



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 broadest sense, it is a set of “do no harm” principles to follow when your community is planning, designing, or evaluating public and private development activities and storm-damage prevention measures.

NAI protects the rights of residents, businesses, and visitors in your community by requiring that public and private projects be designed and completed in such a way that they do not: 1) pose a threat to public safety, 2) increase flood or storm damage to public or private property, and/or 3) strain municipal budgets by raising community expenditures for storm-damage mitigation, stormwater management, emergency services, and disaster recovery efforts.

NAI: Local and Comprehensive

Careful management of coastal floodplains is critical to protect people and property, and to reduce the financial strain on businesses, private property owners, and municipal budgets. While the Commonwealth of Massachusetts has passed regulations to help prevent storm damage, ultimately most of the authority and tremendous responsibility to manage floodplains is entrusted to local governments.

Accurately evaluating the potential effects of proposed activities can be challenging, and requires looking both on and off site, since damage often isn't confined to the parcel(s) under review. For example, the construction of a home may change stormwater flow and increase erosion (removal of sediment by water or wind) to surrounding properties. Similarly, new parking lots, roads, and buildings may redirect stormwater onto other properties instead of allowing it to be reabsorbed into the ground.



Photo: Massachusetts Office of Coastal Zone Management.

While seawalls and other structures can sometimes provide storm protection, they generally require regular expensive upkeep and often lead to other problems (including beach erosion). Marshfield, Massachusetts.



In addition to being costly to repair, roads damaged by storms can become hazards for rescue personnel and others. This road in Rockport, Massachusetts, was destroyed by a 2007 nor'easter.

Since each permit might be considered to set a precedent, it is critical that communities consider the potential cumulative effects of their decisions—a number of seemingly insignificant projects can collectively cause substantial damage. The NAI approach clarifies that community leaders not only have the legal right to consider the cumulative impacts of their permitting decisions, they have the legal responsibility. Increasingly, communities that permit projects that result in flooding or storm damage to other properties end up in land court. (See the StormSmart Coasts Fact Sheet 2, *No Adverse Impact and the Legal Framework of Coastal Management*). Adopting the NAI approach also gives your community the chance to clearly articulate a “do no harm” goal for all future land use.

The NAI Approach

The Association of State Floodplain Managers (ASFPM), a national organization of professional flood hazard specialists from all levels of government, the research community, the insurance industry, and technical fields, identifies three different levels of floodplain management strategies:

Basic, Better, and NAI.

- **BASIC:** Approaches typically used to meet minimum federal or state requirements for managing floodplains and coastal areas to minimize flood losses.
- **BETTER:** Activities that are more effective than the basic level because they: 1) are tailored to specific situations, 2) provide protection from

larger floods, 3) allow for uncertainty in storm magnitude prediction, and 4) serve multiple purposes.

- **NAI:** Tools and techniques that go further than the measures defined as “better” by ensuring that private development, public infrastructure, and planning activities do not have direct or indirect negative consequences on the surrounding natural resource areas, private property, or other communities.

A “NO DEVELOPMENT” POLICY?

By adopting the NAI approach, your community is not saying “no” to new development, it is only clarifying that developers will be required to find solutions to the potential problems that their projects may cause. This clear and predictable approach lets businesses to do what they do best—find solutions.

ASFPM has created seven NAI Building Blocks, which can help communities to maintain and enhance flood protection. These building blocks—hazard identification and mapping; planning; regulations and development standards; mitigation; infrastructure siting and design; emergency services; and public outreach and education—are briefly introduced in the table on the next page. For more information, see ASFPM’s *Coastal NAI Handbook* at www.floods.org, or the StormSmart Coasts website at www.mass.gov/czm/stormsmart.

NAI Building Blocks

NAI Building Block	Basic	Better	NAI
Hazard Identification and Mapping	Use FEMA Flood Insurance Rate Maps for land use decisions.	Gather and use detailed coastal hazard data (e.g., historic erosion rates, actual observed extents of floodwaters) for land use decisions.	Incorporate coastal hazard data (e.g., erosion rates, vulnerability of environmentally sensitive areas, and sea-level rise rates and impacts) into community-wide planning maps and regulations.
Planning	Use land use planning and zoning through a community master plan.	Develop floodplain management plans that include stormwater management and hazard mitigation measures. Promulgate detailed guidance focusing on reducing flood damage.	Design special area management plans to: protect storm damage and flood control functions of natural resources, promote reasonable coastal-dependent economic growth, and improve protection of life and property in hazard-prone areas.
Regulations and Development Standards	Follow Federal Emergency Management Agency National Flood Insurance Program regulations.	Adopt conditions for siting new development. Regulate cumulative, substantial improvements. Revise regulatory tools for addressing erosion along shorelines including: relocation of threatened buildings, building setbacks, beach nourishment and bio-engineering, and stabilization of eroded areas.	Preserve sensitive areas through bylaws and regulations that may: establish maximum densities for development, restrict structures between the shoreline and the setback line, mandate vegetative coastal buffers rather than manmade structures (bulkheads, seawalls, or groins), minimize impervious cover, and preserve stream corridor and wetland buffers. Regulate placement of fill.
Mitigation	Use common practices, such as flood proofing existing structures.	Elevate or relocate buildings. Acquire land. Encourage non-structural methods for shoreline protection.	Stabilize shorelines with vegetation. Prohibit construction in especially damage-prone areas. Prevent filling of wetlands and other lowlands. Nourish beaches where appropriate. Protect watersheds. Monitor corrective efforts. Regulate construction of shore-protection structures.
Infrastructure Siting and Design	Respond to storm events as they occur. After a storm, re-build/repair to previous condition.	Upgrade damaged facilities to more hazard-resistant standards. Inventory hazard risks of all public buildings. Insure buildings for all hazards (as appropriate). Identify, and if possible, relocate or protect “critical facilities.”	Prohibit major public infrastructure investments in special flood hazard areas. Ensure that roads, sewer lines, and utility upgrades don’t encourage development in hazard-prone areas. Zone to prohibit construction in high-hazard areas. Locate new critical facilities above 500-year floodplain.
Emergency Services	Create and use generic hazard response plan.	Create and test community-wide hazard plans that involve all local boards and departments.	Create plans to ensure that all people who want or need to be evacuated can be moved to safe shelters, and post-disaster plans that improve community flood resistance through: willing land acquisition, determining which structures are “substantially damaged,” and ensuring that appropriate reconstruction meets code requirements. Establish mutual aid agreements with neighboring communities.
Public Outreach and Education	Answer questions and provide information as requested by public.	Periodically inform residents of coastal hazards, vulnerability, and mitigation techniques through public workshops, and in forums after storm recovery.	Create comprehensive education and outreach programs using expertise of state and federal agencies (when needed) to encourage community-wide proactive storm preparation. Establish coastal hazard disclosure requirements for property sales.

The Benefits of NAI

While NAI strategies require investment in planning and implementation, they offer real benefits for your community. NAI can . . .

- **Save money:** Less damage means lower post-storm community cleanup costs, fewer demands on public officials' limited time, and reduced strain on public resources.
- **Decrease litigation:** NAI principles have been judicially tested and courts have shown immense deference to regulations that seek to prevent harm (for an example, see the StormSmart Coasts Fact Sheet 3, *A Cape Cod Community Prevents New Residences in Floodplains*). NAI can also help your community avoid potential litigation over ineffectual flood management practices that result in future damage or loss of life. (See Fact Sheet 2, *No Adverse Impact and the Legal Framework of Coastal Management*.)
- **Reduce conflicts with property owners:** NAI doesn't say "no." It says "yes, if . . ." It is a common-sense approach that seeks to protect everyone's property by only allowing projects that eliminate or mitigate their impacts.
- **Reduce risk to people and public and private property:** Better planned and designed development and public infrastructure is less likely to cause and suffer damage. An NAI approach can help protect the beaches that are critical to many communities' economies.
- **Lower flood insurance rates:** The Community Rating System (CRS) is a Federal Emergency Management Agency (FEMA) program that decreases flood insurance rates for communities with effective hazard mitigation strategies. Many NAI strategies qualify for CRS credits. For more information see the CRS Resource Center at training.fema.gov/EMIWeb/CRS/.

- **Increase your capacity to bounce back after a storm:** Reduced storm damage means less downtime and less costly clean up for local businesses, which is especially important for small, locally owned businesses that may otherwise struggle to stay solvent during frequent or prolonged closures.
- **Clarify your land use objectives:** By adopting NAI principles, your community can articulate the overarching goals that help bring consistency and predictability to permitting.
- **Preserve quality of life:** With NAI you can help make your community safer while preserving quality of life for your citizens now and in the future. An NAI approach can help ensure that your community resources, including beaches, public parks, and other open spaces, are there to be enjoyed by future generations.

For More Information . . .

- For more on the theory of NAI and its application in coastal areas, see the Association of State Floodplain Managers website (www.floods.org), especially their *Coastal NAI Handbook*. Also see the StormSmart Coasts website at www.mass.gov/czm/stormsmart.
- For more on the legal issues surrounding coastal management, see the StormSmart Coasts Fact Sheet 2, *No Adverse Impact and the Legal Framework of Coastal Management*.
- For an example of NAI-type regulations at work, see the StormSmart Coasts Fact Sheet 3, *A Cape Cod Community Prevents New Residences in Floodplains*.
- For a more detailed look at the legal theory behind this and similar cases involving land management in hazardous areas, see the Association of State Floodplain Managers' *No Adverse Impact Floodplain Management and the Courts* by attorneys Jon Kusler and Ed Thomas, at www.floods.org.



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For further information on StormSmart Coasts, visit www.mass.gov/czm/stormsmart.

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