Neptune Flood Research Group – Issue 2
December 19, 2024

Market Overview: Primary Residential Flood Insurance

Executive Summary

This latest Neptune Flood Research Group report analyzes the U.S. residential flood insurance market, emphasizing the critical role private insurers can play in addressing the nation's growing flood coverage gap. With over 20 million U.S. homes at moderate to severe flood risk and only 3.8 million insured, this report highlights the pressing need for systemic reforms and a shift toward private market solutions.

Key Insights:

- **Coverage Gap:** While private market participation has grown, 97% of residential structures remain uninsured, leaving millions of homeowners vulnerable to catastrophic flooding.
- **Private Market Potential:** Neptune's Data Science Group conducted a detailed analysis of the National Flood Insurance Program (NFIP), revealing that 90-95% of NFIP policies meet the risk criteria for private insurers. For 30-40% of NFIP policyholders, private insurers already offer equal coverage at lower premiums, representing 40-45% of the NFIP's premium base. Once NFIP subsidies are fully phased out under Risk Rating 2.0 (RR2.0), the private market will offer more affordable coverage for ~55% of current NFIP policyholders, equating to ~50% of its premium base.
- **Economic Strain:** Adjusted for inflation, the NFIP has paid $129 billion (in 2024 dollars) in claims since 1978, with $112 billion of that being for residential buildings. The program currently carries a $20.5 billion debt burden, with policyholders paying nearly $2 million daily in interest to the U.S. Treasury, while no principal repayment has been made since 2014. Expanding private market participation can alleviate taxpayer reliance and enhance financial sustainability.

Opportunities for Reform: This report calls for targeted actions to unlock private market potential, all of which reflect legislative proposals put forth by the Department of Homeland Security (DHS):

- Replacing current broad government subsidies with means-based subsidization
- Requiring flood risk disclosure before real estate transactions
- Prohibiting NFIP coverage for new construction in special flood hazard areas
- Removing barriers to switching between the NFIP and private insurers
- Raising coverage limits to align with replacement costs and reduce underinsurance

"Private insurers like Neptune Flood are uniquely positioned to close the coverage gap," said Neptune CEO Trevor Burgess. "Leveraging data science and AI-driven underwriting, Neptune provides innovative solutions tailored to modern risks. With nearly $100 billion in coverage across 222,000 properties, Neptune's private market approach is transforming flood insurance, reducing costs, and offering broader protections to homeowners."

"This report underscores the urgency of expanding private market participation to build a more resilient and sustainable insurance ecosystem," said Neptune CRO Matt Duffy. "By fostering competition and innovation, Neptune aims to ensure all homeowners are protected from the increasing threats of climate-driven flooding."

Contents

Overview

Over 100 million residential structures exist in the United States today, with over 20 million at moderate to severe risk of flooding. Driven by a changing climate and increased storm intensity, flooding events are becoming more frequent and costly. Despite these facts, only 3.8 million of those structures are covered by flood insurance. The reasons for this are numerous and complex. This report aims to distill how the U.S. primary, residential flood insurance market has developed, where it stands today, and the steps needed for a more efficient and substantial ecosystem to develop.

Market Background

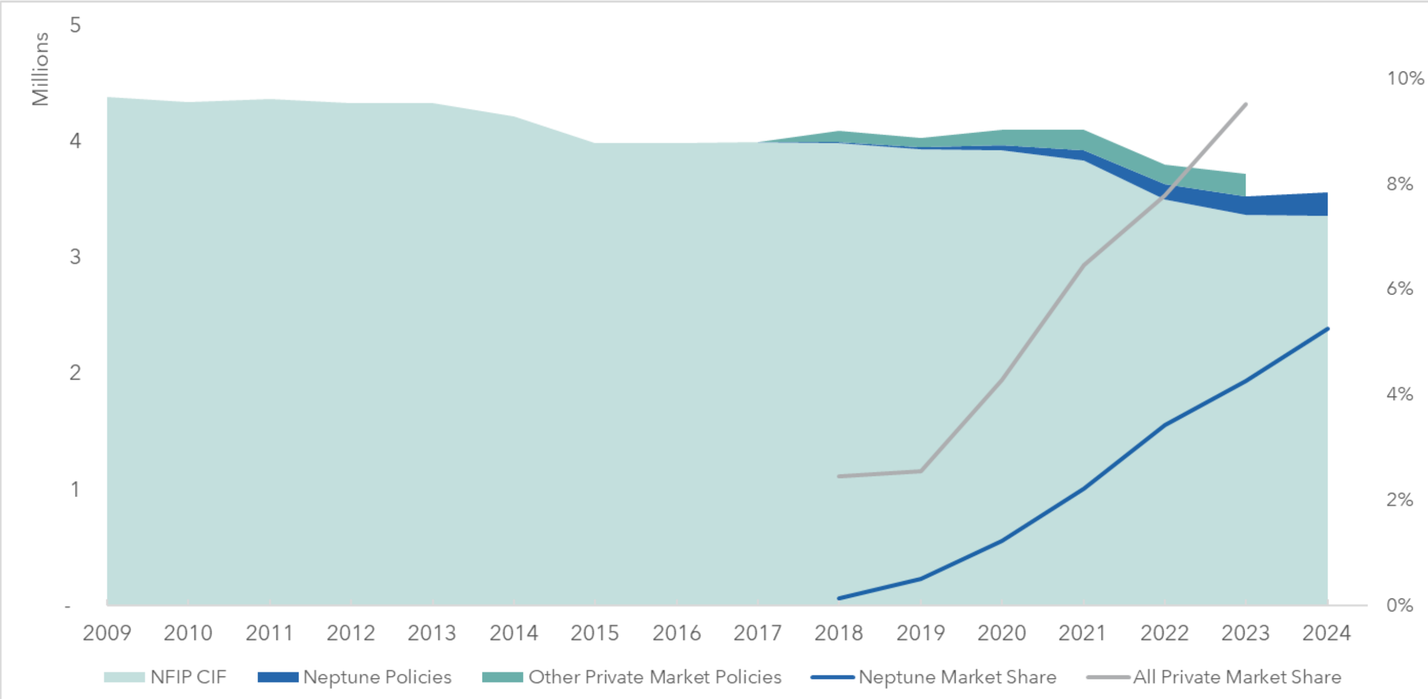
Following congressional action in 1968, the flood insurance market ("the market") in the United States has operated as a government near-monopoly through FEMA's National Flood Insurance Program (NFIP). Through the mid-2010's, the NFIP successfully developed a flood insurance marketplace, flood rate maps, and a nationwide insured base that peaked at over 5.4 million policies in force. Development of this insured base was aided substantially by regulation, with banking institutions required to enforce rules under the Flood Disaster Protection Act (FDPA) that mandate flood insurance be carried on properties securing federally backed mortgages in Special Flood Hazard Areas (SFHAs) (areas identified by FEMA as being at high risk of flooding).

Following huge flooding events since the turn of the century—such as Katrina (2005), Sandy (2012), Harvey (2017), Ian (2022), and Helene (2024)—the NFIP, backed by the U.S. Treasury, has accumulated a massive debt burden. Today, the NFIP pays nearly $2 million a day in interest to the U.S. Treasury on outstanding debt of $20.5 billion, with no principal repayments since 2014. As a result, regulatory changes were made through the 2010s, including the development of the Biggert-Waters Act, which encouraged private market participation with the goal of reducing reliance on the federal government. Private market participation was appropriately restricted to stable insurers by implementing strict credit rating and form requirements – providing consumer protection and expanding consumer options.

The Coverage Gap

The Extent of Uninsurance

Today, the primary private flood insurance market covers an estimated 500,000 residential buildings in the U.S. – reflecting significant growth since the regulatory reforms. However, when considering a decline of over 1 million buildings covered through the NFIP since 2009 and over 95 million uninsured residential buildings in the U.S., substantial growth is needed to address the uninsured base.



Regional Analysis

This coverage reduction occurred despite a regulatory change made in Florida during this period that works to grow the insured base. Following the devastating impacts of Hurricane Ian in 2022, the Florida legislature voted to require flood insurance for all Citizens policyholders regardless of flood zone or mortgage status– a move that will add hundreds of thousands of additional policies to the insured base over the rollout period of 2023-2027.

Nationwide, 97% of residential buildings lack flood insurance, with insurance penetration rates varying substantially across the highest exposure states, from less than 2% in CA to over 24% in LA.

Top States by Percentage of Insured Residential Structures	Total Residential Structures	Percentage of Structures Insured as of Q3 2024	Total Structures Uninsured as of Q3 2024	LTM Change in Percentage of Structures Insured
Louisiana	1.63 M	24.5%	1.23 M	-5.5%
Florida	6.66 M	18.0%	5.46 M	6.1%
South Carolina	1.70 M	8.8%	1.55 M	-3.1%
Texas	7.92 M	8.0%	7.29 M	-4.7%
New Jersey	2.63 M	6.0%	2.47 M	-1.4%
Top States by Total Uninsured Residential Structures				
California	9.48 M	2.0%	9.29 M	-3.2%
Texas	7.92 M	8.0%	7.29 M	-4.7%
Florida	6.66 M	18.0%	5.46 M	6.1%
Pennsylvania	4.31 M	1.1%	4.26 M	-3.9%
New York	4.27 M	3.4%	4.12 M	-1.3%

*Private market data from 2023, NFIP data from 2024

The percentage of insured residential structures has significantly declined in most states since the implementation of RR2.0, with Florida being a notable exception due to the Citizens mandate. Low and declining penetration rates increase the burden on uninsured consumers and on the U.S. taxpayer. Such a burden is highlighted through recent events, with FEMA, to date, providing over $2.3 billion in aid after Hurricanes Helene and Milton.

Causes of a Declining Insured Base

Many factors play a role in declining penetration rates, including:

1. **Lack of consumer awareness:** Despite significant federal efforts, many U.S. property owners remain unaware of their flood risks, with many mistakenly believing their homeowners insurance covers flood damage. A Neptune Flood consumer study revealed that 70% of respondents cited believing they are not at risk of flooding as the primary reason for not purchasing flood insurance, underscoring a significant gap in understanding. Additionally, nearly three-quarters of respondents incorrectly believed their homeowners insurance policy covers the risk of flooding.
2. **Increasing cost of flood insurance:** In 2021, the NFIP released Risk Rating 2.0 (RR2.0) – a new pricing system aimed at achieving actuarily accurate rates. This rating change imposes significant price increases on the majority of policyholders, with caps on price increases of 18% annually for most policies. As a result, some policyholders who are not legally mandated to carry coverage have dropped it.
3. **Inflation:** Rising costs in other insurance lines like auto and homeowners, along with general inflation, have further reduced disposable income, leading many homeowners to prioritize other financial needs over flood insurance. Many areas most impacted by such rising costs are those most exposed to the risk of flooding; according to the Insurance Information Institute, the average Florida homeowner's insurance has increased 102% in the last three years and now costs 3x the national average.
4. **Bank non-compliance:** Inadequate enforcement of flood insurance regulations is commonly cited as a leading bank compliance violation, with the most cited violations of the Flood Disaster Protection Act of 1973 being 1) originating designated loans without flood insurance or with an insufficient amount of insurance, 2) failing to ensure designated loans maintain insurance for the life of the loan and in the proper amount, and 3) failing to provide the required notice to borrowers when they apply for a designated loan.
5. **Increase in new home cash sales:** According to data provided by Redfin, in 2017, less than 25% of new home sales were all cash. Following a low of 20% in 2020, that figure has reached 33% in 2024. In coastal metros, especially in Florida, cash purchases are significantly higher – in 2024, 11 FL coastal metros had cash purchase rates above 33%, with Naples, the area of Hurricane Ian's landfall, being the highest at 60%. With a higher percentage of homes purchased in all-cash transactions, a lower percentage of new homeowners have a mandatory purchase requirement for flood insurance.
6. **Aging population of homeowners:** According to data provided by the National Association of Realtors, the median homebuyer's age during 2024 is 56 – a record during the 21st century. Neptune's consumer study revealed that younger generations are more aware of flood risks (63.2%) compared to older adults (47.6%), emphasizing the negative impact an aging population of homeowners can have on the growth of the insured base.

Addressing Market Inefficiencies

Despite the causes listed above, the private flood market continues to grow at a substantial rate. However, significant inefficiencies exist within the flood insurance marketplace that work to dampen the growth of the private market. Addressing these inefficiencies is key to the proliferation of a sustainable and efficient marketplace.

1. **Subsidization of Flood Insurance Under the NFIP's Initial Risk Rating System (pre-2021):** These subsidies kept premiums artificially low, inadvertently encouraging the development of highly vulnerable properties in flood-prone areas, increasing the program's risk exposure and compounding its long-term financial instability.
2. **Persistent Subsidies Under RR2.0:** While RR2.0 introduced risk-based pricing, congressional caps on annual premium increases and legacy subsidies continue to undermine the NFIP's financial sustainability. These subsidies often result in premiums below the actuarily accurate price, leading to additional borrowing from the U.S. Treasury during years of substantial losses. New policies are priced under RR2.0, but renewals remain on a grandfathered transition path, delaying full-risk rates. According to the Government Accountability Office (GAO), over the next 23 years, $27 billion in subsidies are projected, distorting market competition, limiting private insurer participation, and threatening the NFIP's viability. Not only are the subsidies substantial, but current FEMA rules also penalize policyholders who consider the private market by causing them to lose their subsidized rates, creating further disincentives to leave the NFIP and limiting competition.
3. **Inadequate Coverage Requirements:** The NFIPs coverage limits on the standard "dwelling" form for residential properties are limited to $250,000 of building coverage and $100,000 of contents coverage. Due to regulations only requiring the purchase of flood insurance up to the lesser of the mortgage amount or the maximum available under the NFIP's Standard Flood Insurance Policy (SFIP), a significant majority of insured properties are underinsured. Regulatory requirements have not kept pace with inflation in the cost of building and repairing homes, with these limits being in place for over 30 years. As a result, private flood insurers are forced to provide coverage at low insurance-to-value (ITV) in order to compete with the federal government. The SFIP also lacks adequate coverage for personal contents, temporary living expenses, or ancillary features like pools, meaning coverage is not mandatory or available in most circumstances.
   By comparison, according to the National Association of Insurance Commissioners (NAIC), over 51% of policies in 2021 written on standard homeowners and dwelling fire forms had coverage amounts above $300,000, over 29% had coverage limits above $400,000, and nearly 17% had coverage limits over $500,000.
   Through the four largest flooding events of the 21st century, adjusted for inflation, approximately 110,000 NFIP claims on residential buildings received a full payout on the NFIP building limit, underscoring the inadequacy of current limits and requirements.

NFIP Loss History

Due to the NFIP's market dominance, analysis of the program's loss history substantially reflects losses incurred by the market, especially prior to 2017. This data indicates that losses are concentrated in years, counties, and states most heavily impacted by the largest storm events. Hurricanes Katrina ('05), Sandy ('12), and Harvey ('17) account for 45% of all indemnity payments by the NFIP, and losses associated with Helene in 2024 are expected to push this over 50% between the four storms.

Top Residential Losses

Top Residential Loss Years	Claims	Indemnity Payments
2005	262K	$16.19B
2017	134K	$9.71B
2012	167K	$8.85B
2024*	99K+	$8.20B+
2022	54K	$4.7B
2016	80K	$4.03B
2008	89K	$2.93B
2004	69K	$1.89B
2011	87K	$1.87B
2021	43K	$1.58B

Top Residential Loss Events	Claims	Indemnity Payments	Year
Hurricane Katrina	198K	$14.93B	2005
Hurricane Harvey	87K	$8.42B	2017
Hurricane Sandy	139K	$8.16B	2012
Hurricane Helene*	60K+	$6.00B+	2024
Hurricane Ian	44K	$4.45B	2022
Mid-summer severe storms	29K	$2.36B	2016
Hurricane Ike	54K	$2.33B	2008
Hurricane Milton*	20K+	$1.50B+	2024
Hurricane Ivan	19K	$1.22B	2004
Hurricane Irene	69K	$1.16B	2011

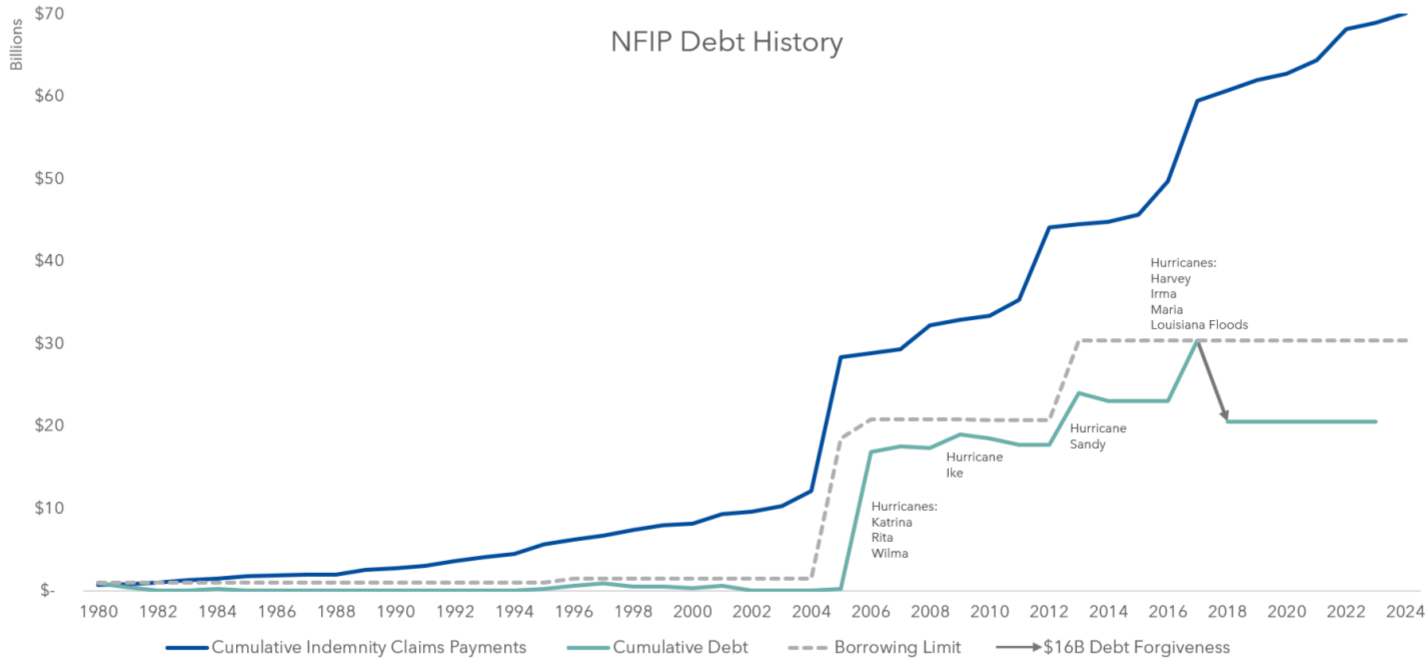
*Estimate

Top Counties by Residential Loss	Claims	Indemnity Payments
Harris, TX	160K	$8.01B
Orleans, LA	118K	$6.61B
Jefferson, LA	128K	$3.29B
Lee, FL	44K	$3.30B
Ocean, NJ	51K	$2.49B
Galveston, TX	56K	$2.21B
Nassau, NY	50K	$2.16B
St. Bernard, LA	23K	$2.12B
St. Tammany, LA	37K	$1.67B
East Baton Rouge, LA	21K	$1.23B

Top Counties by Residential Claims	Claims	Indemnity Payments
Harris, TX	160K	$8.01B
Jefferson, LA	128K	$3.29B
Orleans, LA	118K	$6.61B
Miami-Dade, FL	57K	$0.66B
Galveston, TX	56K	$2.21B
Ocean, NJ	51K	$2.49B
Nassau, NY	50K	$2.16B
Pinellas, FL	47K	$1.22B
Lee, FL	44K	$3.30B
St. Tammany, LA	37K	$1.67B

Top States by Residential Loss	Claims	Indemnity Payments
LA	454K	$19.13B
TX	363K	$15.69B
FL	410K	$12.17B
NJ	185K	$5.47B
NY	164K	$5.06B
MS	58K	$2.78B
NC	99K	$1.68B
AL	41K	$0.98B
PA	64K	$0.93B
SC	46K	$0.91B

Subsidizations, lack of accumulation management, development of highly vulnerable buildings in high exposure areas, and an inability to risk select hinder the NFIP's ability to create and maintain an efficient, self-sustaining insurance ecosystem. This point is emphasized when reviewing cumulative loss payments and debt over time.



These figures underscore the critical need for expanded flood insurance participation to mitigate financial risks and strengthen community resilience in the face of escalating flood threats.

The Role of the Private Market

Private insurers, too, have suffered substantial losses in recent years, with over a dozen programs pulling out of the residential flood insurance market. However, as of 12/31/2023, Neptune estimates that over 700,000 private insurance policies exist in the U.S., with over 430,000 covering residential structures and ~350,000 providing primary coverage to those residential structures. This places the private market at around 10% of the total market on a policy basis and 12% of the total market on a premium basis. With over 160,000 policies in force as of 12/31/2023, which has risen to over 222,000 today, the Neptune Flood portfolio represents over 40% of the primary, private, residential flood insurance market through partnerships with its 25 capacity providers nationwide.

While the number of primary, residential policies in the private market has seen a 24% compound annual growth rate (CAGR) between 2018 and 2023, acceleration of this growth is highly plausible due to the factors highlighted below.

1. **NFIP policies reaching actuarily accurate rates:** As subsidization of NFIP policies ages out after years of 18% price increases, insurance premiums will reach actuarily accurate rates, providing a more sustainable insurance ecosystem and a reduction in reliance on the U.S. Treasury and the U.S. taxpayer. As a result, transferring a large portion of the insured base to the private market becomes more feasible.
2. **Reduced vulnerability of housing stock:** Large storm events expose the vulnerabilities of aging housing stock, with over 80% of claims from Hurricane Helene tied to pre-FIRM structures - homes built before modern floodplain standards and lacking flood mitigation measures. FEMA's Substantial Improvement Rule mandates that if repair costs exceed 49% of a structure's pre-disaster market value, it must be rebuilt to comply with current floodplain standards. Rebuilding under updated regulations reduces housing vulnerability in high-risk areas, lowers flood risk, and increases

resilience by creating safer, more insurable properties, expanding the pool of properties that private insurers are willing to underwrite, and improving financial protection for homeowners.

3. **Growth of private market and coverage options for the insureds:** Private insurers like Neptune offer tailored coverage options and more innovative solutions that help meet the needs of the U.S. property market. Over 64% of Neptune policyholders have opted for protections over and above those offered by the NFIP, showing a market need and desire for a better product. Growth of the private market provides adequate protection and a further reduction in reliance on the federal government.
4. **Declining interest rates make mortgage purchases and refinancing more economically viable:** As interest rates decline, homeowners become more incentivized to leverage their properties through federally backed mortgages. As a result, cash home purchases as a percentage of total home purchases will likely decline, and a larger population of properties with mandatory flood insurance purchase requirements will exist.
5. **Increased media coverage and consumer awareness:** Climate change has driven an 8-inch rise in global sea levels over the past century, with half of this increase occurring in the last 30 years. It has also intensified hurricanes, boosting maximum wind speeds by 18 mph in just six years. As these trends continue, consumer awareness increases and the likelihood of self-insurance decreases.
6. **Continued rollout of Florida Citizens rule:** Through 2027, additional Citizens policyholders will be required to purchase flood insurance policies, creating an opportunity for private insurers to meet this growing demand. As policyholders explore alternatives, private market offerings with broader coverage and competitive pricing can capture a share of this segment. As Florida continues to see success in this rollout, the incentive for other state legislatures, and even private insurers, to follow suit and require flood insurance to accompany all homeowners policies will grow.

Neptune's Data Science Group performed an in-depth analysis of the NFIP single-family home portfolio to determine the extent to which the private market can compete with the NFIP on both pricing and risk selection under the current and future market constraints. This analysis suggests that 90-95% of NFIP policies would meet the risk selection criteria of private insurers. For 30-40% of NFIP policyholders, private insurers offer equal coverage at a lower cost than their current NFIP policy, representing 40-45% of the NFIP's premium base. Once NFIP subsidies are fully phased out under Risk Rating 2.0 (RR2.0), the private market will offer more affordable coverage for ~55% of current NFIP policyholders, equating to ~50% of its premium base.

Developing an Efficient and Sustainable Ecosystem

Navigating the complexities of public policy and global insurance markets is a difficult project. However, reducing this into actionable tasks provides a clear path towards achieving an efficient and sustainable ecosystem. If taken together, Neptune believes the six steps below will significantly improve market dynamics.

1. **Replace Broad Government Subsidies with Means-Based Subsidization:** This transition would improve the program's financial sustainability and fairness by targeting aid to homeowners in genuine need while excluding second homes and investment properties. This approach could naturally extend subsidies into the private market, fostering competition and efficiency. FEMA's Legislative Proposal 10 further supports this transition by categorizing structures with four or more flood-related claims of at least $10,000 as "Excessive Loss Properties" (XLP) and requiring compliance with updated building codes for continued coverage. XLPs and repetitive loss properties are responsible for $35.1 billion of the $73.4 billion in payouts since 1978. Identifying and reducing the vulnerability of these structures would provide immediate risk reduction for the federal program.
2. **Require Flood Risk Disclosure Before Real Estate Transactions:** FEMA's Legislative Proposal 5 advocates requiring sellers and lessors to disclose flood history, insurance claims, and risks to buyers or renters before finalizing contracts.

This measure promotes informed decision-making, increases transparency, and fosters risk awareness, encouraging broader flood insurance adoption while reducing reliance on post-disaster aid.

3. **Prohibit NFIP Coverage for New Construction in High-Risk Flood Zones:** FEMA's Legislative Proposal 14 suggests promoting the development of the private market by prohibiting NFIP coverage for all new construction in SFHAs. The proposal also mandates that these new constructions adhere to NFIP's minimum floodplain management standards, making them more attractive to private insurers.
4. **Remove Barriers to Switching Between NFIP and Private Insurance:** FEMA's Legislative Proposal 17 aims to allow private flood insurance coverage to count toward the NFIP's continuous coverage requirement to retain premium discounts, removing a key barrier to switching. This change will let policyholders explore private market options without losing premium discounts if they return to the NFIP, fostering competition, private market growth, and greater flexibility for policyholders.
5. **Increase Coverage Limits to Align with RCV:** FEMA's Legislative Proposal 12 suggests increasing NFIP coverage limits to match rising housing costs, improving ITV ratios, and reducing homeowner vulnerabilities. The proposal proposes indexing coverage limits to Fannie Mae/Freddie Mac conforming loan limits, which adjust with market trends, ensuring properties are adequately insured. Higher limits would enhance coverage, stabilize the flood insurance market, and support more accurate premium pricing.

Neptune Flood Represents Over 40% of The Private, Primary, Residential Flood Insurance Market

Neptune Flood, the nation's largest private flood insurance provider, plays a critical role in creating a sustainable ecosystem around flood insurance. With nearly $100 billion in coverage across 222,000 properties, Neptune leverages advanced data science and AI-driven underwriting to deliver fair pricing, efficient risk assessment, and a competitive alternative to the NFIP. Neptune remains committed to building a more resilient future, ensuring homeowners are insured and prepared for evolving climate risks.