

The Flood Record

December 2020

Requirements for Agricultural and Accessory Structures

In July 2020, FEMA issued a [*Floodplain Management Bulletin, P-2140, Floodplain Management Requirements for Agricultural Structures and Accessory Structures*](#). The guidance defines what the NFIP considers to be agricultural structures and accessory structures and, perhaps more importantly, what is not. The bulletin also addresses:

- dry floodproofing requirements
- wet floodproofing techniques and limitations of use for agricultural structures and accessory structures.
- Variances and permits
- model ordinance language for wet floodproofing by permit or by variance
- NFIP flood insurance coverage for agricultural structures and accessory structures

An agricultural structure is defined as a structure that must be used exclusively in connection with the production, harvesting, storage, raising, or drying of agricultural commodities and livestock; an agricultural structure specifically excludes any structure used for human habitation. This means, a building that is used seasonally by the public for wine tasting or a farm stand **is not** an agricultural structure and must meet your building protection standards.

Similarly, the bulletin addresses accessory structures, giving examples of two-car detached garages (or smaller), carports, storage and tool sheds, and small boathouses. Garages tend to be the biggest permitting problem. Your ordinance will have a size limit, usually 500 or 576 sq. ft. for an accessory structure. Over time ordinance have been increasing the size, communities are ignoring this limitation, or communities are issuing variances to allow larger accessory structures.

Finally, before you issue a permit or a variance, always read your ordinance and check if the structure is subject to state floodway rules. Your local rules and the state floodway rules are more restrictive than the minimum rules of the National Flood Insurance Program.

Variances

Granting a variance to floodplain management regulations must be very carefully considered. Variances can increase the owner's risk and flood insurance premiums. Variances can also jeopardize your communities standing in the National Flood Insurance Program. A variance must be for a unique and unusual hardship related to the specific property not the owner. Once a variance is issued, similarly situated properties could all be eligible for the same variance. Read your regulations carefully and remember a variance cannot be issued in the floodway.

Occasionally there may be a legitimate reason to issue a variance. FEMA's publication [*Variances and the National Flood Insurance Program, P-993*](#) discusses the variance review process and outlines common situations in which a variance may be requested. You can order a hard copy by calling 1-800-480-2520.

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Save the Date

IAFSM 2021 Virtual Conference will be held on March 10-11. More details coming soon at www.illinoisfloods.org.

First Street Foundation Flood Factor

You may have been contacted by a resident or realtor recently who has looked at this new website for assessing a property's flood risk, called the Flood Factor. Over the summer the site received press coverage in the local and national press. Realtors.com has now added a link to their listings.

I encourage you take a few minutes to compare your local knowledge of flooding, your floodplain maps, and the mapping on the [First Street website](#). After entering an address, the flood factor from 1 to 10 is provided. For example, a 2013 damaged and then demolished floodplain home in Lisle still showed a flood factor of 3!

On the good side, the online maps were created for the entire United States using one methodology. and provide mapping for communities with no Flood Insurance Rate Maps (FIRM). The counties and municipalities in Illinois with no floodplain maps may find this helpful. The mapping is taking rainfall changes, sea level rise, and sea surface temperatures into consideration. On the bad side, the mapping used no ground level surveying and no bridge or culvert modelling. In some areas the flooding stretches well beyond what is shown on the FIRM and in other areas the opposite is true.

The Association of State Floodplain Managers has prepared some [talking points on the First Street Foundation Flood Risk Model](#), to help you respond to residents and realtors.



NFIP Flood Insurance Annual Increases Continue but Changes are Coming

Annual rate increases go into effect on April 1. In 2020, when including various fees, the average policy increase is 9.9%. Assuming an annual increase of 10%, it is easy to see why owners are struggling. A current \$500 policy in ten years will more than doubled to \$1,179, while a \$3,000 policy will be \$7,073. Complete details on the changes to the Flood Insurance Manual can be found at:

<https://nfipservices.floodsmart.gov/sites/default/files/w-19014.pdf>

Most of Illinois' policies are on pre-FIRM primary residences in Zone A/AE/AO. These policies had a total bill increase of 7.5%. Other pre-FIRM policies for non-primary residences (rental or vacation homes), businesses, severe repetitive loss, and substantially improved properties saw rate increases between 23.1% and 24.2%. Finally, post-FIRM A Zone policies, which do not benefit from subsidized rates, had lower increases of 2.7% for AO and AH Zones, 4.1% for AE Zones, and 5.1% for unnumbered A Zones.

Changes effective January 1, 2021 include Preferred Risk Policies (PRP) with a total amount billed increase of 12.5 percent. Properties Newly Mapped into the floodplain will continue to receive PRP premiums during the first year following the effective date of the map change but effective January 1, 2021, the annual premium increase for Newly Mapped policies for the total amount billed will be 12.5%.

Coming in October 2021, a total redesign of the NFIP risk rating is scheduled. Called [Risk Rating 2.0](#), it will fundamentally change how FEMA rates a property's flood risk and prices insurance for buildings. Finally, homeowners will be encouraged to mitigate not only by elevating but also by installing compliant flood openings in a crawlspace or enclosed foundation and elevating machinery and equipment above the lowest floor. The new risk rating plan is promising to use easier-to-understand rating characteristics for each property to more accurately assess the risk, such as:

- Distance to the coast, lake, or river
- Different types of flood risk like riverine, ponding or coastal
- The cost to rebuild the home

If you are a new local floodplain administrator, send any contact updates to Marilyn Sucoe at marilyn.sucoe@illinois.gov

Northern Illinois Precipitation and Streamflow on the Rise

W. Scott Lincoln, GISP Senior Service Hydrologist, National Weather Service, Chicago, IL October 21, 2020

The Water Cycle – Essential to Most Life on Earth

The Water Cycle describes the movement of water through various parts of our planet. The water cycle is essential to most life on Earth. In general, water falls to the surface as precipitation, moves across or through the soil toward streams and lakes, moves toward oceans or evaporates, and then falls from the sky again as precipitation. In recent decades, significant changes to the water cycle have been noted. According to the 2018 National Climate assessment, precipitation has been increasing across portions of the United States¹, and changes to evaporation and streamflow have also been noted.

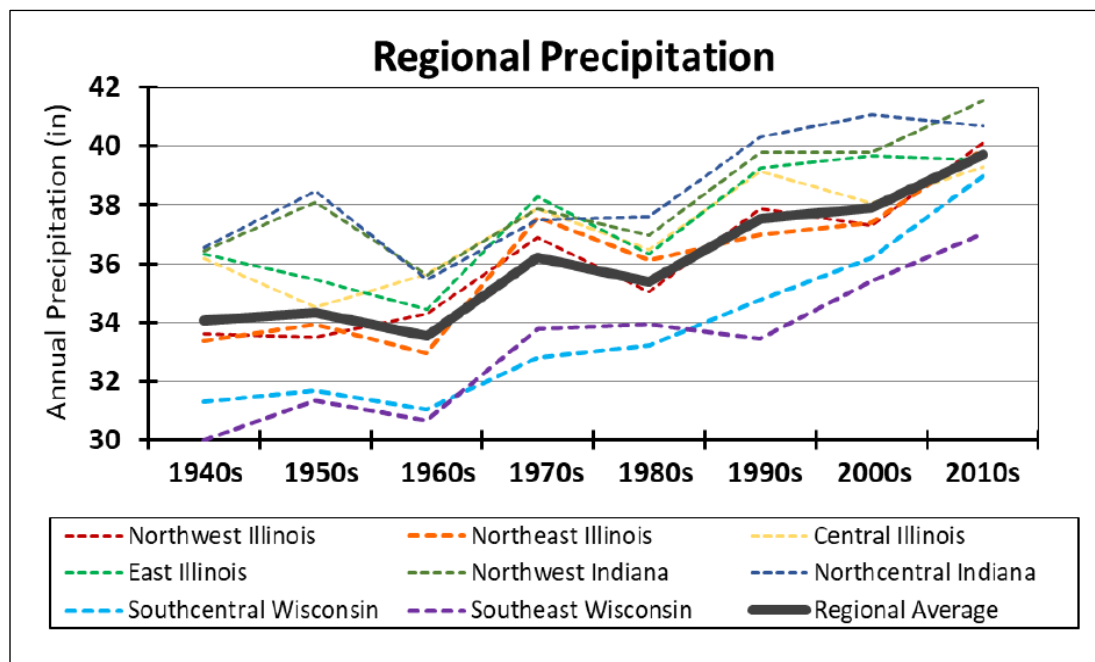
From the 2018 National Climate Assessment...

Annual average precipitation has increased by 4% since 1901 across the entire United States, with strong regional differences...

...The frequency and intensity of heavy precipitation events across the United States have increased more than average precipitation and are expected to continue to increase over the coming century... These trends are consistent with what would be expected in a warmer world, as increased evaporation rates lead to higher levels of water vapor in the atmosphere, which in turn lead to more frequent and intense precipitation extremes.

Precipitation on the Rise

Precipitation changes have been particularly notable in the Midwest, including northeast Illinois. For example, precipitation in the northeast Illinois climate division² has increased from 33.9 inches per year in the 1950s to about 39.9 inches per year in the 2010s, an increase of 6 inches, or 18%.



¹ Hayhoe, K., D.J. Wuebbles, D.R. Easterling, D.W. Fahey, S. Doherty, J. Kossin, W. Sweet, R. Vose, and M. Wehner, 2018: Our Changing Climate, Key Message 6, Precipitation. In Impacts, Risks, and Adaptation in the United States: Fourth National Climate Assessment, Volume II [Reidmiller, D.R., C.W. Avery, D.R. Easterling, K.E. Kunkel, K.L.M. Lewis, T.K. Maycock, and B.C. Stewart (eds.)] U.S. Global Change Research Program, Washington, DC, USA, pp. 72-144. Doi: 10.7930/NCA4.2018.CH2

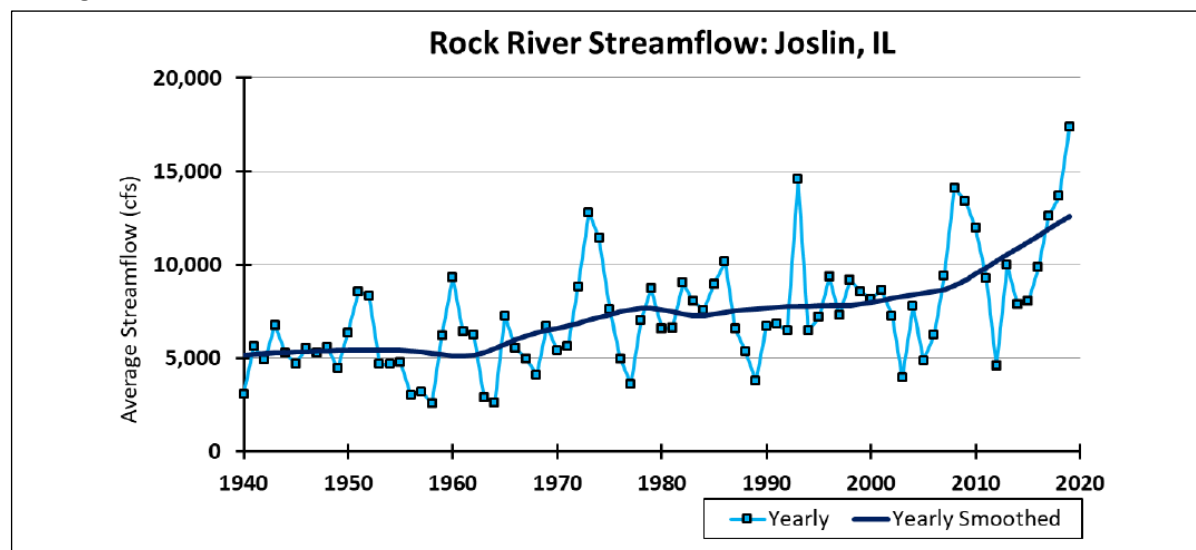
These changes become even more noteworthy when considering the fact that most precipitation that hits the ground actually is lost back to the atmosphere through evaporation or transpiration before becoming streamflow.

Using the Rock River Basin (defined by Joslin gauging location, upstream of the confluence with the Mississippi River) as an example, precipitation increased about 20% from the 1950s to the 2010s, but once the average basin evaporation and transpiration of 24.5 inches is removed, the increase in runoff becomes about 85%. Because surface runoff eventually moves into tributaries, streams, rivers, and eventually, the basin outlet, it is closely related to streamflow. This suggests that changes in precipitation alone could be responsible for a near doubling of streamflow in the Rock River since the 1950s.

	1950s	2010s
Precipitation	32.5	39.2
Evapotranspiration	24.5	24.5
Runoff	8.0	14.7

Streamflow on the Rise

We can verify whether or not this large of an increase is occurring by looking at streamflow records for the Joslin, IL, stream gauge. **Records indicate that annual streamflow for the Rock River at Joslin have increased from about 5,000 cfs in the 1950s to over 10,000 cfs in the 2010s.** This approximate doubling of river streamflow is consistent with the hypothetical changes to the water balance indicated above. Although the amount of change is not the same for every river, increases have been observed in every major river moving through northeast Illinois.



What does this mean for those concerned with water levels on area rivers?

For most rivers, increases in streamflow have been observed for the average, annual minimum, and annual maximum values. This means rivers are generally at higher levels throughout the year than they were several decades ago and are not getting as low as they used to be during the dry times of the year. With rivers at generally higher levels, it may also mean that less rainfall, and thus, less of a river rise, is required for a river to reach flood stage after a rain or snowmelt event.

Contact

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2 For climate record analysis purposes, the National Center for Environmental Information has broken up the United States into numerous “climate divisions” over which temperature, precipitation, drought, and heating/cooling-degree days can be averaged and tracked. Climate divisions generally provide a representative view of the climate conditions and changes for a particular area than looking at a single station. More information: <https://www.ncdc.noaa.gov/>