2025 Annual Report Louisville-Jefferson County Substantial Damage Management Plan

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INTRODUCTION

As a member of the National Flood Insurance Program, Louisville Metro is required to evaluate substantially damaged properties following any hazardous event, such as flooding, windstorms, fires, and other events that cause damage to a structure. The Louisville & Jefferson County Metropolitan Sewer District (MSD) is the administering agency for Louisville Metro Government's Floodplain Management Ordinance and has prepared this Annual Report for the Substantial Damage Plan. The Substantial Damage Plan was originally created in 2023 to identify structures that are vulnerable to flooding that could cause substantial damage and plan for post-event actions should the structures be substantially damaged. The plan also outlines mitigation methods that could be applied to the at-risk areas to proactively reduce flood damage. This annual update includes information through December 31, 2025.

Structures that are located in the Federal Emergency Management Agency (FEMA) Special Flood Hazard Area and/or the Local Regulatory Floodplain are subject to substantial damage regulations. Portions of the Local Regulatory Floodplain lie outside of the Special Flood Hazard Area. The Local Regulatory Floodplain is an area designated as future floodplain based on anticipated development. The Special Flood Hazard Areas are mapped based on the existing land use at the time the flood model is completed. Substantial damage requirements are defined in the Louisville Metro Floodplain Ordinance.

This annual report was submitted to the Louisville Metro Council in August 2026 by Louisville MSD via email. The annual report is available for transmittal to the FEMA Regional Office, Region IV and to the Kentucky Division of Water NFIP State Coordinating Office if requested.

REGULATORY AND LEGISLATIVE AUTHORITY

Louisville Metro has adopted substantial damage regulations through their Floodplain Management Ordinance and, as their administering agency, Louisville MSD closely tracks cumulative substantial damage and substantial improvement over a one-year rolling period. No regulatory changes have been made since the 2023 Substantial Damage Plan was drafted.

Louisville Metro's Substantial Damage language is established and defined in Louisville Metro's Floodplain Management Ordinance Chapter 157 adopted in 2017 and amended in 2022.

ASSESSMENT OF VULNERABILITY TO SUBSTANTIAL DAMAGE

Flooding has impacted the Louisville area for millennia, shaping its landscape and development. Ohio River floods typically occur over days or weeks and water rises relatively slowly. Louisville is also prone to flash flooding from interior streams. Heavy rain can cause intense flash flooding along local streams and in areas with inadequate drainage systems. Flash floods can also occur due to dam or levee failure. Large expanses of flatlands, lowlands and former swamplands can be quick to flood and slow to drain. Flash flooding often occurs over a short period of time, sometimes in just a few minutes. Figure 1 shows the aerial view of flooding that happened in April 2025. This shows majority of the Different Strokes Golf Center under water, along with Cox Park, Thurman Hutchins Park, River Road and adjacent businesses submerged under water.

Figure 1 Aerial View of April 2025 Flooding at River Road in Louisville

Flooding History Update

Significant flooding occurred in April 2025, ranking it the 8th largest flood in Louisville's recorded history. This information is updated on MSD's website https://louisvillemsd.org/what-we-do/flooding-history-louisville.

Substantial Damage Tracking

All development, including repair of flood damage, within the local regulatory floodplain is required to have a local flood permit prior to the start of construction. MSD tracks floodplain permits in the Infor Public Sector (IPS) Program by address and date. Permit applications for alterations, additions, repairs or improvements to an existing structure require the submittal of a property value assessment or appraisal as well as the proposed and cumulative construction costs. Any combination of repairs, reconstruction, rehabilitation or improvements to an existing structure may not equal or exceed 50% of the market value of the structure during a one-year rolling period unless the building is brought into compliance with the current floodplain ordinance requirements (i.e. first floor and all mechanical and electrical equipment is elevated to freeboard elevation, installation of vents, etc.).

One property was declared to be substantially damaged in 2025. That property was determined to be substantially damaged in the April 2025 flood event along the Ohio River and the owner participated in a voluntary buyout. The home was demolished.

Properties Vulnerable to Substantial Damage

In an effort to be more proactive in selecting sites for mitigation, MSD completed a flood prioritization project in 2016. This project used estimated first-floor elevations (FFE) of primary structures located in the Federal Emergency Management Agency (FEMA) Special Flood Hazard Area and the Local Regulatory Floodplain to determine depth of flooding and rank flood prone areas to prioritize buyout grant applications. In 2022, this FFE data set was updated to include primary structures added to the floodplain with the adoption of 2021 FEMA map updates for a total of 6,992 structures in the Special Flood Hazard Area. First floor elevation data and flooding depths generated by this project were used to establish potential substantial damage areas of focus.

Vulnerable substantial damage property determinations were made by first identifying the structure characteristics based on available Property Valuation Administrator (PVA) data for value, square footage, construction type, number of floors and basement. First floor elevations were then compared to base flood elevations for the 1% annual chance flood event and plotted against the Army Corps of Engineers (USACE) Depth-Damage Relationship Tables for structures with[1] and without basements[2] as appropriate. A copy of the USACE Depth-Damage Relationship Tables used are included in Appendix A. Based on this analysis, any structure experiencing greater than a 40% damage for the 1% annual chance flood event was included in the preliminary potential substantial damage properties list. Each structure on this list was then investigated individually to verify if it would be prone to substantial damage or if additional available information such as field conditions or an elevation certificate would remove it from the list. The value of 40% damage was used instead of 50% as a more conservative value to account for unknowns, such as future climate change and the 1-year cumulative substantial damage/improvement requirement.

Figure 2 identifies the structures most likely to experience substantial damage. Those areas most affected include single family residential properties on roadways directly abutting the Ohio River in the floodway and conveyance zone followed by pockets of areas impacted by stream flash flooding. Information for these structures was used to populate the Substantial Damage Estimator (SDE) tool.

[1] United States Army Corps of Engineers. (2003) *Economic Guidance Memorandum 04-01 Generic Depth-Damage Relationships for Residential Structures with Basements*.

[2] United States Army Corps of Engineers. (2000) *Economic Guidance Memorandum 01-03 Generic Depth-Damage Relationships for Residential Structures without Basements.*

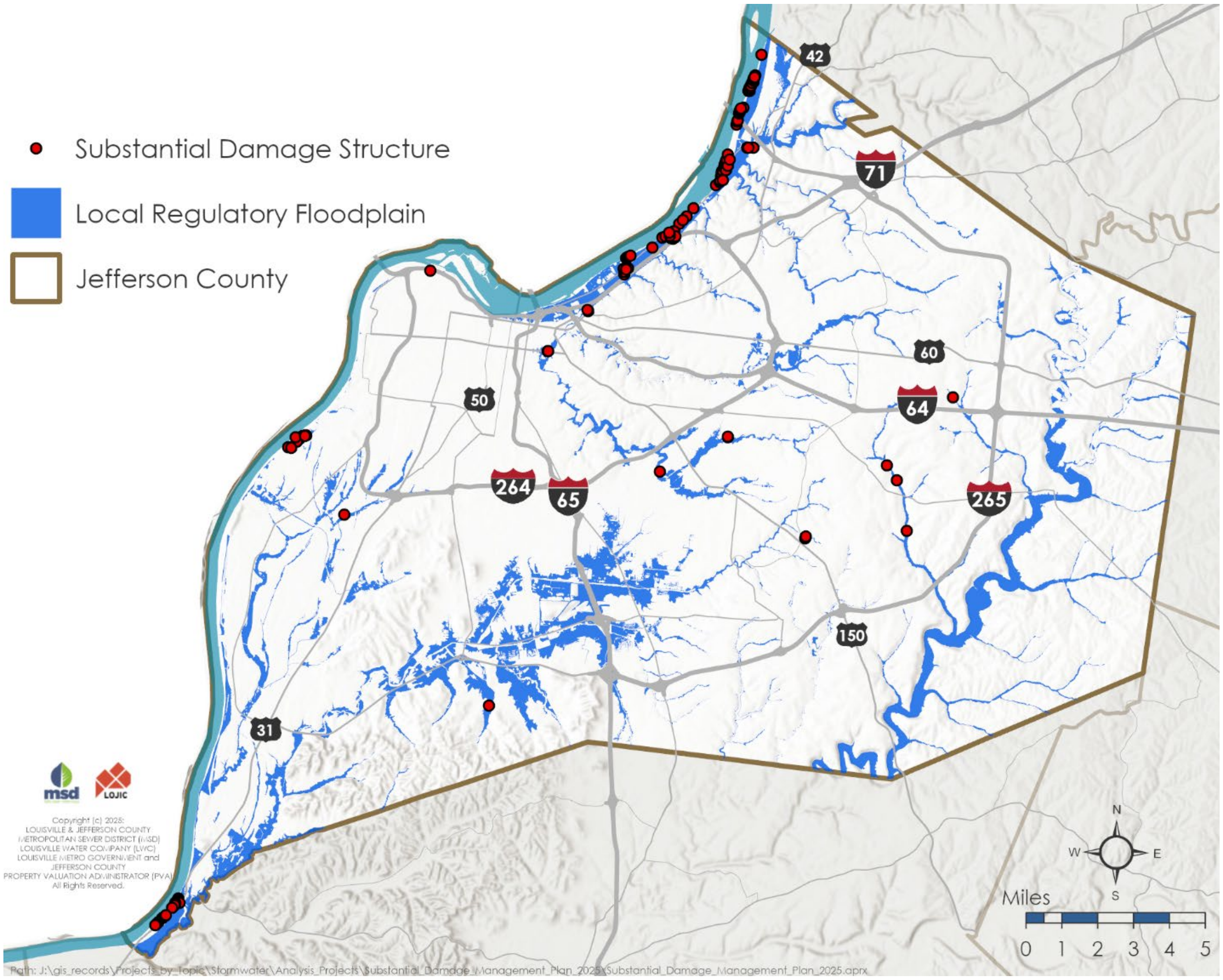


Figure 2 Substantial Damage Structures Map – Louisville–Jefferson County

One hundred seventy-two (172) buildings were determined to likely experience substantial damage in Louisville Metro in 2023. Since that analysis, five (5) of those properties have been purchased through FEMA grants, and two (2) of those properties were purchased through MSD operational funds. All seven (7) properties have been demolished since the 2023 plan. New structures that have been constructed in the floodplain meet the freeboard requirements and are therefore unlikely to be substantially damaged. The current total number of structures likely to experience substantial damage is 165.

Of the 165 potential substantial damage buildings, 142 are residential and 23 are non-residential. Most of the buildings (143) are located within the Ohio River floodplain, with the remaining 22 properties subject to flash flooding along a tributary. Due to privacy considerations, the list of properties with potential substantial damage has not been included in this report.

The potential substantial damage structures list and map will continue to be reviewed and updated annually by the Louisville MSD Floodplain Department at the time of the Annual Evaluation Report for the Substantial Damage Management Plan. Figure 3 presents a pie chart illustrating the types of properties identified as potentially substantially damaged.

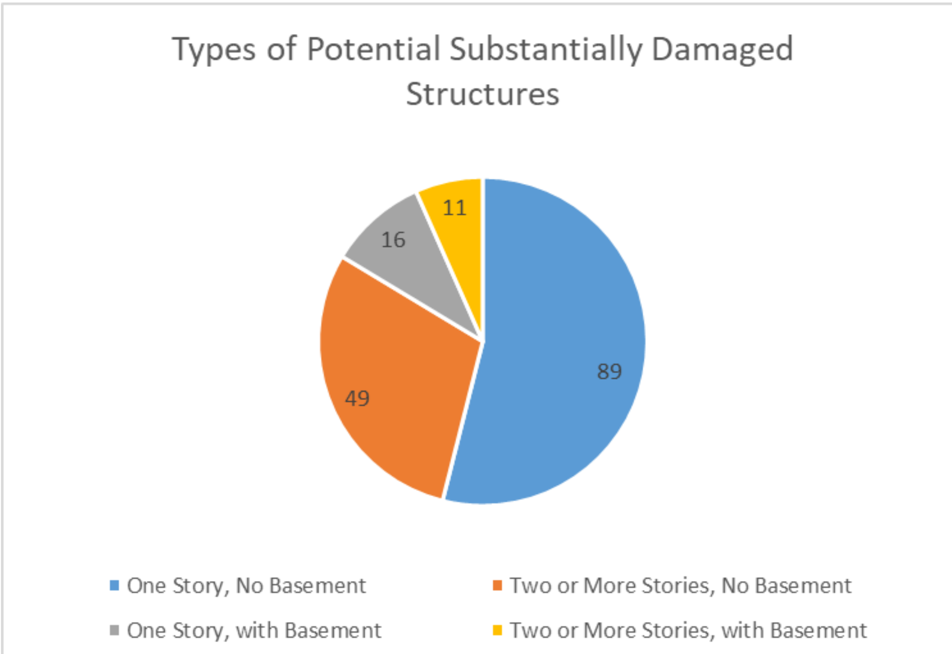


Figure 3 Property Types with Potential Substantial Damage

PRE- AND POST-FLOOD ACTIONS

Significant flooding occurred in Louisville Metro in 2025, and MSD staff distributed door hangers to property owners in flood-affected areas with information about permitting requirements and also spoke directly with available property owners to explain compliance steps and answer questions. MSD also sent out 444 letters to potentially impacted property owners discussing permitting requirements. Handouts related to permitting requirements and Increased Cost of Compliance (ICC) funds were available in MSD's Lobby.

In addition to flood response, MSD mailed the annual floodplain newsletter to property owners in the Special Flood Hazard Area and/or Local Regulatory Floodplain that included information about substantial damage, flood insurance, flood regulations, and other floodplain management topics. MSD's flood website, https://louisvillemsd.org/floodplain, is regularly updated and includes information about floodplain management. Appendices B and C show examples of MSD's informational handouts and FEMA's informational brochures that MSD includes with their outreach material. Appendix D includes an example of the annual MSD letter to property owners.

PROJECT UPDATES

The proposed mitigation options for the structures that are vulnerable to substantial damage are listed in Appendix E.

MSD continues to work on FEMA grant projects for acquisition and demolition of flood-prone properties. Seven properties determined to be vulnerable to substantial damage were purchased since the 2023 plan was drafted, which reduced the total number of identified at-risk structures to 165. MSD continues to work with homeowners, Kentucky Emergency Management and FEMA on existing and future acquisition and demolition grants to reduce flood risk in Louisville Metro.

MSD concluded a flood study in 2025 for the upper Northern Ditch watershed to look for opportunities to reduce flood risk to structures and infrastructure. Anticipated projects could include increased floodplain storage, culvert enlargement, and acquisition projects.

In 2025, MSD submitted three new FEMA grant applications, acquisition/demolition projects for Elba Drive and the Riviera neighborhood and one phased project for design and construction in the Blue Springs Ditch watershed, which is a sub-watershed of Northern Ditch.

Appendix A

USACE Structure Depth-Damage Relationship Tables

Without Basement[3]

Table 1 One Story, No Basement		
Depth	Mean of Damage	Standard Deviation of Damage
-2	0%	0.0%
-1	2.5%	2.7%
0	13.4%	2.0%
1	23.3%	1.6%
2	32.1%	1.6%
3	40.1%	1.8%
4	47.1%	1.9%
5	53.2%	2.0%
6	58.6%	2.1%
7	63.2%	2.2%
8	67.2%	2.3%
9	70.5%	2.4%
10	73.2%	2.7%
11	75.4%	3.0%
12	77.2%	3.3%
13	78.5%	3.7%
14	79.5%	4.1%
15	80.2%	4.5%
16	80.7%	4.9%

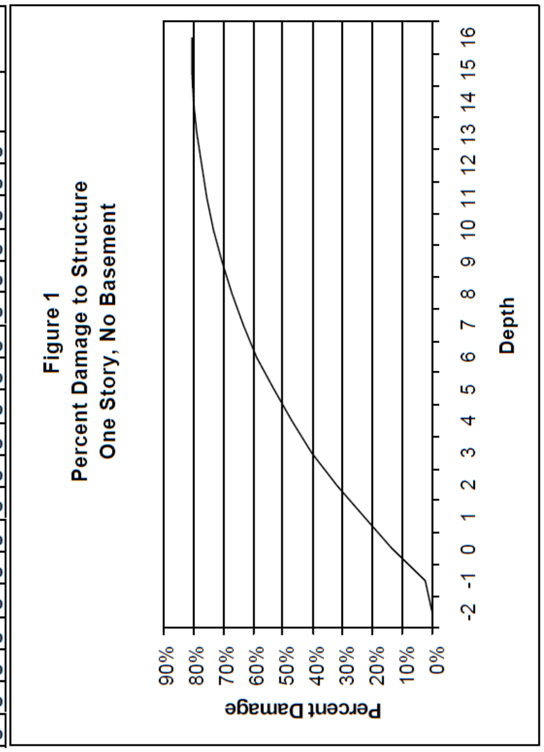
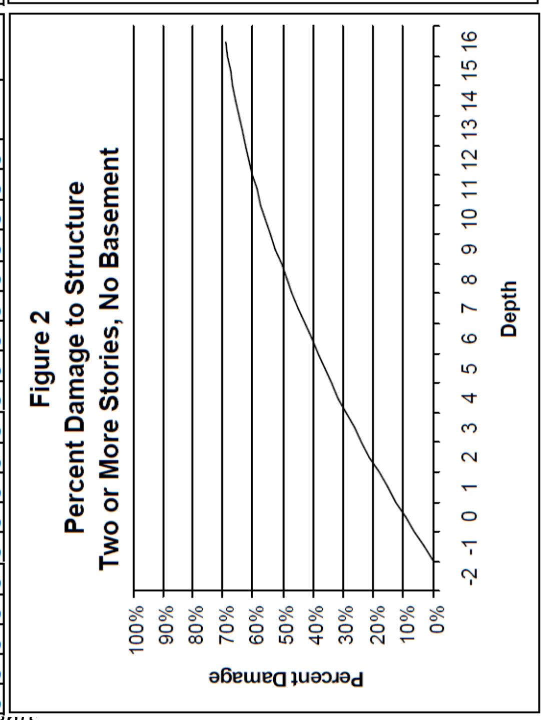


Table 2 Two or More Stories-No Basement		
Depth	Mean of Damage	Standard Deviation of Damage
-2	0%	0.0%
-1	3.0%	4.1%
0	9.3%	3.4%
1	15.2%	3.0%
2	20.9%	2.8%
3	26.3%	2.9%
4	31.4%	3.2%
5	36.2%	3.4%
6	40.7%	3.7%
7	44.9%	3.9%
8	48.8%	4.0%
9	52.4%	4.1%
10	55.7%	4.2%
11	58.7%	4.2%
12	61.4%	4.2%
13	63.8%	4.2%
14	65.9%	4.3%
15	67.7%	4.6%
16	69.2%	5.0%



…)amage Relationships for Residential Structures without Basements.

USACE Structure Depth-Damage Relationship Tables

With Basement[4]

Table 1 Structure One Story, With Basement		
Depth	Mean of Damage	Standard Deviation of Damage
-8	0%	0
-7	0.7%	1.34
-6	0.8%	1.06
-5	2.4%	0.94
-4	5.2%	0.91
-3	9.0%	0.88
-2	13.8%	0.85
-1	19.4%	0.83
0	25.5%	0.85
1	32.0%	0.96
2	38.7%	1.14
3	45.5%	1.37
4	52.2%	1.63
5	58.6%	1.89
6	64.5%	2.14
7	69.8%	2.35
8	74.2%	2.52
9	77.7%	2.66
10	80.1%	2.77
11	81.1%	2.88
12	81.1%	2.88
13	81.1%	2.88
14	81.1%	2.88
15	81.1%	2.88
16	81.1%	2.88

Table 2 Structure Two or More Stories, With Basement		
Depth	Mean of Damage	Standard Deviation of Damage
-8	1.7%	2.70
-7	1.7%	2.70
-6	1.9%	2.11
-5	2.9%	1.80
-4	4.7%	1.66
-3	7.2%	1.56
-2	10.2%	1.47
-1	13.9%	1.37
0	17.9%	1.32
1	22.3%	1.35
2	27.0%	1.50
3	31.9%	1.75
4	36.9%	2.04
5	41.9%	2.34
6	46.9%	2.63
7	51.8%	2.89
8	56.4%	3.13
9	60.8%	3.38
10	64.8%	3.71
11	68.4%	4.22
12	71.4%	5.02
13	73.7%	6.19
14	75.4%	7.79
15	76.4%	9.84
16	76.4%	12.36

[4] United States Army Corps of Engineers. (2003) *Economic Guidance Memorandum 04-01 Generic Depth-Damage Relationships for Residential Structures with Basements.*

Appendix B

Example Annual Mailing Newsletter

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FLOODPLAIN NEWS

October 2025

An elevation certificate may save you money on flood insurance.

(See back page)

Are You in or are You Out?

Know Your Home's Flood Risk

To check your property's floodplain status, please visit **apps.lojic.org/msdflooddetermination/**. If you would like to view flood mapping, visit **www.lojic.org/lojic-online**, enter your address in the search box, select Layers on the right side and check the Floodplain tab to turn on Floodplain layers.

Most homeowner and renter insurance policies do not cover flood damage. Anywhere it rains, it can flood. MSD recommends homeowners consider buying flood insurance. Check with your insurance agent to determine the right amount of flood coverage for your property. If you have a mortgage from a federally regulated or insured lender and the building is in a high-risk flood area, by federal law, your lender must require flood insurance.

Anyone in Louisville Metro can purchase flood insurance. Without flood insurance, owners must pay to repair flood damages using loans and minimal federal assistance. Don't delay. National Flood Insurance Program (NFIP) flood insurance policies can take up to 30 days to go into effect. Just a few inches of water can cause thousands of dollars in damage.

The Louisville Metro Floodplain Ordinance states that homes in the floodplain that experience substantial damage (damages costing more than 50% of the structure's market value to repair in a one year rolling period) will be required to come into compliance with the Louisville Metro Floodplain Ordinance when repairing damage (i.e. the first floor and mechanicals are elevated to the freeboard requirements defined by the current floodplain ordinance). Substantially damaged homes covered by NFIP flood insurance may be eligible for Increased Cost of Compliance coverage, which is up to $30,000, to help with measures to reduce flood risk.

You can protect yourself and your home by contacting your insurance agent, visiting **floodsmart.gov** or calling the NFIP Help Center at **877.336.2627** to learn more about flood insurance. MSD Floodplain staff can answer your questions about floodplain mapping. You may contact them at **502.540.6000** or **floodpermits@louisvillemsd.org**.

Basement Flooding

If you have experienced a rain-related sewer backup through a basement-plumbing fixture—floor drain, shower, toilet or sink—or live in an area of documented wet-weather backups, MSD's **Plumbing Modification Program** can help. To date, more than 18,400 backflow prevention devices have been installed to protect customers' basements from sewer backups.

If approved, MSD will pay a licensed plumbing contractor to install the backflow prevention devices to your plumbing layout. To learn more, visit **LouisvilleMSD.org/plumbingmodification** or call **502.540.6000**.

Safety Tips During Flooding

- Move vehicles, furniture, and valuables to higher ground if possible.
- Do not drive through flooded areas. **Turn around, don't drown!**
- Stay out of the floodwater, inside and outside of your home. Six inches of flowing water can knock a person down. Water can also conduct electric current, which can be fatal.

For more information, go to **ready.gov**.

MSD FLOODPLAIN NEWS

October 2025

Drainage Problems

To solve a small drainage problem, look to see if removing obstructions or grading your yard can resolve the drainage issue. Also, check to see if a clogged ditch could be the source of any flooding problems. Clogged ditches, creeks, and channels can cause water to overflow or divert into yards and onto roads.

Never dump grass clippings or yard waste into a stream or ditch. Dumping anything in our streams is illegal and can cause flooding or water quality problems. To report obstructions or illegal dumping, contact MSD 24/7 at **502.540.6000**.

Elevation Certificates

Having an elevation certificate for your home can save you money on flood insurance. MSD has elevation certificates available for some properties in Louisville Metro. To see if an elevation certificate is on file, go to our Floodplain Website at **LouisvilleMSD.org/floodplain**. Under the Insurance link is a list of all the elevation certificates on file. If the property is on the list, we can send you a copy. If a property is not on the list, a licensed surveyor must be hired to complete the elevation certificate. If you have an elevation certificate completed for your home, please send us a copy to **floodpermits@louisvillemsd.org** so that we can add it to the database.

Incentives for Downspout Disconnections

Water from falling rain and melting snow is usually absorbed into the ground or flows into nearby creeks and streams through natural drainage paths and specialized stormwater systems. However, serious problems can occur when stormwater drains directly into the system intended for wastewater from dishwashers, sinks, showers, toilets and tubs. If your property has downspouts directly connected to the wastewater system, you know you may be able to receive a one-time incentive of $100 for each downspout that you disconnect from the wastewater system. Find out more about MSD's Downspout Disconnection Program at **LouisvilleMSD.org/downspout.**

Keep Our Streams Clean

Styrofoam cups, plastic water bottles, and other trash that isn't properly disposed of end up in our waterways. These items bring pollutants into the water and can be harmful to wildlife. To prevent this, we can all reduce the amount of trash we produce by opting for reusable water bottles instead of single use ones and making sure our garbage is securely placed in a bin.

Floodplain Regulations

Properties in a flood hazard area have special requirements regarding land use and construction. Regulations require a floodplain permit before you start any repair, renovation, development, improvement, or construction. MSD staff will explain the floodplain requirements to you or you can visit MSD's website for more information. If you see illegal construction in the floodplain, contact MSD immediately.

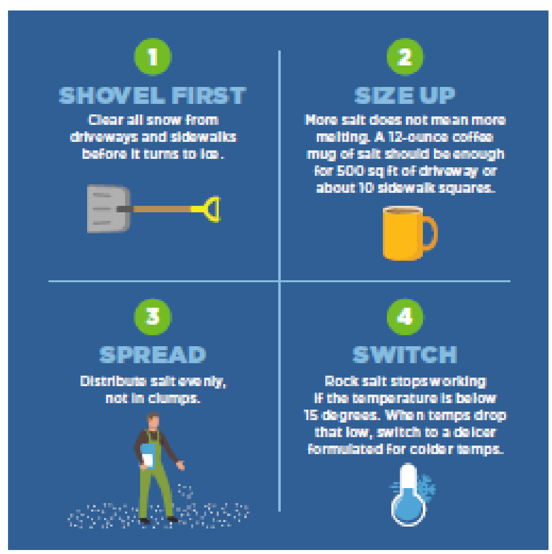
For more information about floodplain permitting, visit **LouisvilleMSD.org/floodplain**.

Know When to Evacuate

The Ohio River rises relatively gradually, giving several days warning before reaching flood stage. However, as we know, heavy rainstorms can cause local flooding in less than an hour. Flood watches and warnings are broadcast on NOAA weather radios, and television and local radio stations. When warning sirens are heard, tune a battery-operated radio to a local radio station and listen for weather reports and possible evacuation orders. In order to receive emergency warnings on your phone, sign up for LensALERT, Louisville's local emergency notification system. For this free service, visit **smart911.com**.

Sensible Salting

We rely on salt to keep our roads and sidewalks safe in the winter but using too much salt can negatively impact local waterways. Follow the steps below to be salt smart this winter.



ABOUT MSD
Learn more about our Floodplain Program and other ways MSD is helping protect our community and its waterways. **LouisvilleMSD.org/floodplain**.

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24/7/365
502.540.6000
CustomerRelations@LouisvilleMSD.org
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Appendix B: Example Letter to Flooded Property Owners

Example Handout: Floodplain Permit for Repairs/Improvements

Floodplain Permit for Repairs/Improvements

MSD is required by the Louisville Metro Floodplain Ordinance to permit any development, which includes repairs, improvements, and additions, in the floodplain. If your building is in the floodplain, you must obtain a floodplain permit for any repairs or improvements prior to starting construction.

The following information is needed to obtain a floodplain permit for interior repairs or improvements:

- Application for Permit to Develop/Repair in a Floodplain, application can be found on MSD's website: https://louisvillemsd.org/sites/default/files/inline-files/apppermit_4.pdf
- Itemized cost estimate of repairs/improvements, cost estimate must include labor and itemized materials listed separately
- Building value (MSD can obtain PVA data if available) OR building appraisal

In order to obtain the permit, bring the items listed above to MSD at 700 W. Liberty Street. Our office is open from 9:00-4:00 Monday through Friday. If you cannot obtain the permit in person, you can also email the items to floodpermits@lousivillemsd.org. If you have any questions about floodplain permitting, email floodpermits@lousivillemsd.org or call MSD at 540-6000.

NOTE: MSD can permit repairs or improvements up to 50% of the value of the building in a 1 year rolling period. If the repairs or improvements are higher than 50% of the building value in 1 year, the building is required to meet the current floodplain ordinance, which means the first floor would have to be elevated at least 2' above the floodplain elevation for residential structures and 1' above the floodplain elevation for non-residential structures. Electrical and mechanical equipment must be 2' above the floodplain elevation for both residential and non-residential structures.

Example Handout: Know Your Flood Risk When Buying a Home

Are you buying a home?

You should check and see if it has flooded or had drainage problems. Even a shallow flood can cause costly damage.

If a home is located in a Federal Emergency Management Agency (FEMA) Special Flood Hazard Area, it is five times more likely to experience a flood than a fire, so you should consider purchasing flood insurance.

Simply enter your address to determine if your property is in a FEMA floodplain area.
https://apps.lojic.org/msdflooddetermination/

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Learn more about MSD and ways we are helping protect our community and its waterways.

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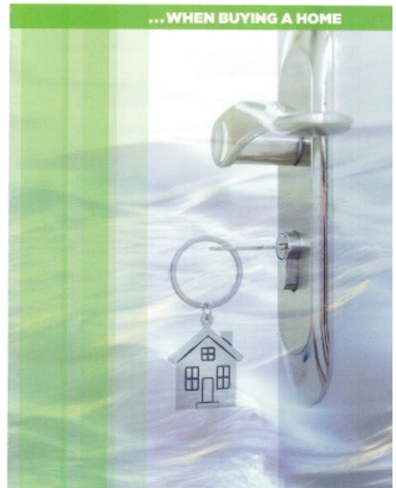
KNOW YOUR FLOOD RISK...

...WHEN BUYING A HOME



Buying a home in a Special Flood Hazard Area

If you buy a home in a Special Flood Hazard Area and get a mortgage that is regulated or insured by the Federal Government, you will be required to buy a flood insurance policy. Ask the seller and the agent if they know of any flooding or drainage problems at the property.

Check to see if the property is located in a Special Flood Hazard Area. For properties in Jefferson County, Kentucky visit:
https://apps.lojic.org/msdflooddetermination/

Flood Insurance Rate Maps

FEMA has Flood Insurance Rate Maps that show Special Flood Hazard Areas and flood zones.

- **A Zones** (A and AE) are high-risk areas. There is at least a 1 in 4 chance of flooding during a 30-year mortgage. All home and business owners in these areas with mortgages from federally regulated or insured lenders are required to buy flood insurance.
- **X Zones** are moderate-to-low risk areas according to FEMA maps. The risk of flooding is reduced but not removed. Flood insurance is not required but may be advised, especially if you are in the Local Regulatory Floodplain.

  The **Local Regulatory Floodplain** includes homes that are beyond the edges of the FEMA A Zones. These properties have been identified as has having a higher risk of flooding than areas outside the Local Regulatory Floodplain. Owners of these properties are required to follow the regulations in the Louisville Metro Floodplain Ordinance.

Flood insurance is not federally required in

What Prospective Property Owners Should Know

Local Floodplain Management Regulations
MSD and the Kentucky Division of Water regulate construction and development in identified floodplains to ensure buildings are protected from flood damage.

- Any development (including renovations and additions) in the floodplain requires a permit from MSD and the Kentucky Division of Water.
- Filling in areas with extra soil and similar projects are prohibited in certain areas.
- Houses that are considered substantially damaged (i.e., more than 50 percent of its market value) by fire, flood or other causes must be elevated to at least one foot above the flood level when they are repaired.
- Houses cannot be substantially improved (i.e. more than 50 percent of its market value) in a 1-year rolling period unless they are elevated to at least one foot above the flood level.
- New construction in the Floodplain, including additions, must be elevated at least two feet above the flood level.

Questions?

If you have questions about special land use, building, or floodplain management regulations that apply to a property, contact MSD at 502.540.6439.

For more information about flooding, visit MSD's Floodplain Management website at: http://www.msdlouky.org/programs/crssite/fpindex.html

For flood insurance information, visit www.floodsmart.gov.

Other Resources

You can check on Special Flood Hazard Areas in Jefferson County three ways:

- MSD's Flood Determination website: **https://apps.lojic.org/msdflooddetermination/**
- The online LOJIC Map: **www.lojic.org**
- FEMA's Map Service Center: **http://msc.fema.gov**

Appendix B: Example Letter to Flooded Property Owners

Appendix C

Example Handout: FEMA ICC Brochure

Mitigation Reduces Future Flood Damage

Is your building insured through the National Flood Insurance Program (NFIP) with a Standard Flood Insurance Policy (SFIP)? If so, you may be eligible for up to $30,000 in Increased Cost of Compliance (ICC) coverage. ICC will help cover the costs of meeting the community's rebuilding requirements that will protect your home from future flood damages.

ICC coverage can help to pay the cost of one or any combination of these four mitigation activities.

Elevate above the flood level required by your community

Relocate to a new site, preferably out of the floodplain

Demolish the building

Dry floodproof the building (primarily non-residential)

Your insurance carrier and community building department can help you to determine your ICC eligibility and the documentation you will need.

ICC Helps Reduce Future Flood Damage

Flooding badly damaged John Smith's $200,000 home. After John **reported his flood loss to his insurance carrier**, an assigned adjuster inspected the property and said he may be eligible to receive ICC and should talk to his community building department.

John contacted the **community building department** and **after an inspection of the home, it was declared substantially damaged**. John and the building department jointly decided elevating his home was the best way to meet the local floodplain rebuilding requirements and reduce future flood damage.

John provided the substantial damage letter he received from his community building department to the insurance carrier. After **the insurance carrier verified that the flood damages equaled at least 50 percent of the pre-flood market value, John qualified to receive ICC**. After submitting a signed contract for the work, a building permit from the building department, and a signed ICC Proof of Loss form, **John was ready to elevate his home***.

**Check with your insurance carrier to determine if you are able to receive a partial payment to help with the initial mitigation activity costs.*

For more information about the NFIP, flood insurance, and ICC, contact your insurance carrier or visit www.FloodSmart.gov.

National Flood Insurance Program

Increased Cost of Compliance Coverage

Reduces Future Flood Damages

FEMA

F-663

What is Increased Cost of Compliance (ICC)?

ICC coverage is included under the National Flood Insurance Program (NFIP) Standard Flood Insurance Policy (SFIP). ICC helps policyholders with the costs incurred if they are required by the community building department to meet rebuilding standards after a flood.

ICC coverage provides up to $30,000 to help pay for relocating, elevating, demolishing, and floodproofing (non-residential buildings), or any combination of these mitigation activities.

The ICC portion of the claim is handled separately from the building and/or contents portion of the claim. However, the combination of payments cannot exceed the maximum coverage limits available through the NFIP. For example, a policyholder cannot receive more than $250,000 in claim payments for a residential building.

Are You Eligible to File a Claim for ICC?

Yes, if:

1) You have an NFIP flood insurance policy; and
2) Your community building department determines your home is substantially or repetitively damaged by flooding; and
3) The flood damage to your home is equal to 50 percent of the pre-flood market value.

"Substantially damaged" means damages of **any** origin sustained by a structure whereby the cost of restoring the structure to its before damaged condition would equal or exceed 50 percent of the market value of the structure before the damages occurred.

"Repetitively damaged" means the building must have flood damage on at least two occasions during a 10-year period; the cost of which to repair the flood damage, on average, equaled or exceeded 25 percent of the market value of the building on each occasion.

Starting the ICC Claims Process after a Flood

1. If your community building department determines your structure is substantially or repetitively damaged, discuss what mitigation activities will be required to rebuild in the floodplain and if any grants may be available.

2. Promptly contact your insurance carrier to file a claim for ICC and document the loss (photographs, etc.) Do not begin minor repair work before filing an ICC claim.

3. Submit to your insurance carrier the letter from your community building department declaring the building substantially or repetitively damaged, a signed contract for the mitigation activity, and the building permit that documents rebuilding requirements in the floodplain.

4. The insurance carrier will verify that the flood damage to your building equals at least 50 percent of the pre-flood market value, which is required to start the ICC claim.

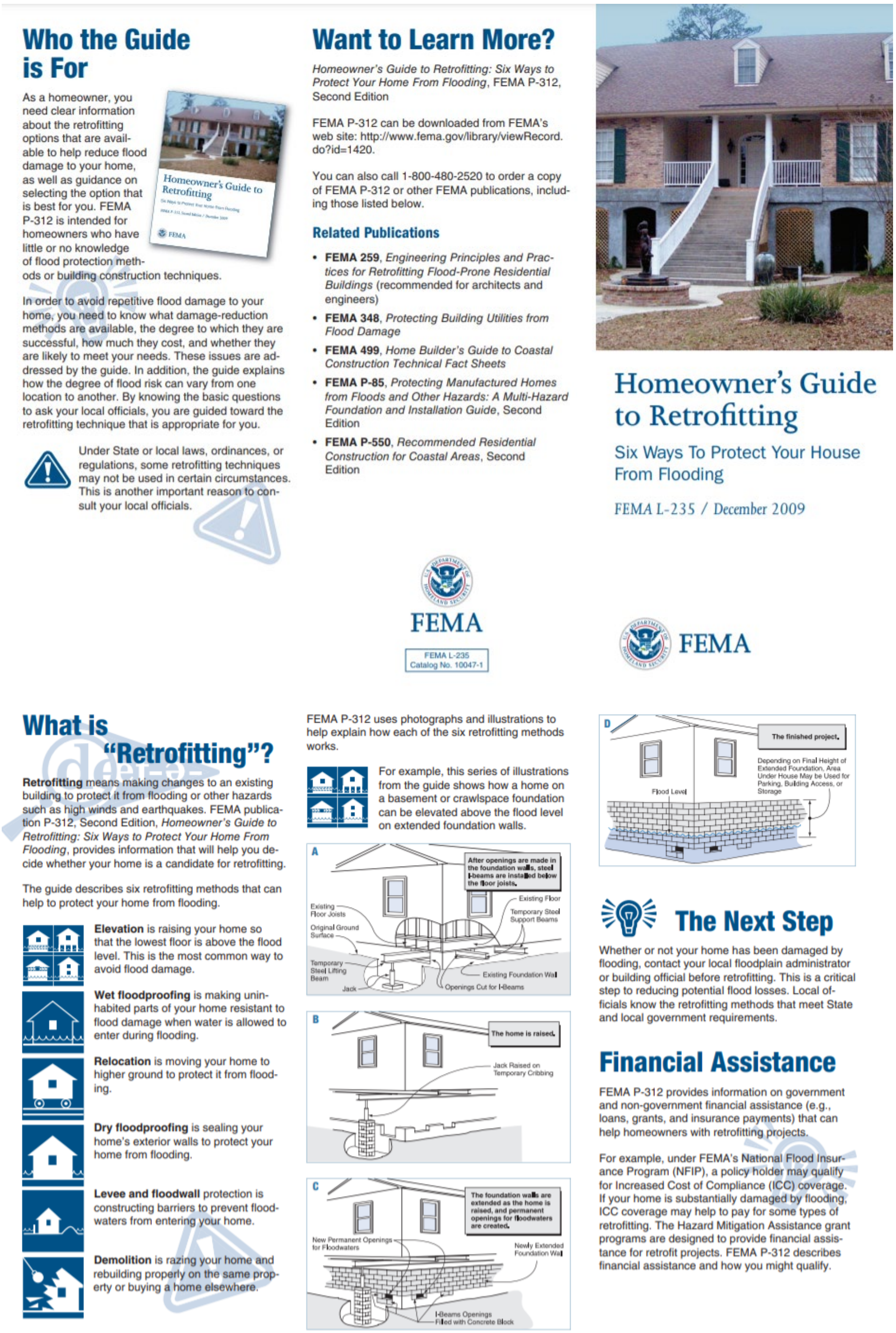
Where to Get More Information

For more information about the ICC claim process, visit www.FEMA.gov/Increased-Cost-Compliance-Coverage, contact your insurance carrier, or your State NFIP Coordinator (http://www.floods.org/).

Things to Remember about ICC

- After it has been determined which mitigation activity you will be taking, contact your insurance carrier to file a claim for ICC. An adjuster will be assigned to you.
- Your adjuster will ask you to submit your substantial damage letter and building permit from the community building department, a copy of a signed contractor bid for the work, and a signed ICC Proof of Loss form, which the adjuster may provide to you as a courtesy.
- Before you begin the work, check with your insurance carrier to see if you are able to receive a partial payment to help cover some of the initial construction costs.
- After the work is completed, your community building department will provide written evidence the work meets the floodplain management regulations. Submit this to your insurance carrier to receive a full or remaining partial ICC payment.
- If necessary, your community building department may also be able to use ICC to supplement Federal or state grant funding for your elevation, demolition, relocation, or floodproofing (non-residential buildings).

Example Handout: FEMA Homeowner’s Guide to Retrofitting



Who the Guide is For

As a homeowner, you need clear information about the retrofitting options that are available to help reduce flood damage to your home, as well as guidance on selecting the option that is best for you. FEMA P-312 is intended for homeowners who have little or no knowledge of flood protection methods or building construction techniques.

In order to avoid repetitive flood damage to your home, you need to know what damage-reduction methods are available, the degree to which they are successful, how much they cost, and whether they are likely to meet your needs. These issues are addressed by the guide. In addition, the guide explains how the degree of flood risk can vary from one location to another. By knowing the basic questions to ask your local officials, you are guided toward the retrofitting technique that is appropriate for you.

Under State or local laws, ordinances, or regulations, some retrofitting techniques may not be used in certain circumstances. This is another important reason to consult your local officials.

Want to Learn More?

Homeowner’s Guide to Retrofitting: Six Ways to Protect Your Home From Flooding, FEMA P-312, Second Edition

FEMA P-312 can be downloaded from FEMA’s web site: http://www.fema.gov/library/viewRecord.do?id=1420.

You can also call 1-800-480-2520 to order a copy of FEMA P-312 or other FEMA publications, including those listed below.

Related Publications

- **FEMA 259**, *Engineering Principles and Practices for Retrofitting Flood-Prone Residential Buildings* (recommended for architects and engineers)
- **FEMA 348**, *Protecting Building Utilities from Flood Damage*
- **FEMA 499**, *Home Builder’s Guide to Coastal Construction Technical Fact Sheets*
- **FEMA P-85**, *Protecting Manufactured Homes from Floods and Other Hazards: A Multi-Hazard Foundation and Installation Guide*, Second Edition
- **FEMA P-550**, *Recommended Residential Construction for Coastal Areas*, Second Edition

FEMA

FEMA L-235
Catalog No. 10047-1

Homeowner’s Guide to Retrofitting

Six Ways To Protect Your House From Flooding

FEMA L-235 / December 2009

FEMA

What is “Retrofitting”?

Retrofitting means making changes to an existing building to protect it from flooding or other hazards such as high winds and earthquakes. FEMA publication P-312, Second Edition, *Homeowner’s Guide to Retrofitting: Six Ways to Protect Your Home From Flooding*, provides information that will help you decide whether your home is a candidate for retrofitting.

The guide describes six retrofitting methods that can help to protect your home from flooding.

Elevation is raising your home so that the lowest floor is above the flood level. This is the most common way to avoid flood damage.

Wet floodproofing is making uninhabited parts of your home resistant to flood damage when water is allowed to enter during flooding.

Relocation is moving your home to higher ground to protect it from flooding.

Dry floodproofing is sealing your home’s exterior walls to protect your home from flooding.

Levee and floodwall protection is constructing barriers to prevent floodwaters from entering your home.

Demolition is razing your home and rebuilding properly on the same property or buying a home elsewhere.

FEMA P-312 uses photographs and illustrations to help explain how each of the six retrofitting methods works.

For example, this series of illustrations from the guide shows how a home on a basement or crawlspace foundation can be elevated above the flood level on extended foundation walls.

A

After openings are made in the foundation walls, steel I-beams are installed below the floor joists.

Existing Floor Joists

Original Ground Surface

Temporary Steel Lifting Beam

Jack

Existing Floor

Temporary Steel Support Beams

Existing Foundation Wall

Openings Cut for I-Beams

B

The home is raised.

Jack Raised on Temporary Cribbing

C

The foundation walls are extended as the home is raised, and permanent openings for floodwaters are created.

New Permanent Openings for Floodwaters

Newly Extended Foundation Wall

I-Beams Openings Filled with Concrete Block

D

The finished project.

Depending on Final Height of Extended Foundation, Area Under House May be Used for Parking, Building Access, or Storage

Flood Level

The Next Step

Whether or not your home has been damaged by flooding, contact your local floodplain administrator or building official before retrofitting. This is a critical step to reducing potential flood losses. Local officials know the retrofitting methods that meet State and local government requirements.

Financial Assistance

FEMA P-312 provides information on government and non-government financial assistance (e.g., loans, grants, and insurance payments) that can help homeowners with retrofitting projects.

For example, under FEMA’s National Flood Insurance Program (NFIP), a policy holder may qualify for Increased Cost of Compliance (ICC) coverage. If your home is substantially damaged by flooding, ICC coverage may help to pay for some types of retrofitting. The Hazard Mitigation Assistance grant programs are designed to provide financial assistance for retrofit projects. FEMA P-312 describes financial assistance and how you might qualify.

Appendix D

msd
Safe, clean waterways
700 West Liberty Street | Louisville, KY 40203-1911
Phone: 502.540.6000 | LouisvilleMSD.org

Date

«OwnerAddressLine1»

«OwnerAddressLine2»

«OwnerAddressLine3»

Re: Property at «PropertyAddressLine1» Louisville, KY

Dear Property Owner:

Due to the recent flooding, your property may have suffered flood damage. According to Louisville's Floodplain Ordinance, MSD is required to make sure all development in the floodplain is permitted, including repairs from flood damage.

What is needed for a permit for interior repairs or improvements?

Application for Permit to Develop/Repair in a Floodplain, which can be found at MSD's Main Office or on MSD's website: http://louisvillemsd.org/sites/default/files/inline-files/apppermit_1.pdf

Cost estimate of repairs/improvements, estimate must be itemized and include an estimate for labor separately (even when work is being done by homeowner or volunteers)

Building value - MSD can use PVA data, if available, OR owner can provide appraisal

Permit applications and required supporting documents may be submitted via email to floodpermits@lousivillemsd.org or submitted in-person at MSD, 700 W Liberty St, Monday-Friday 9:00-4:00.

Floodplain permits are not required before cleaning up and residents are encouraged to begin cleaning up as soon as possible. If possible, take photographs of any damage before cleaning up. Below are flood safety tips from FEMA:

> Confirm the water supply is safe to drink. Listen for news reports to learn whether the community's water supply has been contaminated by the floodwaters. Remember to carry

bottled drinking water and discard any food products that may have come in contact with floodwater.

Wear protective clothing. Protect yourself during cleanup by wearing boots, gloves and masks. Clean and disinfect everything floodwater contacted.

Ventilate your home. Open all doors and windows to allow air to circulate and dry out your home. Dehumidify as soon as possible after a flood.

Service damaged septic tanks, cesspools, pit and leaching systems as soon as possible. Damaged sewage systems are serious health hazards.

Make a list of lost or damaged items. Be sure to include their age and value, and if possible, have receipts for those items available for insurance.

Prevent mold growth. Wash all surface areas in the house that came in contact with floodwater. Disinfect and wipe surfaces dry with paper towels to minimize bacterial contamination.

Isolate any moldy objects. Seal moldy trash in plastic bags and remove them immediately. Objects you can save should be dried as soon as possible.

Did you know you may be eligible for up to $30,000 to elevate, relocate, or demolish a flood damaged building? If your structure is substantially damaged, which is defined as the building having damages or improvements that are more than 50% of the value of the building in the last year, and you carry flood insurance, you may be eligible for up to $30,000 to elevate, relocate, or demolish your structure using Increased Cost of Compliance (ICC) funds from FEMA. Information about ICC funds can be found at this website: https://www.fema.gov/floodplain-management/financial-help/increased-cost-compliance.

If you have any questions, please contact the floodplain hotline at (502)540-6126 or email at floodpermits@lousivillemsd.org.

Sincerely,

Lori Rafferty, PE, CFM
MS4/Floodplain Program Manager

700 West Liberty Street | Louisville, KY 40203-1911
Phone: 502.540.6000 | LouisvilleMSD.org

Date

Owner Name

Owner Mailing Address 1

Owner Mailing Address 2

RE: Subject Property Address, NOTICE OF SUBSTANTIAL DAMAGE

Dear Owner Name:

As Metro Government's Floodplain Manager, it is MSD's responsibility to enforce floodplain regulations in Jefferson County. Per the Louisville Metro Floodplain Ordinance, the substantial damage definition includes all damages or improvements made to the structure within a 1-year rolling period. Based on the estimate for the recent flood damage repair due to [list flood event], we have found the structure located at [Subject Property Address] in Louisville, KY to be substantially damaged. The cost to repair the building to its pre-damage condition exceeds 50 percent of the market value of the building, excluding the land.

As a result of this determination, you are required to bring the building into compliance with the Louisville Metro Floodplain Ordinance or remove the building from the floodplain. In order to comply with the Floodplain Ordinance, the first floor of the building, along with the mechanical and electrical equipment, must be elevated at least XXX feet above the base flood elevation of [XXX.X].

A copy of the Floodplain Ordinance can be found at the following website: http://louisvillemsd.org/programs/programs-and-projects/floodplain-management/flood-related-documents.

If you have any questions, please contact me at (502) 540-6344.

Sincerely,

Lori Rafferty, PE, CFM

Floodplain Manager

Recommendation Mitigation for Potential Substantial Damage Structures

Area	Property Identifier	Relocation	Acquisition	Elevation	Retrofitting	Flood Project	Restudy	Justification
Bashford Manor	Bashford Manor 1		X					Brick, slab
Broadmoor Park	Broadmoor Park 1		X					Slab foundation
Broadmoor Park	Broadmoor Park 2		X					Floodway, slab foundation
Broadway	Broadway 1		X		X			Commercial, slab foundation
Broadway	Broadway 2		X		X			Commercial, slab foundation
Douglas Hills	Douglass Hills 1		X			X		Brick, walkout basement garage, potential culvert replacement or flood basin project
Fern Creek	Fern Creek 1		X					Slab foundation, brick
High Gate Springs Subdivision	High Gate Springs 1		X				X	Slab foundation
High Gate Springs Subdivision	High Gate Springs 2		X				X	Slab foundation
High Gate Springs Subdivision	High Gate Springs 3		X				X	Slab foundation
High Gate Springs Subdivision	High Gate Springs 4		X				X	Slab foundation
Hollyvilla	Hollyvilla 1		X					Slab foundation, stone construction
Jeffersontown	Jeffersontown 1				X			Commercial, slab, floodway, remove part of structure in floodway, retrofit remaining
Jeffersontown	Jeffersontown 2				X			Brick, walkout slab basement impacted
Jeffersontown	Jeffersontown 3		X					Gov. owned metal storage bldg, floodway, slab foundation, remove structure
Lake Dreamland	Lake Dreamland 1		X					Floodway
Lake Dreamland	Lake Dreamland 2		X					Floodway
Lake Dreamland	Lake Dreamland 3		X					Floodway
Lake Dreamland	Lake Dreamland 4		X					Floodway
Lake Dreamland	Lake Dreamland 5		X					Floodway
Lake Dreamland	Lake Dreamland 6		X					Floodway
Lake Dreamland	Lake Dreamland 7		X					Floodway
Lake Dreamland	Lake Dreamland 8		X					Floodway
Lake Dreamland	Lake Dreamland 9		X					CMU, crawl
Lake Dreamland	Lake Dreamland 10		X	X				Crawlspace, vinyl
Lake Dreamland	Lake Dreamland 11		X					Slab
Lake Dreamland	Lake Dreamland 12		X	X				Crawlspace, vinyl
Lake Dreamland	Lake Dreamland 13		X	X				Crawlspace, vinyl
Lake Dreamland	Lake Dreamland 14		X	X				Crawlspace, vinyl
Mellwood Avenue	Mellwood Ave 1		X	X				Crawlspace, siding
Mellwood Avenue	Mellwood Ave 2		X	X				Crawlspace, siding
Mellwood Avenue	Mellwood Ave 3		X					Crawlspace, siding
NE Ohio River Beach Area	NE Ohio River Beach 1		X					Slab, brick
NE Ohio River Beach Area	NE Ohio River Beach 2		X	X	X			Siding, on piers, would need to elevate 15' min
NE Ohio River Beach Area	NE Ohio River Beach 3		X					Floodway
NE Ohio River Beach Area	NE Ohio River Beach 4		X					Floodway
NE Ohio River Beach Area	NE Ohio River Beach 5		X	X	X			Siding, on piers, would need to elevate 15' min
NE Ohio River Beach Area	NE Ohio River Beach 6		X					Floodway
NE Ohio River Beach Area	NE Ohio River Beach 7		X					Floodway
NE Ohio River Beach Area	NE Ohio River Beach 8		X					Floodway
NE Ohio River Beach Area	NE Ohio River Beach 9		X					Floodway
NE Ohio River Beach Area	NE Ohio River Beach 10		X					Floodway
NE Ohio River Beach Area	NE Ohio River Beach 11		X					Floodway, slab
NE Ohio River Beach Area	NE Ohio River Beach 12		X					Floodway
NE Ohio River Beach Area	NE Ohio River Beach 13		X					Floodway
NE Ohio River Beach Area	NE Ohio River Beach 14		X					Floodway
NE Ohio River Beach Area	NE Ohio River Beach 15		X	X	X			Floodway, already partially elevated
NE Ohio River Beach Area	NE Ohio River Beach 16		X	X				Crawlspace, siding
NE Ohio River Beach Area	NE Ohio River Beach 17		X					Floodway
NE Ohio River Beach Area	NE Ohio River Beach 18		X					Floodway
NE Ohio River Beach Area	NE Ohio River Beach 19		X					Floodway
NE Ohio River Beach Area	NE Ohio River Beach 20		X					Floodway

Recommendation Mitigation for Potential Substantial Damage Structures

Area	Property Identifier	Relocation	Acquisition	Elevation	Retrofitting	Flood Project	Restudy	Justification
NE Ohio River Beach Area	NE Ohio River Beach 21		X					Floodway
NE Ohio River Beach Area	NE Ohio River Beach 22		X					Floodway
NE Ohio River Beach Area	NE Ohio River Beach 23		X					Floodway
NE Ohio River Beach Area	NE Ohio River Beach 24		X					Floodway
NE Ohio River Beach Area	NE Ohio River Beach 25		X					Floodway
NE Ohio River Beach Area	NE Ohio River Beach 26		X					Floodway
NE Ohio River Beach Area	NE Ohio River Beach 27		X					Floodway
NE Ohio River Beach Area	NE Ohio River Beach 28		X					Floodway
NE Ohio River Beach Area	NE Ohio River Beach 29		X					Floodway
NE Ohio River Beach Area	NE Ohio River Beach 30		X					Floodway
NE Ohio River Beach Area	NE Ohio River Beach 31		X					Floodway
NE Ohio River Beach Area	NE Ohio River Beach 32		X					Floodway
NE Ohio River Beach Area	NE Ohio River Beach 33		X					Floodway
NE Ohio River Beach Area	NE Ohio River Beach 34		X					Floodway
NE Ohio River Beach Area	NE Ohio River Beach 35		X					Floodway
NE Ohio River Beach Area	NE Ohio River Beach 36		X					Floodway, slab
NE Ohio River Beach Area	NE Ohio River Beach 37		X					Floodway
NE Ohio River Beach Area	NE Ohio River Beach 38		X	X	X			Garage first floor, primarily wood siding
NE Ohio River Beach Area	NE Ohio River Beach 39		X					Floodway, slab
NE Ohio River Beach Area	NE Ohio River Beach 41		X					Floodway
NE Ohio River Beach Area	NE Ohio River Beach 42		X					Floodway
NE Ohio River Beach Area	NE Ohio River Beach 43		X	X				First floor garage, masonry block
NE Ohio River Beach Area	NE Ohio River Beach 44		X					Floodway
NE Ohio River Beach Area	NE Ohio River Beach 45		X					Floodway
NE Ohio River Beach Area	NE Ohio River Beach 47		X	X	X			First floor garage, stucco
NE Ohio River Beach Area	NE Ohio River Beach 48		X					Floodway
NE Ohio River Beach Area	NE Ohio River Beach 49		X					Floodway
NE Ohio River Beach Area	NE Ohio River Beach 50		X					Floodway
NE Ohio River Beach Area	NE Ohio River Beach 51		X					Floodway
NE Ohio River Beach Area	NE Ohio River Beach 52		X					Floodway
NE Ohio River Beach Area	NE Ohio River Beach 53		X					Floodway
NE Ohio River Beach Area	NE Ohio River Beach 54		X					Floodway
NE Ohio River Beach Area	NE Ohio River Beach 55		X					Floodway
NE Ohio River Beach Area	NE Ohio River Beach 56		X					Floodway
NE Ohio River Beach Area	NE Ohio River Beach 57		X					Floodway
NE Ohio River Beach Area	NE Ohio River Beach 58		X					Floodway
NE Ohio River Beach Area	NE Ohio River Beach 59		X					Floodway
NE Ohio River Beach Area	NE Ohio River Beach 60		X					Floodway
NE Ohio River Beach Area	NE Ohio River Beach 61		X					Floodway
NE Ohio River Beach Area	NE Ohio River Beach 62		X					Floodway
NE Ohio River Beach Area	NE Ohio River Beach 63		X					Floodway
NE Ohio River Beach Area	NE Ohio River Beach 64		X					Floodway
NE Ohio River Beach Area	NE Ohio River Beach 65		X					Floodway
NE Ohio River Beach Area	NE Ohio River Beach 66		X					Floodway
NE Ohio River Beach Area	NE Ohio River Beach 67		X					Floodway
NE Ohio River Beach Area	NE Ohio River Beach 68		X					Floodway
NW Ohio River Area	NW Ohio River 1		X		X			CMU, slab
Old Taylorsville	Old Taylorsville 1		X					Slab, one story
Old Taylorsville	Old Taylorsville 2		X					Floodway
Old Taylorsville	Old Taylorsville 3		X					Floodway
Paristown	Paristown 1				X			CMU warehouse
River Rd Commercial/Industrial	River Rd Com/Ind 1			X	X			Commercial, Louisville Boat Club Pool House

Appendix E: Recommended Mitigation for Potential Substantial Damage Properties

Recommendation Mitigation for Potential Substantial Damage Structures

Area	Property Identifier	Relocation	Acquisition	Elevation	Retrofitting	Flood Project	Restudy	Justification
River Rd Commercial/Industrial	River Rd Com/Ind 2				X			Gas Station
River Rd Commercial/Industrial	River Rd Com/Ind 3				X			Hotel
River Rd Commercial/Industrial	River Rd Com/Ind 4				X			9' in floodplain
River Rd Commercial/Industrial	River Rd Com/Ind 5				X			existing builidng to be remodeled with development plan on file
River Rd Commercial/Industrial	River Rd Com/Ind 6		X		X			Golf center
River Rd Commercial/Industrial	River Rd Com/Ind 7		X					Floodway
River Rd Commercial/Industrial	River Rd Com/Ind 8			X	X			Louisville boat club, 9' in the floodplain
River Rd Commercial/Industrial	River Rd Com/Ind 9		X					Floodway, conveyance
River Rd Commercial/Industrial	River Rd Com/Ind 10				X			Fire station
River Rd Commercial/Industrial	River Rd Com/Ind 11		X					Floodway, conveyance
River Rd Commercial/Industrial	River Rd Com/Ind 12		X					Tavern, slab, vinyl
Riviera Subdivision	Riviera Subdivision 1		X					Slab, siding
Riviera Subdivision	Riviera Subdivision 2		X		X			Slab, CMU
Riviera Subdivision	Riviera Subdivision 3		X					Slab, brick
Riviera Subdivision	Riviera Subdivision 4		X					Brick
Riviera Subdivision	Riviera Subdivision 5		X					Brick, crawl
Riviera Subdivision	Riviera Subdivision 6		X					Brick
Riviera Subdivision	Riviera Subdivision 7		X	X				Slab, siding
Riviera Subdivision	Riviera Subdivision 8		X		X			Slab, siding, two story
Riviera Subdivision	Riviera Subdivision 9		X	X				Siding, crawlsapce
Riviera Subdivision	Riviera Subdivision 10		X					Slab, concrete
Riviera Subdivision	Riviera Subdivision 11		X	X				Over garage level
Riviera Subdivision	Riviera Subdivision 12		X					Brick, slab
Riviera Subdivision	Riviera Subdivision 13		X	X				Over garage level
Riviera Subdivision	Riviera Subdivision 14		X	X				Over garage level
Riviera Subdivision	Riviera Subdivision 15		X					Slab
Riviera Subdivision	Riviera Subdivision 16		X	X				Over garage level
Riviera Subdivision	Riviera Subdivision 17		X		X			Slab, siding, two story
Riviera Subdivision	Riviera Subdivision 18		X					Stone/CMU
Riviera Subdivision	Riviera Subdivision 19		X					Slab, brick
Riviera Subdivision	Riviera Subdivision 20		X	X				Crawlspace/Basement, siding
Saint Gabriel	Saint Gabriel 1		X		X	X		Brick, slab
Saint Gabriel	Saint Gabriel 2		X		X	X		Brick, crawl
Shively	Shively 1		X		X			Brick with basement
SW Ohio River Beach Area	SW Ohio River Beach 1		X					Floodway
SW Ohio River Beach Area	SW Ohio River Beach 2		X					Floodway
SW Ohio River Beach Area	SW Ohio River Beach 3		X					Floodway
SW Ohio River Beach Area	SW Ohio River Beach 4		X					Floodway
SW Ohio River Beach Area	SW Ohio River Beach 5		X					Floodway
SW Ohio River Beach Area	SW Ohio River Beach 6		X					Floodway
SW Ohio River Beach Area	SW Ohio River Beach 7		X					Floodway
SW Ohio River Beach Area	SW Ohio River Beach 8		X					Floodway
SW Ohio River Beach Area	SW Ohio River Beach 9		X					Floodway
SW Ohio River Beach Area	SW Ohio River Beach 10		X					Floodway
SW Ohio River Beach Area	SW Ohio River Beach 11		X					Floodway
SW Ohio River Beach Area	SW Ohio River Beach 12		X					Floodway
SW Ohio River Beach Area	SW Ohio River Beach 13		X					Floodway
SW Ohio River Beach Area	SW Ohio River Beach 14		X					Floodway
SW Ohio River Beach Area	SW Ohio River Beach 15		X					Floodway
SW Ohio River Beach Area	SW Ohio River Beach 16		X					Floodway
SW Ohio River Beach Area	SW Ohio River Beach 17		X					Floodway
SW Ohio River Beach Area	SW Ohio River Beach 18		X					Floodway

Recommendation Mitigation for Potential Substantial Damage Structures

Area	Property Identifier	Relocation	Acquisition	Elevation	Retrofitting	Flood Project	Restudy	Justification
SW Ohio River Beach Area	SW Ohio River Beach 19		X					Floodway
SW Ohio River Beach Area	SW Ohio River Beach 20		X					Floodway
SW Ohio River Beach Area	SW Ohio River Beach 21		X					Floodway
SW Ohio River Beach Area	SW Ohio River Beach 22		X					Floodway
SW Ohio River Beach Area	SW Ohio River Beach 23		X					Floodway
SW Ohio River Beach Area	SW Ohio River Beach 24		X					Floodway
SW Ohio River Beach Area	SW Ohio River Beach 25		X					Floodway
SW Ohio River Beach Area	SW Ohio River Beach 26		X					Floodway
SW Ohio River Beach Area	SW Ohio River Beach 27		X					Floodway
SW Ohio River Beach Area	SW Ohio River Beach 28		X					Floodway
SW Ohio River Beach Area	SW Ohio River Beach 29		X					Floodway
SW Ohio River Beach Area	SW Ohio River Beach 30		X					Floodway
SW Ohio River Beach Area	SW Ohio River Beach 31		X					Floodway
SW Ohio River Beach Area	SW Ohio River Beach 32		X					Floodway