



# **Legal Implications of No Adverse Impact Floodplain Management: Protecting the Rights of All**

**Delaware River Basin Commission  
Floodplain Regulations Evaluation Subcommittee  
DRBC Flood Advisory Committee**

**March 31, 2008**

**Edward A. Thomas, Esq.**

**Baker**

# **Land Use Regulations Are Local Within A State and Federal Context**

**The Views Expressed Are Those of the Author  
and Do not Necessarily Reflect Approval Of  
Any Organization.**

- **This is Not Legal Advice – It is a Lecture on  
General Principles of Law. For Legal Advice  
see a Lawyer Licensed in Your Jurisdiction.**

# Today's Outline

- **NAI Background and Principles**
- **Publications, Web-Casts And Workshops**
- **Questions and Answers**

## **To Set the Stage For Our Brief Discussion on Land Use-Sustainability-Liability - Water Resources –And Marketing**

- **Lets Discuss Some Basics of Law**
- **In the Law-Especially Criminal Law Attorneys Often Seeks to Identify Someone Else to Take the Blame**
- **Often Called SODDI-Some Other Dude Did It**
- **On the TV show “The Practice” it Was Called “Plan B”**
- **The SODDI for Increased Flood Damages is Often...**

# Mother Nature



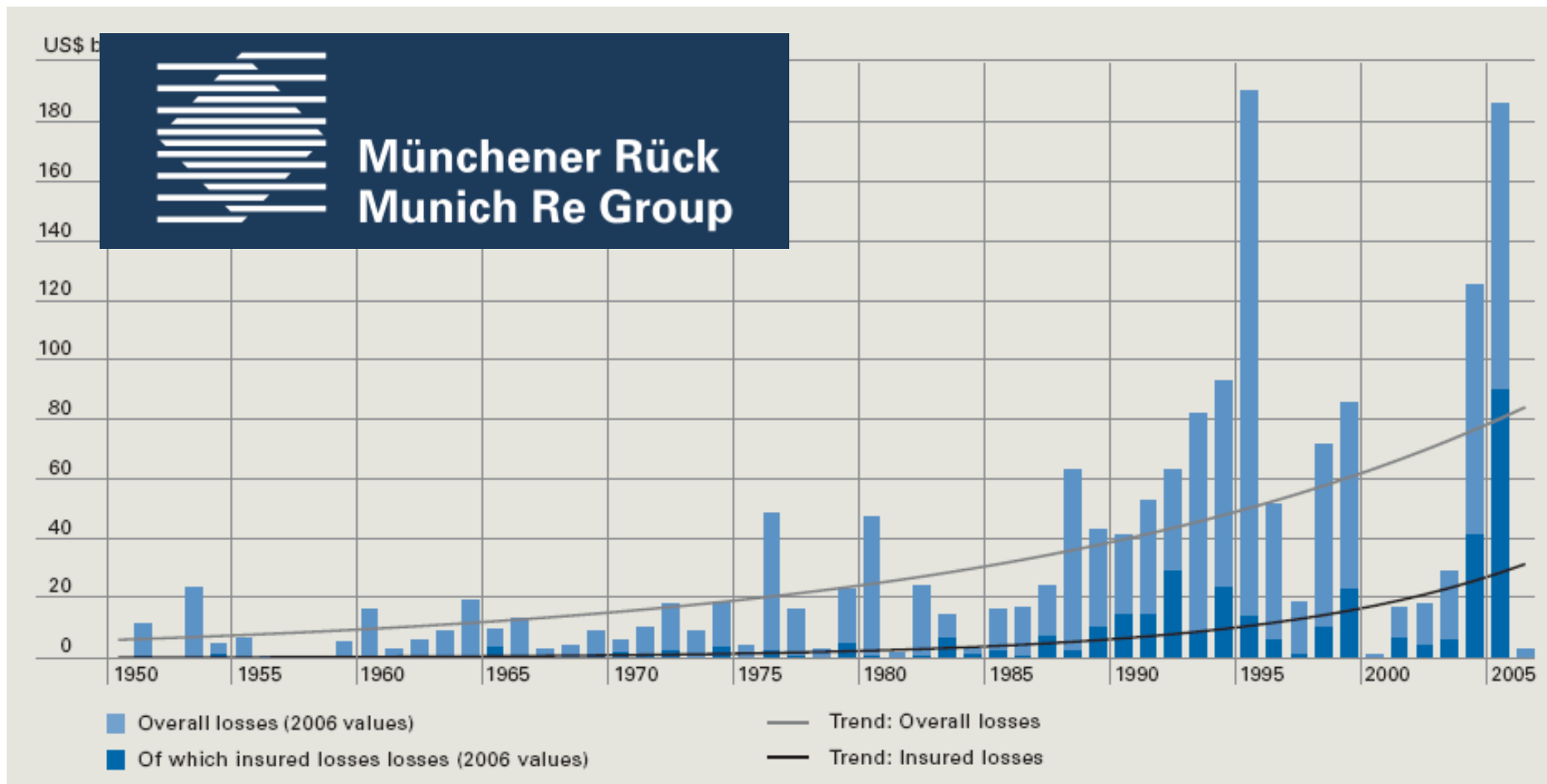
## Does Nature Cause Disasters?

- **Some Folks Say: Global Warming Sea Level Rise- Causes Harm: Mother Nature is at Fault**
- **Are Natural Disasters “Natural”?**
- **Dr. Gilbert White Stated The Facts:**
  - **“Floods are Acts of Nature; But Flood Losses Are Largely Acts of Man”**
- **Excellent Lecture by Dr. Roger Pielke Jr. at Natural Hazards Conference:**

**Cause of increased Flood Loss Is Changes in Density and Cost/Type of Buildings in Hazardous Areas**

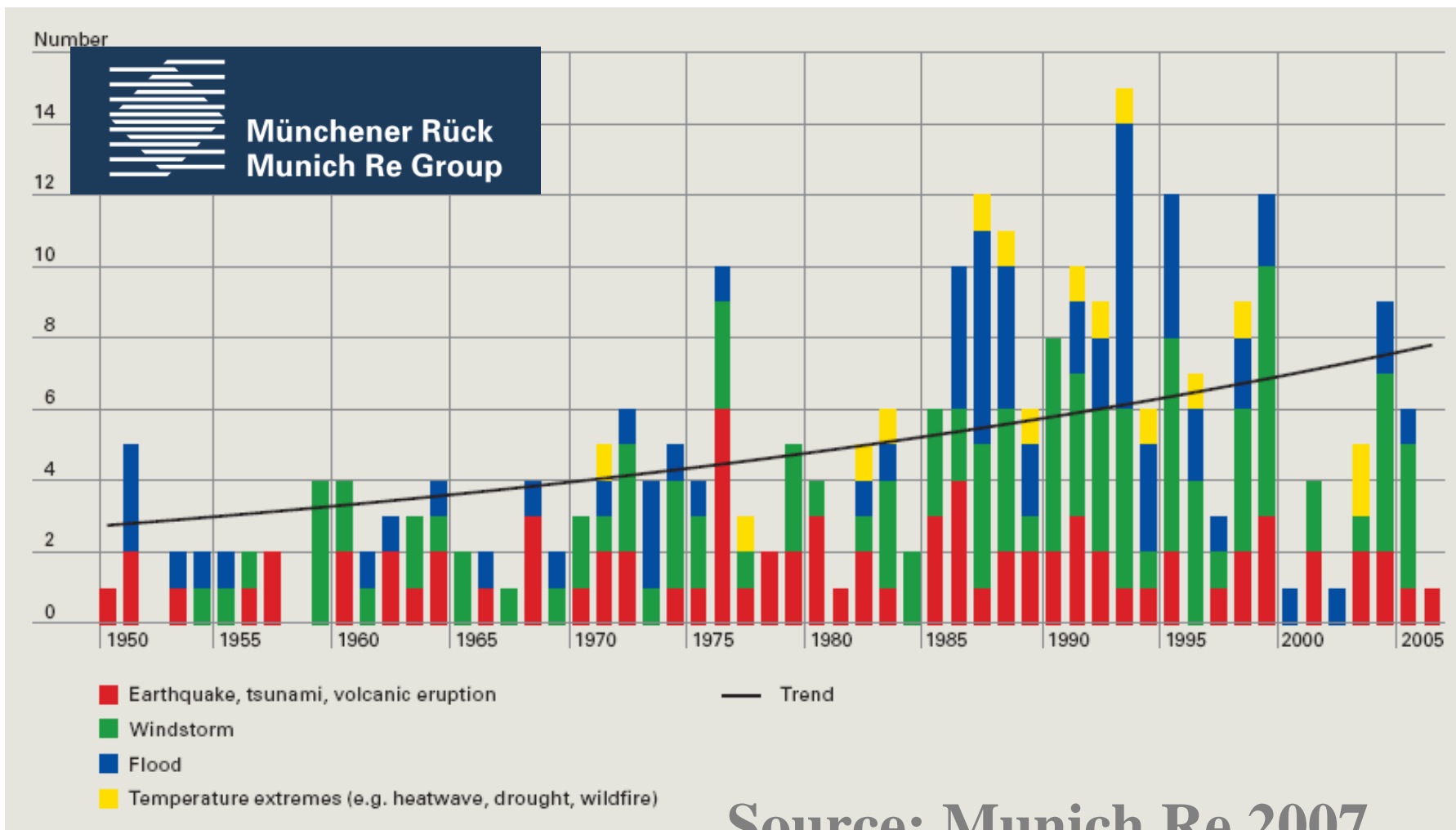
# Disaster Losses Have Been Increasing

Source: Munich Re 2007



Courtesy of Dr. Roger Pielke Jr <sup>7</sup>

# Flood and Wind Disasters Have Been Increasing Most

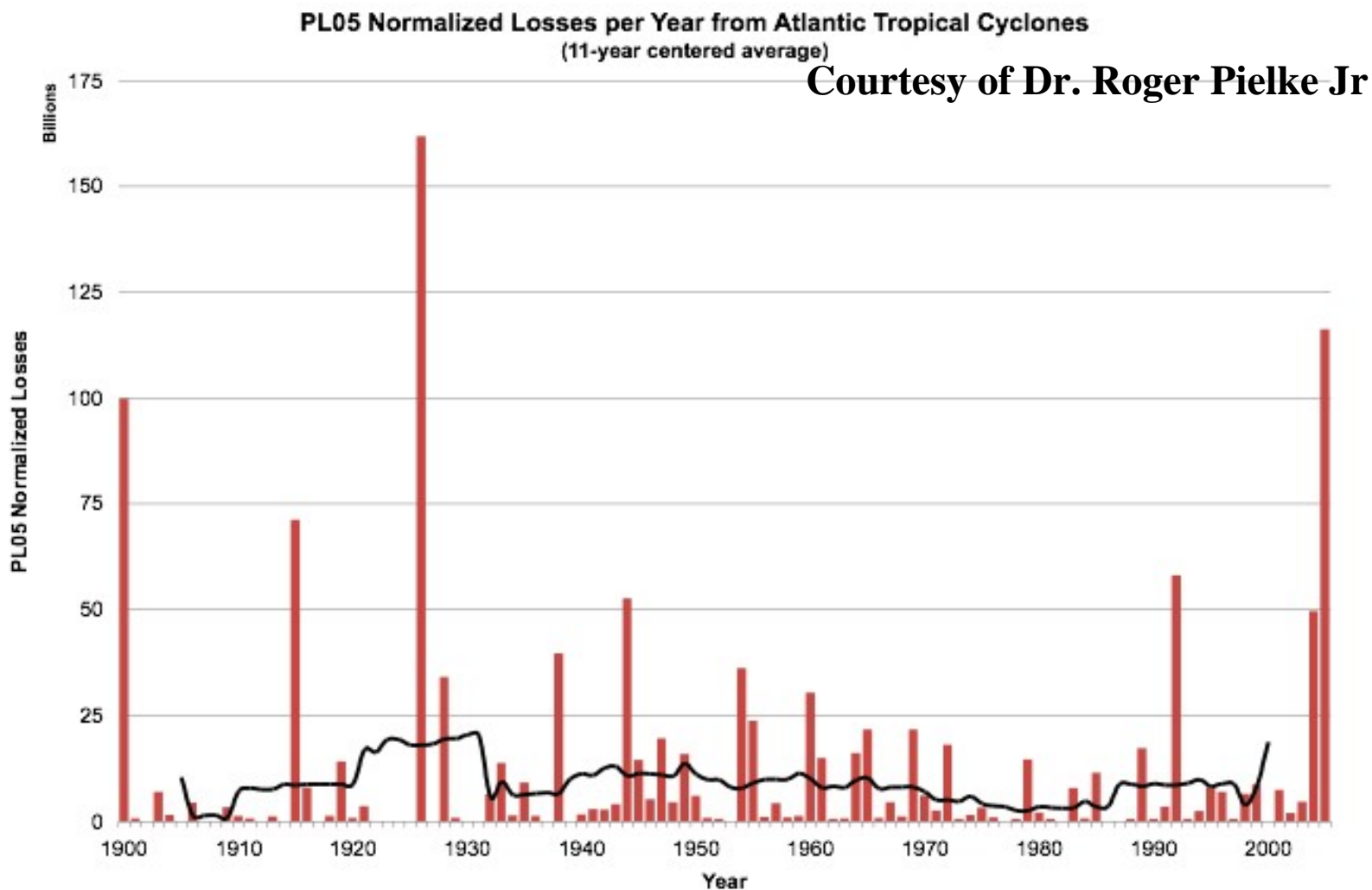


Source: Munich Re 2007

Courtesy of Dr. Roger Pielke Jr.



# US Damage If Every Hurricane Season Occurred in 2005



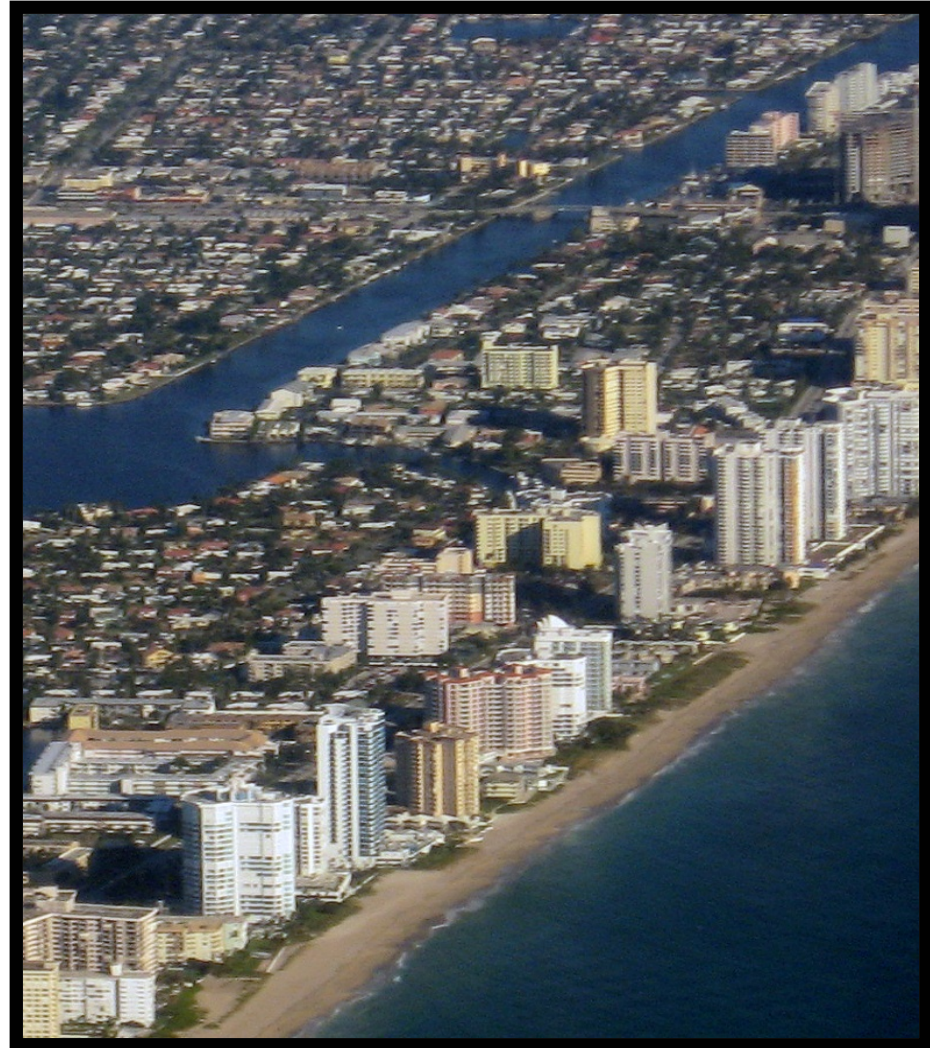
# USA: Coastal Development

Miami Beach 2006

Miami Beach 1926



Wendler Collection



Joel Gratz © 2006

## Can We All Agree?

- **Among of the Most Clear Lessons of The Horrific Aftermath of Hurricane Katrina:**
  - **We Need Housing for Employees to Have Businesses and Industry – to Have an Economy**
  - **There Is No Possibility of A Sustainable Economy Without Safe Housing and Safe Locations for Business and Industry to Occupy**

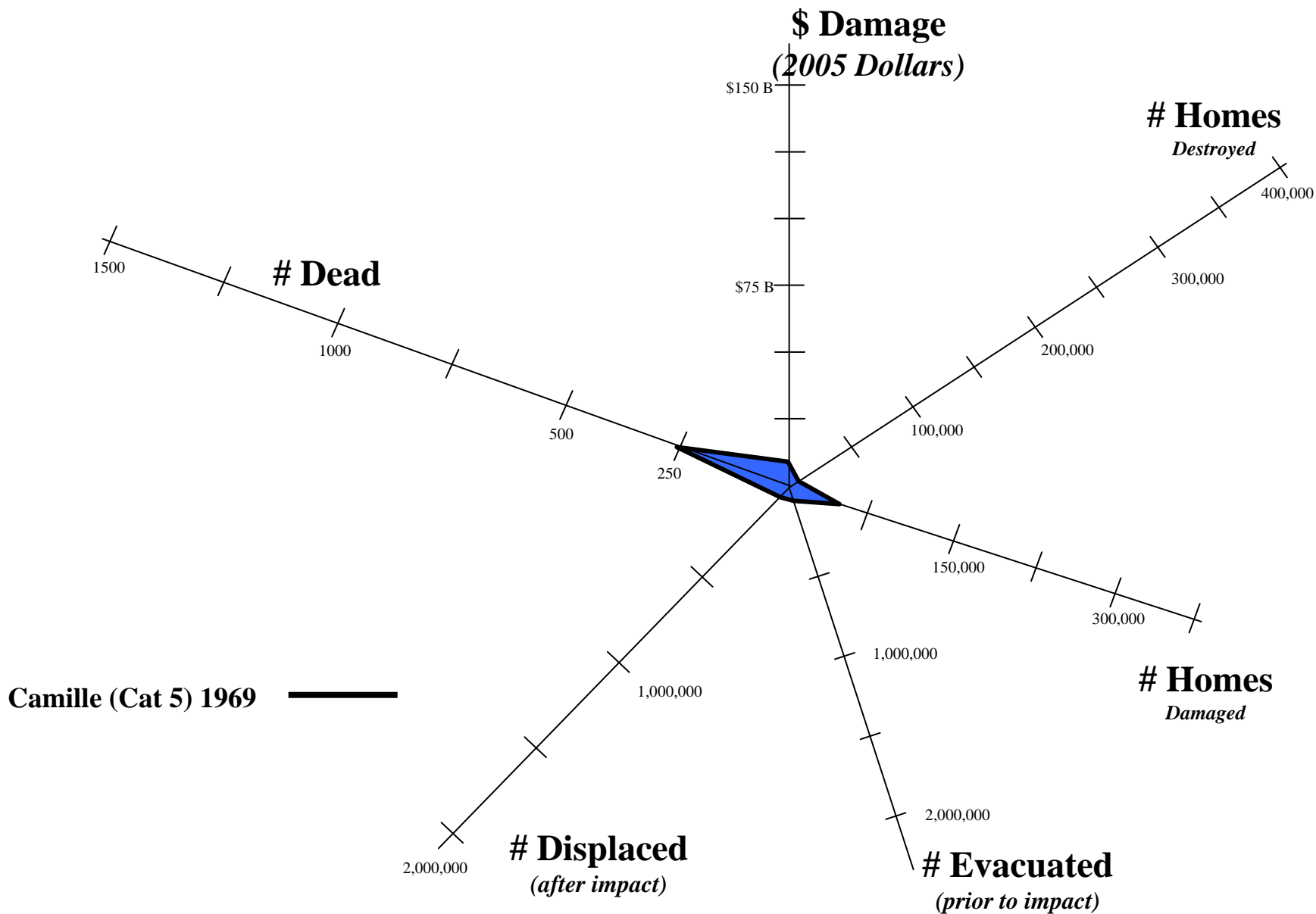
## **Must Sustainability Or “Smart-Growth” Have A Foundation in Hazard Mitigation?**

- **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**

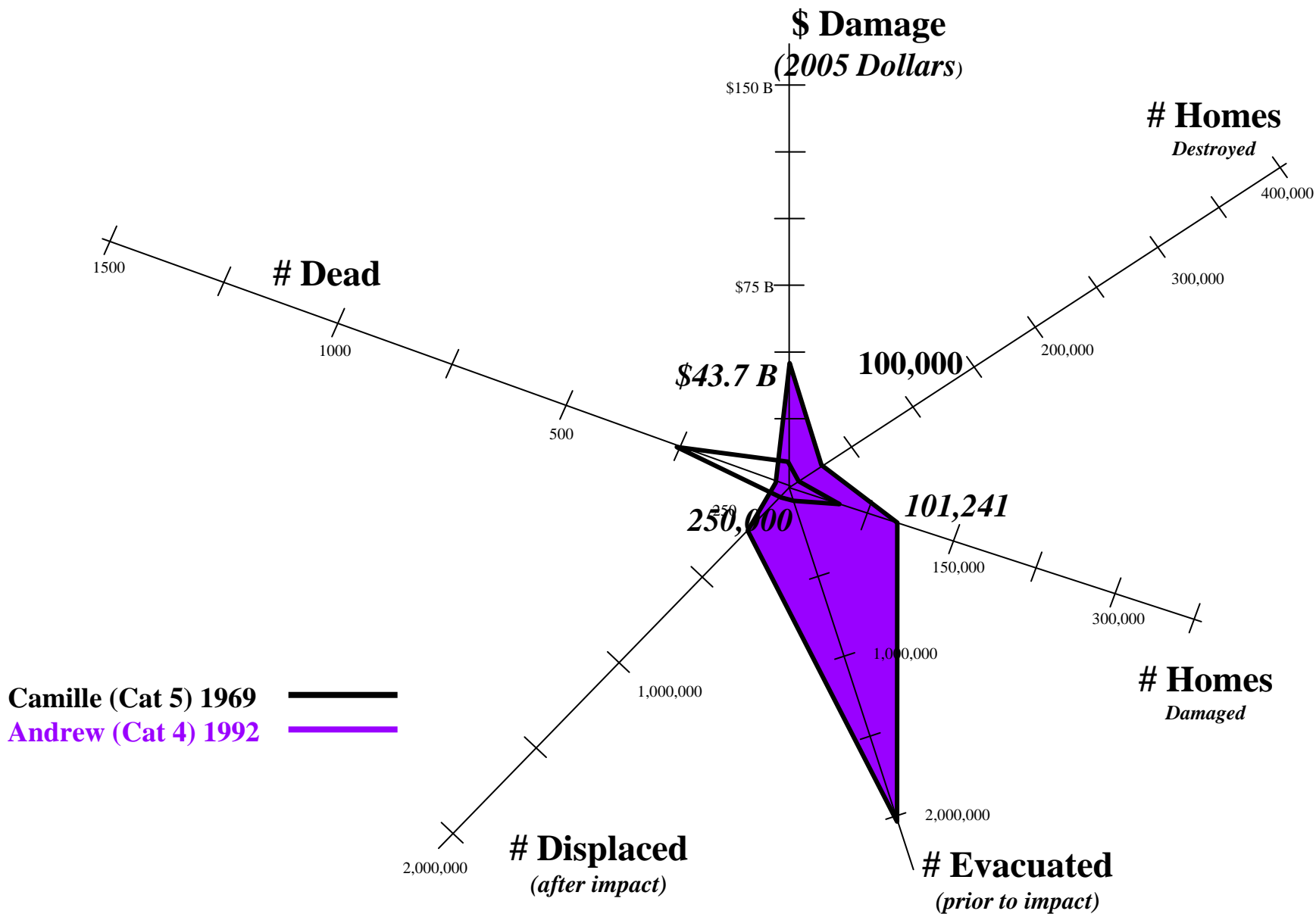
## **Massachusetts and Louisiana See The Need For Recognizing Hazards**

- **Louisiana Has Recognized That Hazard Identification and Mitigation Must Be The Foundation of Sustainability**
  
- **Massachusetts Has Developed The StormSmart Coasts Concept Which Is Rapidly Spreading to Other States**

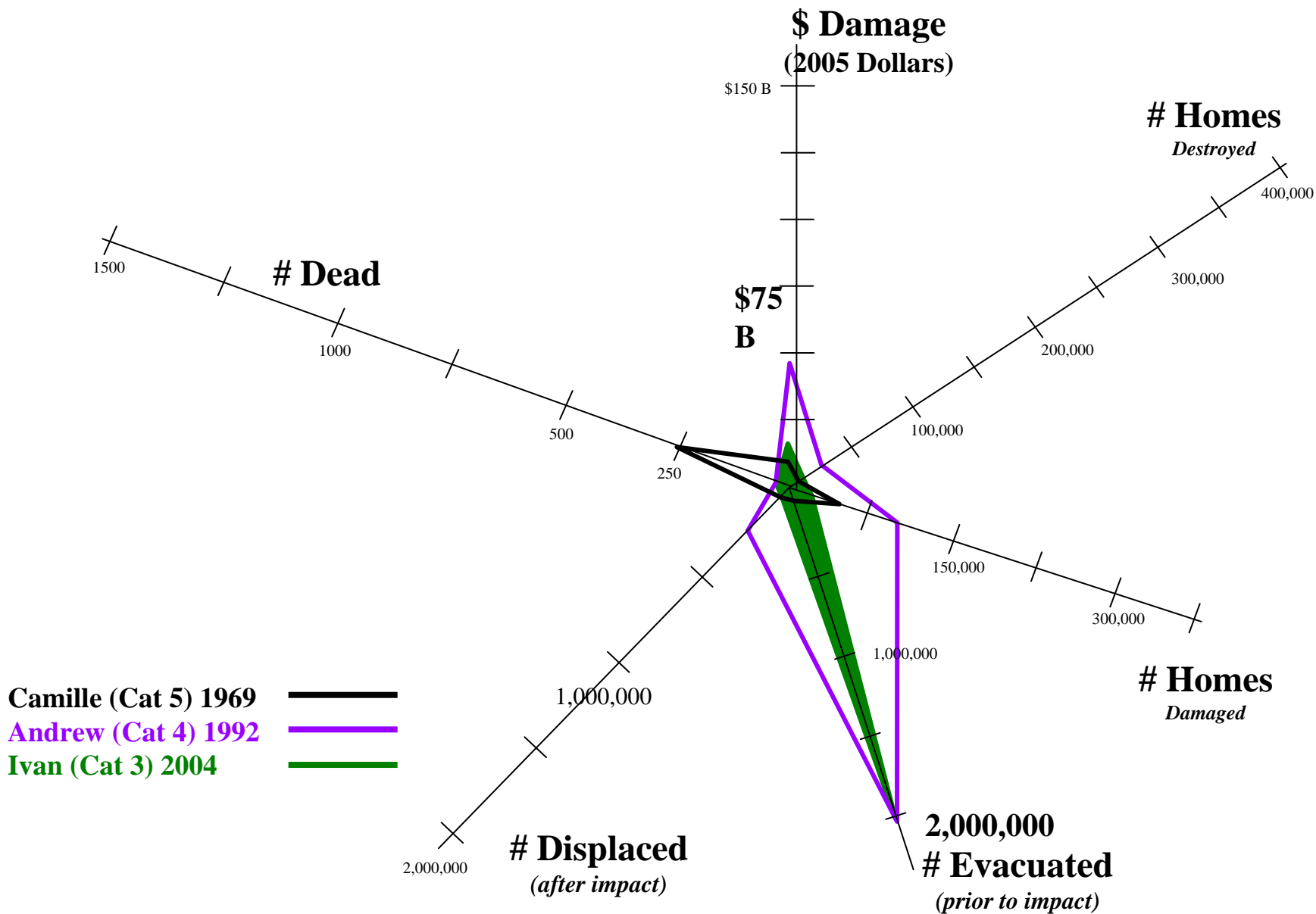
# Hurricane Camille



# Camille and Andrew

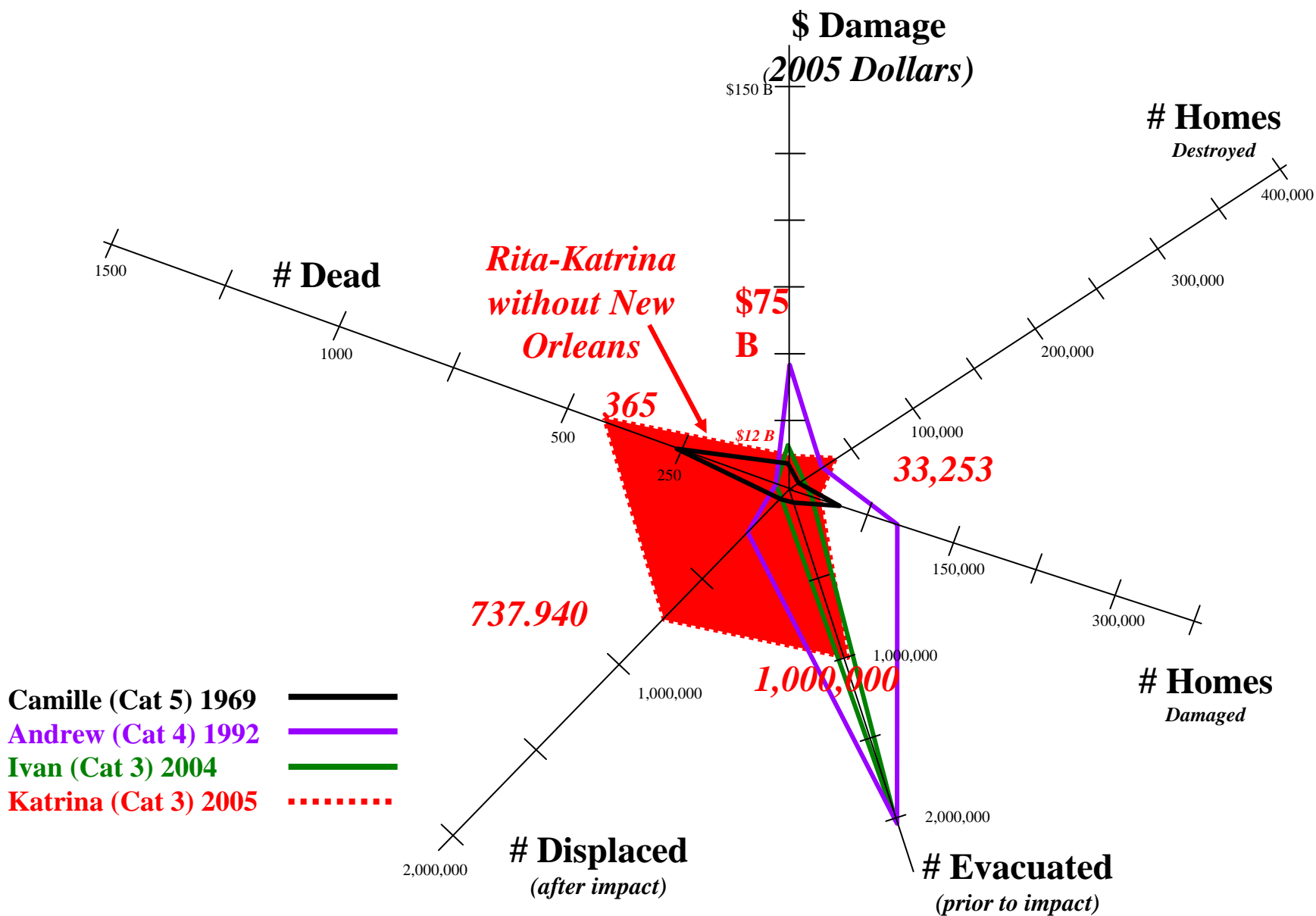


# Camille, Andrew and Ivan

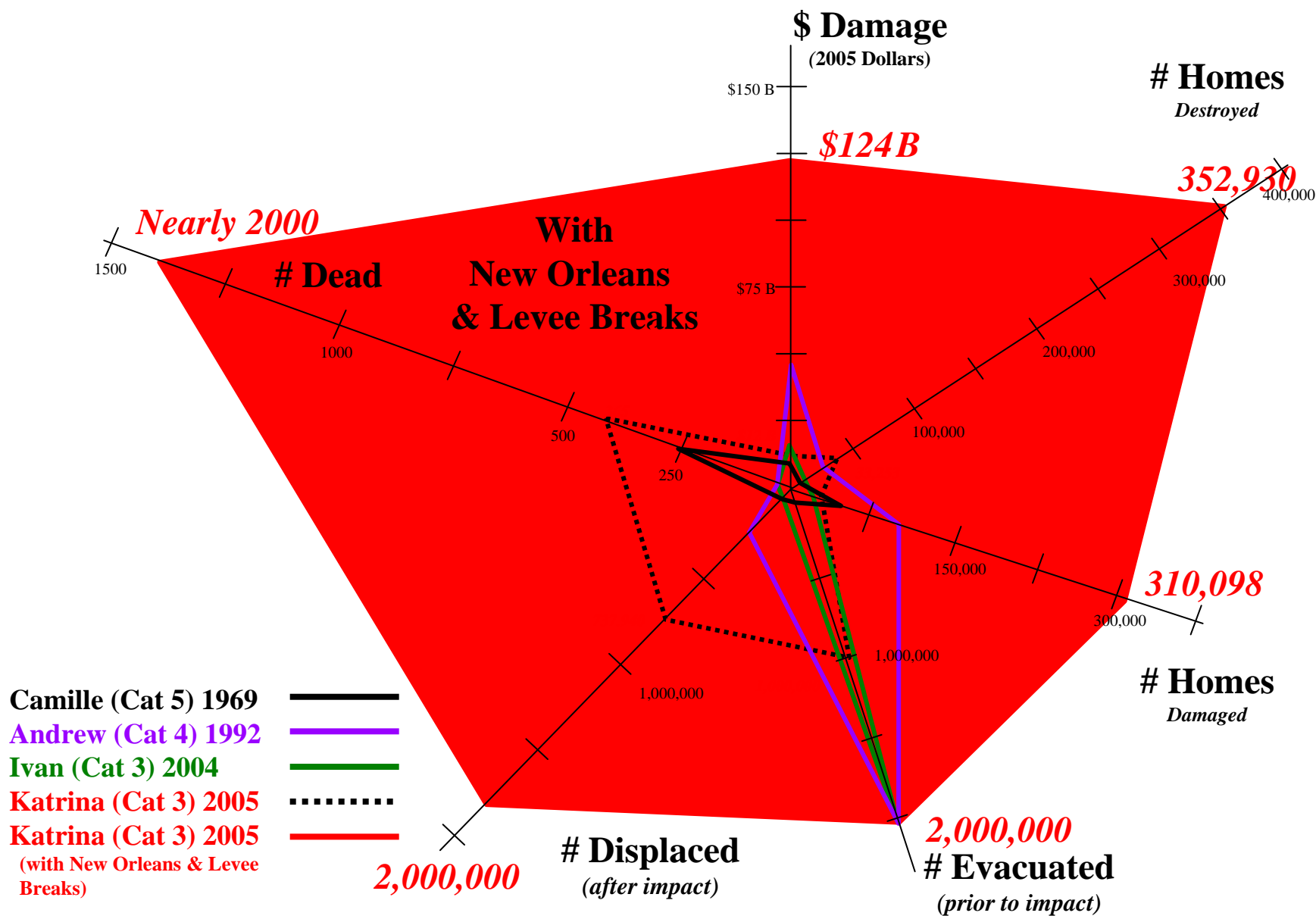


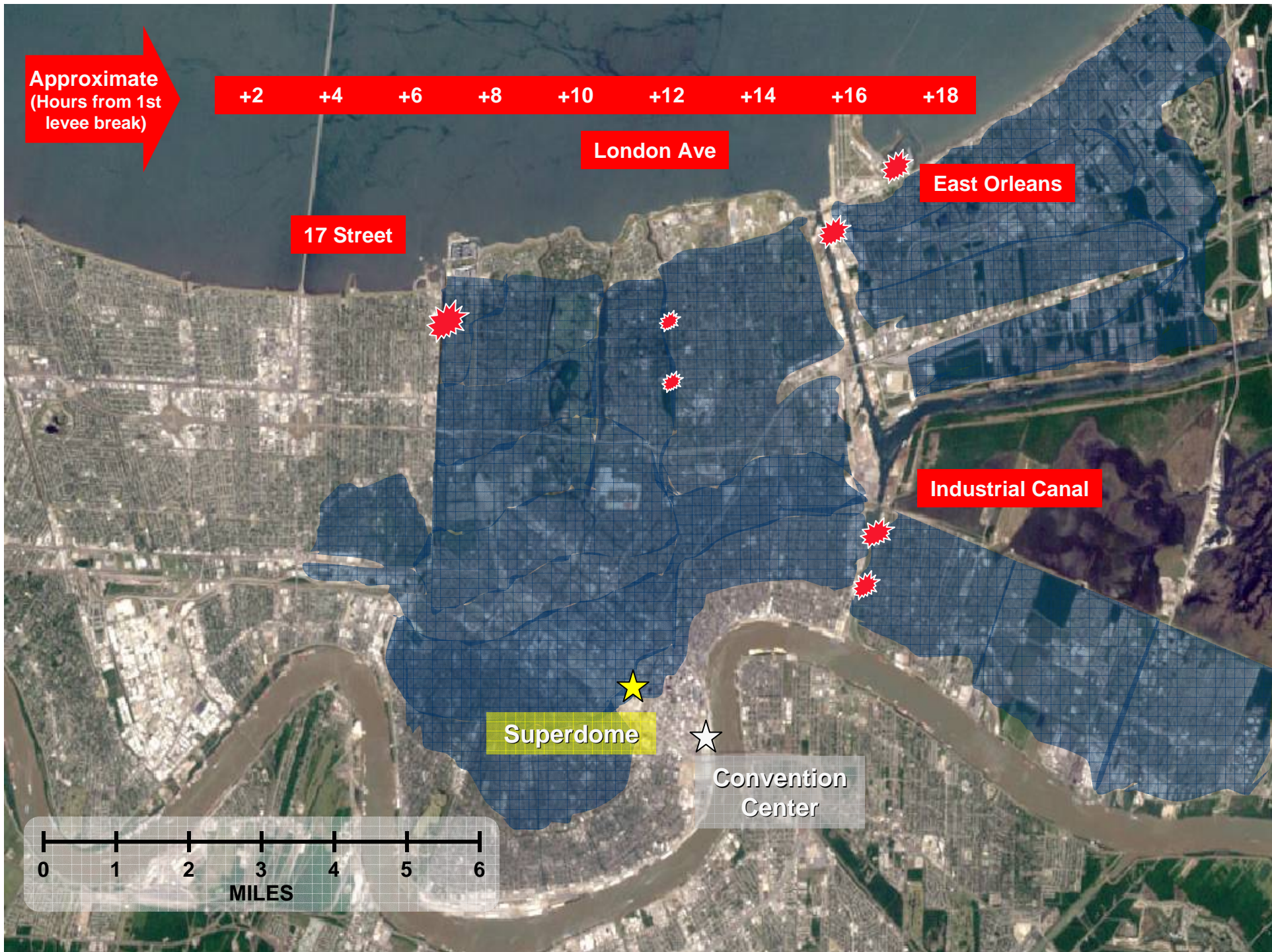


# Katrina & Rita w/o New Orleans



# Katrina & Rita w/o New Orleans



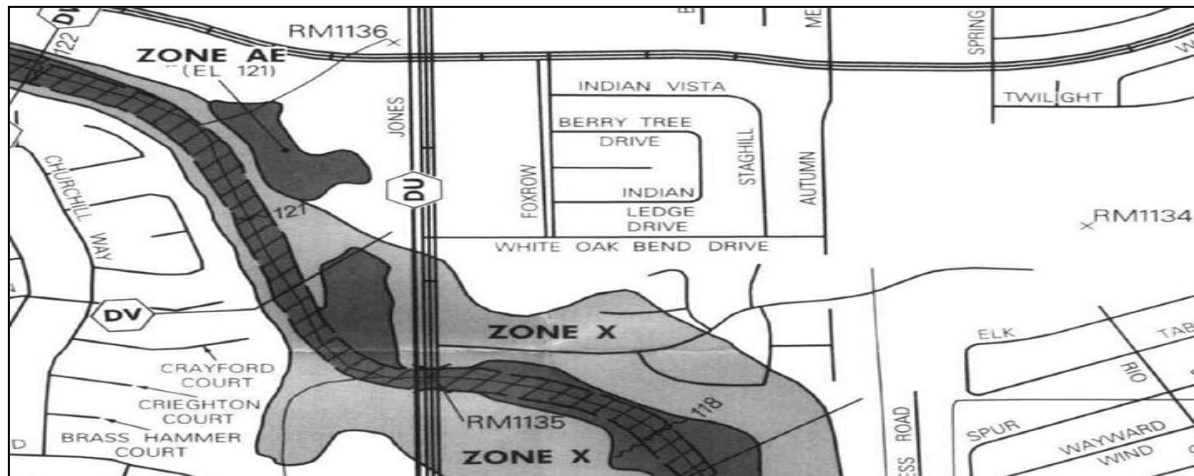


## Central Message

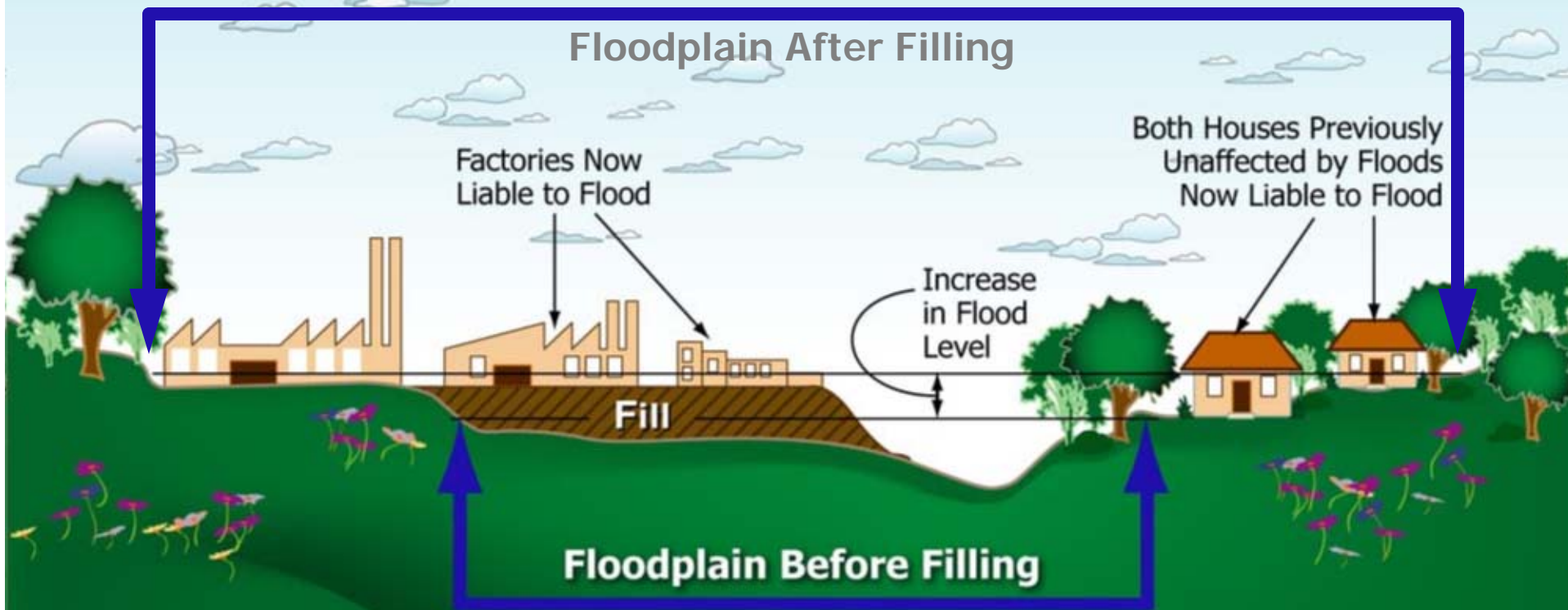
**Even If We Perfectly Implement  
Current Minimum Standards,  
Damages Will Increase.**

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

# Where is the Floodplain?



# Today's Floodplain Is Not Necessarily Tomorrow's Floodplain

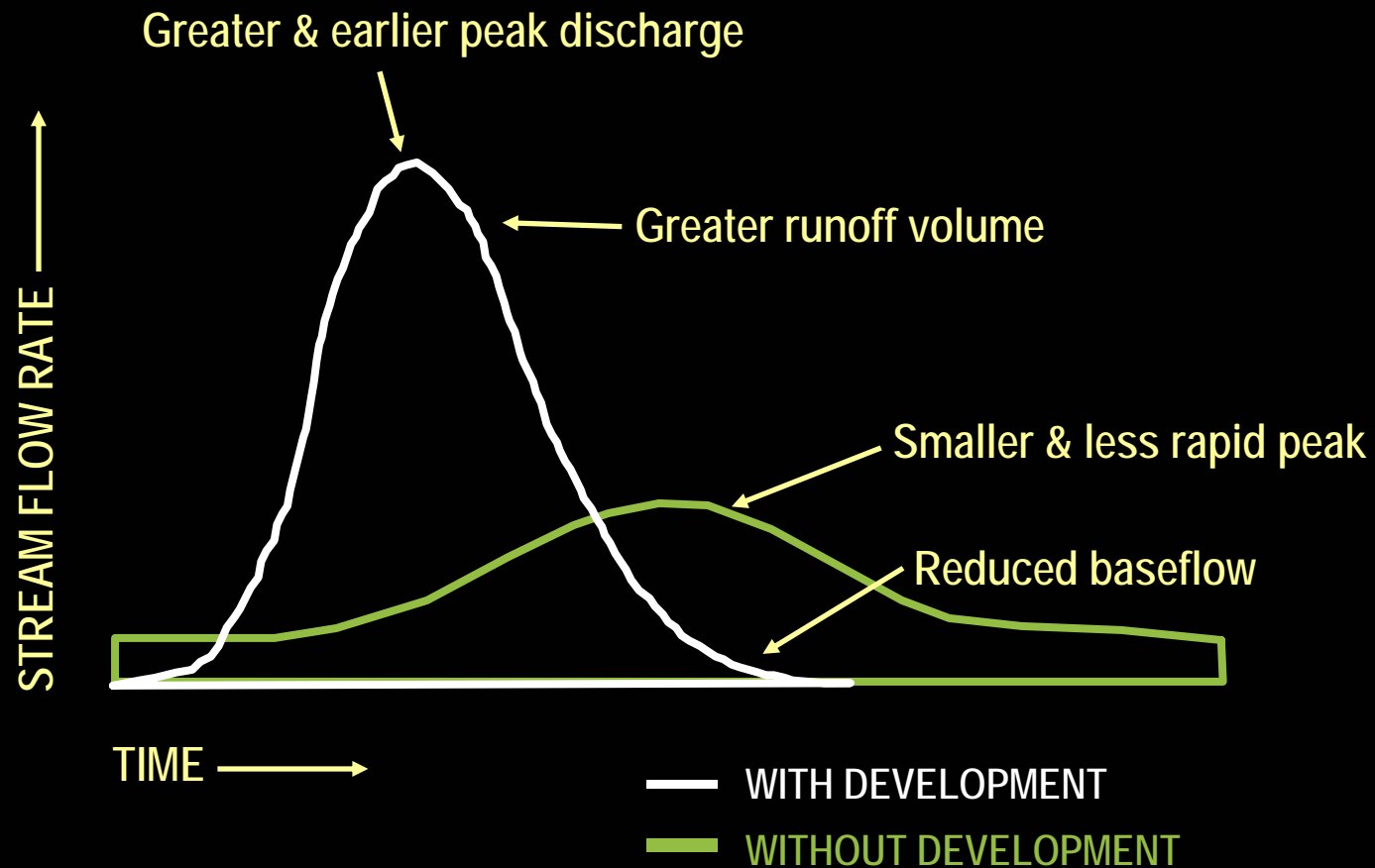


**If large areas of the floodplain are filled, then there will be an increase in the land area needed to store flood waters. This means your home or business may be impacted.**

# 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**

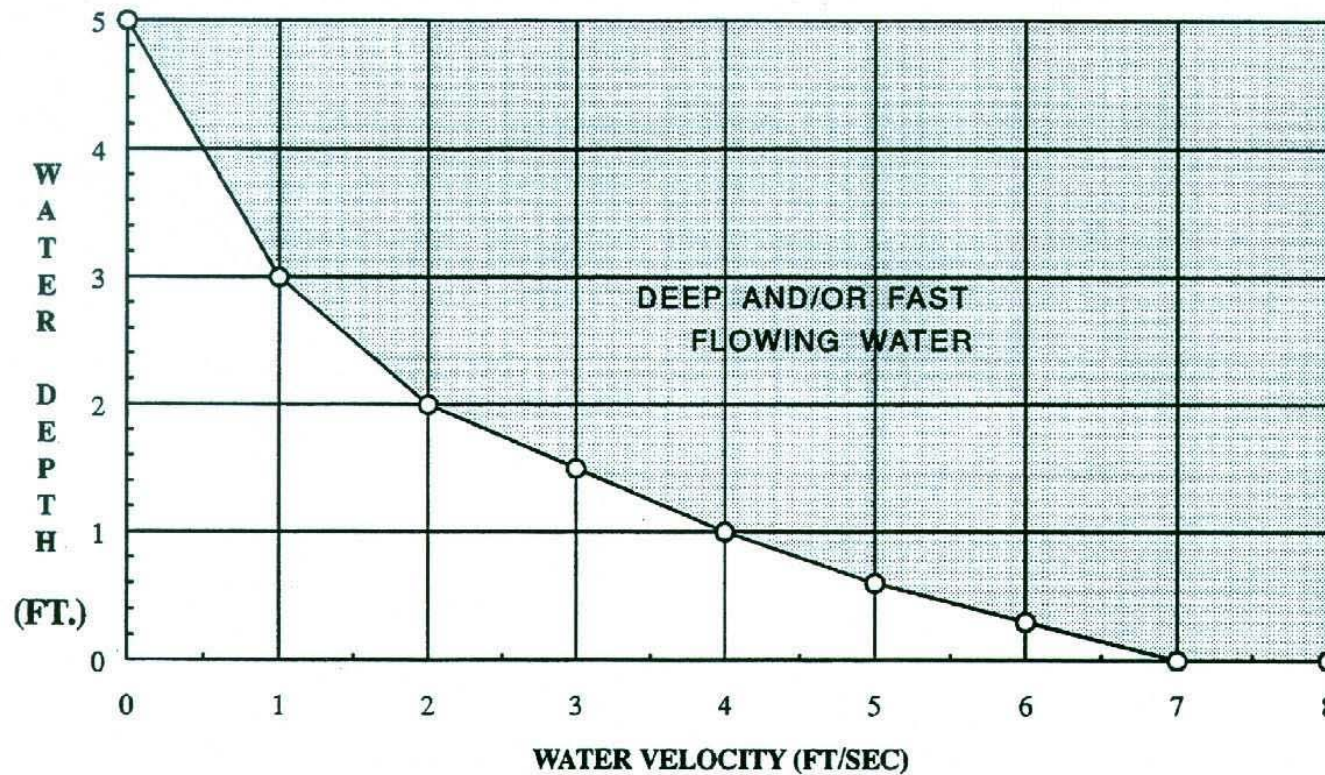
# Stormwater Impacts of Development on Streams





# Deeper and Higher Water Results?

## Serious Public Safety Issues



## 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.



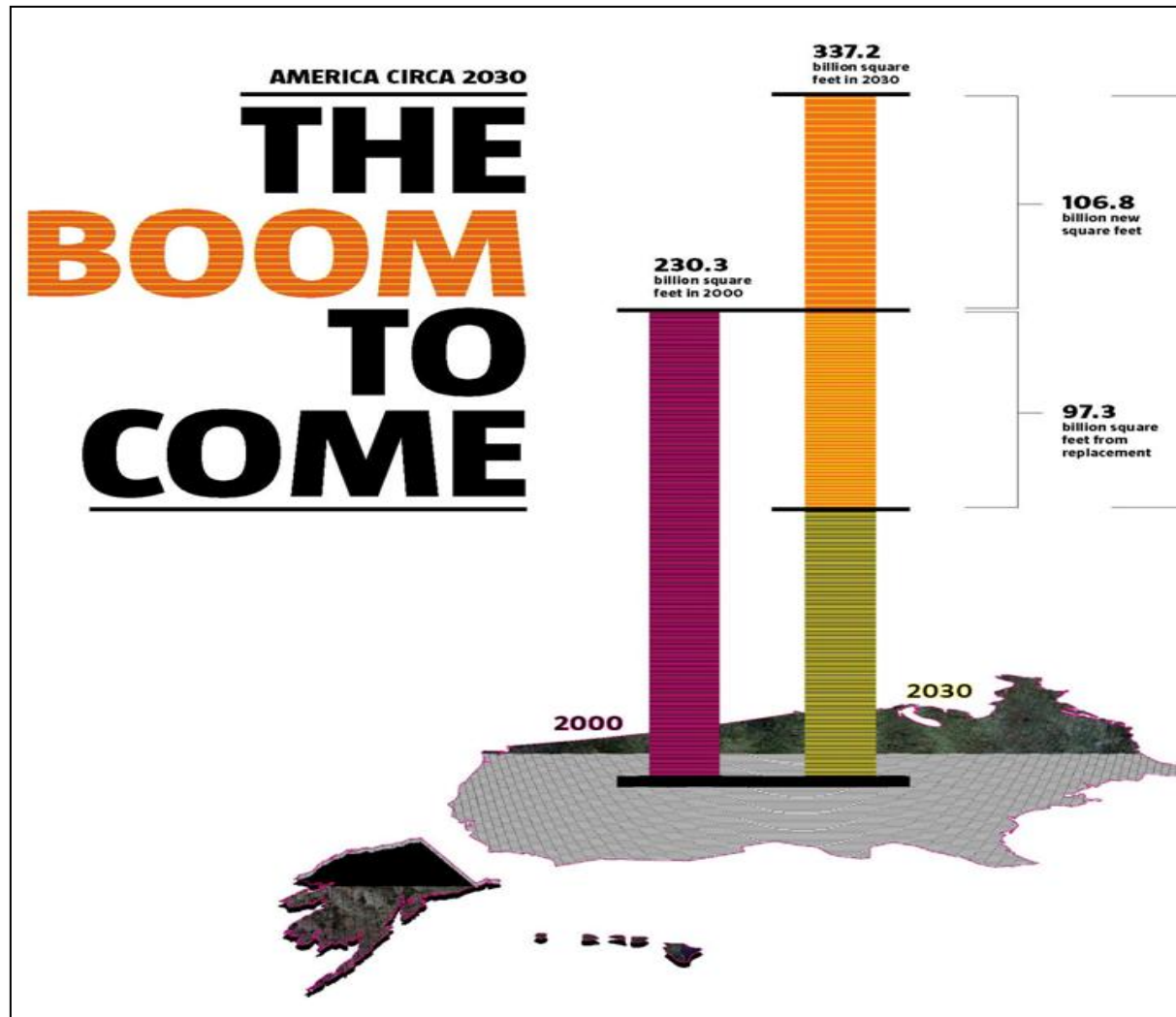
Watersheds provide water for drinking, irrigation, and streams. Many people also enjoy the lakes and streams for their beauty -- and for boating, fishing, and swimming. Healthy watersheds also provide food and shelter for wildlife.

## 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.

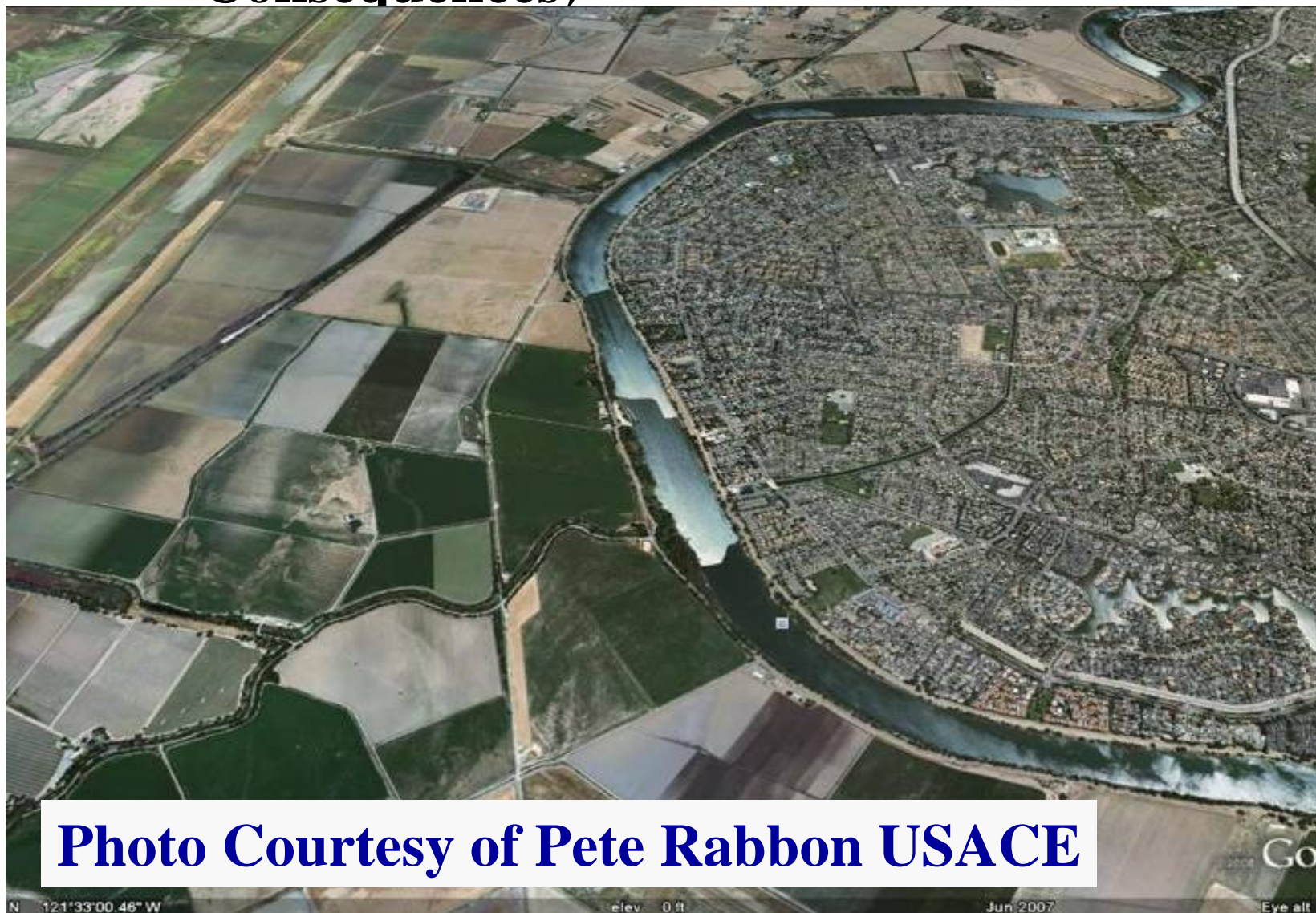
© American Planning Association, Chicago, IL.



As printed in [www.architectmagazine.com](http://www.architectmagazine.com)

- **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?**

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



**Photo Courtesy of Pete Rabbon USACE**

# A Solution

- **Go Beyond NFIP Minimum Standards**
  - **No Adverse Impact-Community Rating System Rewarded Type Watershed Management:**
    - **Development Decision-making**
    - **Planning**
    - **Emergency Preparedness**

# No Adverse Impact Floodplain Management

- What is No “Adverse Impact Floodplain Management”?
- ASFPM Defines it as “...an Approach that ensures the action of any property owner, public or private, **does not adversely impact the property and rights of others**”



# Why Go Beyond the Current Minimum Standards?

**Flood damages are rapidly increasing unnecessarily!**

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

## What Is The Result Of Following The No Adverse Impact Principle?

- **PROTECTION OF THE PROPERTY RIGHTS OF ALL**
- **Legally Speaking, Prevention of Harm is Treated Quite Differently Than Making the Community a Better Place.**
- **Prevention of Harm to the Public Is Accorded Enormous Deference by the Courts**

## **No Adverse Impact Floodplain Regulation**

- **Consistent with the Concept of Sustainable Development**
- **Provides a Pragmatic Standard for Regulation**
- **Complements Good Water Quality, Wetland and Stormwater Regulation**
- **Makes Sense on a Local and Regional Basis**
- **May be Rewarded by FEMA's Community Rating System, Especially Under the New CRS Manual**

# No Adverse Impact Floodplain Management

- **New Concept?**
- ***“Sic utere tuo ut alienum non laedas”***
- **Detailed Legal Paper by Jon Kusler and Ed Thomas available at: [www.floods.org](http://www.floods.org)**
- **More Information in ASFPM**
- ***A Toolkit on Common Sense Floodplain Management* at: [www.floods.org](http://www.floods.org)**



- **NO ADVERSE IMPACT AND THE COURTS: PROTECTING THE PROPERTY RIGHTS OF ALL**
- **Prepared for the Association of State Floodplain Managers**
- **By: Jon A. Kusler, Esq. and Edward A. Thomas, Esq.**
- **November 2007**



# Question For The Group

- **Anyone Ever Hear Of Mohandas K. Gandhi?  
He Was:**
  - A) One Of The Great Moralists of The Twentieth Century.**
  - B) A British Trained Attorney-At-Law.**
  - C) A Tremendous Influence On The Philosophy Which Guided Dr. Martin Luther King.**
  - D) All Of The Above.**

# According To Gandhi's Writings

- ***”Sic Utere Tuo Ut Alienum Non Laedas”*** That Is, In English: **Use Your Property So You Do Not Harm Others Is:**
- **“ A Grand Doctrine Of Life And The Basis Of (Loving Relationships) Between Neighbors”**
- **The Concept Of Using Property So It Does Not Harm Others Is Important To Discussion Of Dam And Levee Liability And Design.**
- **This Concept Will Also Help Us Understand How To Proceed In The Future, As We Shall See**

# The Impediments To Proper Floodplain and Watershed Resources Management I

- **Externality**



## The Problem of Externality

- **When One Group Pays Maintenance or Replacement of Something Yet Different Person or Group Uses That Same Something, We Often Have Problems**
- **Classic Example Is a Park Bench**
- **Disaster Assistance Is Another Classic Example of Externality**
- **Who Pays For Disaster Assistance?**
- **Who Benefits?**

## Who Pays For Disaster Assistance?

- **Costs of flooding are usually largely borne by:**
  - a) **The Federal and Sometimes the State Taxpayer Through IRS Casualty Losses, SBA Loans, Disaster CDBG Funds, and the Whole Panoply of Federal and Private Disaster Relief Described the Ed Thomas and Sarah Bowen Publication "Patchwork Quilt (Located at:**  
[http://www.floods.org/PDF/Post\\_Disaster\\_Reconstruction\\_Patchwork\\_Quilt\\_ET.pdf](http://www.floods.org/PDF/Post_Disaster_Reconstruction_Patchwork_Quilt_ET.pdf) )
  - b) **By Disaster Victims Themselves**

## Cui Bono? (Who Benefits?)

- **At Least the Short Term Benefits of Unwise or Improper Floodplain Development Flow to:**
  - a) **Developers (profit on sale and occupancy)**
  - b) **Local Governments (Real Estate and Sales Taxes-Jobs etc.)**
  - c) **State Government (Some Sales Tax-Jobs etc.)**
  - d) **Mortgage Companies (Profits On Loans etc.)**
  - e) **The Occupants of Floodplains Who May Benefit From a Lovely Place To Stay For a While, Anyway**

# Why Should Government Do Something About This?

- **Fundamental Duty**
- **Protect The Present**
- **Preserve A Community's Future**

# Why Else Should Government Do Something About This?

- In a Word:

**Liability**

# How Can You Best Avoid These Friendly Lawyer Folks?



# Floods and Litigation

- **When Someone Is Damaged by the Actions of Others Who Pays?**
- **This is a Fundamental Question of Law.**

# Three Ways to Support Reconstruction Following Disaster Damage

1. Self Help: Loans, Savings, Charity, Neighbors
2. Insurance Disaster Relief: A Combination of Social Insurance and Self Help
3. Litigation

**The preferred alternative is...**

**To have NO DAMAGE**

**Due to Land Use and Hazard Mitigation**



# **Proof of Causation of Harm Is Easier Now Than In Past Times**

- **Forensic Hydrologists**
- **Forensic Hydraulic Engineers**

## **Legal Issues: Professional Liability For Construction in Hazardous Areas**

- **Excellent Paper By Jon Kusler, PhD, Esq. Is Now Available**
  - [www.floods.org](http://www.floods.org)
  - [www.floods.org/PDF/ASFPM\\_Professional\\_Liability\\_Construction.pdf](http://www.floods.org/PDF/ASFPM_Professional_Liability_Construction.pdf)
  - **Prepared For The Association Of State Floodplain Managers Foundation**

## Flooded Homes May Cost City Millions City Held Liable – Damages Still To Be Determined



Photo: Lincoln Star Journal

## From California January 2008

- **Lawsuit seeks \$1 billion in Marin flood damage** The plaintiffs – 265 individuals and businesses – are each seeking \$4.25 million in damages
- **Lawyers representing the victims could collect more than \$66 million in fees**

# Lawsuit seeks \$1 billion for Marin flood damage

## Government agencies blamed for failing to prevent disaster

By Tad Whitaker  
*IJ reporter*

Victims of last winter's devastating flood in Marin are seeking more than \$1 billion in damages from a laundry list of government agencies that they say share blame for the destruction.

The plaintiffs — 265 individuals and businesses — are each seeking \$4 million in damages and another \$250,000 in legal fees, according to lawyer Herb Rowland, who is defending San Anselmo. Lawyers representing the victims could collect more than \$66 million in fees.

The scope of the lawsuit, first filed last fall, and the cost to fight it have rankled some officials who believe the flood — which began on Dec. 31, 2005 — was the result of unique circumstances. The storm damaged about 1,200

### LAWSUIT

The suit resulted from the Dec. 31, 2005, flood that damaged about 1,200 homes and 200 businesses in Marin.

### PLAINTIFFS

A total of 265 residents and businesses.

### DEFENDANTS

Those being sued include: San Anselmo, Mill Valley, Ross, Fairfax, Corte Madera, Larkspur, Marin County, the Marin Municipal Water District, the state of California, the Ross Valley Sanitary District, Tamalpais Union High School District and the Marin County Flood Control and Water Conservation District.

homes and 200 businesses.

Lawrence Mann, one of the attorneys representing the

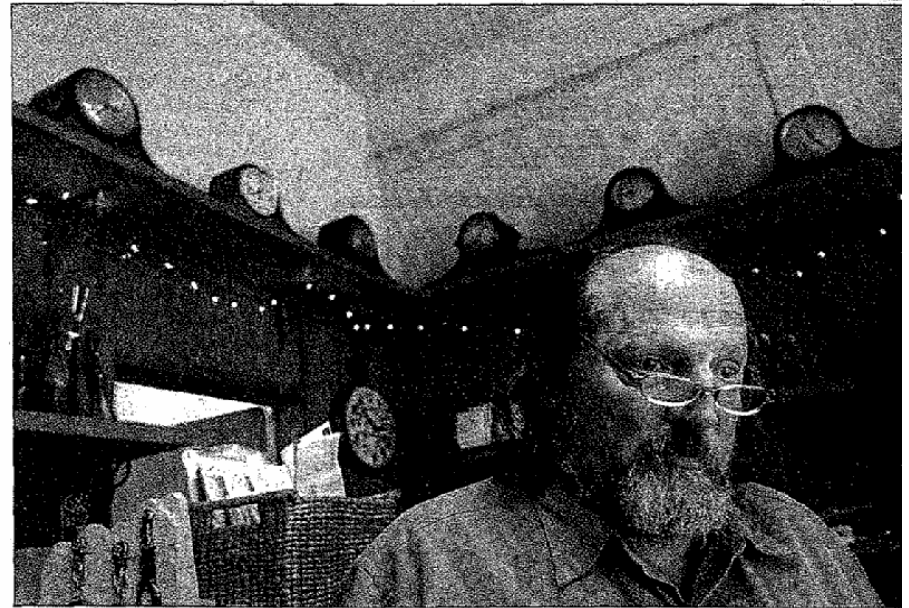
plaintiffs, said the goal is to win the maximum allowed by each entity's insurance policy so the settlement does not affect municipal budgets. Officials have estimated that total damage exceeded \$110 million, although Mann puts it above \$300 million. He said some of his clients have expressed interest in directing at least a portion of the proceeds toward flood solutions.

"Most people would like to see some of the money used to prevent flooding," he said.

Supervisor Hal Brown, whose district covers much of the flooded area, laughed when asked about people donating settlement money toward flood repairs.

"That to me isn't human nature," he said. "I think there are more positive directions to go in."

See Lawsuit, page A7



IJ photo/Alan

**SUES:** Drew McEachern of San Anselmo, owner of Antique Timepieces, is among those merchants joining a class-action lawsuit against numerous public agencies over the flood on Dec. 31, 2005. McEachern said "it's negligence" that agencies didn't do enough to prevent a recurrence of the 1982 flood that also damaged his property.

## **City Of Half Moon Bay, California**

### **November, 2007**

- **City Liable for Nearly \$37,000,000 Under the Federal and State Takings Clauses, as Well as the Common Law Doctrines of Nuisance and Trespass, for Constructing a Storm Water Drainage System Which Flooded Someone**

## Fernley, Nevada

- **“Class-action lawsuit updated in Fernley flood case”**
- **“The lawsuit names the Truckee-Carson Irrigation District, Lyon County, the city of Fernley, and companies that built and sold homes in the area flooded when a storm-swollen irrigation canal ruptured” Nevada Appeal, 1/26/08**

# California Law Changes

## 1986 Sacramento River Flood

- 1 levee rupture**
- + 50,000 people evacuated**
- + 9,000 families left homeless**
- + 29 counties declared**
- + \$532 million in damages**
- + almost 2 decades of litigation**



Photographer: Geoff Fricker

= Paterno, A landmark court decision in 2003

Damages \$464 Million



# Lawsuits Are Being Filed Following Hurricane Katrina

- **Defendants:**
  - A) Corps of Engineers;
  - B) Local Levee Boards;
  - C) Oil and Gas Companies;
  - D) State Government, Public Officials (As Individuals); Construction Companies, Architects, or Design Firms; and Maintenance Entities.
- **\$278 Billion In Claims For:**
  - A) loss of life;
  - B) injury;
  - C) insurable risks: commercial losses, property damage, business interruption, jobs lost, repair costs, disability claims; and
  - D) virtually every type action allowed by our legal system.

# Katrina Legal Situation

- Katrina Lawsuits
- 500,000 Plaintiffs
- \$278 Billion in Damages Requested
- **Approximately 1,000 Plaintiffs Attorneys Involved-Learning About Levees, Floods, and Liability**
- **A Copy of an Article on This Topic Appeared in the National Wetlands Newsletter and is available at:**  
[www.floods.org/PDF/ET\\_Katrina\\_Insurance\\_082907.pdf](http://www.floods.org/PDF/ET_Katrina_Insurance_082907.pdf)
- **For The First Time In Many Years, Lenders Will Lose Considerable Money on Mortgages in A Disaster Area**

## **Irony A 'Plenty In The Katrina Litigation**

- **The Folks Who Have Land Use Authority and Are Also Responsible For Many Of the Steps For Reducing Levee Residual Risk: Lawsuits Against Them Are Being Dismissed**
- **They Were Not Responsible For the Levees**
- **Just Responsible for Much of The Increase in Consequences**

- **John Fitzgerald Kennedy Offers Us Guidance on That Topic**
- **Most of You Know of JFK**

## **Legal Issues: Professional Liability For Construction in Hazardous Areas**

**Excellent Paper By Jon Kusler, PhD, Esq.  
Is Now Available**

- [www.floods.org](http://www.floods.org)
- [www.floods.org/PDF/ASFPM\\_Professional\\_Liability\\_Construction.pdf](http://www.floods.org/PDF/ASFPM_Professional_Liability_Construction.pdf)
- **Prepared For The Association Of State Floodplain  
Managers Foundation**

**Ed Thomas and Jon Kusler Did a Web-Cast on this Topic  
Last March**

**Next Web-Cast TBD**

# The Impediments To Proper Floodplain Management II

- **Concerns About A “Taking”**

# The Constitution of the United States

- **Fifth Amendment to the Constitution: “... *nor shall private property be taken for public use without just compensation.*”**
- **Was this Some Theoretical Thought, or Passing Fancy?**
- **Which Part of this Directly Mentions Regulation?**
- ***Pennsylvania Coal Company vs. Mahon 260 US 293 (1922). But See, Keystone Coal 480 US 470, 1987.***

## Taking Lawsuit Results

- **Regulations Clearly Based on Hazard Prevention and Fairly applied To All: Successfully Held to be a Taking – Almost None!**
- **Many, Many Cases where **Communities and Landowners Held Liable for Harming Others****



- **NO ADVERSE IMPACT AND THE COURTS: PROTECTING THE PROPERTY RIGHTS OF ALL**
- **Prepared for the Association of State Floodplain Managers**
- **By: Jon A. Kusler, Esq. and Edward A. Thomas, Esq.**
- **Special Edition Minnesota Association of Flood Plain Managers, November 2007**



## **Examples of Situations Where Governments May Be Held Liable**

- **Construction of a Road Blocks Drainage**
- **Stormwater System Increases Flows**
- **Structure Blocks Watercourse**
- **Bridge Without Adequate Opening**
- **Grading Land Increases Runoff**
- **Flood Control Structure Causes Damage**
- **Filling Wetland Causes Damage**
- **Issuing Permits for Development Which Causes Harm to a Third Party**

## **New Trend In The Law**

- **Increasingly States Are Allowing Lawsuits Against Communities for Alleged Goofs in Permitting Construction OR in Conducting Inspections**
- **Excellent Paper By Attorney Jon Kusler PhD For The Association of State Floodplain Managers Foundation Available On Line at [www.floods.org](http://www.floods.org)**

## Recent Legal Research by Ed Thomas

- **Many Cases Where Communities Try to Prevent Building in a Hazardous Area**
- **Refuse the Requested Permit Based on Nebulous Environmental or Aesthetic Concerns**
- **And They Lose**
- **If they Clearly Related Permit Refusal to Harm Prevention-Very Likely a Different Result**

# An Illustration of the Trend in the Law Towards Recovery by Injured Parties

- **Background: For Over Thirty Years Lenders and the Companies Who Read FEMA Flood Insurance Maps Have Escaped Liability When They Read A Map Incorrectly; the Plaintiff Does Not Purchase Flood Insurance and Then Gets Flooded**
- ***Then: Paul v. Landsafe Flood Determination, Inc.*, No. 07-60652 (5th Cir. Dec. 5, 2008)**
- **Plaintiff Allowed To Sue to Recover From Flood Determination Allegedly in Error**
- **The Court Noted that a Flood Zone Determination Was the Kind of Professional Opinion for Which it is Foreseeable that Justifiable and Detrimental Reliance by a Reasonable Person Would Be Induced.**
- **Would a Court Think that a Levee Certification Is a Similar Professional Opinion?**

# No Adverse Impact Hazard Regulation Is A Winning Concept

- **So How Do We Proceed?**
- **Planning**
- **Partnerships**
- **Planning**
- **Multi-Use Mapping and Engineering**
- **Planning**
- **Fair Regulation to Prevent Harm**

## Can Government Adopt Higher Standards Than FEMA Minimums?

- FEMA Regulations Encourage Adoption of Higher Standards-”... **any floodplain** management regulations adopted by a State or a community which are **more restrictive** than (the FEMA Regulations) **are encouraged** and shall take precedence.” 44CFR section 60.1(d). (emphasis added)

## **Governmental Rights and Duties to Manage Development**

- **Does Government Have a Right to Regulate to Prevent Harm?**
  
- **Does Government Have an Affirmative Duty to Regulate to Prevent Harm?**



# Could One Argue That Higher-Coordinated Watershed Wide Water Resources Planning is **NEEDED** for our Nation?

- **Consider:**

- A) **Uncertainties in Flood Elevations**

- B) **Plasencia-Larson Paper On Flood Height Increases Due To Future Watershed Development**

- C) **Consequences If Levee Is Overtopped**

- D) **Height of Freeboard**

- E) **50% Chance That 1% Flood Will be Exceeded Within 70 Years – Bulletin 17 B**

**Legal Benefits of Harm Prevention as a Foundation of an Ordinance**

- **No Adverse Impact Water Resources Management Is:**
  - A) Legal**
  - B) Equitable**
  - C) Practical**
  - D) Defensible in Court**

# Hazard Based Regulation And The Constitution

- Hazard Based Regulation Generally Sustained Against Constitutional Challenges
- Goal of Protecting the Public Accorded **ENORMOUS DEFERENCE** by the Courts

- **1. Total Water Resources**



# NAI Total Water Resources Management

## ASFPM 2008 Annual Conference

Doug Plasencia, Ed Thomas, Robert Murdock, Fernando Pasquel, Baker

Panel Discussion: David Mallory, Denver UDFCD

Burton Johnson, Harris County FCD

Sam Riley Medlock, ASFPM

Karl Christians, Montana DNRC

May 22, 2008

**Baker**

## Implementing NAI in the Real World

- **Comprehensive Watershed Future Conditions Water Resources Mapping Looking At Water Supply-Water Quality-Stormwater Management And Flooding.**
- **Interim Measure**
  - **Require A Demonstration That All Development Does Not Change The Hydrograph For The 1-10-50-100-500 Year BOTH Flood And Storm**
- **Baker Has Developed A Workshop To Explain This Concept Using Baker Staff and Clients and Potential Clients As Instructors**

# LID Balances Development and Watershed Protection

- **What is LID?**
  - An approach to site or subdivision design that mitigates the impacts of development on stormwater flows and water quality (specific design storm)



Traditional Streetscape



LID streetscape

# Total Water Resources Management-Linkages

- **Land Use-Water Quality-Stormwater-Floodplain Management**
- **Transportation**
- **Municipal Liability**
- **Protection of Groundwater**
- **Savings on Road Salt**



## Recent Publications on Comprehensive Water Resources Management

- *A Perfect Storm of Opportunities to Establish and Fund a Program to Reduce Misery and Protect Water Resources; April 2008.*
- Article for the Louisiana Sea Grant Law and Policy Program. This article encourages a comprehensive view of water as a resource.
- [http://www.lsu.edu/sglegal/pdfs/lcl\\_89.pdf](http://www.lsu.edu/sglegal/pdfs/lcl_89.pdf)

- **2. Failed Dams and Levees**



# Legal Problems When Levees Do not Protect: A Challenge To The Engineering Profession

On Behalf Of:

**The Society of American Military Engineers**

**Rock Island Post**

**Quad City Botanical Center**

**December 18, 2008**

Edward A. Thomas, Esq.

**Baker**

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# Paper On This Topic From ASFPM

## LIABILITY FOR WATER CONTROL STRUCTURE FAILURE DUE TO FLOODING



**Special Edition for the Floodplain Managers Annual Meeting  
September 7, 2006**

**Edward A. Thomas, Esq.**

**Michael Baker, Inc.**

**[www.floods.org](http://www.floods.org)**

# MICHAEL BAKER CORPORATION



**On Behalf Of:**

**The American Council of Engineering Companies**

**Web-Cast**

# Failed Dams and Levees: Examining Engineering Liability

Edward A. Thomas Esq.

# Liability For Failed Dams and Levees-Linkages

- **State and Municipal Liability**
- **Professional Liability**
- **FEMA Efforts**
- **USACE Efforts**
- **SAME Interest**
- **ASCE Interest**
- **ACEC Interest**
- **Emergency Planning and Preparedness**
- **Evacuation Planning**
- **COOP and COG**
- **Continuity of Business Operations**

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# Publications and Workshops

- **3. Legal Aspects of Floodplain and Stormwater Management**



# Legal Issues in Our Floodplain

The Association of State Floodplain Managers Annual  
Conference

Reno, Nevada

May 18–23, 2008

Wes Shaw, Massachusetts CZM

David Mallory PE, Urban Denver Flood Control District

Edward A. Thomas, Esq.

**Baker**



- **NO ADVERSE IMPACT AND THE COURTS: PROTECTING THE PROPERTY RIGHTS OF ALL**
- **Prepared for the Association of State Floodplain Managers**
- **By: Jon A. Kusler, Esq. and Edward A. Thomas, Esq.**
- **Special Edition Minnesota Association of Flood Plain Managers, November 2007**



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# Recent Publications on Floodplain Management

- 1.) Law Review Article for the Vermont Journal of Environmental Law, on property rights and floodplain management:

*Mitigating Misery: Land Use and the Protection of Property Rights Before the Next Big Flood. Winter 2007-2008*

<http://sba.vermontlaw.edu/ccfg/files/VJEL/Thomas&Medlock.pdf>

- 2.) Monograph for the Denver University School of Law, Rocky Mountain Land Use Institute, on legal aspects of floodplain & stormwater management as they relate to sustainability:  
*Protecting the Property Rights of All: No Adverse Impact Floodplain and Stormwater Management 2008*

<http://law.du.edu/images/uploads/rmlui/rmlui-sustainable-floodplainMgmt.pdf>

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# **Legal Aspects of Floodplain and Stormwater Management-Linkages**

- **State and Municipal Liability**
- **APA**
- **Land Use Planning**
- **Professional Liability**
- **Emergency Planning and Preparedness**
- **Evacuation Planning**

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# **No Adverse Impact Hazard Regulation Is A Winning Concept**

- **So How Do We Proceed?**
- **Planning**
- **Partnerships**
- **Planning**
- **Multi-Use Mapping and Engineering**
- **Planning**
- **Fair Regulation to Prevent Harm**

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# **Publications, Web-Casts and Workshops**

- **4. Outreach and Risk Communication**



## **ACEC Web-Cast**

# *Liability of Communities and States for Regulating Construction in Flood Hazard Areas*

**March 4, 2008**

**Dr. Jon Kusler Esq.  
Edward A. Thomas Esq.**

**Baker**



MICHAEL BAKER CORPORATION

## Special FEMA Sponsored Outreach Meetings January 2008

### Liability For Failed Levees

Edward A. Thomas Esq.

**Bake**Baker

# Harm Prevention And The Law

- **Is NAI a Silver Bullet?**
- **Use of NAI Will Significantly Reduce the Probability of a Loss in Court!**
- **Even Better Odds if there is A Good, Fair Variance Procedure + Flexibility in the Regulation + Community Applies the Principle to their Own Activities.**



## Prevention

- **We Throw Money At Problems After They Occur**
- **You Can Pay A Little Now Or Lots Later**
- **The Legal System Is Ready To Help You Pay Later**

## Take Away Message

- **Responsible For Community Development?**
  - **Many Areas Can Flood**
  - **Uninsured Victims Will Likely Sue-If They Can Find Someone to Blame**
  - **Fair Harm Prevention Regulation Helps Everyone**

# Message For All Involved In Community Development

- **The Fundamental Rules of Development Articulated, By Federal Law, Envision Housing and Development Which Is:**
  - **Decent**
  - **Safe**
  - **Sanitary**
  - **Affordable**

# Flooded Development Fails That Vision!

- **Housing And Development Which Flood Are:**
  - **Indecent**
  - **Unsafe**
  - **Unsanitary**
  - **Unaffordable- by the Flood Victims, By Their Community, By The State, and By Our Nation!**

# Outreach and Risk Communication -Linkages

- **State and Municipal Liability**
- **Emergency Planning**
- **Evacuation Planning**
- **Professional Liability**
- **APA**
- **ASCE**
- **ACEC**
- **FEMA**
- **USACE**

- **5. Liability**

## Dr. Kusler's Paper

- **A Comparative Look at Public Liability for Hazard Mitigation, author: Jon Kusler, JD, PhD, ASFPM Foundation, 2009.**

- **Available at:**

**[http://www.floods.org/PDF/Mitigation/ASFPM  
\\_Comparative\\_look\\_at\\_pub\\_liability\\_for\\_flood\\_haz\\_mitigation\\_09.pdf](http://www.floods.org/PDF/Mitigation/ASFPM_Comparative_look_at_pub_liability_for_flood_haz_mitigation_09.pdf)**



## **ACEC Web-Cast**

# *Liability of Communities and States for Regulating Construction in Flood Hazard Areas*

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Edward A. Thomas Esq.**

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- **6. Creating and Funding a Hazard Mitigation Program**



Post Disaster Reconstruction:  
*The Patchwork Quilt— A Creative Strategy for  
Safe Post-Disaster Rebuilding*

National Floodproofing Conference IV  
New Orleans, Louisiana  
November 20, 2008

Deborah Mills, CFM; Edward A. Thomas Esq.; Sarah Bowen CFM;  
Jennifer K. Dunn, CFM; Wes Shaw; Chad Berginnis, CFM;  
Judy Soutiere, CFM; Sean Le Blanc

**Baker**

# **This Publication Is Now on The Association of State Floodplain Managers Web Site**

## **POST-DISASTER RECONSTRUCTION THE PATCHWORK QUILT: *A CREATIVE STRATEGY FOR SAFE & LONG TERM POST-DISASTER REBUILDING***

**Edward A. Thomas Esq. and  
Sarah K. Bowen CFM**

**Special Edition of November 20, 2008 for the National  
Floodproofing Conference IV**

**New Orleans, Louisiana**

# Creating and Funding a Hazard Mitigation Program-Linkages

- **Emergency Planning**
- **APA**
- **FEMA**
- **USACE**
- **Evacuation Planning**
- **Hazard Mitigation**

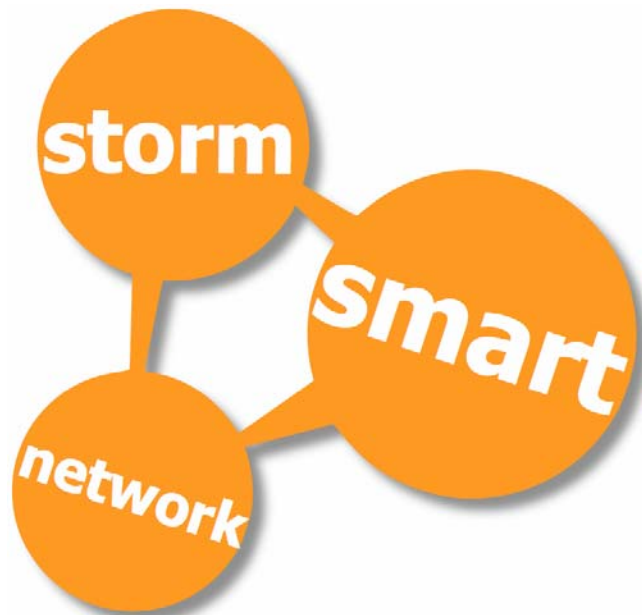
## 7. StormSmart Coasts Materials

- **The NOAA StormSmart Coasts Materials Could Be Beneficial For coastal and inland Communities**



**NOAA Coastal Services Center**  
LINKING PEOPLE, INFORMATION, AND TECHNOLOGY

# the StormSmart Coasts Network



# the StormSmart Coasts Network:

A collaborative effort to help local officials with:



storms



sea level rise & climate change



flooding



FEMA



Sea Grant



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the audience:  
**LOCAL OFFICIALS**



Is the message

**interesting?**

Is the message

**relevant?**

Is the message

**actionable?**



AMERICAN INSTITUTES FOR RESEARCH®

## Evaluation of the National Flood Insurance Program's Building Standards

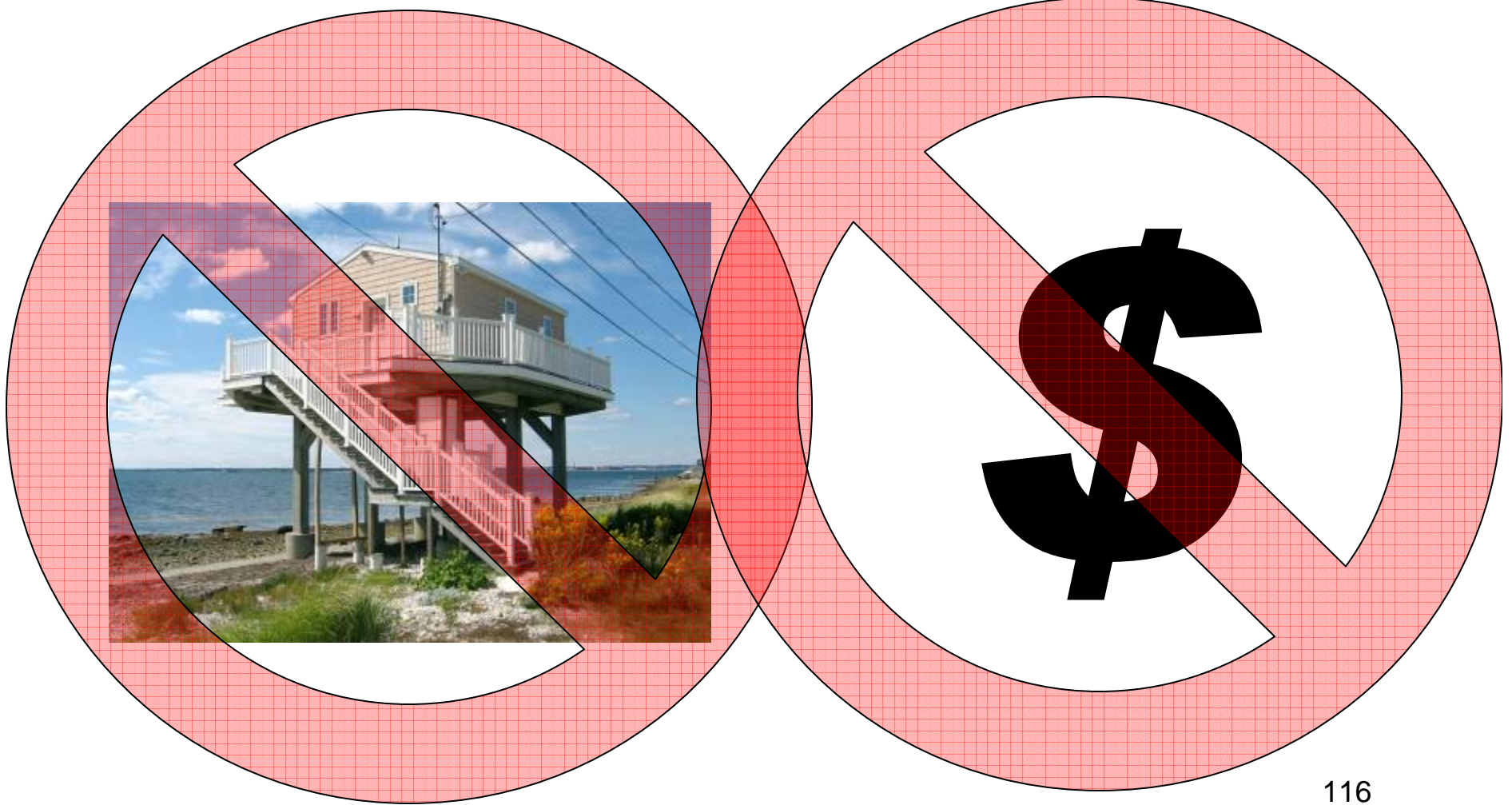
Christopher P. Jones, William L. Coulbourne,  
Jamie Marshall, and Spencer M. Rogers, Jr.

Christopher Jones and Associates

October 2006

Prepared under subcontract to the American Institutes for Research  
as part of the 2001-2006 Evaluation of the National Flood Insurance Program

# freeboard?



Interesting?

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Relevant?

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Actionable?

Book Pages Attachments Comments

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Interesting?



Relevant?



Actionable?



## RAISE YOUR HOME, LOWER YOUR MONTHLY PAYMENTS

Protect buildings and reduce monthly expenses with freeboard



Elevating a home a few feet above legally mandated heights has very little effect on the overall look of a home, yet it can lead to substantial reductions in flood insurance rates, significantly decrease the chances a home will be damaged by storms and flooding, and help protect against sea level rise.

### What is Freeboard?

Freeboard is elevating a building's lowest floor above predicted flood elevations by a small additional height (generally 1-3 feet above National Flood Insurance Program [NFIP] minimum height requirements). Elevating a home a few feet above legally mandated heights has very little effect on the overall look of a home, yet it can lead to substantial reductions in flood insurance, significantly decrease the chances a home will be damaged by storms and flooding, and help protect against sea level rise.

### What Are the Benefits of Freeboard?

**Increased protection from floods and storms.** Storm waters can and do rise higher than shown on Flood Insurance Rate Maps (FIRMs). Freeboard helps protect buildings from storms larger than those that FIRMs are based on, and provides an added margin of safety to address the flood modeling and mapping uncertainties associated with FIRMs.

**Better preparation for ongoing sea level rise.** Massachusetts has experienced a relative sea level rise of approximately 1 foot over the past 100 years. Since elevations

on FIRMs do not include sea level rise, freeboard will help keep structures above floodwaters as storm surge elevations increase.

**Greatly reduced flood insurance premiums.** Recognizing that freeboard reduces flood risk, the Federal Emergency Management Agency (FEMA, which administers the NFIP) provides substantial (sometimes more than 50 percent) reductions in flood insurance premiums for structures incorporating freeboard. These savings can rapidly accumulate, especially over the life of a normal mortgage.

### What Are the Costs of Freeboard?

The expense of incorporating freeboard into new structures is surprisingly low, generally adding only about 0.25 to 1.5 percent to the total construction costs for each foot of added height, according to a 2006 FEMA-commissioned study (*Evaluation of the National Flood Insurance Program's Building Standards*). The minor resulting increase in monthly mortgage payments is generally more than offset by savings on NFIP premiums. Consequently, adding freeboard typically saves homeowners money.

### Example of savings on NFIP premiums\* with freeboard

	V Zone		A Zone <sup>1</sup>	
	Annual savings in NFIP premiums	Savings over 30-year mortgage	Annual savings in NFIP premiums	Savings over 30-year mortgage
1' freeboard	\$1,360 (25%)	\$40,800	\$502 (41%)	\$15,060
2' freeboard	\$2,730 (50%)	\$81,900	\$678 (55%)	\$20,340
3' freeboard	\$3,415 (62%)	\$102,450	\$743 (60%)	\$22,290

\*NFIP premiums based on May 2007 rates for a one-floor residential structure with no basement built after a FIRM was issued for the community (post-FIRM rates differ from pre-FIRM rates). \$500 deductible/ \$250,000 coverage for the building/\$100,000 for contents.

Consider, for example, a proposed one-story building in the V zone<sup>1</sup> that will cost \$250,000 to build at minimum legal standards (the NFIP requires that all homes in the floodplain be elevated to at least the base flood elevation [BFE], mapped on FIRMs). According to the study cited above, adding each foot of freeboard to a home on piles or piers adds about 0.4 percent to total construction costs (about \$1,000 a foot in this example). If the owner takes out a mortgage at 6.5 percent APR for the total construction costs, he or she will have lower monthly payments (mortgage plus NFIP premiums) with 3 feet of freeboard, even though the construction costs are higher.

Home at minimum legal height	
Monthly mortgage payments	\$1,580.17
Monthly flood insurance	+ \$ 458.25
Total monthly cost	= \$2,038.42

Home with 3' of freeboard	
Monthly mortgage payments	\$1,599.13 (-\$18.96)
Monthly flood insurance	+ \$ 173.67 (-\$284.58)
Total monthly cost	= \$1,772.80 (-\$265.62)

In this example, adding 3 feet of freeboard saves the homeowner \$265.62 per month, or \$95,623.67 over a 30-year mortgage. Benefits in A zones<sup>2</sup> are generally less dramatic, but still substantial. To determine NFIP premiums for a specific property, see a licensed insurance agent.

### Who Can Benefit from Freeboard?

Nearly everyone building in floodplains can better protect themselves and their property and save on flood insurance by including freeboard into their construction and reconstruction projects. Additional benefits include:

- **Homeowners** - Whether or not you live in the house year-round, having it elevated increases the chances that it will weather storms safely, decreasing your worry and protecting your investment. If you're building a new home, or doing a renovation, ask your builder/designer about incorporating freeboard.
- **Builders/contractors** - Freeboard provides a competitive edge over other builders, allowing you to market the benefits of reduced flood insurance and flood risk to potential buyers. When doing retrofits (especially those requiring bringing structures up to current NFIP standards), explain the benefits of freeboard to your clients.

- **Municipalities** - Encourage the use of freeboard in appropriate private and public construction throughout your community's floodplain. (NOTE: the Massachusetts Attorney General's office has recently rejected bylaws requiring freeboard, but municipalities may promote its use).
- **Businesses** - Freeboard helps: protect your buildings, important records, and inventory from flooding; drastically decrease your recovery/clean-up time after storm; and potentially save your business. The Institute for Business and Home Safety reports that more than 25 percent of businesses that close due to storm damage never reopen.

### For More Information . . .

- For technical information on the costs of incorporating different flood-resistant building techniques (including freeboard), see the American Institutes for Research's *Evaluation of the National Flood Insurance Program's Building Standards 2006* study at [www.fema.gov/library/viewRecord.do?id=2592](http://www.fema.gov/library/viewRecord.do?id=2592).
- For general information on the National Flood Insurance Program, see [www.FloodSmart.gov](http://www.FloodSmart.gov).
- For specific questions on flood insurance rates, see a licensed insurance agent.
- Communities looking for more information on the National Flood Insurance Program can contact Richard Zingarelli, Massachusetts NFIP Coordinator: (617) 626-1406, [Richard.Zingarelli@state.ma.us](mailto:Richard.Zingarelli@state.ma.us).
- For general information on how Massachusetts communities can protect themselves from storms, see the StormSmart Coasts website at [mass.gov/czm/stormsmart](http://mass.gov/czm/stormsmart).
- Businesses looking to prepare for storms and other catastrophic events should visit the Institute for Business and Home Safety's website at [www.ibhs.org](http://www.ibhs.org).

<sup>1</sup> V zones: This Flood Insurance Rate Map (FIRM) designation refers to coastal areas that are subject to the highest levels of wave energy and flooding.  
<sup>2</sup> A zones: Also a FIRM designation, coastal A zones are subject to flooding but with less wave energy than V zones (i.e., wave heights less than 3 feet).

Commonwealth of Massachusetts  
Deval L. Patrick, Governor  
Timothy J. Murray, Lieutenant Governor

Executive Office of Energy and Environmental Affairs  
Ian A. Sowers, Secretary

Massachusetts Office of Coastal Zone Management (CZM)  
Leslie Ann S. McGee, Director / Bruce K. Coffey, Assistant Director  
201 Causeway Street, Suite 902, Boston, MA 02114-2156  
(617) 626-1200 / [www.mass.gov/czm](http://www.mass.gov/czm)

This fact sheet was developed through CZM's StormSmart Coasts program, which supports community efforts to manage coastal floodplains. For further information on StormSmart Coasts, visit [www.mass.gov/czm/stormsmart](http://www.mass.gov/czm/stormsmart)

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Design Review: Arden Miller, CZM  
Editor: Anne Donovan, CZM

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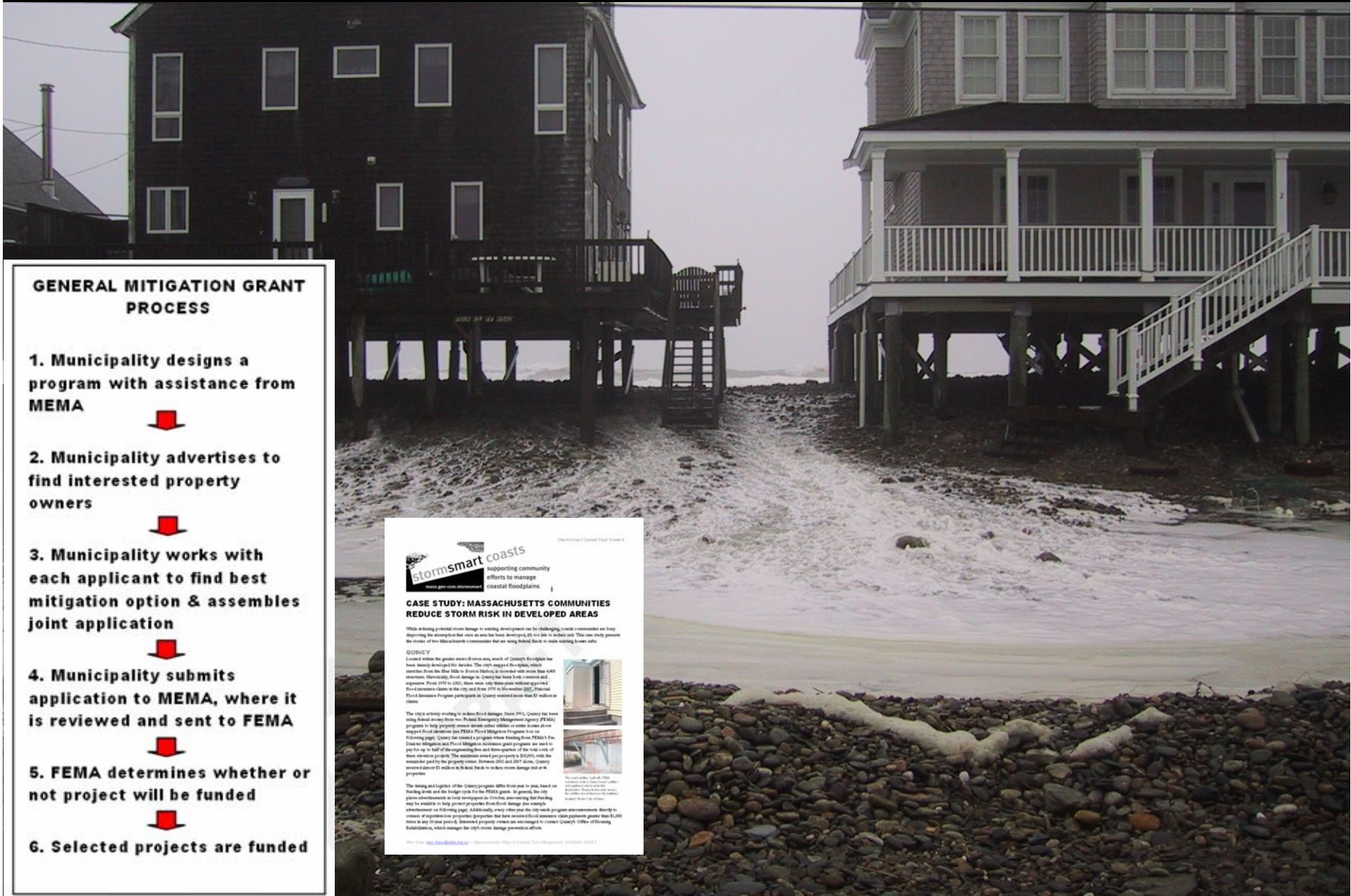
Interesting?



Relevant?



Actionable?



### GENERAL MITIGATION GRANT PROCESS

1. Municipality designs a program with assistance from MEMA



2. Municipality advertises to find interested property owners



3. Municipality works with each applicant to find best mitigation option & assembles joint application



4. Municipality submits application to MEMA, where it is reviewed and sent to FEMA



5. FEMA determines whether or not project will be funded



6. Selected projects are funded



supporting community efforts to manage coastal floodplains  
mass.gov/cdm/stormsmart

#### CASE STUDY: MASSACHUSETTS COMMUNITIES REDUCE STORM RISK IN DEVELOPED AREAS

While reducing potential storm damage to existing development can be challenging, several communities are being recognized for the way they have designed, built and retrofitted their coastal risk reduction efforts.

**QUINCY**  
Located within the greater metropolitan area, Quincy, Massachusetts has been severely damaged by storms. The city's major floodplains, which stretch from the Blue Hills to Boston Harbor, included more than 4,000 structures. Historically, flood damage in Quincy has been extensive and expensive. From 1970 to 2000, there were only three major water-related flood insurance claims in the city, and from 1970 to the winter 2002, Federal Flood Insurance Program participants in Quincy received more than \$1 million in claims.

The city is actively working to reduce flood damage. Since 2010, Quincy has been using federal money from the Federal Emergency Management Agency (FEMA) program to help property owners demolish or raise or retrofit existing structures. In addition, Quincy has created a program where funding from FEMA's Flood Hazard Mitigation and Flood Mitigation Assistance grant programs are used to pay for up to half of the engineering fees and storm protection of the risk reduction projects. The maximum award per property is \$100K, with the remainder paid by the property owner. Between 2011 and 2017 alone, Quincy received almost \$1 million in federal funds to reduce storm damage risk in its program.

The timing and frequency of the Quincy program differ from year to year, based on funding levels and the budget cycle for the FEMA grants. In general, the city plans developments to flood mitigation in October, recognizing that funding may be available to help prevent projects from flood damage. For example, a development on a flood plain. Additionally, every other year the city needs program announcements. Funding is issued to eligible properties. Properties that have received FEMA grants must pay back the city in 30 days. Some properties are also eligible to receive FEMA grants for other projects, which manages the city's storm damage prevention efforts.

More info: [www.stormsmart.org](http://www.stormsmart.org) | Massachusetts Flood & Coastal Storm Mitigation | 10/2018 | 2017



## Introduction to No Adverse Impact (NAI) Land Management in the Coastal Zone

A legally sound way for municipalities to protect people and property

### What is NAI?

No Adverse Impact (NAI) is a forward thinking, fair, and legally defensible approach to coastal land management in its broader sense. It is a set of "no harm" policies to follow when your community is planning, designing, or evaluating public and private development activities and storm-damage prevention measures.



NAI is flexible and other structures can meet flood-protection problems. They generally require regular maintenance and often need to be replaced (reducing their overall life-cycle cost). Photo: Mass.gov/NAI

NAI protects the rights of residents, be it within or your community by requiring private projects be designed and sited in a way that they do not: (1) pose a threat to increase flood or storm damage to property, and/or (2) create municipal or community expenditures for storm damage mitigation, emergency disaster recovery efforts.

**NAI: Local and Comprehensive**  
Careful management of coastal floodable people and property, and to reduce the damages, arrive property owners, and While the Commonwealth of Massachusetts regulations to help prevent storm damage of the authority and tremendous near floodable is entrusted to local gov

Accurately evaluating the potential of activities can be challenging, and requires on and off site, site damage effects analysis) under review. For example, if home may change stormwater flow on to surrounding properties or an adjacent parking lots, roads, and buildings may onto other properties instead of allowing into the ground.



## No Adverse Impact and the Legal Framework of Coastal Management

How communities can protect people & property while minimizing lawsuits

Managing coastal flood plain is a challenging endeavor that sometimes is best resolved through local government's duty to protect people and property in direct contact with property rights. Most local governments to reduce the harm and costs associated with coastal storms, and recognize that wise development can worsen the situation. With this in mind, as our society, the government (litigious, it may seem harder for municipal governments to stay out of land court when reviewing or conditioning development projects, even if there is good evidence that these projects may create problems for others. However, the No Adverse Impact (NAI) approach to land use management is a legally defensible way to protect people, property, and property rights. Contact more about NAI, see the Stormsmart Coastal Fact Sheet 1, Introduction to No Adverse Impact (NAI) Local Management in the Coastal Zone.)

While nothing can prevent all legal challenges, following the NAI approach can help to: (1) reduce the number of lawsuits filed against local governments and (2) greatly increase the chances that local governments will win legal challenges to their floodplain management policies. The legal system has long recognized that when a community acts to prevent harm, it is fulfilling a critical duty. The rights of governments to protect people and property have been well recognized by the legal system since ancient times. Courts from the Commonwealth of Massachusetts to the U.S. Supreme Court have consistently shown great deference to governments acting to prevent loss of life or property, even when protective measures restrict the use of private property. This "prevention of harm" principle is the foundation of the NAI approach. The goal of this fact sheet is to provide local officials with information as to how to use the NAI tools to confidently protect people and property in a fair and effective way, while avoiding lawsuits (even those alleging litigation).

### Two key points:

1. Communities have the legal power to protect coastal and inland floodplains.
2. Courts may (and often do) find it hard to hold legal responsibility to



Photo: Massachusetts Office of Coastal Zone Management

**HOW NAI CAN HELP YOUR COMMUNITY AND THE BENT WAY TO AVOID LITIGATION IS IN THE STRENGTH OF THE NAI APPROACH. A MATTER OF PREVENTION OF HARM? LOCALS AND ENCOURAGES OTHER LANDOWNERS AND LEGISLATORS AS THEY WORK TOGETHER TO SOLVE THE PROBLEMS ASSOCIATED WITH EACH OR COLLABORATE ON A GREAT WAY TO AVOID SUIT.**

When avoiding court isn't possible, following can greatly increase the chance that local government is winning in their floodplain cases. The most common and state-wide problem local officials face will be trying to regulate an unregulated area of non-constitutional taking."

**Today's background:** Property owners feel that they believe regulations violate their constitutional rights. The legal basis for these arguments is



## Case Study: A Cape Cod Community Prevents New Residences in Floodplains

Lessons learned from Chatham's legally successful conservancy districts

In a landmark zoning ruling, the highest court in Massachusetts decisively affirmed the authority of municipalities to regulate or even prevent residential or other high-risk development in flood-prone areas without financial compensation to the property owners, so long as the regulation does not render the land entirely valueless.

The case arose from the town of Chatham's refusal to permit the construction of new homes in a flood zone because the local zoning bylaw prohibited new residential units in the town's mapped floodplains. After multiple appeals by the landowner, the Massachusetts Supreme Judicial Court ruled on July 26, 2007, that the zoning bylaw was based on reasonable public interest,

and did not render the lot economically worthless. Therefore, no compensation was due. The decision was not appealed.

### THE ZONING BYLAW

Chatham's zoning bylaw designates "conservancy districts" encompassing all land in the town's 100-year floodplains as mapped in its most recent town-approved Flood Insurance Rate Maps. The goal of the bylaw is to protect people, property, and resources. See the below's specific purposes in the sidebar. The bylaw clearly delineates three types of activities in designated conservancy districts—permitted uses, special permit uses, and prohibited uses—attempts are shown in the table below.

### Examples from Chatham's Zoning Bylaw

Permitted uses	Special permit uses	Prohibited uses
<ul style="list-style-type: none"> <li>Public, educational, and historical facilities</li> <li>Operating a museum of a town be utilized as an outlet for marketing of marine biotechnology products</li> <li>Religious or public facilities provided that when the town is not a primary financial center of activity</li> <li>Yacht</li> <li>Residential uses of existing lot and setbacks</li> <li>Installation of off-site</li> <li>Agriculture</li> <li>Recreation and supplies of marine life products</li> <li>Construction and maintenance of levees for flood and public land ownership areas, new channel of river floodplain</li> <li>Activities common by Cape Cod Region's Coast of Protection</li> <li>Residential uses of existing lot and setbacks</li> </ul>	<ul style="list-style-type: none"> <li>Construction of new buildings, including libraries, post, police, fire, town hall, health, health center</li> <li>Construction of new houses or buildings used for occupancy with a maximum of 2 people</li> <li>Construction and maintenance of facilities of temporary or seasonal legal English and other</li> <li>Construction and maintenance of private boat launches and boat hoists</li> <li>Installation of recreational uses in public land for recreational uses in conservancy of flood-prone areas</li> </ul>	<ul style="list-style-type: none"> <li>Printing of food</li> <li>Use of land</li> <li>Construction of new buildings, limited occupancy, or the use of land</li> <li>Construction of residential or public use of townships or larger or smaller</li> <li>Building of any structures in 100 and 500 year zones</li> <li>Construction of any structures in any zones of or non-protected floodplain</li> <li>Activities that destroy natural resources, alter existing flood flow, or otherwise alter the character of the land</li> <li>Installation of permanent structures that increase or cause damage</li> <li>Printing, printing, or installing water systems, except for reservoirs, pipelines, or flood or levee use</li> </ul>



# Freeboard Quincy/Scituate Coastal Landscaping Cost of Storms





# NOAA Coastal Services Center

LINKING PEOPLE, INFORMATION, AND TECHNOLOGY

**CZM**

**NORTHEAST REGIONAL OCEAN COUNCIL**

QuickTime™ and a TIFF (Uncompressed) decompressor are needed to see this picture.

**MISSISSIPPI  
ALABAMA**

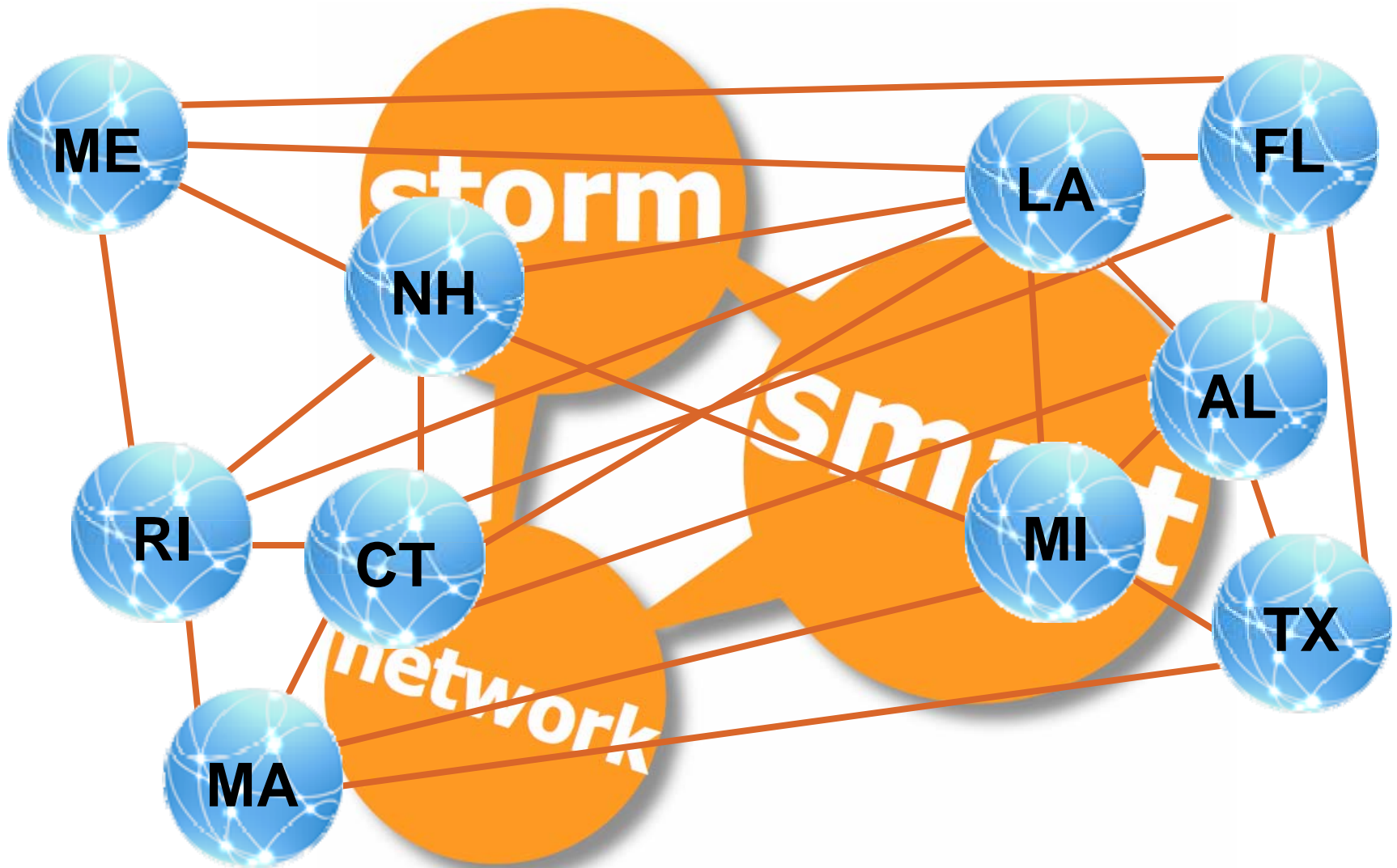
**GULF OF MEXICO ALLIANCE**

NORTHERN MARIANA ISLANDS   AMERICAN SAMOA   GUAM   HAWAII   ALASKA   PUERTO RICO   U.S. VIRGIN ISLANDS



## **TENTATIVE SITE ORGANIZATION**

- 1. Before the storm**
- 2. During the storm**
- 3. After the storm**
- 4. Your community**
- 5. Background**



**To Better Serve Our Nation We Have Developed A Vast Body of:**

**A.) Publications**

**B.) Workshops**

**C.) Web-Casts**

**Most Are Available In pdf Format On Various Web-Sites**

**See Handout**

**How Can We ALL Work Together To Make Best Use Of Them?**

- **Tough Choices**
- **Friendly Persuasion & Education**
- **Encourage State and Local Regulation**
- **Direct Regulation**
- **Combination**

# Lots of Folks Working on This Topic

## **FEMA Risk MAP**

**Emphasizes Analysis & Planning as Well  
as Outreach and Risk Communication**

## **NOAA StormSmart Coasts**

**Web-Based Information and Planning Support**

## **Urban Denver Flood Control**

**Win-Win Development Approach**

## **Charlotte-Mecklenburg North Carolina**

**Multiple NAI Based Approaches**

A scenic view of a river with multiple cascades and waterfalls over dark rocks. The water is clear and flows over several tiers of dark, wet rocks, creating white foam and splashes. The background shows a forested hillside with some green grass and trees.

# Questions and Answers

Thank You

**Baker**



# Legal Implications of No Adverse Impact Floodplain Management: Protecting the Rights of All

**Delaware River Basin Commission**

**Edward A. Thomas, Esq.**  
617-515-3849 (Office)  
[ethomas@mbakercorp.com](mailto:ethomas@mbakercorp.com)

**Baker**