Fixing the National Flood Insurance Program
Rethinking Floodplain Management After Hurricane Harvey and 2017 Storms

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Winter Event
American Water Resources Association – Natl. Capitol Region Section

Interagency Coordination and Hurricane Response and Reauthorization of NFIP
January 17, 2018
ASFPM’s Mission

Mitigate the losses, costs, and human suffering caused by flooding.

and...

Protect the natural and beneficial functions of floodplains.
Floods are 'acts of God,' but flood losses are largely acts of man.

1945 PhD Dissertation Human Adjustments to Flood by Gilbert F. White
Topics

- “Higher Ground”
- Houston After Harvey
- Reauthorization of the National Flood Insurance Program (NFIP)
“Higher Ground” studied repetitive flood losses and new non-structural approaches

- released July, 1998
Major Findings of “Higher Ground”

- Less than 2% of properties were generating nearly 40% of NFIP losses.

- 10% of Single Family Homes Had Repetitive Losses Exceeding Their Value.
  - In all, these homes were valued at $308 million, but received $416 million in insurance payments.

- Substantial Damage Rules Are Poorly Enforced.
  - 15% (10,921) were “substantially damaged”. In all, 5,578 properties received $167 million in insurance payments after suffering a 50 percent or greater loss in one flood.

- 20% of Repetitive Losses Occur Outside the Designated 100-Year Floodplain.
  - In all, 15,275 repetitive loss properties outside the designated 100-year floodplain received $530 million in insurance payments.
  - Called into deep question the reliability of NFIP maps.

- Flood Damages Costs Have Drastically Increased.
  - 1900s: $2.2 billion avg/yr
  - 1990s: $5.6 billion avg/yr
  - 2000s: $10 billion avg/yr
  - 2017: $300 billion (in one year!)
Hazard Mitigation Grants Program
Voluntary Buyouts

Source: FEMA Mitigation Information Services
FEMA Hazard Mitigation Grant Program (HMGP)
Acquisition - Relocation - Elevation
by State as of 03/2000

As of March, 2000:
AcqDemolition = 21,393
AcqRelocation = 663
Elevation = 2,151

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Total = 24,207 Properties

Updated May, 2001:
Acquisition & Relocation = 26,929
Elevation = 2,828

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Total = 29,757 Properties

FEMA Mitigation Directorate 03/07/2000
FEMA HMA Mitigated Properties
1989 – 2014

Total Properties (all states):

- Acquired: 48,369
- Elevated: 10,857
- Floodproofed: 649
- Relocated: 1,295

Total: 60,870

(compare with 29,757 reported May, 2001)

Source: FIMA Mitigation Risk Reduction Div., Oct. 2015, (calendar yrs)
Frequency Distribution of Repetitive Losses Per Properties

<table>
<thead>
<tr>
<th>Repetitive Loss Payments</th>
<th>Properties</th>
<th>Losses</th>
</tr>
</thead>
<tbody>
<tr>
<td>$17,305,128</td>
<td>27</td>
<td>16-34</td>
</tr>
<tr>
<td>$8,120,317</td>
<td>34</td>
<td>14-15</td>
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<tr>
<td>$12,400,392</td>
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<td>$27,008,567</td>
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<td>$58,330,698</td>
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<td>8-9</td>
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<td>$163,466,160</td>
<td>1,983</td>
<td>6-7</td>
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<td>$505,093,263</td>
<td>8,898</td>
<td>4-5</td>
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<td>$576,609,898</td>
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<tr>
<td>$1,212,925,826</td>
<td>47,078</td>
<td>2</td>
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</tbody>
</table>

Totals (as of August 1995)

| $2,581,260,251            | 74,501     | 200,182 |

Totals (as of 11/30/2017) --

| $15,342,759,586           | 172,203    | 506,318 |
“Higher Ground” Released in Houston - July 1998

• Houston/Harris Co ranked 3rd/4th in nation for rep losses (3600+ $200 m)
• no zoning
• rapid growth/ impervious development up bayous
• floodplain development
• wetland losses
• flat topography / clay soils
• focus on channelization
• stream enlargements and small detention, rather than leaving unobstructed flood conveyances
• Lack of funding for requested buyouts

Disaster risk rapidly increasing
Houston After Harvey

Addicks Dam and Reservoir
Updated inches of rain in 24 hours for 1% recurrence

Difference between previous and current Atlas
Rice U recommendations - Blackburn

✓ Where Harvey didn’t flood – backbone of future Houston

✓ Focus on repeat flood areas

✓ 3 zones – safe, transitional, buyout areas (green infra/conveyance)

✓ Addicks /Barker reservoirs – repair/ fix levees, remove sediment; new reservoir

✓ Recognize storm surge risks to key national chemical/refining infrastructure

✓ Interim adoption of “500-year flood” levels (19 in. over 24 hours) – Harris Co. Jan 2018

✓ Revise NFIP maps based on updated rainfall estimates / future conditions
Rice U recommendations (cont.)

- Protect /use markets to preserve remaining prairies and wetlands
- Increase funding for flood damage reduction and planning, dedicate tax or levy
- Improve flood warning
- Regional coordinated planning
- Mandate freeboard for new /reconstruction
- Invest in public education, visible markers
- Pursue Ike Dike ($11 b) or mid-bay project ($3 b)
- Require transparent metrics for accountability
Proposed “Ike Dike”

A barrier against hurricanes

Since 2008, academics and government officials have produced several versions of a barrier along the Southeast Texas coast to block a storm surge during a hurricane making a direct hit. The depiction below is one of several options that have been considered, though none has received construction funding.

Source: Gulf Coast Community Protection and Recovery District

Houston Chronicle
Key Issues in 2017-2018 NFIP Reauthorization

✓ Floodplain Mapping – greatly accelerate, future conditions, residual risk areas
✓ Mitigation – Increased Cost of Construction (ICC), Flood Mit. Asstce. (FMA), Repetitive Loss
✓ Affordability – esp. for Lower Income
✓ Debt
✓ Flood Disclosure and Data
✓ Private Flood – ASFPM concerns:
  • Cherry-picking competition for lower risk properties
  • Policies should be “At least as broad” as per Biggert-Waters 2012
  • Equivalency policy fee – for critical map and floodplain management funding
  • NFIP participating communities-only for “mandatory purchase”
2017 – 2018 Reauthorization Status

- Major issues – House and Senate on different paths

- House focus – growing private flood insurance **H.R. 2874 passed Nov. 14th**

- Senate – focus more on mitigation and mapping and wary of greater private flood incentives.

- Senate Banking Committee Chair Crapo strong concerns with western fire risks
Senate Bills – Status

- 3 major bills introduced (among others)
- Cassidy-Gillibrand (S. 1313)
- Menendez-Kennedy SAFE Act (S. 1368)
- Crapo-Brown (S. 1573)
- Banking Committee – no mark-up yet
House Bill Issues

- 5-year reauthorization
- Annual rate increase cap – 15%, min. 6.5% Max. premium $10,000
- State-based affordability program
- Optional ICC - $60,000
- FMA $225M for “multiple loss properties”
- Sandy process reforms

Senate Bill(s) Issues

- Mitigation - Expand ICC (to 100K – M, 75K – CG) and scope
- Flood Mitigation Assistance (FMA) – ($1B – M, dedicate Reserve Funds - $400M – CG)
- Pre-Disaster Mitigation ($500M – M, $200M – CB)
- Affordability for Low Income Insureds
- Reauthorize National Flood Mapping Program ($800M – M, $500M – CG, $400M – CB, /yr)
- $500 credit for elevation certificates
- Disclosure of flood risk at sale or lease
- Post-Sandy administrative reforms
- Push back on House private reforms
House Bill – Private flood incentives

- Repeals “at least as broad as” from Biggert-Waters
- Eliminates “law and ordinance” requirement for private
- No “policy fee” equivalent for NFIP floodplain management and flood risk mapping
- Eliminates mandatory purchase for commercial structures
- Increases NFIP “Reserve” surcharges
- Requires reinsurance purchase
- Allows WYO companies to compete with NFIP
- Requires FEMA data be made public, but not private
- Mandates shift toward structure-by-structure risk assessment with incomplete national mapping and large data deficits
Concerns with Disaster Recovery Reform Act addition to HR 4667 (3rd) Disaster Supplemental

- A section (2009) allows potentially broad waivers of prohibition of “Duplication of Benefits” (Sect. 312 Stafford Act) and use of Sect 404 Hazard Mitigation funds for Army Corps projects

- ASFPM opposing for accountability and loss of scarce FEMA buyout and elevation funds
Closing thoughts

- 2017 – NFIP has just faced its greatest challenge
- We will continue to learn lessons for some time
- Congress’ uncertainty understandable
- Should we focus on the lessons first?
Thank you

Questions?

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Harvey Rebuilding Issues

- Flood maps based on grossly inaccurate precipitation frequency data
- Impervious area - record growth, little or no planning, zoning, coordination
- Encroachment on floodplains
- Roads have become critical stormwater systems
- Flood detention strategy failing
- Addicks and Barker Dam tragedies
- Cross-basin flooding

- Pinch points from road and rail construction
- Subsidence flooding
- Limits to widening/deepening bayous for conveyance
- 135,000 buildings flooded in Harvey
- 107,000 residential parcels in current Harris County’s SFHA
- Storm surge remains biggest long term threat
Comprehensive reauthorizations are rare – 1968 (created), 1973 (added mandatory purchase requirement – mapping reached a first operational level in late 70’s), (1982 Coastal Barrier Resources Act), 1994 NFIRA, (CRS, FMA, Lender compliance, ICC, 5 yr- SFHA map updates, free paper maps, study actuarial rates); 2004 Bunning-Bereuter-Blumenauer Flood Insurance Reform Act of 2004 (FIRA), focus on severe repetitive loss mitigation.
Costliest U.S. Hurricanes Since 1980

These are the costliest storms in U.S. history. While the total price tag for Harvey’s damage is still unclear, experts estimate the cost could be as high as **$190 billion** in total economic impact.

<table>
<thead>
<tr>
<th>HURRICANE</th>
<th>DATE</th>
<th>ESTIMATED COST, IN BILLIONS (INFLATION ADJUSTED)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Katrina</td>
<td>August 2005</td>
<td>$160.0</td>
</tr>
<tr>
<td>Sandy</td>
<td>October 2012</td>
<td>$70.2</td>
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<tr>
<td>Andrew</td>
<td>August 1992</td>
<td>$47.8</td>
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<tr>
<td>Ike</td>
<td>September 2008</td>
<td>$34.8</td>
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<tr>
<td>Ivan</td>
<td>September 2004</td>
<td>$27.1</td>
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<tr>
<td>Wilma</td>
<td>October 2005</td>
<td>$24.3</td>
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<tr>
<td>Rita</td>
<td>September 2005</td>
<td>$23.7</td>
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<tr>
<td>Charley</td>
<td>August 2004</td>
<td>$21.1</td>
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<tr>
<td>Hugo</td>
<td>September 1989</td>
<td>$18.2</td>
</tr>
<tr>
<td>Irene</td>
<td>August 2011</td>
<td>$15.0</td>
</tr>
</tbody>
</table>

Source: National Oceanic and Atmospheric Administration
Rebuilding Issues

- Flood maps based on grossly inaccurate precipitation frequency data
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- 135,000 buildings flooded in Harvey
- 107,000 residential parcels in current Harris County’s SFHA
- Storm surge remains biggest long term threat
- Limited replacement housing – esp. low income
- 90,000+ NFIP claims
- Rebuild Texas - $61 B request
Reauthorization of the NFIP

- **1994** CRS, FMA, Lender compliance, ICC, 5 yr- SFHA map updates, free paper maps, study actuarial rates
- **2004 Bunning-Bereuter-Blumenauer Flood Insurance Reform Act (FIRA),** focus on severe repetitive loss mitigation
- **2012 Biggert-Waters (FIRA),** transition to actuarial rates, Reserve Fund, TMAC and National Flood Mapping Program, Reinsurance, and Private Insurance for mandatory purchase
- **2014 (HFIAA)** restored grandfathering and slowed rate increases toward actuarial.
Federal Flood Risk Management Standard (EO 13690) – freeboard for federal investments

✔ Repealed by “Infrastructure” EO 13807 – Aug 15, 2017, two weeks before Harvey

✔ Trump Adm. reportedly working on replacement

✔ Legislation introduced S.1798, HR 3854