

# Impacts of Federal and State Hazard Mitigation Policies on Local Land Use Policy

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A major obstacle to reducing the dramatic rise in losses from disasters is the shared governance dilemma, where the federal government has a strong stake in promoting mitigation, but state, regional and local governing bodies are less enthusiastic partners. To address this issue, the federal government has taken a more active role in creating shared governance programs aimed at motivating local government action. This study provides a comparative evaluation of the effects of two federal policies—the Disaster Mitigation Act (DMA) and the National Flood Insurance Program's Community Rating System (CRS)—in both Florida and North Carolina. The study is based on a sample of local government decisions in each state to incorporate land use policy actions into local mitigation plans. The main objective is to examine the independent effects of each federal policy on incorporation of land use policies in local mitigation plans relative to the influence of state policy that facilitates (or obstructs) incorporation of such policies.

## Research Questions

- (1) Do local mitigation plans prepared in response to federal and state mitigation policies support preventative land use actions more (or less) than other types of actions (e.g. structural strengthening of buildings, emergency preparedness, public awareness campaigns)?
- (2) How influential are alternative federal policies (regulations vs. regulations with incentives) on local plan support of preventative land use controlling for state policy?
- (3) How important are alternative state policies (top-down, prescriptive vs. bottom-up, flexible) on local plan support for preventative land use controlling for federal policy?

## Methodology

The sample of local governments included coastal counties and municipalities in Florida and North Carolina that were randomly selected, including 43 local governments with stand-alone DMA plans (24 in Florida and 19 in North Carolina) and 28 with DMA plans submitted under CRS (17 in Florida and 11 in North Carolina). Hazard mitigation through land use management is a particularly important planning issue for coastal local governments because coastal areas are especially prone to hazards and tend to experience higher growth rates than the rest of the country.



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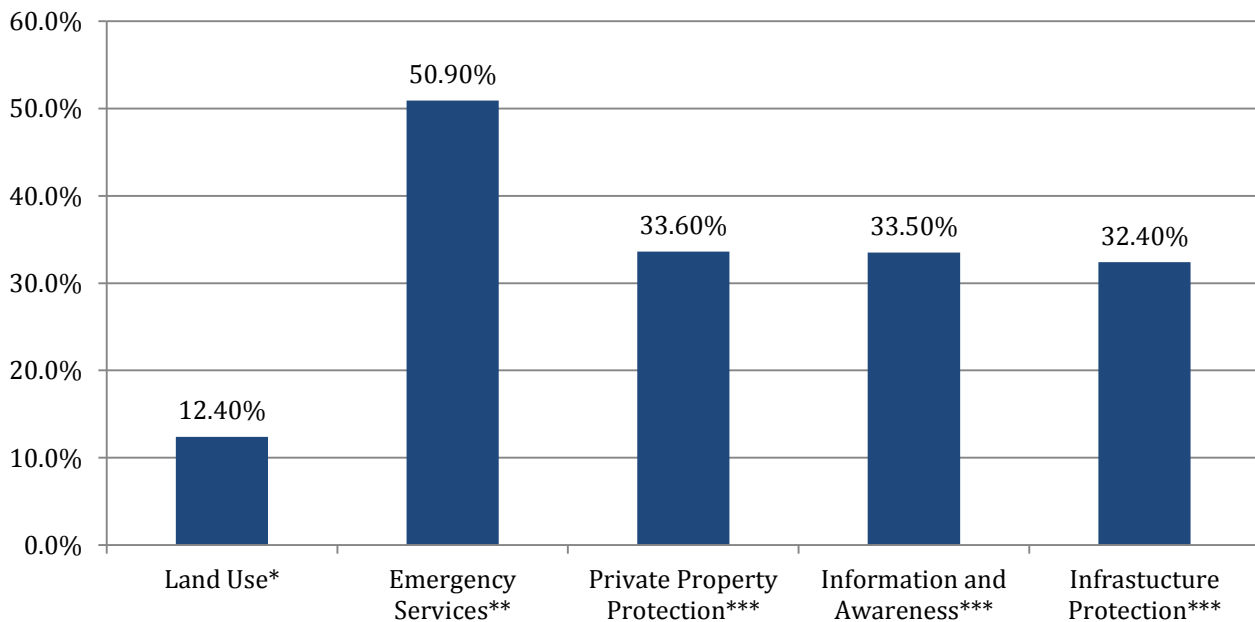
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Evaluation of the state mitigation planning programs involved interviews with the State Hazard Mitigation Officer in addition to reviewing agency reports. The two sets of plans were utilized to identify policies for land use plus four additional mitigation activities established by FEMA (structural protection of property, emergency services, information and awareness, and structural protection of infrastructure). These policies were identified through the coding of plans. Comparative statistics and Poisson regression analysis were used to test for differences in the number of land use actions adopted in the plans in response to federal policies, while controlling for state policies and local contextual factors (such as population, population growth, median house value, disaster frequency, and whether a planner was on the official planning committee).

## Key Findings

Mean percentages for each of the five categories of mitigation actions (land use, emergency services, private property protection, information and awareness, and infrastructure protection) across federal policies and state programs were calculated based on the sum of actions (see figure below). **These findings suggest that local governments place low priority on land use actions and instead emphasize emergency services, private property protection, information and awareness programs, and infrastructure protection. As a result, local mitigation plans fail to provide a platform for guiding urban growth to locations outside of current and forecasted hazard areas, assisting property owners to relocate homes and commercial buildings to safer sites, and managing post-disaster redevelopment in ways that reduce future risk.**

**Means of the Percent of all Possible Policy Actions**



\* The mean of land use actions is significantly less than means for the four other categories of actions (t-values,  $p < 0.001$ ).

\*\* The mean of emergency service actions is significantly greater than means for the four other categories of actions (t-values,  $p < 0.001$ ).

\*\*\* The means of structural protection of private property, structural protection of public infrastructure, and information and awareness actions are not significantly different than means for each of the four other categories of actions (t-values,  $p > 0.1$ ).

**The alternative federal policy designs – DMA (regulatory) and CRS (regulatory with incentives that give credit in the form of insurance rate reductions to property owners) – do not make a difference in local plan support of land use actions. This suggests that incentives under CRS are too low and did not induce local governments to adopt more land use actions in the policy element of mitigation plans.**

**State policy exerts a strong influence on use of preventative land use actions. North Carolina’s bottom-up, flexible and integrated approach to local plan making had a significant positive influence. In contrast, Florida’s top-down and prescriptive approach backed by more punitive actions for non-compliance had negative effects on use of land use actions.**

## Implications for Practice

This study found that the following improvements to federal and state policies should be considered:

- **Include stronger requirements aimed at preventative land use approaches in the Disaster Mitigation Act.** Greater priority should be given to use of land use actions (development regulations, land and property acquisition, market incentives, siting of public facilities, impact fees or taxation policies, and post-disaster redevelopment) in local mitigation plans produced under the DMA (both CRS-credited

and non-credited plans) compared to other mitigation activities that are less effective in vulnerability reduction and politically easier to achieve. The category of emergency services should not be included as a mitigation action and thus be excluded from consideration under DMA, as it does not address long-term solutions to avoid and reduce at-risk populations and built environment in hazard areas.

- **Strengthen incentives for land use actions under the Community Rating System.** Insurance rate reduction credits should be increased when local governments apply preventative land use actions. Local governments should also be given substantial credit for coordinating actions in local mitigation plans with local land use plans. The current incentive scheme does not provide credit for such coordination.
- **Land use planners must be a part of the plan making process.** DMA should specify that land use planners play a key role in local mitigation plan preparation to ensure future development risk avoidance.

## Full Article

The full version of this publication and others are available at <http://hazardscenter.unc.edu/mitigation-planning/> and at <http://www.ie.unc.edu/cscd/projects/dma.cfm>.

## Additional Information

More about the Coastal Hazards Center and its work can be found at <http://hazardscenter.unc.edu>. More about the Institute for the Environment and its work can be found at [www.ie.unc.edu](http://www.ie.unc.edu).

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