Building Resilient Infrastructure and Communities (BRIC)

Mary Kincaid, P.E.
Sustainable Infrastructure Program Manager
City of New Orleans

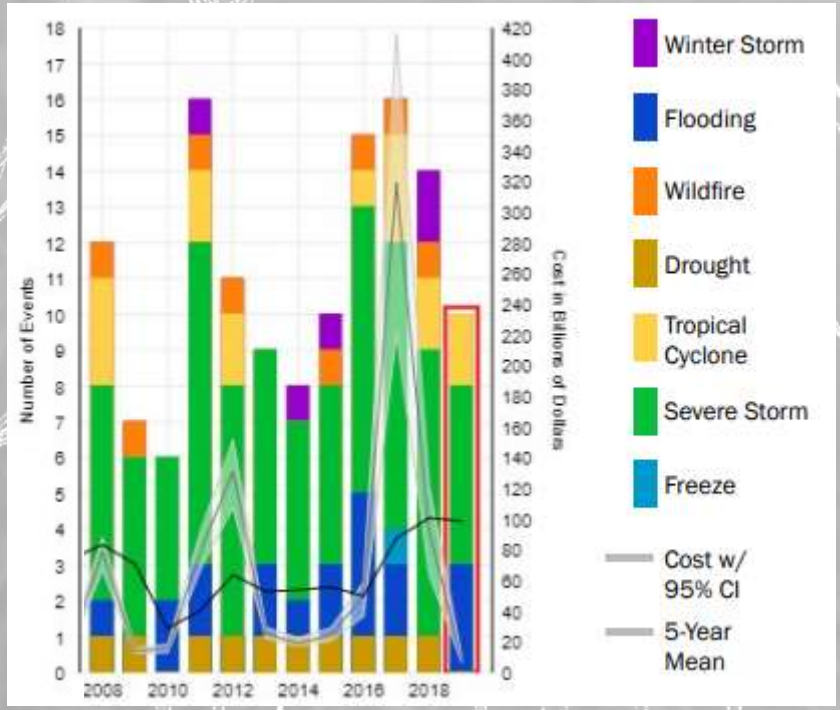
Hazard Mitigation vs. Disaster Recovery

Disaster Recovery

- Replaces damaged assets in-kind after a natural disaster
- Cost reimbursable
- Doesn't permit an improved level of service or energy efficiency

Hazard Mitigation

- Percentage of total post-disaster damage assessment
- May require cost share from state and municipal governments
- Only funds risk reduction
- Reduction in property damage from future disasters must be equal to project funding
- Benefit-cost methodology set by FEMA

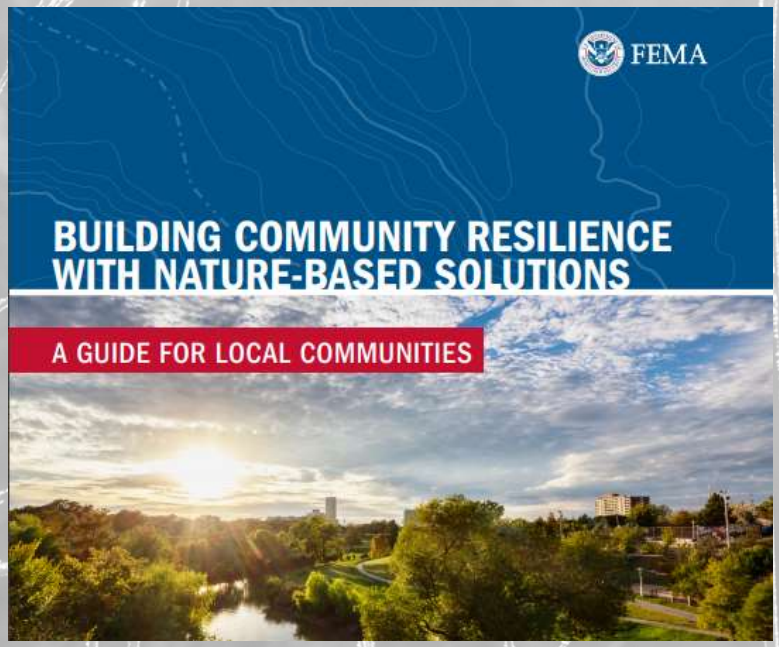


Building Resilient Infrastructure and Community

- 2018 Stafford Act Reauthorization
- Replaces Pre-Disaster Hazard Mitigation
- Funded at 6% of federal post-disaster grant spending
- Funds multiple community benefit as well as public infrastructure

2020 Funding Opportunity

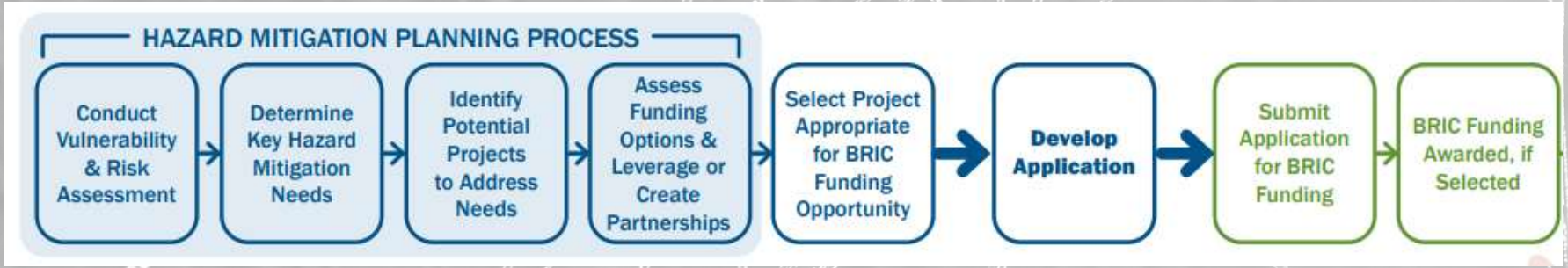
- 2020 Notice of Funding Opportunity (NOFO) announced August 4, 2020
- Open to states and tribes
- $160M in Flood Mitigation Assistance
- $500M in BRIC
  - $446.6M National Competition
  - $50M Per Subapplication
- Emphasizes nature based solutions
- Application period opens September 30, 2020
- Applications due January 29, 2021 with subapplications due to GOHSEP ~November 30, 2020
- Pre-Award Selection Notice June 2021



Eligible Activities

- Planning
- Building Code Development
- Code Enforcement
- Communication System Upgrades
- Flood Protection
- Structure Hardening
- Energy Redundancy
- Community Relocation
- Aquifer Recharge
- Green Infrastructure
- Interagency Coordination
- Related Agency Expenses and Training

Project Approach



- Select project consistent with hazard mitigation plan
- 2000 Stafford reauthorization required governments to have plan to receive mitigation funds
- Identify local, state, or community match = 25% project cost
- Period of performance for design and construction 36 months from award
- Award does not equal selection notification

Nature Based Solutions for Multiple Community Benefit

Problem

- 77% of days in New Orleans are cooling days
- Higher fatality from chronic disease when night time temperature doesn't fall below 84 degrees
- Low income residents spend disproportionate income on energy

Solution

- Plants provide evaporative cooling of up to 6 degrees and a half-mile distance from urban parks
- Urban trees provide shade and evaporative cooling
- Green roofs and walls provide insulation from daytime heat as well as evaporative cooling

Green Infrastructure

Green infrastructure is the engineered use of natural materials and plants to enhance infrastructure. Green infrastructure techniques use biological processes to reduce flooding, improve water and air quality, reduce urban heat, and improve public health.

Green infrastructure elements are naturalistic – they mimic natural landscapes but are design and engineered to meet a specific function.

Green Infrastructure

Who Can Design Nature Based Mitigation?

- Structural engineering
- Architecture
- Cost estimating
- Hydrology
- Drainage
- Land use planning
- Radio and microwave communications
- Information technology
- Transportation planning
- Roadway design
- Residential construction
- Geotechnical engineering
- Pump, gate and lock design
- Space planning
- Benefit cost analysis
- Technical writing
- Public relations

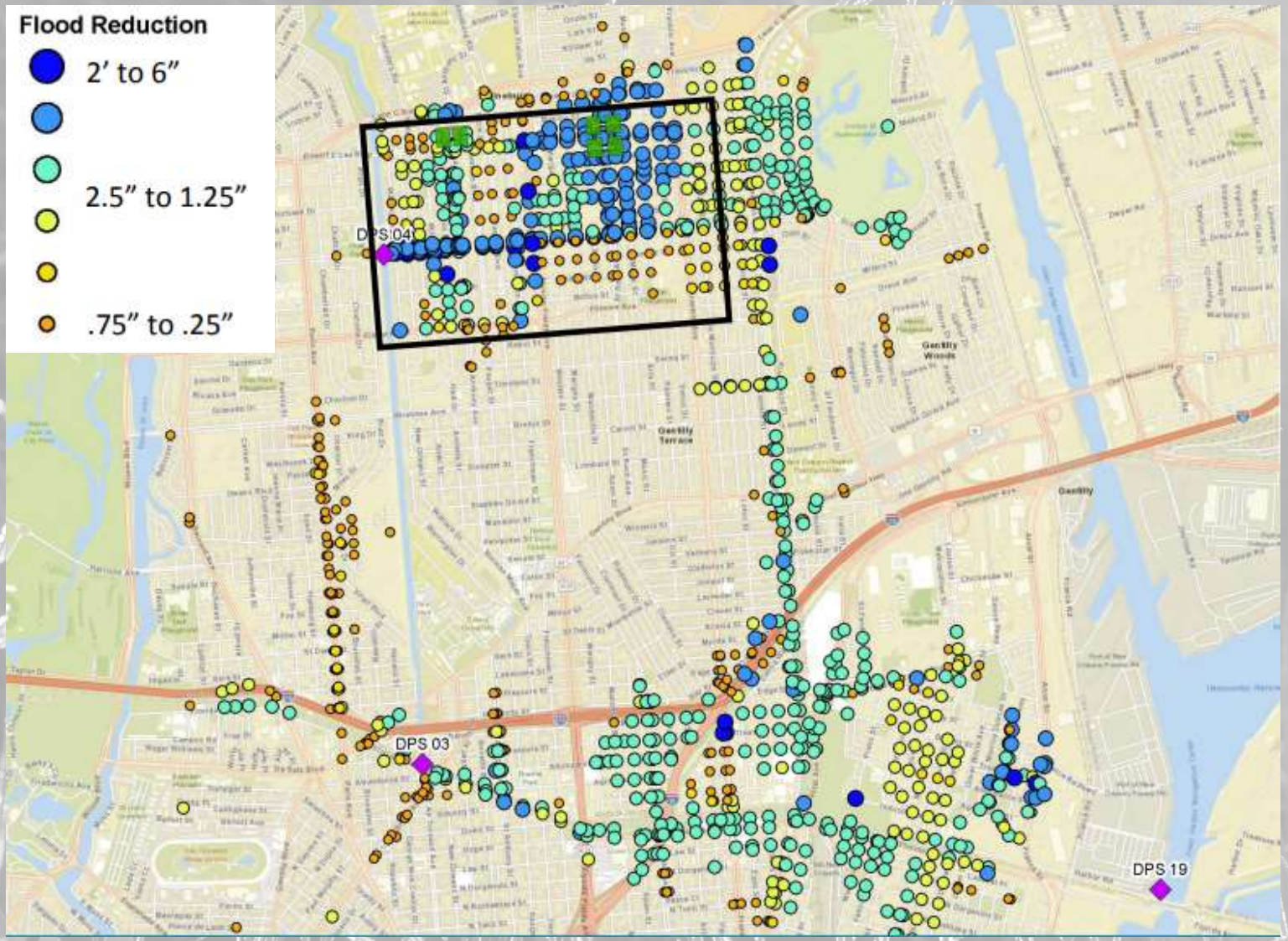
Blue-Green Corridors

The median of Elysian Fields and Lee is transformed into a recreational and community space whether wet or dry. Spaces to gather, to interact with water, and to play. Safer biking and walking lanes. City lots become reflection pools when wet, and prairie meadows when dry.

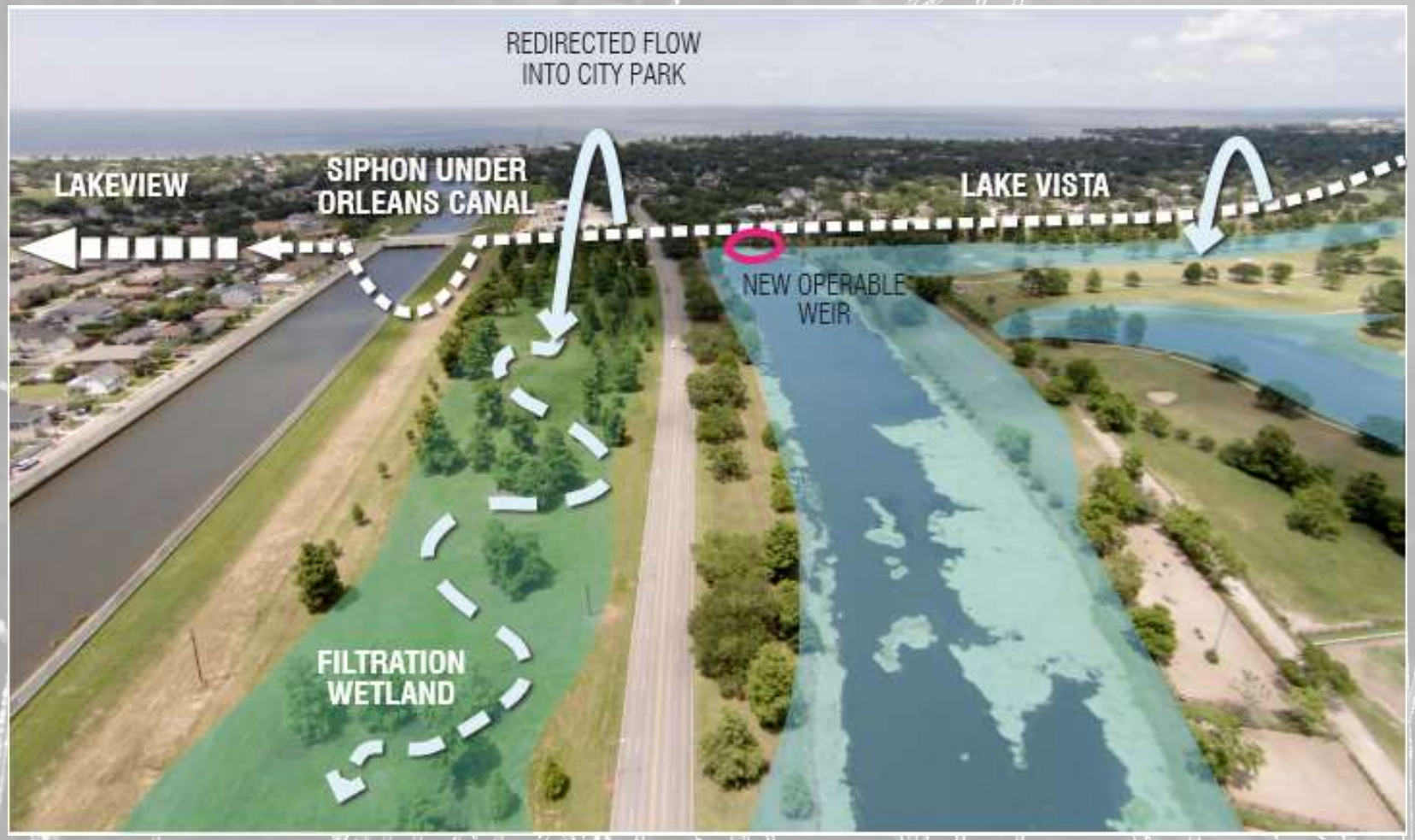
- Estimated Construction Budget: $35M
- Current Status: 90% design
- Construction Start: Feb 2021 Phase I, April 2021 Phase II and III
- Construction Completion: August 2022 Phase I, April 2022 Phase II and III

Blue Green Recreational Amenities

Blue-Green Corridors Flooding Reduction

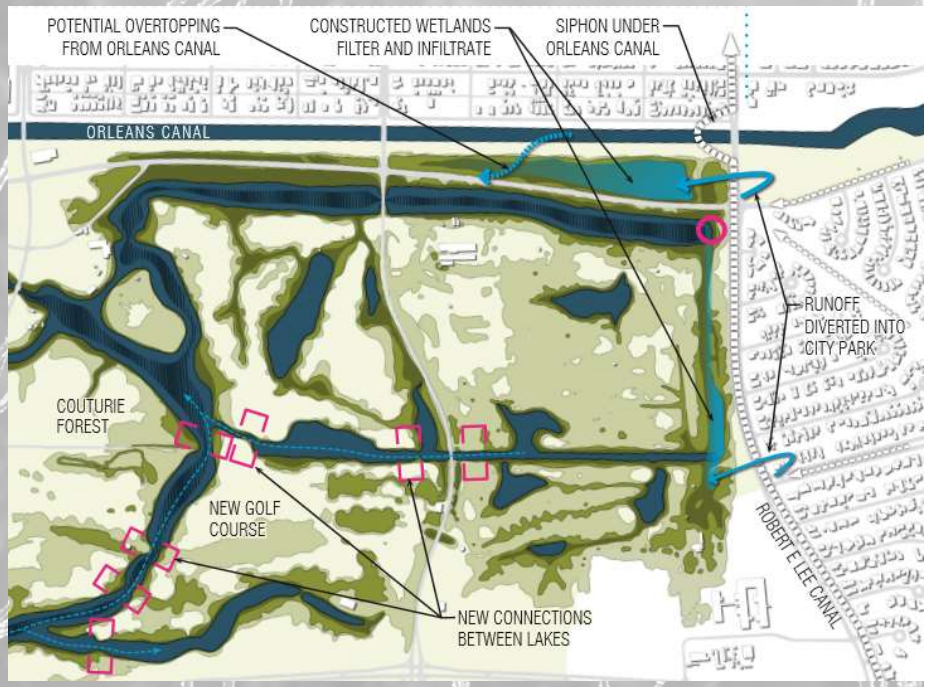


Lakeview – City Park



Lakeview – City Park

This project combines alleyway stormwater storage with lagoon improvements in City Park to increase stormwater storage, improve water quality and enhance green space in City Park. Improved wetlands in City Park accept drainage from Lake Vista.



- **Project Goals**
  - Operable weirs allow lowering of water levels in lakes in advance of storm events
  - Dredged lake beds provide up to 320M gallons of storage capacity diverted from the drainage system
  - Modified lake edges stabilize banks and increase storage capacity
- **Budget: $22.2M HMGP; Design start: QTR 4 2019**

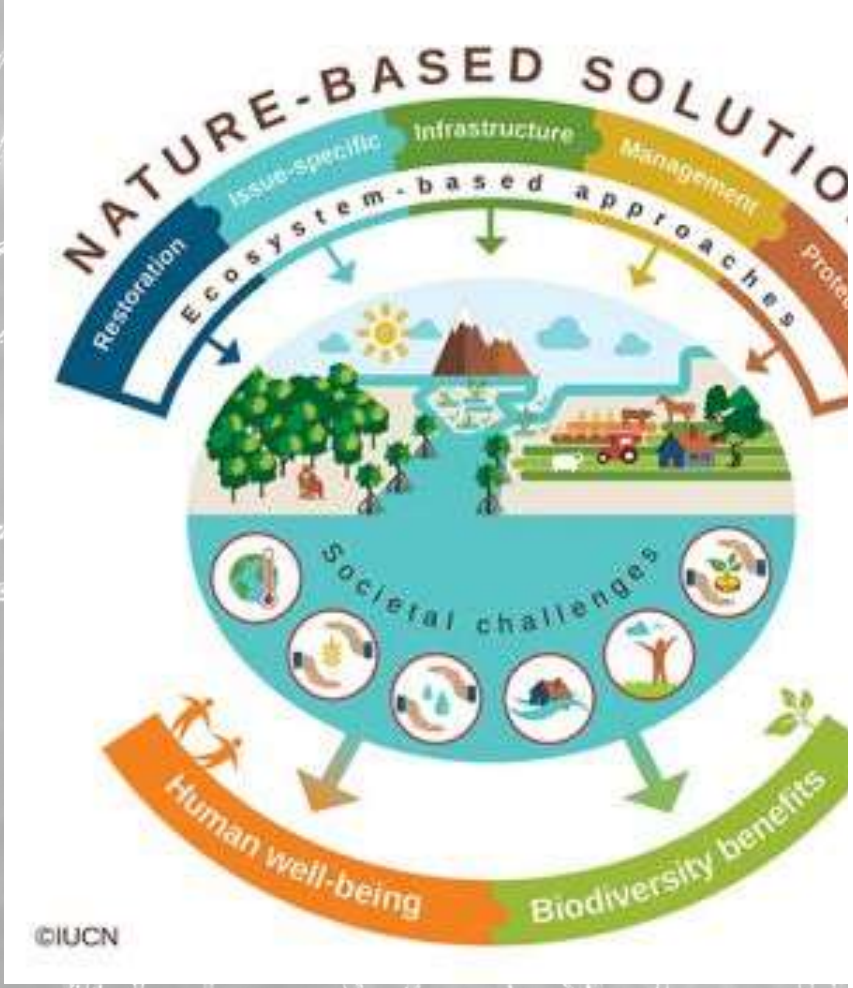
Community Adaptation Program

Adds stormwater management features to private residences through grants managed by the New Orleans Redevelopment Agency (NORA). Residents choose the feature (rain gardens, permeable surfacing, rain barrels, to be installed and the contractor to perform the work. NORA qualifies the contractors and submits invoices for reimbursement.

- Project Goals
  - Divert and detain stormwater runoff on over 200 properties with an average grant award between $10,000 and $25,000
  - Involve residents in stormwater management
  - Protect and beautify the home of low- to moderate-income individuals
- Budget: $5.9M HUD
- Project Status: 65 homes improved
- **2020 EPA Region VI Outstanding Green Infrastructure Project**

Identifying Community Needs and Resources

- Most government agencies have a HM Plan – what needs are identified in it?
- What other needs can be met by a project or plan?
  - Communications
  - Regional cooperation
  - Urban heat risk
  - Structural deficiencies
  - Floodplain risk
  - Data deficiencies
  - Public health
  - Low to moderate income areas
  - Air quality
  - Water quality
  - Groundwater recharge for aquifer or subsidence risk



Teaming

- Engineering functions
- Landscape architecture
- Architecture
- Benefit cost analysis
- Public infrastructure finance
- Public relations
- Public health
- Biologist
- Data and mapping
- Community engagement
- DBE requirements
- Exclusivity?
- Teaming agreements?

Impact Type	Cost/Benefit	Expected Value
Financial	Capital Expenditures	-$7,478,000
Financial	Operations and Maintenance	-$3,033,000
Financial	Replacement Costs	-$1,477,000
Financial	Residual Value of Assets	$3,000
Social	Subsidence Road Impact	$2,357,000
Social	Subsidence Property Impact	$464,000
Social	Public Health	$71,000
Social	Public Health CVD Impact	$21,000
Social	Property Value	$931,000
Social	Flood Damage	$8,935,000
Social	Recreational Value	$1,078,000
Social	Education	$105,000
Social	Heat Island Effect	$32,000
Environmental	Carbon Emission Sequestration	$4,000
Environmental	Air Pollution Sequestration	$13,000
Environmental	Stormwater Treatment	$2,760,000

	Expected Value
Financial	-$11,985,000
Social	$13,994,000
Environmental	$2,777,000
Triple Bottom Line NPV	**$4,786,000**

Qualifications and Contracting Language

"Request for qualifications for professional services including design services in support of its application to the BRIC competition and for projects that receive funding awards through that competition"

"The Consultant and Agency acknowledge that if the Agency is awarded BRIC funding, the parties will execute an amendment to this Agreement to implement the design strategy provided by the Consultant. Implementation of the design strategy provided by the Consultant is contingent on the Agency's receipt of award funding. Parties acknowledge that application to BRIC may require services after grant award."

New definition for infrastructure success

Paris Wants to Grow "Urban Forests" at Famous Landmarks

"The High Line has a been a resounding success as an engine for tourism"

More Information

- BRIC NOFO: https://www.fema.gov/grants/mitigation/fy2020-nofo
- Nature Based Solutions: https://www.fema.gov/sites/default/files/2020-08/fema_RiskMAP_nature-based-solutions-guide_2020.pdf
- Hazard Mitigation Portfolio: https://www.fema.gov/sites/default/files/2020-08/fema_mitigation-action-portfolio-support-document_08-01-2020_0.pdf

Questions?

Mary Kincaid, P.E.
Sustainable Infrastructure Program Manager
mkincaid@nola.gov