



State of Montana

Building Thriving Community Resilience and Sustainability: Floodplain Legal and Sustainable Development Workshop

Law, Policy, Programs and Floodplain Management

July 24, 2013

Edward A. Thomas Esq.
President
Natural Hazard Mitigation Association



Good Morning!

I appear today representing:

The Natural Hazard Mitigation Association (NHMA)

This is not and cannot be legal advice.

This is a statement of general principles and policy.

First Some Words From NHMA

What is NHMA?

**NHMA WAS CREATED IN 2008
TO BRING TOGETHER THE VARIOUS
INDIVIDUALS AND ORGANIZATIONS
WORKING IN THE FIELD OF
HAZARD MITIGATION.**

NHMA Membership Includes

- **People wanting to make a difference and work towards reducing losses from disasters**
- **Engineers, planners, floodplain managers, government officials, community activists, academics, practitioners, students, etc...**
- **People involved in building resilient organizations and communities**

Reducing Disasters: Plain Common Sense

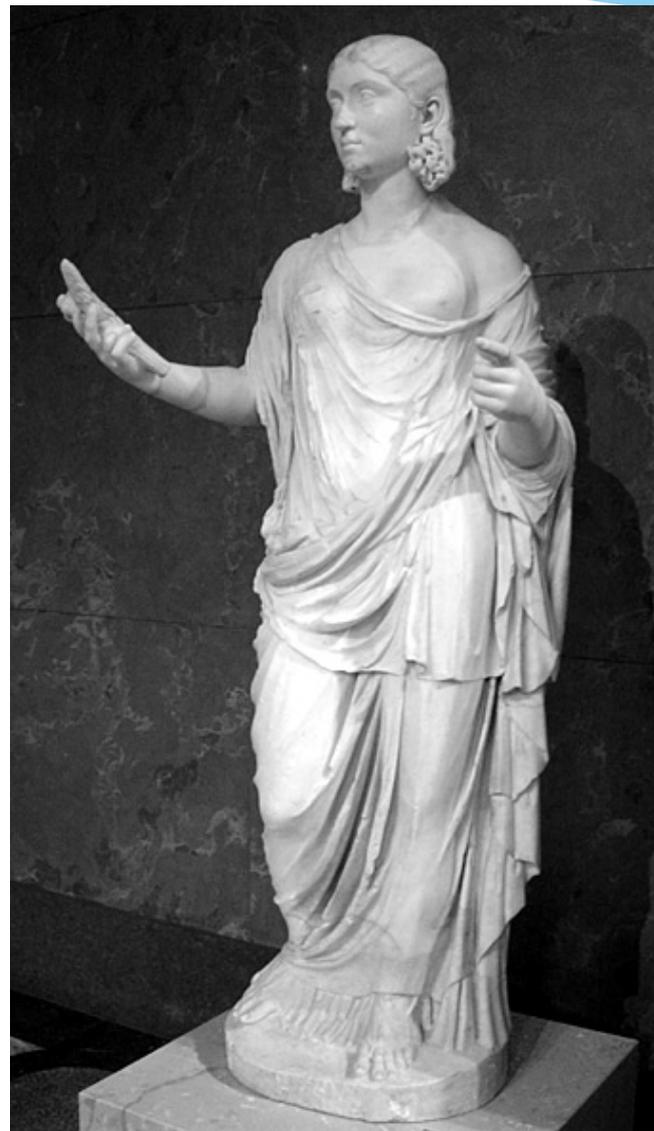
- *"Disaster risk reduction is not a luxury. It's an essential insurance policy for a more disaster-prone world, and one of the smartest, most cost-effective investments we can make in our common future. The benefits of this investment will be calculated not only in dollars saved, but most importantly, in saved lives."*
- *Jan Egeland, Former U.N. Under-Secretary General for Humanitarian Affairs and Emergency Relief Coordinator*

To Set the Stage For Our Discussion:

Let's discuss some basics of law

- **In the law-especially criminal law- attorneys often seek to identify someone else to take the blame**
- **Also often referred to as: “Round up the usual suspects.”**
- **For increased flood damages that “someone else” is often...**

Mother Nature



Does Nature Cause Disasters?

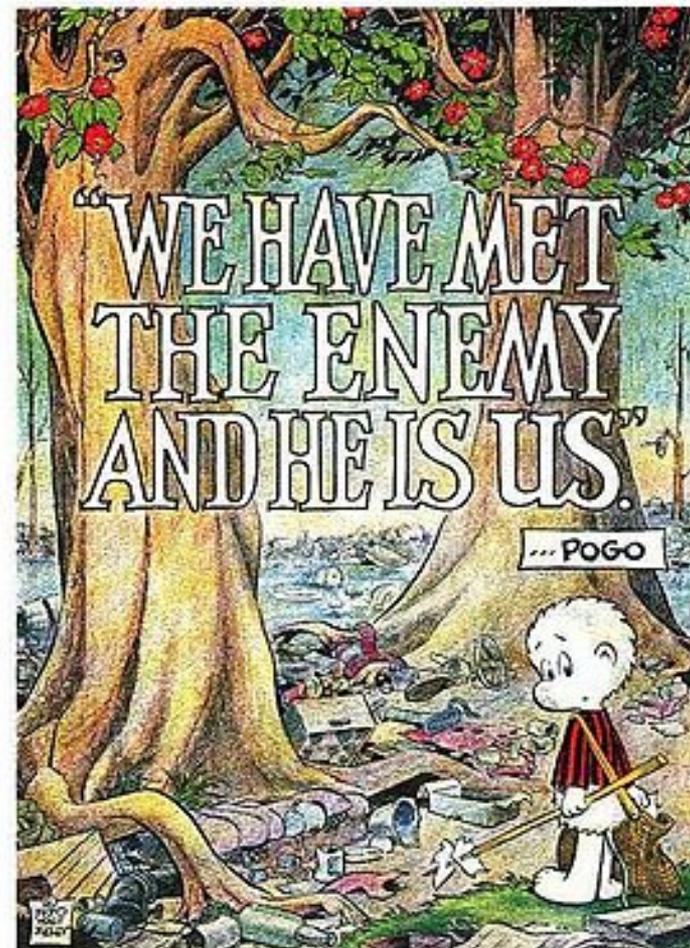
Dr. Gilbert White, the late, great, founder of the internationally recognized Natural Hazards Center, stated the facts:

“Floods are acts of God; but flood losses are largely acts of man”

The Enemy Is Us!

*Should we blame God,
Mother Nature or some
other “force” for our
devastating flood losses?*

*Or perhaps can the blame be put on
human engineering, architectural and
construction building improperly in
areas where natural processes like
tsunamis, tornadoes, floods, hurricanes,
wildfires will foreseeable take place.*



Walt Kelly's poster for the first Earth Day

Introduction: Can We All Agree?

Among of the most clear lessons of the horrific aftermath of “Superstorm” Sandy, Hurricane Katrina, Hurricane Iniki, Hurricane Omar, the recent Wildfires:

- **There Is no possibility of a sustainable economy without safe housing and safe locations for business and industry to occupy**
- **We need housing for employees to have businesses and industry – to have an economy at all**

Must Sustainability Or “Smart-Growth” Have A Foundation in Hazard Mitigation?

- **The Spring 2007 Edition of The Urban Lawyer contains an article which summarizes the views of 16 of the leading gurus of the “Smart Growth” Movement**
- **A total of 135 separate principles**
- **None refer to hazards specifically**
- **A very few refer to protecting natural resources**
- **Gabor Zovanyi is the author; Article is “The Role of Smart Growth Legislation in Advancing the Tenets of Smart Growth”**

But There Is Hope!

- **New and Exciting APA and ABA Awareness and Initiatives**
- **Improved FEMA Flood Mapping Program-Risk MAP**
- **The Formation of the National Hazard Mitigation Collaborative Alliance**
- **Formation of the Natural Hazard Mitigation Association**
- **USACE Silver Jackets Program**
- **Worldwide, Numerous Organizations working on disaster preparedness**
- **Media and Other National Leaders Are Finally Catching on to the Real Reasons Flooding and Other Natural Disasters Are Increasing in Consequence**

CNN Discussion of the Atlanta Flooding

“Before the storm stalled over Atlanta, the metro area had been in a prolonged drought.

Jeras, the CNN meteorologist, said “the urbanization of Atlanta and its suburban sprawl also contributed to the floods.”

“Instead of hitting soil, much of the rainwater ran straight into concrete, where it runs very fast and can overwhelm rivers and drainage systems.”

"There used to be a lot more earth and soil to help absorb this stuff," she said. "But the rain really fell on the concrete jungle."

The American Planning Association Is Now Turning Increased Attention To Hazards!

- **Paul Farmer, Executive Director of APA**

June 2009:

“Where one builds is just as important as what one builds and how one builds....and it's time now for planners to boldly take the lead in community and professional debates on their interrelationships. They should point out that good buildings simply should not be built in bad locations — something that those enamored of environmental rating systems for individual structures would do well to remember.”

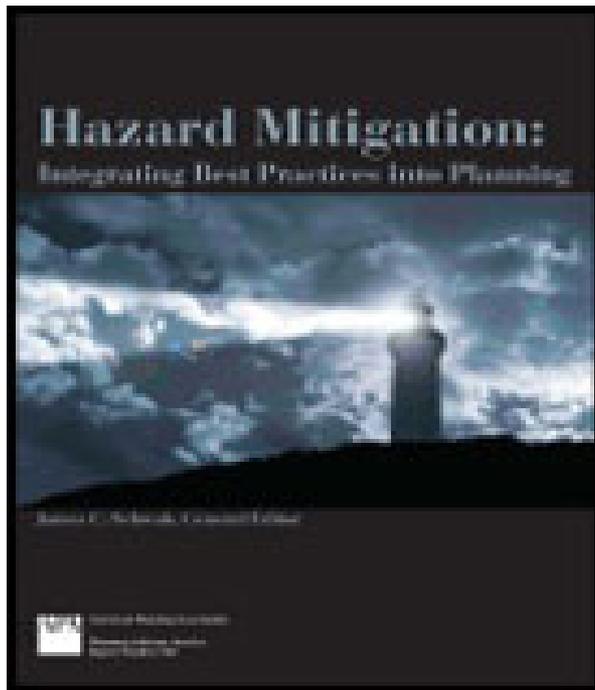
Paul Farmer Also Writes:

- **“Sometimes the response is easy: Just say no to new buildings on barrier islands or in wildfire-prone canyons. Sometimes it's not so simple: Planners confront very real moral, ethical, and public policy dilemmas in places like New Orleans, the Sacramento-San Joaquin River Delta, or known high-hazard zones of Florida.”**

New American Planning Association Publication

- **“APA's Hazards Planning Research Center (has prepared) a FEMA-funded best practice materials showing how hazard-mitigation and adaptation plans can be integrated into comprehensive planning efforts at all scales — from the neighborhood to the region.”**
- **This Document Is Available from APA**
- **Excellent in My Opinion**

New APA Publication Edited by Jim Schwab



Hazard Mitigation:
Integrating Best Practices
into Planning
edited by James Schwab,
AICP

American Bar Association

Summary of ABA Resolution 107 E:

“The following recommendations of the Financial Services Round Table Blue Ribbon Commission on Megacatastrophes are highly desirable loss mitigation suggestions:

- > State of the art building codes*
- > Cost-effective retrofitting*
- > Land use policies that discourage construction posing high risk to personal safety or property loss.*
- > Property tax credits to encourage retrofitting*

These and related elements of loss mitigation are designed to ultimately bring to market affordable insurance policies with broadened coverages.”

American Bar Association Resolution 114; Adopted by the ABA House of Delegates; February 2011

The American Bar Association has subscribed to the White Paper on Hazard Mitigation prepared by the National Emergency Management Association (NEMA) under contract to FEMA

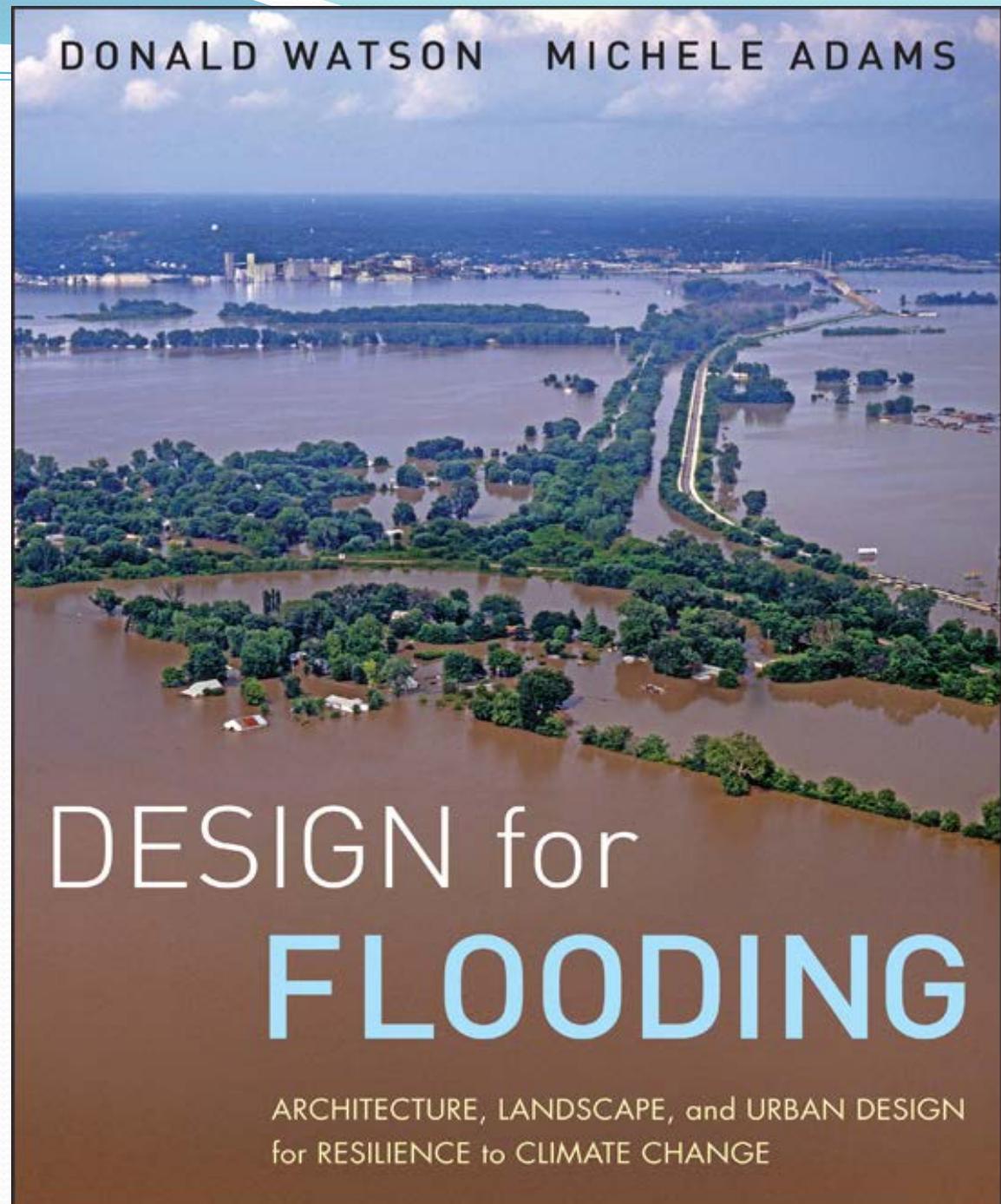
In Resolution 114 ABA voted to:

- a) Support hazard mitigation through disaster planning;*
- b) Recognize the role of state and local government;*
- c) Give due regard to property rights*
- d) Legal issues*

Exceptional Book

Available on Amazon

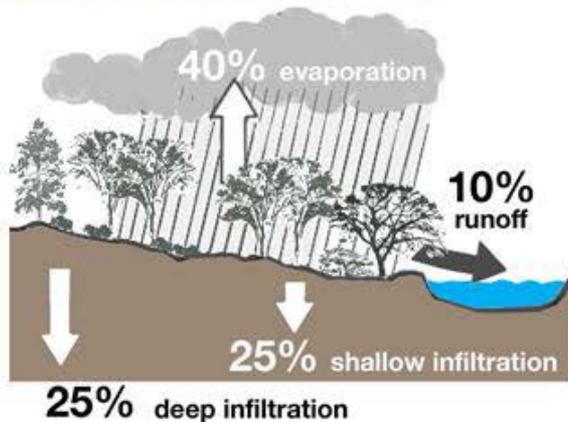
A must read, must have
for your library, if you
care about floods, or
climate variability



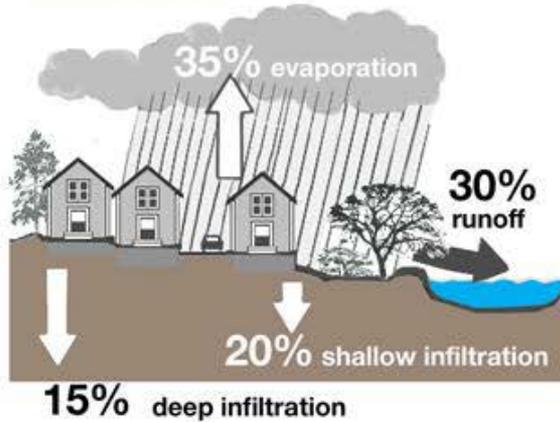
WHAT CAUSES Inland FLOODING?

Improper & Badly Designed Alteration of the Landscape

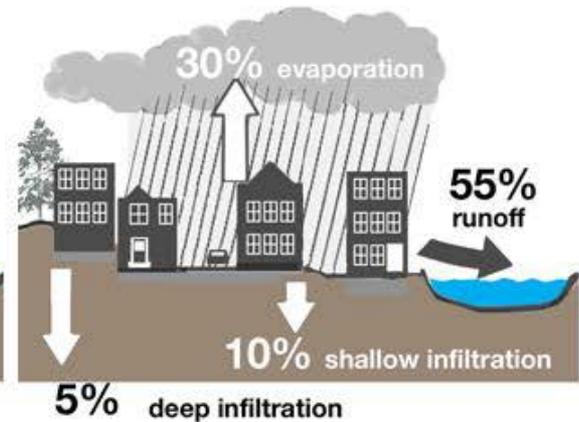
NATURAL LANDSCAPE



SUBURBAN



URBAN



USDA Soil Conservation Service 1986 Urban Hydrology for Small Watersheds

Who Is Responsible for the Safety and Security of

- Your family?
- Your home?
- Your community?
- Your business?



Key Themes

- **We need to think broadly to solve our serious problems- including sea level rise and climate change**
- **We must stop making things worse**
- **We will have opportunities to change legislation over the next few years**
- **Right now we have a system which rewards dangerous behavior**
- **We need to adapt by removing perverse incentives, reward good planning, safe building, and safe reconstruction**

Suggested Changes to Federal Policies

- **Reforming Federal Support for Risky Development, by David Conrad and Ed Thomas**
- **Suggests ways to reduce federal expenditures by about \$40 billion over a 10 year period**
- **Published by the Hamilton Project of the Brookings Institute in 2013 in *15 Ways to Rethink the Federal Budget***
- ***Enclosed in your materials for your reading pleasure***

15 Ways to Rethink the Federal Budget

Edited by Michael Greenstone, Max Harris, Karen Li, Adam Looney, and Jeremy Patashnik



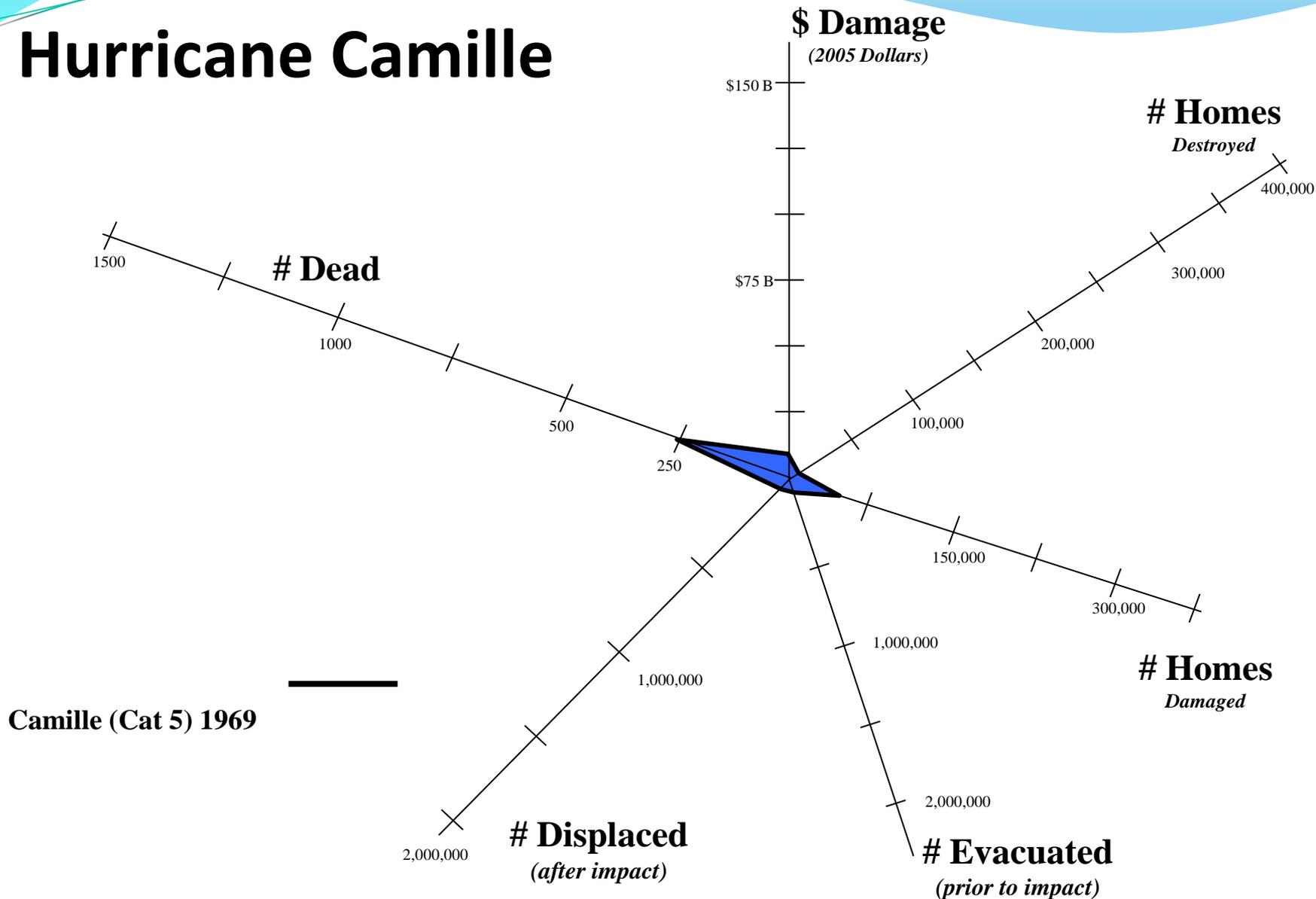
Available at: <http://www.brookings.edu/research/interactives/2013/federal-budget-hamilton>

We suggest much higher standards for federal investment of both appropriated and non-appropriated funds

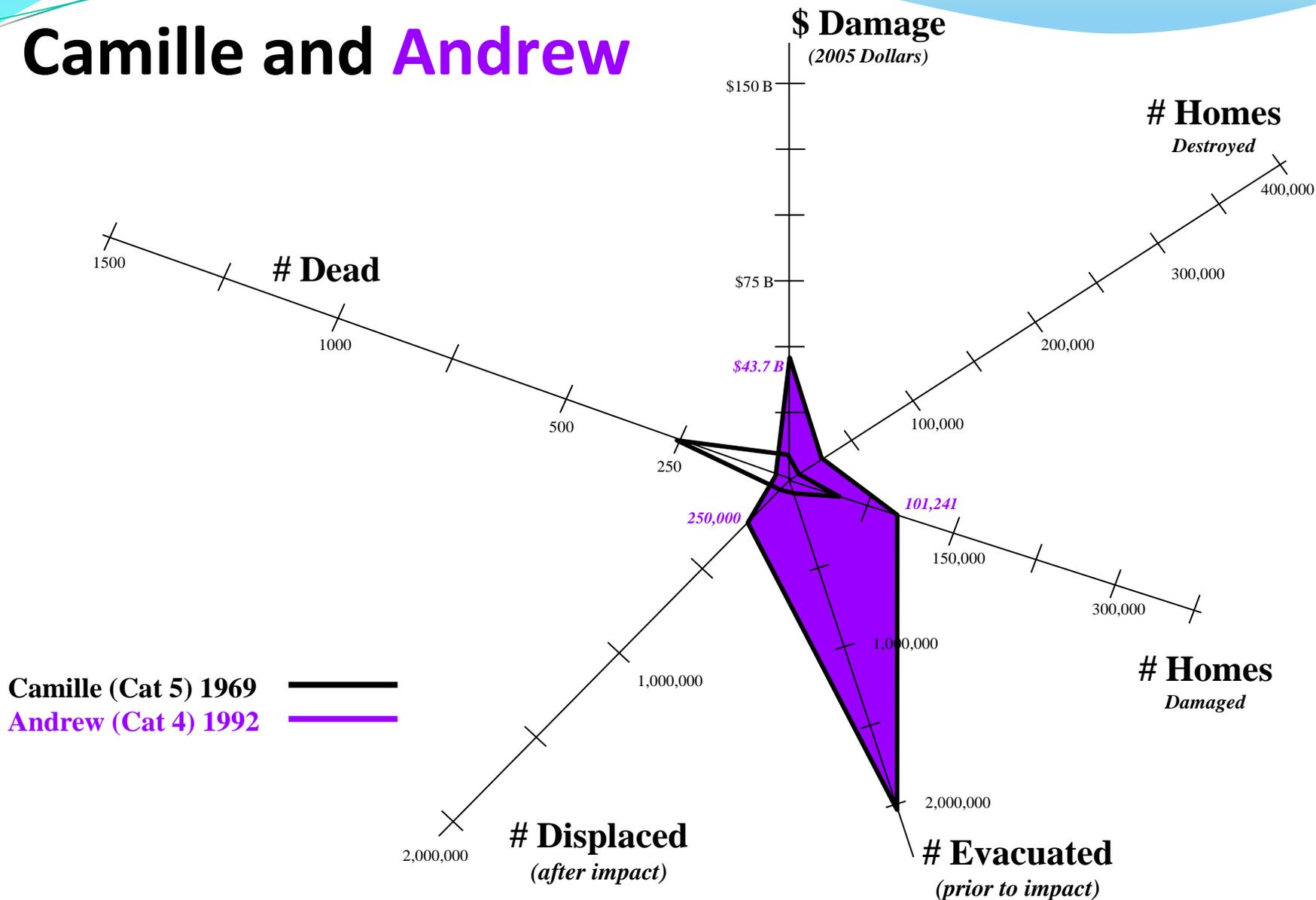
Trends in Damages Following Natural Events

- **Wind, Flood, Earthquake, Wildfire losses are increasing quite dramatically**
- **Demographic trends indicate great future challenges**
- **More challenges from sea level rise**
- **Even more challenges likely from climate change**

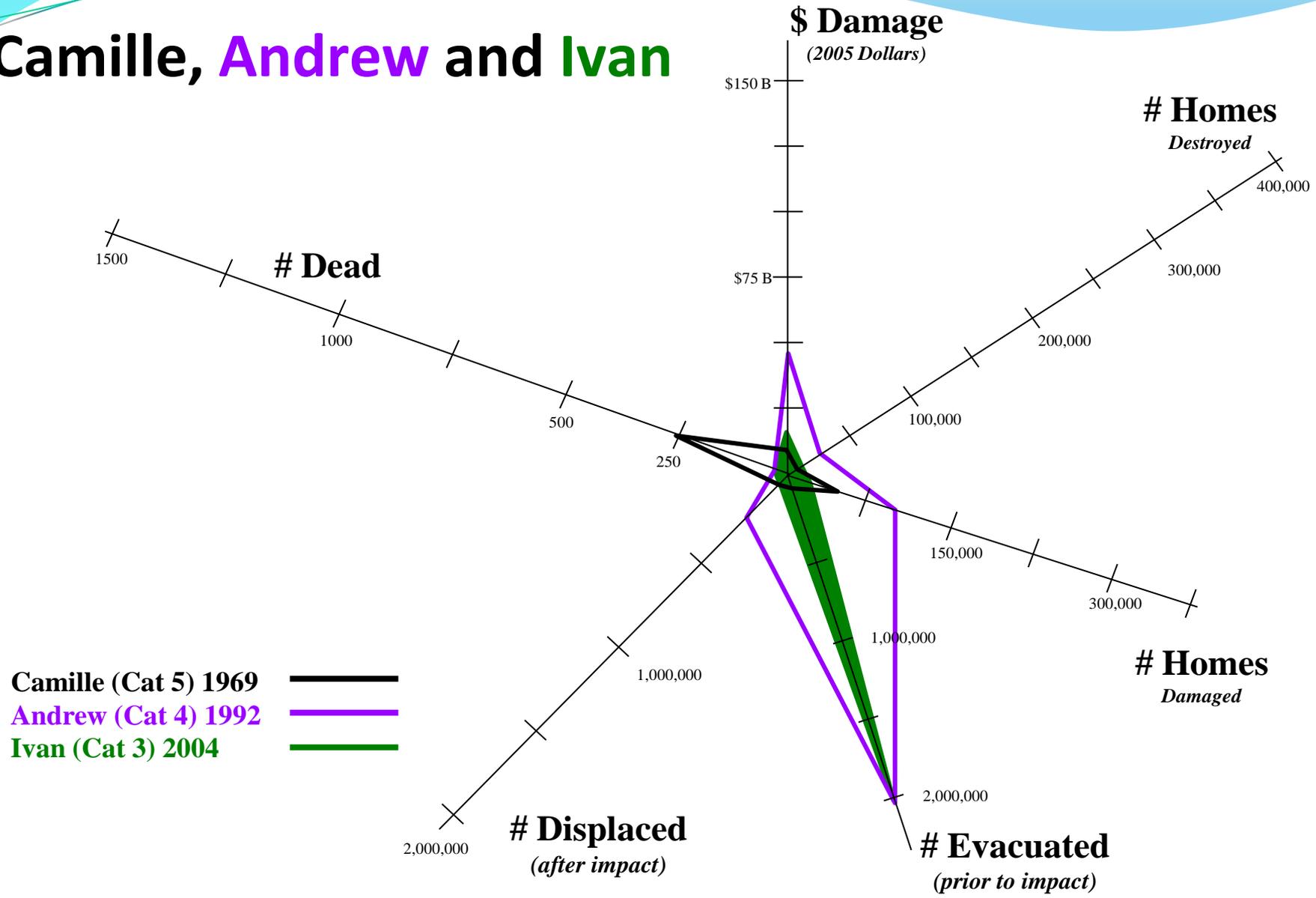
Hurricane Camille



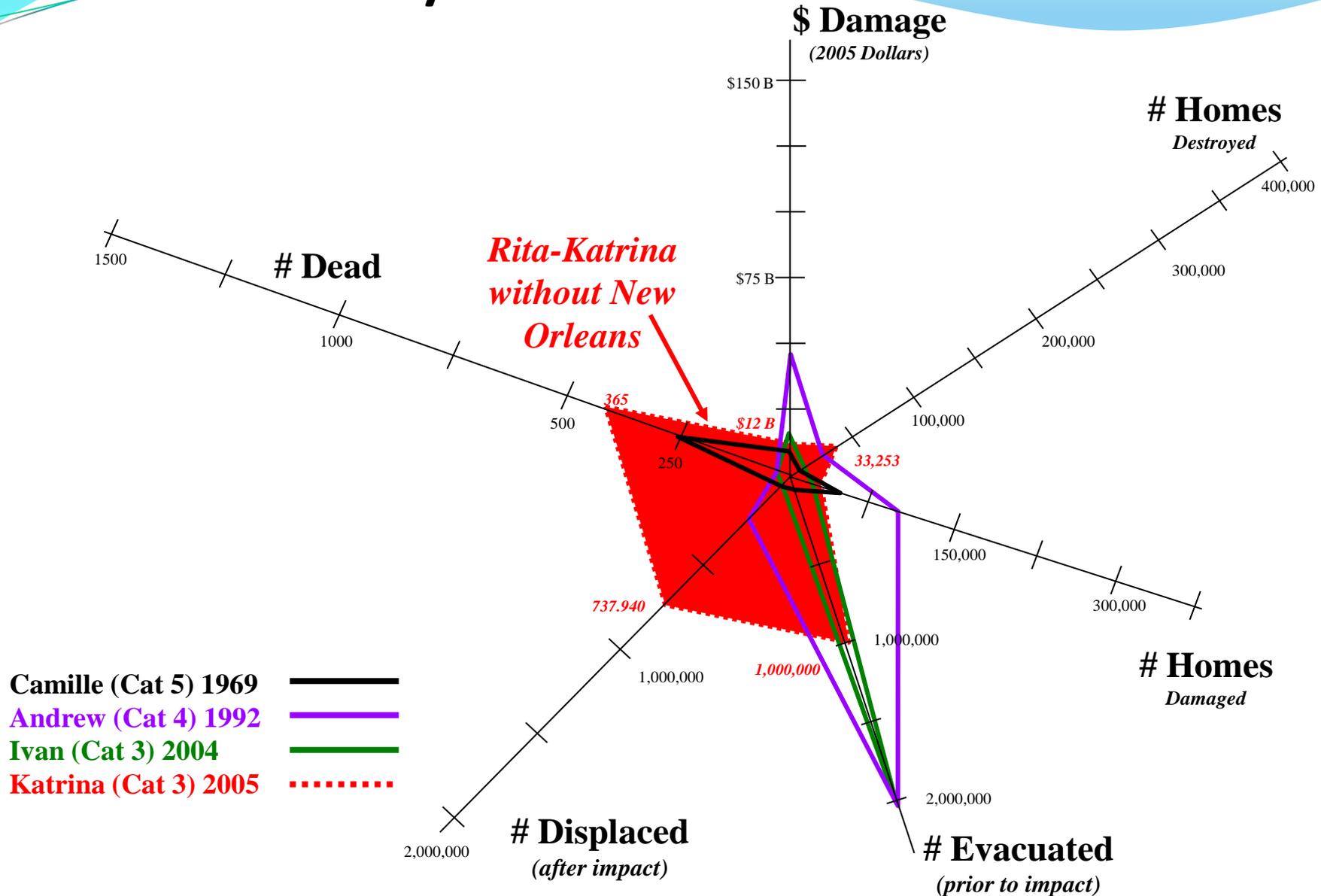
Camille and Andrew



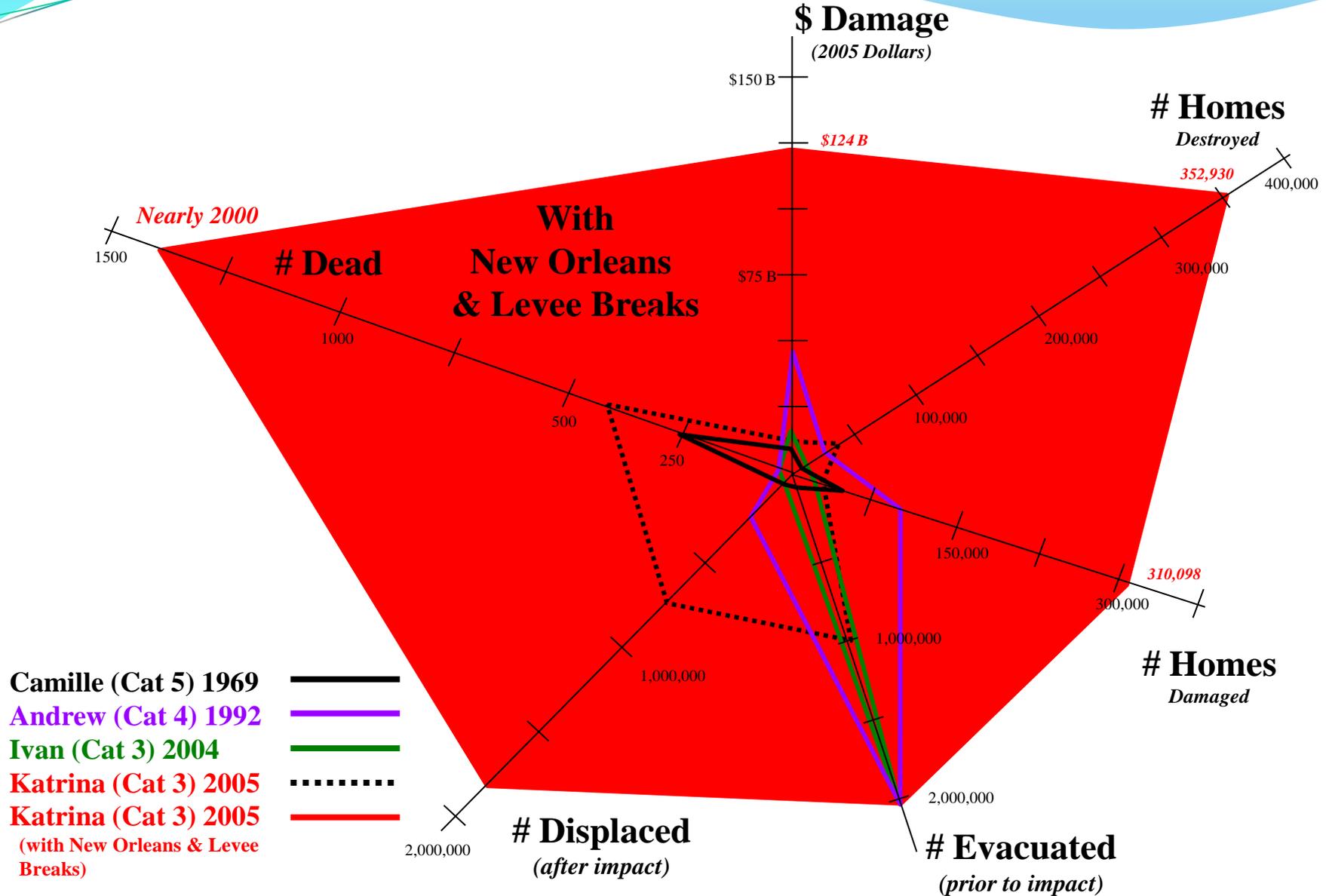
Camille, Andrew and Ivan



Katrina & Rita w/o New Orleans



Katrina & Rita w/o New Orleans



Approximate
(Hours from 1st
levee break)

+2

+4

+6

+8

+10

+12

+14

+16

+18

London Ave

17 Street

East Orleans

Industrial Canal

Superdome

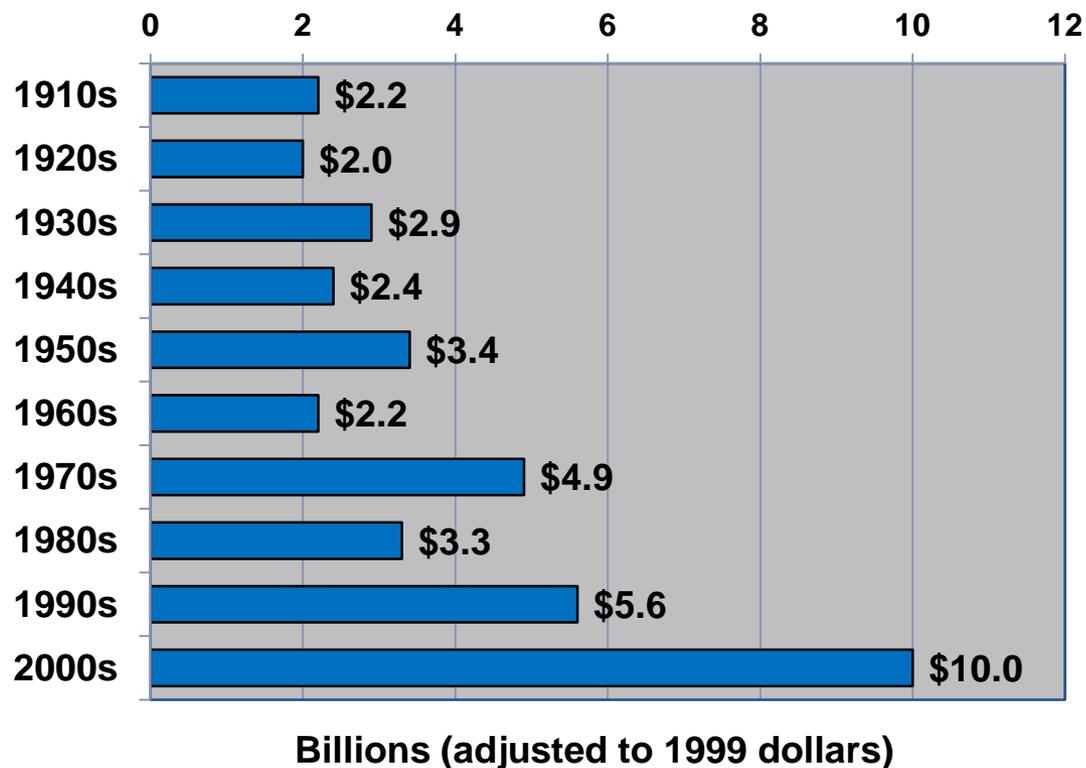
Convention
Center



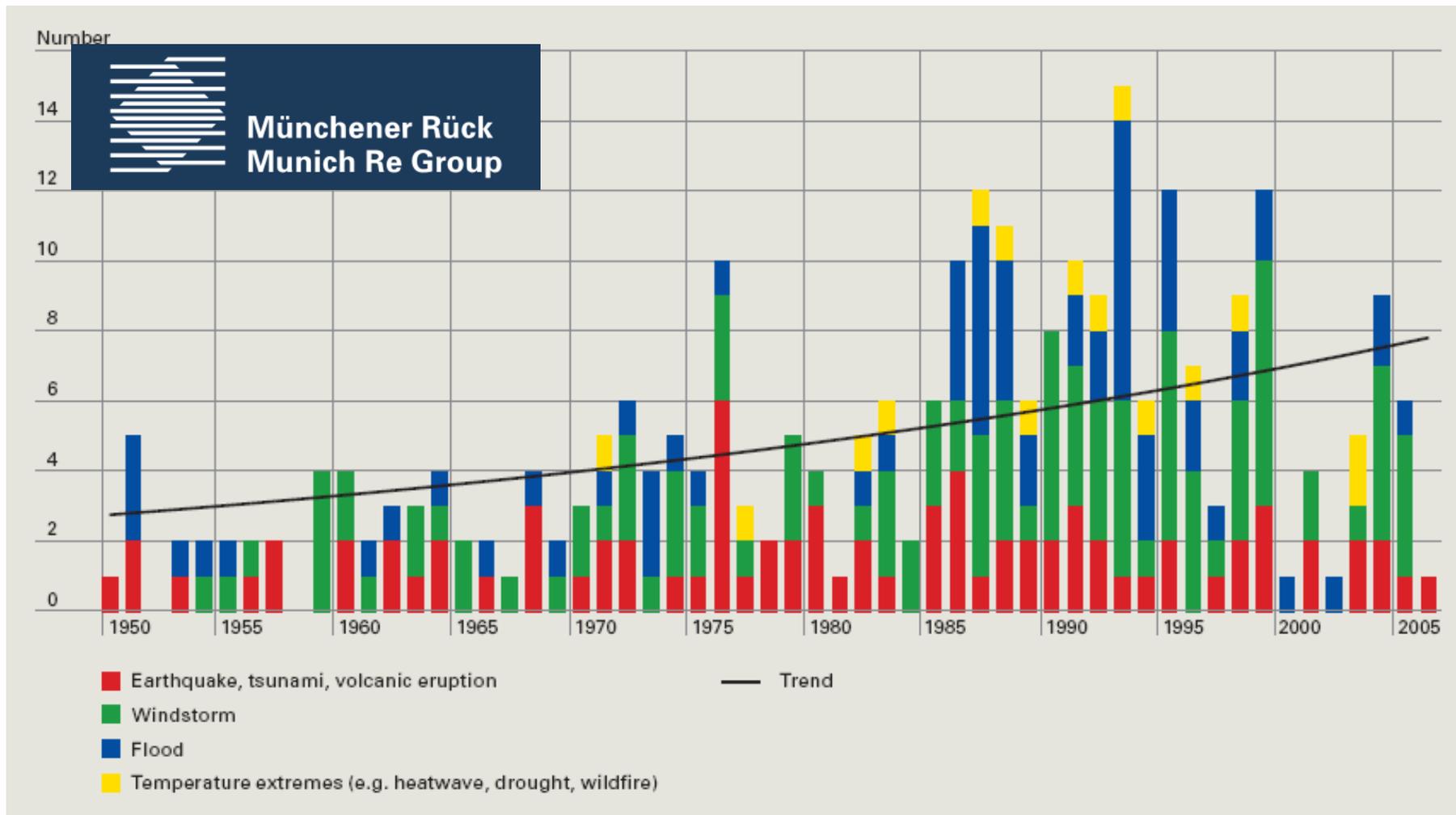
Trends in Flood Damages

- **\$6 billion annually**
- **Four-fold increase from early 1900s**
- **Per capita damages increased by more than a factor of 2.5 in the previous century in real dollar terms**
- **And then there was Katrina, Rita, Wilma, Ike, and Sandy**

Average Annual Flood Damages



Flood and Wind Disasters Have Been Increasing Most



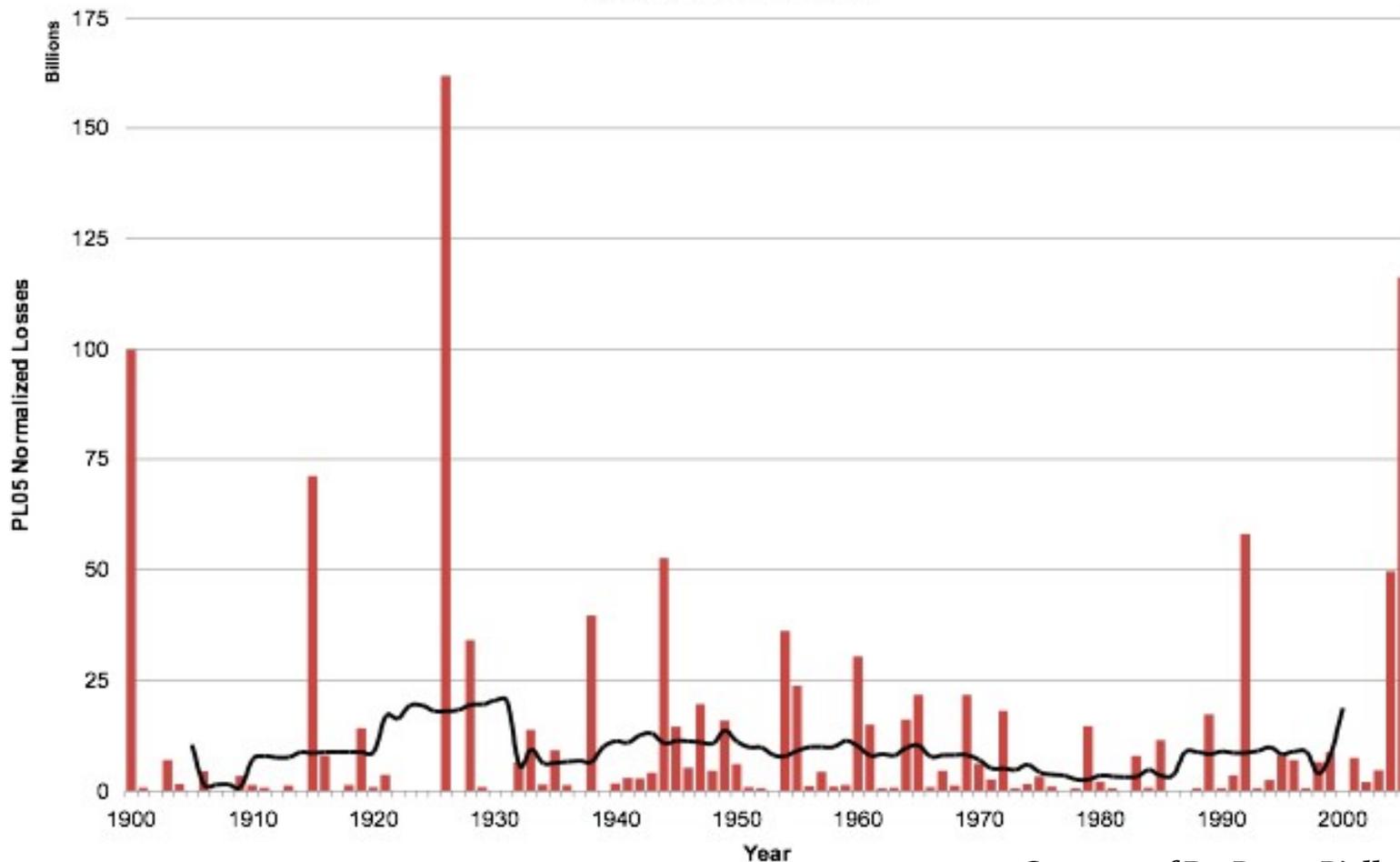
Courtesy of Dr. Roger Pielke Jr

Source: Munich Re

US Damage If Every Hurricane Season Occurred in 2005

PL05 Normalized Losses per Year from Atlantic Tropical Cyclones

PL05 Normalized Losses per Year from Atlantic Tropical Cyclones
(11-year centered average)

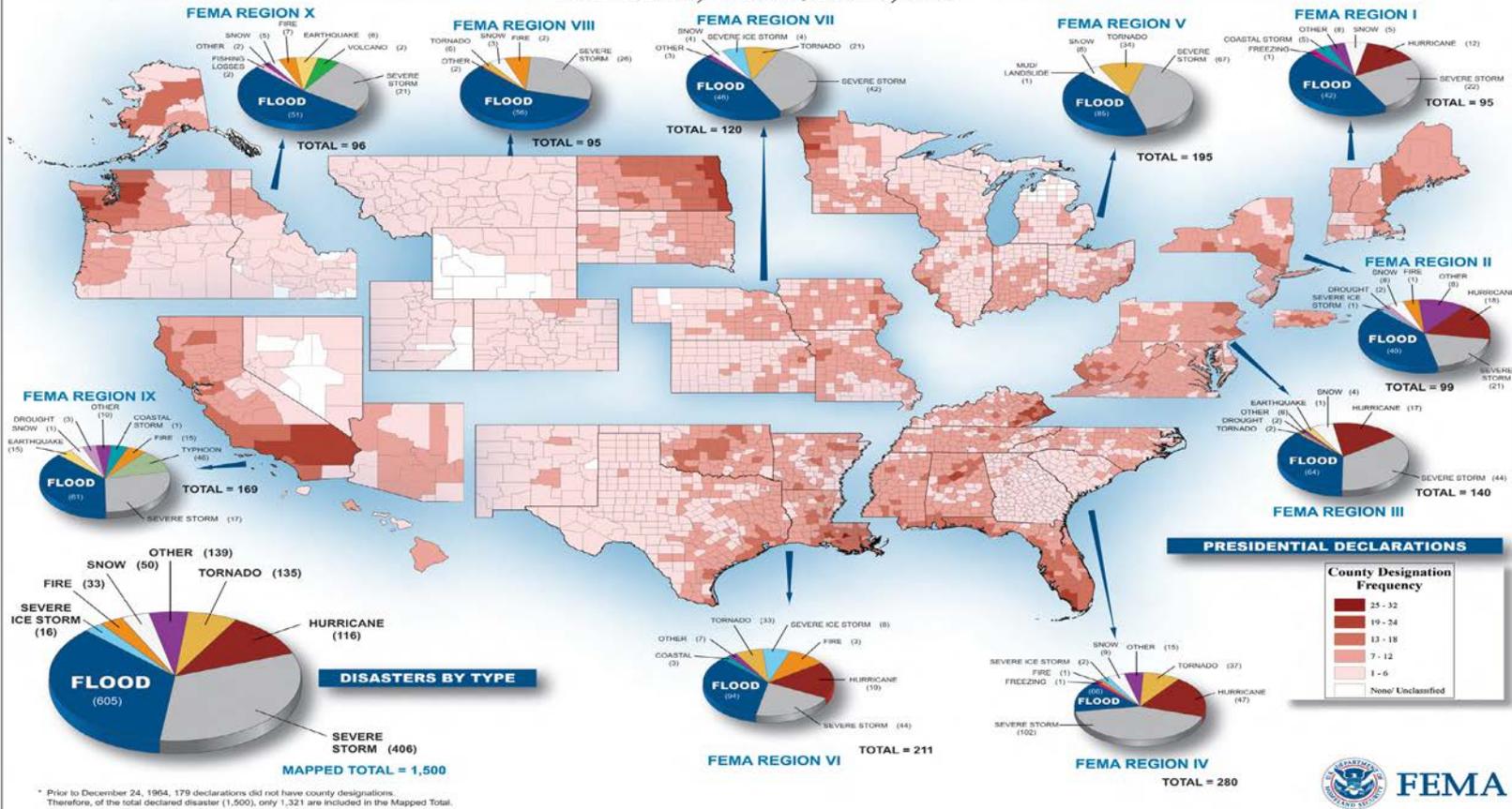


Courtesy of Dr. Roger Pielke Jr

However, Things Are Not So Bad In Montana, Yet!

PRESIDENTIAL DISASTER DECLARATIONS

December 24, 1964 to March 3, 2007



* Prior to December 24, 1964, 179 declarations did not have county designations. Therefore, of the total declared disaster (1,500), only 1,321 are included in the Mapped Total.



Helena: The Flood of July 24, 1878

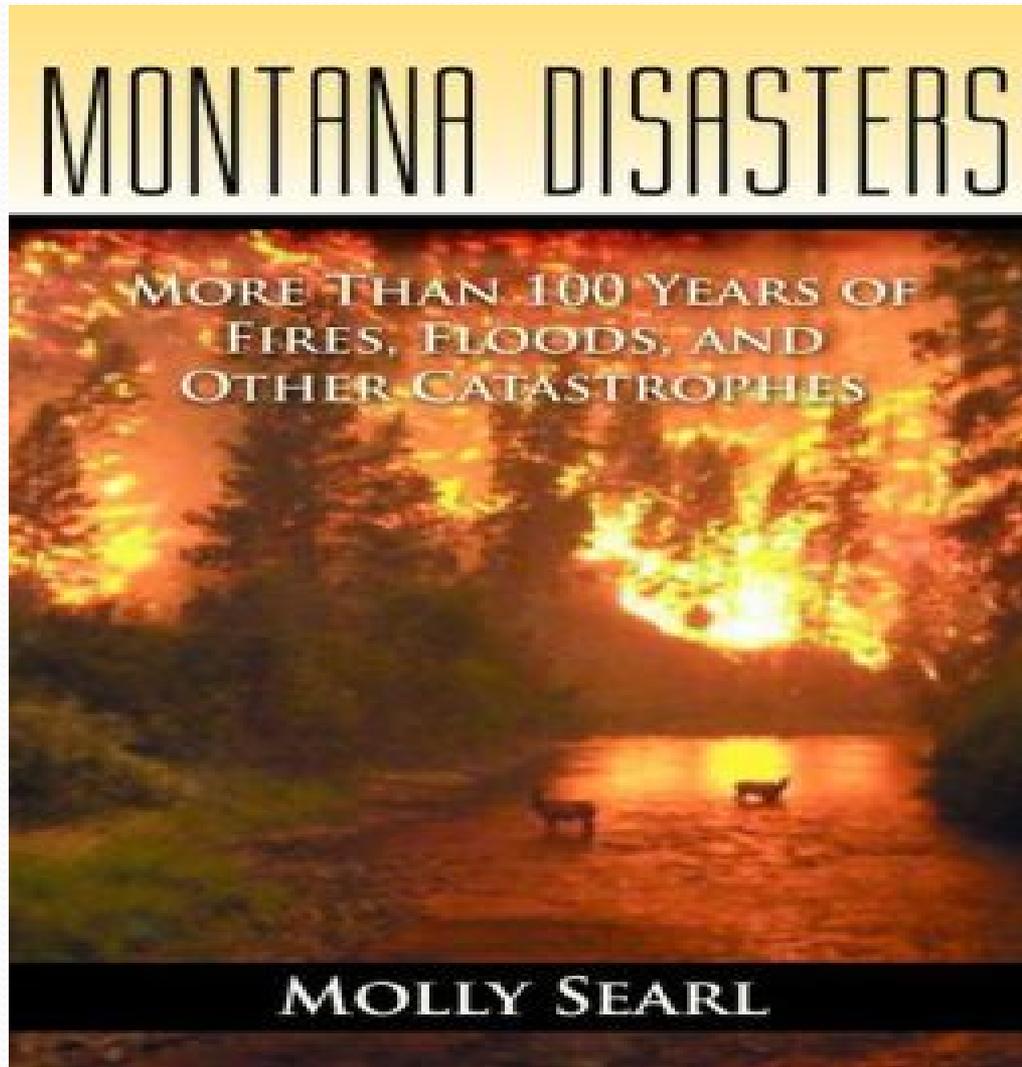


Floodwaters surround Glasgow, MT in 1952



Sometimes Levees Succeed; Sometimes Damages Are Even Worse

Wildfire is a Huge Risk in Montana



**Great book on
disasters in Montana**

Road and Transportation Damages Are Typical Results of Montana Floods



Photo:

BNSF Railway

Mold Remediation Rocky Boy's Indian Reservation, August 18, 2010



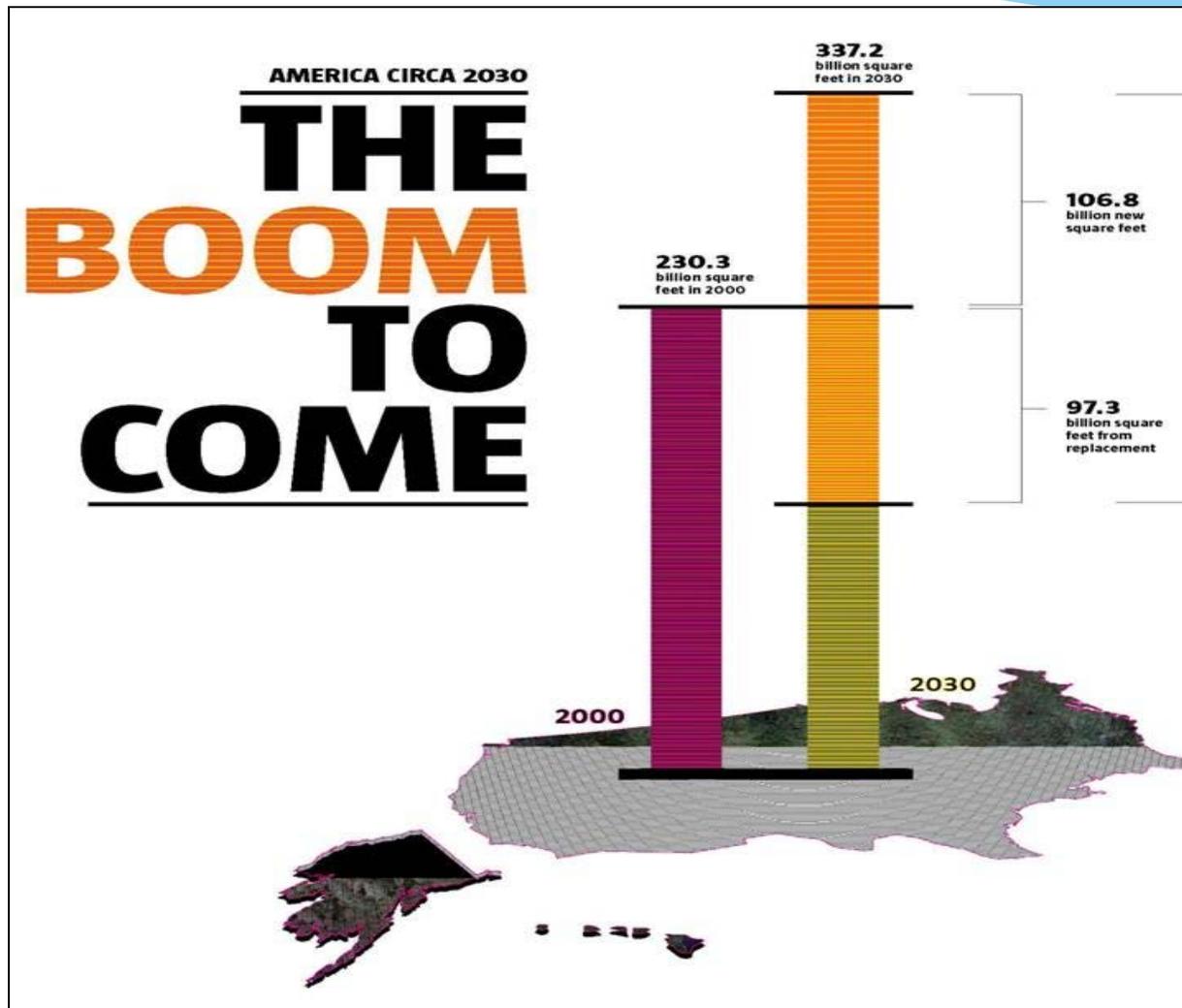
Demographic Trends: The Future

- **As we move into the next generation things will be much more challenging for Floodplain and Stormwater Managers**

- **Dr. Arthur “Chris” Nelson, FAICP**
 - **Leadership in a New Era**
 - **“More than half of the built environment of the United States we will see in 2025 did not exist in 2000”**

*Journal of the American Planning Association,
Vol. 72, No. 4, Autumn 2006.*

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USA Today

April 29, 2008

- **Chris Nelson Tells APA Convention That:**
- **In the Next One Hundred Years the US Population Will Grow To:**

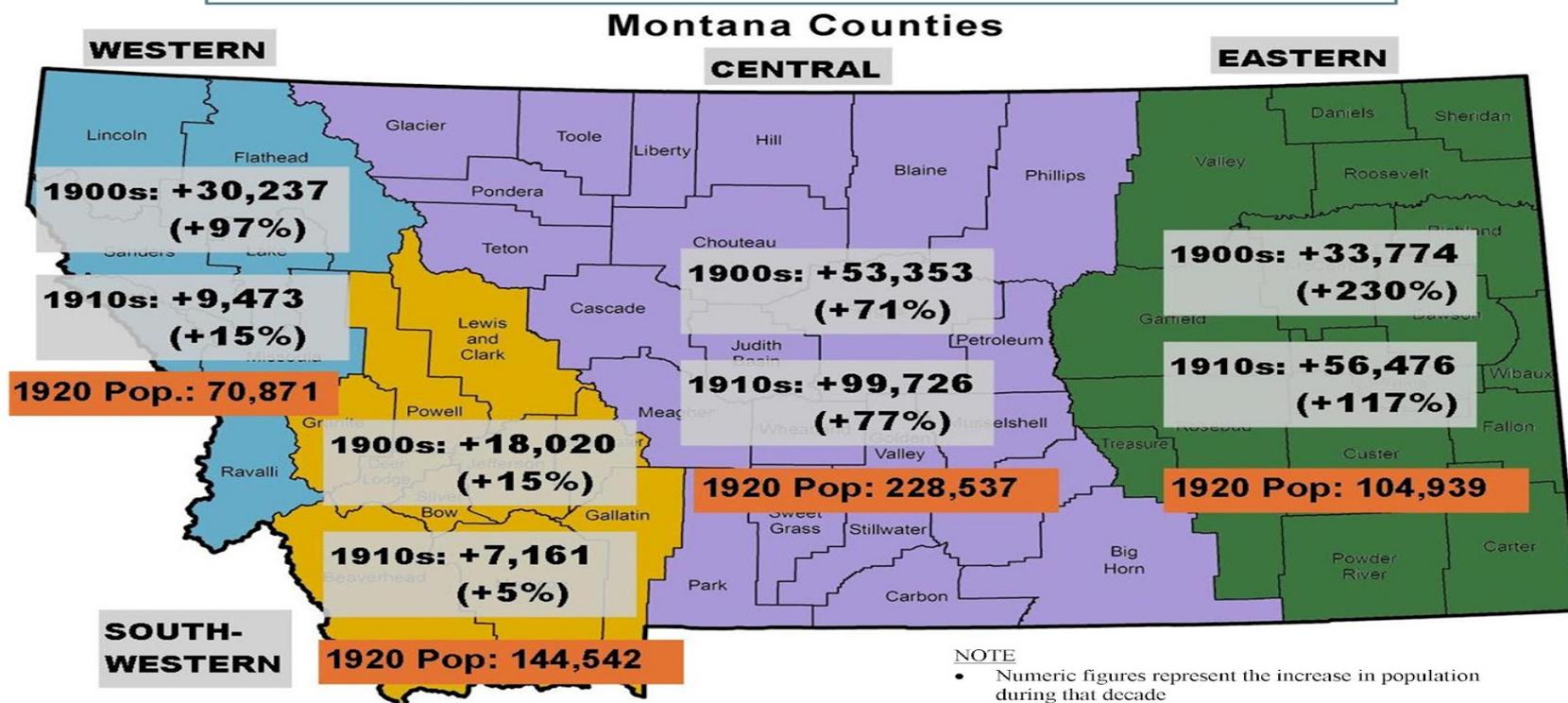
- **Any Guesses?**
- **Does 100 Years Have Any Special Meaning To Us?**

Montana Population Projections

- Montana
- <http://ceic.mt.gov/PopProjections.asp>
- Source: Montana Department of Commerce, Census and Economic Information Center.
- Projections are based on 2000 Census
- From 2000-2030 an increase of....
- And these folks want to live....

With Shale Another Boom?

MT's Regional Population Growth, 1900-1920



NOTE

- Numeric figures represent the increase in population during that decade
- % is the percentage increase in population during that decade
- All figures based on U.S. Census Bureau data

Please Understand

- **Even if we perfectly implement current standards, damages and flood heights will continue to increase.**

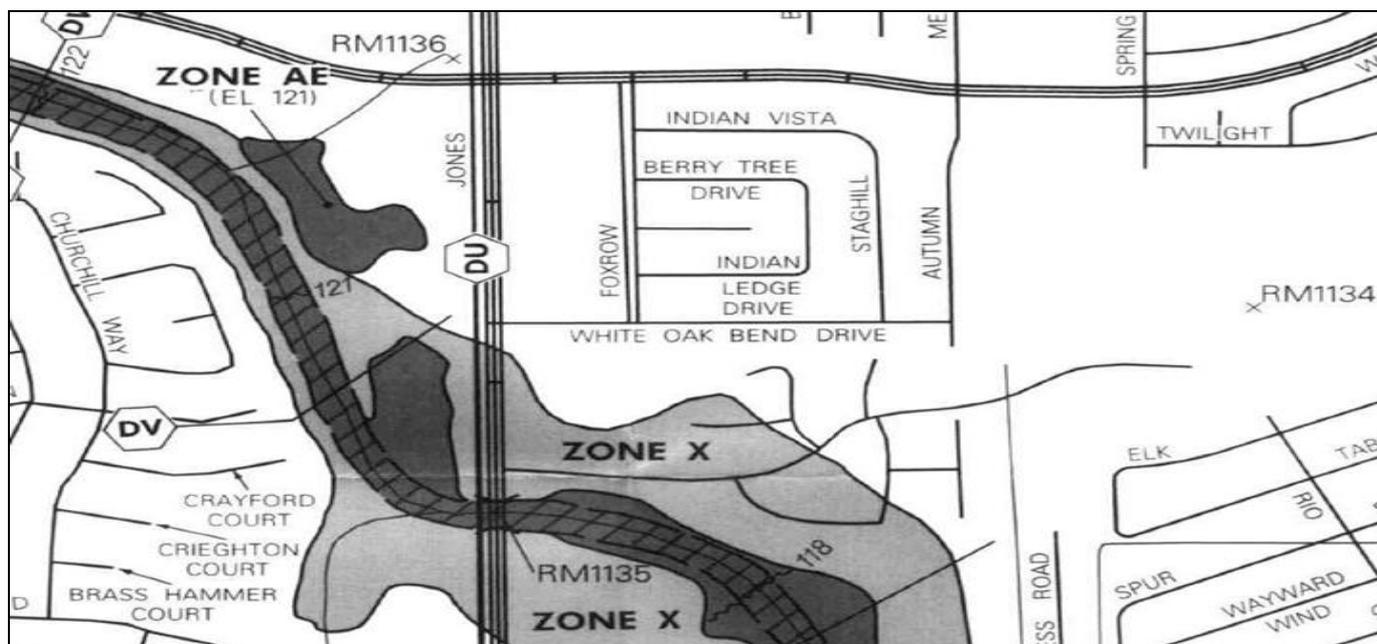
**Remember, we have done a number of positive things, both non-structural and structural, but...
We'll discuss why that is...**

Central Message

**Even If We Perfectly Implement
Current Standards,
Damages Will Increase.**

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both non-structural and structural, but...
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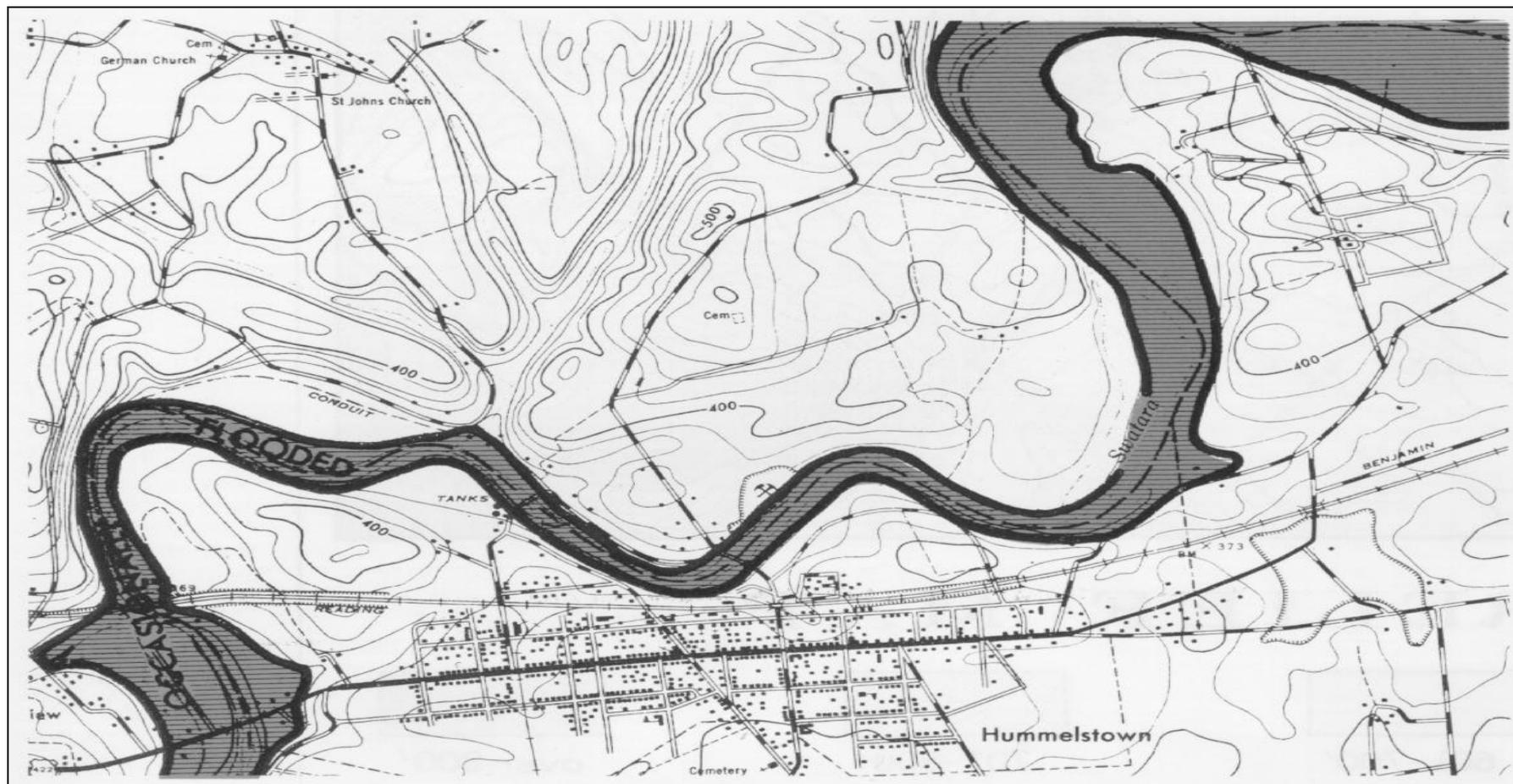
Why Are Floods Getting Worse? Fundamental Misunderstandings: Where is the Floodplain?



Where is the Floodplain?



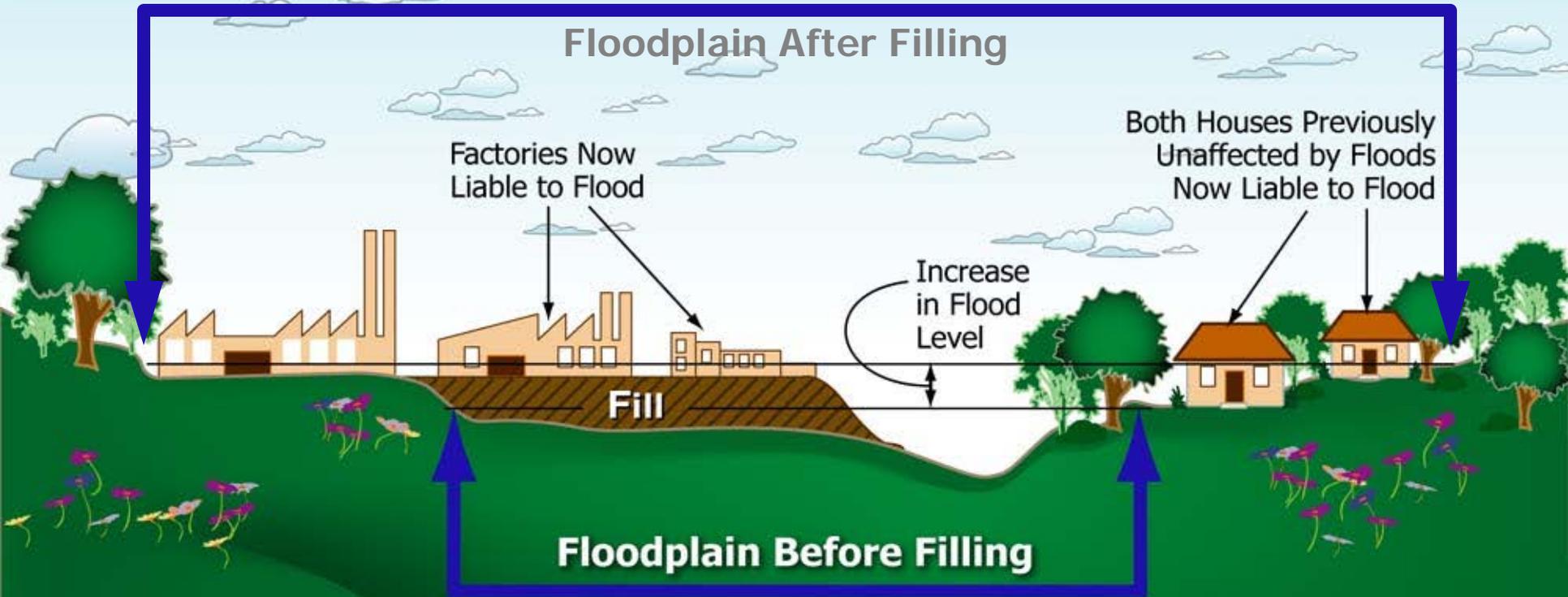
Where is the Floodplain?



Where is the Floodplain?



Today's Floodplain Is Not Necessarily Tomorrow's Floodplain



If large areas of the floodplain are filled, then there will be an increase in the land area needed to store flood waters. This means your home or business may be impacted.

Flood Risk = P (Probability of flood) X Consequences)



FLOOD RISK MANAGEMENT

Buying Down Risk

Initial Risk

USACE Slide courtesy of Pete Rabbon

Insurance

Building Codes

Zoning

Levee

Contingency/Response Plans

Outreach

Residual Risk

**Risk Reduction Actions
(Cumulative)**

All stakeholders contribute to reducing risk

All Shareholders Can Also Contribute to Increased Risk!

Initial Risk

No Warning/Evacuation
Plan

Upstream Development
Increases Flows

Lack of Awareness of Flood Hazard-Lack of
Flood, Business Interruption, DIC
Insurance

Critical Facilities Not
Protected From Flooding

Increased Development

Infrastructure Not Properly
Designed/Maintained

RISK

Vastly Increased
Residual Risk

RISK Increase Factors

With Full Build Out Flood Heights May Increase Dramatically

- **No Adverse Impact:**
 - **A New Direction in Floodplain Management Policy**
 - **Larry Larson PE, CFM and Doug Plasencia PE, CFM**
 - **Published in Natural Hazards Review Nov. 2001, IAAN 1527-6988**

What is A Watershed?

A watershed is an area of land that drains into a lake or river. As rainwater and melting snow run downhill, they carry sediment and other materials into our streams, lakes, and groundwater. The image below is a watershed illustration.

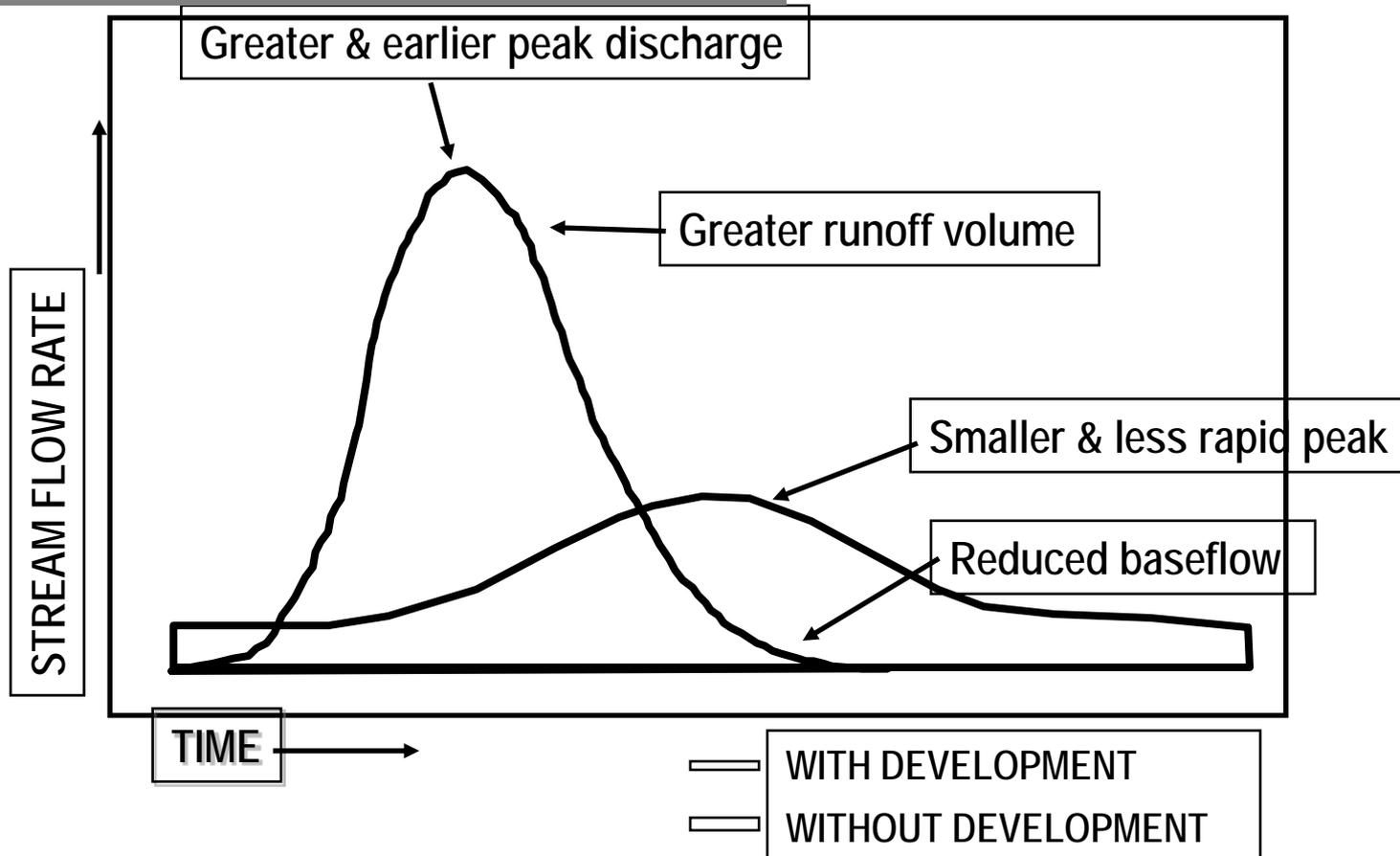


Watersheds provide water for drinking, irrigation, and streams. Many people also enjoy the lakes and streams for their beauty -- and for boating, fishing, and swimming. Healthy watersheds also provide food and shelter for wildlife.

Consider Life Safety As Flood Heights and Velocities Increase

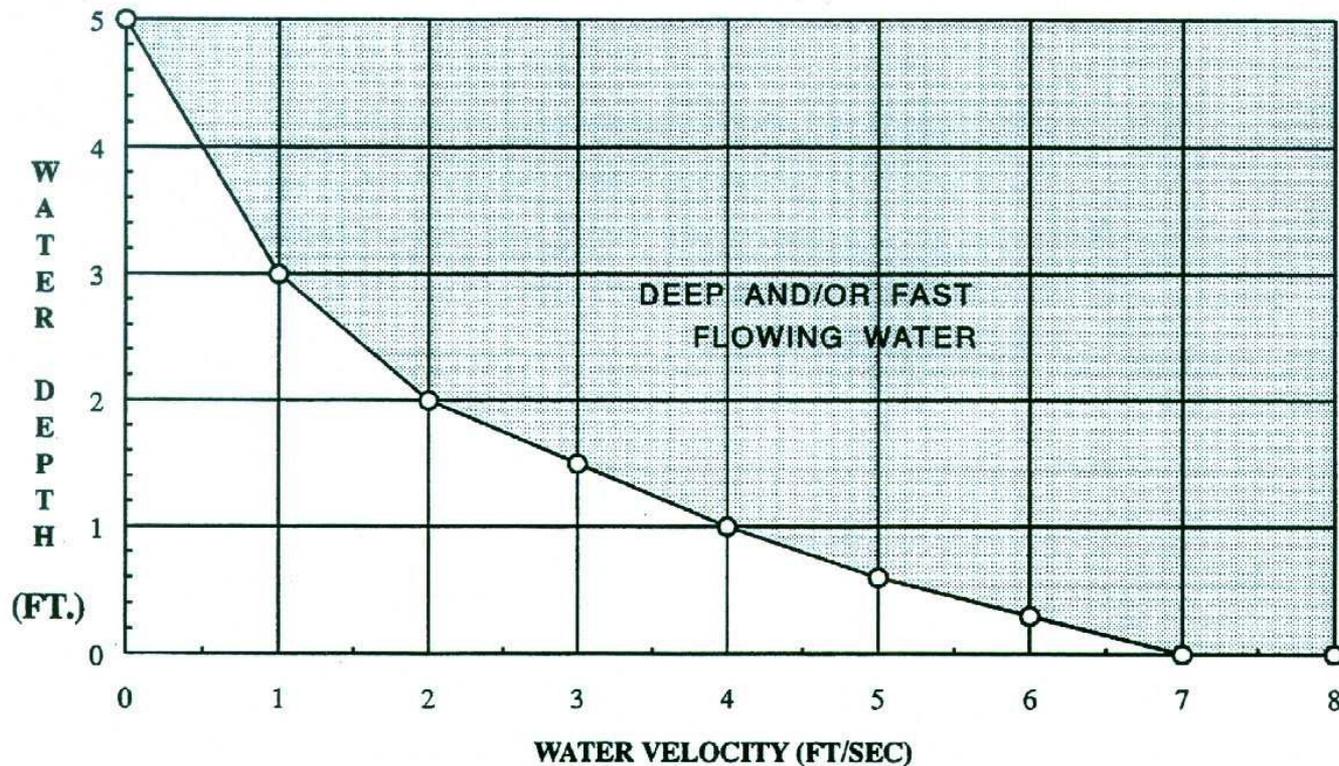
- **Why?**

Stormwater: Impacts of Poorly Designed Development on Streams



Deeper and Higher Water Results?

Serious Public Safety Issues



Treating Water As Garbage

- **There is an Excellent Law Review Article which Makes the Point that "Diffused surface water should be treated as a necessary asset to replenish groundwater aquifers used for drinking water, and not as waste to be disposed of by landowners."**
- **See, Darin L. Whitmer, COMMON ENEMY OR UNILATERAL THREAT: WHY JURISDICTIONS NEED TO BECOME REASONABLE IN REGARDS TO DIFFUSE SURFACE WATERS 41 Creighton L. Rev. 423, April, 2008.**
See, also,

Demographic Trends: The Future

- **As We Move Into the Next Generation Things Will Be Much More Challenging For Floodplain and Stormwater Managers**
- **Dr. Arthur “Chris” Nelson, FAICP**
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Question One

- **Why are Flood Heights Increasing?**
 - A. **Bad Luck;**
 - B. **Urbanization, Loss Of Natural Valley Storage, Increasing Impermeable Surfaces in the Watershed;**
 - C. **Global Cooling;**
 - D. **All Of The Above**

Why Go Beyond the Current Minimum Standards?

Disaster related damages are rapidly increasing unnecessarily!

Current approaches deal primarily with how to build in a hazardous locations vs. how to minimize future damages

Central Message:

Even if we perfectly implement
current regulations,
damages will continue or increase.

*Remember, we have done a number of positive things, both
non-structural and structural, but...
We'll discuss why that is...*

Flood Heights May Increase Dramatically

- Other factors may well cause a significant increase in flood heights
- Legally permitted fill and encroachments
- Wildfires
- Debris blockage

A Solution

- **Go Beyond Federal Minimum Standards**
 - **Safe Development**
 - **No Adverse Impact**
 - **Community Rating System Model**
 - **Development Decision-making**
 - **Planning**
 - **Emergency Preparedness**

Safe Development Is Affordable

- **The American Institutes for Research has conducted a detailed study on the cost of floodproofing and elevation**
- **That study supports the idea that elevation and floodproofing costs add very small sums and have a significant societal payback**
- **The Multihazard Mitigation Council, a group which includes private industry representatives, reports that hazard mitigation has a proven 4-1 payback when retrofitting past mistakes**
- **NHMA is currently working on a White Paper which indicates that the payback for “Safe Development” from the beginning of a project may be more than 100-1**

The Choice of Development or No Development is a False Choice!

The Choice We Have as a Society is Rather Between:

- 1. Well planned development that protects people and property, our environment, and our precious Water Resources while reducing the potential for litigation; or**
- 2. Some current practices that are known to harm people, property, and natural floodplain functions-... and may lead to litigation and other challenges**

Central Message

**Even If We Perfectly Implement
Current Standards,
Damages Will Increase.**

Remember, we have done a number of positive things,
both non-structural and structural, but...
We'll discuss why that is...

With Full Build Out Flood Heights May Increase Dramatically

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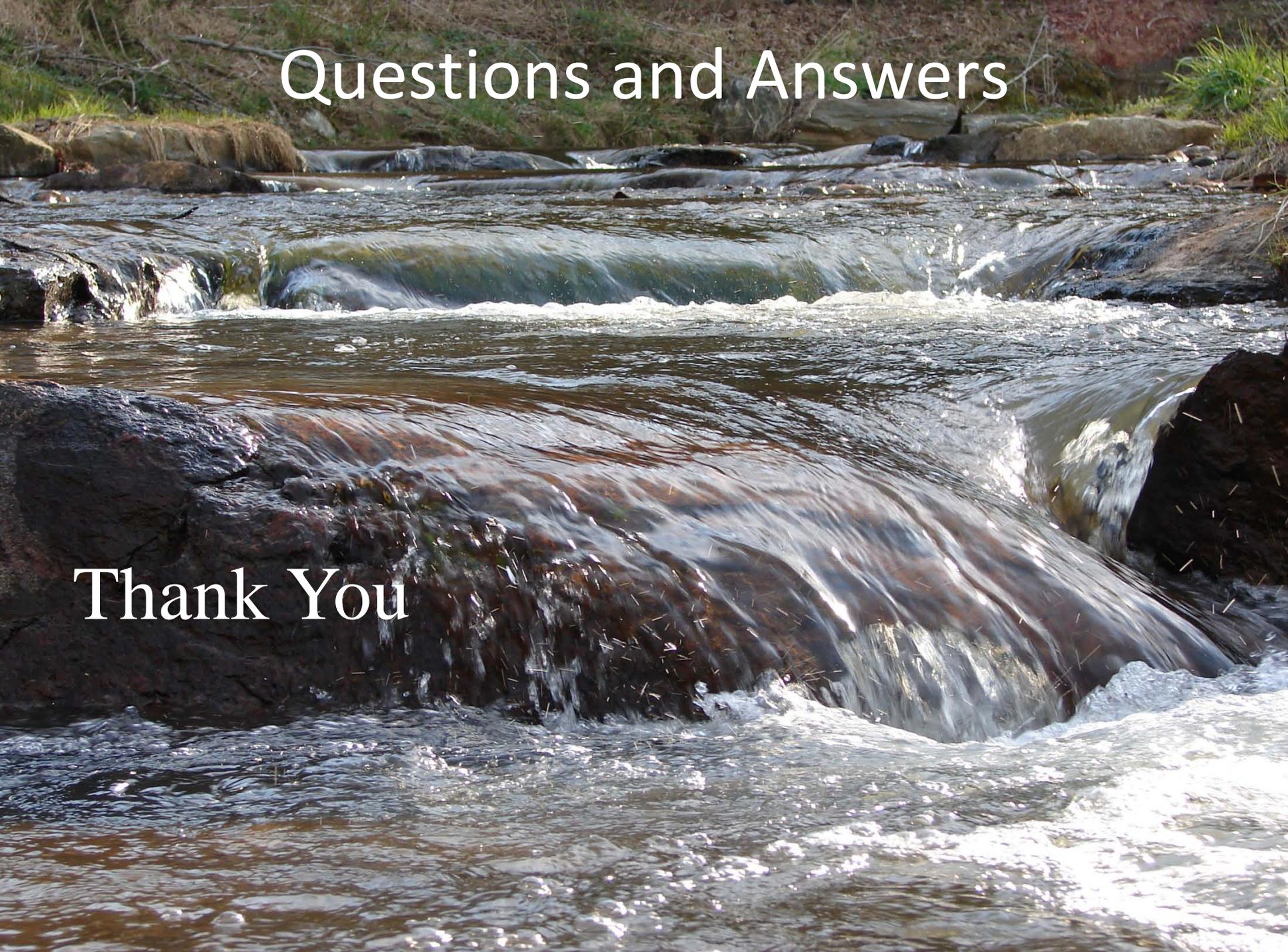
Flood damages are rapidly increasing unnecessarily!

Current approaches deal primarily with how to build in a floodplain vs. how to minimize future damages

The Solutions-Will Be Discussed Throughout this Workshop

- **Go Beyond Federal Minimum Standards**
 - **Safe Development** which looks at all Hazards
 - **No Adverse Impact-CRS Type:**
 - **Development Decision-making**
 - **Planning**
 - **Emergency Preparedness**

Questions and Answers



Thank You

Contact Information:

Natural Hazard Mitigation Association

P.O. Box 55352

Metairie, Louisiana 70055

504-914-6648

www.nhma.info

nathazma@gmail.com

Edward A. Thomas Esq., LLC

edwathomas@aol.com