



Is resilience resilient?

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Around the world, disasters are becoming more frequent and severe as recovery costs are growing.

\$4.2T

Global Losses

75%

Attributed to extreme
weather events

Financial losses from adverse events have grown exponentially over the past 36 years, rising from **\$50 billion** per year to **\$200 billion**.

\$49B

CDBG-DR Allocations

886

FEMA Major Disaster
Declarations

Source: HUD, FEMA

In the US, federal recovery funding is unable to cover these increasing costs.

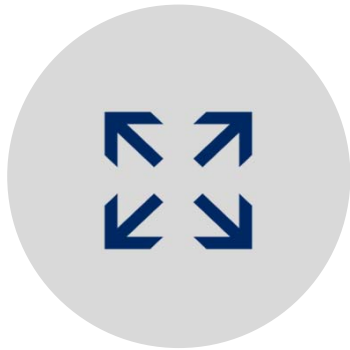


Cities, and the infrastructure that support them, are more vulnerable than ever to climate change-related risks, and conventional solutions are ill-suited to address the increased risks urban density.



At HR&A, we empower communities to address pressing resilience challenges by leveraging assets to create value.

PATHWAYS FOR RESILIENCE



CAPACITY BUILDING



**STRATEGIC PLANNING
AND POLICY**

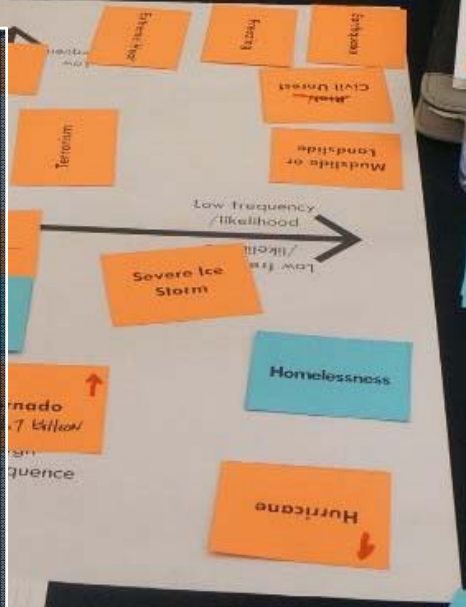


IMPLEMENTATION



CAPACITY BUILDING

Design, facilitate, and implement programs that build organization capacity and prepare communities to think strategically about resilience and sustainability.





STRATEGIC PLANNING & POLICY

Evaluation of systems' vulnerability and climate mitigation and adaptation to identify opportunities for implementation in strategic resilience and sustainability plans.



IMPLEMENTATION

Economic feasibility and creative funding strategies for resilience and sustainability of infrastructure and the built environment through adaptation to risks of extreme climate conditions and energy efficiency interventions.

THE RESILIENCE LOOP



THE RESILIENCE PRINCIPLES



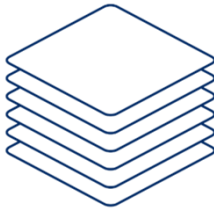
SUPPORT MULTIPLE
BENEFITS WITH EACH
ACTIVITY



MAKE IMPROVEMENTS AS
PART OF NATURAL BUILDING
CYCLES, AND ADDRESS
MARKET FAILURES



INCORPORATE LOCAL
INVOLVEMENT IN
DESIGN AND
DECISION-MAKING



WORK IN LAYERS FOR
INDEPENDENTLY
EFFECTIVE SOLUTIONS



DEVELOP
ADAPTIVE AND
FLEXIBLE STRATEGIES

Worksheet 1: Identifying Resilience Opportunities

ONOLA
W.M.P.
\$6B

JURISDICTION NAME
CITY OF NEW ORLEANS

Ongoing Priorities and Initiatives

GREATER NOLA PROGRESS PLAN
100 RESILIENT CITIES
ENERGY STABILITY
POTABLE WATER
HOUSING AFFORDABILITY
VIOLENCE REDUCTION
INFRASTRUCTURE FAILURES
WATER LOSS ISSUES

Priorities & Goals for Building Resilience

GREEN INFRASTRUCTURE
ENERGY
SOCIAL CAPITAL BUILDING
IMPROVE HEALTH AND WELL-BEING
EDUCATION FOR GREEN JOBS
WORKFORCE DEVELOPMENT

Needs

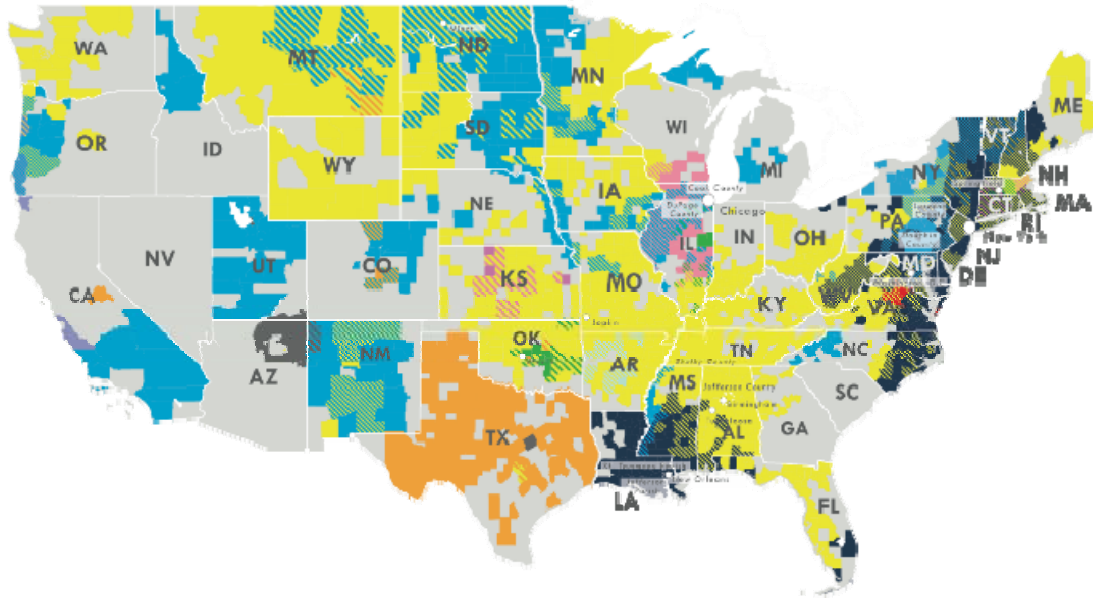
IDENTIFY OPS/MAINT. APPROACH TO FINANCE
IDENTIFY ENERGY NEEDS/ISSUES
FURTHER EDUCATION JOB QUALITY
Demand Reduction
PARTNERS NOT YET IDENTIFIED
CARBON REDUCTION
SMALLER PIECES BRINGING TO

Opportunities

REVENUE OF Sewer/Water Board Delgado
Pilot projects water energy
IMPROVE RECOVERY SPEED

CAPACITY BUILDING

US DISASTERS 2011 - 2013



NATIONAL DISASTER RESILIENCE COMPETITION

Led **67** disaster-impacted communities through resilience strategy development.

Produced **eight** academies attended by over **500** jurisdiction representatives and partners, including **250** subject matter experts.

Facilitated access to **technical assistance** from climate scientists, engineers, designers, and policy advocates.

Managed **federal** efforts to inform **local** resilience insights

OUTCOMES

NEW ORLEANS

\$141M

Gentilly Resilience District

VIRGINIA

\$121M

Green Infrastructure &
Economic Development Center

NEW YORK CITY

\$176M

Lower Manhattan
Coastal protection system

OTHER WINNING JURISDICTIONS

The State of California will receive **\$70M**
The State of Connecticut will receive **\$54M**
The State of Iowa will receive almost **\$97M**
The State of Louisiana will receive almost **\$93M**

The City of Minot, ND will receive **\$74M**
The State of New Jersey will receive **\$15M**
The State of New York will receive **\$36M**
Shelby County, TN will receive **\$60M**

Springfield, MA will receive **\$17M**
The State of Tennessee will receive almost **\$45M**

An aerial photograph of a flooded residential neighborhood. The water is dark and reflects the sky and buildings. On the left, a single-story house is partially submerged. In the center, a small boat with two people is on the water. On the right, a multi-story building and a covered walkway are visible. A utility pole with wires is in the foreground. The overall tone is somber and blue.

POLICY & STRATEGIC PLANNING

100 RESILIENT CITIES | NOLA

Supported **evaluation** of city performance and perceptions.

Strategic action plan support. Created briefing books, facilitated working groups, conducted research, & prioritized actions.

Developed city's **strategy framework**, which included goals and implementation actions.

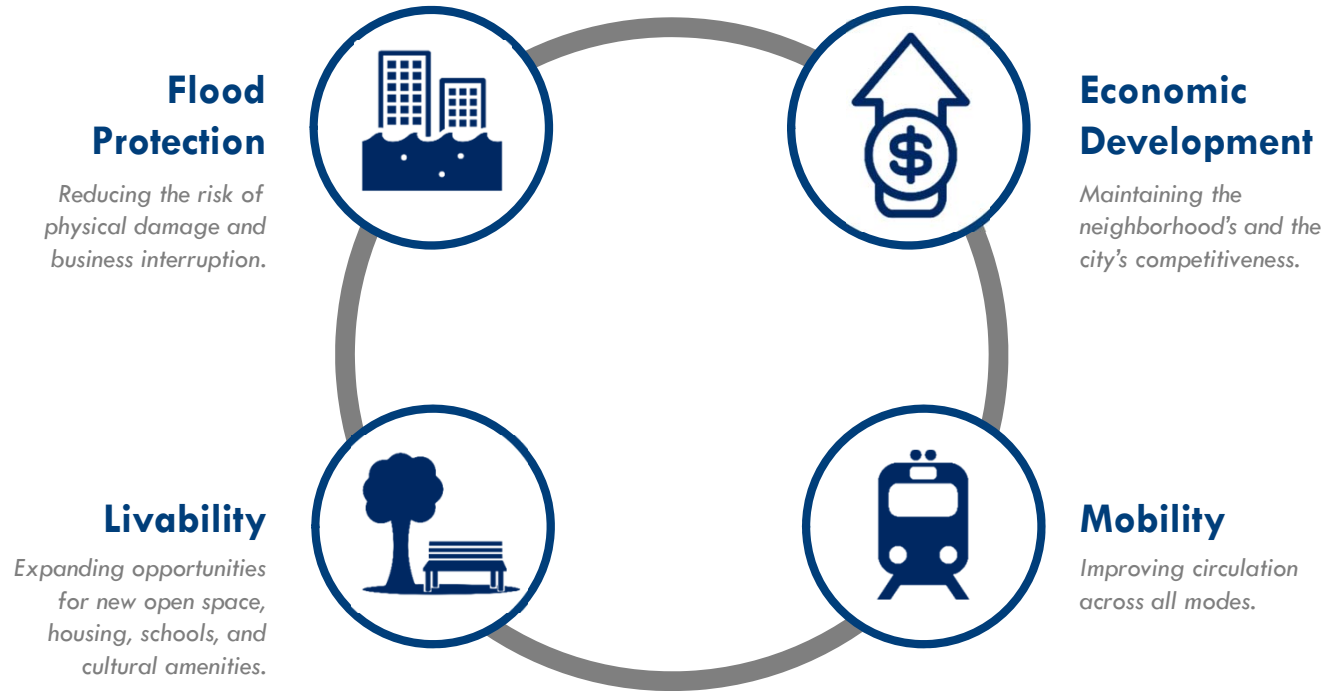
An architectural rendering of a waterfront park. In the foreground, a boat with a white hull and dark stripes is docked. To its right, a modern building with a white, curved, lattice-like facade is situated on a small island or peninsula. A wide, paved walkway with a grid pattern leads from the building towards the right, where a large, multi-tiered set of concrete steps descends towards the water. Several people are shown walking on the path and sitting on the steps. The background features a calm body of water reflecting the sky, a row of trees along the shore, and a large, multi-story building in the distance. The entire scene is rendered in a monochromatic blue-grey color scheme.

IMPLEMENTATION

FUNDING SOURCES

STRATEGIES

With multiple benefits, the potential to unlock new sources of funding is expanded.



FUNDING SOURCES

STRATEGIES

Ability to leverage other public and private investments to reduce certain project costs.



**INTEGRATE PARKS &
INFRASTRUCTURE**

**DEVELOPER IN-KIND
CONTRIBUTIONS**

FUNDING SOURCES

STRATEGIES

By expanding project scope, additional funding sources can be utilized.

Local	State	Federal	Private/Utility
NYCDOT	NYSDOT	FTA, FHWA	Property Assessment
NYCDEP	NYSDEC	CDBG-DR	Development Rights
NYCHA	MTA	National Park Service	Earned Income
NYC Parks	PANYNJ	USACE	Philanthropy
		FEMA Hazard Mitigation Assistance	Utility Providers

LESSONS

Recognize and quantify a broad array of **public and private benefits**.

Attract federal funds by **matching** the project **benefits** case to evolving federal **cost-benefit frameworks**.

Apply value capture mechanisms to **monetize the benefits** of resilience projects accruing to a diverse mix of parties.

Align resiliency investment plans with other municipal levers to **reduce total project costs**.