Risk Rating 2.0
Casualty Actuarial Society
November 10 - 13, 2019
Historically, FEMA has not collected enough premiums to cover expected losses. We must fix that.

Floods have the greatest economic and social impact on the U.S.

Our stakeholders (including GAO, industry, and Congress) have been urging us to improve our risk rating methodology.

We must transform the NFIP into a sustainable program.
FEMA is focused on building a culture of preparedness by closing the insurance gap and increasing mitigation activity.

**Double Coverage**
by 2022

**INCREASE INVESTMENT**
in Mitigation $x4$
by 2022
Risk Rating 2.0 aims to deliver several key benefits:

- Provide rates that are easier to understand for agents and policyholders.
- Simplify and standardize the quoting process across the country.
- Create an individualized picture of a property’s risk.
Current vs. Risk Rating 2.0 Methodology

Risk Rating 2.0 premiums will more accurately reflect flood risk by considering a broader range of variables, including:

**Current Risk Rating Methodology**
- Flood Insurance Rate Map Zone
- Base Flood Elevation
- Foundation Type
- Structural Elevation (Special Flood Hazard Area Only)
- Fees and Surcharges

**Risk Rating 2.0 Methodology***
- **Geographic Variables**
  - Distance to Coast/River
  - Elevation Relative to Flooding Source
  - Stream Order
- **Structural Variables**
  - Cost to Rebuild
  - Foundation Type
  - First Floor Height
- Fees and Surcharges

*Additional variables are not shown here
Current Approach

- Hydrologically estimated 100-year storm event
- Hydraulically modeled 100-year floodplain
- Designated flood hazard areas
- NFIP rates
Working Outside the Zones

Deterministic

- Structures designated as either inside or outside of special flood hazard areas.

Probabilistic

- Structures assigned specific annualized probabilities of being impacted by flood.
The NFIP is modernizing the rating plan by leveraging multiple sources of private-sector catastrophe models and FEMA mapping data.
Catastrophe Models

- Catastrophe Models are valuable to estimate a future loss potential
- Industry is evolving as more data becomes available to refine models
- Actuarial techniques
Mapping Data Integration

**Provides**
Provides a source of flood catastrophe modeling that closely matches historic FEMA methods.

**Utilizes**
Utilizes FEMA depth-damage curves derived from NFIP paid claims experience.

**Implements**
Implements sound and traceable logic to fill data gaps.

**Connects**
Connects the disparate sources of flood data to form a cohesive risk picture.

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How Are the Models Being Used?

- Mapping Data Integration Approach
- AAL
  - Risk Assessment of Each Variable
- Actuarial Model Blending
- Rating Factors

Commercial Models:
- Commercial Model 1
- Commercial Model 2
- Commercial Model 3
  - AAL
  - Risk Assessment of Each Variable
Probabilistic Flood Risk Analysis

1. Conduct probabilistic analysis using simulations and validate with NFIP historical data

2. Compare results with commercial catastrophe models

3. Generate AALs for certain geographies; focused on leveed areas and complex flooding hazards
Using FEMA’s Historical Experience

Challenges

- Not representative of the future
- Highly variable
- Changing physical conditions
RR 2.0 Includes Multiple Flooding Sub-Perils

- Coastal erosion will be applied outside V zone
- Differentiates between inland and coastal risk
- Accounts for pluvial flood risk

RR 2.0 Premium by Sub-Peril*

- Storm Surge
- Inland Flood
- Coastal Erosion

+ Fluvial
  - rare flood event
  - likely flood event

+ Pluvial
  - higher relative elevation
  - lower relative elevation

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Pre-Decisional – Agency Deliberative Process
Communicating Local Flood Risk

Example - Mexico Beach Flood Maps and Hurricane Michael Damage

BEFORE

AFTER
Next Steps to Finalizing Rates

- Review the impact of the initial rating structure
- Revise and Refine the Rating Plan
Technical Mapping Advisory Council

https://www.fema.gov/technical-mapping-advisory-council

Technical Mapping Advisory Council

The Technical Mapping Advisory Council (TMAC) is a federal advisory committee established to review and make recommendations to FEMA on matters related to the National Flood Mapping Program authorized under the National Flood Insurance Reform Act of 2014. This page is intended for TMAC members and other parties interested in learning more about the purpose and activities of the TMAC.

The national flood mapping program provides flood maps to inform communities about the local flood risk and help set minimum floodplain standards as communities may build safely and resiliently. The Flood Insurance Rate Maps (FIRMs) established under the program help determine the cost of federal flood insurance, which helps property owners financially protect themselves against flooding.

The TMAC will review the national flood mapping activities authorized under the Act and prepare recommendations to the Deputy Administrator. The TMAC will also produce a report on the impacts of flood science and future conditions and how they may be incorporated into the mapping program. The TMAC is composed of representatives from federal, state, local and private organizations as members in the biggest metros under Act of 2012 and granted by the Federal Advisory Committee Act (FACA) requirements.

For more information on the TMAC’s establishment, charge, membership or meetings, please visit:

- Overview Fact Sheet
- Technical Mapping Advisory Council: Fact Sheet
- Charter
- Bylaws
- Membership
- Subcommittees
- Meetings and Minutes

Expand All Sections

Meeting Information

TMAC Reports And Recommendations

FEMA Administrator Reports To Congress

Last Updated: 07/19/2019 – 11:00
2019 Reinsurance Program Structure

- **$1.32B in Traditional**

- **$300M FloodSmart 2019-1**

- **$500M FloodSmart 2018-1**

*NFIP Ability to Pay Claims as of 9/30/2019*
Flood Experience

<table>
<thead>
<tr>
<th>Event</th>
<th>Event Month</th>
<th>Number of Paid Losses</th>
<th>Losses Paid</th>
<th>Average Paid Loss</th>
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<tbody>
<tr>
<td>Hurricane Katrina</td>
<td>Aug 2005</td>
<td>166,792</td>
<td>$16,257,852,174</td>
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<td>Hurricane Harvey</td>
<td>Aug 2017</td>
<td>76,364</td>
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<td>Superstorm Sandy</td>
<td>Oct 2012</td>
<td>132,500</td>
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<td>Hurricane Ike</td>
<td>Sep 2008</td>
<td>46,704</td>
<td>$2,702,649,795</td>
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<td>Louisiana Severe Storms And Flooding **</td>
<td>Aug 2016</td>
<td>26,983</td>
<td>$2,476,980,181</td>
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<tr>
<td>Hurricane Ivan⁺</td>
<td>Sep 2004</td>
<td>28,154</td>
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<td>Hurricane Irene</td>
<td>Aug 2011</td>
<td>44,322</td>
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<td>Tropical Storm Allison</td>
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<td>30,671</td>
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<td>Hurricane Irma</td>
<td>Sep 2017</td>
<td>21,993</td>
<td>$1,068,728,809</td>
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</table>

2019 activity:

- Hurricane Barry (July 2019) had $30,613,364 Losses Paid and 788 Paid Losses as of September 11, 2019
- Hurricane Dorian (August 2019) and Tropical Storm Imelda (September 2019) are too immature and the loss data too sparse at this time to allow us to make a meaningful placement of the event
Risk Rating 2.0 is Fairer

A new rating methodology that will result in more equitable premiums for policyholders.

- Individuals will no longer pay more than their fair share in premiums based on the value of their homes.
- A better understanding of risk enables state and local governments to help communities and individuals take action and mitigate.
- RR 2.0 is using the latest data and technology to provide an individualized picture of a property’s risk.
Risk Rating 2.0 Incorporates Replacement Cost Value

• Replacement cost is an important piece of information used to rate homeowners’ insurance policies but is not currently used as a rating variable for all NFIP flood policies.

• New rates will use replacement cost data to estimate the cost to rebuild the home.

• By reflecting the cost to rebuild, the new rating plan will also aim to deliver fairer rates for owners of lower-value homes.
A More Resilient Nation

FEMA is doing its part to promote insurance and mitigation options for individuals and communities to address resiliency.

Now we need our partners, states, communities, and individuals to take action to address their flood risk.

Mitigating flood risk is a shared responsibility.
Questions

To stay up-to-date with Risk Rating 2.0, and for the latest details, please visit www.fema.gov/nfiptransformation.
Thank You