No Adverse Impact

Today's Floodplain Is Not Tomorrow's Floodplain
No Adverse Impact

Take the “No” out of No Adverse Impact

Building Blocks

1. Hazard mapping
2. Education and outreach
3. Planning
4. Regulations
5. Mitigation
6. Infrastructure
7. Emergency services
shopping centers and planned unit developments. Sometimes development standards are in separate ordinances, which are referred to in the subdivision regulations. Subdivision regulations may allow concentration of structures outside the hazard area and can include the following provisions:

- Allowing emergency vehicle dryland access during a flood by requiring streets to be at or above the base flood elevation.

- Setting aside maintenance easements along all drainageways (see example in the plat to the right).

- Requiring every lot to have a building site above the flood level or on natural high ground (see example in the plat to the right).

- Requiring that final recorded plats show hazardous areas (see example in the plat to the right).

- Compensatory storage offsets the loss of flood storage capacity. The developer is required to offset new fill put in the floodplain by excavating an additional floodable area to replace the lost flood storage area, preferably at “hydrologically equivalent” sites. In some cases the developer must remove 1.5 or 2 times the amount of fill that is proposed to be placed in the flood fringe.
NAI How-to Guides

How-to Guides

1. Hazard mapping ............... Done
2. Education and outreach ... Published
3. Planning ....................... Published
4. Regulations ................. Done
5. Mitigation ..................... Published
6. Infrastructure ............... Published
7. Emergency services ....... Underway

www.floods.org →
NAI How-to Guides

Planning How-to Guide

Contents

1. The NAI Approach
2. Planning and Floodplain Management
3. Planning Tools
4. Case Studies
5. References

Fact sheet
Planning How-to Guide

Factors for Effective Planning
1. Use the best available science
2. Be future oriented
3. Involve the public
4. Coordinate with others
5. Review all the alternatives
6. Develop feasible recommendations
7. Aim high
8. Evaluate implementation
Planning How-to Guide

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Planning Tools

1. Comprehensive planning
2. Hazard mitigation planning
3. Post-disaster planning
4. Risk Assessment
5. Public involvement
How-to Guides

Planning How-to Guide

Planning Tools

1. Comprehensive planning
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5. Public involvement

How-to Incorporate NAI into Post-disaster Planning

Step 1. Organize
Step 2. Involve the public
Step 3. Coordinate
Step 4. Assess the hazard
Step 5. Assess the problem
Step 6. Set goals
NAI How-to Guides

Planning How-to Guide

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Case Studies

1. Davenport, IA
2. Lewes, DE
3. Hillsborough County, FL
4. Conway, SC
5. Contra Costa County, CA
NAI How-to Guides

Crabtree Swamp

Kingston Lake Swamp
The interim and final plans followed the 10-step mitigation planning process. This case study shows how the factors for effective planning helped.

**STEP 1. ORGANIZE:**
The Mitigation Planning Committee had 12 members, including representatives from five city departments and seven floodplain residents. Two city staff were also floodplain residents and two of the floodplain residents were City Council members. In short, it was an excellent mix of staff and stakeholders, all of them motivated to complete the

**STEP 2. INVOLVE THE PUBLIC:**
In addition to public members serving on the committee, which advertised its open meetings, a running series of public information efforts was conducted in early October to inform residents of progress and their options. These included:

- A public meeting that explained the regulatory requirements and the planning process, with plenty of time for one-on-one questions and answers after the meeting.
- Handouts covering the rules, procedures, and mitigation options.

residents, and showed a high level of interest in relocating out of the floodplain.

**STEP 3. COORDINATE:**
During the process, planners stayed in touch with county, state, and federal agencies, particularly to stay on top of financial assistance sources.

**STEP 4. ASSESS THE HAZARD:**
The Interim Report had a section on the flood hazard, explaining that the Hurricane Floyd flood had about the same discharge as the 1-percent chance flood in the Flood Insurance

continued on page 71
AE Zone (base floodplain shown on the FIRM)

* Property where the 1999 flood was over two feet on the outside wall of the building.
Step 8. Draft an Action Plan

1. Voluntary floodproofing
2. Acquisition of substantially damaged buildings
3. Mitigate flooded City facilities
NAI How-to Guides

Step 8. Draft an Action Plan

1. Voluntary floodproofing
2. Acquisition of substantially damaged buildings
3. Mitigate flooded City facilities
## Planning How-to Guide

### Community Examples of the Planning Tools and the Eight Planning Factors

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- **Planning Tools**
  - 1. Comprehensive planning
  - 2. Hazard mitigation planning
  - 3. Post-disaster planning
  - 4. Risk Assessment
  - 5. Public involvement

- **Factors for Effective Planning**
  - 1. Use the best available science
  - 2. Be future oriented
  - 3. Involve the public
  - 4. Coordinate with others
  - 5. Review all the alternatives
  - 6. Develop feasible recommendations
  - 7. Aim high
  - 8. Evaluate implementation
Infrastructure How-to Guide

Infrastructure Tools

1. Locating New Infrastructure
2. Retrofitting Critical Existing Infrastructure
3. Effective Management of Local Road Systems
4. Bio-engineered Embankments
5. Riparian Buffers
Mitigation How-to Guide

Mitigation Tools

1. Acquisition & Relocation
2. Waterway Restoration through Dam Removal
3. Nonstructural Erosion Control & Shoreline Stabilization
4. Sustainable Stormwater Management
5. Mitigating Critical Facilities
Education & Outreach How-to Guide

Education & Outreach Tools

1. Master Public Information Program
2. Open Houses
3. Educating Developers and Contractors
4. Flood Models
5. High Water Marks
NAI How-to Guides

Mapping How-to Guide

NAI Mapping How-to Guide

(Draft)
NAI How-to Guides

Mapping How-to Guide

Mapping Tools
1. Build a Complete Map
2. Integrate Your Maps
3. Map a More Effective Floodway

NAI Mapping How-to Guide
(Draft)
NAI How-to Guides

Tool 3. Map a More Effective Floodway
Tool 3. Map a More Effective Floodway

100-year (base) floodplain

Fringe

Floodway

BFE + 1 foot

Fringe

Channel
Tool 3. Map a More Effective Floodway

Adverse impacts

- Increased flood damage
- More properties flooded
- Increased velocities
- Filling is encouraged
- Loss of flood storage
- Damage to natural floodplain functions
- Flood protection level becomes obsolete
Tool 3. Map a More Effective Floodway

More Effective Approaches

✓ Add freeboard
✓ Regulate to post-encroachment level
✓ More restrictive mapping standard
✓ Permit applicant must do study
✓ Map full conveyance floodway
NAI Mapping How-to Guide

Mapping Tools
1. Build a Complete Map
2. Integrate Your Maps
3. Map a More Effective Floodway
4. Map the Residual Risk
Tool 4. Map the Residual Risk
Tool 4. Map the Residual Risk
NAI How-to Guides

Mapping How-to Guide

Mapping Tools

1. Build a Complete Map
2. Integrate Your Maps
3. Map a More Effective Floodway
4. Map the Residual Risk
5. Map for Future Risk
Sacramento River annual flow volume (millions of acre-feet)
Tool 5. Map for

The Problem

✓ Short history of historic flooding
✓ Watershed development
✓ Changes in the landscape
✓ Sea level rise
✓ More extreme storms
Tool 5. Map for Future Risk

How-to

Step 1. Review the alternatives
- Add freeboard
- Map with a higher flood elevation
- Regulate watershed development
- Use a mapping model that reflects future risk

Step 2. Build the case

Step 3. Use some inexpensive mapping or regulatory measures

Step 4. Use the new maps
Community Rating System

✓ Part of the National Flood Insurance Program
✓ Voluntary program
✓ Provides reduced flood insurance premiums where there is better floodplain management (above and beyond the minimum requirements of the NFIP)
✓ Modeled on fire insurance
✓ Administered by the Insurance Services Office

ISO/CRS Specialist: Marlene Jacobs
Community Rating System

4 Series of Activities

300 Public Information
400 Mapping and Regulations
500 Flood Damage Reduction
600 Warning and Response

19 Activities
94 Elements
NAI How-to Guides
Community Rating System

Benefits

✓ Money stays in the community
### NAI How-to Guides

**Community:** ABERDEEN, CITY OF  
**State:** WASHINGTON  
**County:** GRAYS HARBOR COUNTY

**Current CRS Class = 10**

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### CRS Class

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NAI How-to Guides

Community Rating System

Benefits

- Money stays in the community
- Insurance savings offset costs
- Better and better organized programs
- Technical assistance
- Public information builds constituency
- Incentive to keep implementing
- Community pride

$100 Taxes

$143 CRS

Rain happens
1. Basic: NFIP standards
2. Better: Freeboard, higher construction standards
3. NAI: Preserving open space, natural floodplain functions
Community Rating System

Levels of Effort

1. Basic: CRS prerequisite: full compliance with NFIP
2. Better: Freeboard, higher regulatory standards
3. NAI: Preserving open space, natural functions open space
Community Rating System

Better: Freeboard
Max 500 points

NAI: Open space
Max 1,450 points
Public involvement, Step 2 of the 10-step process is recognized as being so important, it receives more points than any other element in the CRS’ floodplain management planning credit, up to 30 percent of the maximum credit for Activity 510.

A variety of communication tools, such as newsletters and neighborhood meetings, can be credited under Activity 330 (Outreach Projects) if done annually.

NAI: Rationale
Legal incentive
How-to guides

CRS: Builds on existing program
Financial incentive
Guidance
Questions?

NAI How-to Guides

French Wetmore, CFM
French & Associates