

The Natural Hazard Mitigation
Association/Resilient Neighbors Network –
some resources for outreach, an example of
the need for informed planners,
and a plea... This is posting set

Rocky Mountain Land Use Institute

March 9, 2018

John D. Wiener, J.D., Ph.D.

University of Colorado – Institute of Behavioral Science

And Natural Hazard Mitigation Association

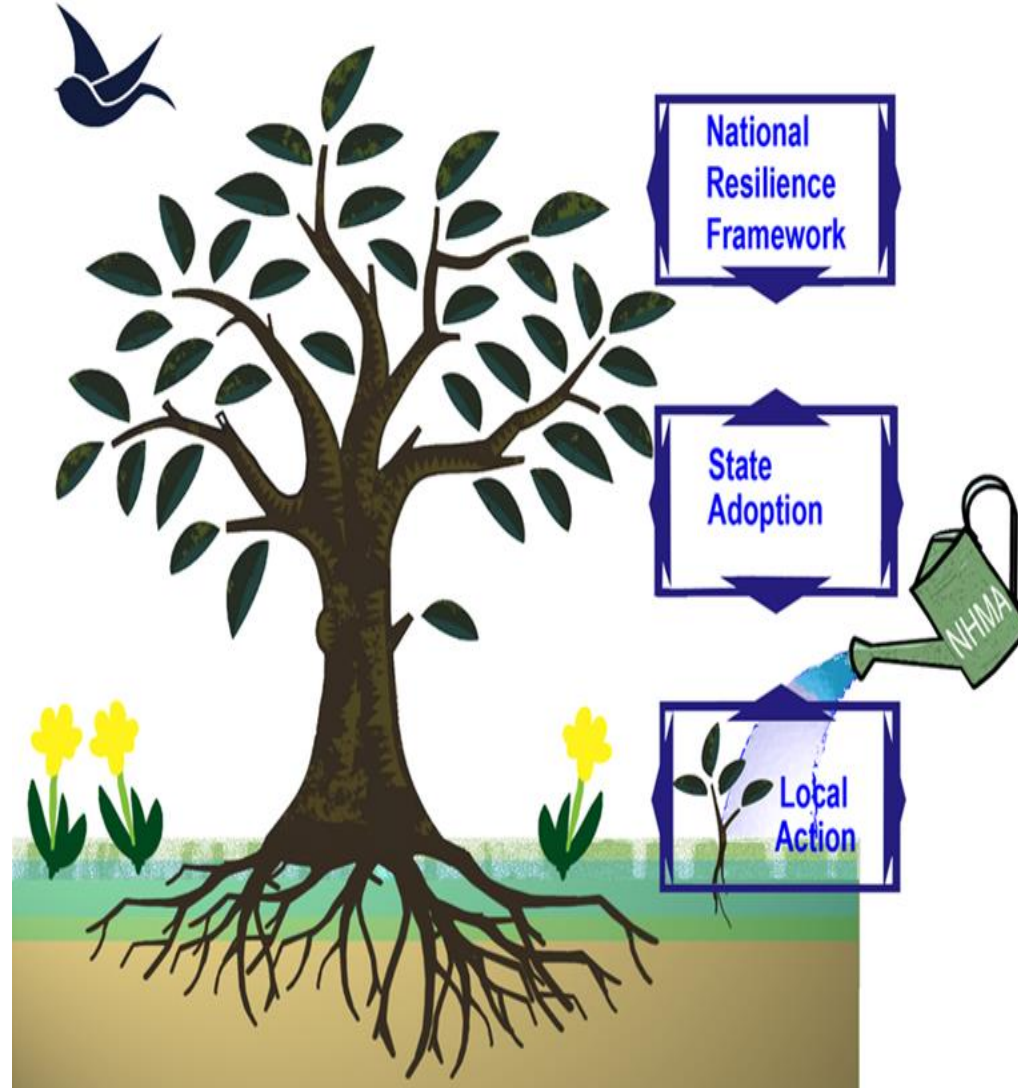
John.wiener@Colorado.edu

www.Colorado.edu/ibs/eb/wiener

The Natural Hazard Mitigation Association: nhma.info

Natural Hazard Mitigation Association (NHMA)

www.nhma.info



Created in 2008
to bring
together
individuals and
organizations
interested in

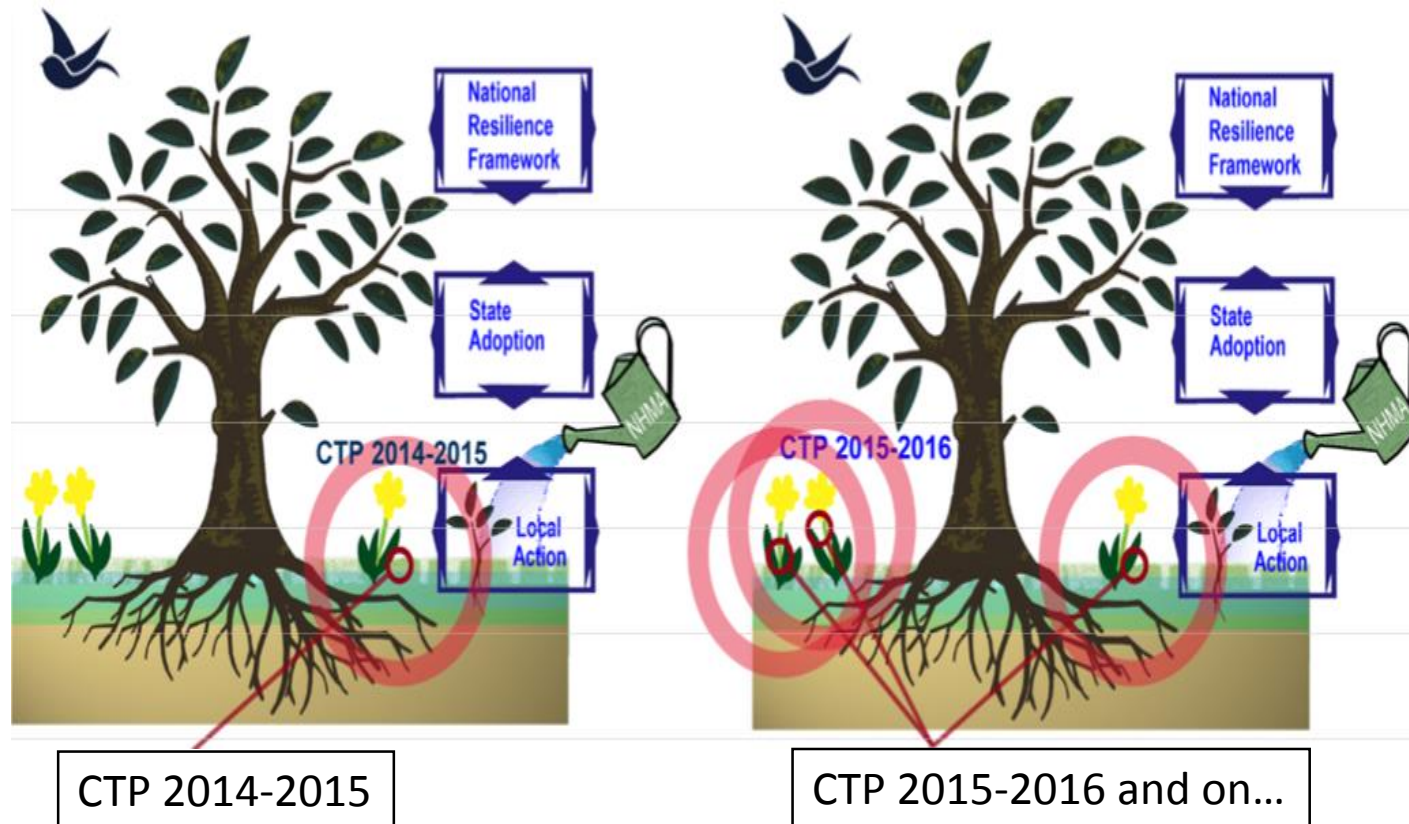
- **Hazard Mitigation**
- **Climate Adaptation**

NHMA Members



- Individuals and organizations
- Engineers, planners, practitioners
- Community officials
- Members of ASFPM, APA, ABA, NEMA...

NHMA is a Cooperating Technical Partner (CTP) with FEMA & All Hazards “Little Sister” of ASFPM

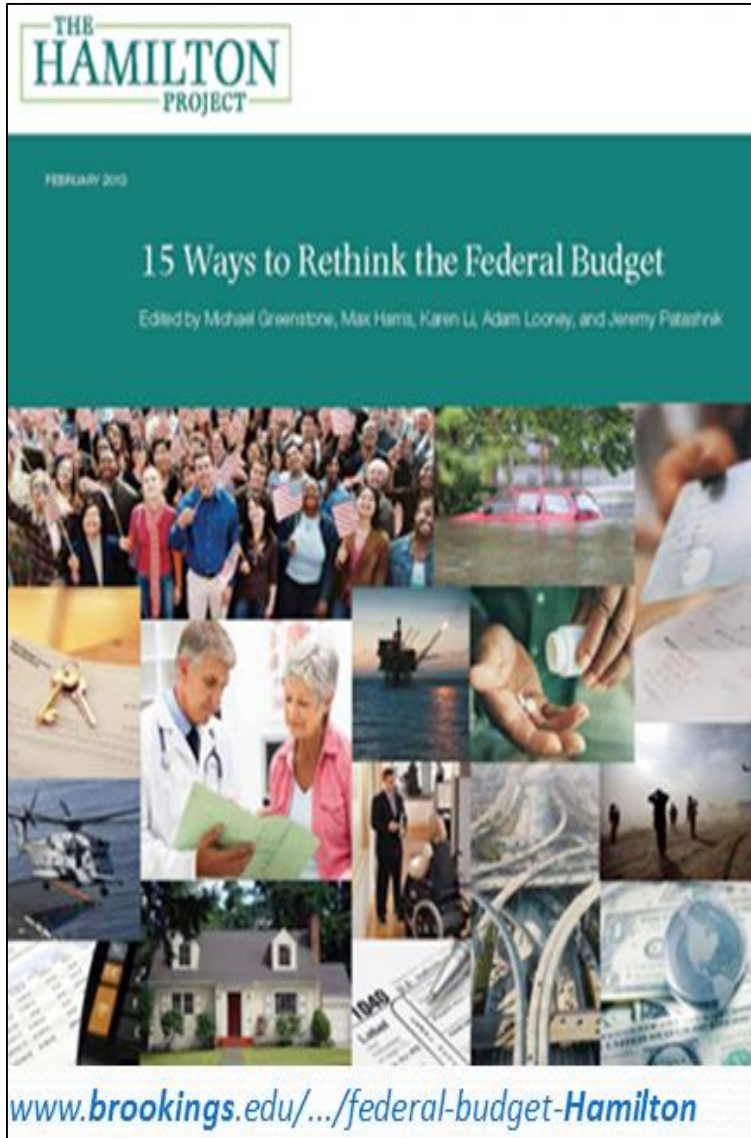


NHMA Local Initiative: Resilient Neighbors Network (RNN)

- Cornerstone of the NHMA
- Encourages peer-to-peer networking
- RNN website: www.resilientneighbors.com

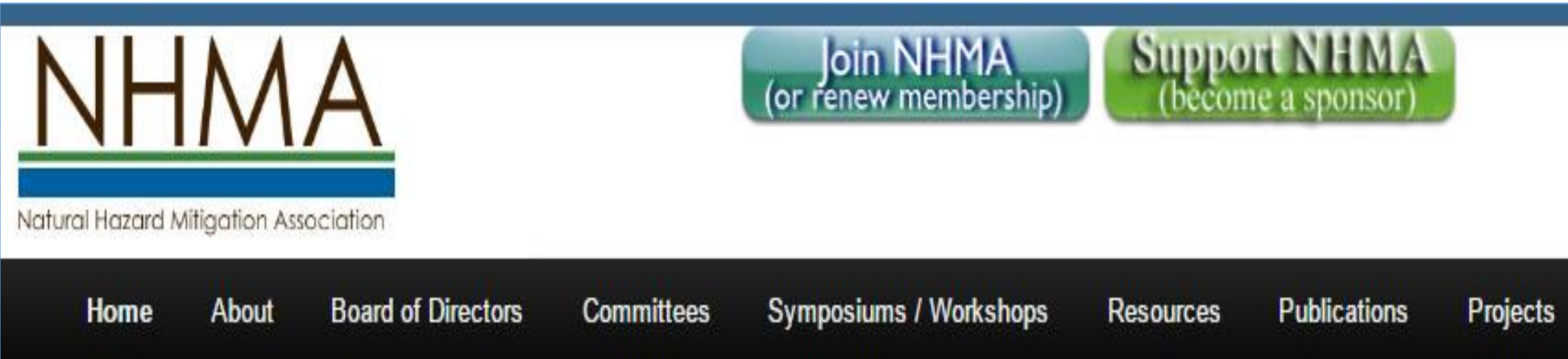


NHMA: Outreach to Traditional and Non-traditional Partners



- The Brookings Institute
- National Institute of Building Sciences
- Reinsurance Companies
- Climate Change Community
- American Bar Association
- American Planning Association
- Universities: Clemson, Vanderbilt, Colorado-Natural Hazards Center, Columbia
- Kresge Foundation & Island Press
- National Institute of Standards and Technology

NHMA Website -- Substantial Resources --



www.nhma.info

- Symposiums/Workshops
- Resources – Best Practices, Job Posting, Web Links
- Publications available for download
- Projects
- Resources by Hazard
- Presentations
- Recommendations
- News
- Newsletters

NHMA Resources for everyone: Disaster Risk Reduction (DRR) Ambassador Curriculum and “Building Your Roadmap...”

- Disaster Risk Reduction Curriculum:

- Focuses on supporting community leaders from the private and public sector to engage and lead community-level DRR dialogue by providing:
- Educational Resources
- Self-study curricula
- Training
- Workshops
- Webinars



Building Your Roadmap to a Disaster Resilient Future

- Guide to help stakeholders navigate pre- and post-disaster resources and programs
- Designed for accessibility
- Spanish translation also
- Builds on Living Mosaic: A Path Forward (NHMA 2015) – some goals same as Colorado Planning for Hazards suite.

<http://nhma.info/drr/>

http://nhma.info/wp-content/uploads/2017/10/Roadmap_20171001.pdf

Our Main Message:

*Even if We Perfectly Implement Current Standards,
Damages **Will** Increase*

“The National Flood Insurance Program is the most cost effective program of Disaster Risk Reduction in the history of the United States.”

~ Ed Thomas, NHMA President

BUT....

“Following only the minimum standards of the Flood Insurance Program guarantees worse future flood disasters.”

~ Bill Robison, City of Tulsa, OK

Who Usually Pays for Disaster Assistance?

- The Federal, and sometimes state, taxpayer through:
 - Internal Revenue Service (IRS) casualty losses [What BIG Change in the Tax Code Just Took Place on this Provision?]*
 - Small Business Administration (SBA) loans
 - Disaster Community Development Block Grant (CDBG) The whole panoply of federal and private disaster relief
- Disaster victims themselves, and their families, businesses, and supply chains
- Society itself: huge sums of lost opportunity costs

See, *Building Your Roadmap to a Disaster Resilient Future*: available at www.nhma.info

* <http://www.governing.com/topics/transportation-infrastructure/gov-tax-overhaul-gop-casualty-loss-deductions-natural-disasters.html>; Delgadillo, N., 04 Mar 18, How the New Tax Law Could Slow Disaster Recovery in Small Towns. Governing.com – Governing the States and Localities.

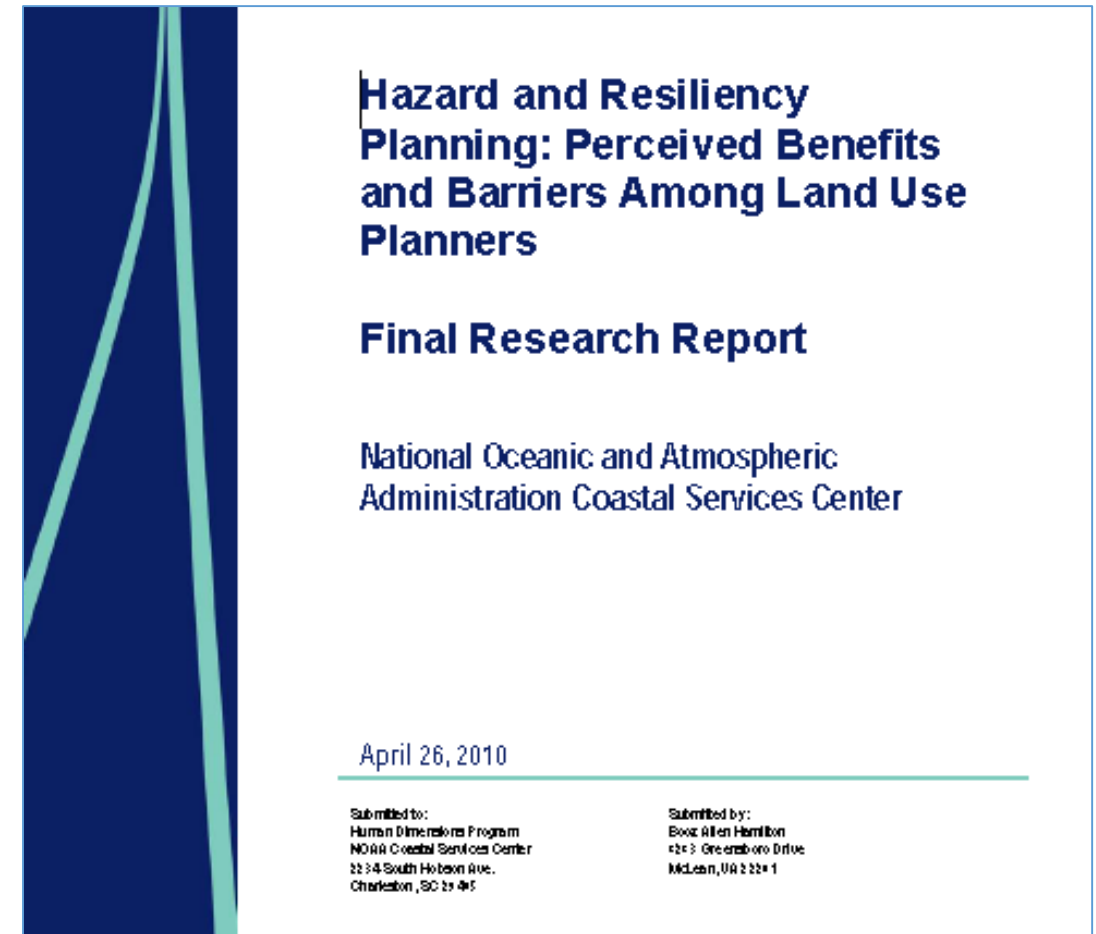
The Choice of Development or No Development is a False Choice!

The choice we have as a society is rather between:

1. Well planned **development that protects** people, property, environment, and 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

Impediments to Safe Regulation

- The National Oceanic and Atmospheric Administration (NOAA) commissioned a study which surveyed planners about impediments to safe development
- Two major reasons cited:
 - 1) **Fear of the “taking” issue**
 - 2) **Externality and economic pressure**



Impediments to Safe Regulation (cont.)

3) Another impediment to add to the NOAA list: **A false perception of immunity**

- Some public officials believe that they are immune from suit for the consequences of actions they take which harms others
- Many local Planners and Floodplain Managers have expressed that such an attitude is making their jobs much more difficult

First Fundamental Canon of ASCE Code of Ethics

“Engineers shall hold paramount the safety, health, and welfare of the public....”

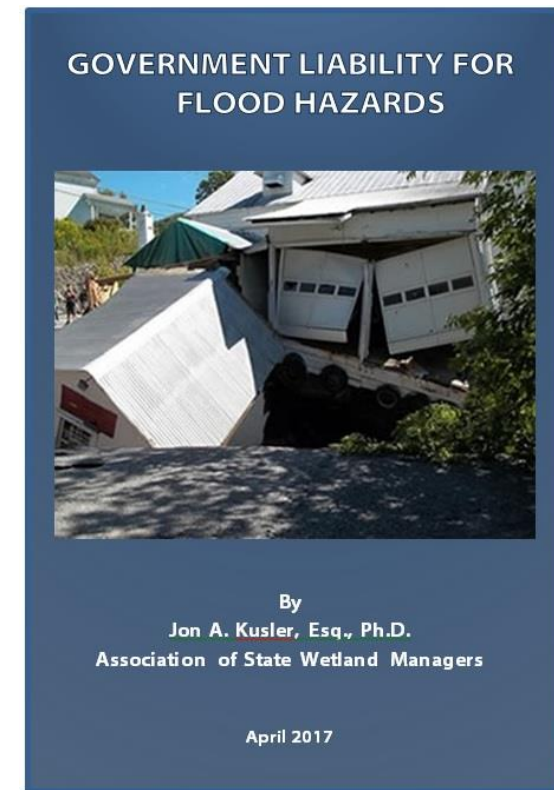


“This canon must be the guiding principle for rebuilding the hurricane protection system in New Orleans.”

“And it must be applied with equal rigor to every aspect of an engineer’s work – in New Orleans, in America, and throughout the world.”

New Trend in the Law

Increasingly, states are allowing lawsuits against communities for alleged “goofs” in permitting construction **OR** in conducting inspections...



Professional standards are changing – your capacity deserves expression!

<https://www.aswm.org/watersheds/floods-and-natural-hazards/9780-government-liability-for-flood-hazards>

The Good News

- The Supreme Court agrees with safety regulation and prevention of harm clearly and proportionally applied to regulations on development – The Koontz case:
- Justice Alito wrote in the majority opinion:

"Insisting that landowners internalize the negative externalities of their conduct is a hallmark of responsible land-use policy, and we have long sustained such regulations against constitutional attack.
See *Village of Euclid v. Ambler Realty Co.*, 272 U.S. 365 (1926)."

Disaster Risk Reduction Curriculum Module 15: *Legal and Policy Opportunities*

Koontz v. St Johns River Water Management District, 133 S. Ct. 2586 (2013), is discussed in a webinar featuring Professor Lisa Sun, Ed Thomas, and Dr. John Wiener available at: <https://player.vimeo.com/video/83390903>.

Further details on *Koontz* can be found in this article, "Turning Koontz Into an Opportunity for More Resilient Communities," By Ed Thomas and Lynsey R. Johnson.

(http://www.americanbar.org/content/dam/aba/administrative/state_local_government/land_use.authcheckdam.pdf)

Seizing the Opportunity to Build a Safer Future



“More than half of the built environment of the United States we will see in 2050 **does not exist today.”**

~ Dr. Arthur “Chris” Nelson,
FAICP at Rocky Mountain Land
Use Institute, March 13, 2015

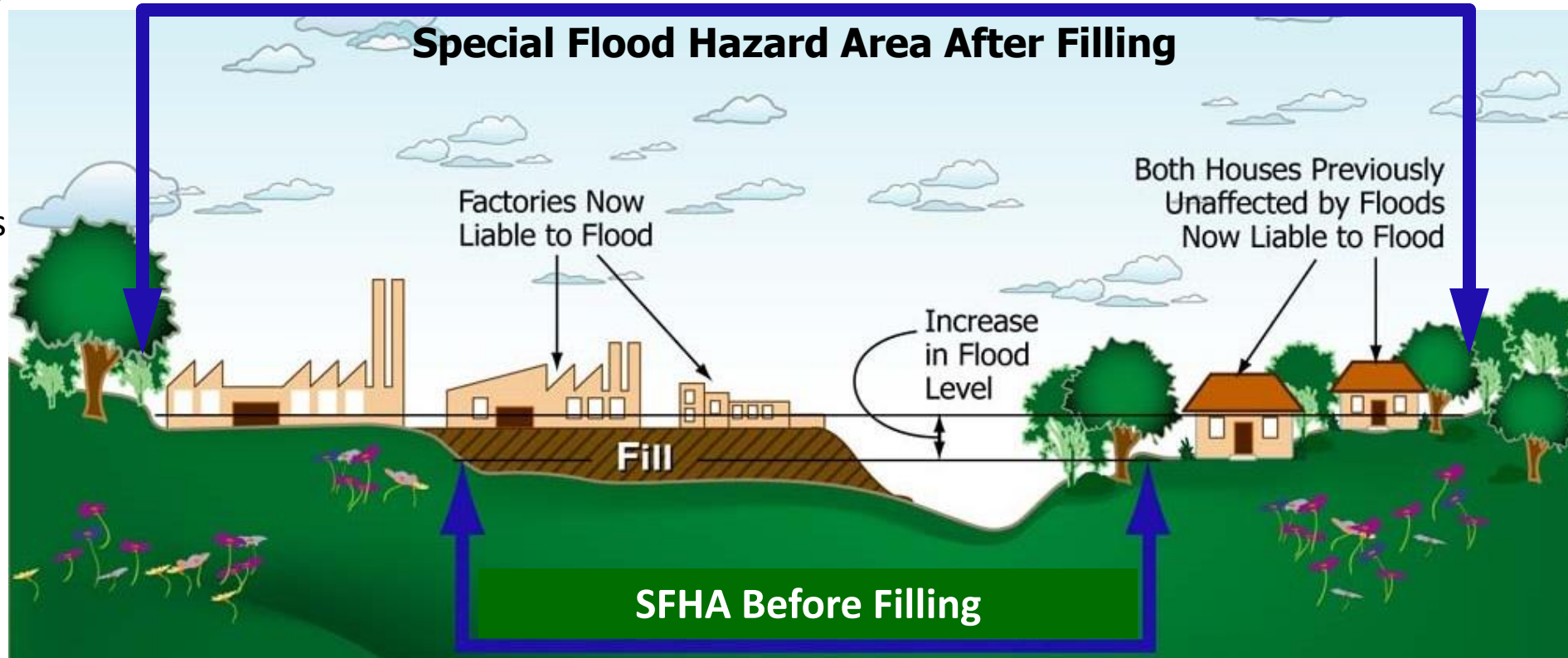
The need for informed planners: An example: Where is the Floodplain? – Misuse and mis-specifications of flood maps



**No Adverse
Impact: New
Direction in
Floodplain
Management
Policy**

Today's Special Flood Hazard Area (SFHA) is Not Necessarily Tomorrow's Floodplain

Larry Larson PE,
CFM and Doug
Plasencia PE,
CFM
Published in
Natural Hazards
Review Nov.
2001, IAAN
1527-6988



If large areas of the SFHA are filled, then there will be an increase in the land area needed to store flood waters

Other Limitations of Current NFIP Mapping

- 50% of all maps are **not recently validated** with even recent old data
- All maps are **based on past history** – not the future
- May **ignore stormwater management issues** (will ignore less than one square mile drainage areas)
- **And then... future conditions? Increased variability, higher intensity precipitation, changed seasonality....**

[A Three-legged Stool on Two Legs: Recent Federal Law Related to Local Climate Resilience Planning And Zoning](#)

By Sarah J. Adams-Schoen and Edward A. Thomas, *The Urban Lawyer*, 47 URB. LAW. No. 3 (2015)

Engineer Scott Edelman, PE, Sr. V.P. AECOM to Senate Banking, Housing and Urban Affairs Committee: 13 Sep 2016

- We must change the perception that if I am just on the other side of the 100-year flood line I am safe. Too much time is spent trying to justify the movement of the flood line by a few feet when in actuality the risk of flooding the structure only has changed ever so slightly. Much of the problem is due to uncertainty of the flood line itself.
- • To my knowledge, this is the only product that engineers produce and communicate to the public that deals with averages and not what is safe.
- • We also have a great deal of uncertainty within the calculations. In all actuality, the current 100-year average line shown on the flood insurance maps is perhaps closer to a safe design level of a 10-year event.



Residents of the La Vita Bella nursing home in Dickinson, Tex., sit Sunday in waist-deep floodwater caused by Hurricane Harvey. After this photo went viral, all of the residents were removed from the facility. (Trudy Lampson/Associated Press)

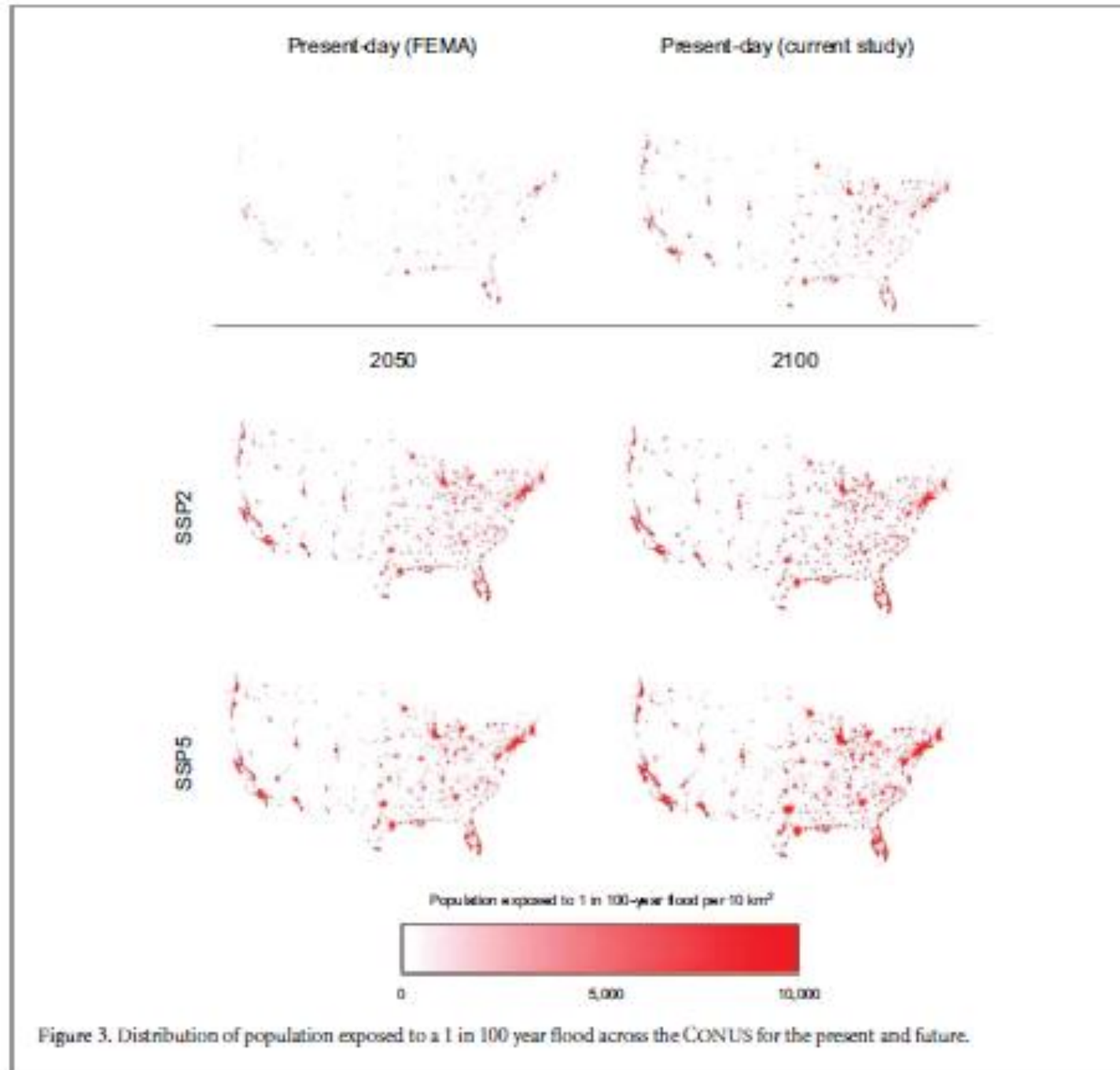
This nursing home is across the street from the floodplain boundary. So much for understanding the meaning of a FIRM map...

https://www.washingtonpost.com/graphics/2017/investigations/harvey-urban-planning/?utm_term=.8816af82a7c0

“Our data show that the total US population exposed to serious flooding is **2.6–3.1 times higher than previous estimates**, and that nearly 41 million Americans live within the 1% annual exceedance probability floodplain (compared to only 13 million when calculated using FEMA flood maps). We find that **population and GDP growth alone are expected to lead to significant future increases** in exposure, and this change may be exacerbated in the future by climate change.”

CLIMATE CHANGE: BEST SYNTHESIS

USGCRP, 2017: *Climate Science Special Report: Fourth National Climate Assessment, Volume I* [Wuebbles, D.J., et al., (eds.)]. U.S. Global Change Research Program, Washington, DC, USA, 470 pp, doi: [10.7930/J0J964J6](https://doi.org/10.7930/J0J964J6).

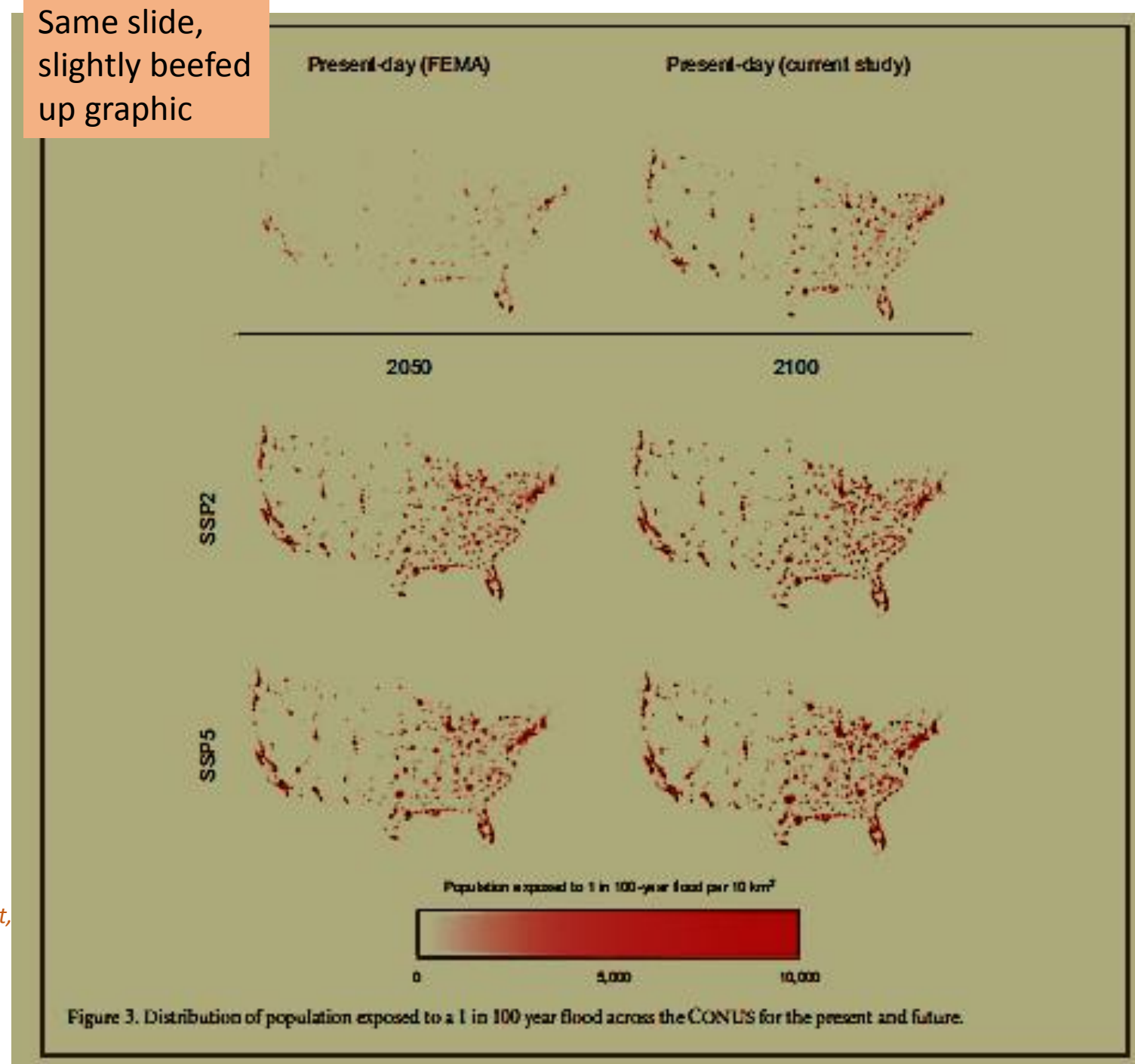


Wing, Oliver E.J., Paul D. Bates, Andrew M. Smith, Christopher C. Sampson, Kris A. Johnson, Joseph Fargione, and Philip Morefield, 2018, **Estimates of Present and Future Flood Risk in the Conterminous United States**. Environmental Research Letters 13 (2018): 034023. <https://doi.org/10.1088/1748-9326/aaac65> [open access]

“Our data show that the total US population exposed to serious flooding is **2.6–3.1 times higher than previous estimates**, and that nearly 41 million Americans live within the 1% annual exceedance probability floodplain (compared to only 13 million when calculated using FEMA flood maps). We find that **population and GDP growth alone are expected to lead to significant future increases** in exposure, and this change may be exacerbated in the future by climate change.”

CLIMATE CHANGE: BEST SYNTHESIS
USGCRP, 2017: *Climate Science Special Report: Fourth National Climate Assessment, Volume I* [Wuebbles, D.J., et al., (eds.)]. U.S. Global Change Research Program, Washington, DC, USA, 470 pp, doi: [10.7930/J0J964J6](https://doi.org/10.7930/J0J964J6).

Same slide, slightly beefed up graphic



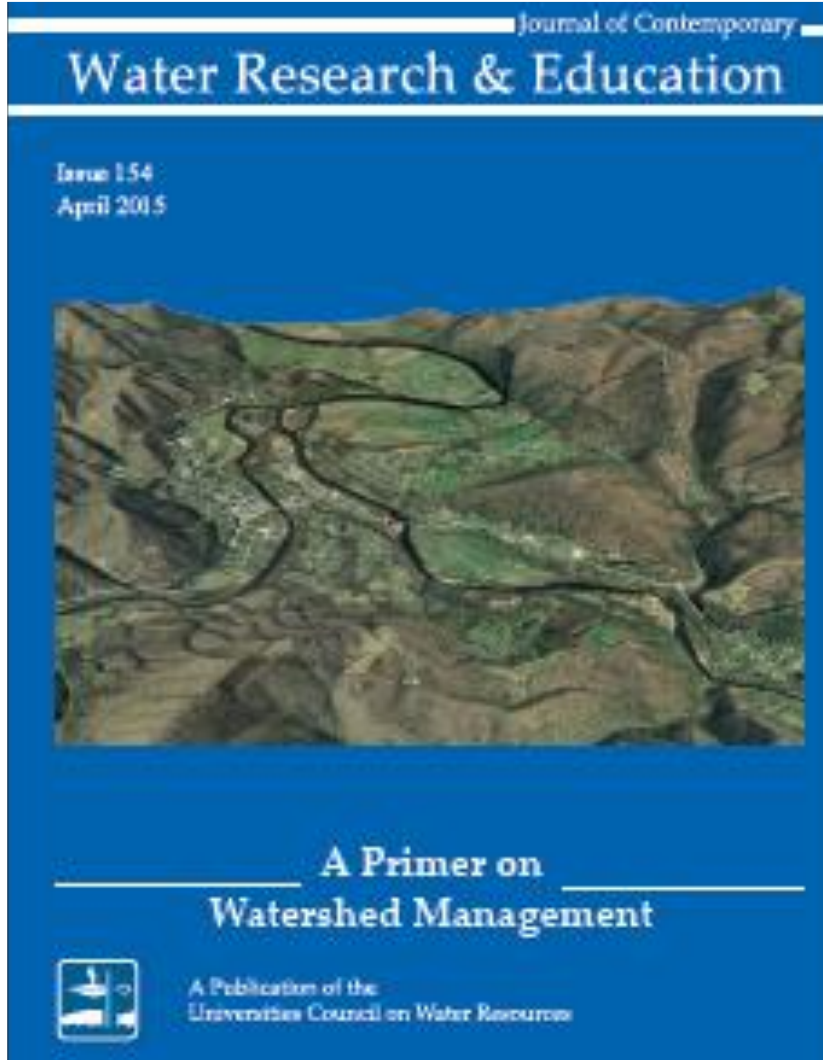
Wing, Oliver E.J., Paul D. Bates, Andrew M. Smith, Christopher C. Sampson, Kris A. Johnson, Joseph Fargione, and Philip Morefield, 2018, **Estimates of Present and Future Flood Risk in the Conterminous United States**. Environmental Research Letters 13 (2018): 034023. <https://doi.org/10.1088/1748-9326/aaac65> [open access]

Adapting to Increasing Climate Impacts



- **Stop** making things worse as investments and populations inevitably increase
- **Participate** in opportunities to change legislation
- **Remove** perverse incentives
- **Reward** good planning, safe building, and safe reconstruction

Journal of
Contemporary
Water
Research
and Education
(from
Universities
Council on
Water
Resources) –
April
2015, Issue
154:
free **download**.
–For interested
citizens and
officials;
excellent!



[http://www.ucowr.org/journal
-issue-archives/154](http://www.ucowr.org/journal-issue-archives/154)

Another excellent resource for stakeholders:

[A Primer on Watershed Management](#) (full issue PDF)

[A Primer on Watershed Management \(Intro\)](#)

Pamela J. Edwards

[Fundamentals of Watershed Hydrology](#)

Pamela J. Edwards, Karl W.J. Williard, and Jon E. Schoonover

[An Introduction to Soil Concepts and the Role of Soils in Watershed Management](#)

Jon E. Schoonover and Jackie F. Crim

[Soil Erosion in Humid Regions: A Review](#)

Daniel J. Holz, Karl W.J. Williard, Pamela J. Edwards, and Jon E. Schoonover

[Guiding Principles for Management of Forested, Agricultural, and Urban Watersheds](#)

Pamela J. Edwards, Karl W.J. Williard, and Jon E. Schoonover

[The Role of Social Science in Successfully Implementing Watershed Management Strategies](#)

Kristin Floress, Kofi Akamani, Kathleen E. Halvorsen, Andrew T. Kozich, and Mae Davenport



WATERSHED PROTECTION

**THE CITY –
WHAT'S IN YOUR FLOODPLAIN?**

AG LANDS FOR STORM WATER

**BOTTLENECK AND DAMAGE
OR GREEN INFRASTRUCTURE
ALL THE WAY?
USE ALL THE RESOURCES**

Greenway photos from Mecklenburg Cn., NC

<https://www.mecknc.gov/ParkandRec/Greenways/Pages/default.aspx>

For Colorado, The Urban Drainage and Flood Control District has
Become a national model. <https://udfcd.org/> -- **Great website!**



Watershed photo by Danil Silantev, Unsplash
Farm photo by Xavi Moll, Unsplash Photos.