



Failing to Communicate

Flood Risk & The 100-Year Floodplain

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**TEXAS A&M UNIVERSITY
GALVESTON CAMPUS.**



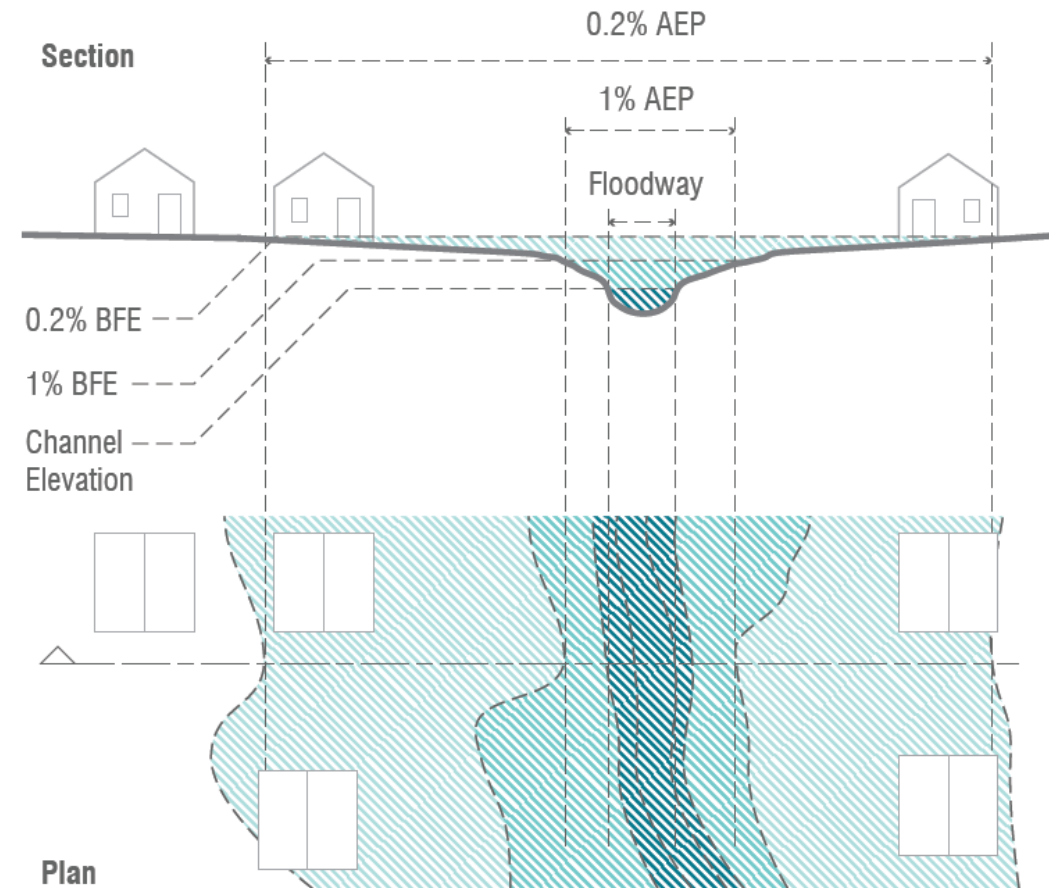
WHY WAS THE FLOODPLAIN CREATED?

Three Objectives:

1. Set insurance rates
2. Create standards for new development
3. Discourage floodplain development

Why was it chosen?:

1. Efficient administration and implementation
2. A way to compare risks across communities



Source: Greater Houston Flood Mitigation Consortium (2019)

WHAT IS THE 100-YEAR FLOODPLAIN?

Definition: The land that is covered in water during a flood event that has a 1% chance of being equaled or exceeded each year.

What is this 1%?

Inverse of the return period as determined by flood frequency statistics.

What does this mean?

The longer you live in this area, the more likely you are to flood (i.e. it's compounding).

30-year mortgage = $1 - (1 - 0.01)^{30} = 26\%$

Why 1%?

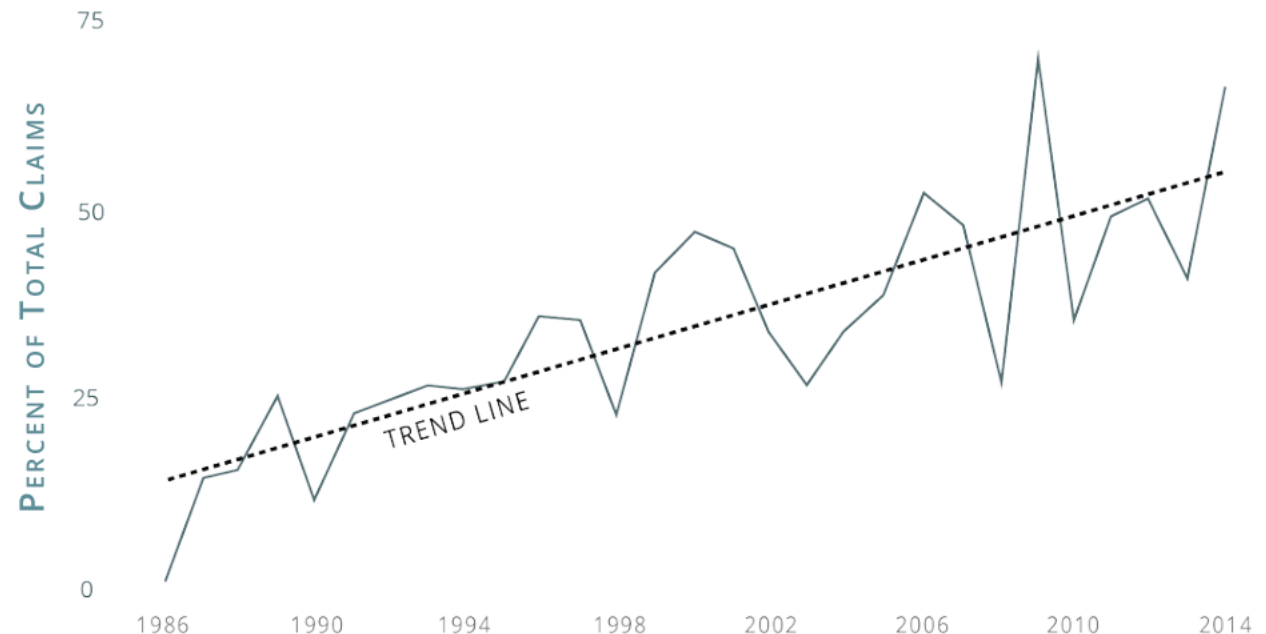
“Constitutes a reasonable compromise between the need for building restrictions to minimize potential loss of life and property and the economic benefits to be derived from floodplain development.”¹

THE PROBLEM: FAILURE TO COMMUNICATE

1. Universally misunderstood by those who must cope with flood hazards.
2. The 100-year floodplain has become our de facto tool to communicate risk.
3. The dichotomous floodplain boundary results in a false sense of security.

“A risk communication is successful to the extent that it contributes to the outcomes its sponsor desires.”¹

PERCENT INSURED FLOOD LOSS CLAIMS FROM OUTSIDE OF THE 100-YEAR FLOODPLAIN, TEXAS 1986 - 2014



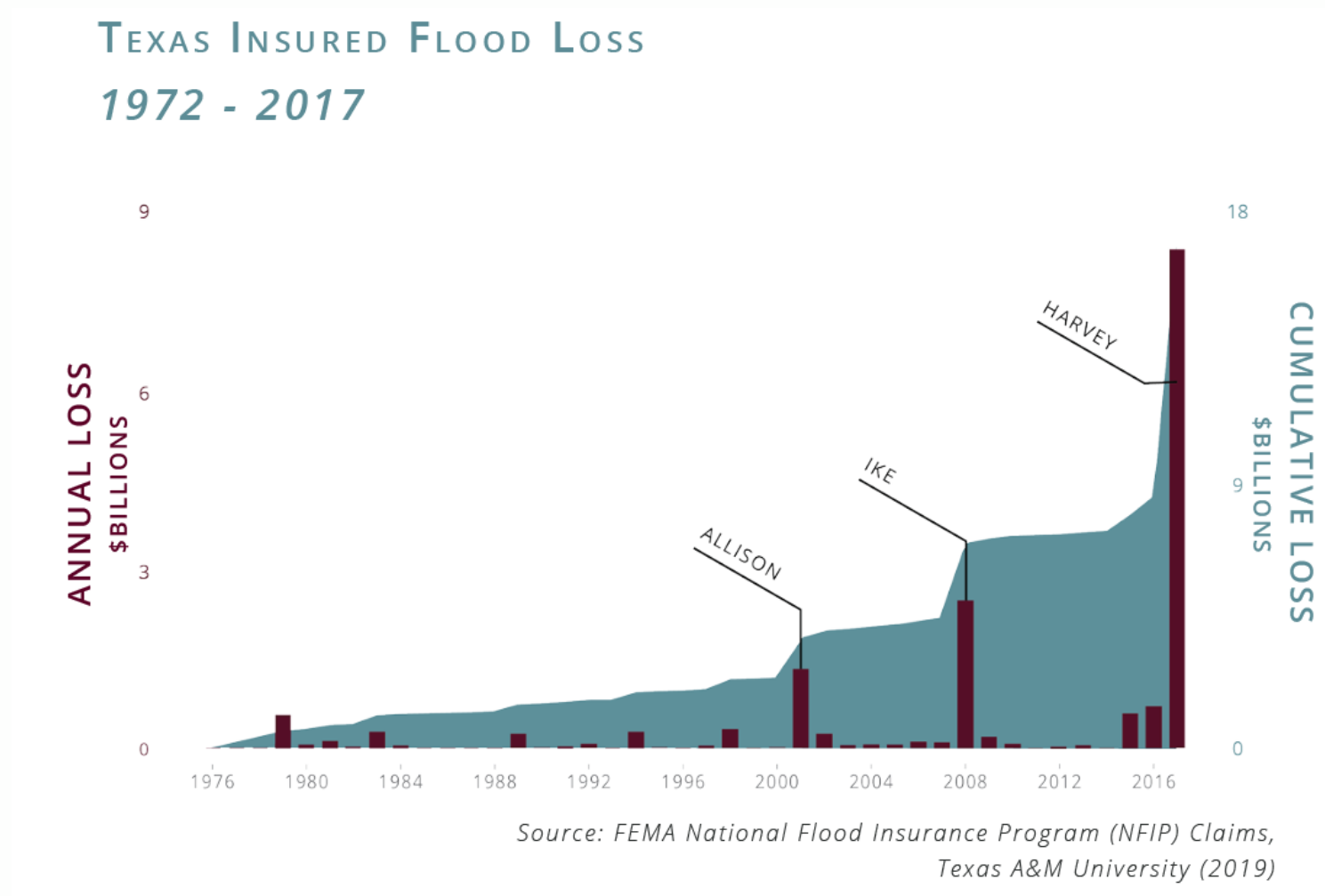
Sources: University of Maryland, and Texas A&M University, Galveston. 2019. *Eye of the Storm: Report of the Governor's Commission to Rebuild Texas*. 2018.

1. National Resource Council. 1989. *Improving Risk Communication*. Washington, D.C.: National Academies Press

THE PROBLEM IS GETTING WORSE

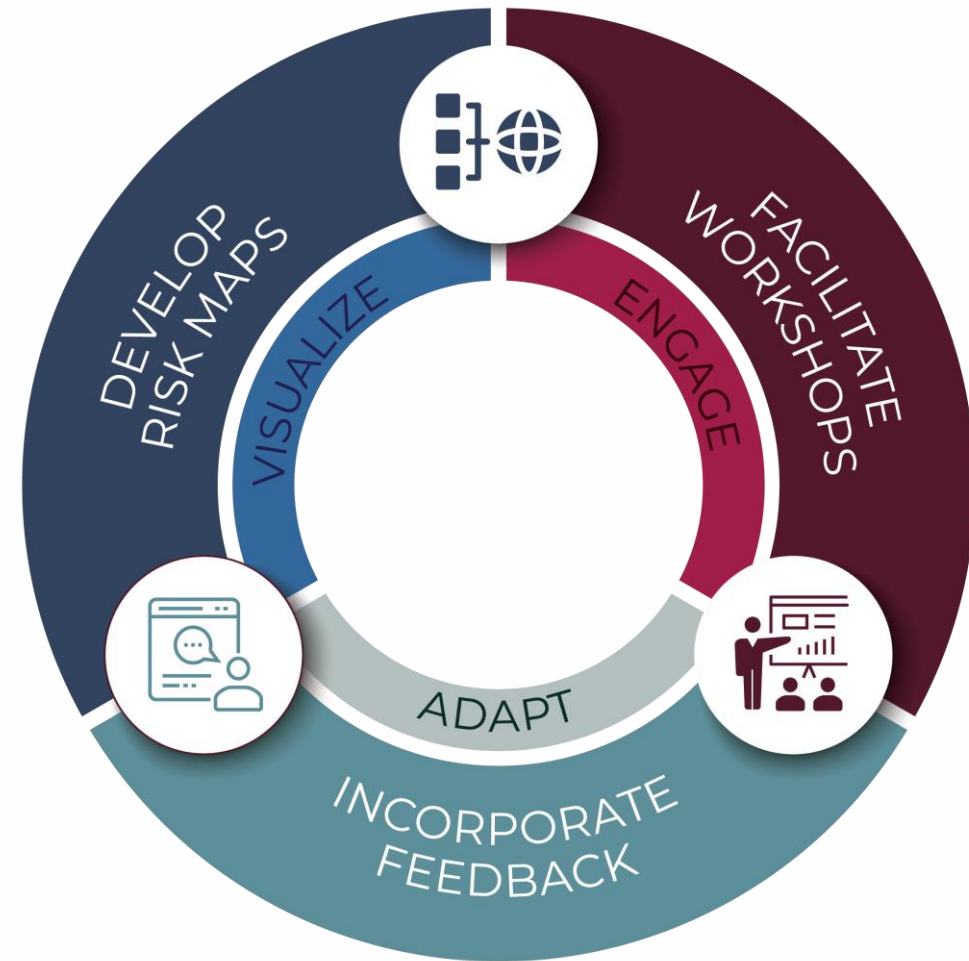
Intense flooding is:

1. Increasing in frequency
2. Increasing in cost
3. Poorly understood



PROJECT IMPACT STATEMENT

This project integrates advanced risk modeling and community engagement to create new mapping tools and visualizations that enhance risk communication.

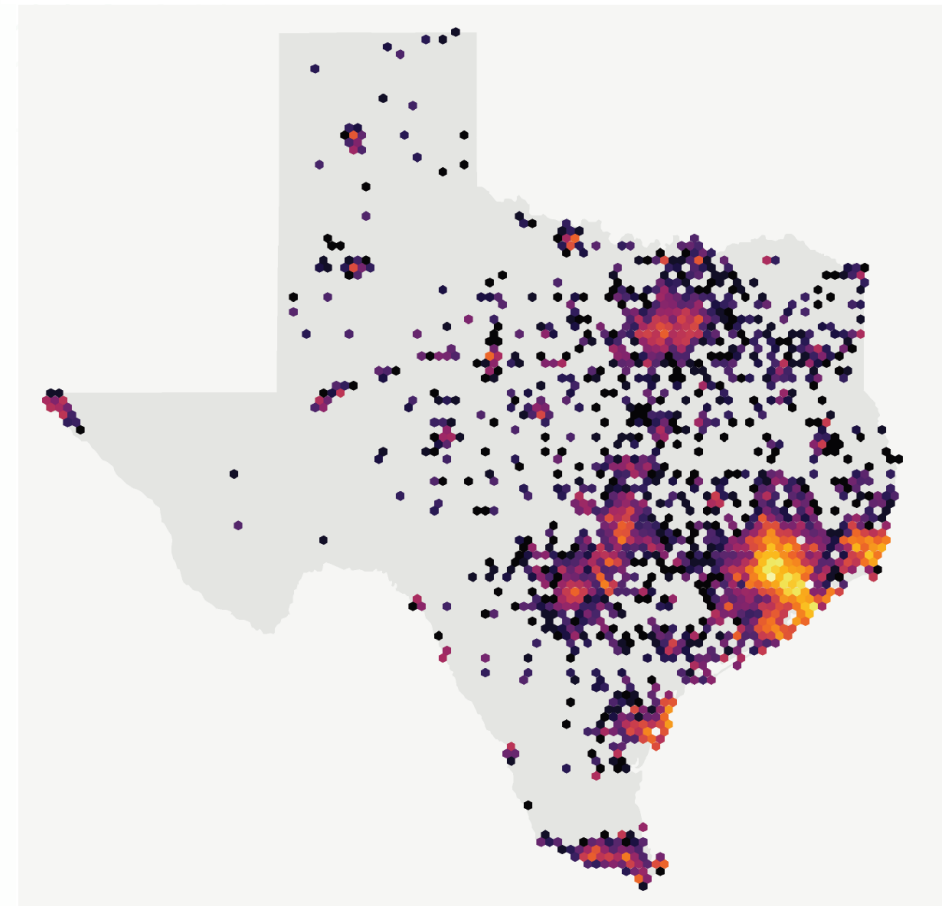


THIS PROJECT WILL NOT-

What this project does not propose to do

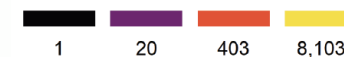
1. Replace the FEMA 100-Year floodplain
2. Guarantee a change in behavior

HEXMAP OF STATEWIDE HISTORIC FLOOD LOSS
[1978 - 2017]



LEGEND

Number of Claims



Source: FEMA National Flood Insurance Program Claims,
Texas A&M University (2019)

THANK YOU