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Use of Flood Risk Data and Modeling in Commercial Loan Underwriting and How This May Evolve with Promulgation of the ASTM Property Resilience Assessment (PRA)

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For decades, commercial lenders have used FEMA flood zones and FEMA flood maps in a binary, decision-making process to determine if loans are approvable and, if flood insurance is a necessary pre-requisite to the loan. While broader and more accurate flood maps for the US have been available for years, their use by commercial lenders has been sporadic. With the new ASTM Property Resilience Assessment (PRA) “best practice”, commercial lenders will now be exposed to property-specific, flood mapping covering many more types of flooding than FEMA flood maps provide, over wider areas of the US, and in much greater levels of detail. As a result, many commercial lenders will likely need to revisit their underwriting procedures and standards, and reassess their policies, as they relate to flood risks.

Ninety percent of natural disasters within the United States involve flooding. Consequently, floods inflict more economic damage and loss of life and property than any other natural hazard. Flooding is one of the most common and devastating natural disasters. It can occur anywhere, even in areas not typically prone to floods. Due to climate change and other factors, there has been a significant increase in flooding in all areas of the US causing billions of dollars of damage and significant disruptions in people's lives. Flooding has cost US taxpayers more than $850 billion since 2000. Given increasing flood damage and loss in the US over the past 5 years, a closer look at the important topic of how flood risk is factored into commercial real estate loan underwriting is timely.

Current Flood Risk Assessments in Commercial Loan Underwriting

While it is commonly stated that flood risks are a critical factor in commercial real estate loan underwriting, just how critical are they? Some pertinent questions include these:

- **Are commercial loans declined because of the presence of significant flood risks? If so, why?**
- **Are there types of severity levels of flood exposures that are just too risky (i.e., unacceptable) for commercial lenders? If so, what are they and why?**
- **What are the measures that lenders employ to reduce default risks for loans in high-risk flood areas (e.g. requiring borrowers to install risk-mitigation measures)**
- **How differently do underwriters assess current year flood risks vs. long-term, climate change risks, such as sea level rise?**

While we aren't necessarily able to answer these questions, they are a good place to set the stage for this inquiry.

For many years, lenders have typically used FEMA flood maps and zones as a primary source to determine if a property is located in a 100-year flood zone or flood plain. A FEMA 100-year flood zone is also known as the Special Flood Hazard Area (SFHA). For residential and commercial loans, if a property is located in a FEMA 100-year flood zone, and a mortgage is provided by a federal mortgage loan guarantee institution, then, the borrower must obtain federal National Flood Insurance Program (NFIP) flood insurance coverage. This requirement applies to properties with mortgages from government- backed lenders, such as those insured by Fannie and Freddie, the Federal Housing Administration (FHA), the Veterans Administration (VA), or the U.S. Department of Agriculture (USDA), etc.

In Commercial Loan Underwriting, How Might Flood Risk as a Factor Change with the ASTM Property Resilience Assessment (PRA)?

First of all, it is important to point out that FEMA flood maps do not include heavy rainfall or pluvial flood risks. Extreme rainfall has significantly increased flooding damage and loss in the US over the past few years. Extreme rainfall events have become more frequent and intense due to climate change. A warmer atmosphere can hold more moisture, leading to heavier downpours. Flash floods due to extreme rainfall, as we experienced recently with Hurricane Helene in Tennessee and North Carolina, have risen dramatically. For example, in 2024, there were 91 flash flood emergencies, the highest since records began in 2003. Rainfall from hurricanes Debby, Francine, Helene and Milton accounted for about half of all flash flood emergencies issued last year, according to CNN. Helene dumped never-before-seen rainfall amounts of up to 30 inches in western North Carolina and caused catastrophic flood damage that left many locales unrecognizable. Helene accounted for more than 30 flash flood emergencies on its own. Consider for perspective, there were 29 total flash flood emergencies in 2023.

After a flood, many property owners claim, “My insurance agent and the bank said I didn’t need flood insurance.” While they may have meant that flood insurance was not federally required for the loan, owners might interpret this as a sign of minimal flood risk. Even if federal law doesn’t mandate flood insurance for Zone X properties, risks still exist, and NFIP coverage is available. Flooding can occur in these areas, becoming more common due to climate change.

Properties located in FEMA’s blind spots are being pummeled at an alarming rate. For example, after Hurricane Harvey hit the Gulf Coast of Texas in 2017, the Harris County Flood Control District, which includes the city of Houston, found that half of the 204,000 homes that flooded were outside the federal hazard zone. According to FEMA, 40 percent of claims made through its National Flood Insurance Program come from people beyond the 100-year floodplain.

Additionally, if a property is not in a FEMA flood zone, but there are other substantial flood risks, the FEMA map may mislead a commercial loan underwriter to determine that a loan should be approved, when actual flood risks may be much more significant than the FEMA-mapped risks and, the loan should either not be approved or it should be conditioned upon the borrower making reasonable, flood risk mitigation investments.

A two-car garage leans precariously on its foundation as a torrent of water flows over a crumbled and undulating driveway following a flood in Barre, Vermont.
John Tully / The Washington Post via Getty Images

The ASTM Property Resilience Assessment (PRA)

In the past, due diligence for physical/environmental aspects for commercial loans has mainly consisted of the Phase I ESA (presence of hazardous substances and petroleum products), a FEMA flood map, a Property Condition Assessment (PCA) and perhaps a seismic risk assessment in earthquake-prone areas. As of November 2, 2024, however, a new "best practice" for due diligence has been introduced by ASTM International. It is called the Property Resilience Assessment or PRA and, it recommends for CRE transaction due diligence *a much more in-depth and holistic approach to exposures to floods, natural hazards, extreme weather, and future climate impacts*. ASTM International standards are widely regarded as "best practices" in many industries. These standards are developed through a consensus process involving industry experts, ensuring they represent the most current and effective practices. They provide guidelines, test methods, and specifications that help ensure quality, safety, and efficiency.

In a December 17, 2024 Press Release from ASTM, "New Standard Provides Approach for Property Resilience Assessment," it stated: "The PRA described in E3429 is designed to accompany [a] phase I environmental site assessment, as presented in ASTM standard E1527; and property condition assessment, covered in ASTM E2018."

Let's focus on the flood information a loan underwriting team would typically have available to it during the fast-paced, underwriting process. Historically, the loan underwriting team would only see a FEMA flood map of the property. With the advent of the PRA, however, it is likely that underwriting teams will soon be receiving much more information about **flood risks** (and other hazards as well) than was previously provided to them. Hazard exposure maps and models, risk scoring, and data are available through the Risk Footprint™ and other software-as-a-service tools. In 2025, bank and non-bank lenders may begin to require PRAs to be included with Phase I ESAs, as ASTM suggests, for all commercial loans over a certain dollar amount.

At a minimum, commercial loan underwriters will want to see the results of the hazard exposure, which is Step One of the PRA. Depending on the location of the property, underwriting team may see, in addition to FEMA maps, flood maps and data for: (1) tsunamis (from ASCE); (2) coastal flood risks (from Fathom/Swiss Re); (3) hurricane storm surges (from NOAA); and, (4) tidally- influenced
flooding with future sea level rise (from NOAA/NASA). Additional exposure data from a PRA Step One may provide down-scaled maps, revealing the areal extent of flooding on a property, depth of flooding exposures, annual return frequencies of the events; and, depth of inundation above the ground levels (AGLs).

While the underwriting team may not have ready access to a building's Elevation Certificate, Artificial Intelligence (AI) software utilizing Google Street View now makes available reasonable estimates of the height of the building's first floor above the ground level. While AI estimates of finished floor height (FFH) are not yet as accurate as a building's surveyed Elevation Certificate from a local building department, it is useful for making rough assessments of a building's vulnerability to flooding through a quick comparison of the modeled height of flood inundation with the estimated height of the lobby or first floor above the ground level.

How Does This Additional Information from the ASTM PRA Help Underwriters?

In addition to offering a better understanding of the flood hazards present at a property being considered for a loan, lenders can use detailed information from the PRA to identify the feasibility of building upgrades or resilient retrofits that may be needed to reduce risks of loan default. Identification of feasible resilience measures falls in Step Three of the ASTM's PRA. Lender measures may also include loan holdback and adjustments to the loan-to-value until property resilience measures are completed.

While the identification of feasible resilience measures in PRA Step Three may seem like “uncharted territory” for lenders, it is not that different from “recommendations” that flow from the tried-and-true, PCAs, wherein field assessments may uncover issues with the building’s roof, electrical, mechanical, or plumbing systems, etc. Commercial loan underwriters often use PCAs to identify potential issues in older buildings that need to be addressed pre- or post- closing. Lenders have years of experience dealing with PCA issues and obtaining borrower cooperation. A similar work process to the PCA will be undertaken in PRA Step Three for floods -- and other natural hazards -- that pose serious risks to the subject property. In PRA Step Three, inspectors, and hazard- specific experts will identify the resilience measures that are available to reduce the risks of exposures to floods and other hazards revealed in PRA Steps One and Two and the rough order of magnitude (ROM) costs of such investments. By identifying these issues early, underwriters can ensure that necessary repairs, maintenance, and resilience measures are planned and budgeted for and implemented, thereby reducing the risk of unexpected costs, and ensuring the long-term viability of the property.

Conclusion

In conclusion, a wealth of additional flood, natural hazard, extreme weather, and future climate change impact information is soon headed to commercial loan underwriting teams as a result of the new ASTM Property Resilience Assessment “best practices” approach. Commercial loan underwriters can prepare for the forthcoming PRA assessments by collaborating closely with their environmental managers who are familiar with these issues and can help them develop new policies, underwriting procedures, and risk tolerance metrics that are more up-to-date and appropriate for assessing or re-assessing flood risks of commercial loans.

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