

# Flash Flood Risk Score

An innovative approach to evaluate flooding

## Flooding by the Numbers

“Floods are one of the most frequent hazards in the U.S.”<sup>1</sup> Since 2005, the National Weather Service and National Centers for Environmental Information summarized flood damages incurred from riverine and flash flooding to be \$106.5 billion dollars. During this time, according to the NWS, flash flooding damage contributed to \$78.4 billion of the total damage, which is 73.6% percent of flood-related losses.<sup>2</sup>



**\$106.5B**

flood damages  
incurred from riverine  
and flash flooding



**\$78.4B**

of total flash  
flooding damage



**73.6%**

of total damage of  
flood-related losses

Flash floods are the most dangerous kind of floods because they combine the destructive power of a flood with incredible speed. Flash floods can occur when:

- “Heavy rainfall exceeds the ability of the ground to absorb it.”<sup>3</sup>
- “Water fills normally dry creeks or streams, or enough water accumulates for streams to overtop their banks, causing rapid rises of water in a short amount of time.”<sup>4</sup>

Flash floods “can happen within minutes of the causative rainfall, limiting the time available to warn and protect the public.”<sup>5</sup>

For a full view of flood risk, it is imperative to incorporate a flash flood risk component into the equation. FEMA flood maps, which are referenced for CoreLogic® Flood Risk Score, are based on flood insurance studies that focus on visible surface water bodies such as rivers, ponds, lakes and oceans—not on dry land. This exclusion of dry land means that FEMA flood studies have not been conducted comprehensively for the entire U.S. In fact, roughly 40 percent of the U.S. geography does not have a FEMA flood map associated with it at all. Additionally, many communities do not participate in the National Flood Insurance Program, therefore, no flood studies have been conducted in these areas—leaving the flood risk unknown if relying solely on sources like FEMA and NFIP studies.

## Key Features

- Offers the highest risk assessment for flash flood for the entire structure
- Utilizes hydrology, meteorological and environmental datasets
- Data layers include structure footprints, intense rainfall, soil types, ground elevation and flow accumulation

## Key Benefits

- Uses structure footprint data to capture the highest risk for a specific building
- Provides a scoring component to help assess a single property or entire portfolio for flash flood risk
- Can help insurers mitigate losses for flash flood risk
- Provides new insight and innovative models for flash flood risk at the structure level

<sup>1</sup> FEMA Building Science Branch, Hazard Overview: Floods, FEMA P-1086 (March 2017), [https://www.fema.gov/sites/default/files/2020-07/fema\\_p1086\\_flood\\_2017.pdf](https://www.fema.gov/sites/default/files/2020-07/fema_p1086_flood_2017.pdf) (last visited Aug. 4, 2021).

<sup>2</sup> National Weather Service, Summaries of Natural Hazard Statistics in the United States from 2005-2018, available at <https://www.weather.gov/hazstat/> (last visited Aug. 4, 2021).

<sup>3</sup> NOAA National Severe Storms Laboratory, Severe Weather 101 — Floods, <https://www.nssl.noaa.gov/education/svrwx101/floods/> (last visited Aug. 4, 2021).

<sup>4</sup> Id.

<sup>5</sup> Id.

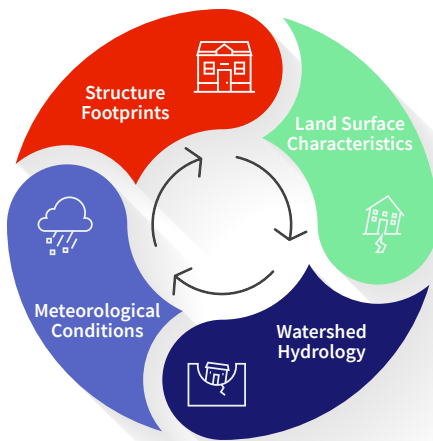
## New Insight with Flash Flood Risk Score

CoreLogic developed a sophisticated methodology to provide insurers with CoreLogic Flash Flood Risk Score (FFRS), an innovative flood scoring product that doesn't rely on FEMA flood maps and takes an alternate approach to assess flood risk. FFRS provides flooding detail in areas where traditional resources to assess potential flood impacts may not be available. More specifically, FFRS helps assess whether a flash flood component is identified and incorporates the entire structure footprint, where available, so that the whole building is assessed for flash flood risk. In areas where CoreLogic® Flood Risk Scores are not available due to the flood zone not being mapped—e.g., in zones D and N—FFRS can be used to help identify flood risk. Essentially, FFRS fills in the flood risk assessment gaps where the previous focus was only on riverine and coastal flooding, and where no initial flood insurance studies were ever conducted.

Utilizing a combination of hydrology, meteorological and environmental datasets, FFRS is calculated for the entire U.S. using a 10 meter flow accumulation grid to evaluate elevation to determine where water will flow. It generates a simple and easy to use 1–100 numeric risk score along with risk ratings from Very Low to Extreme, which insurers can incorporate into their underwriting processes.

## Flash Flood Risk Score Methodology

The FFRS model uses structure data available for the entire U.S., watershed hydrology and then extracts hydrologic properties from land information datasets, incorporating probabilistic characteristics of meteorological factors to simulate precipitation impact. Flash flooding factors are then integrated to form an overall projection of flash flood risk for a specific structure or parcel.



- **Structure Footprints:** Coverage for the entire U.S. to provide the highest flash flood risk score for the entire structure.
- **Watershed Hydrology:** Identifies land slope, flow direction and flow accumulation in watersheds.
- **Land Surface Characteristics:** Catchment slope, hydro properties/infiltration of soils, imperviousness of land use and interceptions of forest coverage, which determine surface runoff potential from rainfall.
- **Meteorological Conditions:** Rain fall intensity, hail probability and geographic distribution patterns and its probability in geographic areas to represent flash flooding in space and time.

## Let Us Score Your Flood Risk

Based on NWS data, flash flooding property damage has accounted for 73.6 percent of inland flood losses since 2005. That's why it's prudent to evaluate a more complete flood risk for a property. Identifying and understanding flood risk can be daunting, so let us help you with our flash flood risk scores—for P&C, Inland Marine, E&S, Commercial Lines and Auto.

### Flash Flood Risk Score—An Insurance Industry View:

- **P&C:** Evaluate a single property or an entire book of business for flash flood risk exposure, which can help improve your loss ratio.
- **E&S:** Account for flash flood risk beyond riverine flooding.
- **Commercial Lines:** Help improve flash flood loss preparation, especially for policies with high hazards and low flood ratings.
- **Auto:** Strengthen your understanding of commuter risk for the auto policy holders, including home to office, nearby flash flood areas and areas near home. Incorporate additional information into your auto policy underwriting process

## Seamless Ordering & Delivery

We offer several options for insurers to access our natural hazard risk scores and solutions, including:

- **RiskMeter Online®:** A web-based solution used to assess natural hazard risk exposure by simply typing in an address.
- **CoreLogic API:** An interface that delivers a set of services and tools that allow you to easily integrate natural hazard risk, tax jurisdiction, property characteristics (pre-fill), parcel and geocoding data directly into your applications.

## The Right Solution for Better Coverage

Insurers want to provide appropriate coverage for their clients, while only writing properties that are appropriate risks for their books of business. But many may not realize that they are covering potential losses that could be more clearly understood with a more suitable flood risk model. Whether using an aggregated or by-peril rating approach, CoreLogic can help you understand flash flood risk at a more granular level.



For more information, please call 866-774-3282  
or email us at [hazardrisk@corelogic.com](mailto:hazardrisk@corelogic.com)

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