



Association of State
Floodplain Managers



Reducing Flood Risk in Your Community: Non-Traditional Resources

Chad Berginnis, CFM
January, 2019



ASFPM'S MISSION

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

and...



Protect the natural
and beneficial
functions of
floodplains.



What does ASFPM do?



- ✓ ***National and State Policy Issues***
- ✓ National CFM® Certification
- ✓ ***Develop Tools, Publications, & Resources for State and Local Floodplain Managers***
- ✓ No Adverse Impact (NAI)
- ✓ Conferences & Events
- ✓ Training (ASFPM Webinar Series)
- ✓ ***Research***
- ✓ ***National Flood Barrier Testing and Certification Program***

Non-Traditional Resources for Flood Risk Reduction





NFBTCP

National Flood Barrier Testing and Certification Program

- Challenge: High demand for reliable flood mitigation solutions
- Opportunity: Manufacturers have the means to obtain third-party certification with the National Flood Barrier Testing & Certification Program
- Benefit: Product differentiation by proving it meets consensus standard and the national program's rigorous protocol



Temporary (Perimeter) Barrier, Certified Silver Level

NFBTCP

National Flood Barrier Testing and Certification Program

- Currently tests/certifies:
 - Temporary (perimeter barriers),
 - Closure devices (opening barriers)
 - Backwater valves
 - Mitigation (flood abatement) pumps
- Two items identified for development of testing and certification standards: Semi-permanent barriers and Sealants



Closure Device (Opening Barrier), Certified Platinum Level

NFBTCP

- National Flood Barrier Testing and Certification Program
 - Currently three levels of certification (based on height of hydrostatic water test):
 - Platinum – 3+ feet
 - Gold – 2+ feet
 - Silver – 1+ foot
 - Certification requires water based testing, component/material testing and manufacturing facility audits
 - Tests to ANSI/FM Approvals 2510 Standard



Temporary Barrier (Opening Barrier), Certified Platinum Level



NFBTCP

- Partnership
 - ASFPM
 - Program administrator
 - Maintains website
 - FM Approvals
 - Certifies the product, confers the FM Diamond
 - Conducts materials/component testing
 - Performs manufacturing facility audits
 - US Army Corps of Engineers
 - Conducts water testing at ERDC lab in Vicksburg Mississippi



Overtopping test at ERDC. Water is brought to 1 inch above the barrier and allowed to overflow.



1 foot wave test at ERDC



Member of the FM Global Group

ANSI 2510

- ANSI is an accredited standards development organization, using a consensus process
- The 2510 standard is intended to be used to evaluate the components and performance of flood abatement equipment
- Based on FM Approvals 2510 standard
- Is the REQUIRED standard for the Program





ANSI 2510

- ✓ **Hydrostatic Strength**
- ✓ **System Leakage**
- ✓ **Component Durability – Cycling**
- ✓ **Vibration Resistance**
- ✓ **Impact and Wear Resistance**
- ✓ **Salt Spray Corrosion – Residue Build-Up**
- ✓ **Tensile Strength**
- ✓ **Ultimate Elongation**
- ✓ **Tensile Set**
- ✓ **Compression Set**
- ✓ **Accelerated Aging**
- ✓ **Ultraviolet Light Exposure**
- ✓ **Air Oven Aging**
- ✓ **Biological Degradation Resistance**
- ✓ **Environmental Corrosion Resistance**
- ✓ **Extreme Temperature Operation**
- ✓ **Reliability Study**
- ✓ **Abrasion Resistance**
- ✓ **Hail Resistance**
- ✓ **Tear and Puncture Resistance**
- ✓ **Performance (Water Tests)**



NFBTCP

- Certified products earn the FM Diamond, a globally recognized quality mark from FM Approvals
- The FM Diamond is like the Underwriters Laboratory certification for consumer electronics
- FM Diamond ensures product quality and consistency



Most communities' subdivision standards are inadequate to ensure that:

- All flood hazard areas on a tract of land are identified;
- Infrastructure is protected and resilient;
- Flooding potential on the site and adjacent areas has not increased; and
- Natural floodplain functions are protected.



vs





PAS 584

- Subdivision Design and Flood Hazard Areas
 - Collaboration between APA and ASFPM
 - Companion to 1997 report with the same name
 - Recommends over 60 standards that can be used to maximize flood loss reduction
 - PAS report available for free on FEMA's website



American Planning Association

Making Great Communities Happen



PAS 584

General Principles

1. Maintain natural and beneficial functions of the floodplain
2. Adopt a No Adverse Impact Approach to Floodplain Management
3. Avoid New Development in the Floodplain Whenever Feasible
4. Focus on Data-Driven Decision Making to Assess Risk and Inform Decisions
5. Consider Future Conditions of the Floodplain Including Development Impacts and Climate Change





PAS 584 - Standards

Natural and Manmade Geographic Features

- *Require mapping of the 100-year floodplain and floodway for any area that could hold or convey water where a floodplain has not already been mapped*
- Require and maximize width of riparian buffers (research shows ranges from 10 to 500 feet)
- Require dam and levee failure inundation zones on preliminary plans and plats
- Prohibit change of dam classification unless developer helps finance cost of upgrades



PAS 584 - Standards

Layout and Design

- *Ensure that floodplain areas are non-buildable, either as laid out as areas that are non-buildable on lots, or set aside as reserve areas entirely (not contained within lots)*
- A No Adverse Impact standard for evaluating and mitigating most/all physical and ecosystem impacts of development and/or impacts on critical habitat
- The surface of new streets within subdivisions shall be built to at least the 100-year flood elevation
- Include use standards such as prohibition of hazardous uses/critical facilities



PAS 584 - Standards

Infrastructure

- Size culverts and bridges to convey 100-year storm
- Prohibit owner associations from maintaining stormwater and flood protection infrastructure
- Locate utility easements outside of the floodplain where possible

Platting

- Show flood elevation data (100-year, building pad elevations) on plats
- Require permanent markers of flood boundary



PAS 584 - Standards

Watershed Management

- Require green infrastructure and low impact development techniques in both stormwater management and roadway design sections of subdivision regulations
- Require post-development peak storm flows and runoff for the 100-year or less frequent storm be no higher than was the case prior to development
- Require retention and detention facilities based on the 24-hour, 100-year storm
- Prepare a habitat assessment to demonstrate that any subdivision development activities will not adversely impact the habitat and species it supports and describe any appropriate mitigation measures taken



FHA 203K Loan

- FHA's primary program for the rehabilitation and repair of single family properties:
 - **Flood mitigation activities are eligible based on guidance clarification made in fall of 2015**
 - Combines financing for purchase or refinance and repairs into one loan
 - Can be used in cases where property owner finds flood insurance too expensive or generally to mitigate flood risk
 - Must be done by a FHA approved lender – they already exist throughout the country
 - Competitive mortgage rates



ASFPM has just signed a MOU with HUD to develop guidance and informational materials to promote this program nationwide. Stay tuned for more information!

No Adverse Impact (NAI)

- **Even if we perfectly implement the current standards, damages will increase because we are putting development in the path of disaster.**
- **No Adverse Impact (NAI) is an approach that ensures that the action of any community or property owner, public or private, does not adversely impact the property and rights of others.**



Benefits of the NAI Approach

- Will reduce future flood damages
- Will reduce future suffering
- Will protect the communities natural resources and amenities
- Will improve the quality of life
- Will provide for more sustainable growth within the community
- Will reduce the community's liability





NAI How-To Guides

- Features:
 - 5 NAI level tools in each guide
 - Case studies and “How-To” information
 - Based on 7 building blocks in NAI Toolkit:
 - Mitigation
 - Infrastructure
 - Planning
 - Education / Outreach
 - Regulations
 - Emergency Services
 - Mapping



ASFPM Legal Research

What keeps you up at night?

- Are you worried about liability for enforcing or not enforcing flood risk reduction standards?
- Do you think you have enough legal standing to take an enforcement action?
- Are you afraid of being sued for a takings?
- What about a moratorium until you can figure out how to recover more resiliently?
- Are your standards or flood maps good enough?
- Will/do citizens complain to local officials about flooding in areas that were properly permitted?



ASFPM Legal Research

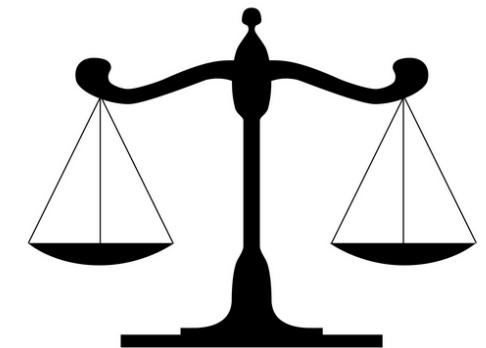
Liability

- Successful suits against communities result from actions such as inadequate construction or inadequate maintenance of dams, levees, roads, and bridges which increase flood damages on other lands.
- “Act of God” defense is less and less defensible. Even rare floods are predictable. As are residual risks from levees and dams.
- If a community permits development that results in an adverse impact, your community may be liable, even if you meet code standards.

ASFPM Legal Research

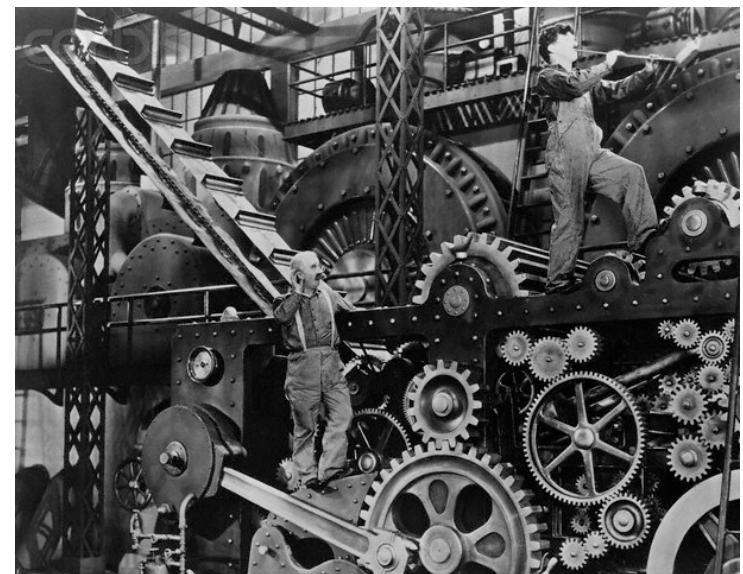
Takings

- No cases found where a landowner prevailed in a regulatory takings suit against a community's denial of use, where the proposed use would have had any substantial offsite impacts or threatened public safety.
- Courts have broadly supported restrictive regulations for high risk flood areas based upon public safety, nuisance prevention, public trust and other concerns.



In the Works!

- Capital Improvement Planning for future flood conditions (partnership with APA)
- Update of Elected Officials Guide to Addressing Community Flood Problems
- Post-flood compliance and building local (community) capacity
- Historic flood documentation
- Research in to effectiveness of floodways





Thank You

The present status of floodplain management does not encourage complacency ... On balance, progress has been far short of what is desirable or possible, or what was envisaged at times when the current policies and activities were initiated - GFW



Credit given to the Natural Hazards Observer and Rob Pudim for all illustrations in this presentation

www.floods.org