

TEN KEY LESSONS FROM THE REBUILD BY DESIGN COMPETITION PROJECTS AFTER HURRICANE SANDY

The six winning* Hurricane Sandy Design Competition projects were selected to demonstrate innovative approaches for rebuilding communities affected by Hurricane Sandy in ways that will enhance physical, social, economic, and environmental resilience. Two years into implementation, these projects are providing important lessons about how officials at all levels of government can design and construct infrastructure projects that deliver multiple community benefits.

1. Design for and encourage projects that provide multiple benefits:

With a changing climate, increasing urbanization, and budget constraints, infrastructure projects can no longer be built to only serve a single purpose. Governments need to demand that new infrastructure meets multiple challenges and provides a variety of economic, social, and environmental benefits. For example, many of the competition's projects include "berms with benefits"—flood control structures that not only reduce flood risks but also provide environmental and recreational benefits.

2. Achieving comprehensive resilience will require a long-term approach:

Large-scale resilience projects will often have to be constructed in stages due to budget constraints and uncertainty in the science. The most viable projects will be designed so that they can be progressively implemented over time as funds become available or as the impacts of climate change become more severe. Phased construction allows governments to develop long-term solutions without being overwhelmed by the large initial price tags of the needed investments.

3. Align multiple streams of funding & administrative requirements:

Implementing large-scale, multi-benefit projects will often require several funding sources. Governments should coordinate administrative requirements, where possible. They should also allow different funding streams to be combined. This will generate more comprehensive resilience projects that can deliver more holistic solutions.

4. Create more flexibility in disaster recovery:

Federal disaster recovery programs are not well suited for broader community rebuilding efforts. Federal agencies and Congress must find ways to give grantees more flexibility to use disaster recovery dollars in ways that allows them to rebuild in more holistic ways with climate change in mind instead of merely react to the last disaster.

5. Identify additional funding sources to support long-term monitoring and maintenance:

Governments must identify funding sources that can be used to assess the effectiveness of innovative resilience projects and to maintain these projects over long periods of time. Funding for monitoring will be critical to assessing whether these projects are effectively delivering the range of resilience benefits promised and for demonstrating to elected officials and the public the return on investment delivered by these projects.

6. Use lessons learned from project implementation to reform permitting:

Implementing innovative resilience projects will test the bounds of government rules, processes, and capacities. The projects provide opportunities to test and experiment with new approaches that are unfamiliar to most state and federal regulators. Regulators should use information gained from these projects to reform permitting and other processes.

7. Encourage coordination across agencies and levels of government:

Complex resilience projects will require unprecedented coordination across jurisdictions, agencies, and levels of government to permit, construct, and maintain these projects. The projects demonstrate how permitting agencies can create vehicles for improving coordination at all stages of a project's lifecycle. These projects also demonstrate the need for regional coordination across jurisdictions to ensure that resilience projects are implemented at the scale needed to be effective.

8. In addition to infrastructure projects, pursue legal and policy mechanisms:

Governments will not be able to reduce all risks via public investments alone. They also will need to implement policies to institutionalize resilience approaches among public agencies and to encourage or require implementation by private parties. Land-use policies and incentives can be used to encourage or require private resilience and to ensure broader scale implementation of resilience approaches like green infrastructure and flood-resilient construction. Innovative nature-based approaches, unlike traditional engineered methods, can provide multiple community benefits like improving water quality, reducing urban heat islands, and enhancing recreational amenities. Local governments should work with the public and private sector to adopt zoning codes, ordinances, and align incentives to promote broad deployment of these approaches on private lands.

9. Encourage better pre-disaster planning and mitigation:

While communities receive large amounts of funding to recover after a disaster, far fewer resources are available to help communities proactively prevent or reduce risks before a disaster strikes. To reduce exposure and to facilitate quicker, more effective, and holistic post-disaster recovery, communities need more resources to support pre-disaster planning and action. And project designers should be encouraged to draw on pre-existing plans that reflect the community's needs and priorities.

10. Encourage robust public engagement and partnerships:

The value of robust and continued public participation and engagement throughout all stages of project design and implementation has led to broad project support. Community organizations and local stakeholders informed project design and remained important advocates. Governments should encourage officials to move beyond historical practices of "checking" the public outreach box and rather treat the public as an important partner in the design and implementation of projects. Community partners could be critical allies in filling gaps in long-term monitoring, maintenance, and operations of the projects.

**One finalist competition proposal, Resilient Bridgeport, was awarded \$10 million from HUD. That project is now moving forward with support of additional government funding.*

The Hurricane Sandy Design Competition projects are demonstrating innovative approaches for rebuilding in ways that will make our communities more resilient to future climate impacts and other environmental changes, as well as to social and economic stressors. The lessons that are being learned show how these approaches can be institutionalized and replicated in other communities across the nation.

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