5. No increase in the amount of encroachment into the rear yard shall be permitted without further adjustment of the Final Plan. Such further adjustment to the Final Plan shall require consideration of the request by the Planning and Zoning Commission through the public hearing process with final approval by the Lake Zurich Village Board.

6. No variations in the rear yard setback requirements shall be granted to individual fee simple lots owned by individual property owners. Such condition shall be memorialized in the Home Owners Associations Declarations of Covenants, Rights and Restrictions.

7. The construction of the buildings, structures and remaining development shall be in compliance with all other applicable codes and ordinances of the Village of Lake Zurich.

SECTION 3: FINDINGS IN SUPPORT OF APPROVAL OF GRANT OF ADJUSTMENT TO FINAL PLAN. The findings, conditions and recommendations as set forth in the STAFF REPORT dated March 15, 2023, and the PZC findings and recommendations, all consisting of 7 pages and attached hereto as Exhibit B, are hereby accepted as the Board's own, are incorporated herein by this reference and shall be made a part of the official record for the Application.

SECTION 4: COMPLIANCE WITH ORDINANCE AND ALL CODES. Except as otherwise specifically provided in writing in advance by the Village, no work may be commenced on the Subject Property pursuant to the approvals granted in this Ordinance

until all conditions precedent of this Ordinance to such work have been fulfilled and after all permits, approvals, and other authorizations for such work have been properly applied for, paid for, and granted in accordance with applicable law. As well, Applicant shall have no right to final approvals or permits for use and occupancy of the Subject Property until all work and requirements provided for hereinabove are properly completed. Ongoing maintenance in good repair, consistent with these approvals, shall be required at all times. Any failure or delay in the Village enforcing the above provisions of this Ordinance shall not act as a waiver of the right to enforce, nor affect the enforcement of any other requirement, condition or provision herein.

SECTION 5: SEVERABILITY. If any section, paragraph, subdivision, clause, sentence or provision of this Ordinance shall be adjudged by any Court of competent jurisdiction to be invalid, such judgment shall not affect, impair, invalidate or nullify the remainder thereof, which remainder shall remain and continue in full force and effect.

SECTION 6: CONFLICTS. All ordinances or parts of ordinances in conflict herewith are hereby repealed to the extent of such conflict.

SECTION 7: EFFECTIVE DATE. This Ordinance shall be in full force and effect upon its passage and approval, as provided by law.

SECTION 8: BINDING EFFECT; SUCCESSION IN INTEREST. This Ordinance shall constitute a covenant running with the land and be binding upon and inure to the benefit of the parties hereto, their successors in interest, assignees, lessees, and upon any successor municipal authorities of the Village and successor municipalities. Except as otherwise expressly provided herein, upon the conveyance or assignment by Applicant of its interest in the Subject Property to any successor, assign or nominee, Applicant shall be released from any and all further liability or responsibility under this Ordinance except to the extent previously undertaken by Applicant, or for which Applicant has posted security to perform an obligation in which case Applicant shall be bound to continue to complete its performance unless a replacement bond or letter of credit is posted by the new owner or Applicant, and accepted by the Village, which shall not be unreasonably withheld. In such event, the Applicant shall be released from the underlying obligation to perform. The Village shall thereafter look only to the successor, assign, or nominee of duties and obligations of Applicant hereby undertaken.

PASSED THIS 15th day of May, 2023.

Ayes:

Nays:

Absent:

Abstain:

APPROVED this _____ day of May, 2023.

Mayor Tom Poynton

ATTEST:

Village Clerk
Kathleen Johnson

EXHIBIT A

Legal description of the Subject Property

THE NORTH 1/2 OF GOVERNMENT LOT 2 OF THE NORTHWEST 1/4 OF SECTION 19 TOWNSHIP 43 RANGE 10 EAST OF THE THIRD PRINCIPAL MERIDIAN IN LAKE COUNTY, ILLINOIS.

Parcel Involved: 14-19-100-001

EXHIBIT B

March 15, 2023 Staff Report and PZC final recommendation/conditions and accompanying exhibits including zoning application PZC 2022-07, dated February 21, 2023 as filed by the Applicant

At the Heart of Community

COMMUNITY DEVELOPMENT DEPARTMENT
Building and Zoning Division

505 Telser Road
Lake Zurich, Illinois 60047

(847) 540-1696
Fax (847) 726-2182
LakeZurich.org

APPLICATION PZC 2023-07 **AGENDA ITEM 4.C**
Public Hearing: March 15, 2023

STAFF REPORT

To: Chairperson Stratman and Members of the Planning & Zoning Commission

From: Sarosh Saher, Community Development Director

CC: Mary Meyer, Building Services Supervisor
Tim Verbeke, Planner

Date: March 15, 2023

Re: PZC 2023-07 Wildwood Estates of Lake Zurich PUD Amendment
Planned Unit Development (PUD) – Adjustment to Final Plan approved by Ordinance 2020-09-384

SUBJECT

Mr. Gregory Schmitt representing Wildwood of Lake Zurich, LLC (the "Applicant" and "Owner") requests an Adjustment to the Final Plan for Wildwood Estates of Lake Zurich to allow for decks and other enclosed structures to encroach into the rear yard setback of all lots at the Subject Property. The property was annexed to the Village in 2020 and the project for the construction of 24 new duplex homes on 12 lots was approved through PUD Ordinance No. 2020-09-384.

GENERAL INFORMATION

Requested Action:	Adjustment to Final Plan through Amendment of Ordinance 2020-09-384
Current Zoning	R-6 Multiple-Family Residential District OS Open Space District
Current Use:	Property under development for 24 Duplex Residences
Property Location:	1121-1235 Honey Lake Road
Applicant and Owner:	Wildwood of Lake Zurich, LLC
Staff Coordinator(s):	Tim Verbeke, Planner Sarosh Saher, Community Development Director

Staff Report **Community Development Department**
APPLICATION PZC 2023-07 **PZC Hearing Date: March 15, 2023**

LIST OF EXHIBITS

A. Legal Description
B. Public Hearing Sign
C. Site Photos
D. Aerial Map
E. Zoning Map
F. Parcel Map
G. Development Application and Attachments
H. Development Review Comments

BACKGROUND

Mr. Gregory Schmitt representing Wildwood of Lake Zurich, LLC (the "Applicant" and "Owner") is a partner in the development of Wildwood Estates of Lake Zurich located on the south side of Honey Lake Road, and legally described in Exhibit A attached hereto ("Subject Property").

Specifically, the Applicant is requesting the following:

- Adjustment to the Final Plan approved by Ordinance 2020-09-384 to allow for decks and other attached enclosed structures to encroach no more than 10 feet into the rear yard setback of all duplex lots.

Development is currently under way at the Subject Property. A PUD was approved for the construction of 24 duplex residential homes on 12 lots at the Subject Property. Approval was granted through Village Ordinance No. 2020-09-384 entitled "An Ordinance Rezoning Newly Annexed Property within an R-6 Multiple-Family Residential District, and OS Open Space District, and Granting Approval of a Planned Unit Development, Development Concept and Final Plan and Modifications to the Zoning and Land Development Code for a Residential Subdivision. *(Wildwood Estates of Lake Zurich at 24909 Signal Hill Road (Hummel Property).*

The developer had proposed three models in various combinations of duplex pairs to be located on the 12 lots of the subdivision. Due to the lower number (3) of proposed models, the developer had proposed to stagger the front elevations of the buildings from the street so as not to create a monotonous look along Honey Lake Road. However, the staggered configuration did not leave much room for decks and other attached enclosed structures to be constructed at the rear of the homes.

As it relates to setbacks approved for the project, Ordinance No. 2020-09-384 provided for the following conditions and relief from the require zoning code:

Section 4: Modifications from the provisions of the zoning and land development code:
A. The Applicant shall be granted a modification to develop lots with a minimum side yard setback of 6 feet throughout the proposed subdivision; whereas Section 9-3-11.C.2.A requires principal structures in the R-6 Multiple-Family Residential zoning district to have a minimum side yard

setback of 7 feet. (Relief on the side yard setbacks).

No relief from the rear yard setback was requested or granted by the PUD ordinance. The rear yard setback remained at the required 30 feet.

Pursuant to public notice published on February 27, 2023, in the Daily Herald, a public hearing has been scheduled with the Lake Zurich Planning & Zoning Commission for March 15, 2023, to consider the Application. On February 27, 2023, the Village posted a public hearing sign on the Subject Property (Exhibit B).

Proposal

The duplex homes are proposed to be staggered at distances of 11'-9", 7'-9" and 4'-9" from the front setback line of 25 feet. These staggered distances are equivalent to 36'-9", 32'-9" and 29'-9" from the front lot line extending along Honey Lake Road.

The Applicant is requesting additional setback relief to allow for attached decks and other covered structures at the rear of the buildings to encroach into the rear yard setback. The requested encroachment is no greater than 10 feet. The modification is proposed at the rear of all lots that back up to the approximately 28 acres of open space that contains the detention areas, wetlands and unimproved open space and will therefore have no impact on surrounding residential properties in the area.

Analysis

All covered structures are currently required to be constructed outside of the 30-foot rear yard setback. This includes the primary residential buildings and any attached covered accessory structures such as covered decks (including decks covered with trellises and pergolas), three-season porches, sunrooms, room additions, etc.

The residential district zoning code provides exceptions for a number of specified structures and uses to be located within setback. These are listed in Section 9-3-11.E: "Exceptions and Explanatory Notes" of the Lake Zurich Zoning Code. The following listed exceptions are pertinent to the Applicant's request:

- Chimneys, flues, belt courses, leaders, sills, pilasters, lintels, ornamental features, cornices, and the like projecting not more than 2 feet from an exterior wall, but not in any side yard in the LP district; and
- Outside stairways that extend from an exterior wall, but not more than 3 feet into the required yard, not greater than a height of 4 feet or less, and not in any side yard in the LP district, and provided that such exterior wall shall be located outside of the required yard; and
- Terraces (patios), but not within 20 feet of any front, corner side, or rear lot line, and not within 5 feet of any interior side lot line; and

- Decks, swimming pools, swimming pool equipment, and gazebos in any residential district, but not in any front, corner side, or interior side yard and not within 23 feet of any rear lot line.

Based on the proposed configurations presented by the Applicant, no principal building will encroach into the 30-foot rear yard setback. Further, no changes to the approved building characteristics are requested.

The open space to the south will not be modified in any way other than what was approved through the PUD ordinance and site engineering plans. No changes or modification to the overall land development that is currently in progress are being requested.

Requested amendment to zoning relief for the planned unit development (PUD) to allow the rear-yard encroachment:

The Applicant was previously granted zoning relief from the requirements of side yard setbacks through Ordinance No. 2020-09-384. The Applicant is requesting relief on the rear yard setback as follows:

1. Rear Yards
   a. Zoning Code Section 9-3-11.C.3 requires a minimum rear yard setback of 30 feet for residential buildings and structures in the R-6 multiple-family residential district.
   The Applicant is requesting that certain structures including covered decks (including decks covered with trellises and pergolas), three-season porches, and sunrooms be allowed to encroach no more than 10 feet into the rear yard setback.

RECOMMENDATION

The recommendation of the Planning and Zoning Commission should be based on the standards included in the following Sections of the Lake Zurich Municipal Code:

- Section 9-22-5: Standards for Planned Unit Developments; and
- Section 9-22-11: Adjustments to Final Plan During Development

Staff has determined that all standards for approval under Ordinance No. 2020-09-384 will continue to be met and recommends that the Planning and Zoning Commission make these standards a part of the official record of the Application.

Staff of the Community Development Department therefore recommends the approval of Application PZC 2023-07, subject to the following conditions:

1. Substantial conformance with the following documentation submitted as part of the application subject to revisions and updates required by Village Staff and applicable governmental agencies:
   a. Cover letter and Zoning Application dated February 21, 2023, prepared and submitted by Mr. Gregory Schmitt of Wildwood of Lake Zurich, LLC.
   b. Exhibit A: Legal Description of the Subject Property.
   c. Site Plans of typical lots, for the purpose of depicting the proposed rear yard setback modifications, Sheets A0.1, A0.2 and A0.3, prepared by Purohit Architects dated March 1, 2023.

2. The duplex units shall be staggered at distances of 11'-9", 7'-9" and 4'-9" from the front setback line of 25 feet, and no other dimensions without the review and approval of the Village. These staggered distances shall be equivalent to 36'-9", 32'-9" and 29'-9" from the front lot line extending along Honey Lake Road. No two adjacent lots shall be constructed at the same staggered setback distance from the front lot line. No less than 4 duplex lots consisting of two units each shall be developed with a 36'-9" setback, and no less than 4 duplex lots consisting of two units each shall be developed with a 29'-9" setback from the front lot line. Modifications to these staggered setback lines shall only be approved by action of the Lake Zurich Village Board of Trustees.

3. This adjustment to Final Plan shall only grant amendments to the rear yard setback as provided for in Ordinance No. 2020-09-384 and pursuant to Section 9-3-11.C.3. "Minimum Yards, Rear" of the Lake Zurich Municipal Code. All remaining provisions, terms and conditions provided for within Ordinance No. 2020-09-384 shall remain in full force and effect.

4. No increase in the amount of encroachment into the rear yard shall be permitted without further adjustment of the Final Plan approved through Ordinance No. 2020-09-384. Such adjustment shall require consideration of the request by the Planning and Zoning Commission through the public hearing process with final approval by the Lake Zurich Village Board.

5. No individual variations in the rear yard setback requirements shall be granted. Such condition shall be memorialized in the Home Owners Associations Declarations of Covenants, Rights and Restrictions.

6. The construction of the buildings, structures and remaining development shall be in compliance with all other applicable codes and ordinances of the Village of Lake Zurich.

Respectfully Submitted,

Tim Verbeke, Planner
Sarosh Saher, Community Development Director

LAKE ZURICH PLANNING & ZONING COMMISSION
FINAL FINDINGS & RECOMMENDATIONS

Wildwood Estates Lake Zurich
March 15, 2023

The Planning & Zoning Commission recommends approval of Application PZC 2023-07, and the Planning & Zoning Commission adopts the findings as contained within the Staff Report dated March 15, 2023 for this Application & subject to any changes or approval conditions as listed below:

1. Substantial conformance with the following documentation submitted as part of the application subject to revisions and updates required by Village Staff and applicable governmental agencies:
   a. Cover letter and Zoning Application dated February 21, 2023, prepared and submitted by Mr. Gregory Schmitt of Wildwood of Lake Zurich, LLC.
   b. Exhibit A: Legal Description of the Subject Property.
   c. Site Plans of typical lots, for the purpose of depicting the proposed rear yard setback modifications, Sheets A0.1, A0.2 and A0.3, prepared by Purohit Architects dated March 1, 2023.

2. The duplex units shall be staggered at distances of 11'-9", 7'-9" and 4'-9" from the front setback line of 25 feet, and no other dimensions without the review and approval of the Village. These staggered distances shall be equivalent to 36'-9", 32'-9" and 29'-9" from the front lot line extending along Honey Lake Road. No two adjacent lots shall be constructed at the same staggered setback distance from the front lot line. No less than 4 duplex lots consisting of two units each shall be developed with a 36'-9" setback, and no less than 4 duplex lots consisting of two units each shall be developed with a 29'-9" setback from the front lot line. Modifications to these staggered setback lines shall only be approved by action of the Lake Zurich Village Board of Trustees.

3. This adjustment to Final Plan shall only grant amendments to the rear yard setback as provided for in Ordinance No. 2020-09-384 and pursuant to Section 9-3-11.C.3. "Minimum Yards, Rear" of the Lake Zurich Municipal Code. All remaining provisions, terms and conditions provided for within Ordinance No. 2020-09-384 shall remain in full force and effect.

4. No increase in the amount of encroachment into the rear yard shall be permitted without further adjustment of the Final Plan approved through Ordinance No. 2020-09-384. Such adjustment shall require consideration of the request by the Planning and Zoning Commission through the public hearing process with final approval by the Lake Zurich Village Board.

5. No individual variations in the rear yard setback requirements shall be granted. Such condition shall be memorialized in the Home Owners Associations Declarations of Covenants, Rights and Restrictions.

6. The construction of the buildings, structures and remaining development shall be in compliance with all other applicable codes and ordinances of the Village of Lake Zurich.

☐ Without any further additions, changes, modifications and/or approval conditions.

☐ With the following additions, changes, modifications and/or approval conditions:

Planning & Zoning Commission Chairman

EXHIBIT A
LEGAL DESCRIPTION OF SUBJECT PROPERTY

THE NORTH 1/2 OF GOVERNMENT LOT 2 OF THE NORTHWEST 1/4 OF SECTION 19 TOWNSHIP 43 RANGE 10 EAST OF THE THIRD PRINCIPAL MERIDIAN IN LAKE COUNTY, ILLINOIS.

Parcel Involved: 14-19-100-001

EXHIBIT B

PUBLIC HEARING NOTIFICATION SIGNS ON PROPERTY

February 21, 2023

Mr. Sarosh Saher

Community Development Director

Village of Lake Zurich

505 Telser Road

Lake Zurich, IL 60047

Dear Mr. Saher:

The developer of The Wildwood of lake Zurich project located on Honey Lake Road, Lake Zurich, Illinois kindly requests an amendment to our previously approved and existing R-6 PUD zoning relative to the property. In our meetings with the Plan Commission and Village Board we agreed to stagger the front elevations of our buildings so as not to have a long linear look along Honey Lake Road. We failed to realize in doing so that the present 30' rear setbacks in the R-6 zoning would impede us. By staggering the buildings our rear decks now encroach on the setbacks.

We would like to amend our presently approved R-6 PUD to allow for 20' setbacks, thus, allowing room needed for our buildings with attached decks. We do not believe this presents a hardship as the property to the rear is owned by us and is a designated wetlands with nothing ever to be built on it, thus, not harming any residences backing to us.

We would appreciate a timely action on this matter as the construction season is quickly approaching.

Respectfully,

Wildwood of Lake Zurich, LLC

By: Gregory C, Schmitt, Managing Partner

ZONING APPLICATION

Community Development Department
505 Telser Rd.
Lake Zurich, IL 60047
Phone: (847) 540-1696
Fax: (847) 540-1769

(Please Type or Print)

1. Address of Subject Property: ALREADY ON FILE
2. **Please attach complete legal description**
3. Property Identification number(s): ALREADY ON FILE
4. Owner of record is: WILDWOOD OF LAKE ZURICH, LLC Phone: 847-612-3978
   E-Mail GREG SCHMITT.PRESTIGE@GMAIL.COM Address: 3177 PAAR CIR., PORT CHARLOTTE, FL 33981
5. Applicant is (**if different from owner**): SAME Phone: —
   E-Mail — Address: —
6. Applicant's interest in the property (owner, agent, realtor, etc.): OWNER
7. All existing uses and improvements on the property are: VACANT — EXISTING R-6 PUD IS IN PLACE — JUST LOOKING TO AMEND SETBACKS
8. The proposed uses on the property are: TO BE 12 DUPLEX RESIDENTIAL BUILDINGS = 24 UNITS. LOOKING TO AMEND EXISTING PUD TO ALLOW FOR 20' SETBACKS
9. List any covenants, conditions, or restrictions concerning the use, type of improvements, setbacks, area, or height requirements placed on the Subject Property and now of record and the date of expiration of said restrictions: LOOKING TO AMEND EXISTING 30' SETBACKS TO 20'
10. Describe any contract or agreement of any nature relevant to the sale or disposal of the Subject Property: NONE —
11. For applications requiring a public hearing, please attach a list which contains the PIN, owner, and owner's mailing address of all properties located within 250 feet (excluding all Public Right-of-Ways) of the Subject Property.

THE APPLICANT'S SIGNATURE BELOW INDICATES THE INFORMATION CONTAINED IN THIS APPLICATION AND ON ANY ACCOMPANYING DOCUMENTS IS TRUE AND CORRECT.
THE APPLICANT ALSO ACKNOWLEDGES IF THE CONSULTANT EXPENSES EXCEED THE INITIAL ESCROW DEPOSIT, THE APPLICANT WILL REIMBURSE THE ACCOUNT IMMEDIATELY.

GREGORY C. SCHMITT (Name of applicant) (Signature of applicant)

Subscribed and sworn to before me this 21ST day of FEBRUARY 2023.

OFFICIAL SEAL
PINKEY RAUNIYAR
NOTARY PUBLIC - STATE OF ILLINOIS
MY COMMISSION EXPIRES:06/08/23

(Notary Public) 2/21/23 My Commission Expires 6/8/2023

SAME (**Name of Owner, if different**) (Signature of Owner, if different)

Subscribed and sworn to before me this ____ day of _____, 2023.

(Notary Public) My Commission Expires _____

Please indicate what zoning relief your application requires. For assistance, please contact Staff.

☐ Zoning Code **Map** Amendment to change zoning of Subject Property from ___ to ALREADY IN PLACE

☐ Zoning Code **Text** Amendment to amend the following section(s) of the Zoning Code R6 - PUD

(See Section 18-103 of the Lake Zurich Zoning Code for specific standards. If a specific parcel is the subject of this amendment, then provide the additional information listed in Section 18-103C.)

☐ Special Use Permit/Amendment for ALREADY GRANTED

(See Section 19-103 of the Lake Zurich Zoning Code for specific standards.)

☐ Planned Unit Development/Major Adjustment/Amendment ALREADY IN PLACE

(Planned Unit Developments are a distinct category of special use and are intended to create a more desirable environment than through strict application of the zoning and subdivision regulations. See Section 22-105 of the Lake Zurich Zoning Code for specific standards. Please list all the 'modifications' requested in the cover letter.)

☒ Variation for TO AMEND EXISTING R-6 PUD of 30' SETBACKS TO 20'

(See Section 17-104 of the Lake Zurich Zoning Code for specific standards. Please indicate what your specific hardships are in the cover letter.)

☐ Modification to the Land Development Code (includes retaining walls more than 2 feet in height)
(See Section 10-6-18 of the Land Development Code for specific standards.) ALREADY ON FILE

☐ Preliminary Plat of Subdivision ALREADY ON FILE

☐ Final Plat of Subdivision or Amendment to Plat of Subdivision ALREADY ON FILE
(See Sections 10-5-2 and 10-5-9 of the Land Development Code for specific standards.)

☐ Site Plan Approval/Major Adjustment/Amendment ALREADY ON FILE
(See Section 20-103 of the Lake Zurich Zoning Code for specific standards.)

☐ Exterior Appearance Approval or Amendment ALREADY ON FILE
(See Section 21-103 of the Lake Zurich Zoning Code for specific standards.)

APPLICATION TO ANNEX CERTAIN TERRITORY

All land annexed to the Village is classified automatically after such annexation in the R-1\2 Single Family Residential District. The owner must file an application for a Zoning Map amendment if he or she desires a different zoning classification for the Subject Property.

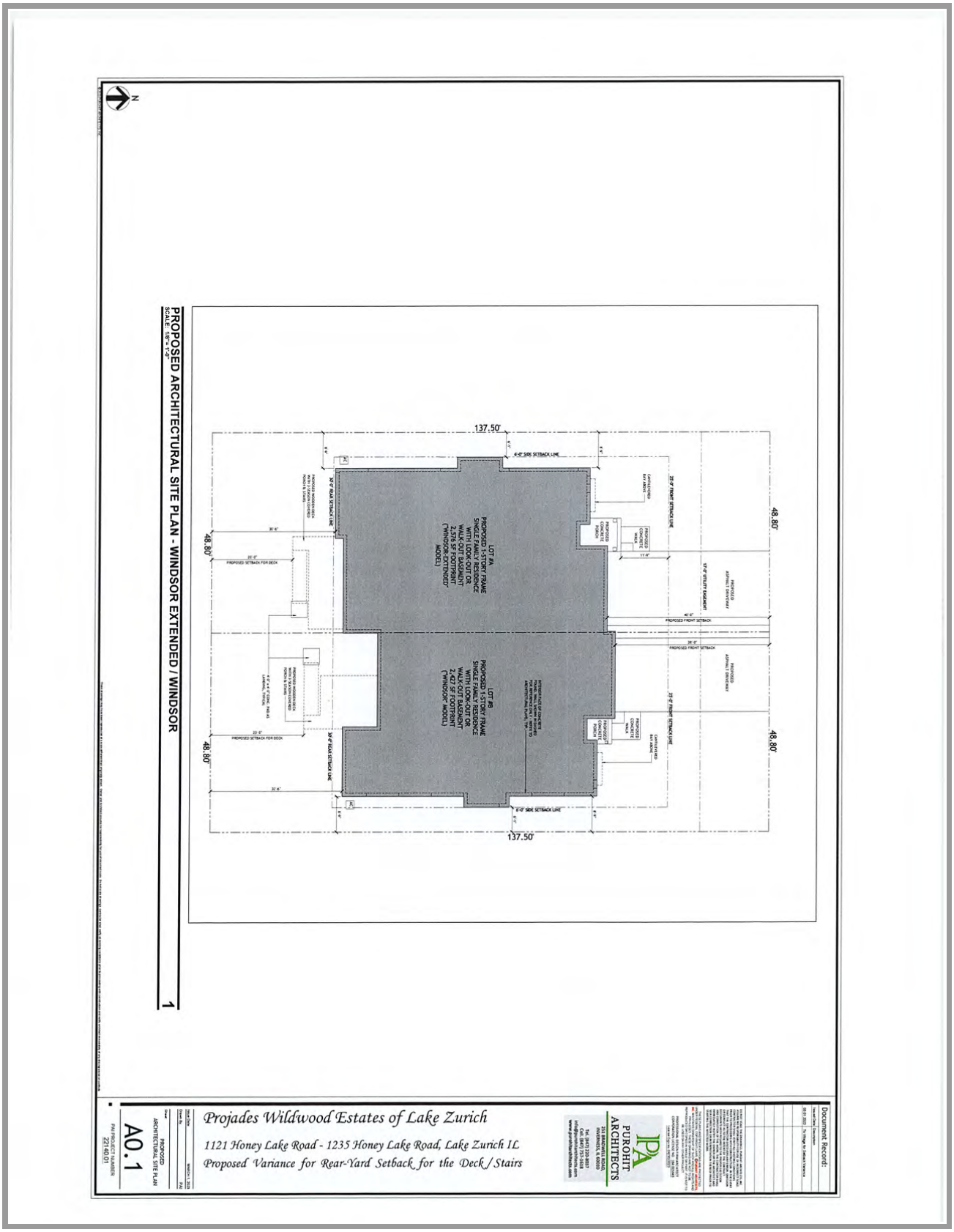
☐ Petition to Annex Certain Territory (Please complete attached petition) ALREADY DONE

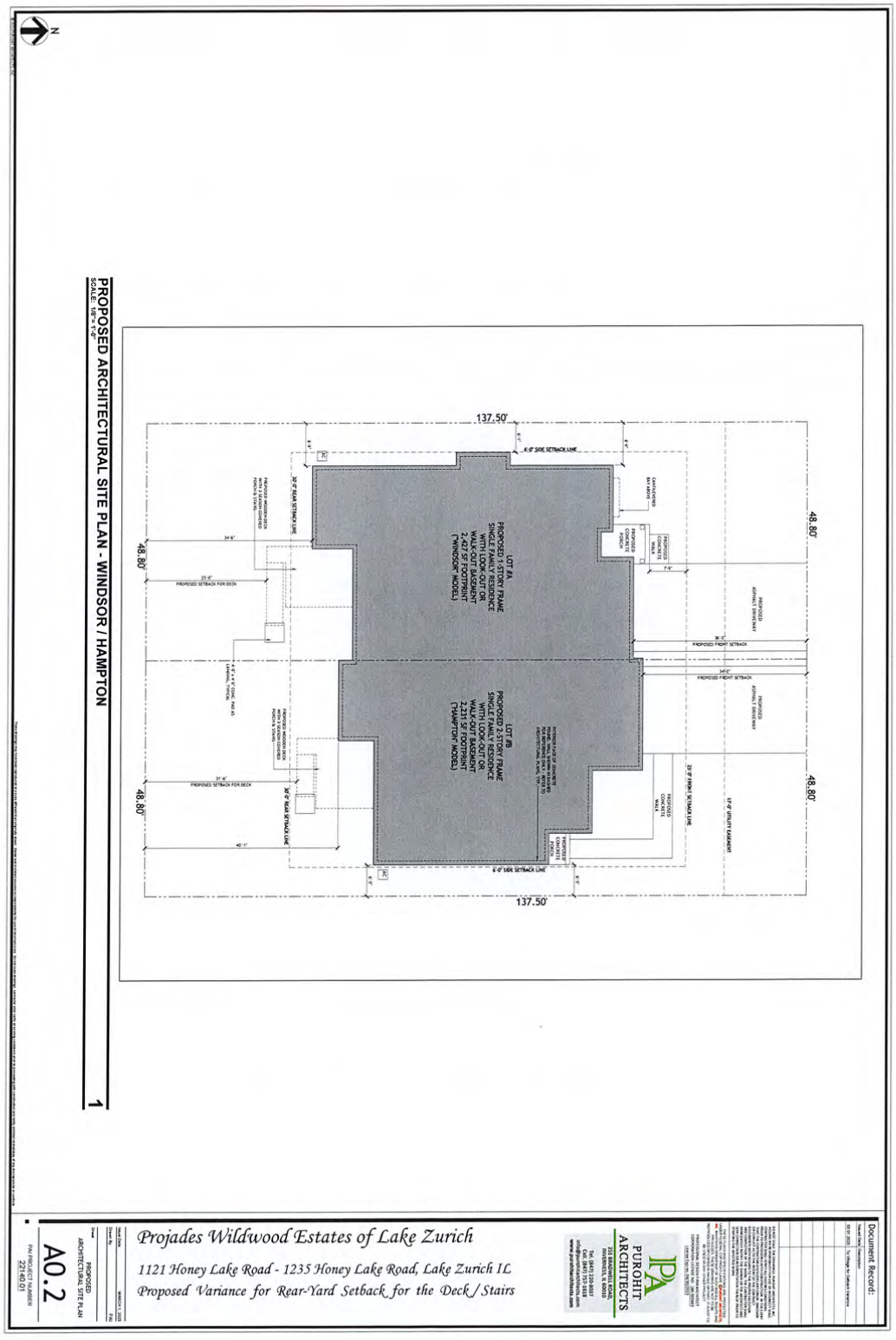
☐ Application to Annex Certain Territory ALREADY ON FILE

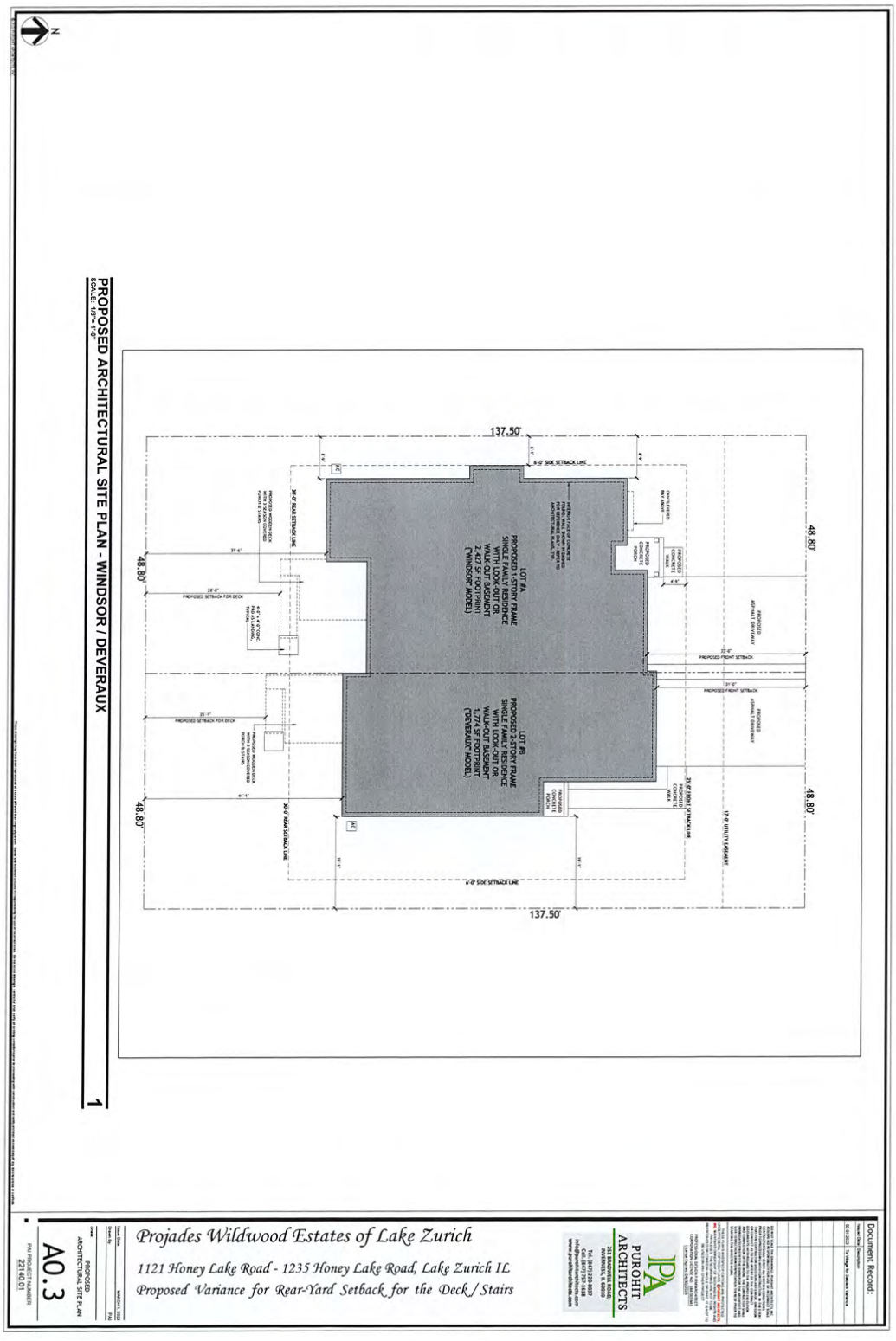
COMPREHENSIVE PLAN APPLICATION

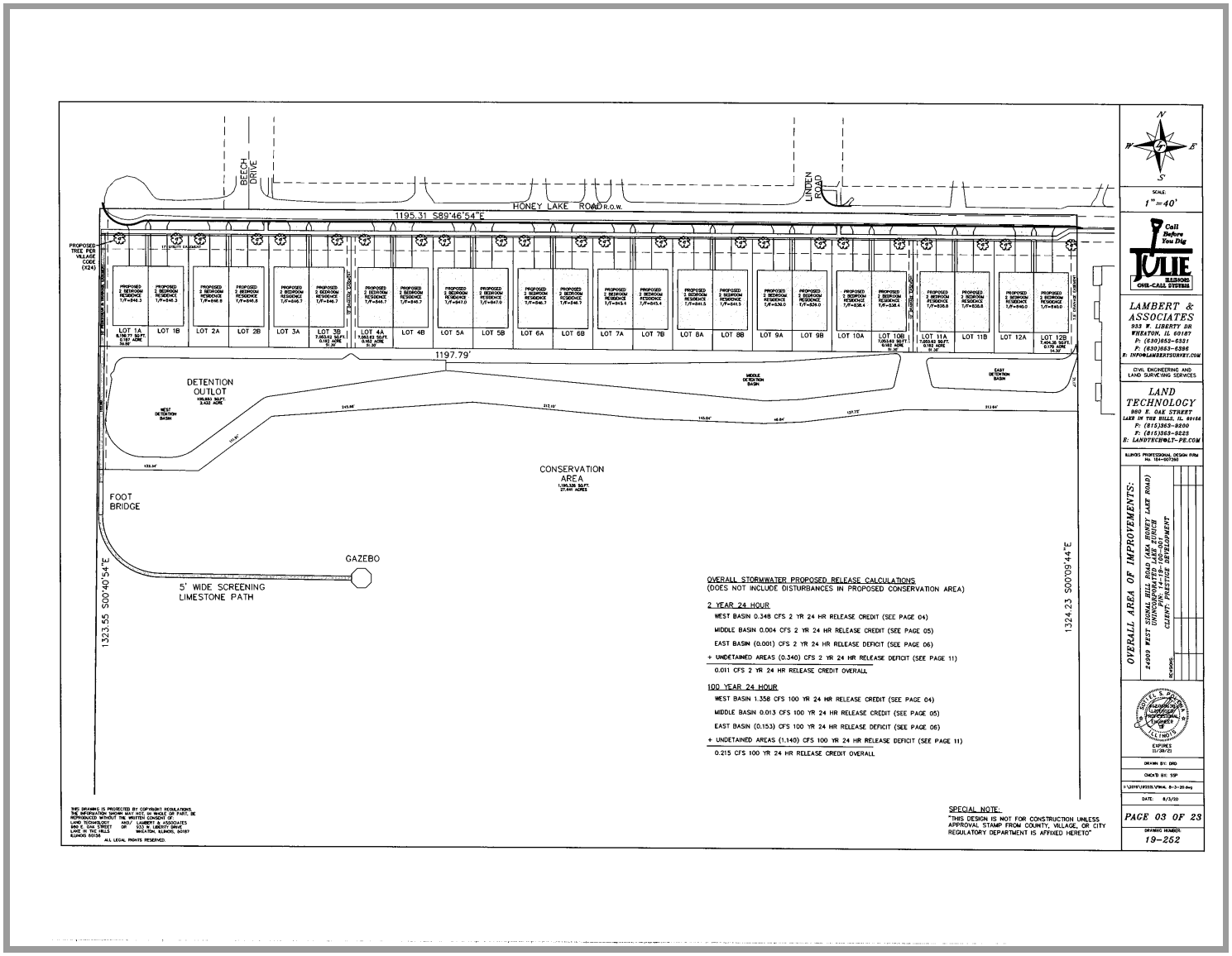
☐ Comprehensive Plan **Map** Amendment for ALREADY ON FILE

☐ Comprehensive Plan **Text** Amendment for ALREADY ON FILE


PROPOSED ARCHITECTURAL SITE PLAN - WINDSOR EXTENDED / WINDSOR
SCALE: 1/8" = 1'-0"
1
137.50'
48.80'
LOT #A
PROPOSED 1 STORY FRAME
SINGLE FAMILY RESIDENCE
WITH LOOK-OUT OR
WALK-OUT BASEMENT
ZONED: R-2 DISTRICT
(WINDSOR EXTENDED
MODEL)
LOT #B
PROPOSED 1 STORY FRAME
SINGLE FAMILY RESIDENCE
WITH LOOK-OUT OR
WALK-OUT BASEMENT
ZONED: R-2 DISTRICT
(WINDSOR MODEL)
6'-0" SIDE SETBACK LINE
25'-0" REAR SETBACK LINE
25'-0" FRONT SETBACK LINE
PROPOSED FRONT SETBACK
17'-0" UTILITY EASEMENT
PROPOSED SETBACK FOR DECK
PROPOSED CONCRETE PORCH
PROPOSED ASPHALT DRIVEWAY
Projades Wildwood Estates of Lake Zurich
1121 Honey Lake Road - 1235 Honey Lake Road, Lake Zurich IL
Proposed Variance for Rear-Yard Setback for the Deck / Stairs
PUROHIT ARCHITECTS
Document Record:
A0.1
PROPOSED ARCHITECTURAL SITE PLAN


PROPOSED ARCHITECTURAL SITE PLAN - WINDSOR / HAMPTON
SCALE: 1/8" = 1'-0"
1
137.50'
48.80'
LOT #A
PROPOSED 1-STORY FRAME
SINGLE FAMILY RESIDENCE
WITH LOOK-OUT OR
WALK-OUT BASEMENT
2,427 SF FOOTPRINT
(WINDSOR MODEL)
LOT #B
PROPOSED 2-STORY FRAME
SINGLE FAMILY RESIDENCE
WITH LOOK-OUT OR
WALK-OUT BASEMENT
2,231 SF FOOTPRINT
(HAMPTON MODEL)
6'-0" SIDE SETBACK LINE
30'-0" REAR SETBACK LINE
PROPOSED SETBACK FOR DECK
PROPOSED FRONT SETBACK
PROPOSED ASPHALT DRIVEWAY
PROPOSED CONCRETE WALK
17'-0" UTILITY EASEMENT
Projades Wildwood Estates of Lake Zurich
1121 Honey Lake Road - 1235 Honey Lake Road, Lake Zurich IL
Proposed Variance for Rear-Yard Setback for the Deck / Stairs
PUROHIT ARCHITECTS
Document Record:
A0.2
PROPOSED ARCHITECTURAL SITE PLAN


PROPOSED ARCHITECTURAL SITE PLAN - WINDSOR / DEVERAUX
SCALE: 1/8"=1'-0"
1
137.50'
48.80'
LOT #A
PROPOSED 2 STORY FRAME
SINGLE FAMILY RESIDENCE
WITH LOOK-OUT OR
WALK-OUT BASEMENT
(WINDSOR' MODEL)
LOT #B
PROPOSED 2 STORY FRAME
SINGLE FAMILY RESIDENCE
WITH LOOK-OUT OR
WALK-OUT BASEMENT
(DEVERAUX MODEL)
30'-0" REAR SETBACK LINE
6'-0" SIDE SETBACK LINE
PROPOSED SETBACK FOR DECK
PROPOSED FRONT SETBACK
25'-0" (MIN) SETBACK LINE
17'-0" UTILITY EASEMENT
Projades Wildwood Estates of Lake Zurich
1121 Honey Lake Road - 1235 Honey Lake Road, Lake Zurich IL
Proposed Variance for Rear-Yard Setback for the Deck / Stairs
PUROHIT ARCHITECTS
A0.3
PROPOSED ARCHITECTURAL SITE PLAN
Document Record:


BEECH DRIVE
HONEY LAKE ROAD R.O.W.
LINDEN ROAD
1195.31 S89°46'54"E
PROPOSED TREE PER VILLAGE CODE (±24)
LOT 1A
LOT 1B
LOT 2A
LOT 2B
LOT 3A
LOT 3B
LOT 4A
LOT 4B
LOT 5A
LOT 5B
LOT 6A
LOT 6B
LOT 7A
LOT 7B
LOT 8A
LOT 8B
LOT 9A
LOT 9B
LOT 10A
LOT 10B
LOT 11A
LOT 11B
LOT 12A
LOT 12B
1197.79'
DETENTION OUTLOT
CONSERVATION AREA
FOOT BRIDGE
GAZEBO
5' WIDE SCREENING LIMESTONE PATH
1323.55 S00°40'54"E
1324.23 S00°09'44"E
OVERALL STORMWATER PROPOSED RELEASE CALCULATIONS
(DOES NOT INCLUDE DISTURBANCES IN PROPOSED CONSERVATION AREA)
2 YEAR 24 HOUR
WEST BASIN 0.348 CFS 2 YR 24 HR RELEASE CREDIT (SEE PAGE 04)
MIDDLE BASIN 0.004 CFS 2 YR 24 HR RELEASE CREDIT (SEE PAGE 05)
EAST BASIN (0.001) CFS 2 YR 24 HR RELEASE DEFICIT (SEE PAGE 06)
+ UNDETAINED AREAS (0.340) CFS 2 YR 24 HR RELEASE DEFICIT (SEE PAGE 11)
0.011 CFS 2 YR 24 HR RELEASE CREDIT OVERALL
100 YEAR 24 HOUR
WEST BASIN 1.358 CFS 100 YR 24 HR RELEASE CREDIT (SEE PAGE 04)
MIDDLE BASIN 0.013 CFS 100 YR 24 HR RELEASE CREDIT (SEE PAGE 05)
EAST BASIN (0.153) CFS 100 YR 24 HR RELEASE DEFICIT (SEE PAGE 06)
+ UNDETAINED AREAS (1.140) CFS 100 YR 24 HR RELEASE DEFICIT (SEE PAGE 11)
0.215 CFS 100 YR 24 HR RELEASE CREDIT OVERALL
SPECIAL NOTE:
"THIS DESIGN IS NOT FOR CONSTRUCTION UNLESS APPROVAL STAMP FROM COUNTY, VILLAGE, OR CITY REGULATORY DEPARTMENT IS AFFIXED HERETO"
ALL LEGAL RIGHTS RESERVED.
N
W
E
S
SCALE: 1"=40'
Call Before You Dig
JULIE
ILLINOIS ONE-CALL SYSTEM
LAMBERT & ASSOCIATES
CIVIL ENGINEERING AND LAND SURVEYING SERVICES
LAND TECHNOLOGY
OVERALL AREA OF IMPROVEMENTS:
24909 WEST SIGNAL HILL ROAD (AKA HONEY LAKE ROAD)
UNINCORPORATED LAKE COUNTY
PIN: 14-19-100-001
CLIENT: PRESTIGE DEVELOPMENT
EXPIRES 11/30/21
DRAWN BY: DRD
CHK'D BY: SSP
DATE: 8/3/20
PAGE 03 OF 23
DRAWING NUMBER: 19-252

At the Heart of Community

COMMUNITY DEVELOPMENT DEPARTMENT
Building and Zoning Division

505 Telser Road
Lake Zurich, Illinois 60047

(847) 540-1696
Fax (847) 726-2182
LakeZurich.org

ZONING REVIEW

PROJECT: Wildwood Estates Decks / Sun Rooms

LOCATION: 1199 Honey Lake Road

REVIEWED BY: Tim Verbeke

DATE: March 15, 2023

Zoning: OS – Open Space
R-6 Multiple Family Residential

The Applicant was previously granted typical rear yard setbacks in the R-6 District of 30 feet. Due to an error in calculations by not accounting for the building staggering and rear sun room/deck construction, the rear setback will have to be less that the allowable 30 feet. Staff has yet to receive a full site plan; therefore, we are unable to make final determination of the requested setback. Per the developer, the setback variation will vary based on building setback and if the homeowner requests a deck or sun room.

Minimum Yards Per Code for R-6:

- Front and corner side (feet): 25 Feet
- Side (feet): 7 Feet
- Rear (feet): 30 Feet

Minimum Yards requested

- Front and corner side (feet): 25 Feet
- Side (feet): 7 Feet
- Rear (feet): Varies

Lighting
No additional lighting planned.

Landscaping
No additional landscape planned.

Signage
No additional signage planned.

PUBLIC WORKS DEPARTMENT

505 Telser Road
Lake Zurich, Illinois 60047

(847) 540-1696
Fax (847) 726-2182
LakeZurich.org

At the Heart of Community

AGENDA ITEM 6g

MEMORANDUM

Date: May 9, 2023

To: Ray Keller, Village Manager RK

From: Steve Schmitt, Utilities Superintendent

Copy: Michael J. Brown, Public Works Director

Subject: **Replacement of Wicklow Lift Station Control Panel**

Issue: Replacement of the Wicklow Sanitary Sewer Lift Station Control Panel.

Village Strategic Plan: This agenda item is consistent with the following strategic objective:

- **Infrastructure Investment**: Develop a formalized, long-range sanitary sewer system improvement plan.

Background: The existing Wicklow Lift Station was installed in 1996. The traffic enclosure has deteriorated and the controls are obsolete (reducing operational reliability) and are at the end of their useful life. To ensure lift station reliability, replacement of the traffic enclosure and control panel is needed.

The Metropolitan Pump Company is the village's designated lift station manufacturer currently utilized at 13 of the Village's 14 Duplex Sanitary Sewer Lift Stations. Metropolitan Pump Company is the sole source vendor for the LMS-II PLC Logic controls that the Village has utilized in previous lift station upgrades for standardization as well as to access the internet-based supervisory control and data acquisition (SCADA) monitoring and alarm system.

Analysis: Metropolitan Pump Company has provided a proposal for $89,891 for manufacturing & installation of a replacement traffic cabinet and control system. Staff has been very satisfied with the quality of their previous work. This project is included in our Community Investment Plan and the FY 2023 Budget includes $91,000 for improvements to the Wicklow Lift station.

Recommendation: Acceptance of proposal from Metropolitan Pump Company for a replacement control panel at the Wicklow Sanitary Sewer Lift Station for an amount not to exceed $89,891.

W/Attachments:
1) Quotation from Metropolitan Pump Company (3 pages)

METROPOLITAN PUMP COMPANY
A Division of METROPOLITAN INDUSTRIES, INC.
37 FORESTWOOD DRIVE • ROMEOVILLE, IL • 60446-1343
(815) 886-9200 • FAX (815) 886-4573
www.metropolitanind.com

QUOTATION

PROJECT: Wicklow LS
Lake Zurich, Illinois
BIDS DUE: ASAP
ENGINEER: N/A

TO: Mr. Steve Schmitt
Village of Lake Zurich
505 Telser Rd
Lake Zurich, Illinois 60047
Phone: 847-276-0698

We are pleased to provide a QUOTE on the following equipment for the subject project.

Control Panel Replacement With Stainless Steel Traffic Box Enclosure and Accessories

(Based on existing 480 volt, 3 phase, 10 HP pumps)

Qty (1) UL approval type 508 for Industrial Control Panels
Qty (1) Weather Protected pad Mounted Freestanding Traffic Enclosure, 304 Stainless Steel
Qty (1) Reel Light and fan / filter kit
Qty (1) GFIC Convenience Outlet
Qty (1) Standby Generator Receptacle, 100 Amp Maximum
Qty (1) Generator Plug, 100A with 50ft. Of cable
Qty (1) Transformer

Pump Control Panel To Include The Following:

Qty (1) Control Panel Enclsoure Nema 1 with subpanel
Qty (1) Micrologix 1400 PLC and Memory Module
Qty (1) Necessary Cloud SCADA programming is included.
Qty (1) Serial Null Modem cable
Qty (1) 7 inch Touch Screen
Qty (2) Seal Fail & Overtemp Sensors for Flygt Pumps **(Supplied by Village of Lake Zurich)**
Qty (1) Intrinsically Safe Relay For floats
Qty (1) Phase Monitor
Qty (1) Manual Transfor Switch Non Fused, 100 A, 600V, UL/IEC
Qty (1) Main Service Entrance Rated Circuit Breaker Disconnect
Qty (1) Pistol Handle for Disconnect
Qty (1) Shaft, 290 mm for Disconnect
Qty (2) Motor Starter Contactor, IEC
Qty (2) Thermal Overload Relays
Qty (2) Circuit Breaker
Qty (1) Lug Kit
Qty (1) Equipment bar
Qty (1) Lot: Circuit breakers, fuses and fuse block
Qty (1) Lot: Distrubtion Block or lugs
Qty (1) Lot: Relays, Timers and Sockets
Qty (1) Lot: Operator Controls
Qty (1) Heater

TERMS: Net 30 days from date of invoice. All invoices are payable in full when due, with no retainage allowed.

THIS QUOTATION, SUBJECT TO THE CONDITIONS ON THE REVERSE SIDE HEREOF, MAY BE ACCEPTED ONLY BY SIGNING ONE COPY OF THIS QUOTATION AND RETURNING IT TO METROPOLITAN PUMP CO. NOT LATER THAN THE DATE INDICATED ON THE FACE HEREOF AFTER WHICH THIS QUOTATIONS IS VOID. THIS QUOTATION AFTER ACCEPTANCE BY BUYER MAY BE CANCELLED BY EITHER PARTY WITH NO PENALTY ONLY IF ENGINEER FAILS TO APPROVE SELLERS APPROVAL BROCHURE.

Accepted:	_____	Quotation No:	KT50823MN
Firm:	_____	Submitted:	5/8/2023
By:	_____	Void after:	30 days
Title:	_____	Prepared By:	Ken Turnquist

METROPOLITAN PUMP COMPANY
A Division of METROPOLITAN INDUSTRIES, INC.
37 FORESTWOOD DRIVE • ROMEOVILLE, IL • 60446-1343
(815) 886-9200 • FAX (815) 886-4573
www.metropolitanind.com

QUOTATION

PROJECT: Wicklow LS
Lake Zurich, Illinois

Continued from Page #1

Qty (1) Duplex Outlet and Box
Qty (1) KO Outlet Box, 1/2"
Qty (1) DC Power Supply
Qty (1) Ups Control Unit and batteries
Qty (1) Ethernet Switch and cable
Qty (1) Sierra Wireless Airlink Raven RV55 Cellular Gateway
Qty (2) Antenna, filter cable, connectors
Qty (1) Submersible Transducer for primary control.
Qty (4) Mechanical float switches for back up control ar
Qty (1) Chain and anchor float mounting system for transducer and back up floats will be included.
- Verizon Cellular Service is priced separately.

Furnish and Install a new lift staion controls as described within this scope.

$89,891.00
(Taxes Not Included)

Total Monthly Cost For Verizon Cellular Service based on 250 Tags at 5 minute polling is: **$50.00**
****Messages Sent via SMS text and voice via Twilio****
(Taxes Not Included)

Furnish and install electric per site meeting with Inclusions and exclusions.

Inclusions
- Removal of existing control panel and set aside to owner..
- Maintain existing lift station for duration.
- Furnish and install concrete pad for control panel.
- Furnish and install new service, meter, ground, conduit, and cable.
- Furnish and install new conduits with conduit seals into wet well.
- Furnish and install sump receptacle in valve vault.
- Intercept existing flow meter and route into new enclosure.
- Relocate existing flow transmitter into new cabinet.
- Terminations into new panel.

Exclusions:
- Only the items metioned above are inlcuded in this proposal. This proposal is to replace the existing traffic box enclosure controls and devises mentioned.
- Permits, fees, utilitiey fees, premium time, taxes, Utilties fees, allowances and bonding is not included.
- Alarm light is not included in this proposal.
- Existing pumps remain and new pumps are not included.
- Temp power and bypass pumping.
- Repairs to, replacment, or relocation of new or existing utilities damaged or discovered during construction.

TERMS: Net 30 days from date of invoice. All invoices are payable in full when due, with no retainage allowed.

THIS QUOTATION, SUBJECT TO THE CONDITIONS ON THE REVERSE SIDE HEREOF, MAY BE ACCEPTED ONLY BY SIGNING ONE COPY OF THIS QUOTATION AND RETURNING IT TO METROPOLITAN PUMP CO. NOT LATER THAN THE DATE INDICATED ON THE FACE HEREOF AFTER WHICH THIS QUOTATIONS IS VOID. THIS QUOTATION AFTER ACCEPTANCE BY BUYER MAY BE CANCELLED BY EITHER PARTY WITH NO PENALTY ONLY IF ENGINEER FAILS TO APPROVE SELLERS APPROVAL BROCHURE.

Accepted:	_____	Quotation No:	KT50823MN
Firm:	_____	Submitted:	5/8/2023
By:	_____	Void after:	30 Days
Title:	_____	Prepared By:	Ken Turnquist

STANDARD CONDITIONS OF SALE
(Domestic Shipments)

1. TERMS

Standard terms are net thirty days from date of invoice. Products are sold F.O.B. Factory unless otherwise stated. A 2% per month service charge is added to overdue accounts.

It is understood that the purchaser agrees to pay any and all costs incurred in collecting delinquent accounts, including by way of illustration but not limited to: reasonable attorney fees; costs of witnesses and expert witnesses, including travel from point of origin and return, subsistence and recompense for time lost from regular occupation; court costs, depositions, transcripts, etc.

Quotations are subject to acceptance within thirty days from the date, and in the interim, are subject to changes in price or other particulars upon notice.

All offers to purchase, quotations, and contracts of sales are subject to final acceptance by Metropolitan Pump (hereinafter called the Company) at its office at Romeoville IL; and shall be and constitute an Illinois Contract, subject to the laws of the State of Illinois.

2. SALES AND SIMILAR TAXES

Sales, use, occupational, excise, or other similar taxes are not included in the prices quoted and if this transaction is subjected to any such tax by any taxing authority whatever, the same must be added to the purchase price.

3. DELIVERIES

The Company shall be under no liability for failure to make deliveries where such failure to deliver may be due to fires, strikes, accidents, labor or transportation difficulties, car shortage, failure to obtain deliveries of materials, action of any State, Federal or local governments or other causes beyond its reasonable control.

4. ESTIMATED SHIPPING WEIGHTS

The Company will not be responsible for the accuracy of shipping weights submitted in quotations, as these weights are estimated weights, for use in computing probable freight charges.

5. GUARANTEES

RATED OUTPUT

The Company guarantees that the apparatus manufactured by it will deliver successfully its output as indicated on the nameplate, provided such apparatus is properly installed and maintained, correctly lubricated, operated under normal conditions and with competent supervision.

REPLACEMENT OF DEFECTIVE MATERIAL

Any parts which show faulty workmanship or material will be repaired or replaced without charge, F.O.B. Company's works, provided such defects develop under normal and proper use within three months after date of shipment and provided Purchaser shall give notice in writing to the Company and a chance to inspect such defects before repairing or altering the product in any way. The correction of such defects by repair or replacement by the Company shall constitute a fulfillment of its obligation to the Purchaser.

NON-LIABILITY FOR LOSS OR DAMAGE

The Company will not be responsible for or liable for any loss or damage resulting from improper storage or handling prior to placing the apparatus in service and will not assume any responsibility, expense or liability for repairs made outside its works without proper written consent of the company. The Company will not be responsible or liable for any damage or loss resulting from installation or operation in any manner not complying with installation or operating instructions or drawings or with the ratings marked thereon.

CONTINGENT LIABILITY

The Company will not be responsible or liable in any way for consequential damage or contingent liability resulting from nondelivery, late delivery, function, malfunction or nonfunction or any equipment sold hereunder or resulting from any service provided or from malfeasance or nonfeasance of any service provided hereunder.

6. CHANGES

In event the Purchaser finds it necessary to make changes in the work to be performed hereunder, he may do so only by written order. If such changes cause an increase or decrease in the amount due for apparatus sold hereunder, or in the time required for completion of resulting order, an equitable adjustment shall be made and the order shall be modified accordingly.

7. TERMINATION

In the event Purchaser, due to good and sufficient cause, desires to effect cancellation of sales or services sold hereunder, notice shall be given in writing to the Company.

The Company shall thereupon, as directed, cease work and deliver to the Purchaser all completed and partially completed articles and materials and work in process. The Purchaser shall pay the Company the following:

(a) The price provided in the order for all articles or materials which have been completed prior to termination.

(b) Actual expenditures made by the Company in connection with the incompleted portion of the order, including reasonable cancellation charges paid by the Company for which it may be liable on account of commitments made under the order.

(c) Reasonable estimated profits on the incompleted portion of the order multiplied by the percentage of completion of the incompleted portion of the order.

8. DEFERRED DELIVERIES

Deferred deliveries are subject to Company's approval. Should the Purchaser for good and sufficient cause desire that we hold up or defer deliveries until some later day, same shall be acceptable on the following conditions only:

(a) Deferment period is not to exceed sixty days, at the end of which time, if no release is given, Company reserves the right to render invoice and make shipment of the completed portion of order to destination specified in Purchaser's order, or to warehouse such apparatus at Purchaser's expense.

(b) On the incompleted portion of the order, if release is not given by the Purchaser at the expiration of sixty days, the Company reserves the right to make a cancellation charge on the same conditions and terms of payment as outlined above under "Termination."

9. PATENTS

The Company certifies that to the best of its knowledge the apparatus sold hereunder does not infringe any Letters Patent granted to others by the United States of America or by any country foreign thereto. The Company does not assume any responsibility or liability for any claim of infringement brought against the Purchaser, its successors, assigns, customers or users of its product.

10. PAYMENTS

If, in the judgment of the Company, the financial condition of the Purchaser at any times does not justify continuance of the production or shipment on the terms of payment specified, the Company may require full or partial payment in advance.

Pro rata payments shall become due as shipments are made. If shipments are delayed by the Purchaser, payments shall become due from date when the Company is prepared to make shipment. If manufacture is delayed by the Purchaser, payment shall be made based on the contract price and the percentage of completion. Apparatus held for the Purchaser shall be at the risk and expense of the Purchaser.

11. FEDERAL AND STATE LAWS

The Company, to the best of its knowledge, is complying with The Fair Labor Standards Act, Public Contracts Act and all other applicable State and Federal Laws, and the orders and regulations issued thereunder.

12. GENERAL

There are no understandings, agreements or warranties, either verbal or written, relating to the apparatus sold hereunder that are not fully expressed herein and no change in the terms hereof may be made except by a writing signed by both parties.

No statement, recommendation or assistance made or offered by Company through its representatives to the Purchaser or his representatives in connection with the use of any product sold by us shall be or constitute a waiver by Company of any of the provisions hereof or change the purchaser's liability as herein defined.

Seller represents that with respect to the production of the articles and/or the performance of the services covered by this proposal, it has fully complied with Section 12 (a) of the Fair Labor Standards Act of 1938, as amended.

VILLAGE OF LAKE ZURICH
At the Heart of Community

OFFICE OF THE VILLAGE MANAGER

70 East Main Street
Lake Zurich, Illinois 60047

(847) 438-5141
LakeZurich.org

AGENDA ITEM 7A

MEMORANDUM

Date: May 9, 2023

To: Ray Keller, Village Manager RK

From: Kyle Kordell, Assistant to the Village Manager

Subject: **Industrial TIF Development Inducement – NorthStar Pickle Company, LLC 629 Rose Road**

Issue: The Illinois Tax Increment Allocation Redevelopment Act allows for the Village of Lake Zurich to stimulate or induce redevelopment projects within the area unanimously designated in January 2023 as the Industrial Center Redevelopment Project Area.

The proposed development inducement resolution allows NorthStar Pickle Company, a well-established Lake Zurich food processing and distribution company, to be eligible for certain future TIF reimbursements related to the acquisition and development of vacant industrial acreage in Lake Zurich. Such redevelopment would increase the assessed value of the entire TIF, thus generating future TIF increment.

Village Strategic Plan: This agenda item advances the following objectives in the Lake Zurich Strategic Plan:

- Financial Sustainability
  - Maximize existing and identity new revenue sources
- Economic Development
  - Develop proactive policies to promote economic development
  - Partner with the business community to determine how needs can be met
  - Expand the Village's role as a major regional economic hub
- Infrastructure Investment
  - Ensure long-range funding is available for infrastructure improvements such as stormwater management and sanitary/water services.

Analysis: NorthStar Pickle Company has been operating in Lake Zurich since the summer of 2014. This community is the location of its newest manufacturing line, which is capable of producing a wide variety of pickle flavor profiles in almost any cut imaginable for any size customer. The company has been a good neighbor in the industrial park with no issues. The company currently employs 14 full-time positions on Donata Court, but is looking to expand due to increasing demand for their product in national markets.

The company is considering various available sites in other municipalities and even Wisconsin properties, but they are also eyeing an available vacant property at 629 Rose Road in the Lake Zurich Industrial Park. The Company has learned about the recently created Industrial TIF District and inquired about how TIF can be utilized as an economic development tool to turn their plans into reality right here in Lake Zurich.

The proposal to expand includes construction of a new approximately 80,000 square foot facility on the vacant property at 629 Rose Road. The new facility would create an approximately 25-line jobs along with a few office management positions.

If the Company decides to grow its operations in Lake Zurich, the proposed inducement resolution allows costs related to the redevelopment project to qualify for consideration as eligible TIF reimbursement costs. These reimbursements would occur in future years, utilizing incremental real estate taxes that would not otherwise be available "*but for*" the redevelopment project occurring.

Recommendation: Staff recommends approval of the proposed inducement resolution for NorthStar Pickle Company.

VILLAGE OF LAKE ZURICH

RESOLUTION NO. 2023-05-_____

A RESOLUTION OF THE VILLAGE OF LAKE ZURICH LAKE COUNTY, ILLINOIS, TO INDUCE THE REDEVELOPMENT OF CERTAIN PROPERTY WITHIN THE INDUSTRIAL PARK TAX INCREMENT FINANCING REDEVELOPMENT PROJECT AREA

WHEREAS, the Village of Lake Zurich, Lake County, Illinois (the "*Village*") is a duly organized and existing municipal corporation created under the provisions of the laws of the State of Illinois and a non-home-rule municipality pursuant to the Illinois Constitution of 1970; and,

WHEREAS, in accordance with the requirements of the Tax Increment Allocation Redevelopment Act of the State of Illinois, 65 ILCS 5/11-74.4-1, *et seq*., as from time to time amended (the "*TIF Act*"), the President and Board of Trustees of the Village (the "*Corporate Authorities*"), on January 4, 2023, pursuant to Ordinance Nos. 2023-01-491, 2023-01-492 and 2023-01-493, approved a Redevelopment Project Plan and Eligibility Report for an area designated as the Industrial Center Redevelopment Project Area (the "*Project Area*"), and adopted tax increment financing for the payment and financing of redevelopment project costs incurred within the Project Area; and,

WHEREAS, the Village has been approached by NorthStar Pickle Company, LLC (the "*Developer*"), who proposes to acquire and develop certain property located within the Project

Area, commonly known as 629 Rose Road (the "*Subject Property*") and to operate a manufacturing and distribution facility (the "*Project*"); and,

WHEREAS, the Developer has also informed the Village that the ability to undertake the Project on the Subject Property shall require financial assistance from the Village for certain improvements that would be incurred in connection with the acquisition and development, which costs would constitute "*Redevelopment Project Costs*" as such term is defined in the TIF Act; and,

WHEREAS, the Developer would like to incur certain costs in connection with the Project prior to the adoption of any ordinance authorizing the execution of a redevelopment agreement pertaining to the Subject Property with the Village wherein reimbursement for such costs may be considered between the parties subject to certain terms and conditions; and,

WHEREAS, the Developer desires such costs related to the Project are able to qualify for consideration as redevelopment project costs that can be reimbursed utilizing incremental real estate taxes pursuant to the TIF Act, provided that such costs constitute "*Redevelopment Project Costs*", as such term is defined in the TIF Act; and,

WHEREAS, this Resolution is intended to allow the Developer to incur certain costs relating to the redevelopment of the Subject Property that may be considered "*Redevelopment Project Costs*", as such term is defined in the TIF Act, prior to adoption of any ordinance authorizing the execution of a redevelopment agreement pertaining to the Subject Property with the Village, subject to the conditions set forth in Section 3 of this Resolution.

NOW, THEREFORE, BE IT RESOLVED by the President and Board of Trustees of the Village of Lake Zurich, Lake County, Illinois, as follows:

Section 1. That the above recitals are incorporated herein and made a part hereof.

Section 2. That the Corporate Authorities may consider expenditures that are *"Redevelopment Project Costs",* as such term is defined in the TIF Act, in connection with the Project, incurred prior to the approval and execution of a redevelopment agreement with the Developer, to be expenditures that are eligible for reimbursement through the TIF Act to the extent the Project is in furtherance of the redevelopment plan and project for the overall Project Area.

Section 3. That all undertakings of the Village set forth in this Resolution are specifically contingent upon the Village approving and executing a redevelopment agreement with the Developer, or a successor or assignee of the Developer, which provides for the redevelopment of the Subject Property in accordance with the terms and conditions to be negotiated by the parties.

Section 4. That any financial assistance rendered to the Developer by the Village shall be contingent upon the authority, restrictions, terms, and conditions imposed by the TIF Act.

Section 5. That this Resolution shall be in full force and effect from and after its passage and approval as provided by law.

ADOPTED by the President and the Village Board of Trustees of the Village of Lake Zurich, Illinois, this 15th day of May 2023, pursuant to a roll call vote as follows:

AYES:
NAYS:
ABSENT:

APPROVED by me this ____ day of May, 2023

_____
Village President

_____
Village Clerk

3

PUBLIC WORKS DEPARTMENT

505 Telser Road
Lake Zurich, Illinois 60047

(847) 540-1696
Fax (847) 726-2182
LakeZurich.org

At the Heart of Community

AGENDA ITEM 7B

Date: May 9, 2023

To: Ray Keller, Village Manager RK

From: Michael J Brown, Public Works Director

Subject: Good Faith Resolution with Central Lake County Joint Action Water Agency.

Issue: The Central Lake County Joint Action Water Agency (CLCJAWA) is requesting that the Village of Lake Zurich adopt a resolution expressing the intent to work towards a membership expansion to allow the Village to become a member of CLCJAWA.

Village Strategic Plan: This agenda item is consistent with the following Strategic Plan Goal.

- **Infrastructure Investment**: Ensure a sustainable, healthy and economical water source for current and future Lake Zurich residents.

Background:

- **In May 2022**, Village Manager Keller issued a formal Letter of Intent to CLCJAWA to request the opportunity to further explore the next steps in providing Lake Michigan water to Lake Zurich.
- **In September 2022**, the Village Board approved an intergovernmental agreement with CLCJAWA for the sharing of engineering study costs to study the feasibility, manner of accomplishment, and estimated costs to physically transport the water from CLCJAWA to the Lake Zurich borders.
- **In November 2022**, the Village Board approved a water system distribution supply study with CDM Smith that will identify the improvements that will be needed to connect Lake Zurich with a Lake Michigan water supply. In partnership with CLCJAWA as a potential water supplier, CDM Smith is developing an Engineer's Opinion of Probable Costs (EOPC) for the required, emphasizing operational efficiency and minimizing potential impacts on system pressure and fire flows.
- **In April 2023**, the Village Board received a presentation from CDM Smith at a public meeting that was broadcast live to the community, giving an overview of the proposed project phasing, infrastructure improvements, costs associated with providing Lake

Michigan water to Lake Zurich and possible funding options. The Executive Director of CLC JAWA presented a summary of the capital buy-in fee that is required to join the water agency and gave an overview of how the agency operates. The Board provided unanimous direction to Village staff to prepare a formal agreement to join CLC JAWA and proceed with the Lake Michigan water project.

Analysis: The next phase of the LMW initiative consist of the following objectives through the remainder of FY2023:

Good Faith Resolution: The adoption of the proposed Good Faith Resolution, that will provide an exclusive engagement for both agencies to continue to move forward with the intention of the Village of Lake Zurich becoming a full member of CLCJAWA. With the adoption of the agreement, both parties engaging in these discussions recognize that additional engineering, financial, economic or legal considerations may require the modification or expansion of the current principles and each party understands that it possesses a free and independent right to make a final determination regarding the expansion of CLCJAWA and the admission of Lake Zurich as a member.

IEPA SRF Loan Project Plan Submittal: Staff is working with CDM Smith to prepare a project plan to be submitted to the Illinois Environmental Protection Agency (IEPA) for SRF Funding, that will include an operational and rate analysis of the Village's current operations in regards to the water fund, and proposed project costs.

Route Study: At the April 3 Village Board meeting CDM Smith and CLCJAWA presented a proposed construction route from the connection site in Vernon Hills to the Village of Lake Zurich. The route study would provide opportunities to coordinate with external agencies and private property owners with the intention to refine costs, and secure the final alignment for engineering and design.

Preliminary Design efforts will commence in 2024 after the submission of the IEPA Project Plan and complete of the Route Study. Detailed design will follow after the preliminary design and will continue into 2025. Following design, multiple bid packages for the various improvements will be publicly bid in 2025 with full construction in 2026 with completion targeting 2028.

Recommendation: Adopt the Good Faith Resolution with the Central Lake County Joint Action Water Agency that would provide an exclusive engagement commitment with the Village of Lake Zurich and CLCJAWA.

W/Attachments:
1) Letter Dated April 27, 2023 from CLCJAWA
2) Good Faith Resolution

Central Lake County Joint Action Water Agency

Paul M. Neal Water Treatment Plant
200 Rockland Road
Lake Bluff, Illinois 60044

April 27, 2023

Mr. Michael Brown
Public Works Director
70 East Main Street
Lake Zurich, Illinois 60047

Dear Mike,

It was one year ago today that the Village of Lake Zurich (Village) made an informative presentation to our Board of Directors laying out the careful process the Village has taken to evaluate Lake Zuirch's water supply future. Our Board was impressed with the in-depth water resource studies the Village has completed and the thorough approach taken to solve the ion-exchange radium discharge issue.

Three months later, CLCJAWA completed an engineering evaluation to confirm CLCJAWA's ability to provide the requested volume of water. Two months after that evaluation, our organizations signed an intergovernmental agreement to co-fund an engineering expansion assessment, the results of which were presented at the Village Board meeting in early April. After the presentation and public discussion with each Board member, the Board directed our Lake Zurich/CLCJAWA team to proceed to the next steps in this process.

The next step on the path to Lake Zurich's CLCJAWA membership, the same path followed by Wauconda, Volo, Lindenurst and Lake Villa, involves a resolution. After reporting the Village's wishes to my Board, they have directed me to provide you the attached resolution titled: A RESOLUTION EXPRESSING THE INTENT OF THE ADOPTING ENTITIES TO WORK TOWARDS A MEMBERSHIP EXPANSION OF THE CENTRAL LAKE COUNTY JOINT ACTION WATER AGENCY WITH THE VILLAGE OF LAKE ZURICH. We ask that the Village Board adopt this resolution in May. The CLCJAWA Board will then adopt the same resolution at our next meeting in June.

Using the process of marriage as an example, this resolution essentially "engages" our two organizations to work together in good faith to eliminate the ion-exchange radium discharge issue and to secure a permanent Lake Michigan water supply for the Village.

Sincerely,

William J. Soucie
Executive Director

Phone - 847.295.7788 FAX - 847.295.6853 Web - www.clcjawa.com

VILLAGE OF LAKE ZURICH

RESOLUTION NO. 2023-05-_____

RESOLUTION EXPRESSING THE INTENT OF THE ADOPTING ENTITIES TO WORK TOWARDS A MEMBERSHIP EXPANSION OF THE CENTRAL LAKE COUNTY JOINT ACTION WATER AGENCY WITH THE VILLAGE OF LAKE ZURICH

WHEREAS, the Central Lake County Joint Action Water Agency ("CLCJAWA") is an intergovernmental entity created as a result of constitutional and statutory language allowing governmental bodies to seek to jointly draw water from Lake Michigan and distribute potable water to its Members; and

WHEREAS, CLCJAWA has carried out this function for decades, and has constructed a modern and efficient water distribution system; and

WHEREAS, after extensive studies, CLCJAWA has concluded that it has the ability to produce water in capacities which are in addition to those reasonably required now, and in the future, by its current Members; and

WHEREAS, the efficiency of CLCJAWA is improved and the cost charged to its Members and to ultimate water consumers, would be reduced if CLCJAWA is able to admit additional Members or to otherwise sell excess water capacity; and

WHEREAS, the Village of Lake Zurich could be served within the capacity of the CLCJAWA system; and

WHEREAS, in order for the Village of Lake Zurich to be admitted to membership in CLCJAWA, additional discussions need to ensue, based upon a general set of agreed principles; and

WHEREAS, the agreed principles, currently being considered by the parties, ("Current Principles") is attached to this Resolution as Exhibit "A", and

WHEREAS, the organization documents of CLCJAWA allows new Members to be admitted under such terms and conditions as are agreed to; and

WHEREAS, CLCJAWA and the Village of Lake Zurich desire to adopt the same or similar resolution agreeing to enter into further discussions under the Current Principles; and

WHEREAS by the passage of this Resolution, the entity adopting a pledge to engage in good-faith discussion in seeking to come to an agreement under which the Village of Lake Zurich shall be admitted to membership in CLCJAWA, but each entity adopting the Resolution retains its right to come to a final, independent conclusion regarding membership expansion;

NOW, THEREFORE, BE IT RESOLVED BY THE BOARD OF DIRECTORS OF THE CENTRAL LAKE COUNTY JOINT ACTION WATER AGENCY, LAKE COUNTY, ILLINOIS as follows:

SECTION 1: The Corporate Authorities of the CENTRAL LAKE COUNTY JOINT ACTION WATER AGENCY agree, by adopting this Resolution to engage in good-faith discussions regarding the expansion of CLCJAWA based upon the Current Principles appended to this Resolution as Exhibit "A".

SECTION 2: The parties engaging in these discussions recognize that additional engineering, financial, economic or legal considerations may require the modification or expansion of the Current Principles and each party understands that it possesses a free and independent right to make a final determination regarding the expansion of CLCJAWA and admission of new Members.

SECTION 3: This Resolution shall be in full force and effect upon its passage.

ADOPTED by the President and the Village Board of Trustees of the Village of Lake Zurich, Illinois, this 15th day of May 2023, pursuant to a roll call vote as follows:

AYES:
NAYS:
ABSENT:

APPROVED by me this ____ day of May, 2023

_____
Village President

_____
Village Clerk

EXHIBIT A

Central Lake County Joint Action Water Agency Membership Expansion Current Principles (Guidelines)

Governance:

1. The Village of Lake Zurich will join as a full member with all rights and privileges of existing members. This will result in one new member.
2. An Admission Agreement will bind the two parties.

Financial:

1. The Village of Lake Zurich will pay CLCJAWA capital buy-in fees of $2,973.00 per Lake Zurich housing unit (official census data) plus any additional housing units served by the Village's public water supply at the time of project completion.
2. The Village of Lake Zurich is responsible to finance the necessary capital improvement, to CLCJAWA's specification, to connect their system to the CLCJAWA system.
3. Payment of the capital buy-in fees may be staged over a 30-year period at 0.0% interest.
4. The Village of Lake Zurich and all parcels served by their public water supply, will be added to CLCJAWA's property tax district. The Agency currently has no general obligation bonds.

Miscellaneous Items:

1. CLCJAWA will only be responsible to provide a projected maximum day water demand based on the water demand schedule for Village of Lake Zurich of 3.4 million gallons per day.
2. The Village of Lake Zurich, as part of the infrastructure improvements required to connect to CLCJAWA's existing infrastructure will install:
    a. Tee-connections with a valve for possible looping or interconnections at key locations (to be determined).
    b. Needed improvements (or other compensation agreement with CLCJAWA) for the two existing Members who will experience a modeled maximum day pressure drop of 10 psi or greater.
3. The Village of Lake Zurich, as part of the infrastructure improvements required to connect to CLCJAWA's existing transmission system, will upsize the water mains one diameter size. The Village of Lake Zurich will be eligible for a recapture from any other new customers in the future.
4. Negotiate and agree on such other items as are critical to the installation, connection and completion of the Village of Lake Zurich infrastructure improvements required to connect to CLCJAWA's existing infrastructure to implement a fully functional water distribution system for the delivery of municipal water to the users in the Village of Lake Zurich.

PUBLIC WORKS DEPARTMENT

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At the Heart of Community

AGENDA ITEM 7C

Date: May 9, 2023

To: Ray Keller, Village Manager RK

From: Michael J Brown, Public Works Director

Subject: **Agreement with CDM Smith for services for- Financial Water Rate Analysis and Operational Audit and submittal of the Illinois Environmental Protection Agency State Revolving Fund Project Plan**

Issue: As the Village continues to assess the feasibility of transitioning to Lake Michigan Water as the community water source, a financial water rate and operational audit is required in order to submit a project plan to the Illinois Environmental Protection Agency (IEPA) State Revolving Fund (SRF).

Village Strategic Plan: This agenda item is consistent with the following strategic objective:

- **Infrastructure Investment**: Ensure a sustainable, healthy and economical water source for current and future Lake Zurich residents.

Background: On April 3, 2023 Village staff in a collaborative effort with CDM Smith and CLC JAWA provided a presentation to the Village Board that was broadcast live to the community, giving an overview of the proposed project phasing, infrastructure improvements, costs associated with providing Lake Michigan water to Lake Zurich and possible funding options.

The Executive Director of CLC JAWA presented a summary of the capital buy-in fee that is required to join the water agency and gave an overview of how the agency operates. The Board provided unanimous direction to Village staff to prepare a formal agreement to join CLC JAWA and proceed with the Lake Michigan water project.

Analysis: As part of the qualification process with the IEPA SRF fund, CDM Smith will develop a Project Plan for the Village of Lake Zurich to submit as the loan applicant for Village Infrastructure improvements related to the transition to Lake Michigan water.

The Project Plan will describe the Village water system and associated improvements, and will include the following information, as per the IEPA loan application standards per Illinois Administrative Code 35 Section 662.510 and Section 662.520. checklist:

- Background information including location, present and future service area, historical and future population, customer base, potential growth, and 20-year design population and customer base.
- Existing daily average and maximum water usage for the current population served, including water usage by customer class and the projected water usage over the planning period of 20 years.
- A description of the existing public water supply sources and treatment facilities along with a reccomended improvements at the treatment plants.
- A description of the existing public storage facilities among the group and a description of any additional storage requirements.
- A description of the existing distribution system including the adequacy of the distribution system and identification of the need for proposed projects.
- Identify any existing or possible future violations of Federal or State public water supply regulations among the groups.
- Discussion of the selected solution to address existing system deficiencies and needs of the water supply system.
- Detail cost estimates for the design and construction the selected alternatives including capital, operation and maintenance over 20 years.
- Provide the Basis of Design for the chosen alternative(s) and ability of the projects to comply with all applicable laws and regulations.
- Provide an inventory of environmental impacts and a discussion on how the negative impacts will be mitigated or minimized during construction. The environmental review will identify endangered species, historic sites, agricultural land, air and water quality, wetlands, floodplains and other sensitive environmental areas, which could be affected by project construction.
- An implementation plan will be provided for the projects including the approximate construction schedule, financial arrangements of the project to assure annual debt service payment including other funding sources for the projects.
- A detailed description of the existing rates and proposed rate changes as a result of the projects.

In addition to the project plan submittal, CDM Smith will develop a projection model that estimates total costs and revenue requirements for the Village's Water system for a ten-year period. The model will be structured to facilitate changes in economic and financial assumptions as well as shifts in capital funding sources and the timing of the projects. The model will be based on the Village's current budgets, historical increases in expenditures and sales as well as anticipated capital improvements including the proposed interconnection with CLCJAWA.

CDM Smith will also develop a baseline projection that assumes the Village continues as it currently operates as well as an alternative that reflects the proposed connection to CLCJAWA including infrastructure costs, connection/buy in fees, and any service fees related to the project.

Upon completion of the analysis, the results would be presented to the Village Board at a future public meeting with a submittal to the IEPA SRF anticipated to be by September 1, 2023.

Recommendation: Approve the agreement between the Village of Lake Zurich and CDM Smith for the Financial Water Rate Analysis and Operational Audit and submittal of the Illinois Environmental Protection Agency State Revolving Fund Project Plan to be funded through the water and sewer fund in the amount not to exceed $128,600.00

W/Attachments:
1) Proposal for services CDM Smith.

Lake Michigan Water Supply

Exhibit A - Scope of Services, Time of Performance, and Method of Payment

This Exhibit A to the Agreement between the Village of Lake Zurich, Illinois (LZ) and CDM Smith Inc. (CDM Smith) contains the scope of services, schedule, and fee, for financial analysis and IEPA SRF Project Plans related to the Central Lake County Joint Action Water Agency (CLCJAWA) Water Supply to the Village of Lake Zurich.

BACKGROUND

This Exhibit Scope of Services covers the IEPA SRF Project Plans to the Illinois Environmental Protection Agency (IEPA) for participation in the State Revolving Funds (SRF) for CLCJAWA and Village improvements. The IEPA SRF Plan for CLCJAWA improvements to serve the Village will be submitted and approved by CLCJAWA Board for reimbursement by the Village, but the fee is covered herein since it will be funded by the Village. This Scope of Services will also include financial analysis of the water system for the existing and new supply, which is a component of the IEPA project plan.

SCOPE OF SERVICES

The scope of services for this Project includes:

- Task 1 – Project Kickoff and Data Collection
- Task 2 – Project Plans for CLCJAWA and Village Improvements
- Task 3 – Respond to IEPA Comments on Project Plan
- Task 4 – Project Management
- Task 5 – Collect and Evaluate Data
- Task 6 – Develop Projection Model
- Task 7 – Evaluate Alternatives
- Task 8 – Presentation and Technical Memorandum

Task 1 – IEPA SRF Project Plan Kickoff and Data Collection

The ENGINEER shall coordinate a project kickoff with all parties to prepare the required documents for the IEPA Project Plans. This will be a kickoff with Village staff and CLCJAWA.

CDM Smith will also coordinate with the Village and CLCJAWA to collect the required information for the IEPA Project Plans.

Task 2 – Project Plan Preparation

CDM Smith will develop Project Plans for the Village and CLCJAWA - two the loan applicants, as part of the SRF loan qualification process. The Project Plan will follow Illinois Administrative Code 35 Section 662.510 and Section 662.520. The Project Plan will describe the Village water system and associated improvements, and will include the following information, as per the IEPA loan application checklist:

1. Background information including location, present and future service area, historical and future population, customer base, potential growth, and 20-year design population and customer base.

2. Existing daily average and maximum water usage for the current population served, including water usage by customer class and the projected water usage over the planning period of 20 years.
3. A description of the existing public water supply sources and treatment facilities along with a description of needed projects at the treatment plant.
4. A description of the existing public storage facilities among the group and a description of any additional storage requirements.
5. A description of the existing distribution system including the adequacy of the distribution system and identification of the need for proposed projects.
6. Identify any existing or possible future violations of Federal or State public water supply regulations among the groups.
7. Discussion of the selected solution to address existing system deficiencies and needs of the water supply system.
8. Detail cost estimates for the design and construction the selected alternatives including capital, operation and maintenance over 20 years.
9. Provide the Basis of Design for the chosen alternative(s) and ability of the projects to comply with all applicable laws and regulations.
10. Provide an inventory of environmental impacts and a discussion on how the negative impacts will be mitigated or minimized during construction. The environmental review will identify endangered species, historic sites, agricultural land, air and water quality, wetlands, floodplains and other sensitive environmental areas, which could be affected by project construction.
11. An implementation plan will be provided for the projects including the approximate construction schedule, financial arrangements of the project to assure annual debt service payment including other funding sources for the projects.
12. A detailed description of the existing rates and proposed rate changes as a result of the projects.

CDM Smith will work with Village staff to collect the above required information. CDM Smith's scope of work includes two meetings with the Village and CLCJAWA.

A separate IEPA SRF Project Plan for CLCJAWA improvements will be complete matching above scope. The cost of the IEPA SRF Project Plan for the CLCJAWA improvements in included herein, but will be contracted directly with CLCJAWA and paid for by the Village of Lake Zurich.

Task 3 – IEPA SRF Coordination

The ENGINEER will respond to comments on the Project Plans from the IEPA. A maximum of two rounds of comments will be answered by the ENGINEER as part of the proposal. We have also budgeted for one face-to-face review meeting with IEPA.

Task 4 – Project Management and Coordination

The ENGINEER will manage the project to coordinate the work effort and gather information from CLCJAWA and the Village. The following activities will be performed:

1) ENGINEER will hold a project kickoff meeting to be attended by CLCJAWA and the Village. The kickoff meeting will discuss information and data available from CLCJAWA and the Village for completion of the Project Plans, determine individuals who will provide the information, and set a schedule.

2) Meet with CLCJAWA and the Village to gather information for the Project Plans.

3) Complete draft of Project Plans for review by the Village and CLCJAWA.

4) Finalize Project Plans incorporating comments.

Task 5 – Rate Analysis Data Collection Review

CDM Smith will provide the Village with a data request of information required to perform this work. The request will include revenue and expenditure history, current operating and capital budgets, debt service, and customer profiles. Approximately, one week after receiving the data, we propose to have a conference call to review data and resolve any issues we identify with the data.

We would also propose to discuss in that meeting the basic assumptions for developing ten-year revenue requirement and rate projections for the Village. The key assumptions will include capital and operating inflation rates, capital financing—sources and terms, and customer growth. Data will also be required for any information on the costs to connect to CLCJAWA and current and ongoing fees that the Village would pay if connected. These assumptions will drive our baseline projections.

Task 6 – Develop Projection Model

CDM Smith will develop an Excel projection model that estimates total costs and revenue requirements for the Village's Water system for a ten-year period. The model will be structured to facilitate changes in economic and financial assumptions as well as shifts in capital funding sources and the timing of the projects. The model will be based on the Village's current budgets, historical increases in expenditures and sales as well as anticipated capital improvements including the proposed interconnection with CLCJAWA. CDM Smith will develop a baseline projection that assumes the Village continues as it currently operates. We will then develop an alternative that reflects the proposed connection to CLCJAWA including infrastructure costs, connection/buy in fees, and service fees charged by CLCJAWA.

Task 7 – Evaluate Alternatives

CDM Smith will develop a baseline projection that assumes the Village continues as it currently operates. We will then develop an alternative that reflects the proposed connection to CLCJAWA including infrastructure costs, connection/buy in fees, and service fees charged by CLCJAWA. CDM

Smith will develop [ten] year projections of expenses, revenue requirements and rates for two alternatives:

- Assuming the continuation of water production and delivery as is done currently. This will include current expenses and an allowance for future capital improvements and renewal and replacement needs.
- Assuming a connection to CLCJAWA and the replacement of the Village's current water production and treatment facilities.

We will review these projections with Village staff and based on those discussions undertake up to two iterations to the initial projections. CDM Smith proposes to have a follow up review meeting to review the modified projections and determine which seems most appropriate.

Task 8 – Presentation and Technical Memorandum

CDM Smith will draft a technical memorandum summarizing the methodology and results of the financial analysis. Upon receiving comments from the Village, CDM Smith will modify the memorandum as appropriate and finalize. CDM Smith will also present the results to the Village Board.

Assumptions:

The ENGINEER has made the following assumptions pertaining to the Scope of Services:

- The Village and CLCJAWA will provide the requested information for the project plan, including financial data and other required information.
- The IEPA project plan effort is limited to the environmental checklist and a desktop review. If IEPA or other environmental agencies require additional investigations, those are assumed to be completed in a subsequent phase.
- One public hearing is assumed as part of this effort meeting the requirements of IEPA for project planning approval. A separate public hearing is assumed for the CLCJAWA improvements to serve the Village.
- Financial analysis covers the water system only – the Village will provide an allocation of budgetary and historical expenses for water system.
- Projections of water rates will be provided by CLCJAWA and the Village.

SCHEDULE / TIME OF PERFORMANCE

The time periods for the performance of ENGINEER's services are as follows:

- The Project Plan will be submitted within three months of the Notice to Proceed.
- The financial analysis will be completed within three months of receipt of required data/information.

FEE / METHOD OF PAYMENT

For the Basic Services described herein, the OWNER agrees to pay the ENGINEER on a time and materials basis for a Not to Exceed fee of $128,600. Invoices will be submitted on a monthly basis consistent with work performed for above tasks. This fee includes both the IEPA SRF Plan for Village improvements and the IEPA SRF Plan for CLCJAWA improvements to serve the Village of Lake Zurich.

COMMUNITY DEVELOPMENT DEPARTMENT
Building and Zoning Division

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Lake Zurich, Illinois 60047

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At the Heart of Community

AGENDA ITEM 7d

MEMORANDUM

Date: May 15, 2023

To: Ray Keller, Village Manager RK

From: Sarosh Saher, Community Development Director

CC: Roy Witherow, Assistant Village Manager
Mary Meyer, Building Services Supervisor
Tim Verbeke, Planner

Re: Courtesy Review – 442 South Rand Road
Quick Service Restaurant – Chipotle Mexican Grill

Issue: Mr. Joseph Goodman, representing the owners and developers of the property, Terraco Inc, is proposing the development of the vacant outlot at 442 South Rand Road, also referred to as Lot 1 of Route 12 and Main Resubdivision. The outlot is currently improved with one of the three parking lots that serve the assemblage of lots at this corner and was recently created through a resubdivision of the property.

Terraco proposes to construct a new quick service restaurant with drive-through pick-up lane to be operated by Chipotle Mexican Grill ("Chipotle").

Village Strategic Plan: This agenda item is consistent with the following objectives under Goal #2 – Development:

- Continue Rand Road Corridor Development
- Expand the Village's role as a major regional economic hub in Lake County
- Become more business friendly and customer oriented.

Background: The property comprises of an irregularly shaped parcel with a total land area of 1 acre. It is currently improved with a parking lot. It has approximately 271 feet of frontage along IL Rt 22 and approximately 284 feet of frontage along Rand Road, making it highly visible to passing vehicular traffic. The outlot was part of a larger property containing a three-story office building that housed the Chase Bank and other offices. In April 2022, approval was granted to the previous owners to subdivide this property thereby creating the outlot. Reasons cited for the subdivision were to accommodate the sale of the existing office building site and to create a separate outlot with the potential to be developed in the future.

Current Proposal

The proposed development will consist of a new 2,370 square-foot freestanding building to accommodate a quick service restaurant with pick up lane and patio. The restaurant will be operated by Chipotle. The building will include finishes in brick and EIFS in keeping with the Chipotle brand. The site will be minimally disturbed by keeping most existing curbing/parking, but update the corner with a new building in an otherwise vacant parking lot.

The property has vehicular access from both Rand Road & IL Route 22. The existing access points to the property are proposed to be maintained in their current configuration thereby removing the need for access permits from IDOT.

The purpose of the pick-up window is to expedite mobile ordering and create a smoother service and customer flow. Chipotle maintains that over 50% of sales are online orders. The pick-up lane will not require drive-thru speaker boxes or other bulky signage components.

The Applicant is requesting feedback from the Village Board to consider a special use permit to allow for the drive-through pick-up window and an outdoor seating area.

Analysis: Staff offers the following information for the Village Board to consider as it relates to the proposed development:

1. **Land Use.** The proposed land use – Eating places (5812), is a permitted use in the B-3 district. The accompanying drive-through pick-up lane and outdoor seating area are special uses.

   Chipotle Mexican Grill, Inc. is a leading quick serve restaurant with over 3,000 locations worldwide. Hours of operation vary, but most are open daily from 10:45 a.m. to 10:00 p.m. A typical restaurant will employ approximately 20-30 employees with a minimum of 6-7 employees working on the premises at any given time.

2. **Prior Zoning Approvals and Conditions.** The property is zoned within the B-3 Regional Shopping Business District. It was developed under the requirements of a Planned Unit Development (PUD) in 1980 and 1981 under Ordinances No. 1002-80 and No. 1048-81, and further amended in 1984 through Ordinance No. 84-05-117. The PUD provided for the development of the property consisting of 4 lots – Lots 1 and 2 at 444 S Rand Road (Chase Bank and other offices), Lot 3 at 561 W Rt 22 (Consume, Grand Dental, ATI Fitness) and Lot 4 at 466 S Rand Road (D&J Bistro, Orange Theory, Asurion Tech Repairs, etc.). The PUD provided entitlements for setbacks, parking, landscaped areas and building location, design and operation among other requirements. Such development was contemplated to be able to maximize the use and operation of the property and its amenities.

   In 2022, the Subject Property outlot was created by means of the Route 12 and Main Resubdivision. Conditions that accompanied this subdivision were as follows:

- Future new development contemplated on Lot 1 of Route 12 and Main Resubdivision shall only be approved through an amendment of PUD Ordinances No. 1002-80 and No. 1048-81, and further amended through Ordinance No. 84-05-117. Such amendment will require submittal of a complete development plan in accordance with the provisions of the Lake Zurich Municipal Code, with requested departures or modifications to the codes, mitigation measures or compensating amenities to be approved by the Village Board following the consideration and recommendations of the Planning and Zoning Commission (PZC).

The proposed development of the lot with the new quick serve restaurant will need to conform to these requirements.

3. **Building Design and Materials.** The building will be constructed in masonry using dark colored brick with a lighter colored horizontal band constructed in EIFS (synthetic stucco). Graphics will be located on three elevations since the property has high visibility on three sides.

4. **Parking and on-site circulation.** The Applicant currently has a "Declaration of Access, Easements and Restrictions" that allow for the two properties within the resubdivision (the subject outlot and the lot with the 3-story office building) to be used collectively for cross access and parking. Further, the strip center to the east, is also under the unified control of the same ownership entity and shares parking with the office building lot. There are currently 263 parking spaces available for use on these combined properties, which is greater than the 189 spaces required by code.

   Upon completion of the development, the new restaurant on the outlot will have 46 spaces. The three lots will then have the use of 219 parking spaces. Due to the staggered peak demand for parking on these properties, the parking will be adequate for all uses on these lots.

5. **Zoning Relief Requested.** The developer is requesting the following zoning relief and approval to be able to develop the property in the manner that is currently proposed:
   a. Special Use Permit for a modification to the Planned Unit Development (PUD) that currently exists for the property.
   b. At this time, a shortfall of 16 parking spaces is identified. However, the developer believes that staggered peak demand for parking on these properties will not create an undue burden on the property. This shortfall will need to be considered and approved through a modification from the requirements of the zoning and land development code.

Recommendation: The developer and staff seek to understand the Village Board's preferences towards the proposed development of the property. Staff therefore recommends that the Village Board provide feedback on the proposed development and highlight any further areas of concern to the developer on the above listed issues.

Next Steps: The developer has indicated that if positive feedback is provided by the Village Board, they would move forward with application to the Planning and Zoning Commission (PZC). The developer intends to present their application to the PZC in June.

Following a recommendation from the PZC, the proposal will need to be brought before the Village Board for consideration and approval of ordinances for the PUD amendment.

Attachments:

- Exhibit A – Proposal narrative, consent of property owner and development concept plans
- Exhibit B – Aerial Map

TERRACO
Real Estate Development & Management

TERRACO, INC.
3201 Old Glenview Road, Suite 300
Wilmette, IL 60091

Main: 847.679.6660 Direct: 847.906.5023
JGoodman@TerracoRealEstate.com
www.TerracoRealEstate.com

April 26, 2023

Sarosh Saher
Community Development Director
Village of Lake Zurich
505 Telser Road
Lake Zurich, IL 60047

Re: Courtesy Review Presentation
Rand Road & Route 22-Chipotle Development

Dear Mr. Saher,

On behalf of the owner, SA 444 Rand LLC, SG 444 Rand LLC and DP 444 Rand LLC, Terraco, Inc (Developer) is pleased to present a development proposal for the Southeast corner of Rand Road & Route 22. The subject property currently serves as a seldom used parking lot adjacent to the office building located at 444 S. Rand Road and is located within a newly subdivided lot. The project will require an amendment to an existing PUD which comprises four total lots.

The proposed development will consist of a new freestanding building that is approximately 2,370 square feet which will accommodate a Quick Serve Restaurant w/ a Pick up lane and Patio. Work includes, but is not limited to, site work, building envelope and future interior building out. It will include equipment and finishes to brand as a Chipotle. The site plan and subsequent information being provided at this location prioritized minimal site disturbances by keeping most existing curbing/parking, an updated corner appearance including a new building in an otherwise vacant parking lot. The property can be accessed from both Rand Road & Route 22 and all required utilities are on or near the property. Careful consideration was taken to not disrupt any existing ingress or egress.

The building will be comprised of brick with an EIFS band. The decision behind our proposed exterior materials is based on Chipotle's trademark/branded standards, village code, and surrounding buildings (in our zoning district) at all corners. Most customers recognize the trademark color/material scheme, and we would prefer to not deter from Chipotle's brand when at all possible, but also take into consideration the existing buildings throughout Lake Zurich. We are proposing to blend within our surrounding buildings and have provided examples of buildings located adjacent to us, as well as in our zoning district, that have similar aesthetics. EIFS is a synthetic version of stucco, which ends up being more versatile and durable. It is more flexible than traditional stucco, which results in less cracking over time. Appearance wise – they virtually look identical.

The proposed pick-up lane is strictly for online orders that have been pre-ordered through a mobile app; a modern spin on the traditional drive-through experience and stacking is minimal.

The pick-up window helps expedite mobile ordering and creates a smoother service and overall Chipotle customer flow. Over 50% of sales are online orders. Our site components are minimal and do not require drive-thru speaker boxes or other bulky components.

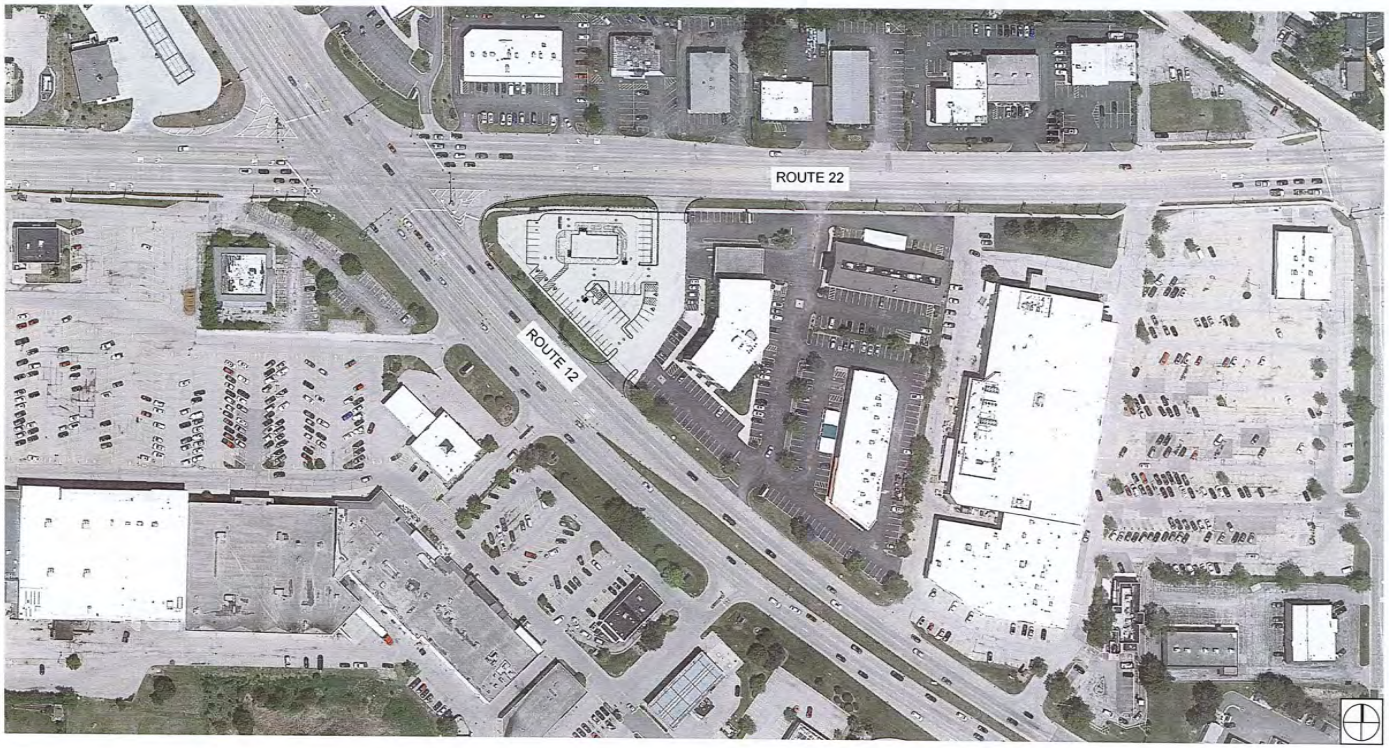
Our proposed Tenant, Chipotle, is a leading Quick Serve Restaurant with over 3,000 locations worldwide. Hours of operation vary, but most are open daily from 10:45 am to 10:00 pm. A typical Chipotle will employe approximately 20-30 employees with a minimum of 6-7 employees working at any given time.

We appreciate the opportunity to present our project to the Village Board and look forward to bringing a high-quality development to Lake Zurich.

Sincerely,

Joe Goodman
Terraco, Inc.

CR W. MAIN STREET AND S. RAND RD. - LAKE ZURICH, IL

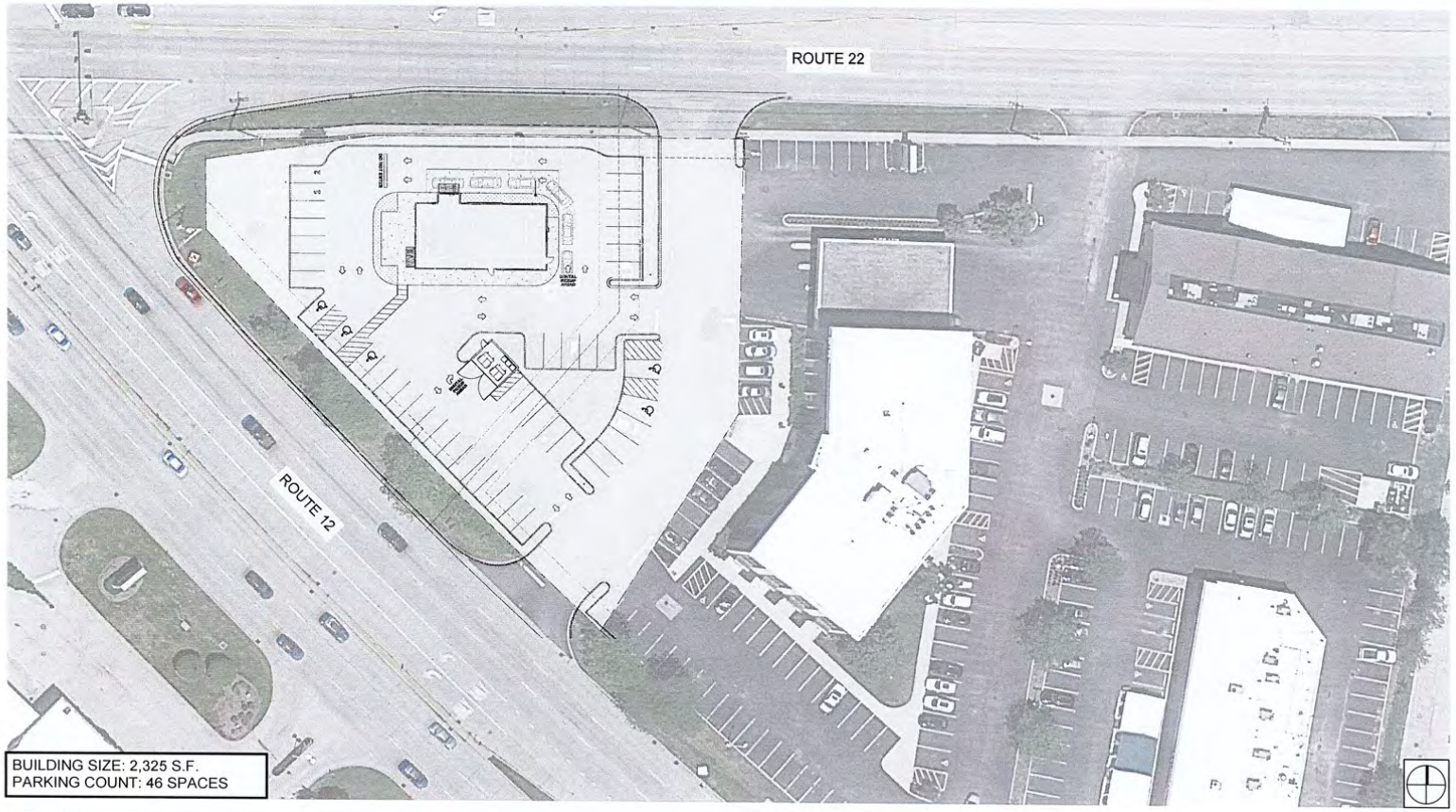


WILKUS ARCHITECTS

vicinity plan

04/28/2023
Page 01

CR W. MAIN STREET AND S. RAND RD. - LAKE ZURICH, IL

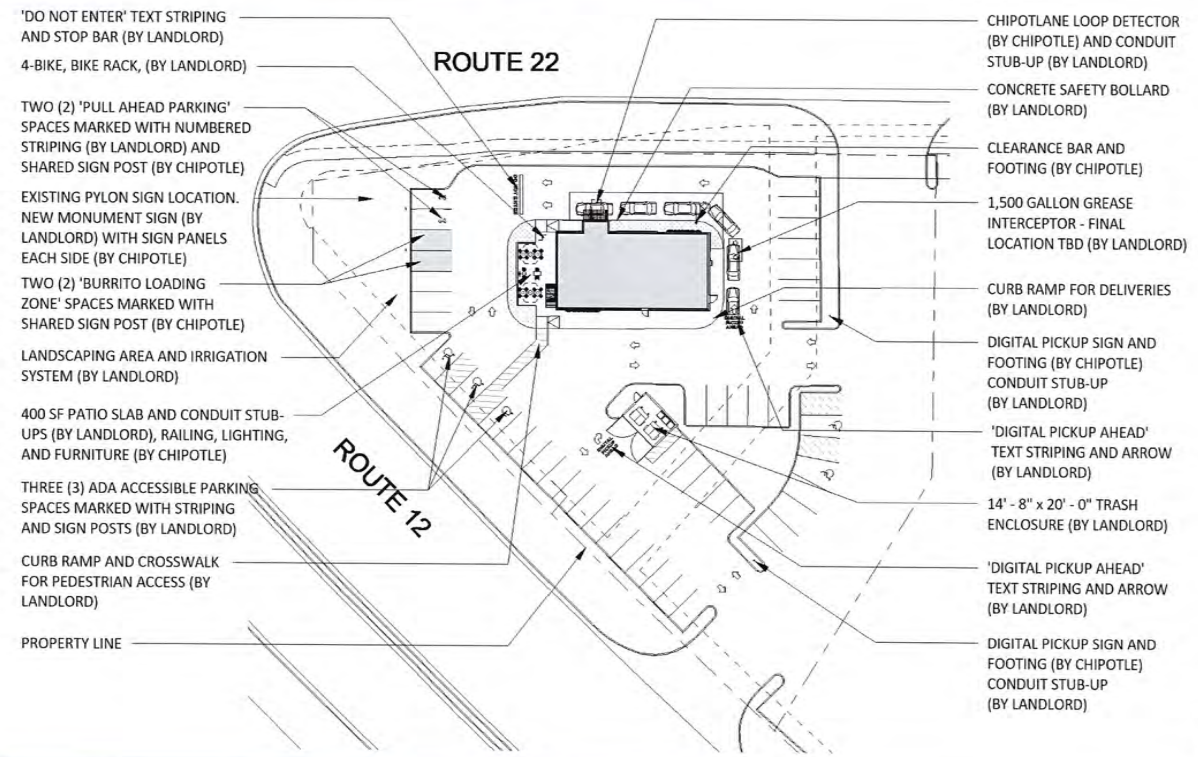


WILKUS ARCHITECTS

site plan

04/28/2023
Page 02

CR W. MAIN STREET AND S. RAND RD. - LAKE ZURICH, IL



WILKUS ARCHITECTS

site plan

04/28/2023
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CR W. MAIN STREET AND S. RAND RD. - LAKE ZURICH, IL
WILKUS ARCHITECTS
NEIGHBORING EXTERIOR MATERIALS
04/28/2023
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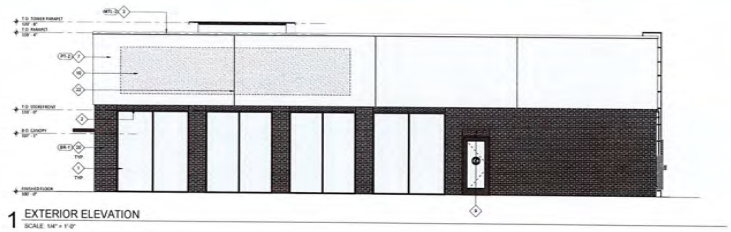
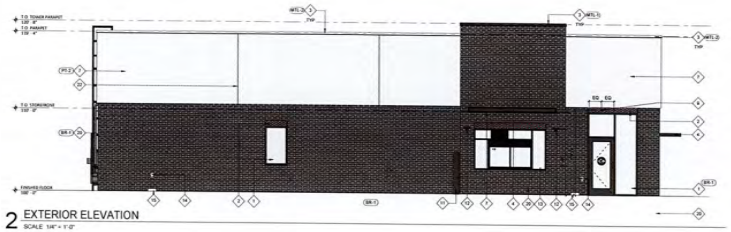
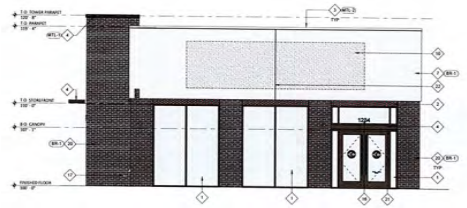
CR W. MAIN STREET AND S. RAND RD. - LAKE ZURICH, IL



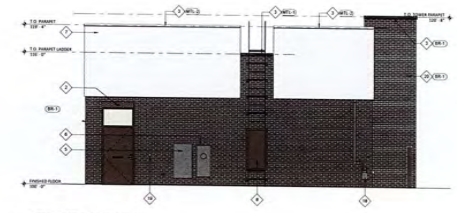
1 EXTERIOR ELEVATION
SCALE: 1/4" = 1'-0"



2 EXTERIOR ELEVATION
SCALE: 1/4" = 1'-0"



3 EXTERIOR ELEVATION
SCALE: 1/4" = 1'-0"



4 EXTERIOR ELEVATION
SCALE: 1/4" = 1'-0"

EXT. ELEV GENERAL NOTES

KEYNOTE LEGEND

1	THERMALLY BROKEN ANODIZED ALUMINUM STOREFRONT SYSTEM WITH 1" INSULATED GLAZING - CAULK AROUND ENTIRE PERIMETER OF OPENINGS.
2	FACE BRICK VENEER - GOLDEN CURRIE
3	24 GAUGE PREFINISHED METAL COPING.
4	PREFINISHED METAL CANOPY.
5	ELECTRICAL FUSED DISCONNECT SWITCH
6	ELECTRICAL METER
7	STUCCO - REFER TO MANUFACTURER'S RECOMMENDATIONS FOR ADDITIONAL INFORMATION
8	EXTERIOR ROOF LADDER WITH LOCKING GATE
9	EXTERIOR EMERGENCY LIGHT (EX).
10	HATCHED AREA INDICATES EXTENTS OF BLOCKING TO RE: PROVIDED BY GENERAL CONTRACTOR - PROVIDE ELECTRICAL ACCESS AS REQUIRED - COORDINATE ADDITIONAL REQUIREMENTS WITH TENANT SIGNAGE VENDOR
11	8" CONCRETE SAFETY BOLLARD - PAINT 'KNIGHTS ARMOR'
12	WALL PACK LIGHT (EX)
13	PREFINISHED DARK BRONZE ALUMINUM PASS THRU WINDOW WITH INTEGRATED INTERIOR AIR CURTAIN, TRANSOM AND SIDELITES - CAULK AROUND ENTIRE PERIMETER OF OPENING.
14	STAINLESS STEEL CONI TOUNGE OVERFLOW ROOF DRAIN DISCHARGE
15	CONCRETE SPLASH BLOCK
16	VINYL BUILDING ADDRESS NUMBERS - COORDINATE REQUIREMENTS WITH AUTHORITIES HAVING JURISDICTION
17	FROST PROOF WALL HYDRANT
18	GAS METER
19	DOOR BELL - MOUNT BETWEEN 36" AND 48" ABOVE GRADE
20	FACE BRICK VENEER - RUNNING BOND
21	LED CHANNEL LIGHT (EX) - 96" IN LENGTH
22	STUCCO JOINT - REFER TO MANUFACTURER'S RECOMMENDATION FOR SPACING REQUIREMENTS

EXTERIOR FINISH SCHEDULE

FINISH	MATERIAL	COLOR	REMARKS
BR-1	4" BRICK VENEER	VELOUR IRONSPOT MINIMIXSE	
MTL-1	PREFINISHED METAL COPING	PPG #1001-8 "KNIGHTS ARMOR"	
MTL-2	PREFINISHED METAL COPING	PPG #1001-2 "TOAST"	TO MATCH ADJACENT FINISH
PT-1	PAINT	PPG #1001-8 "KNIGHT'S ARMOR"	SATIN FINISH
PT-2	PAINT	PPG #1072-2 "TOAST"	SATIN FINISH

WILKUS ARCHITECTS

CHIPOTLE EXTERIOR ELEVATIONS

04/28/2023
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CR W. MAIN STREET AND S. RAND RD. - LAKE ZURICH, IL

STREAMWOOD, IL

STREAMWOOD, IL

EIFS / METAL COPING:
PPG 1010-2 'FOG'

BRICK:
MANGANESE IRONSPOT,
VELOUR

STOREFRONT:
ARCH-FAB 'CHARCOAL'

WILKUS ARCHITECTS

PHOTO REFERENCES

04/28/2023
Page 06

Lake County, Illinois

Lake County, Illinois

LakeCounty

Map Printed on 5/5/2023

N

Tax Parcel Lines

Tax Parcel Information

Disclaimer: The selected feature may not occur anywhere in the current map extent. A Registered Land Surveyor should be consulted to determine the precise location of property boundaries on the ground. This map does not constitute a regulatory determination and is not a base for engineering design. This map is intended to be viewed and printed in color.

VILLAGE MANAGER'S OFFICE

MONTHLY INFORMATION REPORT

APRIL 2023

HIGHLIGHTING DATA METRICS
TO IDENTIFY OPERATIONAL TRENDS
AND
FACILITATE INFORMED DECISION MAKING

70 E. MAIN STREET
LAKE ZURICH, IL 60047

A Look Back at April 2023…

Industrial TIF Redevelopment

Our April 17, 2023, the Village Board approved its first industrial TIF development agreement with JGS Lake Zurich West. The Industrial TIF District was created in January 2023 by the Village Board (*after the unanimous review and approval of the Joint Review Board and all Village Trustees*) for the purpose of providing a long-term funding mechanism for infrastructure improvements and supporting industrial business expansion-modernization efforts.

JGS Lake Zurich West is a component of Geremarie, a company that has been operating in the Lake Zurich industrial park manufacturing aluminum components for 20+ years. Since its initial decision over 20 years ago to be in Lake Zurich, Geremarie has built several additions to the building as it has seen increased demand for its product.

The approved redevelopment agreement allows for the implementation of a new manufacturing line at 550 Enterprise Parkway, which would increase the overall investment in the community and create 8 – 10 full time positions.

The approved redevelopment agreement allows for a multi-year reimbursement of a portion of the increased property taxes (*the increment*) attributable to this expansion project. All other TIF increment generated each year from this new industrial building will go into the fund balance of the Industrial TIF District to be used for future funding of industrial infrastructure, such as stormwater management, water and sanitary sewer main replacements, and road resurfacing.

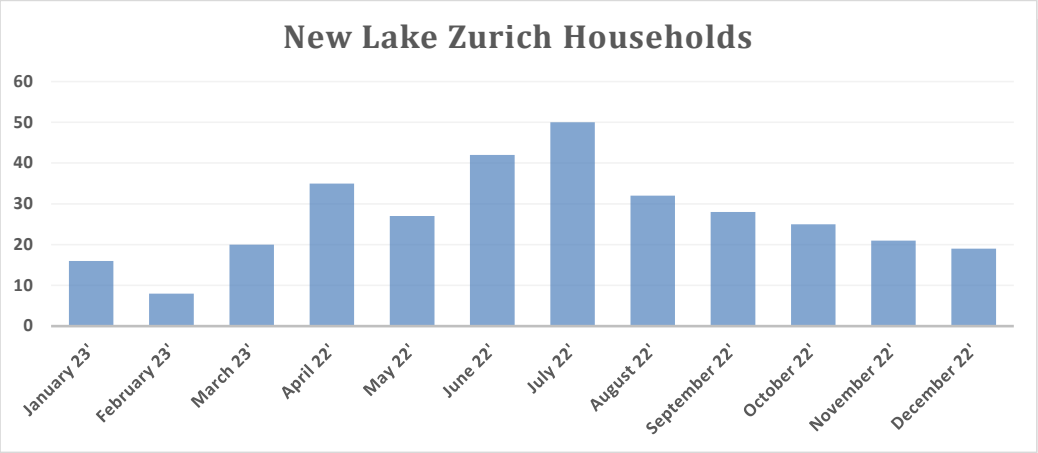
Comprehensive Plan Update

Lake Zurich's comprehensive plan was last updated in 2003 and needs updated so that Lake Zurich can maximize its reputation as being a safe community where families want to raise children and businesses want to operate. A request for proposals was launched in January 2023, resulting in two proposals to consider. Both proposals include a process of community assessment, engagement, analysis, visioning, goals, community branding, and plan preparation. However, one proposal is $33,000 less expensive than the other. Therefore, in April 2023, the Board approved Teska Associates as the selected consultant to lead this process.

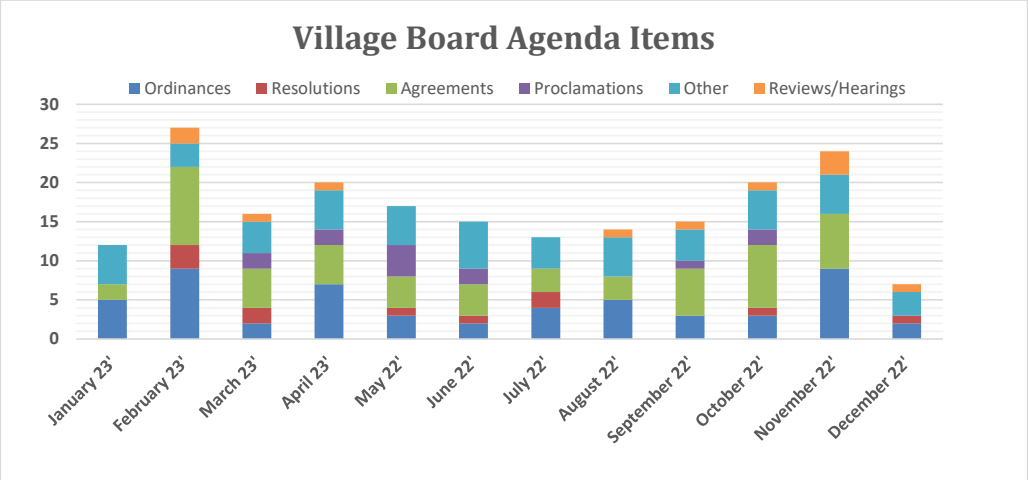
Updating the comprehensive plan in earnest will start in July 2023 and continue with much community engagement all year and into 2024.

Midlothian Manor Property Annexation

In April 2023, an application for annexation zoning and development of the property was submitted by Housing Opportunity Development Corporation (HODC). The submittal is being reviewed and is likely to be scheduled for a Planning and Zoning Commission Public Hearing in June.



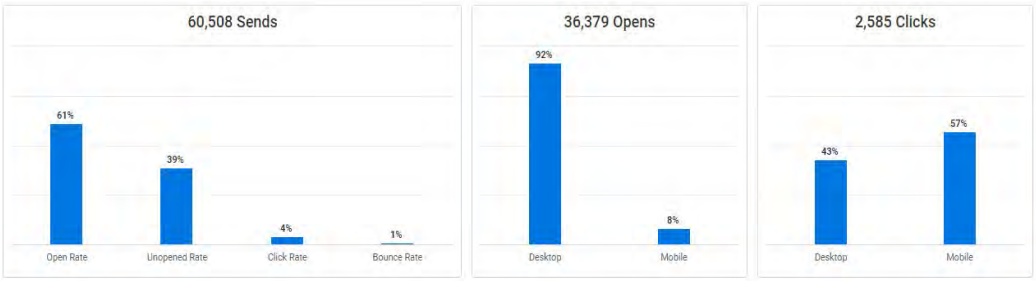
This metric shows the number of new residential homes occupied. Each month, staff sends new Lake Zurich residents a Village welcome packet that provides valuable information to those who are not familiar with the Lake Zurich area or the services offered by their local government. This metric does not include tenets in rental units, but only new single residential owners.



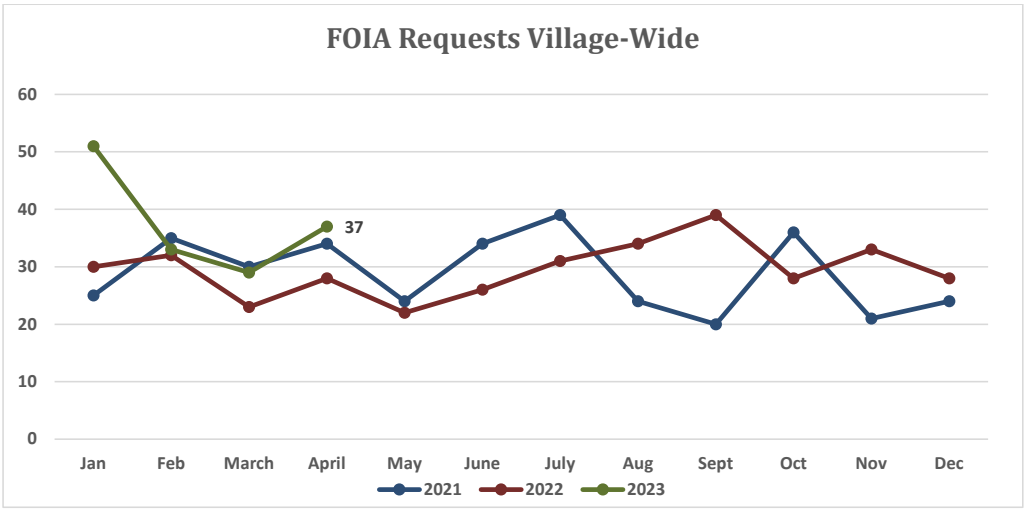
This metric shows the number of action items included on Village Board meeting agendas. As the local legislative governing body, the number of items acted upon by the Village Board has a direct input on Lake Zurich's strategic orientation. This data can be useful in decisions regarding meeting frequency, legislative workload, agenda preparation, activity levels, etc.

Average length of regular April Village Board meetings: 1 hour and 40 minutes

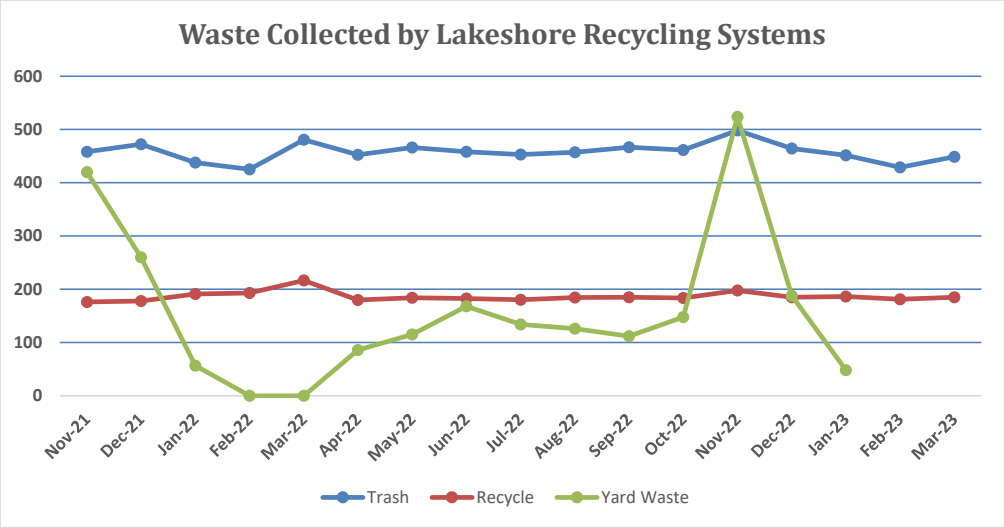
Benchmarks Engagement



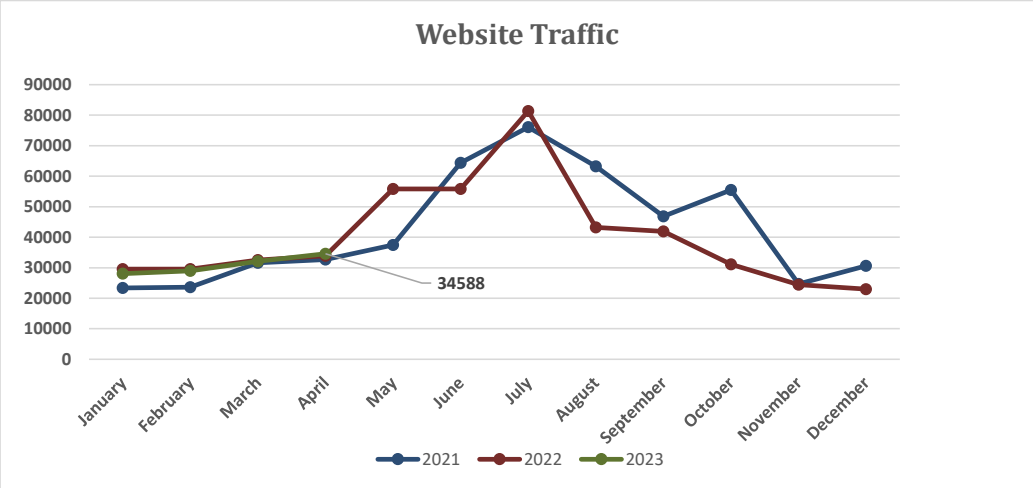
Benchmarks is the official Village e-newsletter that is a central communication device for the community. This graph shows *Benchmarks* rates over the past month. From an initial subscription rate of 756 in July 2013, *Benchmarks* now has over 6,000 subscribers.



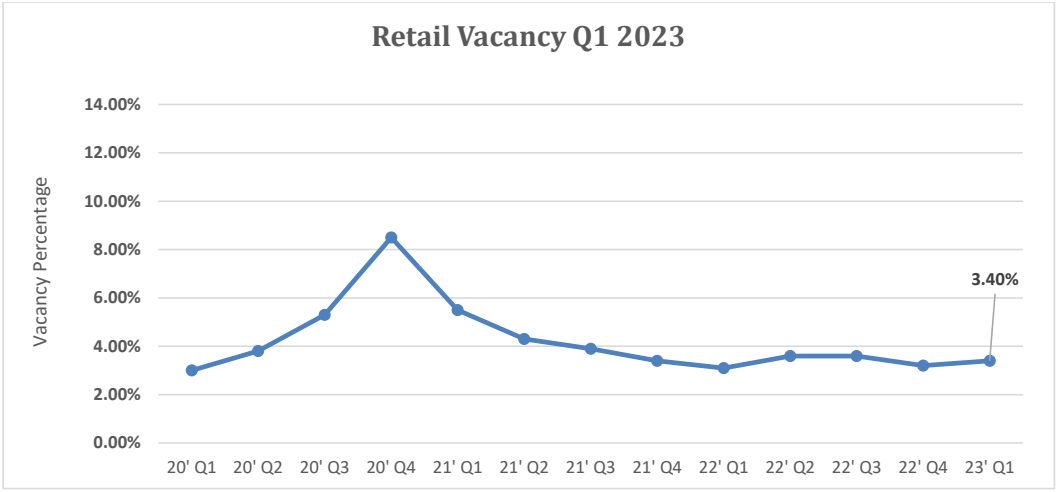
Open and honest government is a cornerstone of American democracy. The Freedom of Information Act is intended to ensure that members of the public have access to information about their government and its decision-making processes. This graph includes all of the FOIA requests received Village-wide among all departments.



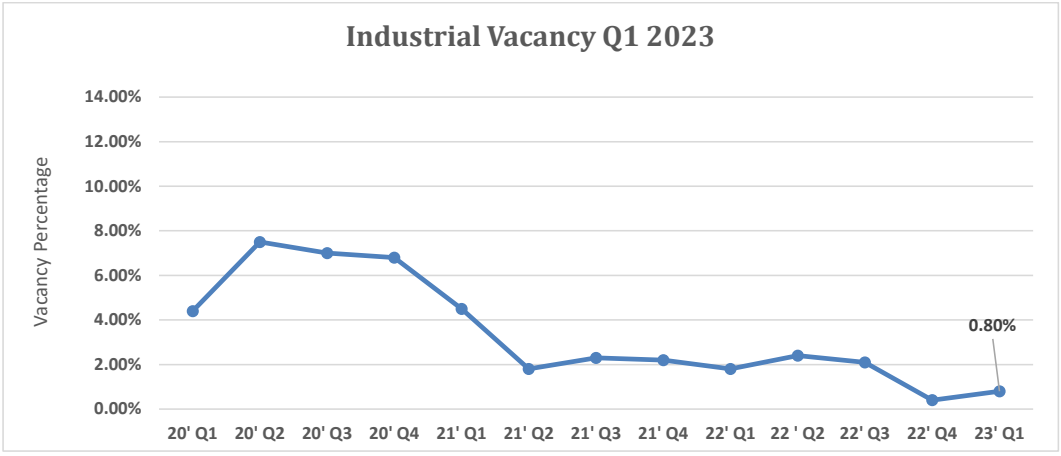
Prairieland Disposal began service to Lake Zurich in September 2020. Lakeshore Recycling Systems (LRS) took over service in October 2021. The above metric reports the volume of waste collected each month including trash, recycling, and yard waste. This metric is updated once per quarter. *Trash* and *Recycling* is reported in tons while *Yard Waste* is reported in cubic yards.



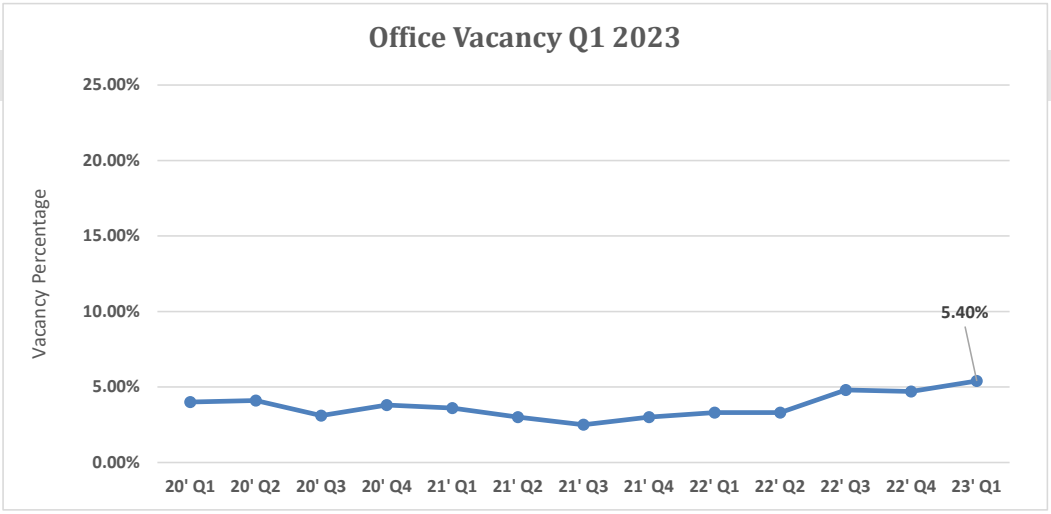
This data represents the number of visits to LakeZurich.org. A digital presence for Lake Zurich is important for government transparency and providing resident-oriented service. E-government can also improve the overall democratic process by increasing collaboration with citizens and facilitating decision-making. This metric tracks the number of visits to LakeZurich.org. **Most Visited Page for April: Parks and Rec**



The Lake Zurich retail vacancy rate increased in the first quarter of 2023 from 3.2% to 3.4% vacant compared to the fourth quarter (*based on Lake County Partners data*). As of March 31, 2023, there was 89,193 square feet of retail space reported vacant in Lake Zurich, with average rates at $17.19 per square foot (nnn).

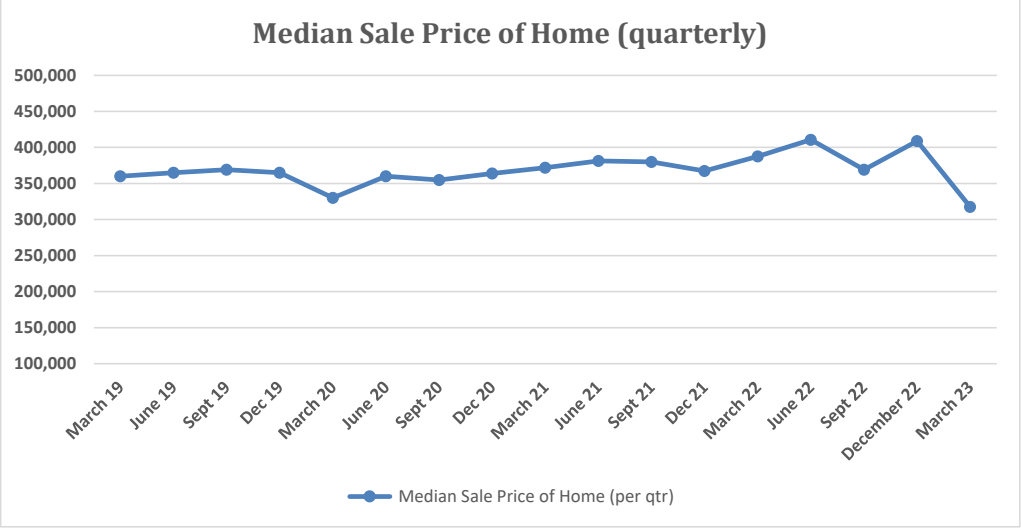


The Lake Zurich industrial vacancy rate increased to 0.8% in Quarter 1 of 2023 compared to Quarter 4 when 0.4% was reported vacant (*based on Lake County Partners data*). As of March 31, 2023, there was 45,991 square feet of industrial space reported vacant in Lake Zurich, with average rates at $6.95 per square foot (nnn).



The Lake Zurich office vacancy rate increased to 5.4% in Quarter 1 of this year compared to Quarter 4 at 4.7% vacant (*based on Lake County Partners data*). As of March 31, 2023, there was 21,416 square feet of office space reported vacant in Lake Zurich, with average rates at $26.59 per square foot (full service).

Real Estate Housing Trends – Residential Inventory



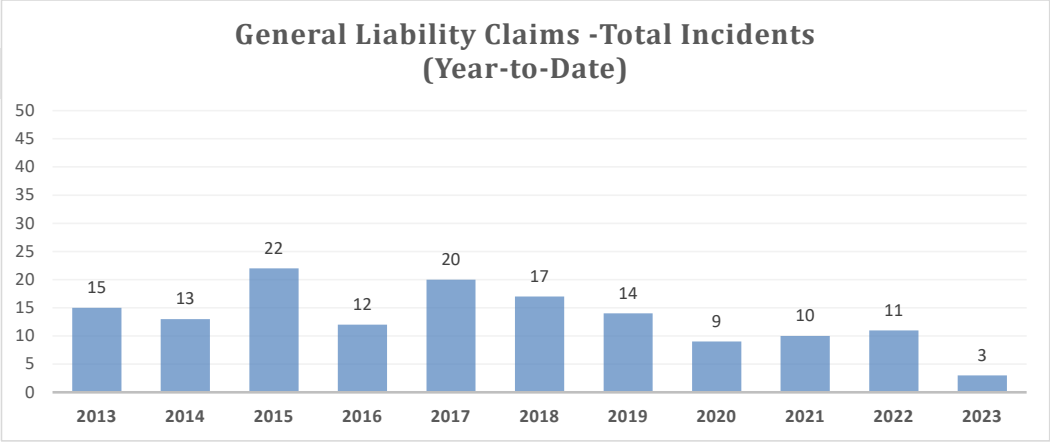
The chart *above* reports the recent trend for median sale price of Lake Zurich houses. The prices are reported by quarter.

The monthly snapshot *below* reports more details about the residential real estate market for the most recent month.

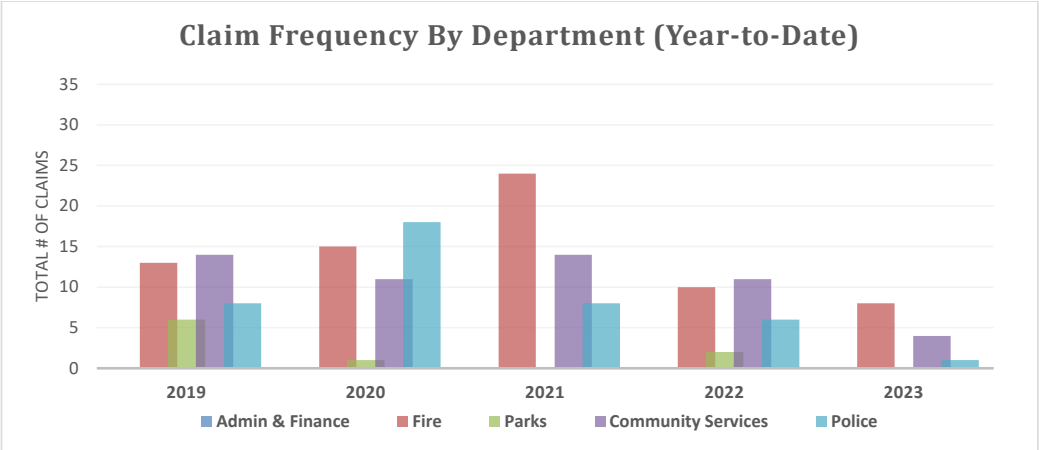
April Snapshot of Real Estate Trends

Homes Reported for Sale:	37
Median Sale Price:	$365,500
Median Days on Market:	56
Number of Homes Sold:	20

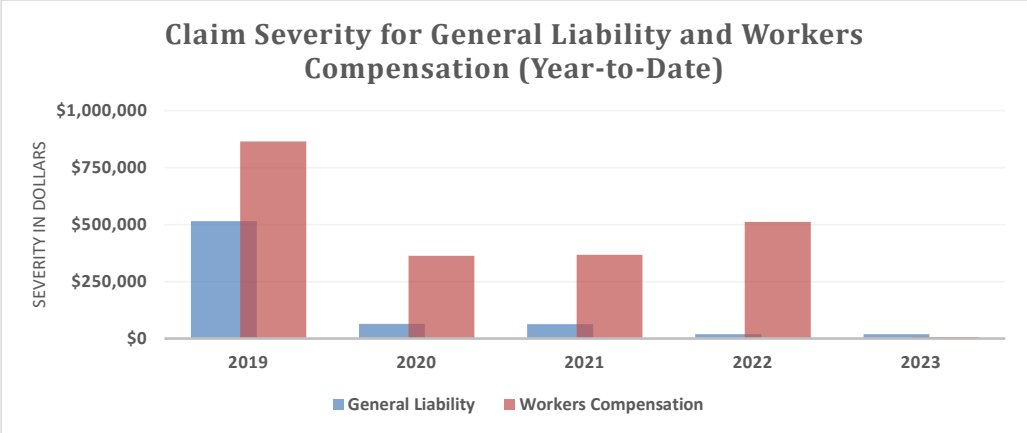
*Source: Redfin Corporation



Risk management insurance coverage is provided by the Intergovernmental Risk Management Agency, a risk sharing pool of approximately 70 local municipalities and special service districts, which have joined together to manage and fund their property/casualty/workers' compensation claims. This metric reports total General Liability claims (both open and closed claims) in all departments since January 1st.



Loss prevention programs and a culture of safety that encourages safe work practices will decrease claim frequency rates. This data shows the total number of claims by department updated quarterly, which is an aggregate number of the following claim types: Auto Liability, Auto Physical Damage, General Liability, Property Damage, and Workers Compensation. It is important to realize that Community Services is responsible for routine maintenance, so its general liability claims will naturally be high due to claims involving parkway trees, mailboxes, sidewalks, fire hydrants, the municipal fleet, etc.



This metric provides a snapshot of the Village's overall liability position, separated by General Liability Claims (such as property damage) and Workers Compensation Claims (such as medical bills and lost work-time). Fewer claims filed against the Village mean less money spent and improved financial stability. This data includes the total costs, including net property loss and any other associated expenses, such as attorney fees.

This metric shows the number of new hires over the past 12 months. Includes full-time, part-time, and seasonal employees. A large number of seasonal staff are hired each spring to accommodate parks and recreation programs and lifeguards for the beaches.

FINANCE DEPARTMENT

MONTHLY INFORMATION REPORT

MARCH 2023

HIGHLIGHTING DATA METRICS
TO IDENTIFY OPERATIONAL TRENDS
AND
FACILITATE INFORMED DECISION MAKING

70 E. MAIN STREET
LAKE ZURICH, IL 60047

DEPARTMENT NARRATIVE

During March, preparation for the annual audit and closing of the financial records for fiscal year 2022 were the primary activities outside of day-to-day operations. Auditors from Baker Tilly will spend two weeks in April working through the Village financials and policies. The Annual Comprehensive Financial Report (ACFR) will be presented to the Board in early summer once all adjustments are finalized.

GENERAL FUND OPERATING RESULTS

SUMMARY

For the month of March, revenues totaled $2.28 million and expenditures $2.93 million, resulting in an operating deficit of $656k. From a budget perspective, we had expected expenditures to exceed revenues by $80k. Year-to-date figures below represent the third month of activity for the year.

General Fund Operating Results

	Current Month Budget	Current Month Actual	Year-to-Date Budget	Year-to-Date Actual
Revenues	$ 2,024,017	$ 2,277,266	$ 6,275,553	$ 7,357,255
Expenditures	2,104,489	2,933,159	6,376,584	7,094,068
Excess (Deficiency)	**$ (80,472)**	**$ (655,893)**	**$ (101,031)**	**$ 263,186**

REVENUES

Following is a summary of revenues by type through March 31, 2023. These figures represent three months of financial activity. A more detailed analysis can be found on page 9.

`	Current Month's Budget	Current Month's Actual	% Variance	Year-to-Date Budget	Year-to-Date Actual	% Variance	% of Annual Budget
Taxes	$ 160,875	$ 175,201	8.9%	$ 550,998	$ 639,935	16.14%	5.9%
Intergovernmental	1,611,615	1,656,867	2.8%	4,761,423	4,988,018	4.76%	26.7%
Licenses & Permits	51,490	68,542	33.1%	302,042	375,617	24.36%	43.8%
Fines and Forfeits	37,587	32,264	-14.2%	111,314	104,688	-5.95%	24.3%
Charges for Services	151,868	243,509	60.3%	505,235	976,734	93.32%	41.2%
Investment Income	4,889	89,654	1733.9%	20,207	203,201	905.60%	101.6%
Miscellaneous	5,692	11,228	97.2%	24,334	69,061	183.81%	42.0%
Operating Transfers	0	0	0.0%	0	0	0.0%	0.0%
Total Revenue	$ 2,024,017	$ 2,277,266	12.5%	$ 6,275,553	$ 7,357,255	17.24%	21.9%

Taxes:

Revenues from taxes came in at $175k in March, exceeding budget expectations. While property taxes are received primarily June through September, the remaining revenues in this category contribute a significant amount of revenue each month all year round.

Telecommunications tax receipts were about 13% higher than expected for the month at $26k. That is 10% less than the amount received in the same month of the prior year. More information regarding Telecommunications tax can be found on page 12.

Utility taxes were mixed for the month. The gas utility tax had $76k in receipts compared to an expected $58k. Electric utility tax came in at $73k versus the expected $80k. Combined, utility taxes were 8% higher than expected. The payments are based primarily on February activity. More detail on the Utility Taxes can be found on page 13.

Intergovernmental Revenue:

Revenue from other governments totaled $1.66 million in March, which exceeded budget expectations for the category.

State sales tax receipts were above budget expectations for the month at $814k. This represents sales from December and was 9% higher than receipts from the same month last year. More information regarding Sales Tax can be found on page 14.

Income Tax receipts came in 3% above expectations with the receipts for March totaling $172k compared to an expected $168k. Details on Income Tax are provided on page 15.

Video gaming tax receipts came in 26% above budget expectations at $28k. Video gaming tax is received two months in arrears. The video gaming tax receipts budgeted for March relate to tax for January activity.

Licenses and Permits:

Revenue from the issuance of licenses and permits came in at $69k for March, 33% above budget expectations. Permit plan review ($15k), building permits ($12k), contractor registration ($10K), and electric permits ($10k) were the biggest contributors. Additional items included in license and permit revenue are fire operational permits ($6k), business licenses ($4k), and liquor licenses ($4k). Due to the variable nature of these types of revenues, fluctuations are expected throughout the year based on activity.

Fines and Forfeits:

Revenue from police fines came in below budget expectations during March, with receipts of $32k. The revenues in this category include various fines generated from police citations, such as red light and local ordinance violations.

Charges for Services:

Revenue from service charges totaled $244k in March. The main revenue sources in this category are ambulance, engineering fees and park program fees. As ambulance fees are based purely on activity and need, this revenue source can fluctuate considerably during the year. Ambulance receipts for the month were recorded at $130k. Engineering review receipts for the month were recorded at $39k. For park program fees, this is a combination of timing of receipts and fluctuating activity levels; receipts in March were below budget expectations at $39k.

Investment Income:

The General Fund investment income in March was $90k. Currently, the investments are concentrated in certificates of deposit, treasury obligations, and interest-bearing money market accounts. A detailed cash and investment report can be found on page 17.

Miscellaneous:

The General Fund miscellaneous revenue in March was $11k. Receipts for this category were rental income ($5k), a Home Depot rebate ($5k), and other small items.

EXPENDITURES

For the month of March, expenditures totaled $2.93 million for the General Fund, which was 39% above projections of $2.10 million. The table below presents a summary of General Fund expenditures by department as of March 31, 2023. Additional detail can be found on page 9.

Department Or Program	Current Month's Budget	Current Month's Actual	% Variance	YTD Budget	YTD Actual	% Variance	% of Annual Budget
Legislative	$ 5,432	$ 3,313	-39.0%	$ 24,121	$ 18,028	-25.3%	25.5%
Administration	$ 111,462	$ 154,753	38.8%	$ 261,273	$ 312,417	19.6%	20.5%
Finance	$ 41,533	$ 58,511	40.9%	$ 136,555	$ 148,614	8.8%	26.0%
Technology	$ 29,543	$ 79,115	167.8%	$ 136,614	$ 149,329	9.3%	31.1%
Police	$ 525,176	$ 696,155	32.6%	$ 1,596,580	1,745,912	9.4%	19.4%
Fire	$ 794,238	$ 1,113,169	40.2%	$ 2,493,000	2,710,618	8.7%	20.5%
Community Develop.	$ 66,806	$ 100,690	50.7%	$ 179,951	198,912	10.5%	18.8%
Public Works	$ 325,886	$ 385,835	18.4%	$ 940,452	988,667	5.1%	22.5%
Park & Recreation	$ 78,442	$ 180,752	130.4%	$ 230,127	338,968	47.3%	27.6%
Operating Transfers	$ 125,970	$ 160,868	27.7%	$ 377,911	482,604	27.7%	24.4%
Total	$ 2,104,489	$ 2,933,159	39.4%	$ 6,376,584	$ 7,094,068	11.3%	21.2%

OPERATING RESULTS OF OTHER FUNDS

Following are some observations regarding the revenues and expenditures of other funds. A financial summary of funds other than General is provided on pages 10-11.

Special Revenue Funds:

Motor fuel tax revenue came in at $81k in March, which was 33% above the budget of $61k. Conservative estimates for revenues highly sensitive to the economy, such as this one, allow for fluctuations later in the year. Expenditures from the Motor Fuel Tax Fund were $21k for electricity ($13k), and signs and signal maintenance ($8k).

March revenues for the Hotel Tax Fund totaled $7k. The revenue in this fund is a combination of hotel tax receipts and interest income. Per Village Ordinance #2003-10-252, hotel tax receipts are due

quarterly. Therefore, the village does not receive receipts each month. Expenditures of $9k were recorded for the month, most of which is a transfer to the Special Events Fund for the funding of special events.

The Special Events Fund allocates resources for special events and their corresponding expenditures. Revenues for March totaled $30k, which relate to funding transfers in from other funds ($28k), special event vendor fees ($1k), and event admission for Easter activities ($1k). Expenditures for the month totaled $42k, consisting of normal staff expenses ($18k), Fourth of July deposits ($20k), supplies for Rock the Block ($3k), and miscellaneous events ($1k).

Debt Service Funds:

The debt service funds record annual debt service payments for several of the village issuances. Revenues for the debt service fund are from interest and changes in market value of investments at this point in the year. Transfers from other funding sources will occur later in the year. Interest rates continue to be low for the options available for village investment per law. The expenditures recorded for March were $2k for paying agent fees.

Capital Projects Funds:

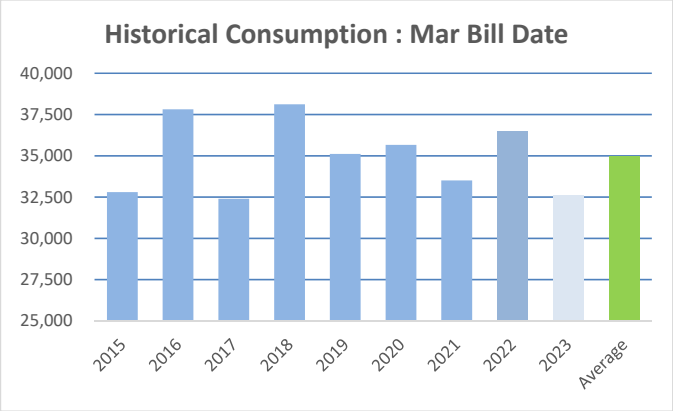
March revenue for the capital projects funds came in at $416k. The majority of the revenue was from Non-Home Rule Sales Tax (NHRST), with receipts from March of $276k. This was 6% higher than budget expectations and 11% higher than the same month last year. March receipts represent sales from December. More detail on the NHRST revenue can be found on page 16. Remaining revenues for capital project funds include funding transfers ($85k), interest income and change in market value of investments ($47k, the electric aggregation civic contribution ($6k), and tree replacement revenue ($2k).

Expenditures for capital projects were recorded in March of $53k, consisting of cross walk beacons ($18k), road resurfacing, ($16k), beet heet ($8k), Buffalo Creek streambank improvements ($7k), as well as other small items.

Water and Sewer Fund:

March revenue totaled $708k, which was 9% above the budget estimate of $651k. Consumption metered in March was 33M gallons, lower than the nine-year average of 35M gallons. The consumption billed in March primarily represents water metered in late February and early March. With about 40M

gallons pumped, about 18% of pumped water was lost to main breaks, fire department use, or other small issues. A chart comparing March water consumption over the past eight years provided below.



Expenses in the Water Fund were $565k for the month. Of this amount, $177k is a non-cash transaction to record deprecation of the infrastructure assets of the fund and $16k is for interest payments. The remaining expenses are personnel expenses, other operational items and other smaller operating items. Throughout the year, spending is monitored to ensure revenues are sufficient to cover operations and capital needs as necessary. Any annual surplus would be used for expenditures later in the year and provide cash flow for improvements to maintain the aging infrastructure.

Internal Service Funds:

Internal service funds are used to reserve resources for a specific purpose and to allocate the user charges accordingly. The village has three active internal service funds: Medical Self Insurance, Risk Management and Equipment Replacement. Revenues are a combination of user charges from other funds as appropriate. Expenditures fluctuate, depending on activity levels, particularly in the Risk Management Fund.

The Equipment Replacement fund in particular is subject to funding availability from the General Fund. March expenses include community room chairs ($14k), and non-cash depreciation expenses ($42k).

Special Service Areas:

While the village does not budget for Special Service Area (SSA) revenues and expenses, as funds are being collected and spent for village SSA's, the following information can be of value to report. The only expenses for special service areas in March were $8k for water quality management (SSA #8).

SSA Activity
Mar-23

SSA #	Location	Beginning Balance 1/1/2023	Year-To-Date Revenues	Year-To-Date Expenses	Ending Balance 12/31/2023	Annual Expected Revenues	YTD %		Annual Expected Expenses	YTD %	
SSA #8	Heatherleigh	54,659	-	8,000	46,659	9,697	0.00%		23,196	34.49%	
SSA #9	Willow Ponds	135,274	-	-	135,274	11,851	0.00%		19,300	0.00%	b
SSA #10	Westberry	17,990	-	-	17,990	1,000	0.00%		-	N/A	
SSA #11	Lake Zurich Pines	27,075	-	-	27,075	2,999	0.00%	a	2,163	0.00%	
SSA #13	Conventry Creek	223,208	-	-	223,208	29,894	0.00%	a	16,662	0.00%	
SSA #16	Country Club	(282)	-	-	(282)	1,760	N/A		-	N/A	
		457,923	-	8,000	449,923	57,202	0.00%		61,321	0.00%	

a) Flat amount levied per property.
b) At some point after enough funds have accrued, Willow Ponds will require dredging, estimated at $120,000+

Police and Firefighters' Pension Funds:

A snapshot of activity related to the public safety pension funds of the village is provided as part of the monthly report. It is important to note that a significant revenue source for both pension funds is the annual property tax levy, of which receipts are typically recorded between June and September of each year, affecting the cash flows of each fund.

The Police Pension Fund had total revenue of $458k for the month. For March, the fund recorded an unrealized gain of $396k from investments. Total municipal and member contributions for the month totaled $61k. Expenses for the month were $472k of which $460k was for pension and benefit payments, $5k was for insurance, and $7k was for professional services and investment expenses. For the month of March, the fund experienced a loss of $14k. As of March 31st, the fund had a net position of $29.4 million. Additional information can be found on page 18.

The Firefighters' Pension Fund had a similar month for investments, with an unrealized gain of $958k from investments. Total municipal and member contributions for the month totaled $85k. Total revenues for the month were $1.04 million. Expenses for the month were $235k, of which $226k was for pension and benefit payments, $3k was for professional services, and $6k was for investment and other

expenses. For the month of March, the fund experienced a gain of $807k. As of March 31st, the fund had a net position of $47.8 million. Additional information can be found on page 18.

Conclusion:

For the one fiscal period covered by this report, no major concerns were identified. Major revenue sources are performing within reason and expenditures have been kept to a minimum. We will continue to monitor revenues and expenditures closely throughout the coming months.

Respectfully Submitted,

Amy Sparkowski

Amy Sparkowski
Director of Finance

VILLAGE OF LAKE ZURICH
OPERATING REPORT SUMMARY
GENERAL FUND
March 31, 2023

	Current Month			Year-to-Date			Amended	% of
	Budget	Actual	% Variance	Budget	Actual	% Variance	Annual Budget	Annual Budget Achieved
REVENUES								
Taxes								
Property Taxes	-	-	0.0%	-	-	0.0%	8,888,026	0.0%
Utility Tax - Electric	79,806	72,939	(8.6%)	247,212	233,776	(5.4%)	963,006	24.3%
Utility Tax - Gas	58,072	76,365	31.5%	150,787	249,074	65.2%	388,292	64.1%
Cable Tv Franchise	-	-	0.0%	80,426	77,947	(3.1%)	320,456	24.3%
Telecom Tax	22,997	25,897	12.6%	72,573	79,138	9.0%	262,649	30.1%
Total Taxes	**160,875**	**175,201**	**8.9%**	**550,998**	**639,935**	**16.1%**	**10,822,429**	**5.9%**
Intergovernmental								
State Sales Tax	783,197	814,249	4.0%	2,075,453	2,132,875	2.8%	7,847,985	27.2%
State Income Tax	167,560	172,211	2.8%	686,452	757,052	10.3%	2,983,609	25.4%
State Use Tax	90,313	90,557	0.3%	222,798	236,440	6.1%	770,601	30.7%
Video Gaming Tax	22,437	28,161	25.5%	66,041	82,680	25.2%	290,247	28.5%
Fire/Rescue Srvc Contract	528,655	528,655	0.0%	1,585,966	1,585,966	0.0%	6,350,975	25.0%
Other Intergovernmental	19,452	23,034	18.4%	124,713	193,004	54.8%	446,178	43.3%
Total Intergovernmental	**1,611,615**	**1,656,867**	**2.8%**	**4,761,423**	**4,988,018**	**4.8%**	**18,689,595**	**26.7%**
Licenses & Permits								
Liquor Licenses	2,331	4,200	80.2%	124,641	159,200	27.7%	160,000	99.5%
Business Licenses	1,140	4,380	284.3%	61,803	103,413	67.3%	95,000	108.9%
Building Permits	19,626	12,447	(36.6%)	34,125	23,387	(31.5%)	204,000	11.5%
Permit Plan Review	6,196	15,107	143.8%	16,052	21,187	32.0%	85,000	24.9%
Other Permits	22,198	32,408	46.0%	65,422	68,431	4.6%	313,050	21.9%
Total Licenses & Permits	**51,490**	**68,542**	**33.1%**	**302,042**	**375,617**	**24.4%**	**857,050**	**43.8%**
Fines and Forfeits	**37,587**	**32,264**	**(14.2%)**	**111,314**	**104,688**	**(6.0%)**	**430,300**	**24.3%**
Charges for Services								
Fire/Rescue Ambulance Fee	51,834	129,619	150.1%	213,421	564,134	164.3%	1,000,000	56.4%
Park Program Fees	53,409	39,010	(27.0%)	179,192	204,895	14.3%	686,997	29.8%
Other Charges for Services	46,625	74,881	60.6%	112,622	207,705	84.4%	683,025	30.4%
Total Charges for Services	**151,868**	**243,509**	**60.3%**	**505,235**	**976,734**	**93.3%**	**2,370,022**	**41.2%**
Investment Income	**4,889**	**89,654**	**1,733.9%**	**20,207**	**203,201**	**905.6%**	**200,000**	**101.6%**
Miscellaneous	**5,692**	**11,228**	**97.2%**	**24,334**	**69,061**	**183.8%**	**164,396**	**42.0%**
Total General Fund Revenues	**2,024,017**	**2,277,266**	**12.5%**	**6,275,553**	**7,357,255**	**17.2%**	**33,533,792**	**21.9%**
Operating Transfers In	-	-	0.0%	-	-	0.0%	-	0.0%
EXPENDITURES								
General Government								
Legislative	5,432	3,313	(39.0%)	24,121	18,028	(25.3%)	70,820	25.5%
Administration	111,462	154,753	38.8%	261,273	312,417	19.6%	1,523,851	20.5%
Finance	41,533	58,511	40.9%	136,555	148,614	8.8%	572,259	26.0%
Technology	29,543	79,115	167.8%	136,614	149,329	9.3%	480,914	31.1%
Total Gen. Govt.	**187,971**	**295,691**	**57.3%**	**558,564**	**628,388**	**12.5%**	**2,647,844**	**23.7%**
Public Safety								
Police	525,176	696,155	32.6%	1,596,580	1,745,912	9.4%	8,978,592	19.4%
Fire	794,238	1,113,169	40.2%	2,493,000	2,710,618	8.7%	13,232,400	20.5%
Community Development	66,806	100,690	50.7%	179,951	198,912	10.5%	1,057,254	18.8%
Total Public Safety	**1,386,220**	**1,910,014**	**37.8%**	**4,269,531**	**4,655,442**	**9.0%**	**23,268,246**	**20.0%**
Streets - Public Works	**325,886**	**385,835**	**18.4%**	**940,452**	**988,667**	**5.1%**	**4,399,699**	**22.5%**
Culture - Park and Recreation	**78,442**	**180,752**	**130.4%**	**230,127**	**338,968**	**47.3%**	**1,229,651**	**27.6%**
Total General Fund Expend.	**1,978,519**	**2,772,291**	**40.1%**	**5,998,673**	**6,611,465**	**10.2%**	**31,545,440**	**21.0%**
Operating Transfers Out	125,970	160,868	27.7%	377,911	482,604	27.7%	1,980,413	24.4%
NET INCOME (LOSS) FOR GENERAL	**(80,472)**	**(655,893)**		**(101,031)**	**263,186**		**7,939**	

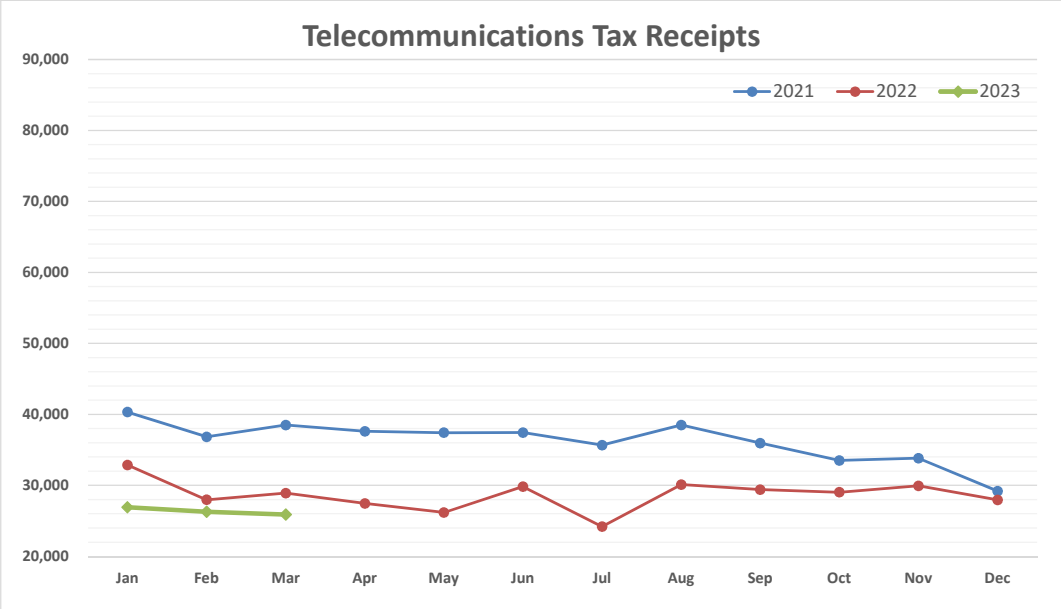
VILLAGE OF LAKE ZURICH
OPERATING REPORT SUMMARY
March 31, 2023

	Current Month			Year-to-Date			Amended Annual Budget	% of Annual Budget Achieved
	Budget	Actual	% Variance	Budget	Actual	% Variance		
SPECIAL REVENUE FUNDS								
MOTOR FUEL TAX FUND								
Revenues	60,762	80,884	33.1%	189,291	239,646	26.6%	823,004	29.1%
Expenditures	276,110	21,233	(92.3%)	358,728	62,998	(82.4%)	3,830,453	1.6%
Net Activity Gain (Loss)	(215,348)	59,651		(169,437)	176,648		(3,007,449)	
HOTEL TAX FUND								
Revenues	5,000	7,431	48.6%	25,776	24,521	(4.9%)	119,230	20.6%
Expenditures	15,116	8,540	(43.5%)	35,666	25,226	(29.3%)	116,198	21.7%
Net Activity Gain (Loss)	(10,116)	(1,109)		(9,890)	(705)		3,032	
SPECIAL EVENTS FUND								
Admin & Miscellaneous								
Revenues	21,692	21,931	1.1%	64,431	66,238	2.8%	259,763	25.5%
Expenditures	20,339	19,612	(3.6%)	62,302	51,033	(18.1%)	259,523	19.7%
Net Activity Gain (Loss)	1,353	2,318		2,129	15,205		240	
Rock the Block								
Revenues	2,397	325	(86.4%)	2,968	4,175	40.6%	60,000	7.0%
Expenditures	1,454	2,646	82.0%	14,444	6,429	(55.5%)	57,547	11.2%
Net Activity Gain (Loss)	943	(2,321)		(11,476)	(2,254)		2,453	
Farmers Market								
Revenues	2,580	540	(79.1%)	3,611	3,360	(7.0%)	8,700	38.6%
Expenditures	-	-	0.0%	974	-	(100.0%)	8,773	0.0%
Net Activity Gain (Loss)	2,580	540		2,638	3,360		(73)	
Fourth of July								
Revenues	6,014	5,725	(4.8%)	17,224	17,275	0.3%	80,200	21.5%
Expenditures	481	20,000	4,055.8%	29,639	20,000	(32.5%)	77,346	25.9%
Net Activity Gain (Loss)	5,532	(14,275)		(12,415)	(2,725)		2,854	
Winter Festival								
Revenues	1,112	1,196	7.6%	3,168	3,538	11.7%	19,250	18.4%
Expenditures	324	-	(100.0%)	4,907	6,591	34.3%	20,574	32.0%
Net Activity Gain (Loss)	788	1,196		(1,739)	(3,054)		(1,324)	
Special Events Fund Total	11,197	(12,542)		(20,863)	10,532		4,150	
TIF #1 TAX FUND								
Revenues	91	930	925.5%	302	2,546	742.5%	1,417,500	0.2%
Expenditures	-	-	0.0%	-	-	0.0%	1,408,494	0.0%
Net Activity Gain (Loss)	91	930		302	2,546		9,006	
TIF #2 - DOWNTOWN								
Revenues	2,598	4,997	92.4%	11,966	17,513	46.4%	362,900	4.8%
Expenditures	308,971	28,905	(90.6%)	311,118	29,114	(90.6%)	6,451,440	0.5%
Net Activity Gain (Loss)	(306,373)	(23,907)		(299,152)	(11,600)		(6,088,540)	
TIF #3 - RAND ROAD								
Revenues	-	3	0.0%	-	10	0.0%	78,000	0.0%
Expenditures	-	-	0.0%	-	-	0.0%	1,840	0.0%
Net Activity Gain (Loss)	-	3		-	10		76,160	
DISPATCH CENTER FUND								
Revenues	95,734	91,618	(4.3%)	407,926	448,371	9.9%	1,648,965	27.2%
Expenditures	125,422	182,813	45.8%	368,964	430,491	16.7%	1,614,395	26.7%
Net Activity Gain (Loss)	(29,688)	(91,195)		38,961	17,880		34,570	

VILLAGE OF LAKE ZURICH
OPERATING REPORT SUMMARY
March 31, 2023

	Current Month			Year-to-Date			Amended Annual Budget	% of Annual Budget Achieved
	Budget	Actual	% Variance	Budget	Actual	% Variance		
DEBT SERVICE FUNDS								
VILLAGE DEBT SERVICE								
Revenues	706	3,111	340.7%	2,482	8,441	240.0%	1,280,000	0.7%
Expenditures	-	-	0.0%	193,485	-	(100.0%)	1,266,855	0.0%
Net Activity Gain (Loss)	706	3,111		(191,002)	8,441		13,145	
TIF #1 DEBT SERVICE								
Revenues	53	2,181	3,991.4%	341	4,324	1,169.7%	2,091,500	0.2%
Expenditures	2,582	1,553	(39.9%)	720,533	751,049	4.2%	2,049,978	36.6%
Net Activity Gain (Loss)	(2,528)	628		(720,192)	(746,725)		41,522	
CAPITAL PROJECT FUNDS								
CAPITAL IMPROVEMENTS								
Revenues	50,831	121,857	139.7%	149,032	342,068	129.5%	1,113,498	30.7%
Expenditures	65,034	9,558	(85.3%)	145,958	25,577	(82.5%)	4,580,500	0.6%
Net Activity Gain (Loss)	(14,203)	112,299		3,074	316,491		(3,467,002)	
NON-HOME RULE SALES TAX								
Revenues	262,245	294,065	12.1%	697,042	780,749	12.0%	2,658,081	29.4%
Expenditures	4,075	43,009	955.4%	17,736	45,064	154.1%	388,000	11.6%
Net Activity Gain (Loss)	258,170	251,057		679,306	735,686		2,270,081	
ENTERPRISE FUND								
WATER AND SEWER								
Revenues	651,415	708,157	8.7%	1,891,017	1,996,736	5.6%	8,159,608	24.5%
Expenses								
Administration	50,834	61,729	21.4%	153,492	169,900	10.7%	677,820	25.1%
Debt	11,394	15,860	39.2%	29,905	39,804	33.1%	118,850	33.5%
Depreciation	176,640	176,640	0.0%	529,920	529,920	0.0%	2,119,680	25.0%
Billing	28,044	20,810	(25.8%)	58,024	60,814	4.8%	239,740	25.4%
Water	343,784	173,563	(49.5%)	554,256	342,169	(38.3%)	5,094,382	6.7%
Sewer	136,828	116,232	(15.1%)	291,074	237,887	(18.3%)	3,794,591	6.3%
	747,525	564,835		1,616,670	1,380,495		12,045,063	
Net Activity Gain (Loss)	(96,110)	143,323		274,347	616,242		(3,885,455)	
INTERNAL SERVICE FUNDS								
MEDICAL INSURANCE								
Revenues	285,678	292,063	2.2%	865,005	868,991	0.5%	3,443,819	25.2%
Expenses	347,079	438,692	26.4%	987,235	1,046,382	6.0%	3,402,865	30.8%
Net Activity Gain (Loss)	(61,401)	(146,629)		(122,229)	(177,391)		40,954	
RISK MANAGEMENT								
Revenues	103,213	147,982	43.4%	310,063	382,307	23.3%	1,345,204	28.4%
Expenses	23,061	39,594	71.7%	874,949	1,088,879	24.5%	1,502,204	72.5%
Net Activity Gain (Loss)	80,152	108,388		(564,886)	(706,572)		(157,000)	
EQUIPMENT REPLACEMENT								
Revenues	73,920	90,235	22.1%	222,007	265,928	19.8%	1,134,311	23.4%
Expenses	138,302	57,497	(58.4%)	317,185	296,541	(6.5%)	1,370,311	21.6%
Net Activity Gain (Loss)	(64,382)	32,738		(95,178)	(30,613)		(236,000)	
TOTAL ALL VILLAGE FUNDS	**(530,306)**	**(219,148)**		**(1,297,870)**	**474,057**		**(14,340,887)**	

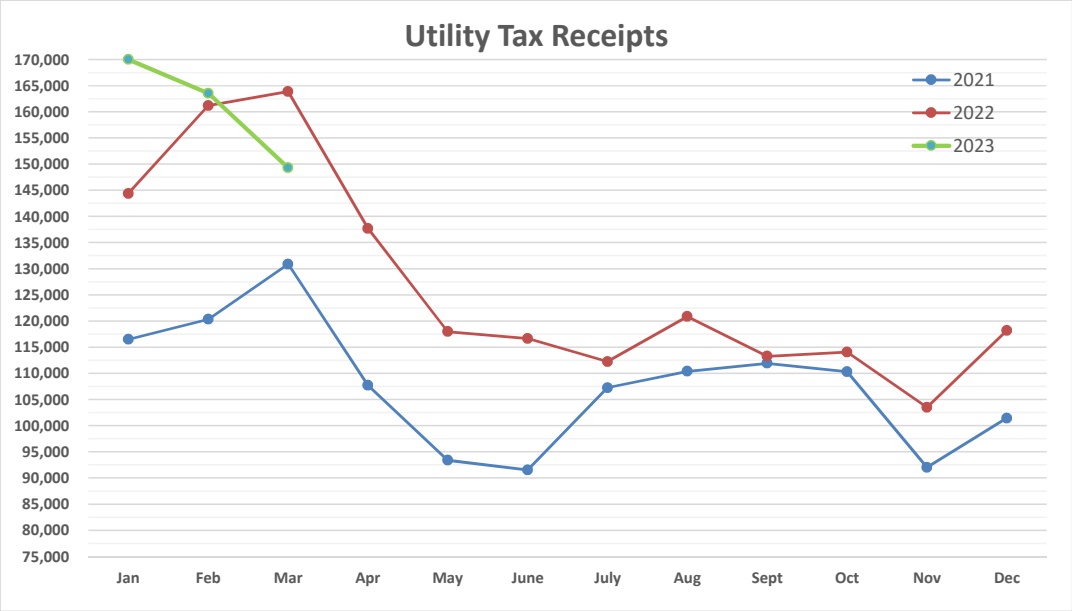
DEPARTMENT OF FINANCE
MONTHLY REPORT
MARCH 2023



Collection History

		Historical			Current Year Actual		Current Year Budget		
Received	Earned	FY 2021	FY 2022	% Change	FY 2023	% Change	Budget	Variance $	Variance %
January	October	40,329	32,888	-18.45%	26,937	-18.10%	24,502	2,435	9.94%
February	November	36,855	27,974	-24.10%	26,305	-5.97%	25,074	1,231	4.91%
March	December	38,514	28,903	-24.95%	25,897	-10.40%	22,997	2,900	12.61%
April	January	37,621	27,467	-26.99%		-100.00%	21,524	(21,524)	-100.00%
May	February	37,428	26,181	-30.05%		-100.00%	25,786	(25,786)	-100.00%
June	March	37,438	29,825	-20.33%		-100.00%	22,107	(22,107)	-100.00%
July	April	35,678	24,202	-32.17%		-100.00%	21,037	(21,037)	-100.00%
August	May	38,518	30,131	-21.77%		-100.00%	22,085	(22,085)	-100.00%
September	June	35,963	29,408	-18.23%		-100.00%	21,390	(21,390)	-100.00%
October	July	33,528	29,037	-13.40%		-100.00%	21,253	(21,253)	-100.00%
November	August	33,847	29,947	-11.52%		-100.00%	21,237	(21,237)	-100.00%
December	September	29,210	27,958	-4.28%		-100.00%	13,659	(13,659)	-100.00%
		434,929	343,921	-20.92%	79,138		262,649	(183,511)	
	Y-T-D	115,698	89,765	-22.41%	79,138	-11.84%	72,573	6,565	9.05%

DEPARTMENT OF FINANCE
MONTHLY REPORT
MARCH 2023

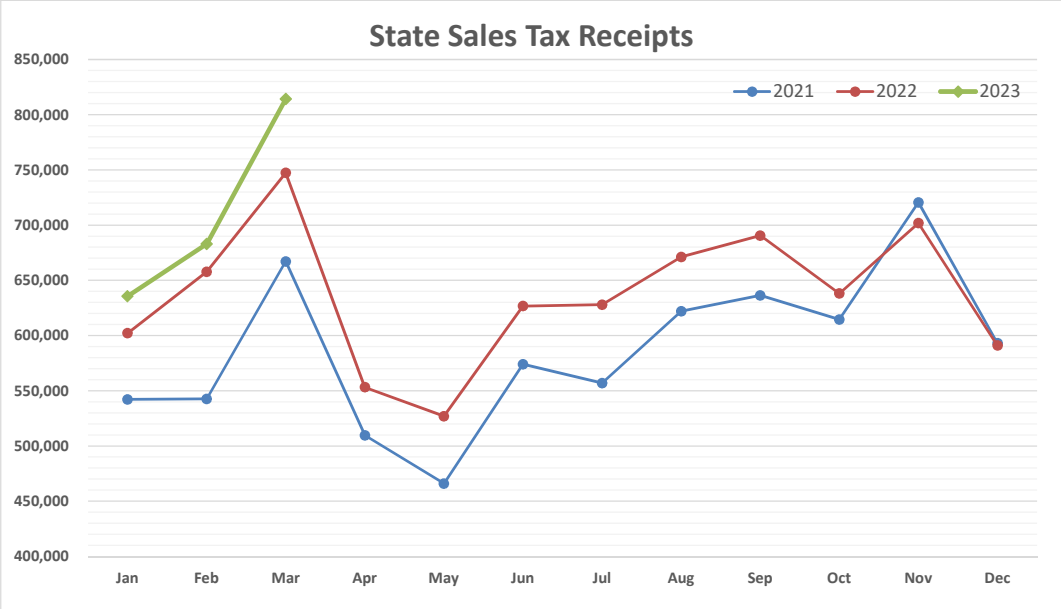


Collection History

COMBINED - ELECTRICITY & GAS

Receipt Month	Liability Month	Historical 2021	Historical 2022	Historical % Change	Current Year Actual 2023	Current Year Actual % Change	Current Year Budget FY 2022	Current Year Budget Variance $	Current Year Budget Variance %
Jan	Dec	116,503	144,392	23.9%	169,997	17.7%	127,393	42,604	33.4%
Feb	Jan	120,335	161,197	34.0%	163,549	1.5%	132,728	30,821	23.2%
Mar	Feb	130,883	163,887	25.2%	149,304	-8.9%	137,878	11,426	8.3%
Apr	Mar	107,700	137,718	27.9%	-	-100.0%	119,627	(119,627)	-100.0%
May	Apr	93,403	117,990	26.3%	-	-100.0%	100,438	(100,438)	-100.0%
June	May	91,526	116,659	27.5%	-	-100.0%	95,911	(95,911)	-100.0%
July	June	107,244	112,246	4.7%	-	-100.0%	100,861	(100,861)	-100.0%
Aug	July	110,403	120,867	9.5%	-	-100.0%	117,546	(117,546)	-100.0%
Sept	Aug	111,936	113,271	1.2%	-	-100.0%	110,679	(110,679)	-100.0%
Oct	Sept	110,319	114,085	3.4%	-	-100.0%	105,600	(105,600)	-100.0%
Nov	Oct	92,037	103,512	12.5%	-	-100.0%	92,199	(92,199)	-100.0%
Dec	Nov	101,437	118,176	16.5%	-	-100.0%	110,439	(110,439)	-100.0%
		1,293,726	1,524,000	17.80%	482,850	-68.3%	1,351,299	(868,449)	
	Y-T-D	367,722	469,476	27.67%	482,850	2.8%	397,999	84,851	21.3%

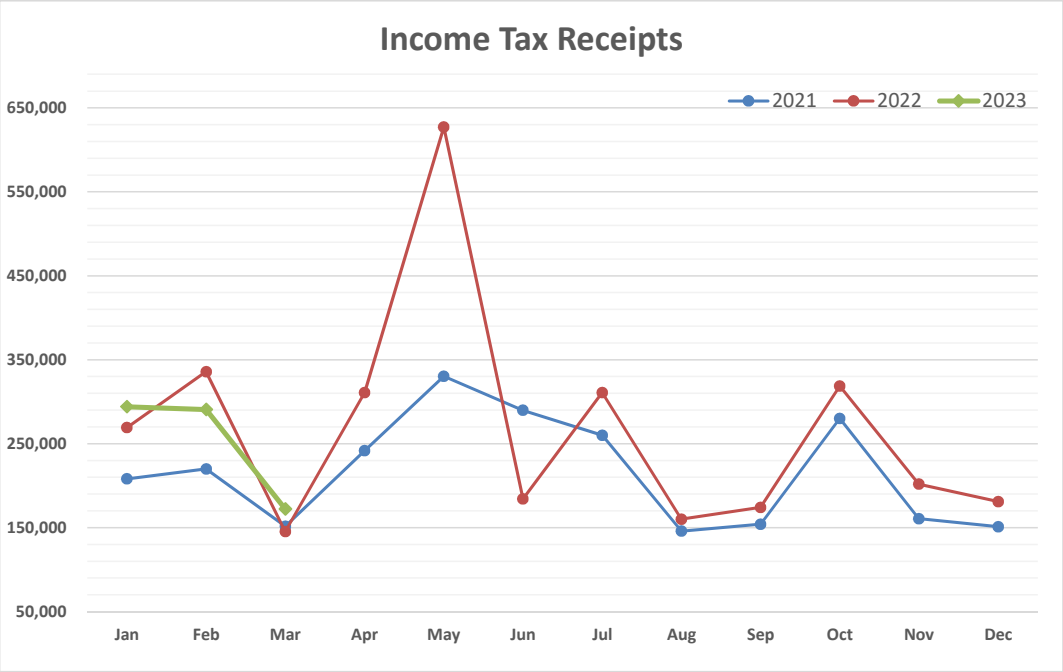
DEPARTMENT OF FINANCE
MONTHLY REPORT
MARCH 2023



Collection History

		Historical			Current Year Actual		Current Year Budget		
Received	Earned	2021	2022	% Change	2023	% Change	Amended Budget	Variance $	Variance %
January	October	542,215	602,130	11.05%	635,589	5.56%	635,747	(157)	-0.02%
February	November	542,675	657,819	21.22%	683,036	3.83%	656,509	26,527	4.04%
March	December	667,111	747,307	12.02%	814,249	8.96%	783,197	31,052	3.96%
April	January	509,698	553,226	8.54%		-100.00%	573,852	(573,852)	-100.00%
May	February	466,021	527,013	13.09%		-100.00%	544,793	(544,793)	-100.00%
June	March	574,063	626,731	9.17%		-100.00%	624,656	(624,656)	-100.00%
July	April	556,926	627,982	12.76%		-100.00%	601,555	(601,555)	-100.00%
August	May	622,012	671,146	7.90%		-100.00%	669,770	(669,770)	-100.00%
September	June	636,306	690,544	8.52%		-100.00%	686,538	(686,538)	-100.00%
October	July	614,470	638,060	3.84%		-100.00%	655,769	(655,769)	-100.00%
November	August	720,532	701,860	-2.59%		-100.00%	758,378	(758,378)	-100.00%
December	September	593,038	590,991	-0.35%		-100.00%	657,222	(657,222)	-100.00%
			-		-				
		7,045,068	7,634,808	8.37%	2,132,875		7,847,985	(5,715,110)	
	Y-T-D	1,752,001	2,007,256	14.57%	2,132,875	6.26%	2,075,453	57,422	2.77%

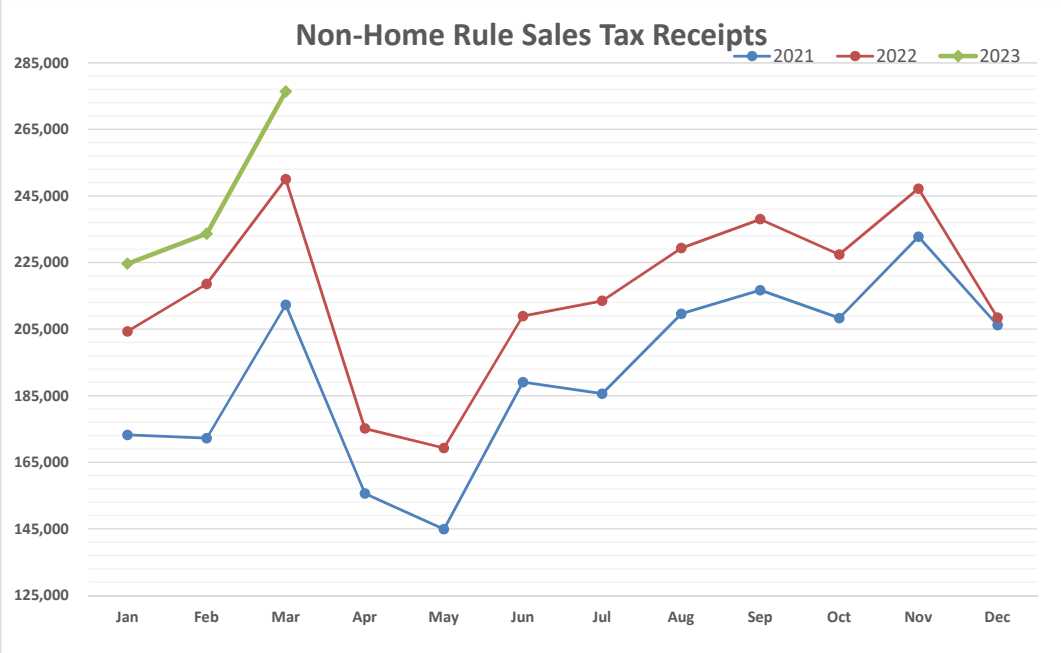
DEPARTMENT OF FINANCE
MONTHLY REPORT
MARCH 2023



Revenue History

	Historical			Current Year Actual		Current Year Budget		
Vouchered	2021	2022	% Change	2023	% Change	Amended Budget	Variance $	Variance %
January	208,145	269,221	29.34%	294,073	9.23%	243,179	50,895	20.93%
February	220,056	335,693	52.55%	290,768	-13.38%	275,713	15,055	5.46%
March	151,661	145,504	-4.06%	172,211	18.36%	167,560	4,651	2.78%
April	241,823	310,848	28.54%		-100.00%	279,882	(279,882)	-100.00%
May	330,332	627,194	89.87%		-100.00%	450,216	(450,216)	-100.00%
June	289,833	184,242	-36.43%		-100.00%	212,836	(212,836)	-100.00%
July	260,006	311,032	19.62%		-100.00%	280,611	(280,611)	-100.00%
August	145,998	160,199	9.73%		-100.00%	219,270	(219,270)	-100.00%
September	154,181	174,093	12.91%		-100.00%	179,094	(179,094)	-100.00%
October	280,184	318,729	13.76%		-100.00%	305,159	(305,159)	-100.00%
November	160,617	201,830	25.66%		-100.00%	193,093	(193,093)	-100.00%
December	151,210	181,090	19.76%		-100.00%	176,995	(176,995)	-100.00%
	2,594,046	3,219,676	24.12%	757,052	-76.49%	2,983,609	(2,226,557)	-74.63%
Y-T-D	579,862	750,418	29.41%	757,052	0.88%	686,452	70,601	10.28%

DEPARTMENT OF FINANCE
MONTHLY REPORT
MARCH 2023



Collection History

		Historical			Current Year Actual		Current Year Budget		
Received	Earned	2021	2022	% Change	2023	% Change	Budget	Variance $	Variance %
January	October	173,241	204,354	17.96%	224,659	9.94%	210,290	14,369	6.83%
February	November	172,248	218,598	26.91%	233,707	6.91%	220,709	12,998	5.89%
March	December	212,281	250,074	17.80%	276,394	10.52%	260,440	15,954	6.13%
April	January	155,657	175,158	12.53%		-100.00%	178,761	(178,761)	-100.00%
May	February	144,939	169,297	16.81%		-100.00%	172,863	(172,863)	-100.00%
June	March	189,084	208,932	10.50%		-100.00%	203,519	(203,519)	-100.00%
July	April	185,597	213,499	15.03%		-100.00%	198,078	(198,078)	-100.00%
August	May	209,622	229,356	9.41%		-100.00%	229,165	(229,165)	-100.00%
September	June	216,705	238,022	9.84%		-100.00%	239,060	(239,060)	-100.00%
October	July	208,328	227,420	9.16%		-100.00%	227,226	(227,226)	-100.00%
November	August	232,762	247,180	6.19%		-100.00%	253,934	(253,934)	-100.00%
December	September	206,167	208,471	1.12%		-100.00%	244,036	(244,036)	-100.00%
		2,306,629	2,590,359	12.30%	734,760		2,638,081	(1,903,321)	
	Y-T-D	557,770	673,026	20.66%	734,760	9.17%	691,439	43,321	6.27%

Village of Lake Zurich
Investment Report
March, 2023

Description	Purchase Date	Maturity Date	Coupon Rate	CUSIP / Account	Par Value	Purchase Price	(Premium) / Discount	Market Value	Unrealized Gain (Loss)
MONEY MARKET & CASH									
IPRIME	NA	NA	4.501%		2,091,956.39	2,091,956.39	-	2,091,956.39	N/A
CERTIFICATE OF DEPOSIT									
CIBM Bank, WI	03/26/21	03/27/23	0.070%						
First National Bank, ME	03/26/21	03/27/23	0.070%						
INSBank, TN	03/26/21	03/27/23	0.130%						
Commonwealth Bus Bk	03/31/21	03/31/23	0.100%						
US Treasury N/B	03/30/22	07/31/23	1.870%	912828S92	754,000.00	747,844.30	6,155.70	745,222.69	(2,621.61)
Alameda Cnty-a-txbl	04/16/21	08/01/23	0.200%	010878AP1	250,000.00	271,707.50	(21,707.50)	249,267.50	(22,440.00)
Colorado Federal Svgs Bk	01/24/23	01/31/24	4.500%	19646PAV6	238,000.00	238,341.63	(341.63)	236,985.17	(1,356.46)
US Treasury N/B	04/15/21	01/15/24	0.200%	91282CBE0	250,000.00	249,140.63	859.37	241,191.50	(7,949.13)
First Financial Bank	01/25/23	02/07/24	4.502%		238,000.00	238,450.08	(450.08)	237,076.32	(1,373.76)
US Treasury N/B	03/01/23	02/29/24	5.000%		1,034,000.00	999,223.67	34,776.33	1,004,878.42	5,654.75
Capital One NA	08/03/22	08/05/24	3.204%		245,000.00	245,690.62	(690.62)	239,596.53	(6,094.09)
Sallie Mae Bank/Salt Lke	08/03/22	08/05/24	3.204%		245,000.00	245,690.62	(690.62)	239,596.53	(6,094.09)
Capital One NA	08/03/22	08/05/24	3.204%		245,000.00	245,690.62	(690.62)	239,596.53	(6,094.09)
Ally Bank	08/04/22	08/05/24	3.206%		245,000.00	245,443.29	(443.29)	239,438.26	(6,005.03)
US Treasury N/B	04/15/21	01/31/25	0.480%	912828Z52	964,000.00	996,422.03	(32,422.03)	916,929.81	(79,492.22)
PeopleFirst Bank, IL	02/01/23	01/31/25	4.348%		249,849.18	229,500.00	20,349.18	229,500.00	-
Morgan Stanley Bank NA	02/01/23	02/10/25	4.356%		244,000.00	244,669.89	(669.89)	241,958.70	(2,711.19)
US Treasury N/B	04/15/21	07/31/25	0.620%	91282CAB7	406,000.00	399,640.39	6,359.61	372,600.00	(27,040.39)
US Treasury N/B	05/19/21	07/31/25	0.570%	91282CAB7	350,000.00	345,351.56	4,648.44	321,206.90	(24,144.66)
US Treasury N/B	07/28/21	07/31/25	0.500%	91282CAB7	252,000.00	249,499.69	2,500.31	231,268.97	(18,230.72)
US Treasury N/B	01/28/22	01/31/26	1.460%	91282CBH3	1,000,000.00	957,890.63	42,109.37	907,109.00	(50,781.63)
					9,301,805.57	9,242,153.54	59,652.03	8,985,379.22	(256,774.32)
TOTAL				PMA Invests	9,301,805.57	9,242,153.54	59,652.03	8,985,379.22	(256,774.32)
						-		-	
Per Statement				Total	9,301,805.57	9,242,153.54		8,985,379.22	
					-	-		-	

Village of Lake Zurich
Police and Firefighters' Pension Funds
Statement of Net Position
March 31, 2023

POLICE PENSION FUND	March-23	Year-to-Date
Revenues:		
Municipal Contributions	19,023	19,023
Member Contributions	42,127	97,973
Total Contributions	61,150	116,995
Investment Income	396,458	1,224,122
Total Revenues	**457,607**	**1,341,117**
Expenses:		
Pension and Benefits	460,088	869,867
Insurance	5,090	5,090
Professional Services	935	1,635
Investment Expenses	5,721	11,984
Other Expenses	-	-
Total Expenses	**471,834**	**888,576**
Operating Income (Loss)	(14,227)	452,541
Beginning Net Position*	29,401,322	28,934,554
Ending Net Position	**29,387,095**	**29,387,095**
Assets		
Cash and Investments	29,386,953	
Other Assets	2,042	
Total Assets	29,388,995	
Liabilities	1,900	
Net Position 3/31	29,387,095	

FIREFIGHTERS' PENSION FUND	March-23	Year-to-Date
Revenues:		
Municipal Contributions	22,869	22,869
Member Contributions	61,883	144,540
Total Contributions	84,752	167,409
Investment Income	957,585	2,321,411
Total Revenues	**1,042,338**	**2,488,819**
Expenses:		
Pension and Benefits	226,058	658,657
Insurance	-	-
Professional Services	2,840	7,257
Investment Expenses	5,523	13,452
Other Expenses	750	788
Total Expenses	**235,171**	**680,155**
Operating Income (Loss)	807,166	1,808,664
Beginning Net Position*	47,002,515	46,001,018
Ending Net Position	**47,809,682**	**47,809,682**
Assets		
Cash and Investments	47,809,260	
Other Assets	3,897	
Total Assets	47,813,157	
Liabilities	3,475	
Net Position 3/31	47,809,682	

POLICE DEPARTMENT

MONTHLY INFORMATION REPORT

APRIL 2023

HIGHLIGHTING DATA METRICS

TO IDENTIFY OPERATIONAL TRENDS

AND

FACILITATE INFORMED DECISION MAKING

70 E. MAIN STREET
LAKE ZURICH, IL 60047

Departmental Narrative

General

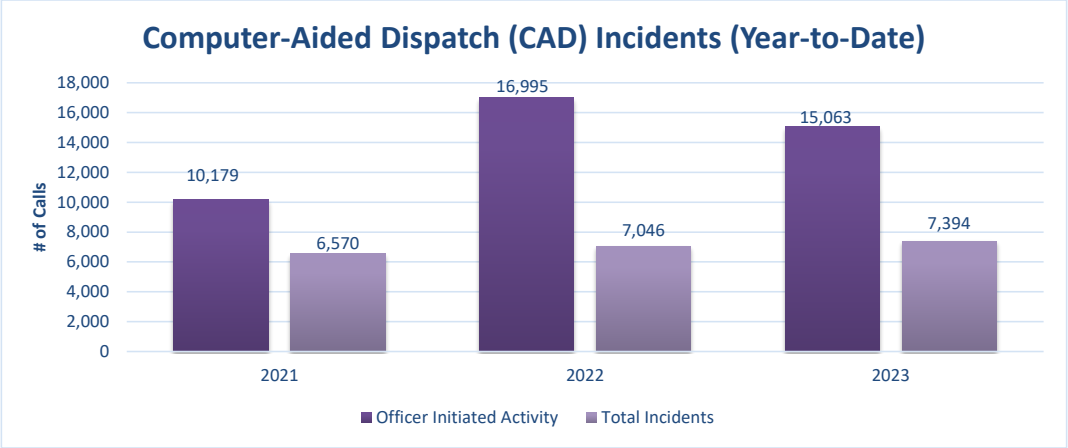
- National Public Safety Telecommunicator Week was celebrated by the Department April 9th - 15th.
- The Police Department processed 26 Freedom of Information requests this month.
- As part of National Child Abuse Prevention Month each April, the Lake County Children's Advocacy Center's Blue Kids Program is designed to help advocate the community on child abuse in Lake County. The goal is to encourage local businesses, schools, and the community to have conversations about child abuse. The Lake Zurich Police Department is one of many Lake County organizations promoting the Blue Kids Program this year.
- Our Department received two solicitor permits this month. One permit was issued and one is pending approval. One raffle permit was requested and issued. Two ride-along requests were requested. One was approved and one is pending approval. One liquor license was requested and approved. Three "ride to school in a squad car" events were requested and approved.
- On Saturday, April 22nd, the Department participated in the DEA's 21st National Prescription Drug Take Back Day. Residents dropped off over 300 pounds of unwanted drugs.
- Our agency participated in the IDOT Distracted Driving grant campaign for the month of April. 156 grant hours were worked as part of the campaign. The grant hours yielded the following results: 19seat belt citations, 26 speeding citations, 164 distracted driving citations, 4 arrests, and 34 other citations.

Patrol and Communications

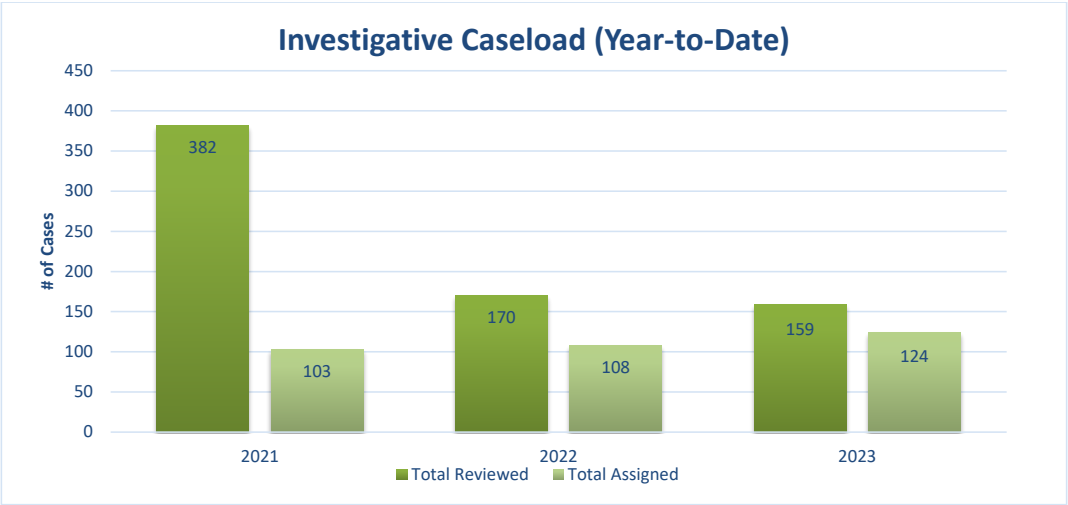
- Officer Trace Parlberg graduated from the Suburban Law Enforcement Academy on April 28th after successfully completing the 16-week police recruit basic training course.
- Year-to-date, officers conducted 1754 traffic stops and issued 912 traffic citations.
- During the month, Dispatch handled 1739 9-1-1 calls and 3822 administrative calls.
- Our agency conducted 6 child safety seat inspections in April.
- 10 truck permits were approved in April totaling $1,125.00 in permit fees.
- Officer Frost assisted the Wauconda PD on April 12th as a Drug Recognition Expert for a DUI arrest.

Investigations

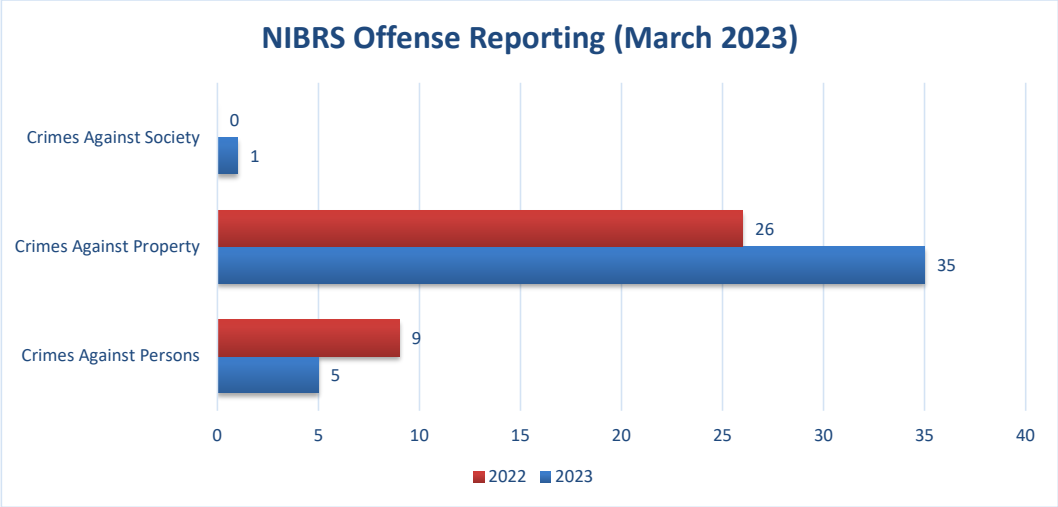
- The Criminal Investigations Division is currently investigating 87 cases, averaging 21.75 cases per detective. Of the 87 cases, 8 have been sent to the Lake County State's Attorney's Office (LCSAO) to obtain arrest warrants for identified suspects.
- There were two NIPAS Mobile Field Force callouts this month. One was in North Riverside and the other was in Forest Park.
- There were two Major Crime Task Force callouts this month. One was in unincorporated Antioch (LCSO) and the other was in Wauconda.



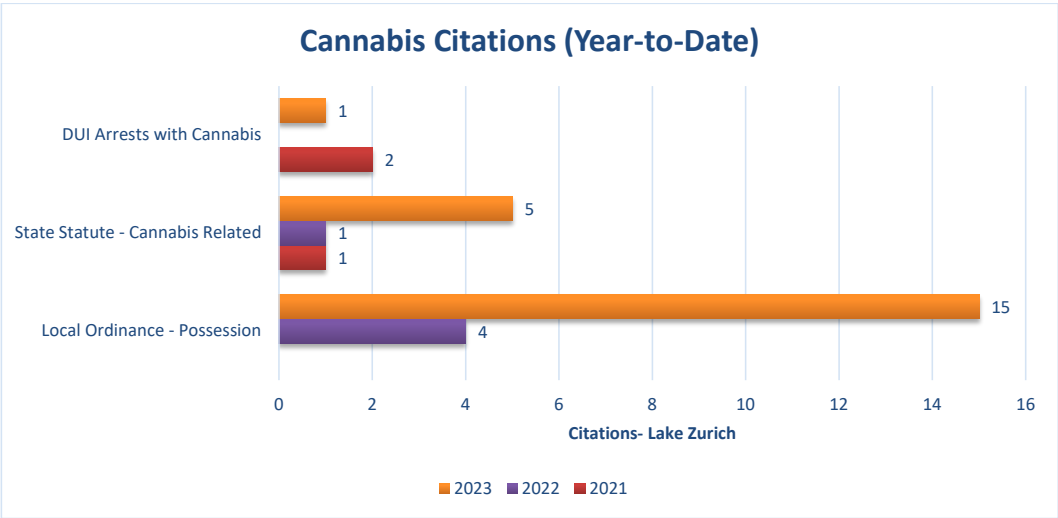
Officer initiated activity includes DUI Arrests, Vehicle Violation Citations, Non-Vehicle Violation Citations, Driving while License Suspended/Revoked, Crime Prevention Notices, Criminal Arrests, Traffic Citations, Traffic Stops, Extra Watches conducted, and Zero Tolerance enforcement. Total incidents are all CAD incidents. Frontline data, including vacation watches and directed patrols, are now listed under officer-initiated activity and are no longer CAD incidents.



Original criminal reports, generally taken by Patrol section personnel, are reviewed by the Investigations Commander and assigned to Investigative personnel based on Solvability Factors.



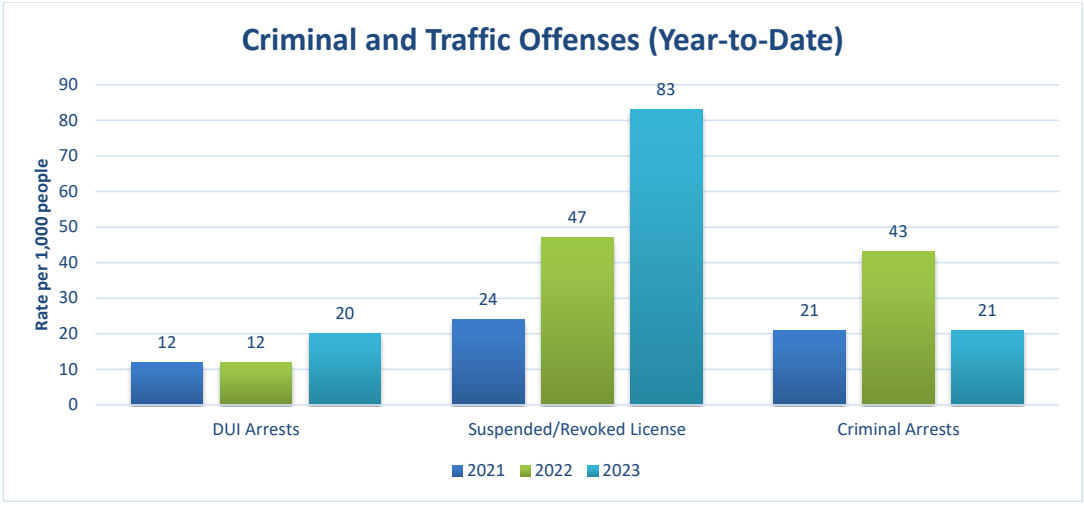
The Lake Zurich Police Department has switched over to the FBI's National Incident-Based Reporting System (NIBRS). Data is broken down into the following three catagories: Crimes Against Persons, which include crimes such as murder, assault, and sex offenses; Crimes Against Property, which include crimes such as robbery, burglary, theft, fraud, and stolen property; and Crimes Against Society, which includes crimes such as drug/narcotic violations, pornography, and weapon violations. *One month behind



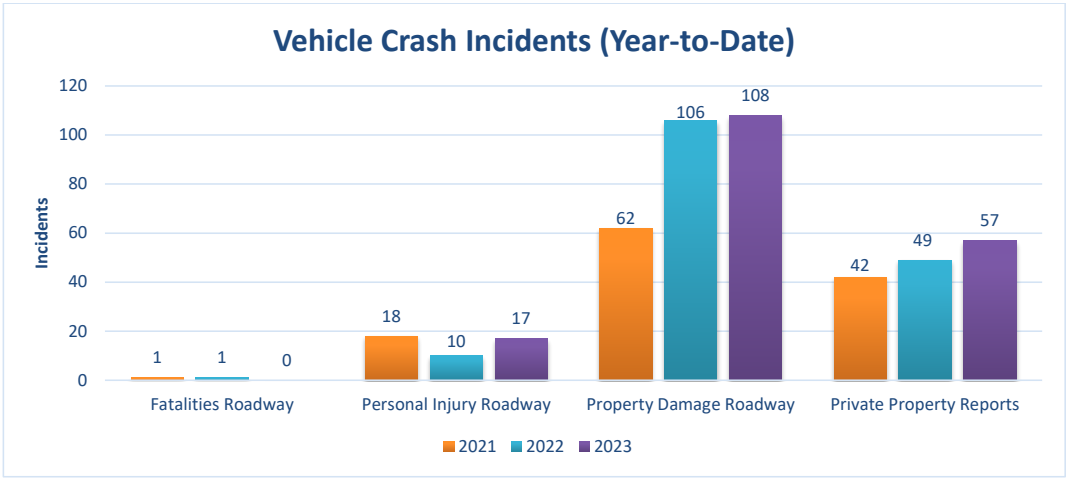
Illinois passed new cannabis rules and regulations that went into effect on January 1, 2020. These citations include local ordinance cannabis possession citations, state statute cannabis related citations (includes possession, delivery, paraphernalia, and DUI), and DUI arrests with cannabis as the primary or contributing factor.

Law enforcement agencies in Illinois are now required to report to the state any incident where a law enforcement officer was dispatched to deal with a person experiencing a mental health crisis or incident. The report shall include the number of incidents, the level of law enforcement response and the outcome of each incident. For purposes of this section, a 'mental health crisis' is when a person's behavior puts them at risk of hurting themselves or others or prevents them from being able to care for themselves.

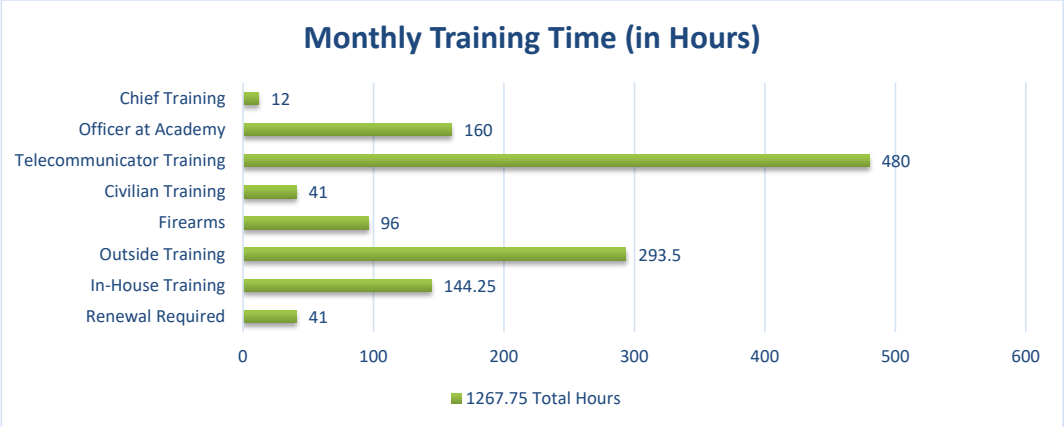
Information depicted in this graph relates to traffic stops conducted by Department personnel.



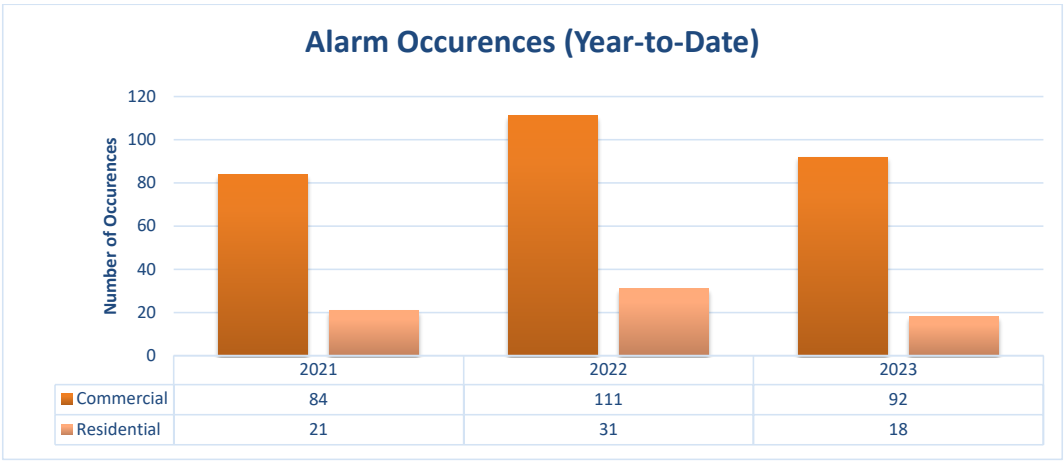
Information depicted in this graph relates to Driving Under the Influence of Alcohol/Drug arrests, Driving while Driver's License Suspended/Revoked arrests, and various criminal arrests (Domestic Battery, Retail Theft, Drug Offenses, etc.) conducted by Department personnel.



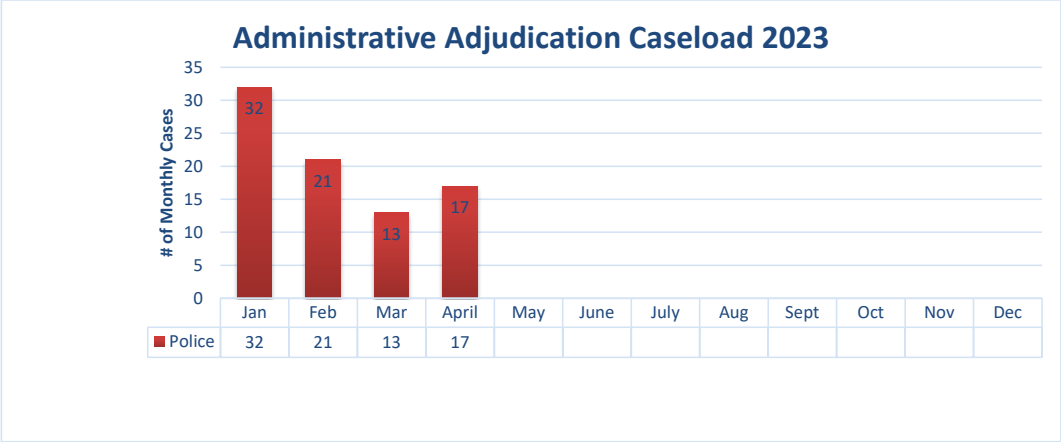
The Department conducts traffic crash investigations on both public roadways and private property (primarily parking lots). The traffic crashes are broken down into four categories: fatal, personal injury, property damage, and private property. Routine traffic crashes are taken by Patrol personnel. Traffic Safety personnel investigate fatal, serious personal injury, and commercial motor vehicles.



Training is an important element to maintain or improve skills/knowledge/ability. The main categories of training include field training, chief's training, civilian training, firearms training, outside agency training, in-house training, and renewal required training.



The records department monitors the number of alarms to which Patrol personnel respond – many of the alarms are false.



The Administrative Adjudication process was originally put in place to address automated traffic enforcement citations. This program has been expanded to review vehicle equipment compliance citations, administrative tows, and parking citations.

Red Light Camera Violations and Accidents (Year-to-Date)

2023	Red Light Violations		Adjudication for Red Light Violations				Accidents at Red Light Intersections		
	Citations	Net Received	Hearings	Liable	Not Liable	Non-Suit	12/ Miller Road	12/ Route 22	12/ June Terrace
January	221	$12,520	4	3	0	1	2	1	1
February	149	$12,568	9	6	3	0	4	1	1
March	143	$10,760	4	3	0	1	0	2	2
April	219	$9,580	2	2	0	0	2	2	0
May									
June									
July									
August									
September									
October									
November									
December									
Total	732	$45,353	19	14	3	1	8	6	4

Information depicted in this chart relates to red light camera violations, adjudication (court) for those contesting their violation, and accidents that have occurred at intersections with red light cameras.

FIRE DEPARTMENT

MONTHLY INFORMATION REPORT

April 2023

HIGHLIGHTING DATA METRICS
TO IDENTIFY OPERATIONAL TRENDS
AND
FACILITATE INFORMED DECISION-MAKING

70 E. MAIN STREET
LAKE ZURICH, IL 60047

OUR MISSION: **To care for and protect our community.**

OUR VISION: **The Lake Zurich Fire Department is dedicated to meeting the ever-changing needs of our community, while ensuring a safe and secure environment for all, through professional development, unity, and teamwork.**

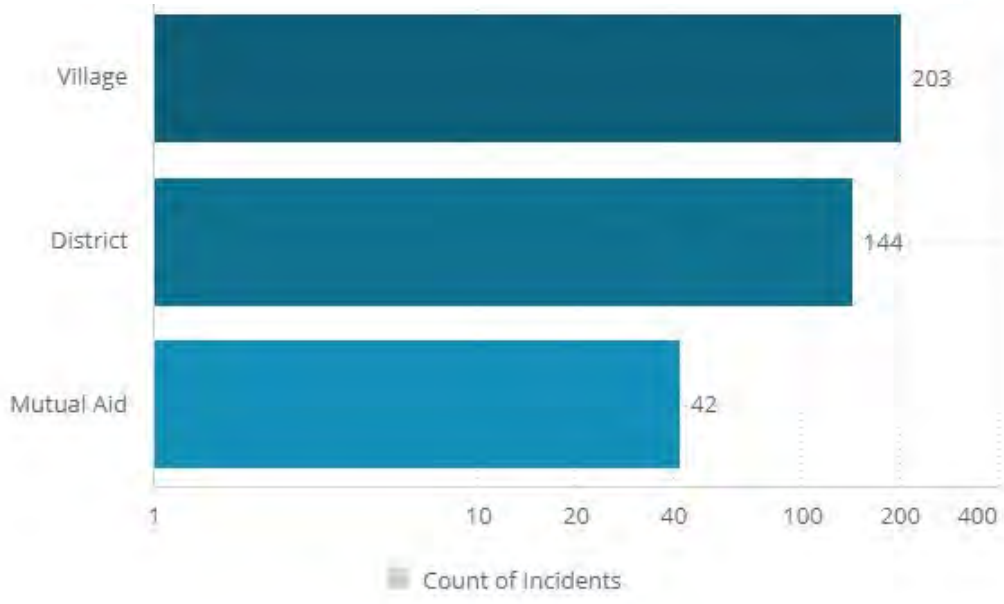
OUR VALUES: **Professionalism, Responsibility, Integrity, Dedication, Honor**

EXECUTIVE SUMMARY – APRIL 2023

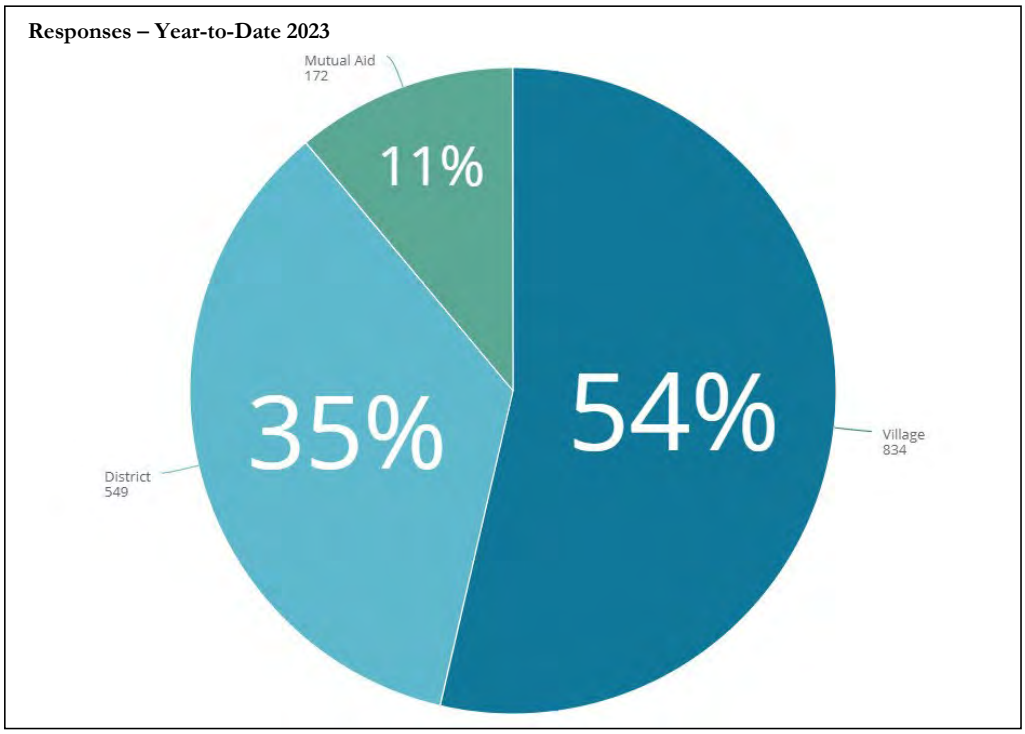
The Lake Zurich Fire Department provides a full range of professional and high-quality services to the Village of Lake Zurich and the Lake Zurich Rural Fire Protection District. We protect approximately 37,000 residents, many local businesses, and visitors across the twenty-five square mile combined service area. The Villages covered in the fire district include Hawthorn Woods, Kildeer, Deer Park, North Barrington, and Lake Barrington.

389 Incidents – April 2023

Responses – April 2023



1,555 Incidents – Year to Date

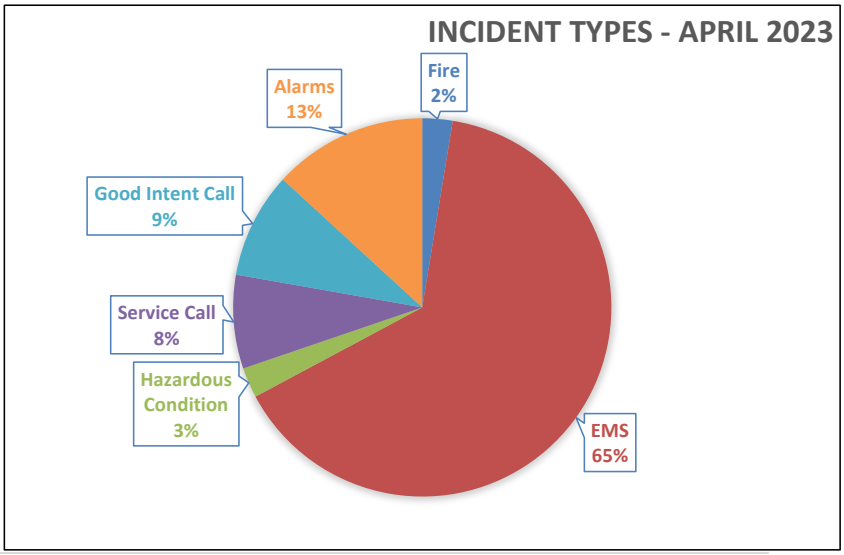


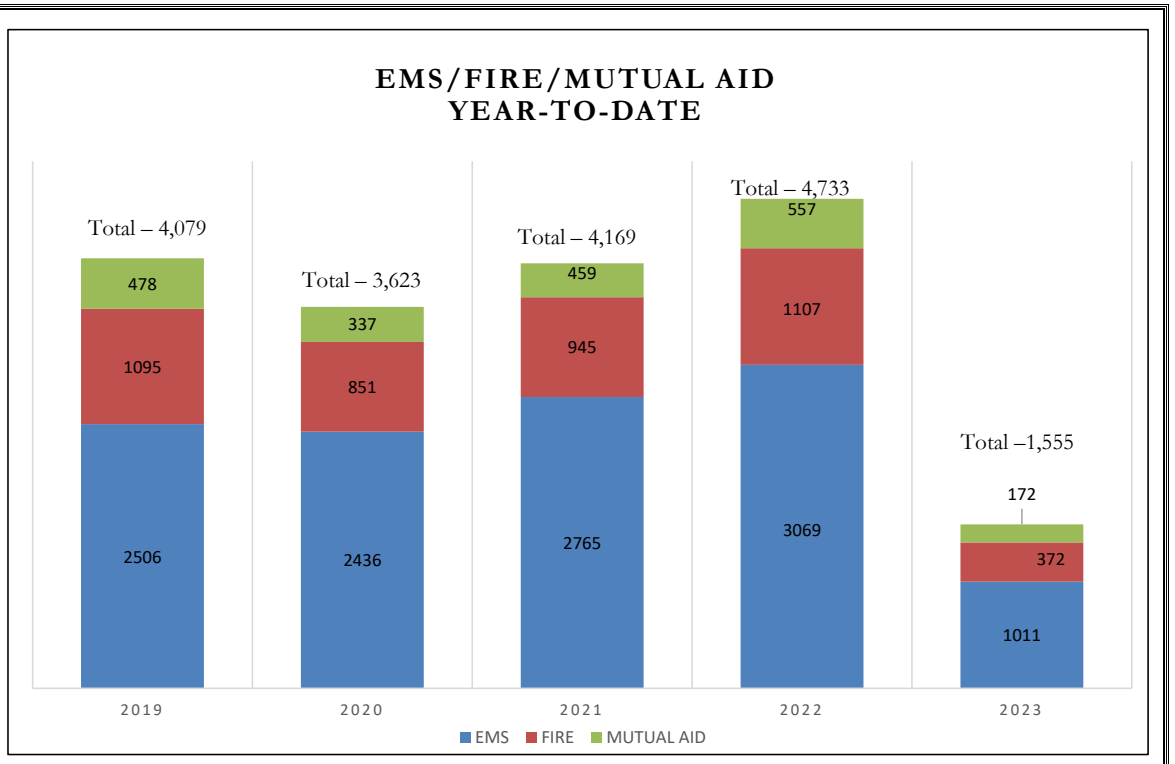
Incident Types

The Department codes all incidents within the National Fire Incident Reporting System (NFIRS).

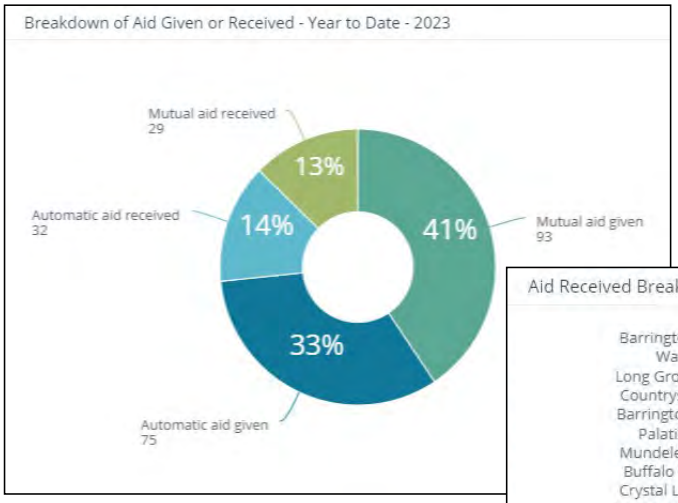
The codes all relate to the text categories noted in the chart to the right. Rescue and EMS incidents account for the majority of incidents we respond to.

In April, **250** incidents were Rescue and EMS incidents.

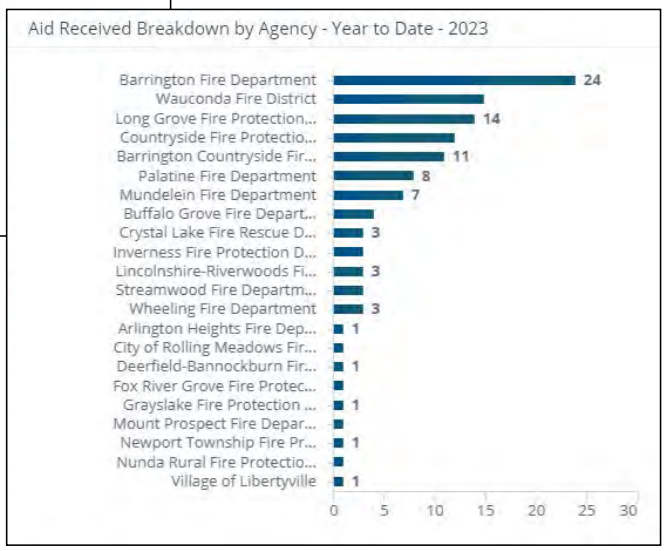




Fire Incidents (Year-to-Date)



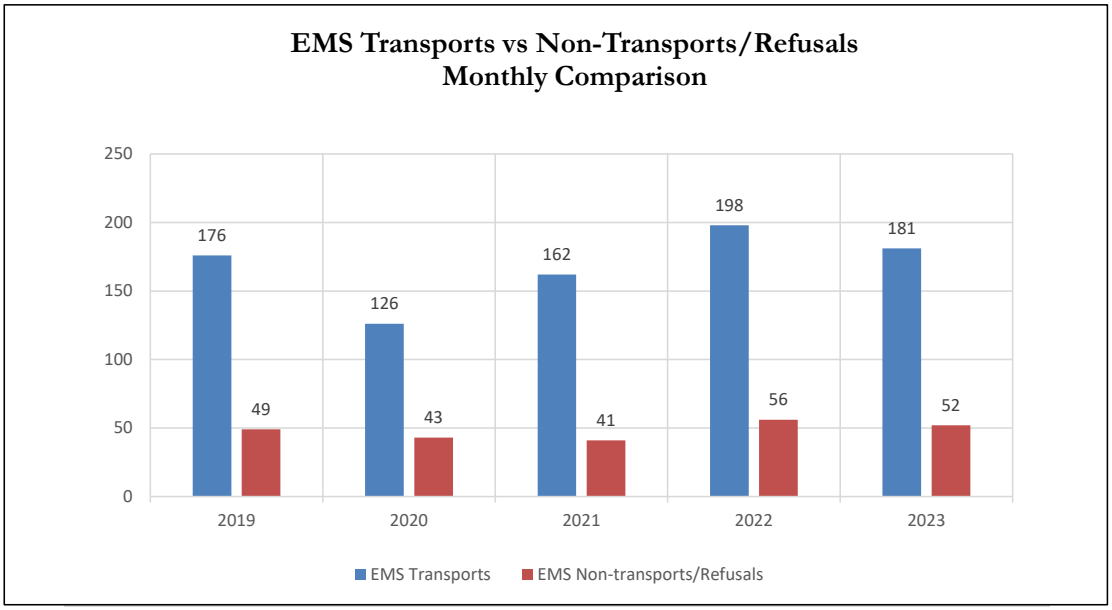
MUTUAL AID



EMS Incidents

The chart shown below reflects EMS Transports vs. Non-Transports/Refusals. It's important to note that not every EMS call will result in a transport to the hospital. However, as you'll see from the data, transports always outpace Non-Transports/Refusals.

This chart below compares the month of April across 5 years.



ADMINISTRATION DIVISION

Letters of Gratitude

GRAYSLAKE FIRE PROTECTION DISTRICT

Headquarters: 160 Hawley Street Grayslake, IL 60030 Tel. 847.223.8960
www.grayslakefire.com Fax 847.223.8964

Board of Trustees

Ellen L. Dimock
President

Karen Wojciechowski
Treasurer

Terry Toth
Secretary

From the office of:

Fire Chief
Dan Pierre

April 5, 2023

Chief David Pilgard
Lake Zurich Fire Department
321 S. Buesching Rd.
Lake Zurich, IL 60047

Dear Chief Pilgard,

On behalf of the Grayslake Fire Protection District, please accept my sincere thanks and appreciation for the assistance your department provided to our structure fire MABAS Box #27-22 to the box alarm level on April 3, 2023.

The residence at 1601 Albany Street in Grayslake had a well-involved fire in the end unit of a multi-residential building under construction on the arrival of our crews. The incident commander requested an upgrade of the alarm for additional crews and change of quarters companies. The fire was extinguished with no injuries occurring to residents or firefighters.

We sincerely appreciate the professional members and resources provided by your department. Please extend our thanks to all personnel of your department for the excellent service they provided.

Sincerely,

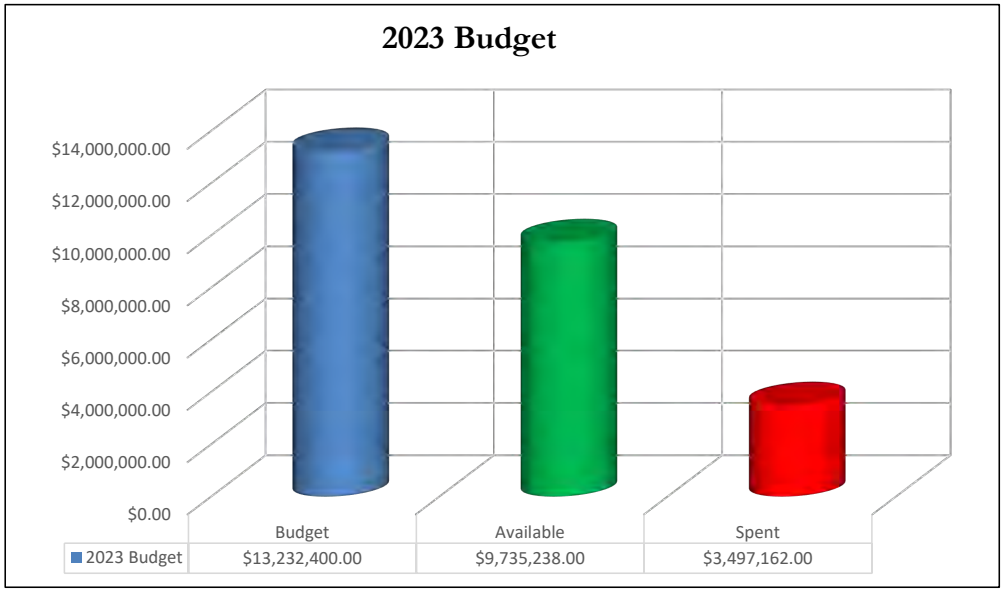
Dan Pierre
Fire Chief

Community Relations / Public Education

Community focus is an important aspect of the Department. This includes risk reduction through public education. Examples include but are not limited to; school & daycare visits and station tours where fire safety and a safety message, such as stop, drop, and roll is covered.

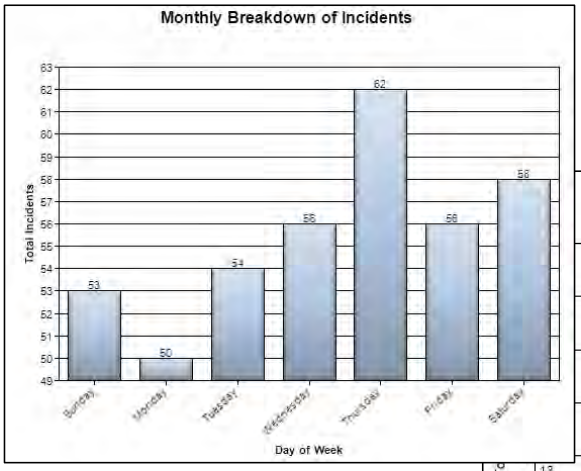
We also monitor fire and severe weather drills in schools as well as teach exit drills to middle school students. The Department also provides CPR and First-Aid training.

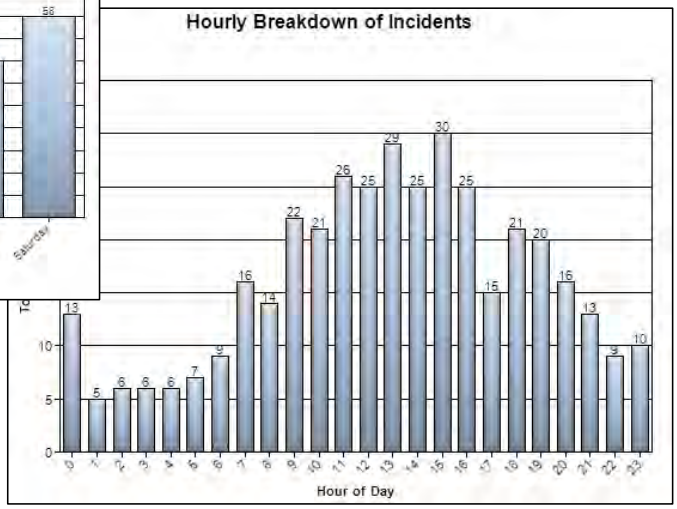
In April, Lake Zurich Fire participated in public education events including Station Tours *(pictured below left)*, CPR, Fire Engine Ride to School, the Lake Zurich High School Job Fair *(pictured below right)*, and Fire Drills. These interactions totaled over **2,300** public education contacts.



OPERATIONS DIVISION

The following two charts breakdown incidents by the day of the week and hour of the day.





STATIONS & STAFFING | OFFICER FIREFIGHTER/PARAMEDIC

STATION 1
321 S. Buesching Road
Lake Zurich, IL 60047

APPARATUS & STAFFING
BATTALION 32

ENGINE 321
AMBULANCE 321

STATION 2
350 W. Highway 22
North Barrington, IL 60010

APPARATUS & STAFFING

ENGINE 322
AMBULANCE 322

STATION 3
1075 Old McHenry Road
Lake Zurich, IL 60047

APPARATUS & STAFFING

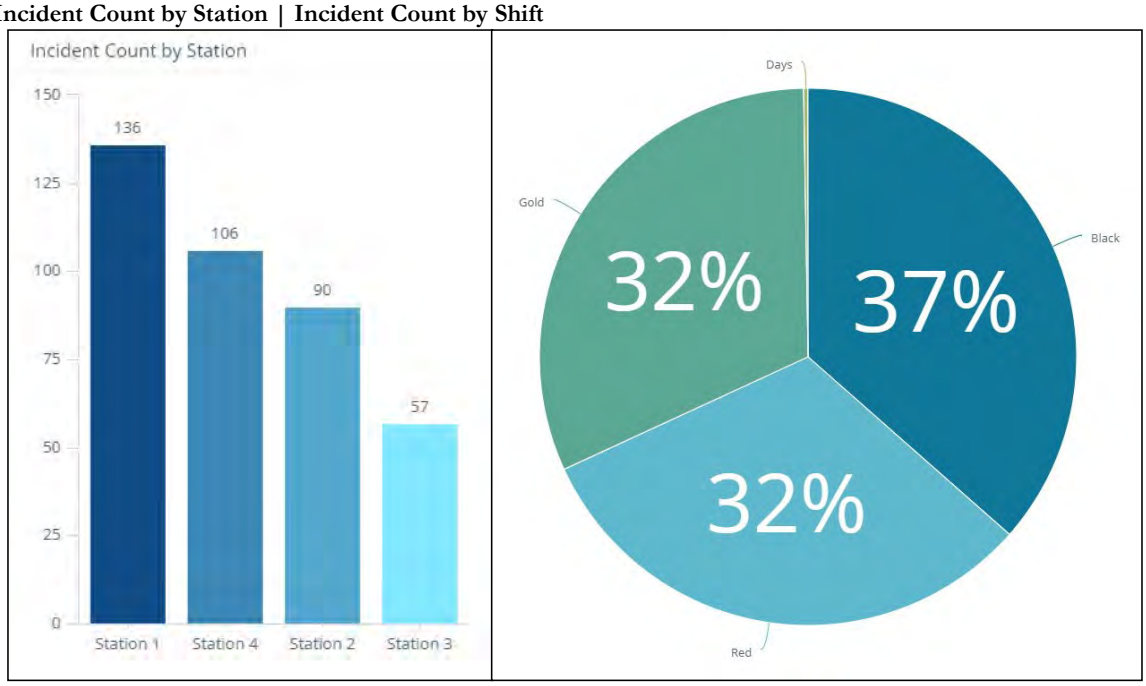
ENGINE 323
AMBULANCE 323

STATION 4
21970 Field Pkwy
Deer Park, IL 60010

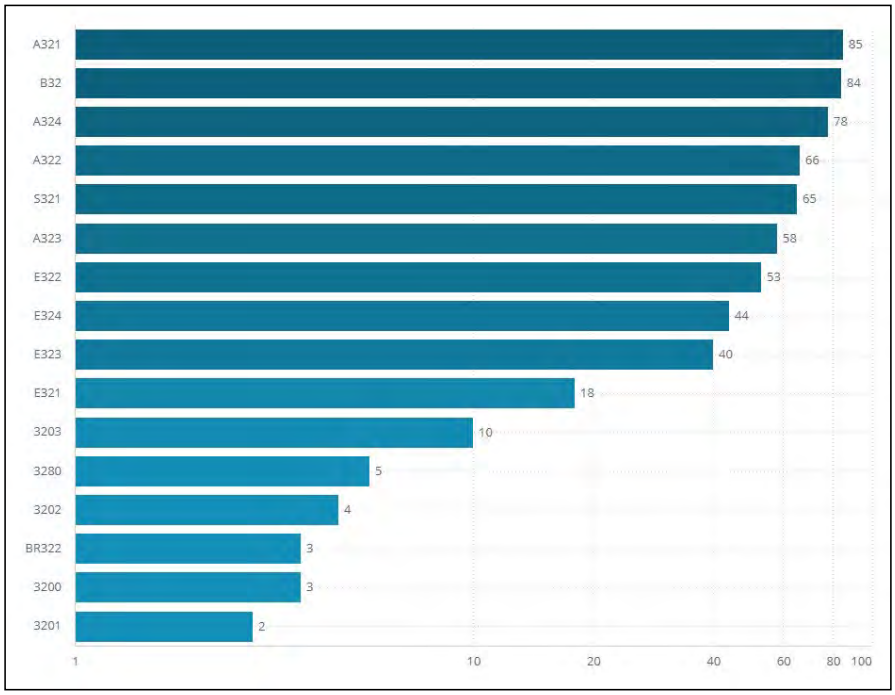
APPARATUS & STAFFING

ENGINE 324
AMBULANCE 324

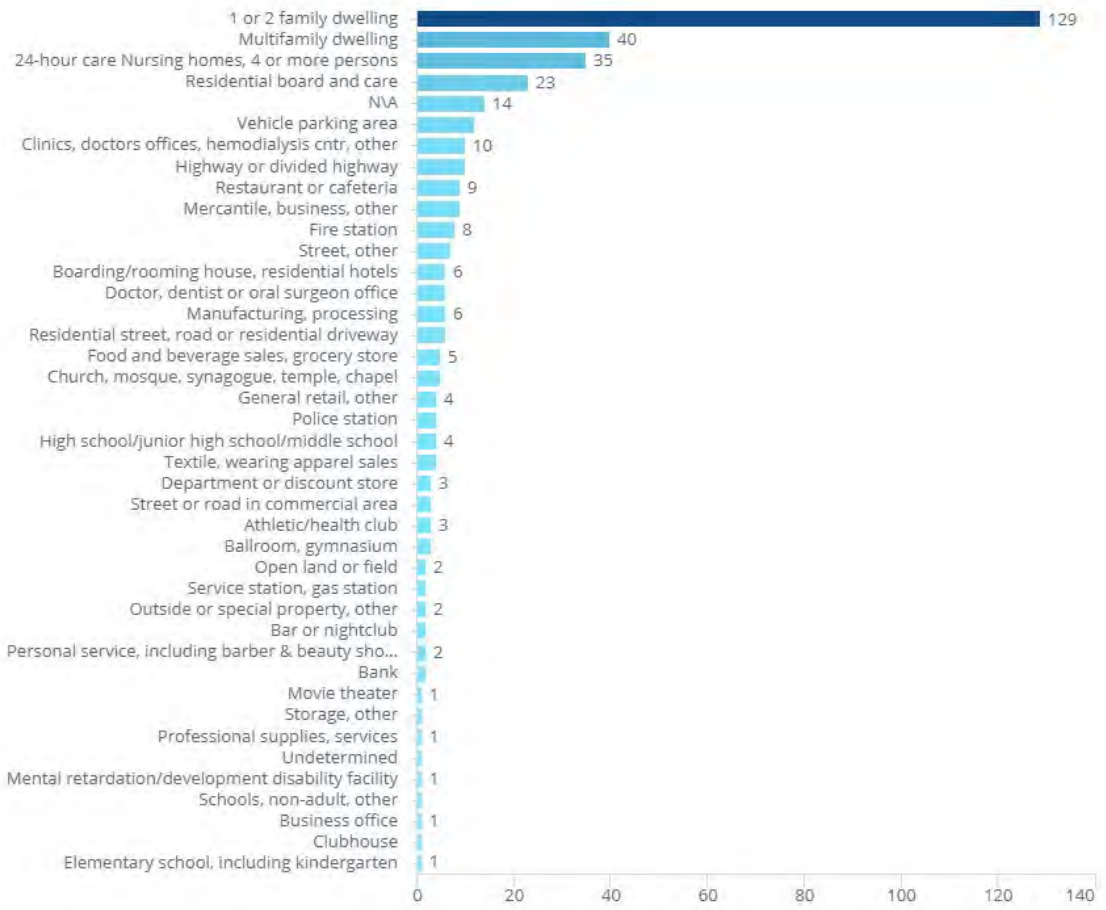
Incident Count by Station | Incident Count by Shift



Incident Count by Unit



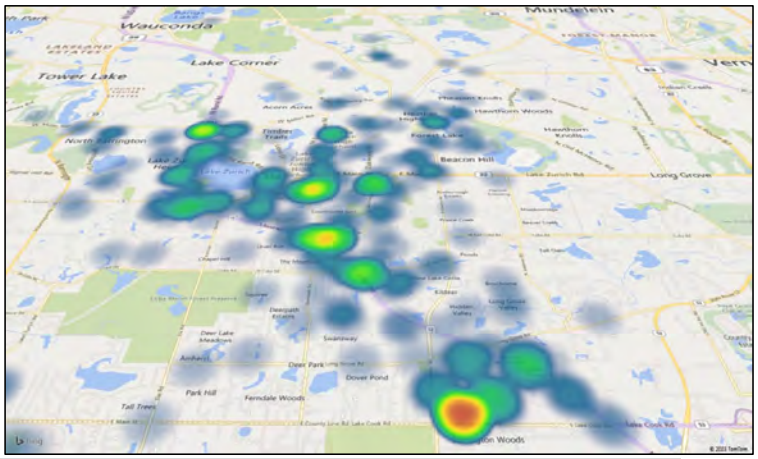
Property Use by Category – April 2023



The graphic to the right is a visual representation of call distribution for April.

As visually displayed, the assisted living/memory care facilities are a large portion of our department calls and are consistently within the top locations responded to each month.

We frequently respond to doctor offices, health clinics, and automobile accidents near the Route 12 corridor.



Response Times

Response time includes three key factors: **dispatch handling, turnout, and travel time**.

Dispatch handling time is when dispatch takes in information and then dispatch personnel. The turnout time is when the crews receive the call to the time they get into the vehicles and hit the enroute button. Travel time reflects the time from en route to when they arrive at the incident scene. Construction, speed limits, weather, and train traffic can impact response times.

The overall goal for arrival at an emergency fire call is 6 minutes and 20 seconds from the time of notification until the first unit arrives on the scene. For a response to an EMS incident, this time is 6 minutes.

The following shows the average times for all incidents including EMS, Fire, and Mutual Aid in April 2023.

Dispatch Time	Turnout Time
Average Dispatch Time 01m:27s	Average Turnout Time 01m:01s
Travel Time	**Response Time**
Average Travel Time 04m:38s	Total Response Time 05m:40s

TRAINING DIVISION

During April, we completed the following shift training:

Fire Training

- Firefighter Bailouts- Firefighter survival *(pictured right and below/right)*
- School Bus Extrication
- Forcible Entry
- Ladders
- RAM In-Service
- Dry Hydrant Testing
- Acquired Structure Training – Hose Advancement – Victim Search – First In Operations
- Thermal Imager Use & Fire Behavior – Outside Instructor *(pictured below)*

EMS

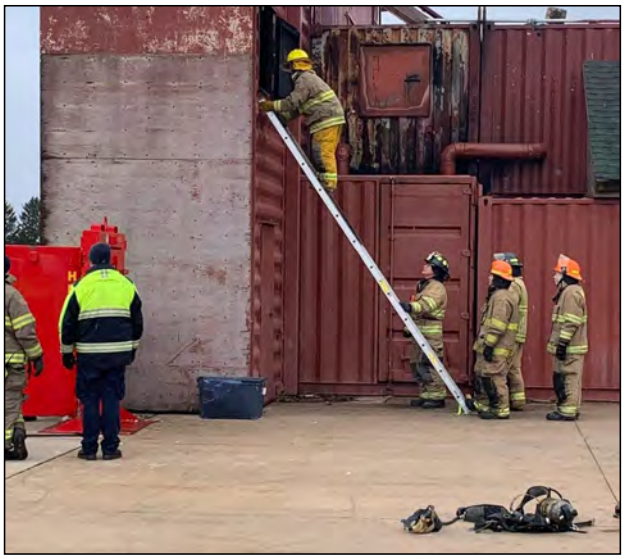
- Continued Education with Northwest Community Hospital
- EMS SOP Review

Pre-Planning Review

- Dry Hydrant Pre-planning
- 1350 E Hwy 22
- 1025 Old McHenry Rd

Special Rescue Training

- Rope Rescue Operations continued
- Wildland
- HazMat Monitoring



The following members attended outside training:

The Explorer Post attended live fire training in Huntley *(pictured left & below)*

Lieutenant Johnson – SPRAT 1 (Advanced Rope Rescue Technician Training)

Lieutenant Reid – ESO Conference in Austin Tx

Lieutenant Wascow – ESO Conference in Austin Tx

Captain Kammin – Training Officers Bootcamp – Peoria

FF/PM Glasder – Trench Rescue Operations

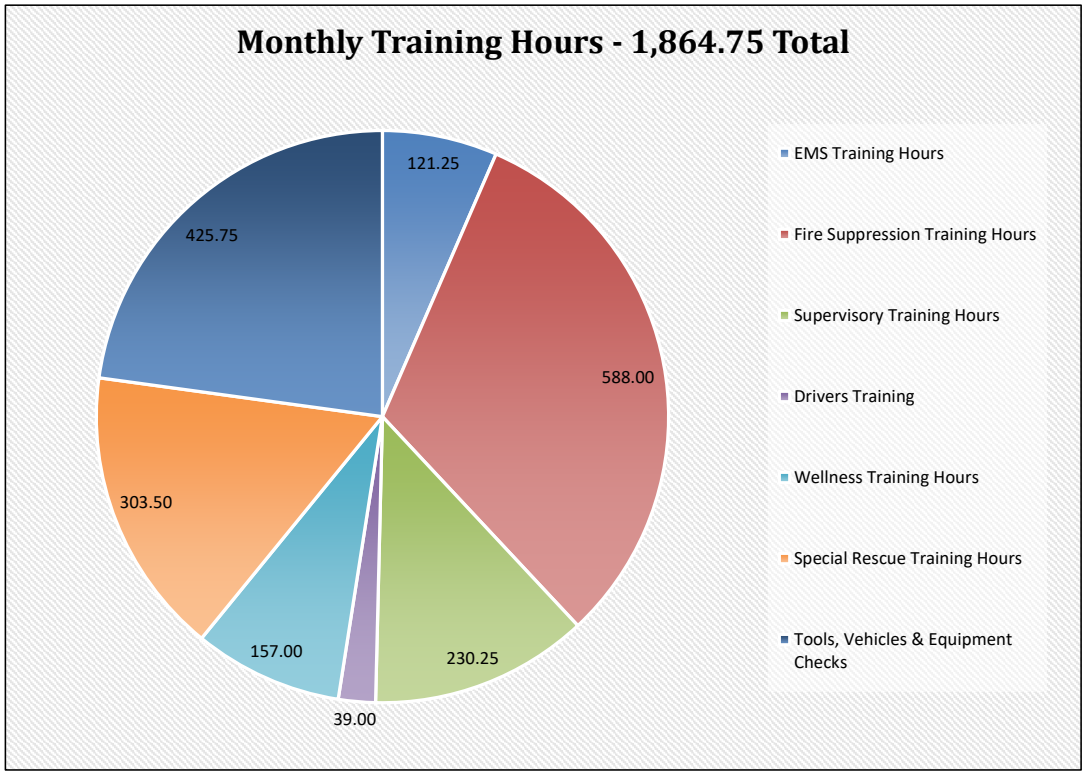
Lieutenant Booth- FDIC

Lieutenant Henriksen – FDIC

FF/PM Stodola – FDIC

FF/PM Tanner – FDIC

Deputy Chief Christopherson – IESMA Conference



FIRE PREVENTION BUREAU

April had some unusually warm weather which meant grass fire season was here.

The picture below demonstrates how quickly a simple burn pile can become a field fire.

The picture to the left is from a small fire at Copper Fiddle. The employee was familiar with how to work the fire extinguisher at the restaurant, which limited the fire damage.

The below picture is an example of why annual fire inspections are so important. This non-permitted furniture storage was discovered in an empty store in Kildeer. The store was packed solid from front to back. The Village of Kildeer was notified and is working with the owner to remove the storage and provide the proper permits.

The picture to the left is from a controlled Burning off of Lions Drive.

The Fire Prevention Bureau were there to make sure the burn was done safe and correctly.

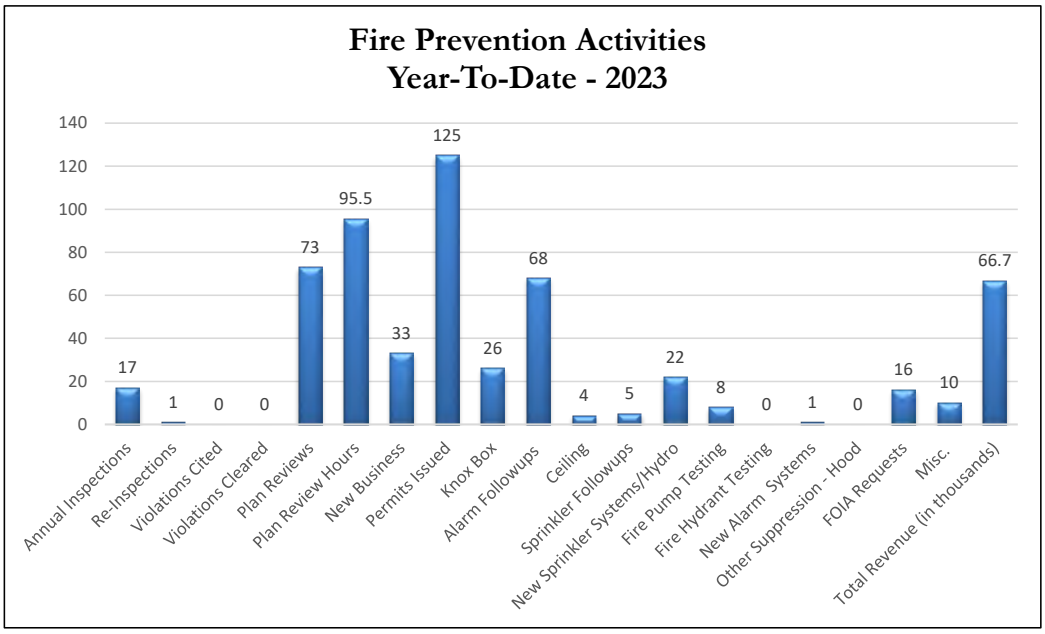
The picture to the left is from a mutual aid fire investigation to the Round Lake Fire Department.

This fire began under the deck and was determined to be from improper disposal of smoking materials.

The following meeting and training sessions were attended during April 2023

- NIFIA Board
- NIFIA general meeting and training session on fire investigations
- Deer Park construction meetings for multiple build outs at Deer Park Mall
- DRT meeting with Building & Zoning

- Costco replacement of Fire Alarm



PARKS & RECREATION DEPARTMENT

MONTHLY INFORMATION REPORT

April 2023

HIGHLIGHTING DATA METRICS
TO IDENTIFY OPERATIONAL TRENDS
AND
FACILITATE INFORMED DECISION MAKING

70 E. MAIN STREET
LAKE ZURICH, IL 60047

Departmental Narrative

The department is continuing to hire for our seasonal programs. The team attended the Lake Zurich job fair at LZHS on Monday, April 24th and Wauconda job fair on Friday, April 28th. Summer camp staffing is almost at 100% still hiring for approximately 2-3 team members, however, aquatics needs approximately10-15 to adequately staff all beach hours of operation and 20-25 staff to open the Wibit inflatables. There are many obstacles that the department is facing in regards to hiring for the beach including, but no limited to, new local opportunities such as Life Time (lost 10 guards), varying wages amongst different agencies (Life Time is paying guards $18, Crystal Lake and Wauconda beaches are at $15, Hawthorn Woods is $13,50 and VOLZ is $14), etc. This year the department has increased their outreach efforts with attending 4 local high school job fairs, posting at 2 community colleges and high schools with swim teams, regular announcements on Benchmarks and FB, announcements of the opportunities to volunteers at events and incentivizing current staff to reach out to their networks to share the seasonal opportunities. Dependent on applications to be received, recommendations on Wibits, beach hours of operation and swim lessons are anticipated to be submitted to the Village Manager's Office the first week in May. All positions can be found https://lakezurich.org/jobs.aspx Any assistance in spreading the word about these opportunities is appreciated. The department did interview and hire Julie Bradley to fill the Guest Service Associate afternoon position which has been vacant since March 6th. Her anticipated start date with the department will be May 15th with training to take place in the mornings until our day camp program begins.

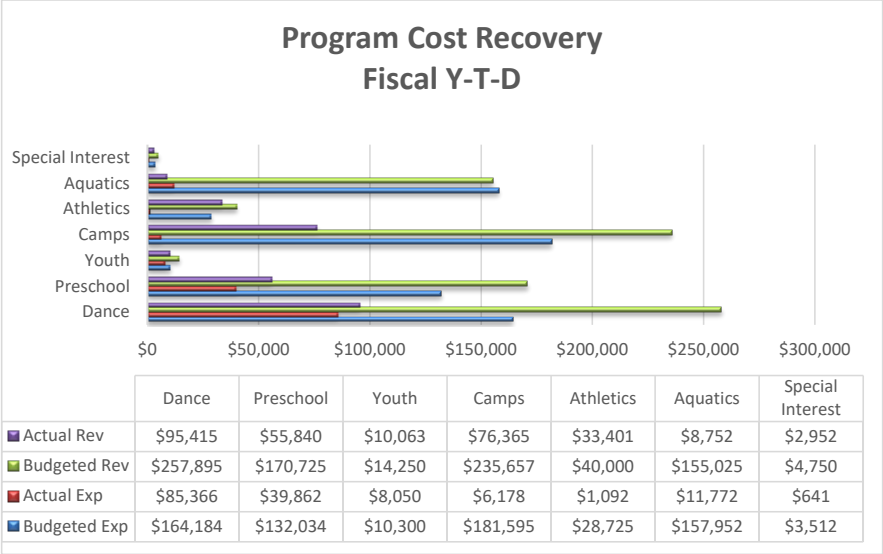
Staff is busy preparing for the end of our Spring season and the start of Summer programs. The Academy of Performing Arts (APA) held costume pick up day on Sunday, April 2nd for over 500 dancers as well as picture day on April 29th and 30th. The Spring recital will be held at Wheeling High School on May 6th (showtimes are 10am and 12:30pm) and May 7th (showtimes are 11am and 1:30pm). This year's theme is "10" celebrating 10 years of the APA program. If you are interested in attending, please email Elke Kadzielawski.

Our day camp team is preparing for the upcoming Summer camp season focusing on purchasing, communication and training week/orientation. We are still at capacity in the Camp Alpine (grades entering 1st thru 4th) and Camp Cedar (grades entering 5th-7th) programs with limited openings available for Kamp Kiddie (ages 3-5). In the past 3 months, the department has only experienced one cancelation and continues to work thru and monitor the wait lists. The program does have 3 participants that have requested inclusion and the department is working with our partner, Special Recreation Association of Central Lake County (SRACLC), to obtain one on one aides for them. The aquatics team is also preparing for the upcoming season with orientation to take place the week of 5/15, beach managers to attend the American Red Cross Lifeguard Instructor course end of May and training of newly hired, uncertified staff to take place early June. Beach preparations have already begun such as replenishing sand and landscaping and will continue thru the month of May for the Labor Day opening at Paulus Park. Nonmotorized permits and storage sales have begun and will continue thru October 1st. At this time, 24 season permits and 4 storage slips have been sold to Lake Zurich residents.

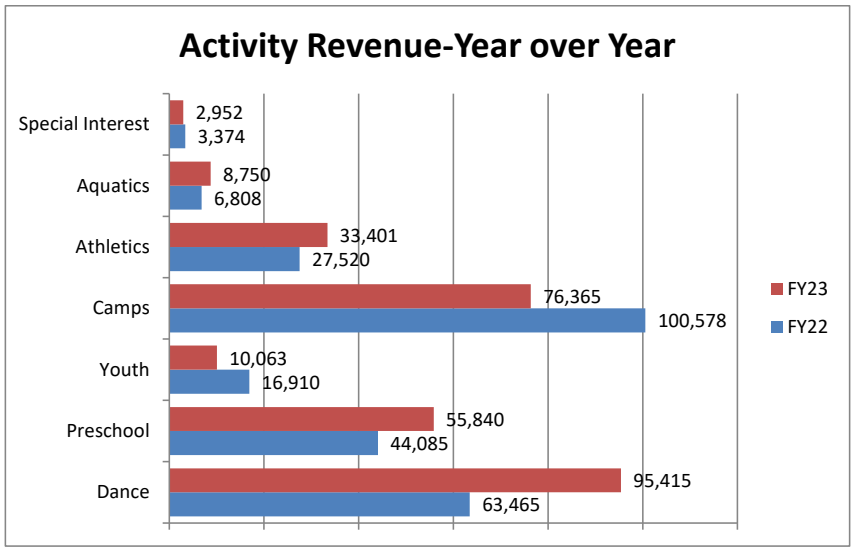
Despite the rainy weather, the department held Arbor Day on Saturday, April 29th at Paulus Park and a tree planting, sapling giveaway, park scavenger hunt for prizes, Coffee & Cocoa with Trustee Weider followed by community park clean ups. Rep. Nabeela Syed was present for the festivities and brought a team out to clean the parks despite the weather. The next event to take place at Paulus Park will be the Food Truck Socials running every Wednesday June thru August from 3-7pm at Paulus Park followed by the opening of the Farmers Market on June 2nd (Fridays from 3-7pm at Paulus Park). There are still a few booth areas for the market available and the committee is continuing to accept and review potential vendor applications. All events are posted on lakezurich.org for viewing as well as for volunteer sign up at https://lakezurich.org/571/Event-Volunteer-Opportunities

The department is continuing to work with the Public Works team to complete a variety of projects including the Buffalo Creek roof renovations and AC unit replacements (with inspections and punch list items to be wrapped up the first week in May), Paulus Park Bandshell/Electronic Marquee Concept, playground replacement construction at Jonquil Park (to be completed by end of July), and punch list items associated with the OSLAD Paulus Park grant. The department has signed an agreement with Hitchcock Design Group to create a plan and application for the upcoming Open Space Land Acquisition and Development grant opportunity (thru the IDNR) for continued enhancements at Paulus Park such as continued shoreline restoration as well as the renovation of the 20-year-old spray ground which is nearing the end of its useful life. Further information to be shared as the Village progresses thru the application process.

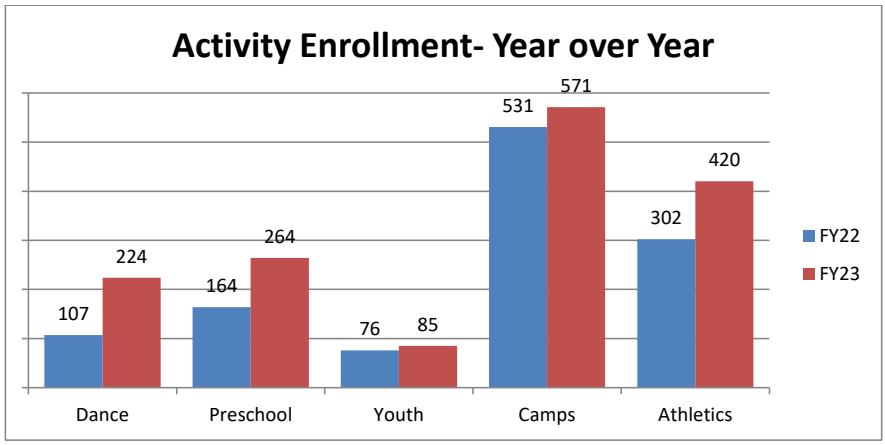
External events approved to hold their events on Village property in 2023 include Purple Plunge (3/4), Unplugged Fest (8/6), Brazilian Festival (8/12), Alpine Races (8/20), My Density Matters (10/15), Bushel of Apples Fest (9/22-9/24) and Jack O Lantern World. Park and Recreation Director Caputo is currently working on a RFP associated with partnering with an organization to produce and manage a triathlon in 2024 with hopes to have a recommendation to the Village Board early Summer. The department will continue their collaboration with Ancient Oaks Foundation quarterly community events that can be viewed in the brochure. Further details on both Village sponsored, external and internal events can be found in our seasonal program brochure, online or by contacting the department.

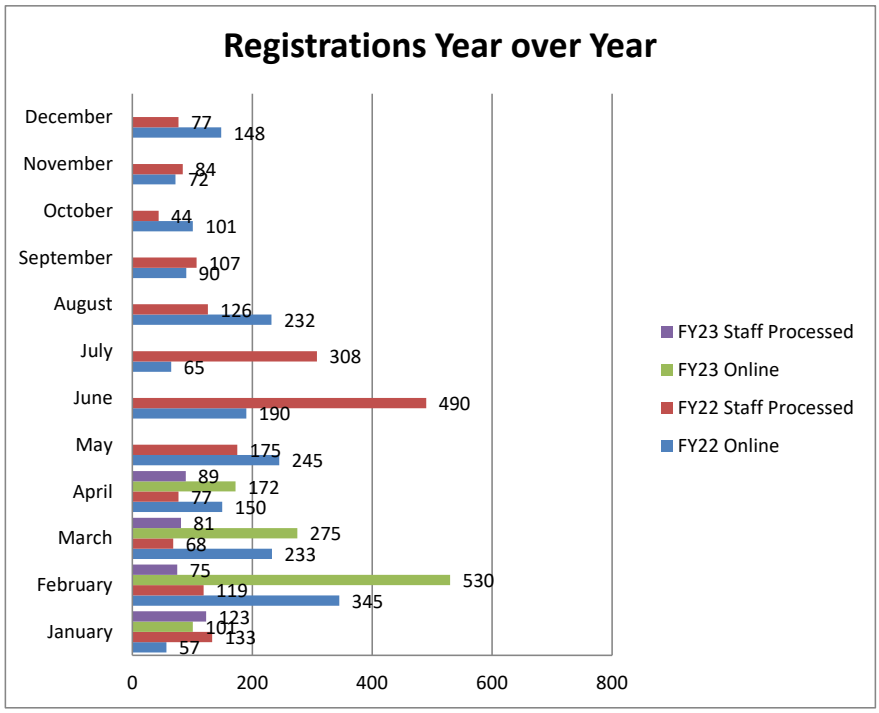


	Dance	Preschool	Youth	Camps	Athletics	Aquatics	Special Interest
Actual Rev	$95,415	$55,840	$10,063	$76,365	$33,401	$8,752	$2,952
Budgeted Rev	$257,895	$170,725	$14,250	$235,657	$40,000	$155,025	$4,750
Actual Exp	$85,366	$39,862	$8,050	$6,178	$1,092	$11,772	$641
Budgeted Exp	$164,184	$132,034	$10,300	$181,595	$28,725	$157,952	$3,512



All programs are exceeding revenue year over year with the exception of youth which is currently down as we had to cancel contracted programs due to loss of dog obedience instructor and day camp which is solely due to no collection of nonresident rev (full to capacity with residents; still anticipated to make budgeted rev). Dance revenue has increased year over year due to an increase in general class enrollment and the Impulse Dance Company program as well as their participation in competitions and conventions in the upcoming year.





Online registration is available to all residents and non-residents enrolling in programs. Beach membership and facility rentals must be made in person at the Paulus Park Barn. Payments made at the beach are NOT included in these numbers. February registrations reflect the priority resident registration period for camp deposits/payments.

PUBLIC WORKS DEPARTMENT

MONTHLY INFORMATION REPORT

April 2023

HIGHLIGHTING DATA METRICS

TO IDENTIFY OPERATIONAL TRENDS

AND

FACILITATE INFORMED DECISION MAKING

505 TELSER ROAD
LAKE ZURICH, IL 60047

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DEPARTMENTAL NARRATIVE

Park Maintenance: Crews have begun spring clean-ups at parks. Preparation for public restroom, beach, and splash pad openings will be taking place in early May.

Special Events: Staff assisted with two Easter events at Paulus Park. A tree was planted in celebration of Arbor Day on 4/29/23

Infrastructure Projects: Preparations of bid documents has begun for 2023.

- Emerald Ash Borer Planting has entered its final year. St Aubin Nursery and Landscaping Inc. will be completing the plantings in this final year of a three (3) year agreement which began in 2021. Upgrade letters to residents have been mailed.
- Concrete Replacement program has been awarded to Schroeder and Schroeder Inc. Construction is scheduled to begin in early May. This year's program includes Ancient Oaks, portions of Wicklow West, and portions of Countryside East.
- The sealcoating program has been awarded to Patriot Pavement Maintenance. We are awaiting construction timelines.
- Natural Area Maintenance has been awarded to Davey Resource Group. Maintenance will begin in early May.
- Asphalt Materials (HMA) has been awarded to Geske and Sons Inc. Materials will be installed by Village crews throughout the construction season.
- Roofing project at the Police Facility is well under way and on schedule. Projected completion is around June Roofing project at Buffalo Creek Park is 95% complete. A few touch up items will be completed the first week in May.

April Water Main Break Locations:
W. Cuba Road @ N. Inglenook Lane
1155 E. Rt 22
505 Telser Road

Water Main Replacement:
A Bid opening for the Main Street District (S. Old Rand, Main Street, Lake Street & Mionske Drive) water main improvements was held on February 22nd. Pirtano Construction Company of Addison, IL provided the lowest bid and has been awarded the project. A construction schedule has been provided indicating work to begin the first week of May.
A plan for the Rt. 12 water main replacement (between L.A. Fitness and Starbucks) is being reviewed and is anticipated to be part of the 2023 scheduled improvements. This segment will continue to remain out of service until the planned improvements are completed.

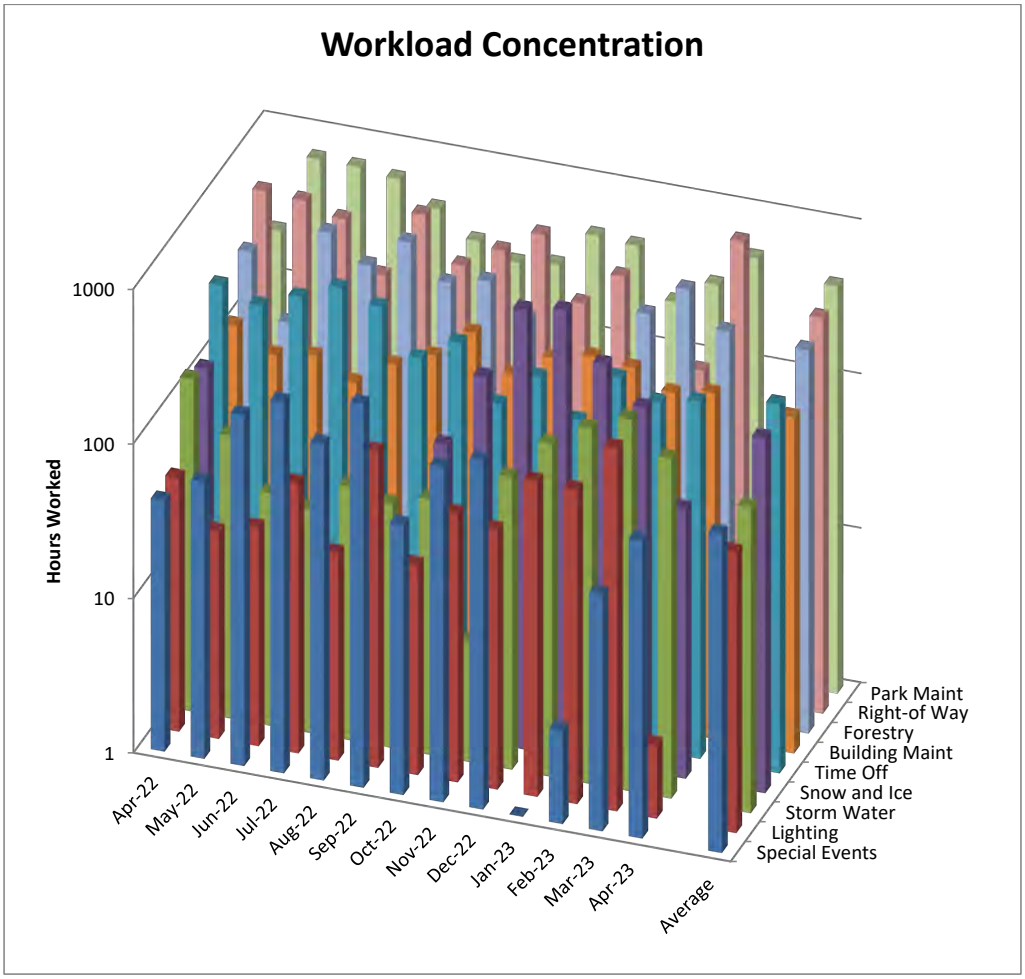
Employee Training:
All employees participated in Slips, Trips and Fall prevention training.

Anniversaries:
Dave Pearson reached thirty-one years of service.
Shawn Creech reached twenty-eight years of service.
Peter Neyfeldt reached eight years of service.

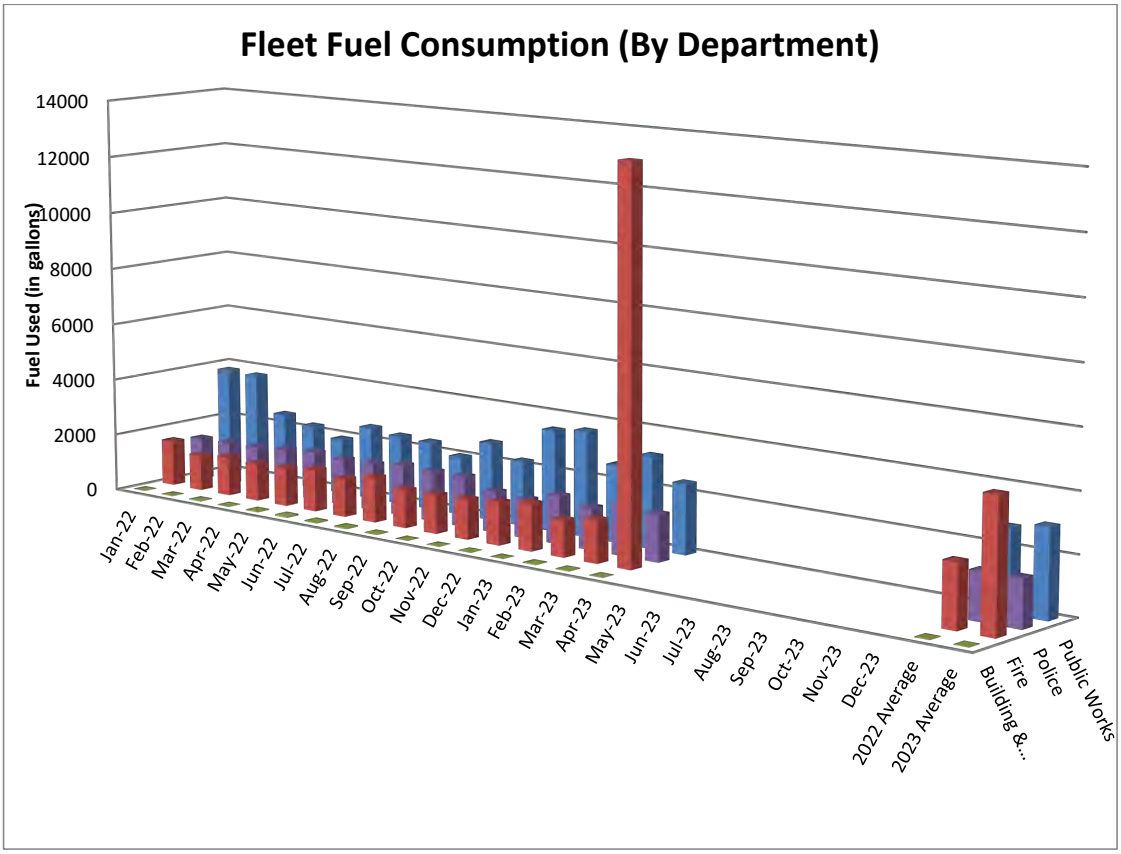
New Employees:

Staff Kudos:

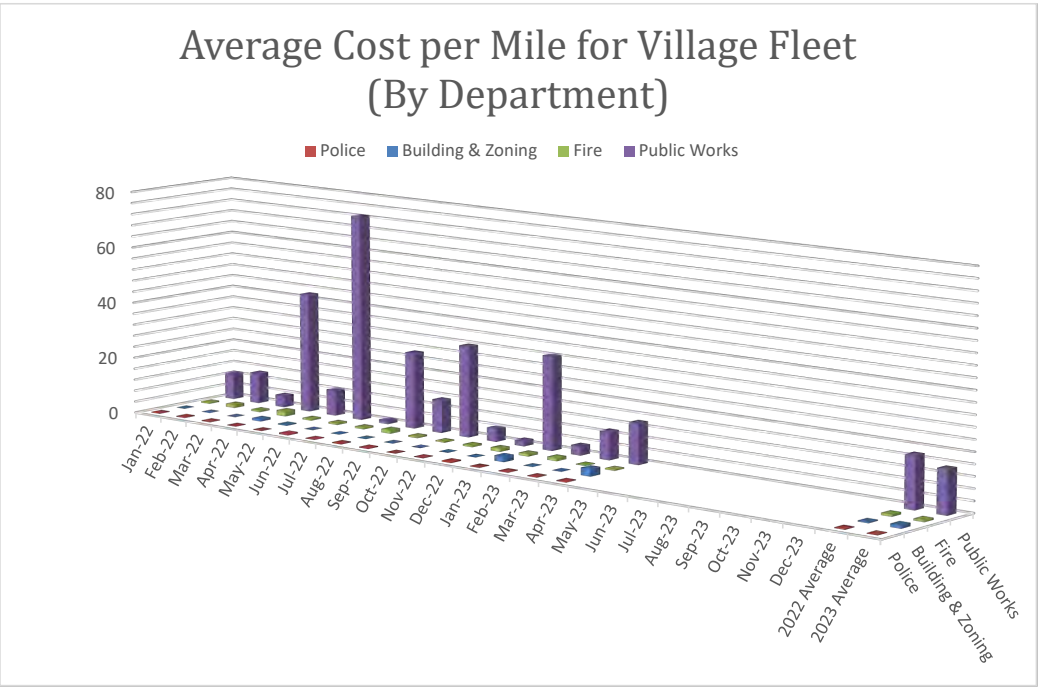
Utilities-
Matt Sikorski for his patience and understanding while with our residents.
General Services-
Jake Kramer for his continued professionalism executing tasks.
Mike Wicinski, Abe Hernandez, Ian Ryan for the excellent job on the Promenade re-deck.



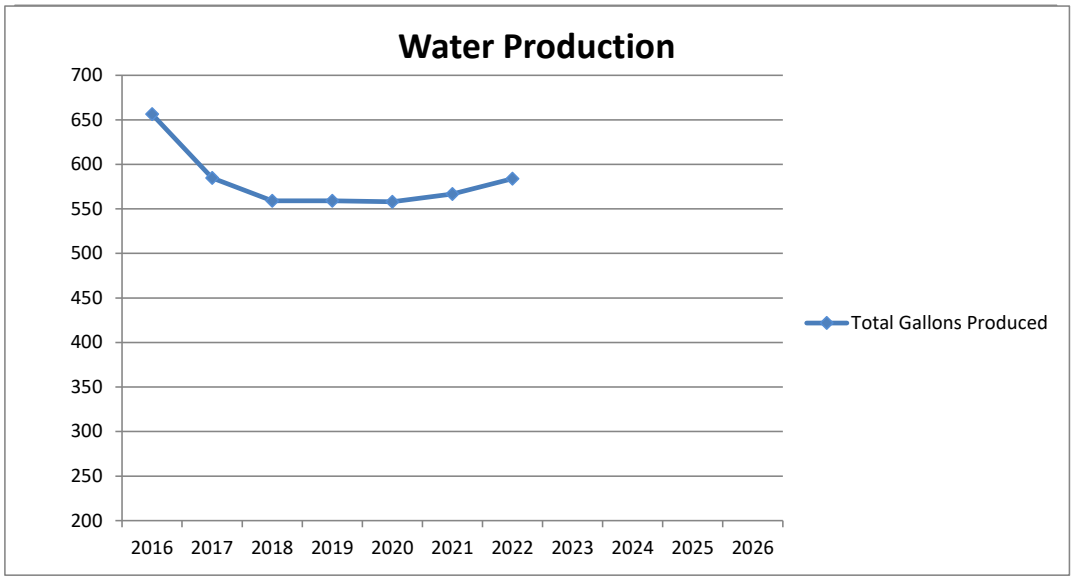
A core function of Public Works are related to the completion of work orders for several categories, including administrative, forestry, park maintenance, municipal property maintenance, right-of-way, snow and ice, street lighting, and storm water system maintenance. This chart shows the number of hours worked on major activities.



Tracking fuel consumption allows staff to make informed decisions relating to the municipal vehicle fleet, including the number of vehicles in each department, the types of vehicles purchased and the type of fuel source used. Dramatic fluctuations in fuel consumption can occur during events such as heavy snowstorms. (Output measure)



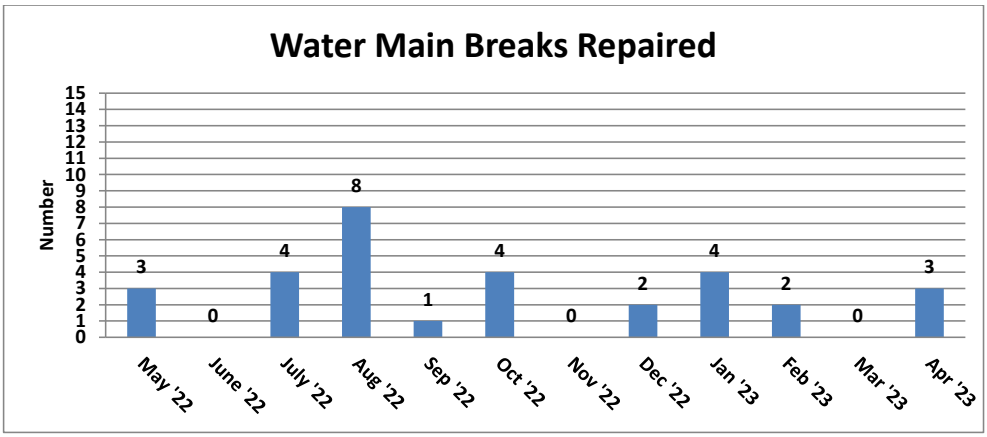
Vehicle cost per mile is an initial indicator of an efficient fleet operation. With basic cost per mile information in hand, all components that feed into that cost can be scrutinized and measured. These components include labor rates, fuel costs and parts costs. Looking further into the Village' vehicle cost per mile, staff can measure other components such as average vehicle age. When vehicles are replaced within their life cycle, the impact is usually positive.



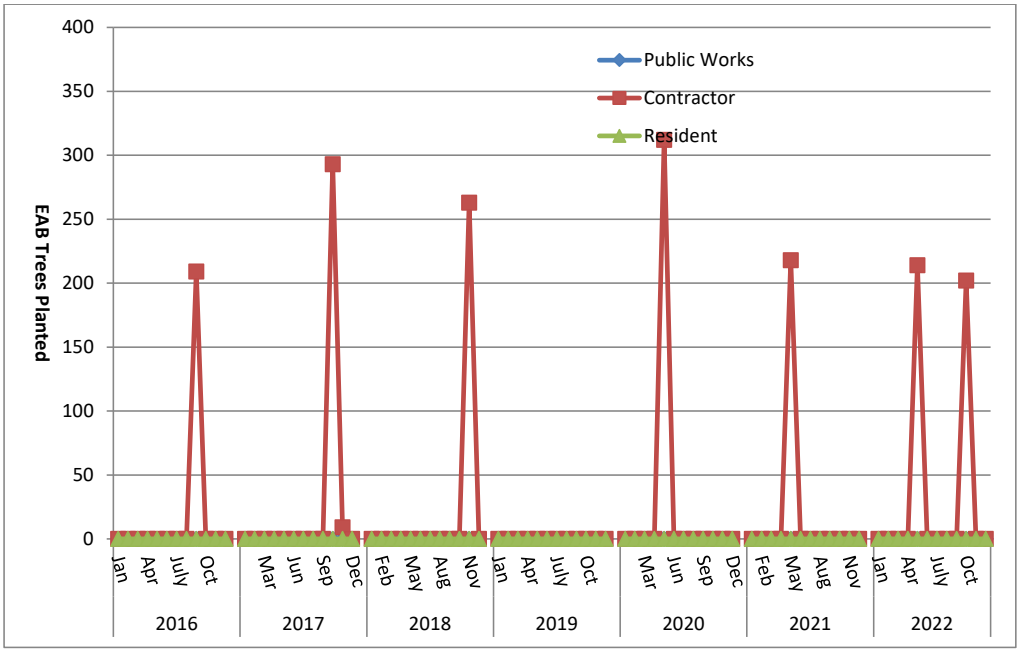
From 2012 to 2015, there was a steady decline in the annual volume of water produced and used by our community. This trend was altered in 2016 due to dry weather leading to increased watering of lawns and landscaped areas.

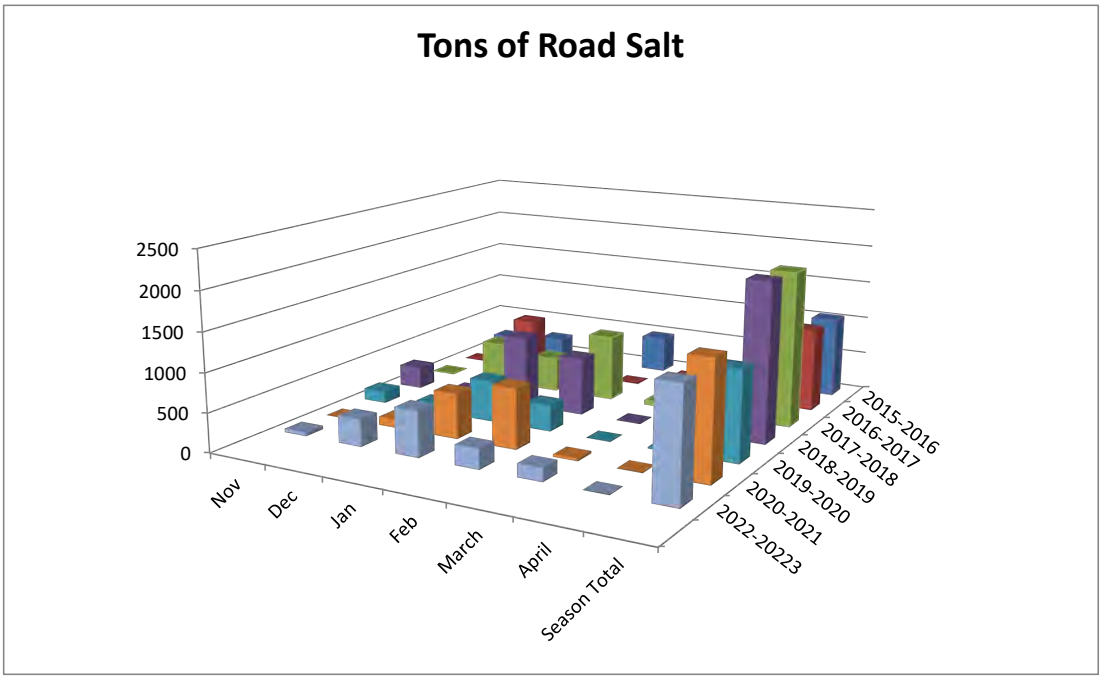
	2016	2017	2018	2019	2020	2021	2022	2023	2024
January	49.301	46.667	45.868	44.227	43.867	42.319	43.414	44.980	
February	45.801	40.952	41.098	41.452	41.645	40.367	39.261	40.767	
March	53.467	44.543	43.155	43.946	43.552	42.924	41.852	44.741	
April	55.963	49.974	45,098	43.570	40.662	45.129	43.301	44.971	
May	60.273	49.588	48,065	45.339	44.834	51.240	67.048		
June	63.819	56.169	46.114	45.489	51.130	56.763	60.282		
July	68.751	53.755	57.074	59.526	54.529	53.105	55.144		
August	66.229	54.746	54.067	61.419	58.959	54.083	55.279		
September	58.664	53.928	46.809	44.786	51.040	51.058	48.164		
October	45.838	47.169	44.369	43.476	44.443	44.019	44.912		
November	42.120	42.335	42.089	41,475	40.680	42.441	40.581		
December	46.088	44,961	45.305	44.379	42.684	43.222	44.757		
Total	**656.314**	**584.787**	**559.111**	**559.084**	**558.025**	**566.670**	**583.995**	**175.459**	
Avg	1.793	1.598	1.532	1.532	1.529	1.553	1.600	1.462	
% incr/decr	11.37%	-12.23%	-4.59%	0%	-0.02%	1.55%	3.06%		

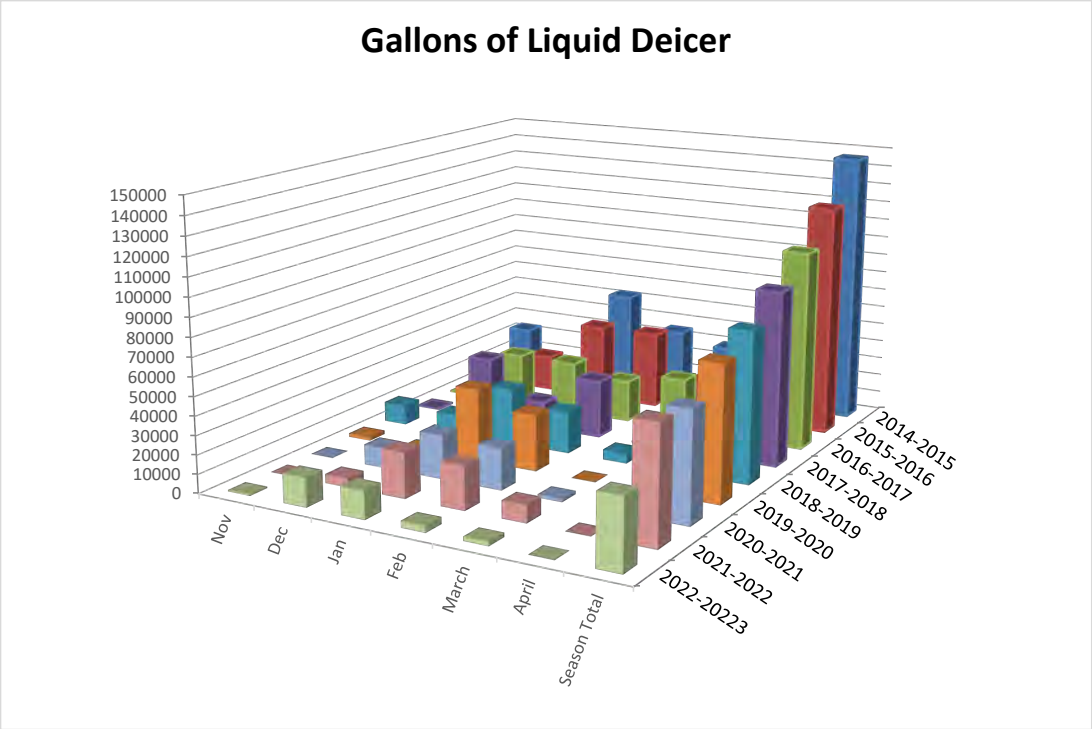
The highlighted months are the lowest for each of these months in the last 6 years. The highest monthly production in the last 6 years occurred in July of 2016. In 2022, our daily average was 1.6 million gallons per day.



A water main break can be a hole or crack in the water main. Common causes of breaks in the water main include: age, pipe material, shifting in the ground attributed to fluctuations in moisture and temperature (below and above the frost line), corrosive soil that causes a thinning of the water main pipe, improper backfill, severe changes in water pressure (hammer) which has several causes and physical contact (damage) by excavating contractors.


Emerald Ash Borer Tree Replacement Program
EAB Trees Planted
400
350
300
250
200
150
100
50
0
Public Works
Contractor
Resident
Jan
Apr
July
Oct
Mar
Jun
Sep
Dec
Feb
May
Aug
Nov
2016
2017
2018
2019
2020
2021
2022


Tons of Road Salt
2500
2000
1500
1000
500
0
Nov
Dec
Jan
Feb
March
April
Season Total
2015-2016
2016-2017
2017-2018
2018-2019
2019-2020
2020-2021
2022-20223


Gallons of Liquid Deicer
150000
140000
130000
120000
110000
100000
90000
80000
70000
60000
50000
40000
30000
20000
10000
0
Nov
Dec
Jan
Feb
March
April
Season Total
2014-2015
2015-2016
2016-2017
2017-2018
2018-2019
2019-2020
2020-2021
2021-2022
2022-20223

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COMMUNITY DEVELOPMENT DEPARTMENT

MONTHLY INFORMATION REPORT

April 2023

HIGHLIGHTING DATA METRICS

TO IDENTIFY OPERATIONAL TRENDS

AND

FACILITATE INFORMED DECISION MAKING

505 TELSER ROAD
LAKE ZURICH, IL 60047

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D E P A R T M E N T N A R R A T I V E

During the month of April 2023, the Community Development Department was engaged in the following activities:

BUILDING & ZONING DIVISION:

Commercial Permits Issued:

- 185 S Rand – 50/50 Barber Shop – interior build out
- 103 S Rand – Lake Liquors – interior build out
- 1400 Rose – Alpha Tekniko – interior build out
- 81 E Main – Lions Park - installation of batting cages

Commercial Occupancies Issued:

- 751 W IL Rt 22: Saludabless (restaurant)

FOIA Requests: Total number of FOIA requests: 5

PLANNING AND DEVELOPMENT DIVISION:

Planning and Zoning Commission (PZC) Activity:
At the April 19, 2023 meeting of the PZC, the following applications were considered:

1. *154 Oak Street – SV Estates, LLC - PUD and Plat of Subdivision* – The item was continued to the May 17, 2023 meeting as the Applicant was not present at the hearing.

2. *405 N Rand Road – BBQ'd Productions Grill* – The Application had been continued from the January 18, 2023 meeting of the PZC. The Applicant, Mr. Kris Schoenberger was present at the meeting and read a brief statement regarding what he had done in the interim to address the concerns of a neighbor to the rear and staff to bring the property into compliance. In particular he pointed out that the illumination of the lights had been reduced to acceptable levels, additional landscape material had been planted along the rear lot line to replace the trees that had been removed, the smoke stack had been extended by 36 inches to dissipate the smoke, the dumpster had been moved to a point as far away from the northwest corner and will remain covered at all times, and the gate along the rear fence would be locked, but not removed. He also clarified the hours of garbage pickup were during the day time rather at night. Community Development Director Saher also verified these items through receipt of a lighting plan and inspection of the premises. The adjacent resident on Betty Drive that had objected to the application in January restated her objections at this meeting. There were also others present who voiced their support for the restaurant and the Applicant. Following the close of the hearing and discussion, the PZC voted 5-0 to recommend approval of the special use permits for live entertainment within the building and the exterior lighting. The application is likely to be presented to the Village Board for approval May 15.

New Zoning Applications received (for PZC consideration).
The following new applications were received for consideration by the PZC at their next meeting on May 17, 2023.

New Application.

1. *833 Foxmoor Lane – Jay and Divya Gandhi – Fence Variation.* Variation to allow the construction of a 5-foot high ornamental fence within the corner side yard setback, facing Pheasant Ridge Drive.

Continued Application.

2. *154 Oak Street – SV Estates, LLC - PUD and Plat of Subdivision* – Continued consideration of application for the subdivision of the existing 18,840 square-foot lot into two single-family residential lots to allow for the construction of two new single-family residences. A PUD is being requested to allow for one of the two new lots to be configured with a land area and street frontage that is less than the minimum required by the zoning code.

New and Ongoing Development:

1. *Midlothian Manor Annexation.* An application for annexation zoning and development of the property was submitted by Housing Opportunity Development Corporation (HODC). The submittal is currently being reviewed by the Development Review Team (DRT) and is likely to be scheduled for a PZC hearing in June.

2. *OSK Townhomes - 670 S Old Rand Road.* Following the denial of the Application by the Village Board in January, the Developer's architect held conversations with Community Development Director Saher and the Village engineer to understand the engineering requirements and redesign the proposal. The architect indicated that they intend to submit a revised proposal in May.

3. *Sanctuary of Lake Zurich.* The developer requested temporary occupancy of the first residential unit. However, staff advised them that there are items yet to be completed before temporary occupancy could be granted. Staff was concurrently ready to issue a permit for the construction of the commercial restaurant and was awaiting the project contractors to register. Staff was also preparing the final establishing ordinance for the subdivision's backup SSA to be presented to the Village Board on May 1.

4. *Wildwood Estates of Lake Zurich* The developer, Projades, LLC is nearing completion of the site and utility work. However, during the last heavy rain event, their silt fences were breached allowing silt-laden water to leave the development area into the adjacent wetland. Following the issue of a Notice of Violation of the stormwater ordinance, the developers began repairs and mitigation of the damage to the wetland areas. Staff completed a review of their first duplex building will issue a building permit upon the developer's demonstration of compliance with the stormwater ordinance.

5. *Block A Development.* Village Staff met this week with a potential development group which is considering submitting a proposal for a restaurant and entertainment venue on Block A. The group has previous experience in this industry and asked to meet to learn how the process is managed with the Village. They noted they have been working with an investment group which had previously requested demographic data for southwest Lake County and believe such a venue would prove successful on Block A. After discussing initial concepts with staff, they will meet again with their investment group to determine the feasibility of moving forward. If is determined that such a venue could prove successful, they will return with a preliminary concept of the project.

6. *BLOC Cannabis at 676 S Rand Road.* Mr. Greg Winner of Hamilton Partners, the owner of the property contacted the Village to say that he had heard back from BLOC and that they are close to securing their contractor. Community Development Staff is still awaiting their submittal of their occupancy and

business license application and information on the contractor that will need to be registered once confirmed, which will then enable issuance of permits.

7. *Andy's Deli at 265 North Rand Road*. The developers had been working to resolve an issue of accommodating the screening wall along Sunrise Lane and parking on the property and submitted their revised plans for DRT review. The project had not progressed since the building was demolished in late 2021.

8. *Chipotle Restaurant at 442 S Rand Road.* Chipotle is planning a new quick serve restaurant at 442 South Rand Road (out lot at the former Chase Bank Building), with a drive-through. They intend to present their concept to the Village Board in May for Courtesy Review feedback.

9. *Westberry Subdivision requesting an active SSA for the maintenance of the detention basin.* A resident with support of a few of the subdivision's homeowners approached the Village with a request to set up an SSA for the maintenance of the detention pond and adjacent natural areas. The detention basin property is privately owned by an out-of-town owner that acquired the property not realizing that it was not buildable. Staff would notify them of the proposed SSA so that funds for its maintenance can be secured. There is currently an SSA (#10) for the maintenance of drain tile on the property. However, with the completion of Avery Ridge immediately to the north and its stormwater management features, the drain tile was no longer needed and was removed. SSA 10 will therefore be repealed with the establishment of the new maintenance SSA. Village staff also encouraged the residents of Westberry to reinstate their HOA to oversee their activities.

10. *Medical Office Building at former White Alps property - 572 West Main St.* The project to construct a medical office building for an Arizona based company providing access to pain relief for chronic pain conditions without surgery, drugs or invasive treatments had been delayed while awaiting IDOT's review for utility connections. Upon release of that permit, a building permit would be issued for the project to commence.

11. *NorthStar Pickle Company at 629 Rose Road*. Community Development Director Saher and Assistant to the Village Manager Kordell accepted a meeting request from NorthStar Pickle Company (968 and 972 Donata Court) and its building contractor Flex Construction to discuss the company's future plans for growth and expansion. The company is considering various available sites in other municipalities and even Wisconsin properties, but they are also eyeing an available vacant property on Rose Road in the Lake Zurich Industrial Park. The Company has learned about the recently created Industrial TIF District and inquired about how TIF can be utilized as an economic development tool to turn their plans into reality in Lake Zurich. Representatives from the Company and Flex Construction reviewed potential TIF-eligible items (such as site work, property assemblage costs, engineering costs and public utility connections) that could provide enough TIF assistance to stimulate the company to jump-start expansion efforts on Rose Road instead of another municipality. NorthStar Pickle Company has been operating in Lake Zurich since the summer of 2014. Lake Zurich is the location of their newest manufacturing line, which is capable of producing a wide variety of pickle flavor profiles in almost any cut imaginable for any size customer. The company has been a good neighbor in the industrial park with no issues. The company currently employs 14 full-time positions on Donata Court, but is looking to expand due to increasing demand for their product in national markets. The proposal to expand includes construction of a new approximately 80,000 square foot facility on the vacant property at 629 Rose Road. The new facility would create an approximately 25-line jobs along with two to three indirect office management positions. Village Staff will continue discussions with the company to determine if the economic development potential of the Industrial TIF can induce a $15+ million redevelopment project on Rose Road. NorthStar has also offered manufacturing facility tours of their existing operations if any

Trustees are interested in touring the interesting pickle work they do in Lake Zurich. Please contact Assistant to the VM Kordell to arrange a tour.

Report on Recent Rainfall

With all the recent storms and rain events there had been a significant increase in calls and emails to the Village regarding standing water and flooding on residential properties. Our region had a wet late winter and the ground was heavily saturated with no capacity to take in more rain. The rain that had fallen had been really intense over very short time periods, resulting in more visible ponding and running channels of water than normal.

- The historical average for February was exceeded just during one event, and then followed up by another rainy month in March. In just the first few days of April, we were already close to the average for the month. Area rain-gauge data showed that we had more rain than normal, and additionally rain for multiple days, with little time to recover in-between.
- Another contributing factor to seeing more water standing around was that these rainfall events were producing significant amounts of rainfall in very short durations, in just a few minutes to maybe an hour. The ground was already saturated from previous snow melts and rainfall, with the existing depressions and receiving ditches full of water and unable to take more from intense dumps of precipitation.
- We were also still coming out of winter and didn't have the benefit of warm weather and sunshine to help speed up the process of drying out and promoting evapotranspiration, and the vegetation and just newly defrosted soil wasn't ready to soak up the excess this time of year.

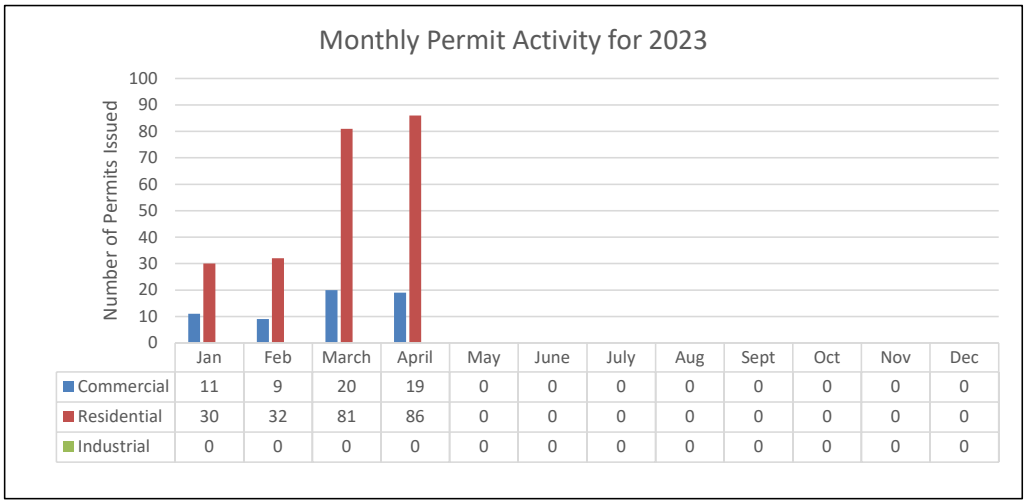
This is not typical for this time of year, as we had more rain than normal, ground already saturated, depressions and ditches already full, vegetation unable to absorb, the weather not warm enough to dry out, and intense rain coming down so hard it could not soak in and needed to take time to drain away – the combination of which resulted in the a "perfect storm" for flooding. However, after monthly dry and warmer weather was able to dry out these areas.

Code Compliance Updates.

Mazeika Vehicle Violations. On Monday, April 3, 2023 at 10:30 am, Attorney Scott Uhler represented the Village at the Mundelein Branch Court for the scheduled hearing of the Mazeika Vehicle violations. Mr. Mazeika was not present, but represented by his attorney, Mr. Joe Morrison. Attorney Morrison identified himself as representing Mr. Mazeika and requested additional time to familiarize himself with the case. Judge John Joanem granted the request and scheduled a status of compliance date on June 2, 2023.

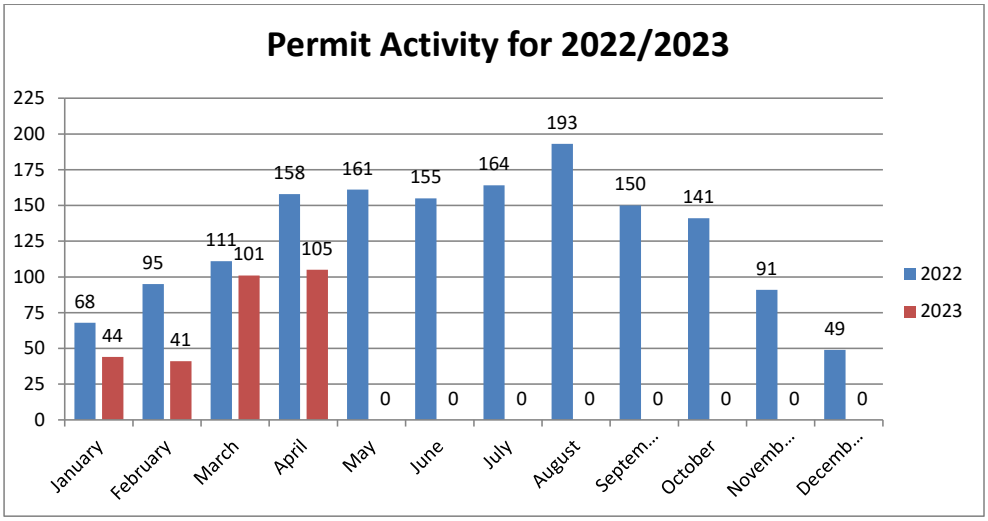
Comprehensive Plan Update.

Teska selected as consultant to complete Comprehensive Plan Update. The Village has received two proposals for a comprehensive plan update – from Teska Associates and The Lakota Group. The comp plan was last updated in 2003. The purpose of the update is to identify recent – and forthcoming – economic development trends and land use patterns to chart a path forward for continued economic growth in Lake Zurich over the next 10-20 years. Both Teska and Lakota Group teams proposed a conventional process including community assessment, engagement, analysis, visioning, goals, branding, plan preparation including preliminary and final plan documents. Both teams had substantial experience in having prepared comprehensive plans in the past, many of which were in the vicinity and the region of Lake Zurich including Lake County and northeast Illinois. However, the total cost proposed by Teska was significantly less than Lakota. Staff prepared a recommendation to engage with Teska Associates for a comp plan update for the Board's consideration.

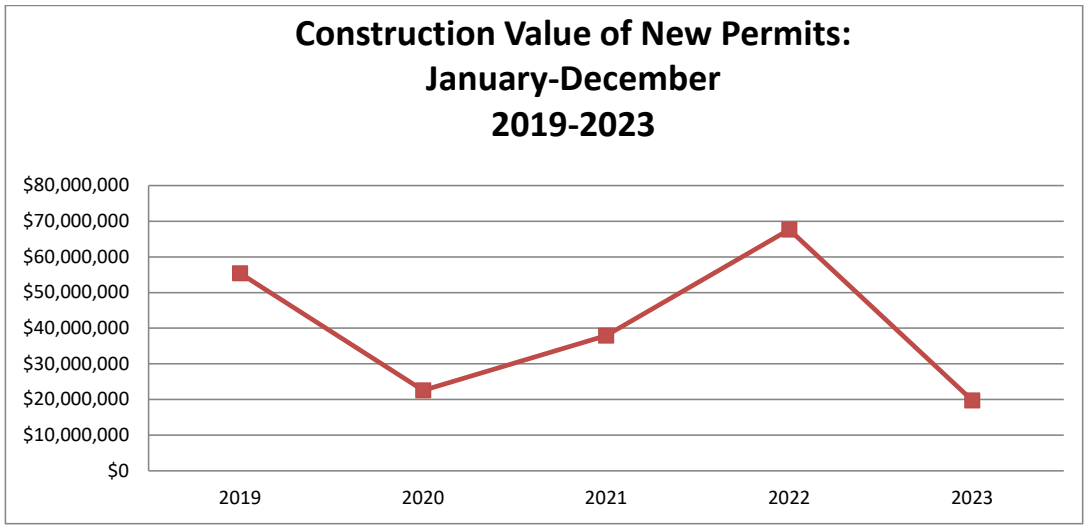


	Jan	Feb	March	April	May	June	July	Aug	Sept	Oct	Nov	Dec
Commercial	11	9	20	19	0	0	0	0	0	0	0	0
Residential	30	32	81	86	0	0	0	0	0	0	0	0
Industrial	0	0	0	0	0	0	0	0	0	0	0	0

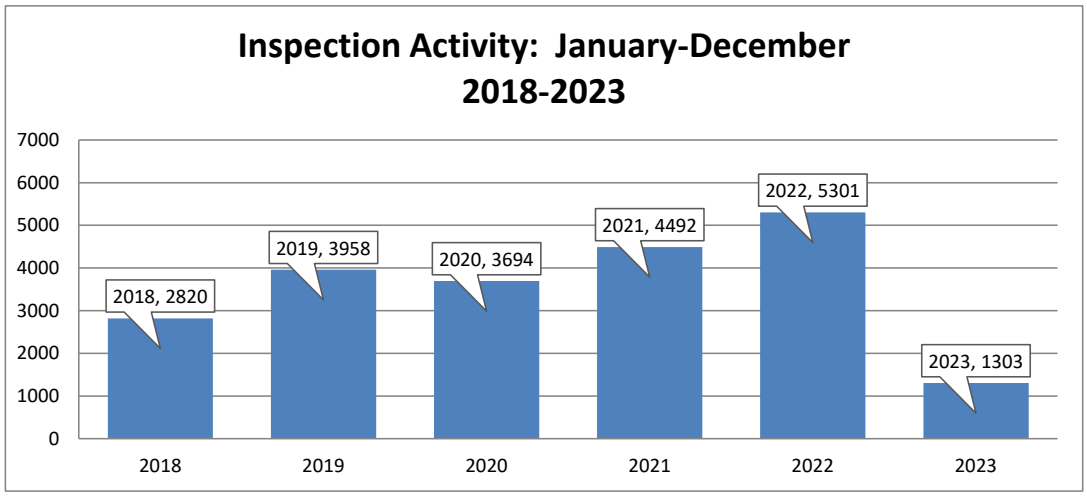
The chart above represents the total of permit activity on a monthly basis for 2023.



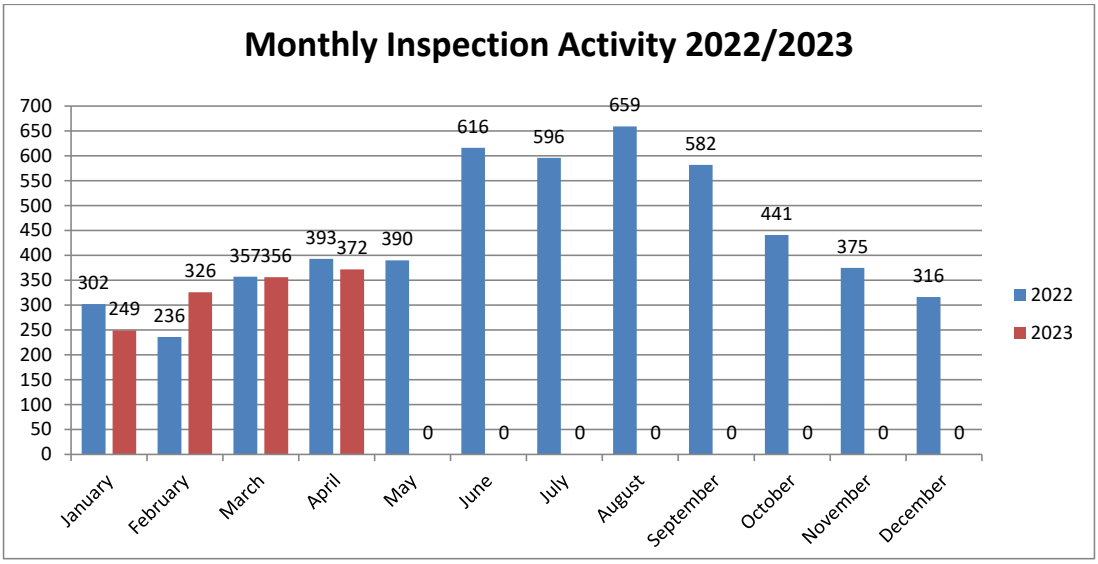
The chart above compares monthly permit activity for 2023 to the previous year 2022.



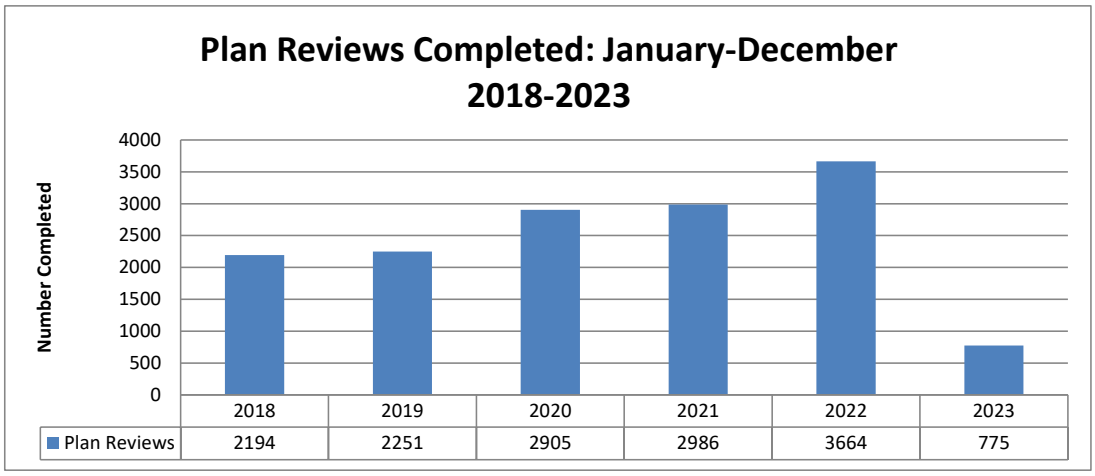
This chart tracks construction value of permit activity by year for 5 years.



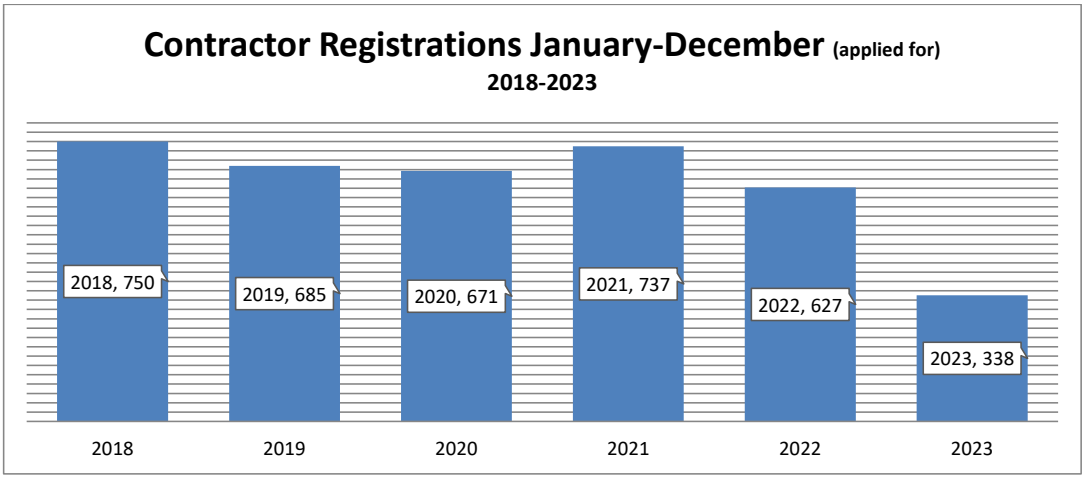
This graph illustrates the number of inspections performed by year.



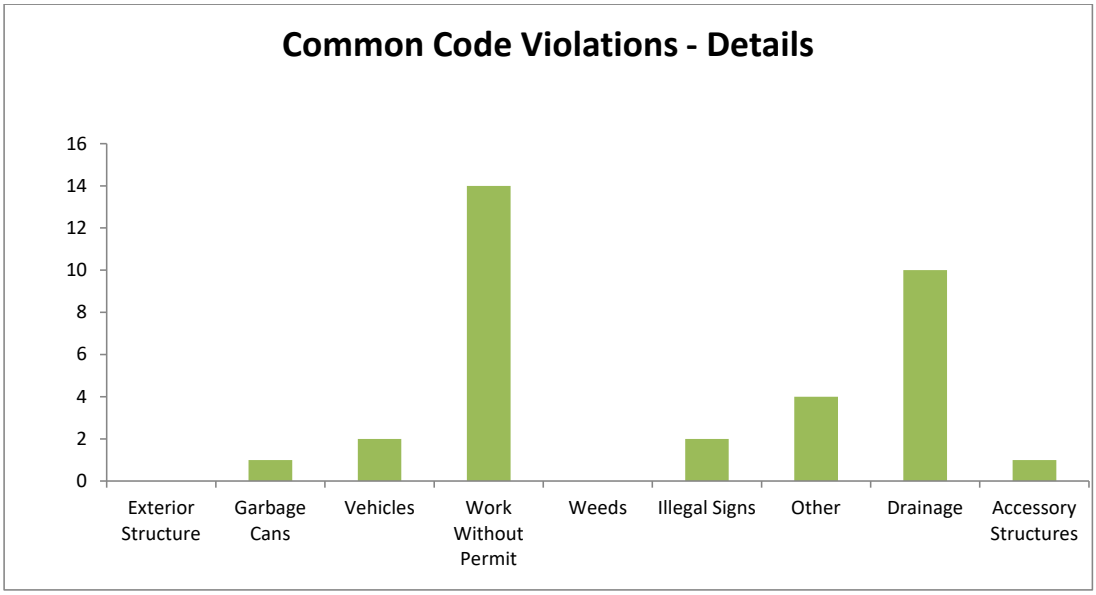
This chart indicates inspection activity on a monthly basis for 2023 compared to the previous year 2022.



This graph illustrates the number of plan reviews performed by year.



The graph represents the number of contractor registrations for the year as compared to prior years. Contractors are required to register on an annual basis to remain current with the village.



This graph illustrates the number of code violations reported for the month. The data varies from month to month and is season dependent.