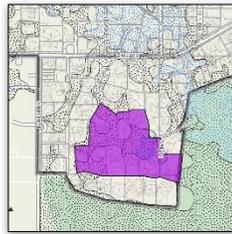


Village of Winnetka, Illinois

Repetitive Loss Area Analysis – Area #6



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Village of Winnetka, Illinois Repetitive Loss Area Analysis – Area #6

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LIST OF DEFINITIONS

100-Year Flood (1% Annual Chance Flood)

A storm event that has a 1% chance of being equaled or exceeded in any given year.

100-Year Flood Elevation

The high water elevation produced by the 100-year flood.

100-Year Floodplain

The area that would be inundated by the 100-year flood.

500-Year Flood (0.2% Annual Chance Flood)

A storm event that has a 0.2% chance of being equaled or exceeded in any given year.

500-Year Floodplain

The area that would be inundated by the 500-year flood.

CRS (Community Rating System)

A voluntary program designed to reward a community for doing more than meeting the NFIP minimum requirements to reduce flood damages.

FEMA (Federal Emergency Management Agency)

The Federal agency responsible for implementing the NFIP.

FIRM (Flood Insurance Rate Map)

A series of maps provided by FEMA that designate areas of a community according to various levels of flood risk.

MWRDGC (Metropolitan Water Reclamation District of Greater Chicago)

An independent government and taxing body that manages water supply, wastewater, and stormwater in Cook County, Illinois.

NFIP (National Flood Insurance Program)

The program enabling property owners in participating communities to purchase insurance protection from the Federal government against losses from flooding.

Repetitive Loss Property

A property for which two or more flood insurance claims of more than \$1,000 have been paid within any 10-year period since 1978.

RLA (Repetitive Loss Area)

The properties on the repetitive loss list prepared by FEMA and all nearby properties with the same or similar flooding conditions.

RLAA (Repetitive Loss Area Analysis)

A detailed, site-specific plan to reduce flood losses in repetitively flooded areas.

EXECUTIVE SUMMARY

The purpose of this Report is to help homeowners reduce their flood risk by providing a broader understanding of the problems and identifying potential solutions. It is one component of the Village's overall floodplain management program and is a creditable activity for the Village's participation in the Community Rating System (CRS) program. This Report focuses on Repetitive Loss Area #6, one of the six designated Repetitive Loss Areas (RLAs) within the Village of Winnetka. RLA #6 is comprised of the purple shaded areas shown in Figure 2.

This Repetitive Loss Area Analysis (RLAA) followed a five step process.

- Step 1 – Advise all the properties in each RLA that the analysis will be conducted and request their input on the hazard and recommended actions.
- Step 2 – Collect data from agencies or organizations that may have plans or studies that could affect the cause or impacts of the flooding.
- Step 3 – Inspect each building in the RLA and collect basic data.
- Step 4 – Review alternative approaches and determine whether any property protection measures or drainage improvements are feasible. The review must consider the full range of property protection measures for the types of buildings affected, including: preventative activities, property protection activities, natural resource protection activities, emergency services measures, structural projects, and public information activities.
- Step 5 – Document the findings in a report.

Section 3 of this Report describes the next steps, which include: implementing recommended flood hazard mitigation measures, obtaining funding assistance for these measures, and annually updating this Report.

1. BACKGROUND

1.1 Problem Statement

Flooding is a recurring problem for communities across the nation, including Winnetka. Neighborhood flooding events disrupt transportation, commerce, and lives. Property damage due to flooding is much more than an inconvenience; it carries a high price of both time and money.

Simply put, a flood is a damaging overflow of water into a building or onto land that is dry most of the time. One type of flooding occurs when streams or rivers overflow into a floodplain, but flooding also occurs outside of floodplains when the rate of stormwater runoff exceeds the capacity of the drainage system. Flooding in Winnetka is typically due to the capacity of the drainage system and not due to overflowing rivers or streams.

The purpose of this Report is to help homeowners reduce their flood risk by providing a broader understanding of the problems and identifying potential solutions. It is one component of the Village's overall floodplain management program. The completion of this Repetitive Loss Area Analysis (RLAA) allows the Village to receive credit under the National Flood Insurance Program's (NFIP's) Community Rating System (CRS) program. The Village joined the NFIP in 1973 and participates in the CRS program. Additional information about the NFIP, the CRS program, and a RLAA is provided below.

1.2 National Flood Insurance Program

The NFIP is based on a cooperative agreement between the Federal Emergency Management Agency (FEMA) and local units of government. FEMA agrees to underwrite flood insurance policies within a community and the community agrees to regulate development in the floodplain. Participation in the NFIP is voluntary, but communities have incentive to join because Federally-backed flood insurance is not available in non-participating communities and a non-participating community will not receive Federal aid for damage to insurable buildings in the floodplain.

The three basic components of the NFIP are floodplain mapping, flood insurance, and floodplain management regulations. Floodplain mapping is provided by FEMA on a series of maps called Flood Insurance Rate Maps (FIRM), which designate areas of a community according to various levels of flood risk. Regardless of its risk level, any building in an NFIP participating community can be covered by a flood insurance policy, even buildings not located in a mapped floodplain. A flood insurance policy is only mandated for Federally-backed mortgages on buildings in the floodplain. Any new buildings constructed in a floodplain, and any improvements or repair of existing buildings in a floodplain, is subject to the Flood Hazard Protection Regulations (Chapter 15.68) of the Village Code.

1.3 Community Rating System

The CRS is a voluntary program designed to reward a community for doing more than meeting the NFIP minimum requirements to reduce flood damages. Communities can be rewarded for activities such as: reducing flood damage to existing buildings, managing development in areas not shown in the floodplain on the FIRMs, protecting new buildings from floods greater than the 100-year flood, helping insurance agents obtain flood data, and helping people obtain flood insurance. The reward for these activities comes in the form of reduced premiums for flood insurance policy holders in the participating community.

Once a community has been accepted into the CRS, the community's floodplain management activities are rated according to the scoring system described in the CRS Coordinator's Manual. CRS communities are rated on a scale of 1-10. A Class 10 community receives no reduction in flood insurance premiums, but every class above 10 receives an additional 5% premium reduction. Class 1 requires the most credit points and provides a 45% premium reduction.

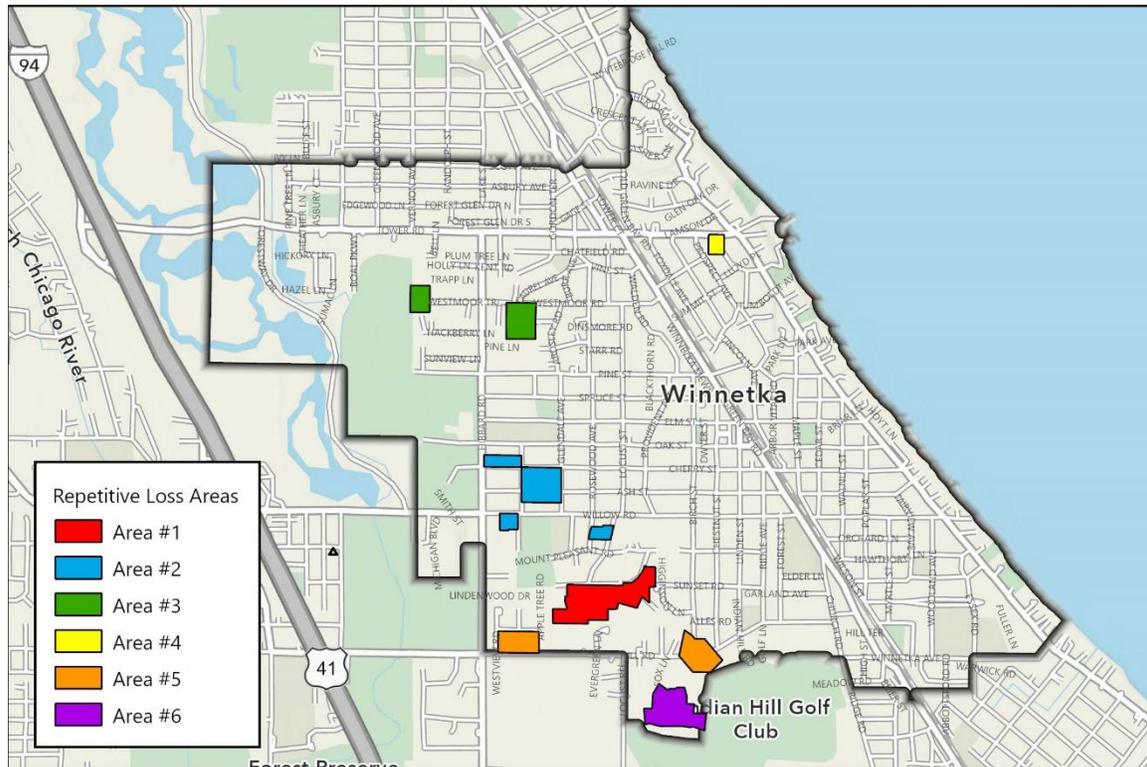
1.4 Repetitive Loss Area

The NFIP considers a property a Repetitive Loss Property if two or more flood insurance claims of more than \$1,000 have been paid within any 10-year period since 1978. According to FEMA's records, there are 24 Repetitive Loss Properties within the Village. Many more properties in Winnetka may have reached the damage threshold for Repetitive Loss Properties, but not all properties are covered by flood insurance and flood insurance claims are not submitted for all flood damage sustained.

Communities are categorized by their number of unmitigated repetitive loss properties. A Category A community has no unmitigated repetitive loss properties, a Category B community has 1 to 49 unmitigated repetitive loss properties, and a Category C community has 50 or more unmitigated repetitive loss properties.

In order for a community with Repetitive Loss Properties to participate in the CRS program, special conditions have to be met. One condition requires the Village to map its Repetitive Loss Areas. A Repetitive Loss Area (RLA) consists of Repetitive Loss properties and the surrounding properties that experience the same or similar flooding conditions, whether or not the buildings on those surrounding properties have been damaged by flooding. Figure 1 shows the 6 RLAs in Winnetka. The Village can receive additional CRS credit for adopting a Repetitive Loss Area Analysis (RLAA).

FIGURE 1

Repetitive Loss Areas in Winnetka**The process of developing a RLAA consists of five steps:**

- Step 1 – Advise all the properties in each Repetitive Loss Area (RLA) that the analysis will be conducted and request their input on the hazard and recommended actions.
- Step 2 – Collect data from agencies or organizations that may have plans or studies that could affect the cause or impacts of the flooding.
- Step 3 – Inspect each building in the RLA and collect basic data. Building entry is not necessary for this step since adequate information can be collected by observing the building from the street.
- Step 4 – Review alternative approaches and determine whether any property protection measures or drainage improvements are feasible. The review must consider the full range of property protection measures for the types of buildings affected, including: preventative activities, property protection activities, natural resource protection activities, emergency services measures, structural projects, and public information activities.
- Step 5 – Document the findings in a report. The report should include: a summary of the process that was followed and how property owners were involved in the process; a problem statement with a map of the affected area; a list or table showing basic information for each

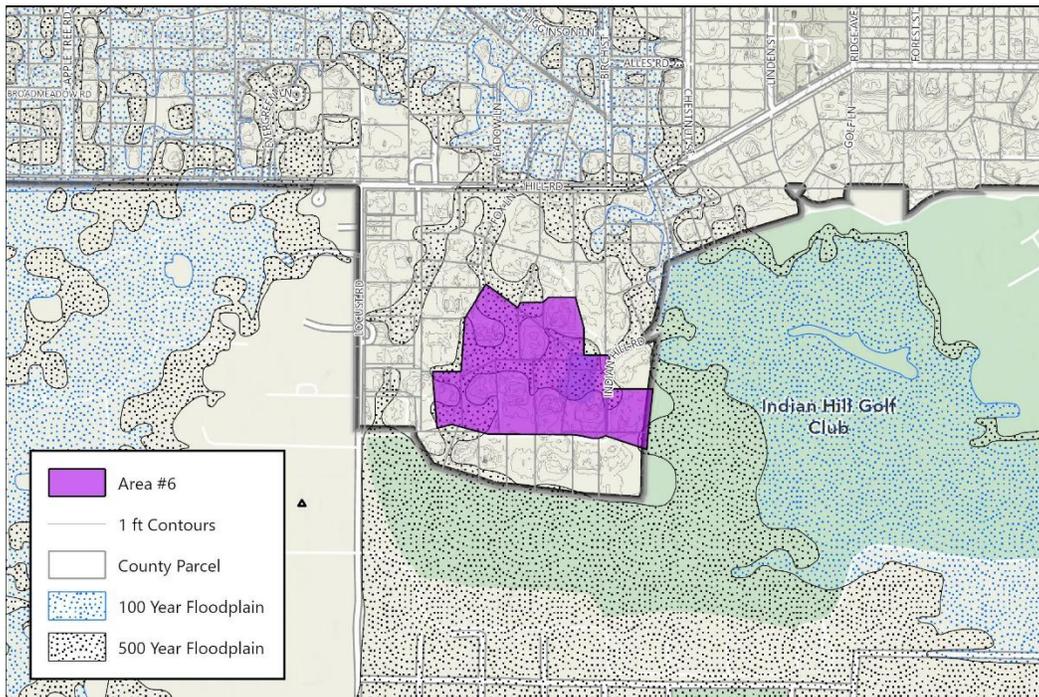
building in the affected area; the alternative approaches that were reviewed; and a list of action items identifying the responsible party, when the action should be completed, and how it will be funded.

This Report focuses on RLA #6, one of the six designated RLAs within the Village of Winnetka. RLA #6 is defined by the purple shaded areas in Figure 2. The blue dotted areas are the 100-year floodplain. The grey dotted areas are the 500-year floodplain.

Area #6 is in the southern part of Winnetka and is shown in Figure 2. The limits are roughly bounded by Hill Road on the north, Indian Hill Golf Club on the east, Indian Hill Road on the south, and Locust Road on the west. Both roads in the RLA, Indian Hill Rd. and Fox Ln. are privately owned and are not maintained by the Village. Indian Hill Golf Club is located within unincorporated Cook County. The Village does not own any storm sewers in the vicinity of the RLA; the nearest public storm sewer is north of the RLA on Hill Rd. There is a pond near the center of the RLA that is privately owned and maintained by the property owners.

FIGURE 2

Repetitive Loss Area #6



2. REPETITIVE LOSS AREA ANALYSIS

2.1 Step 1 – Advise the Residents

Flooding has been an ongoing problem in Winnetka for many years. One of the most extreme storm event in recent history took place on July 22 and 23, 2011. Following that event, the Village sent a survey to all residents inquiring about flooding they may have experienced during the July 2011 storm event. This survey and a summary of the survey results are included in Appendix A.

On November 14, 2024, the Village notified residents of RLA #6 of the ongoing RLAA and requested their input. Upon completion of a draft of this Report, another letter was sent out to residents in the RLA informing them of this Report, where and how they would be able to review it, and where and how they might submit comments regarding it. Both letters are included in Appendix B.

2.2 Step 2 – Collect Data

Plans and studies from several sources were utilized in this analysis. The sources listed below provided data related to the causes and impacts of flooding in the RLA. This information was gathered for use in past RLAA's and was utilized for this Report as well.

- FEMA
- Metropolitan Water Reclamation District of Greater Chicago (MWRDGC)
- Village of Winnetka

The Village was informed in 2014 that the Illinois State Water Survey (ISWS) had no additional information available. Correspondence with MWRDGC and ISWS can be found in Appendix C.

2.2.1 Previous Studies and Plans

Flood Insurance Study – Cook County, Illinois and Incorporated Areas (FEMA 17031CV009J, 2021)

The Cook County Flood Insurance Study (FIS) determined the entire RLA to be outside the Special Flood Hazard Area. Just northwest of the RLA, the FIS determined the 100-year flood elevation to be approximately 624.90-625.00 (based on the North American Vertical Datum of 1988). Cook County topography indicates the ground elevations within the RLA generally range between 625 and 631.

Detailed Watershed Plan - North Branch of the Chicago River and Lake Michigan Watershed: Volume 1 (HDR, January 2011)

MWRDGC's Detailed Watershed Plan determined the entire RLA to be outside the 100-year inundation area.

Stormwater Alternatives Study for Western and Southwestern Winnetka (STRAND, June 2016)

Within the RLA, the Stormwater Alternatives Study for Western and Southwestern Winnetka determined the 100-year, 3-hour storm flood depths to be between 0 and 2 feet. The flood extents are mainly in yards and the road, as well as the pond.

2.2.2 Flood Insurance and Flood Event Data

According to the Cook County FIRM panel number 17031C0253J, effective August 19th, 2008, the RLA is not within the mapped 100-year floodplain. All nine properties in the RLA have some 500-year floodplain on site.

2.2.3 Flooding Experiences of Property Owners

A flooding survey was sent to all residents in the Village of Winnetka in August of 2011. Of the approximately 4,425 properties in the Village, 1,061 survey responses were received. This 24% response rate is a very good response for surveys of this type. Of the nine properties within RLA #6, three homeowners responded. The 33% response rate is assumed to be representative of the RLA.

- One of the respondents in RLA #6 reported wall or floor seepage.
- One of the respondents in RLA #6 reported sewer backups. This happened even with a backflow preventor.
- One of the respondents in RLA #6 reported that the pond overflowed and flooded the road.

A full summary of the survey results is included in Appendix A.

2.3 Step 3 – Inspect Buildings

On-site inspections of buildings in the RLA were performed in November of 2024. These inspections were performed along the right-of-way of roads by a licensed professional engineer. As such, the engineer did not survey building elevations in relation to the 100-year or 500-year flood elevations. Therefore, the flood protection assessments in this Report are based upon visual observation of relative elevations. Each property within the RLA was visited and the following attributes were documented:

- Foundation type,
- Relative low-opening elevations,
- Relative elevation of first floor,
- Window types and elevation,
- Window well types and elevation,
- Subsurface or at-grade doors,
- Garage location and relative elevation,
- Property grading,

- Downspout type and discharge location, and
- Neighborhood topography and flow routes.

The summary of the collected data for RLA #6 is as follows:

- 44% of the buildings have one or zero steps up to the 1st floor
- 44% of the buildings have a garage at grade or at a low elevation relative to grade; and
- At least 78% of the properties have downspouts buried. 22% of the properties have at least one downspout splashing at grade adjacent to the building foundation.

A full summary of the results is included in Appendix D. It is important to note that not all building characteristics were visible from the road at the time of the inspection. This means there may be higher percentages for these categories, and property owners should be aware of the characteristics of their property.

2.4 Step 4 – Review Alternatives

Many types of flood hazard mitigation exist, and there is not one mitigation measure that fits every case. Nor is there even one application that fits most cases. Successful mitigation often requires multiple strategies. The CRS Coordinator’s Manual breaks the primary types of mitigation down as displayed in Figure 3.

FIGURE 3

Categories of Floodplain Management Activities (FEMA FIA-15, 2017)

1. **Preventive** activities keep flood problems from getting worse. The use and development of flood-prone areas is limited through planning, land acquisition, or regulation. They are usually administered by building, zoning, planning, and/or code enforcement offices.
2. **Property Protection** activities are usually undertaken by property owners on a building-by-building or parcel basis.
3. **Natural Resource Protection** activities preserve or restore natural areas or the natural functions of floodplain and watershed areas. They are implemented by a variety of agencies, primarily parks, recreation, or conservation agencies or organizations.
4. **Emergency Services** measures are taken during an emergency to minimize its impact. These measures are usually the responsibility of city or county emergency management staff and the owners or operators of major or critical facilities.
5. **Structural Projects** keep flood waters away from an area with a levee, reservoir, or other flood control measure. They are usually designed by engineers and managed or maintained by public works staff.
6. **Public Information** activities advise property owners, potential property owners, and visitors about the hazards, ways to protect people and property from the hazards, and the natural and beneficial functions of local floodplains. They are usually implemented by a public information office.

2.4.1 Preventative

The Village regulates residential and commercial development through its building code, planning and zoning requirements, stormwater management regulations and floodplain regulations. Any project located in a floodplain, regardless of its size, requires a permit from the Village, unless the project can be characterized as routine maintenance. Depending on the size and scope of the project, a development within the Village may also fall under the jurisdiction of the MWRDGC, the Cook County Department of Transportation and Highways, the Illinois Environmental Protection Agency, the Illinois Department of Natural Resources, the Illinois Department of Transportation, and/or the U.S. Army Corps of Engineers. The Village's floodplain regulations do not apply within RLA #6, but stormwater management regulations do apply and are enforced.

Responsibility: Village of Winnetka, along with Federal, State, and other local regulatory agencies
 Timeline: Ongoing
 Funding: Municipal revenues

2.4.2 Property Protection

These measures are generally performed by the property owners or their agents. FEMA has published numerous manuals that help a property owner determine which property protection

measures are appropriate for particular situations, several of which are listed below. The manuals listed below are available for review at Public Works, Village Hall, and the Winnetka Public Library.

- FEMA 259, *Engineering Principles and Practices of Retrofitting Floodprone Residential Structures*
- FEMA 312, *Homeowner's Guide to Retrofitting: Six Ways to Protect Your House from Flooding*
- FEMA 551, *Selecting Appropriate Mitigation Measures for Floodprone Structures*
- FEMA 348, *Protecting Building Utilities from Flood Damage*
- FEMA 511, *Reducing Damage from Localized Flooding*
- FEMA 102, *Floodproofing Non-Residential Structures*
- FEMA 55, *Coastal Construction Manual (Volume 1 and 2)*
- FEMA 84, *Answers to Questions about the NFIP*
- FEMA 54, *Elevated Residential Structures Book*
- FEMA 268, *Protecting Floodplain Resources: A Guidebook for Communities*
- FEMA 347, *Above the Flood: Elevating Your Floodprone House*
- FEMA 257, *Mitigation of Flood and Erosion Damage to Residential Buildings in Coastal Areas*
- FEMA 85, *Protecting Manufactured Homes from Floods and Other Hazards*

The primary methods of property protection are: sewer improvements, wet floodproofing, dry floodproofing, elevation, relocation, and demolition. Each of these methods are described below. A table of floodproofing types versus relative cost can be found in Appendix E.

Sewer Improvements

Heavy rains can saturate the soil and infiltrate the sanitary sewer system through leaky joints or cracks in the pipes. The inflow of stormwater floods the sanitary sewer system causing water to back-up into the home through lower level plumbing fixtures. This occurrence can be prevented by installing a sewer backflow preventer, an overhead sewer system, floor drain plugs and/or stand pipes. A backflow preventer will allow the sanitary sewer water to flow freely from the home to the sewer, but restrict the reverse flow. Backflow preventers do require maintenance and can fail if debris in the sewer prevents the valve seating properly. An overhead sewer system pumps wastewater from basement level plumbing fixtures up to an elevation near the ground level, where it can drain by gravity into the sewer service line. This higher sewer makes it unlikely that water will back-up into the building. Floor drain plugs and stand pipes are much simpler ways to stop a sewer back-up. Some floor drain plugs stop water from flowing in either direction and are typically installed manually before a storm event. Other floor drain plugs utilize a float that will not interfere with the normal operation of the drain, but can fail if debris in the sewer prevents the valve from seating properly. Stand pipes involve fitting a length of pipe (generally three feet or less) in the floor drain so that the sewer back-up is contained within the stand pipe.

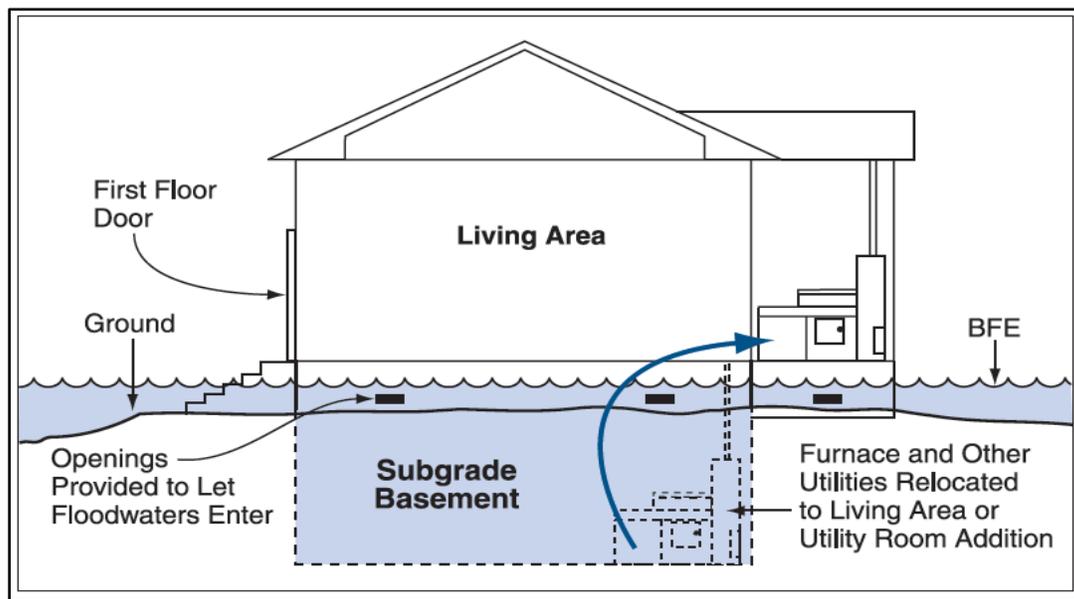
Wet Floodproofing

Wet floodproofing consists of modifying uninhabited portions of a home, such as a crawl space, garage, or unfinished basement with flood-damage resistant materials, to allow floodwaters to enter the

structure without causing damage (see Figure 4). Wet floodproofing requires portions of the building need to be cleared of valuable items and mechanical utilities. A key component of wet floodproofing is providing openings large enough for the water to flow through the structure such that the elevation of the water in the structure is equal to the elevation of the water outside of the structure. This equilibrium of floodwater prevents hydrostatic pressure from damaging structural walls.

FIGURE 4

Wet Floodproofing Example (FEMA P-312, December 2009)



Dry floodproofing consists of completely sealing around the exterior of the building so that water cannot enter the building (see Figure 5). Dry floodproofing is not a good option for areas where floodwater is deep or flows quickly. The hydrostatic pressure and/or hydrodynamic force can structurally damage the building by causing the walls to collapse or causing the entire structure to float. However, in areas that have minimal velocity and low depth, dry floodproofing can be a good option.

Figures 6, 7, 8, and 9 display various methods of dry floodproofing. The schematic detail in Figure 6 portrays an asphalt coating spread on the exterior of a structure covered by a decorative brick veneer. Figure 7 is an example of a driveway reconstructed to prevent surface water in the street from flooding a below-grade garage. Figure 8 is a raised concrete window well that is sealed to the side of the structure to prevent floodwaters from entering through the basement window. Figure 9 is an alternate to the window well; the glass pane window is removed and replaced with glass blocks that can withstand the pressure of ponding floodwaters.

FIGURE 5

Dry Floodproofing (FEMA P-312, December 2009)

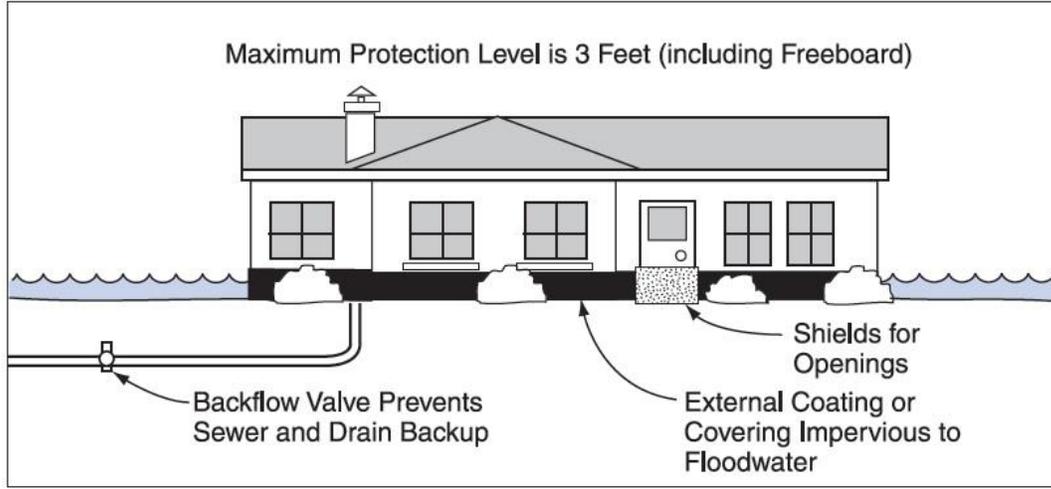


FIGURE 6

New Brick Veneer Over Waterproof Coating FEMA P-312, December 2009

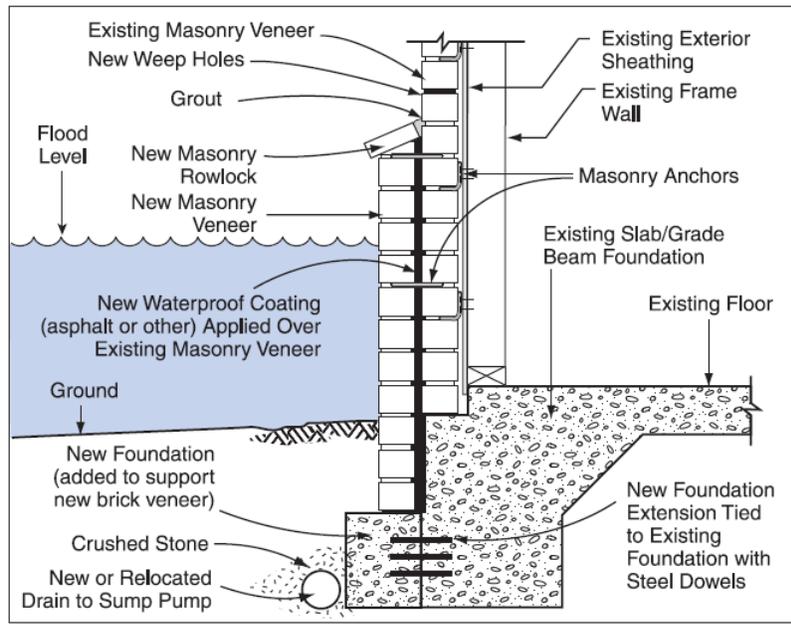


FIGURE 7

Driveway Berm



FIGURE 8

Raised Concrete Window Well



FIGURE 9

Glass Block Basement Windows

Many flood hazards can be mitigated with various forms of dry flood proofing. Properties that do not have adequate protection of their low opening (window or basement door) can effectively raise the low opening height with a window well or a flood gate. The ultimate height of the low opening depends on several factors, such as: the level of flood protection desired, the appearance, and cost. The flood protection elevation could be set 1-foot higher than the existing low opening elevation, or it could be set to match the elevation of the lowest opening into a home that cannot be raised. This might be the elevation of the threshold of a door, for example.

Properties that do not have adequate grading can re-grade their lawns. The ground adjacent to a building should slope away from the building so stormwater runoff does not accumulate against the foundation wall, where it can seep into the building. If possible, a minimum ground slope of 1% is desirable. Furthermore, downspouts should extend at least 6 feet away from a building foundation. In cases where the ground adjacent to the building is flat or slopes toward the building, the downspouts should extend far enough to ensure stormwater does not drain back toward the foundation.

The NFIP only allows dry floodproofing within the SFHA for residential retrofits that are not classified as a substantial improvement. A substantial improvement is any reconstruction, rehabilitation, addition, or other improvement of a structure, the cost of which equals or exceeds 50% of the market value of the structure before the "start of construction" of the improvement.

Elevation

Sometimes dry or wet floodproofing are not enough and greater measures must be taken. For example, if the floodwaters are too high for dry floodproofing and the inhabited area is too low for wet floodproofing, it may be necessary to raise the structure. While this can be a much costlier endeavor, it may be the only solution to protect a home from floodwaters. The structure in Figure 10 is an example of a home that is elevated above the 100-year flood elevation. The Cook County Watershed Management Ordinance requires all substantially improved residential buildings have their lowest floor elevated 2 feet above the 100-year flood elevation. This may preclude a basement in the elevated building.

FIGURE 10

Elevated House



Demolition

The only way to ensure a structure will not accumulate additional losses from future flood events is to demolish the structure completely. There are two options for demolishing a structure.

1. A government agency can purchase the property, demolish the structure, and convert the property to a park or other open space.
2. The property owner may retain ownership, demolish the structure, and build a new structure in a manner that meets all local building and flood protection code requirements.

The primary methods of property protection are: sewer improvements, wet floodproofing, dry floodproofing, elevation, relocation, and demolition. These are the most common methods of property protection, although other methods exist ranging a very broad span of cost and effort.

Responsibility: Property Owners
 Timeline: As Soon As Possible
 Funding: Private Funding or Grant Funding

2.4.3 Natural Resource Protection

Care should be taken to maintain the streams, wetlands and other natural resources within a floodplain. Removing debris from streams and channels prevents obstructions. Preserving and restoring natural areas provides flood protection, preserves water quality and provides natural habitat. Most of the natural resources within the Village are in open spaces owned and maintained by either the Winnetka Park District or the Cook County Forest Preserve District. The pond near the center of RLA 6 is privately owned and maintained by the property owners.

Responsibility: Winnetka Park District, Cook County Forest Preserve, property owners
 Timeline: Ongoing
 Funding: Government taxing bodies, HOA dues

2.4.4 Emergency Services

Advance identification of an impending storm is only the first part of an effective Flood Warning and Response Plan. To truly realize the benefit of an early flood warning system, the warning must be disseminated quickly to floodplain occupants and critical facilities. Appropriate response activities must then be implemented, such as: road closures, directing evacuations, sandbagging, and moving building contents above flood levels. Finally, a community should take measures to protect public health and safety and facilitate recovery. These measures may include: cleaning up debris and garbage, clearing streets, and ensuring that that citizens have shelter, food, and safe drinking water.

Responsibility: Village of Winnetka
 Timeline: Ongoing
 Funding: Municipal revenues

2.4.5 Structural Projects

In response to the flood damage resulting from severe storm events in September 2008 and July 2011, the Village initiated several Flood Risk Reduction Assessments to determine what structural

improvements could be made to mitigate flood damage from future storm events in the areas that have proven to be the most susceptible to flooding.

Construction of the Winnetka Avenue Pump Station Improvements was completed in the summer of 2014. These improvements, which include the replacement of four pumps at the station to increase capacity from 40,000 gallons/minute to 60,000 gallons/minute, have had direct benefits for residents in other RLAs by improving flow in storm sewers in south and west Winnetka and increasing the discharge capacity of the Forest Preserve ditch. RLA #6 experiences minimal benefits, if any, as it does not have public storm sewers flowing to the pump station.

The Western and Southwestern Winnetka Stormwater Plan was adopted in 2016; it includes a combination of surface and underground stormwater storage and conveyance improvements to mitigate for the 100 year event (Bulletin 70, 1989) in the western and southwestern portions of town. The underground storage portions of the project were completed over several years with the last part completed in 2024, and the conveyance portions of the project are currently under construction. This project also has minimal impacts on RLA #6 due to lack of public infrastructure.

Responsibility: Village of Winnetka
Timeline: Ongoing
Funding: Stormwater Utility

2.4.6 Public Information

One of the most important, and often overlooked, aspects of mitigation is public awareness. Awareness starts with recognition of the flood risk. FIRM panels, which designate areas of a community according to various levels of flood risk, can be viewed at www.FEMA.gov. Also, real estate transactions require disclosure of known flood hazards.

The next level of awareness is related to hazard mitigation measures. Often homeowners can greatly reduce their risks with mitigation efforts; they just do not know it. For that reason, as part of this analysis, every resident in the RLA has been contacted and informed of the opportunity to review this Report. In addition, the Village sends out an annual outreach letter to every resident in each RLA.

Responsibility: Village of Winnetka, FEMA, real estate agents
Timeline: Ongoing
Funding: Flood insurance premiums, real estate transaction fees, and municipal revenues

2.5 Step 5- Document the Findings

This Report documents the findings of the required RLAA. As required, the Report includes: a summary of the process that was followed and how property owners were involved in the process; a problem statement with a map of the affected area; a list or table showing basic information for each building in the affected area; the alternative approaches that were reviewed; and a list of action items identifying the responsible party, when the action should be completed, and how it will be funded.

3. NEXT STEPS

3.1 Recommendations

First and foremost, the Village should continue its ongoing flood hazard mitigation initiatives. These initiatives include: enforcing development regulations and keeping them up-to-date; planning and constructing capital improvement projects; informing the public about flood hazards and mitigation options; and providing critical emergency services. Other government agencies, such as FEMA, MWRDGC, the Cook County Forest Preserve District, and the Winnetka Park District, should also continue doing their part. Finally, homeowners and residents should take steps to protect their property and reduce the likelihood of future flood losses.

None of the properties in RLA #6 are within the 100-year floodplain; however, every property owner in the RLA should consider carrying flood insurance. In most cases, a sewer back-up or basement flood rider should be added to the home insurance policy so that the building contents are covered. Several of the properties in RLA #6 back up to the pond, which has been reported by residents to overflow during large storm events.

The Village has limited options for flood risk reduction in RLA #6 because the roads and pond are privately owned. The Village does not own any storm infrastructure within the RLA. Maintenance of any storm infrastructure and of the pond is up to the residents. The Village can provide guidance and recommendations to the property owners, but the funding and implementation of any neighborhood stormwater solutions is ultimately the responsibility of the property owners. Pond maintenance may include dredging built up sediment to restore the original capacity of the pond and clearing obstructions to any outfalls. Further study of the pond would be necessary to determine the efficacy of such maintenance.

The proximity and elevation of the pond may contribute to groundwater issues for nearby properties. Battery backup sump pumps and overhead sanitary sewer systems or other backflow prevention methods are highly recommended. High-intensity storm events in which the pond overflows may cause some flooding, even on properties that have a well-graded yard that slopes away from the building foundation.

0 lists common flood hazards, some of which are known to exist in RLA #6 based on information received from residents and observations made during the on-site building inspections.

Common Flood Hazards and Typical Suggested Solutions

Common Flood Hazard	Typical Suggested Solution
Sump pump failure	Install a battery backup sump pump
Sanitary sewer back-up	Install an overhead sewer system or other backflow prevention

Unprotected window near or below ground level	Replace a glass pane window with a glass block window or increase the window well height and seal around the edges of the window well
Unprotected door near or below ground level	Install a flood barrier, such as a driveway berm, a permanent concrete flood wall, or a removable flood gate
Downspouts splash on grade near the foundation	Install downspout extensions that discharge away from the foundation and ensure there is positive drainage away from the foundation

The common flood hazards and typical suggested solutions in this Report are broad-based recommendations for the entire RLA. They may not be applicable to every property in the RLA, but appear to be applicable to many of the properties. Property owners should consult with an engineer, plumber, or other contractor regarding mitigation measures for a specific property.

3.2 Funding Assistance

Several sources of hazard mitigation assistance are available following the completion and adoption of the Cook County Multi-Jurisdictional Hazard Mitigation Plan in 2014, which was updated in 2019 and 2024. The most common hazard mitigation assistance programs are: the Hazard Mitigation Grant Program (HMGP), Building Resilient Infrastructure and Communities (BRIC), and Flood Mitigation Assistance (FMA). Each program has its own eligibility and funding criteria, but each can be used to fund property protection measures such as those shown in Figure 11, provided that the Benefit Cost Ratio exceeds 1.0. In general, these programs are funded when FEMA approves an application prepared jointly by a local government, such as the Village, and the Illinois Emergency Management Agency (IEMA). In most cases, FEMA pays 75% of eligible expenses, but the federal share can reach 90% for Repetitive Loss Properties and 100% for Severe Repetitive Loss (SRL) properties.

FIGURE 11

Eligible Activities by Hazard Mitigation Assistance Program (from Hazard Mitigation Assistance Program and Policy Guide July, 2024)

Eligible Activities	HMGP	BRIC	FMA
Property Acquisition and Structure Demolition	√	√	√
Property Acquisition and Structure Relocation	√	√	√
Mitigation Reconstruction	√	√	√
Structure Elevation	√	√	√
Stabilization	√	√	√
Localized Flood Risk Reduction Activities	√	√	√
Dry Floodproofing of Historic Residential Structures	√	√	√
Retrofit	√	√	√*
Warning Systems	√	√	

*Only flood-related retrofitting projects are eligible.

3.3 Continuation

The CRS program requires an annual update to this RLAA. The annual update must review each recommended action, discuss the actions that were implemented and those that were not, and recommend any changes to the recommended actions. The report must be made available to the public, including the media and property owners and residents of the RLA. This process must continue every year for the Village to maintain its standing in the CRS program. Also, this update must preface each CRS cycle verification visit. Refer to Section 510 of the CRS Coordinator's Manual for more information (FEMA FIA-15, 2017).

4. WORKS CITED

- Baxter & Woodman Consulting Engineers. (2012). *Flood Risk Reduction Assessment - Additional Study Areas*. Winnetka: Village of Winnetka Illinois.
- Christopher B. Burke Engineering, Ltd. (October 2011). *Winnetka Flood Risk Reduction Assessment*. Winnetka: Village of Winnetka Illinois.
- FEMA 17031CV001J. (2021). *Flood Insurance Study - Cook County, Illinois and Incorporated Areas*.
- FEMA 551. (March 2007). *Selecting Appropriate Mitigation Measures for Floodprone Structures*.
- FEMA FIA-15. (2013). *Community Rating System Coordinator's Manual*. National Flood Insurance Program, Community Rating System.
- FEMA FP-206-21-0001 (July 2024). *Hazard Mitigation Assistance Program and Policy Guide (Version 2.0)*.
- FEMA P-312. (December 2009). *Homeowner's Guide to Retrofitting - Six Ways to Protect Your Home From Flooding (Second Edition ed.)*.
- HDR. (January 2011). *North Branch of the Chicago River and Lake Michigan Watershed: Volume 1*. Metropolitan Water Reclamation District of Greater Chicago.

Appendix A: Resident Survey

Dear Winnetka Resident:

In light of the recent rain storm on Friday, July 22 and Saturday, July 23, 2011, the Village is conducting a Village-wide survey to get an accurate account of basement flood occurrences, and in particular, **sanitary** sewer backups. This information will be used to evaluate the existing sanitary sewer systems, as well as to plan for possible future sanitary sewer improvements.

Please take a few moments to fill out the attached survey and return it by Friday, September 23. The survey may also be returned via fax at 847-716-3599 or by email to sanitarysewersurvey@winnetka.org. Residents may also access the survey on the Village website at www.villageofwinnetka.org. We thank you in advance for your help in this endeavor. If you have any questions, please contact the Public Works Department at 847-716-3568.

Steven M. Saunders, P.E.
Director of Public Works/Village Engineer

1. Address _____, Winnetka, Illinois
2. How long have you lived at this address? _____ years
3. Was your home built before 1970? NO YES DON'T KNOW
4. Did you experience flooding in your house or basement or attached garage during the July 22-23, 2011 storm? NO YES
5. If yes, please indicate the location(s) that water entered the building:

<input type="checkbox"/> Floor drain, laundry tub, shower or toilet	<input type="checkbox"/> Wall or floor seepage
<input type="checkbox"/> Window well or doorway	<input type="checkbox"/> Sump pump failure
<input type="checkbox"/> Other _____	<input type="checkbox"/> Not sure
6. If water entered via floor drain, laundry tub, shower, or toilet, approximately what time did flooding commence? _____.
What time did flooding subside? _____
7. How much water did you get? (feet-inches) _____
8. If water entered via floor drain, laundry tub, shower, or toilet, approximately how many times in the last five years has this occurred? _____. Do you recall the approximate month/year of the occurrence(s)? _____
9. Does your building have any protection from **sanitary** sewer back-ups? NO
 YES Not sure
10. If yes, indicate what type of protection and approximate date of installation:

2011 Flooding Survey Results		
Total Properties	9	
Total Respondents	3	
	33%	response rate
Did you experience flooding in your house, basement, or attached garage during the July 22-23 storm?	67%	Yes
	33%	No
Type of Flooding	33%	Floor drain, laundry, tub, shower, or toilet
	0%	Window well or doorway
	33%	Wall or floor seepage
	0%	Sump pump failure
	0%	Other
What time did flooding commence?	0%	12am-6am
	0%	6am-12pm
	0%	12pm-6pm
	0%	6pm-12am
What time did flooding subside?	0%	12am-6am
	0%	6am-12pm
	0%	12pm-6pm
	0%	6pm-12am
How much water did you get?	33%	0-1 foot
	33%	1-3 feet
	0%	3-6 feet
	0%	>6 feet
How many occurrences in the last five years?	0%	0
	0%	1
	0%	2
	0%	3
	0%	4
	0%	5
In what years did it flood?	0%	2007
	0%	2008
	0%	2009
	100%	2011
Does your building have protection for sanitary backups?	33%	Yes
	33%	No
	33%	Not sure
If yes, what type?	0%	Sump pump
	33%	Backflow preventer
	0%	Ejector pit
	0%	Elevated drain pipe

Appendix B: Letters to the Residents



August 20, 2025

Re: Village of Winnetka Analysis of Flood-Prone Areas and Repetitive Loss Areas – Draft Report Available

Dear Resident:

This letter is to provide you with a general update on the engineering analysis related to the repetitive flood areas and the notification you received previously in November 2024.

The Village participates in the National Flood Insurance Program (NFIP), which is commonly known as the Community Rating System (CRS). It is a voluntary program designed to reward a community for its flood mitigation efforts. This reward comes in the form of reduced premiums for flood insurance policy holders within the municipality. The Village is currently analyzing areas that have repeatedly suffered damage from floods.

You are receiving this letter because your property is in an area that has been flooded several times, also known as a “repetitive loss area.” While your property may not be a repetitive loss structure, which is defined as a structure that has received two or more claim payments of more than \$1,000 from the NFIP within any rolling 10-year period, but it may be in the vicinity of a repetitive loss structure and will be examined by engineers for data collection purposes. Structures that frequently flood strain the National Flood Insurance Fund. Although these properties represent only 1% of all NFIP insurance policies, they account for nearly one-third of the claim payments.

Previously, we notified you that the Village consultant Baxter & Woodman is conducting the study and collecting the data in your area. They recently completed their analysis and shared the draft report with the Village, which is now available for your review and provide you the opportunity for any input or comments.

A draft report on the Repetitive Loss Area Analysis for Area #6 can be reviewed at www.villageofwinnetka.org or at the Village of Winnetka Public Works Facility (1390 Willow Road). Your input on the draft report is welcome, and comments will be accepted until September 30th, 2025.

Sincerely,

Obaid Khalid, P.E., CFM
Assistant Village Engineer/Stormwater Manager

Appendix C: Data Collection Correspondence

Correspondence with MWRDGC

To: Mark G. Phipps

Cc: Steve Saunders (SSaunders@winnetka.org); Fitzpatrick, Kevin (Eng)

Subject: RE: Winnetka - Repetitive Loss Area Analysis

Mark,

As discussed over the phone, the District completed the North Branch of the Chicago River (NBCR) Detailed Watershed Plan (DWP) in 2011. During DWP, we collected problems identified by the communities, updated the H&H model, and developed projects. Below is a link to the DWP and inundation maps.

http://www.mwrld.org/irj/go/km/docs/documents/MWRD/internet/protecting_the_environment/Stormwater_Management/htm/North_Branch_Chicago_River_Watershed/North_Branch_Chicago_River_DWP.htm

<http://gispub.mwrld.org/swima/>

The TARP system does not impact the Winnetka storm sewer system. If you have additional questions on TARP, feel free to contact Kevin Fitzpatrick at 1-312-751-3163.

Michael "Mick" Cosme, P.E., CFM
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Metropolitan Water Reclamation District of Greater Chicago
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p 312.751.3092
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Correspondence with ISWS

From: Heistand, Glenn [mailto:heistand@illinois.edu]
Sent: Tuesday, April 08, 2014 2:37 PM
To: Mark G. Phipps
Cc: Steve Saunders (SSaunders@winnetka.org)
Subject: RE: Winnetka - Repetitive Loss Area Analysis

Mark,

ISWS does not have any flooding studies in Winnetka, besides possibly some dusty paper copies of FEMA effective models.

The Village is probably already in coordination with Brian Eber at IDNR-OWR for their pre-CRS Community Assistance Visit, but if not, I recommend contacting him for additional information (brian.eber@illinois.gov). Let me know if I can be of further assistance.

Glenn

Glenn N Heistand, PE, CFM
Illinois State Water Survey
Prairie Research Institute
University of Illinois
2204 Griffith Drive
Champaign, IL 61820-7495
(217) 244-8856
heistand@illinois.edu

Appendix D: Summary of Inspection Results

Total Properties	9	
Foundation	89%	Concrete
	11%	Unknown
Yard	89%	Positive drainage away from residence
	11%	Flat
Rear Yard	22%	Low
	78%	Positive drainage away from residence
Downspout	11%	Splash on Grade
	78%	Underground
	0%	Extended
	11%	Underground/Splash on Grade
Approximate number of steps up to 1st floor	11%	0
	33%	1
	11%	2
	33%	3
	0%	4
	0%	5
	11%	>6
Window Height	0%	Low
	11%	Grade
	89%	Raised
Window Type	100%	Glass
	0%	Glass block
Garage	22%	Detached
	78%	Attached
Garage Elevation	11%	Low
	33%	Grade
	44%	Raised
	11%	Unknown

Appendix E: Floodproofing Methods

Table 3-16. Relative Costs of Various Retrofit Measures

Construction Type	Existing Foundation	Measure	Retrofit	Relative Cost
Frame, Masonry Veneer, or Masonry	Crawlspace or Basement	Wet Floodproofing 	Wet floodproof crawlspace to a height of 4 feet above LAG or wet floodproof unfinished basement to a height of 8 feet above basement floor	Lowest  Highest
Masonry Veneer or Masonry	Slab-on-Grade or Crawlspace	Dry Floodproofing 	Dry floodproof to a maximum height of 3 feet above LAG	
Frame, Masonry Veneer, or Masonry	Basement, Crawlspace, or Open Foundation	Levees and Floodwalls 	Levee constructed to 6 feet above grade or floodwall constructed to 4 feet above grade	
Frame, Masonry Veneer, or Masonry	Basement, Crawlspace, or Open Foundation	Elevation 	Elevate on continuous foundation walls or open foundation	
Frame, Masonry Veneer, or Masonry	Basement, Crawlspace, or Open Foundation	Relocation 	Elevate on continuous foundation walls or open foundation	
Frame, Masonry Veneer, or Masonry	Slab-on-Grade	Elevation 	Elevate on continuous foundation walls or open foundation	
Frame, Masonry Veneer, or Masonry	Slab-on-Grade	Relocation 	Elevate on continuous foundation walls or open foundation	
Frame, Masonry Veneer, or Masonry	Slab-on-Grade, Crawlspace, Basement, or Open Foundation	Demolition 	Demolish existing building and buying or building a home elsewhere	Varies

(FEMA P-312, December 2009)