



NATIONAL DISASTER RESILIENCE COMPETITION

GRANTEE PROFILES

JANUARY 2016

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NDRC GRANTEES

01/02



STATE OF CALIFORNIA

03/04



STATE OF CONNECTICUT

05/06



STATE OF IOWA

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STATE OF LOUISIANA

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CITY OF NEW ORLEANS, LA

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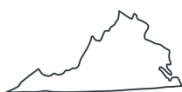
CITY OF MINOT, ND

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STATE OF NEW JERSEY

23



COMMONWEALTH OF VIRGINIA

STATE OF CALIFORNIA

SUMMARY

In 2013, the Rim Fire in California decimated large tracts of already drought-stressed forests, and led to erosion and sedimentation into streams and reservoirs, reducing water quality and reservoir capacity, affecting the local community and downstream users. The Rim Fire is one event in a long history of wildfires in the Sierra Nevada mountain range, made more intense by the current drought and overstocked forests. Since the 2013 event, large wildfires throughout the state have burned nearly 400,000 acres and destroyed hundreds of homes and structures. Research shows that climate change will result in more frequent and severe wildfires in the future. In response, the State will pilot its Community and Watershed Resilience Program in Tuolumne County, which was severely impacted by the Rim Fire. This program integrates three activity areas to create an economically and environmentally sustainable program for long-term community and watershed resilience that is replicable throughout the state.

PROJECTS AND PROGRAMS

- **Forest and Watershed Health** – Support healthy, resilient forests through restoration, reforestation, strategic forest thinning, biomass removal, and other science-based investments to ensure ecosystem health.
- **Bioenergy and Wood Products Facility** – Develop an appropriately scaled and sited facility to use biomass, removed through forest restoration and thinning, to develop wood products and produce electricity.
- **Community Resilience Centers** – Develop centers that serve the needs of rural communities during emergencies, while providing education and job-training opportunities in natural resources and forest and watershed health.

LEAD AGENCY & PARTNERS

California Department of Housing and Community Development (lead); California Department of Forestry and Fire Protection; California Environmental Protection Agency; Columbia College; Sierra Nevada Conservancy; Tuolumne County Superintendent of Schools; Tuolumne County; United States Forest Service

NDRC FUNDING

HUD is awarding \$70,359,459 to the State of California.

LONG-TERM COMMITMENTS TO RESILIENCE

- On April 29, 2015, Governor Brown issued Executive Order B-30-15, which established a 2030 greenhouse gas emission reduction target and multi-part resilience program.
- On October 8, 2015 the State created the Integrated Climate Adaptation and Resilience Program to serve as a clearinghouse for information on local and regional climate adaptation and resilience.
- On October 7, 2015, the state passed legislation to increase procurement of electricity from renewable resources from 33 to 50 percent.

- On October 8, 2015, the state passed legislation requiring local governments to address climate change in their General Plan.

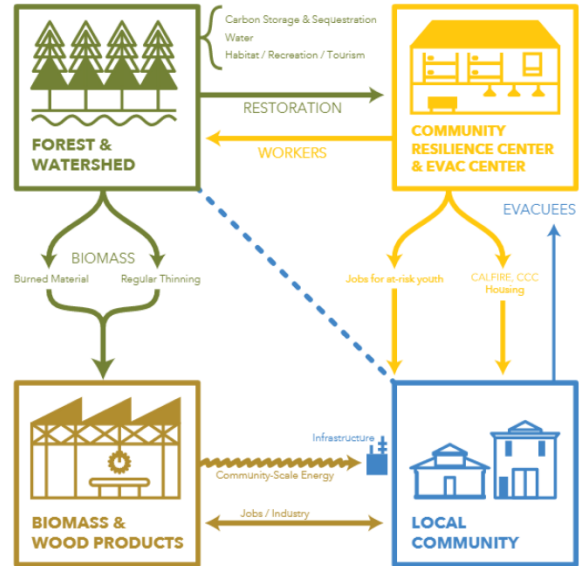
WEBSITE

<http://www.hcd.ca.gov/nationaldisaster/ndrc-application.html>

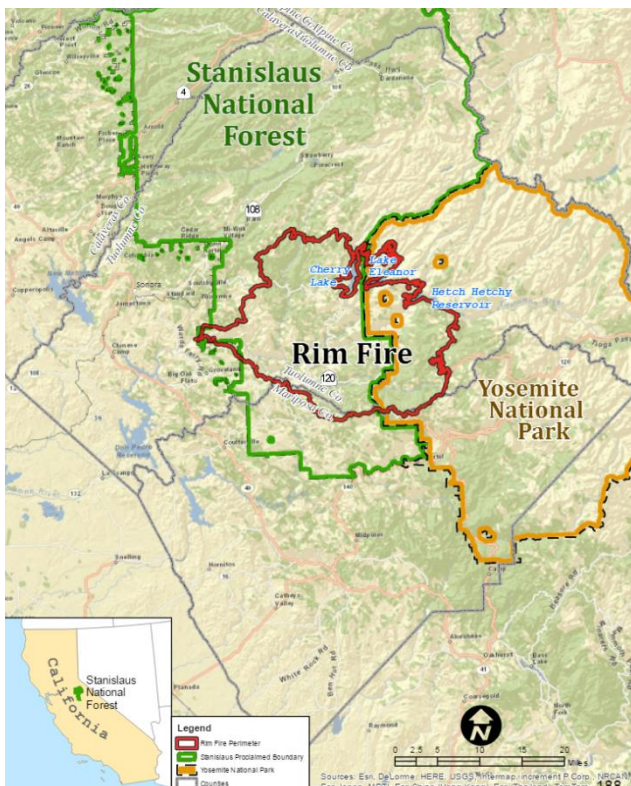
MAPS AND GRAPHICS



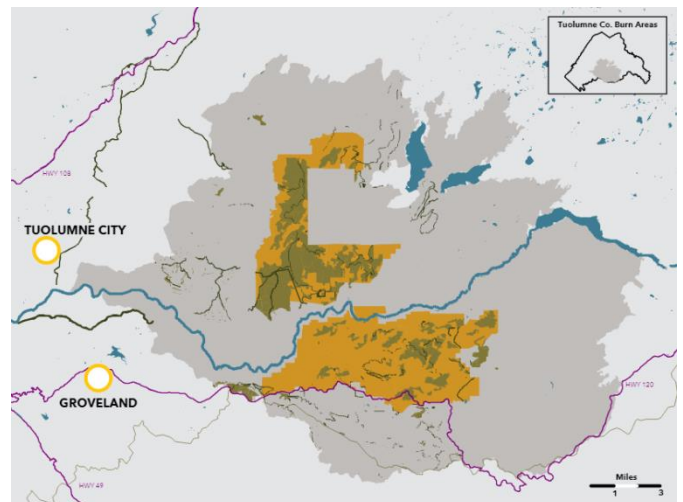
Tuolumne County Map



State of California Project Concept Diagram



2013 Rim Fire Map



State of California Project Concept Map



STATE OF CONNECTICUT

SUMMARY

The State of Connecticut is focused on reconnecting and protecting economically-isolated coastal neighborhoods through investments in green streets that protect against flooding while strengthening ties to existing transportation nodes. HUD funding will support a pilot project in Bridgeport that is part of the State's broader Connecticut Connections Coastal Resilience Plan. Funds will establish the South End Resilient Network, reconnecting the South End community with downtown via a raised greenway that, combined with a stormwater treatment park, also provides protection from coastal flooding. In addition, HUD funds will support the State's efforts to bring these approaches to other at-risk communities along the I-95 corridor by contributing to planning efforts, including economic and climate modeling.

PROJECTS AND PROGRAMS

- **South End East Resilience Network** – Elevation of University Avenue and construction of a greenway earthen berm to create a new baseline for the establishment of an urban coastal community that will be protected against future storms and sea level rise, removing the risk to reinvestment and inviting new development to strengthen this extension of downtown Bridgeport.
- **Community Design Center** – Construction and rehabilitation of an anchor community center in the South End to serve as a design center and central location for future recovery efforts.
- **Floodplain Design Guidelines** – Development of new guidelines to incorporate cutting edge flood mitigation technologies.
- **South End District Energy Infrastructure Study** – Analysis of opportunities to utilize micro-grids, cogeneration systems, and alternative energy sources to limit disruptions in energy supply due to emergencies.
- **Connecticut Connections Coastal Resilience Plan** – Extend this existing planning effort to more communities in New Haven and Fairfield Counties with the goal of providing accessible downscaled inland and coastal flooding information at the watershed scale for inland and coastal municipalities.

LEAD AGENCY & PARTNERS

State of Connecticut Department of Housing (lead), Connecticut Chapter of the American Red Cross, Audubon Connecticut, Conference of Municipalities, Council for Philanthropy, CT Rises, East Coast Greenway Alliance, Eversource Energy, Greater Bridgeport Regional Council, Connecticut Green Bank, Housing Development Fund, Long Term Recovery Committee, Partnership for Strong Communities, South Central Regional Council of Governments, Emily Hall Tremaine Foundation, UIL Holdings Corporation, Western Connecticut Council of Governments, Yale - Urban Ecology and Design Lab, Connecticut Fund for the Environment, Greater New Haven Water Pollution Control Authority

NDRC FUNDING

HUD is awarding \$54,277,359 to the State of Connecticut.

LONG-TERM COMMITMENTS TO RESILIENCE

- In 2014, the State launched a \$25 million program to help elevate and retrofit homes in the floodplain to withstand greater than 500 year floods.
- In 2014, the State began efforts to align the State Natural Hazard Mitigation Plan, State Plan of Conservation and Development, and the State Climate Preparedness Plan under the Connecticut Connections Coastal Resilience Plan.
- In October 2015, the State made permanent an interagency policy-making group, SAFR, to incorporate resilience planning and policy into State agency activities and develop resilience plans for 15 municipalities.
- In 2016, the State will introduce the \$20 million Long Island Sound Stewardship and Resiliency Program.

WEBSITE

<http://www.ct.gov/doh/>

MAPS AND GRAPHICS



Rebuild by Design illustrative plan of South End showing catalytic development potential and NDRC Projects

The State of Connecticut's South End East Resilience Network

STATE OF IOWA

SUMMARY

Iowa ranks second nationally in the export of agricultural products but its modern agricultural landscape has also reduced the land's natural resilience, impacting flooding and water quality throughout the state. From 2011 – 2013, Iowa suffered eight Presidential Disaster Declarations, affecting 73 counties and more than 70% of the state. Furthermore, the frequency and intensity of torrential rainfall is only expected to increase. As a result, the State created its Iowa Watershed Approach, a holistic watershed-scale program, to increase water quality upstream and reduce flood risk downstream. The State designed this approach to sustain its valuable agricultural economy while protecting vulnerable residents in downstream communities. HUD funding will enable nine watersheds to form Watershed Management Authorities, develop a hydrological assessment and watershed plan, and implement projects in the upper and lower watersheds.

PROJECTS AND PROGRAMS

- **Bee Branch Healthy Homes Resiliency Program** – Rehab damaged single- and multi-family homes in Dubuque and increase their resilience to future storms.
- **Iowa Watershed Approach** – Watershed monitoring and evaluation, plan and construct best management practices in nine watersheds: Bee Branch, Upper Iowa River, Upper Wapsipinicon River, English River, Middle Cedar River, Clear Creek, North Raccoon River, East Nishnabotna River, and West Nishnabotna River.

LEAD AGENCY & PARTNERS

State of Iowa (lead), City of Dubuque, City of Storm Lake, City of Coralville, University of Iowa, Iowa State University, University of Northern Iowa, Iowa Homeland Security and Emergency Management Department, Iowa Department of Natural Resources, Iowa Department of Agriculture and Land Stewardship, Winneshiek County, Howard County, Johnson County, Mills County, Fremont County, Benton County, Buena Vista County, Iowa County

NDRC FUNDING

HUD is awarding \$96,887,177 to the State of Iowa.

LONG-TERM COMMITMENTS TO RESILIENCE

- The State created Watershed Management Authorities throughout the state and, over the last three years, provided financial assistance to develop watershed plans focused on reducing flooding and increasing water quality.

WEBSITE

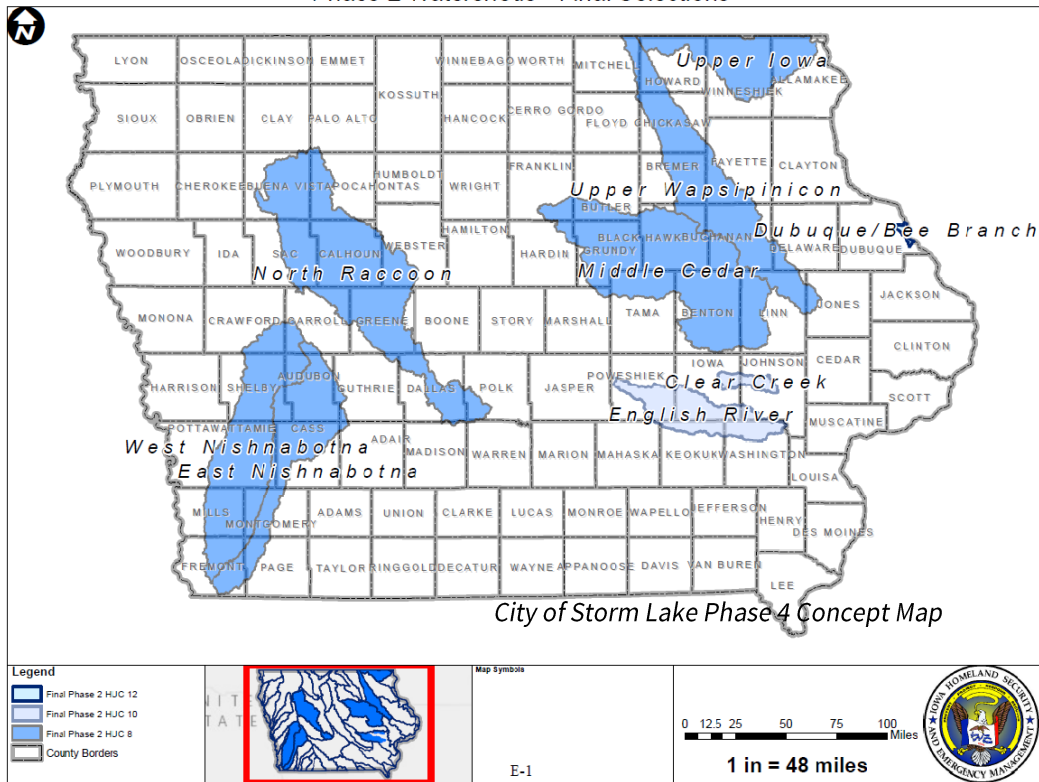
<http://homelandsecurity.iowa.gov/>



MAPS AND GRAPHICS

Attachment E, Map 1

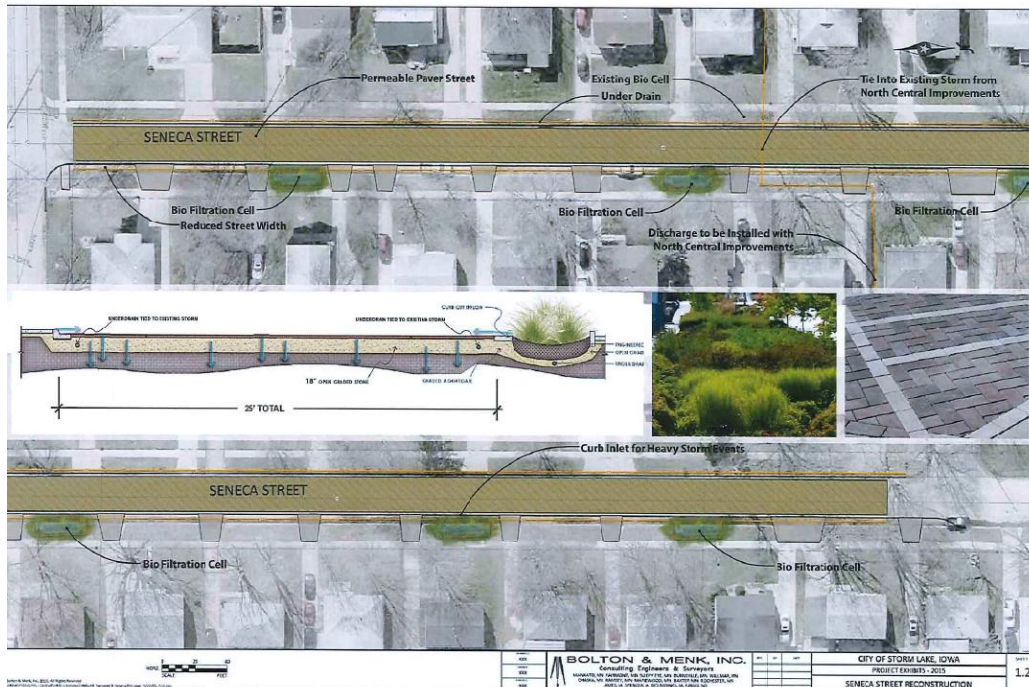
Phase 2 Watersheds - Final Selections



Iowa Watersheds

Attachment E, Map 16

City of Storm Lake Phase 1



City of Storm Lake Phase 1 Concept Map



STATE OF LOUISIANA

SUMMARY

Hurricanes, sediment starvation from levees and dams, sea level rise, subsidence, the Deepwater Horizon Oil Spill, and salt water intrusion have all led to significant land loss in Louisiana's Coastal Zone. Louisiana is in the midst of a coastal land loss crisis that has claimed nearly 1,900 square miles of land since the 1930s. The loss of coastal wetlands in and around southeast Louisiana continues to deteriorate systems that shield vulnerable communities and wetlands. In response, the State launched its "Louisiana's Strategic Adaptations for Future Environments" or "LA SAFE" program. This policy framework focuses on three core ideas: 1) land is disappearing and some communities must resettle, 2) the state needs its working coast and, therefore, they must retrofit vital communities to withstand increased risk, and 3) as land disappears they must reshape high-ground areas to maximize their use. This program contains resettlement, retrofit, and reshaping strategies to pivot from the long-term recovery efforts of the last decade toward a more resilient future.

PROJECTS AND PROGRAMS

- **LA SAFE Fund** – Capitalization of a state-administered fund to provide gap financing to public entities and non-profits for resilient housing, transportation, energy, and economic development projects in Louisiana's Coastal Zone.
- **Isle de Jean Charles Resettlement** – Relocation of the Isle de Jean Charles Band of Biloxi-Chitimacha-Choctaw tribe, which has seen a 98-percent loss of land since 1955, to a resilient and historically-contextual community.

LEAD AGENCY & PARTNERS

State of Louisiana Office of Community Development-Disaster Recovery Unit (lead), Terrebonne Parish, St. John the Baptist Parish, Plaquemines Parish, Lafourche Parish, Lowlander Center, Columbia Residential, Chicago Bridge & Iron, Waggoner & Ball Architects

NDRC FUNDING

HUD is awarding \$92,629,249 to the State of Louisiana.

LONG-TERM COMMITMENTS TO RESILIENCE

- The State, through its Comprehensive Resiliency Pilot Program, has completed and enacted ordinances in 29 parishes and municipalities, with 11 more scheduled for completion during 2016.

WEBSITE

<http://www.doa.la.gov/Pages/ocd-dru/Isaac/NDRC.aspx>

MAPS AND GRAPHICS




ISLE DE JEAN CHARLES-NEW COMMUNITY
HOUMA, LA
JEAN BAPTISTE NAQUIN TRIBAL CENTER, PERSPECTIVE 2
SCALE: NTS, SIMPLIFIED MODEL

Conceptual Rendering of the proposed new Isle de Jean Charles community




COMMUNITY MASTER PLAN
ISLE DE JEAN CHARLES-NEW COMMUNITY
HOUMA, LA
September 25, 2015  Scale
Project No

Isle de Jean Charles proposed draft Community Master Plan



CITY OF NEW ORLEANS, LA

SUMMARY

In 2012, Hurricane Isaac exposed gaps in New Orleans' resilience and major risks for vulnerable communities through failures of water and energy infrastructure, environmental degradation, and a subsequently slow recovery. The city faces physical risks of compacting and sinking soils, coastal flooding, flooding from intense rainfall events, and loss of power and damage from high-speed wind events. These risks are compounded by coastal erosion, sea level rise, and underlying social stressors of concentrated poverty and income inequality. NDRC funding will enable the establishment of New Orleans' first-ever Resilience District in the Gentilly neighborhood. Several integrated initiatives will seek to turn this neighborhood into a national model for retrofitting post-war suburban neighborhoods into resilient, safe, and equitable communities of opportunity.

PROJECTS AND PROGRAMS

- **Urban Water** – Construction of a series of interventions that reduce the risk of flooding by creating parks and green streets that capture rainwater and provide new amenities to the community.
- **Community Adaptation** – Subsidize small-scale investments in stormwater management, home elevation, and other resilience features for low- and moderate-income homeowners.
- **Reliable Energy and Smart Systems** – Increase energy and water utility resilience through investments in micro-grids, energy redundancy at critical water infrastructure sites, and a water monitoring network.
- **Coastal Restoration** – Restoration of vital eco-system services, such as wave attenuation and water filtration, provided by coastal wetlands.
- **Workforce Development** – Train and prepare unemployed individuals to build NDRC-funded projects and develop increasingly vital skills in water infrastructure development and management.
- **ResilienceSTAT** – Creation of a citywide performance management program to track all of its resilience initiatives and pilot the City Resilience Index.

LEAD AGENCY & PARTNERS

City of New Orleans (lead), New Orleans Redevelopment Authority, Trust for Public Land, Deltares, Waggoner and Ball Architects

NDRC FUNDING

HUD is awarding \$141,260,569 to the City of New Orleans.

LONG-TERM COMMITMENTS TO RESILIENCE

- In March 2016, the City will adopt a new Hazard Mitigation Plan that aligns with its Resilience Strategy and factors in increased risk due to climate change.
- In August 2015, the City adopted its Living Wage Ordinance to increase the financial stability and resilience of low- and moderate-income wage earners.

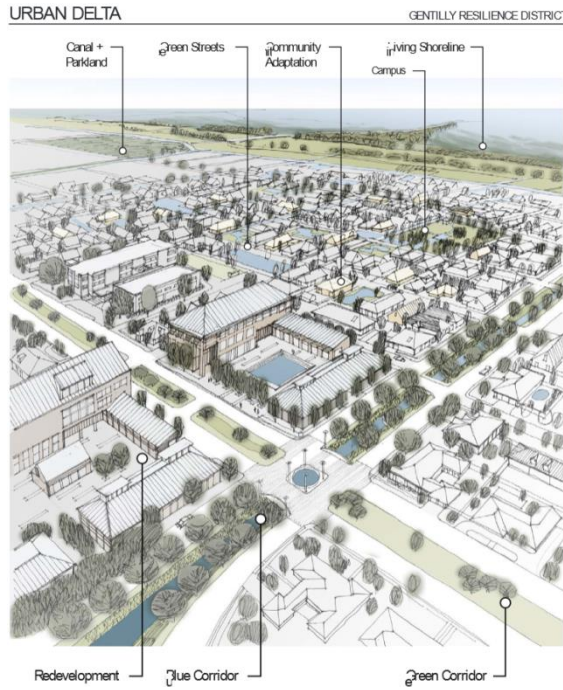


- In 2015, the City adopted a new Comprehensive Zoning Ordinance that included stormwater management requirements for all large commercial development or redevelopment.

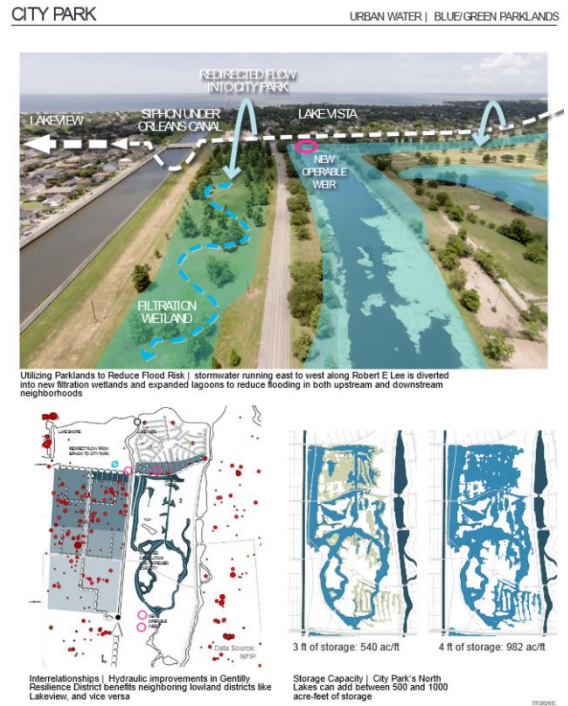
WEBSITE

<http://www.nola.gov/resilience/national-disaster-resilience-competition/>

MAPS AND GRAPHICS



Gently Resilience District



Blue/Green Parklands Concept



Regional Vision for the Greater New Orleans Urban Water Plan



STATE OF NEW YORK

SUMMARY

More than 700,000 New Yorkers in 1,480 communities live in designated flood-prone areas. Millions more work in, travel through, or enjoy recreation in areas at risk of riverine and coastal flooding or storm surge inundation. Furthermore, many of the State's smaller storm-impacted Public Housing Authorities (PHAs) have limited resources to assess and address the critical and growing physical resilience needs of housing assets vulnerable to coastal and riverine flooding and the related impacts of climate change, including sea-level rise, increased precipitation, and extreme temperature. Additionally, these PHAs often struggle to meet the economic and social resilience needs of residents who are vulnerable to socioeconomic stressors and environmental shocks. Many of these properties are still damaged during Superstorm Sandy, Hurricane Irene, and/or Tropical Storm Lee. In response, HUD funding will enable the State to not only repair damage from recent disasters but also pilot new and innovative approaches to build resilience in low-income multifamily properties. The State will also employ low-income public housing residents for the project.

PROJECTS AND PROGRAMS

- **Public Housing Resiliency Pilots** – The State will provide funding to PHAs to implement site-specific resiliency interventions based on the Enterprise Community Partners' Ready to Respond Toolkit and soon-to-be-released Multifamily Housing Resilience Strategies.

LEAD AGENCY & PARTNERS

New York Housing Trust Fund (lead); New York State Housing Finance Agency; Enterprise Community Partners; Opportunity Long Island; Binghamton Housing Authority; Freeport Housing Authority; Hempstead Housing Authority; New York State Department of Environmental Conservation; Cornell University; The Nature Conservancy; New York State Department of Transportation; New York State Office of Parks, Recreation, and Historic Preservation, Nassau County; New York City Mayor's Office of Recovery and Resiliency

NDRC FUNDING

HUD is awarding \$35,800,000 to the State of New York.

LONG-TERM COMMITMENTS TO RESILIENCE

- In 2014, the State adopted the Community Reconstruction Program and the Community Risk and Resiliency Act, which establishes science-based state sea level rise projections, develops guidance on nature-based measures to promote resilience, prepares model laws, and incorporates climate change into multiple state-mandated planning efforts.
- In 2014, the State updated its Hazard Mitigation Plan to factor in sea level rise.
- In 2016, utilizing the Resilience AmeriCorps VISTA program, the State will hold eight summits of community-based organizations to develop place-based resilience plans.
- In 2016, the State will finalize guidance for construction and rehabilitation of water treatment facilities that take advantage of the Environmental Facilities Corporation Storm Mitigation Loan Program, resulting in more resilient stormwater and wastewater treatment.

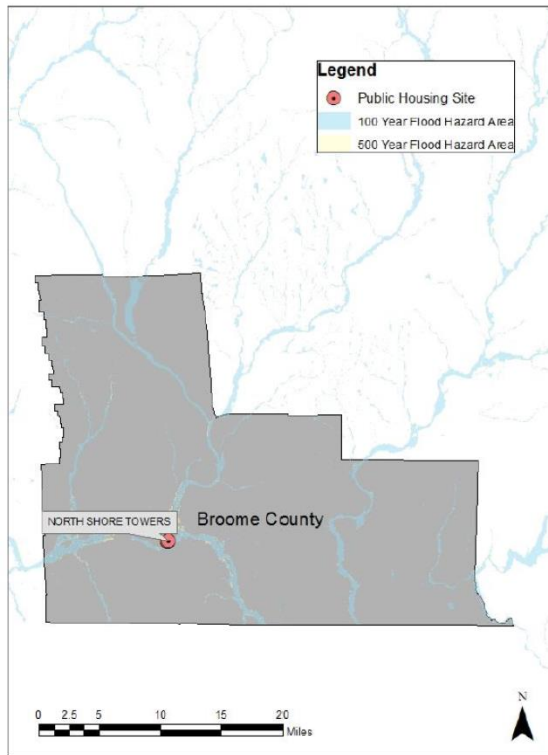
- In 2016, the State will adopt resilience-related amendments to the State Building Code.

WEBSITE

<http://stormrecovery.ny.gov/hud-national-disaster-resilience-competition-faq>

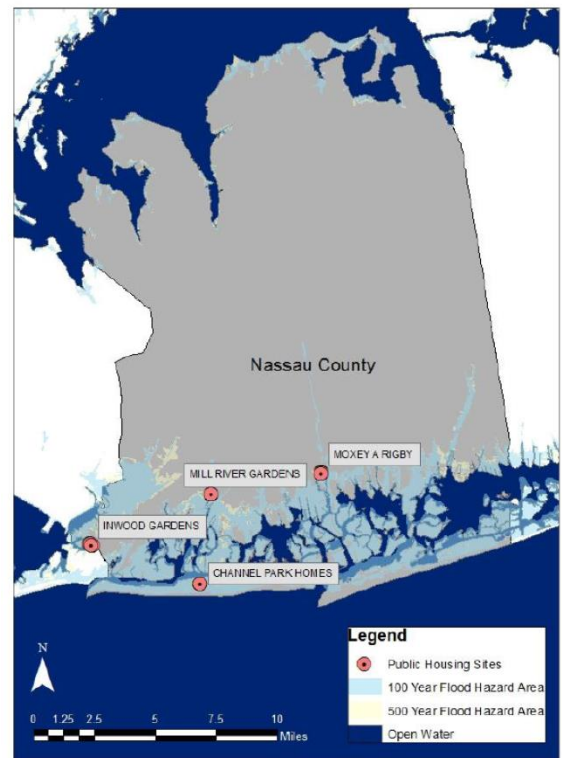
MAPS AND GRAPHICS

Public Housing Resiliency Pilot Project Site in Broome County



Source: FEMA FIRMs; HUD Public Housing Agency Inventory

Public Housing Resiliency Pilot Project Sites in Nassau County



Source: FEMA FIRMs; HUD Public Housing Agency Inventory; OpenStreetMapData

CITY OF NEW YORK, NY

SUMMARY

In October 2012, Hurricane Sandy caused substantial damage throughout New York City. In total, 44 New Yorkers perished, an estimated 10% living within flooded areas were injured within the first week of the storm, and many more were displaced from their homes. More than 69,000 residential units were damaged throughout the City; approximately 20% of those in the inundation zone were rendered uninhabitable. Hurricane Sandy revealed extensive vulnerabilities within the city, and need for a comprehensive strategy to prepare for, withstand, and recover from future storm events. In April 2015, the City released One New York: The Plan for a Strong and Just City. This plan lays out the City’s resiliency policy to embrace the coastline, plan ambitiously, create a stronger more resilient city, and keeping the city affordable. HUD funding will enable the city and its partners to develop the Lower Manhattan Protect and Connect Project, which creates stronger physical and social connections and expands upon robust coastal protection.

PROJECTS AND PROGRAMS

- **Lower Manhattan Protect and Connect Project** – Construction of a coastal flood protection system that also enhances the connection between the neighborhoods by adding passive seating areas, dog parks, and smaller retail areas, enhancing connections to community facilities.

LEAD AGENCY & PARTNERS

New York City Mayor’s Office (lead); New York City Economic Development Corporation; New York City Housing Authority; The Governor's Office of Storm Recovery; The Trust for Public Land

NDRC FUNDING

HUD is awarding \$176,000,000 to the City of New York.

LONG-TERM COMMITMENTS TO RESILIENCE

- In 2015, the City released OneNYC which, among other things, lays out clear resiliency objectives for the city.
- The City created its Climate Change Adaptation Task Force to identify critical infrastructure that could be at-risk to climate change and to develop coordinated adaptation strategies to secure those assets.
- Since 2014, the City has made extensive legislative changes, including: revising building codes, creating a task force to assist charitable organizations and houses of worship, limiting increases to assessed value of homes damaged during Hurricane Sandy, amending its zoning code, and more.
- In 2015, the New York City Panel on Climate Change released detailed climate projections through 2100 for the first time.
- The New York City Housing Authority integrated its recovery program, “Recovery to Resilience,” into its long-term strategic plan.



WEBSITE

http://www.nyc.gov/html/cdbg/html/national_disaster_resilience/national_disaster_resilience.shtml

MAPS AND GRAPHICS



Lower Manhattan Protect and Connect Project



- LEGEND
- | | | |
|-----------------------|-----------------------|---------------|
| 1 - Smith Houses | 4 - Manhattan Campus: | 4d - Rfis II |
| 2 - La Guardia | 4a - Baruch | 4e - Rfis I |
| 3 - Two Bridges Tower | 4b - Lavanburg | 5 - Campos II |
| | 4c - Wald | |

Specific Implementation Sites



Conceptual Rendering of Stormwater Management through Place-Making

CITY OF SPRINGFIELD, MA

SUMMARY

Between 2011 and 2013, the City of Springfield, MA experienced five presidentially-declared disasters, including an EF3 tornado, tropical storm, two blizzards, and torrential downpour. The impact of these natural disasters was magnified by underlying social stresses, including high unemployment, lack of economic opportunity, and high rates of health problems. Furthermore, the City has struggled to maintain its aging infrastructure due to a shrinking tax base. Climate change is expected to increase the frequency of torrential downpours that will overwhelm the city's combined sewers and energy infrastructure, negatively impacting its already vulnerable population. In response, the City is creating an Urban Watershed Resilience Zone, made up of economically-distressed neighborhoods, within which the City will carry out a portfolio of projects. Together, these projects will help the city recovery from past disasters while increasing resilience to future storms and providing economic opportunity.

PROJECTS AND PROGRAMS

- **Clean Redundant Energy Sources** – Restoration of hydropower and installation of a combined heat and power plant to provide non-grid energy sources to critical facilities in the event of power loss during a disaster.
- **Safe & Healthy Rental Homes** – Launch of a rehabilitation program for owners of 1-4 unit homes to restore affordable housing stock damaged by the 2011 tornado.
- **Business and Job Opportunities** – Creation of the Springfield Innovation Center and provision of job training to foster a community of entrepreneurs, jumpstart reinvestment and redevelopment in the city's core, and equip low-income residents with the skills they need to work on NDRC-funded projects.
- **Community Engagement** – Launch of the Citizen Tree Steward Program and the Community-Based Citizen Science Initiative to involve the community in water quality and water conservation activities. The City will also partner with the Pioneer Valley Planning Commission to complete Phase 2 of the city's climate change plan, engaging the local community to complete the final version of the plan.

LEAD AGENCY & PARTNERS

City of Springfield (lead), Baystate Health Inc, DevelopSpringfield, Tech Foundry, Partners for a Healthier Community Inc., Pioneer Valley Planning Commission, Regional Employment Board of Hampden County, ReGreen Springfield, Springfield Water and Sewer Commission

NDRC FUNDING

HUD is awarding \$17,056,880 to the City of Springfield.

LONG-TERM COMMITMENTS TO RESILIENCE

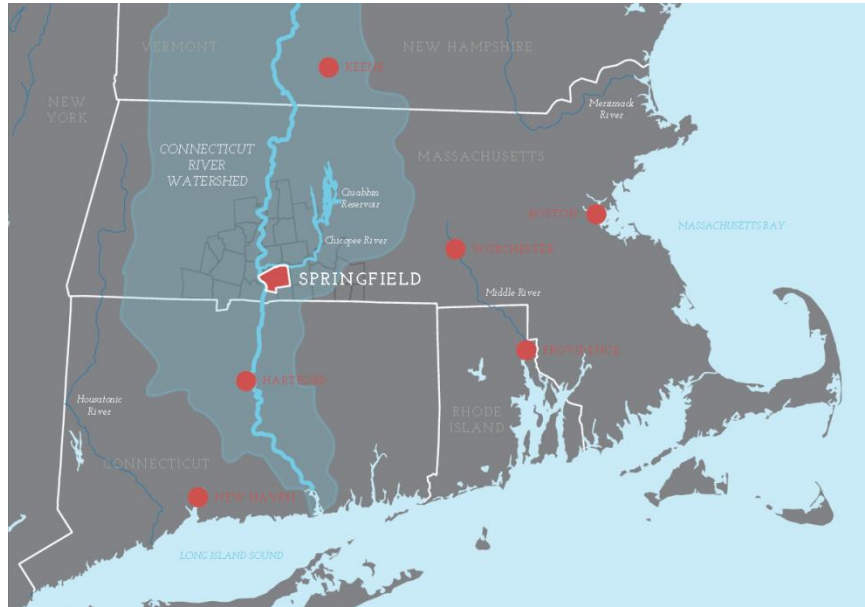
- In 2015, the City completed the first phase of its Climate Change Plan and will finish the second and final phase during 2016.
- Since 2007, the City has reduced municipal energy use by 23% and has committed to reduce further reduce energy by 5% during 2016 and 17% by 2020.



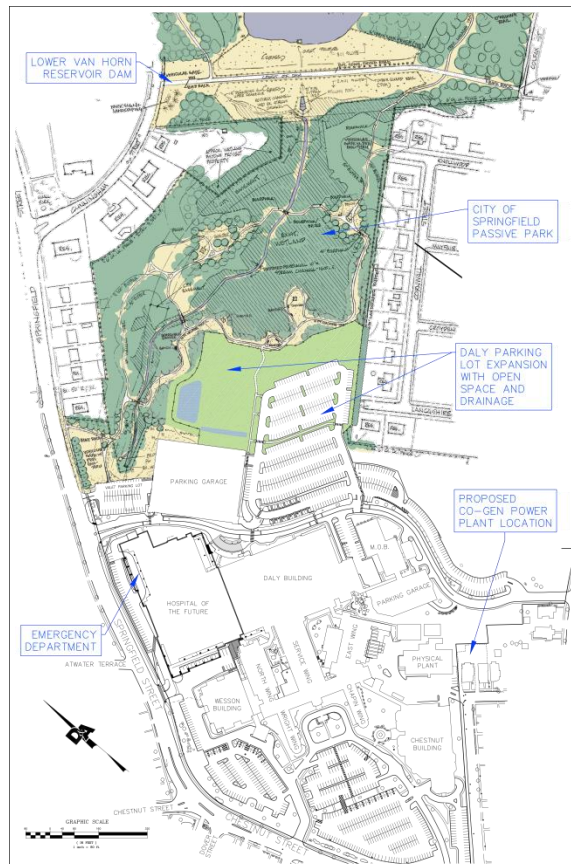
WEBSITE

<http://www.springfield-ma.gov/planning/index.php?id=ndrc>

MAPS AND GRAPHICS



Regional Context Map



Proposed Co-Gen Power Plant Location



STATE OF TENNESSEE

SUMMARY

The mighty Mississippi River, West Tennessee's biggest asset, is also its greatest liability. Communities throughout the area experienced severe storms and flooding in 2011. Many of these rural river communities have significant low-income populations that are especially vulnerable to natural disasters. In response, the State is launching its Rural by Nature approach to combine federal, state, and local efforts in a collaborative effort to create rural resilient communities along the Mississippi. The State's approach blends traditional, but critical, infrastructure improvements with nature-based approaches that respect the rural heritage of the area and provide much-needed economic and recreation opportunities in West Tennessee.

PROJECTS AND PROGRAMS

- **Dyersburg** – Creation of wetlands and recreation space, combined with rehabilitation of existing wastewater infrastructure, in the South Town neighborhood to reduce flood risk and increase community amenities.
- **Forked Deer River** – Restoration of two miles of degraded floodplain to increase natural flood control and habitat quality, creating recreation opportunities as well as lowering flood risk in northern Madison County.
- **City of Jackson** – Replacement of invasive kudzu gullies with constructed wetlands to reduce flooding and increase other beneficial ecosystem services, such as aquifer recharge and sediment control. The City's wastewater treatment system will also be improved by upgrading treatment plant peak flow capacity, interceptors, and transmission lines.
- **Town of Henning** – Rehabilitation of a wastewater lagoon levee system to protect from overflow during high-rain events, reducing environmental degradation of the Hatchie River.
- **Lake County** – Installation of a permanent pump system to reduce flooding on the land side of the Mississippi River levee system.
- **Lauderdale County** – Restoration of the Cold Creek Chute spillway to decrease flooding and increase wildlife habitat, restoring substance fishing and recreation opportunities.
- **Mississippi River Corridor** – Development and initial implementation of a plan to increase tourism and educational opportunities along the forests and wetlands of the Lower Mississippi River.
- **Hazard Mapping, Assessment, and Education** – Publication and dissemination of research, data, and tools to help communities increase their resilience to flooding through a partnership with the University of Memphis, Vanderbilt University, TDEC, and the Central U.S. Earthquake Consortium.

LEAD AGENCY & PARTNERS

Tennessee Department of Economic and Community Development (lead), University of Memphis, West TN River Basin Authority, Lake County, City of Dyersburg, Mississippi River Corridor-Tennessee, Reelfoot Rural Ministries, Northwest Tennessee Port Authority, Jackson Energy Authority, Tipton County, Tennessee Department of Environment and Conservation



NDRC FUNDING

HUD is awarding \$44,502,374 to the State of Tennessee.

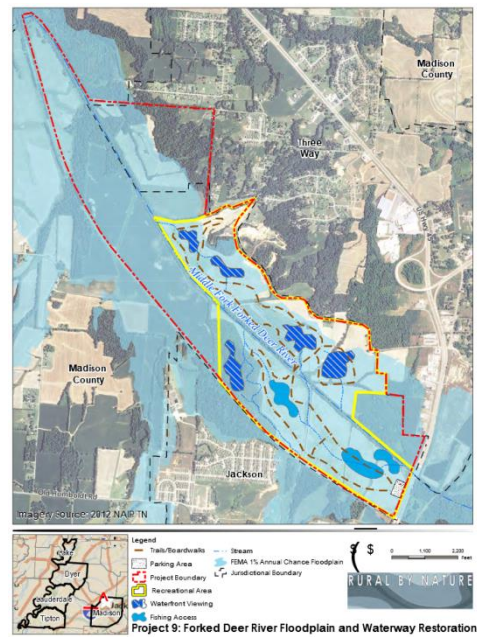
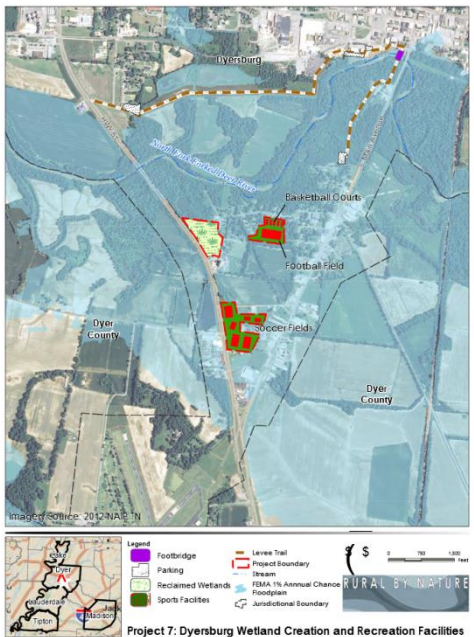
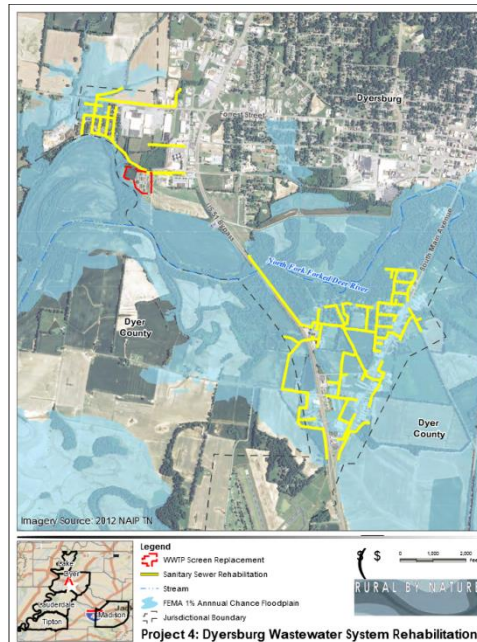
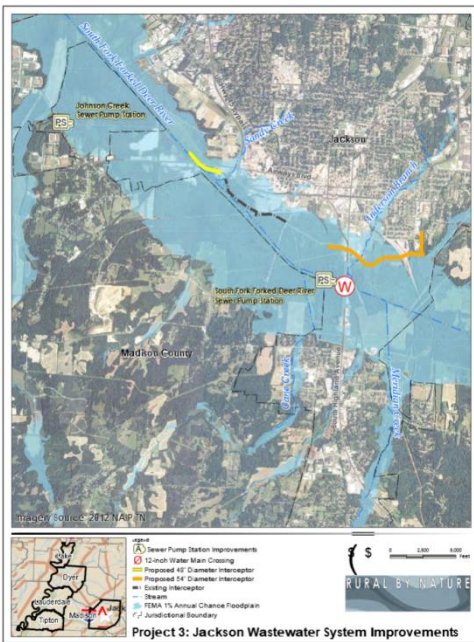
LONG-TERM COMMITMENTS TO RESILIENCE

- During 2016, Tennessee will update its 25-year Long Range Transportation Plan (LRTP) to address climate change.

WEBSITE

<http://tn.gov/ecd/topic/cdbg-disaster-program>

MAPS AND GRAPHICS



SHELBY COUNTY, TN

SUMMARY

Shelby County experienced three powerful storms in April 2011. These storms damaged homes, infrastructure, and environmental resources throughout the county. The County, with extensive community input, recently developed a tri-state plan (called GREENPRINT) to build a network of green infrastructure projects that increase resilience to future flooding while addressing unmet recovery needs from past storms. The Greenprint for Resilience Project implements this vision through a comprehensive set of activities designed to protect Shelby County's communities from natural hazards while increasing environmental, economic and social opportunity for all residents of Greater Memphis, especially vulnerable communities. The primary intervention will create flood protection including development of new floodplains and create wetlands and detention areas to create more storage for floodwaters. The county, which borders the Mississippi River, will also offer to purchase properties of residents within repetitive flood zones to get them out of harm's way. These activities will create additional greenway trails and enhanced recreation areas that help connect people to jobs as well as areas for local food production.

PROJECTS AND PROGRAMS

- **Big Creek Wetland and Restoration Area** – Creation of a recreational area, with native vegetation and wetlands, that doubles as a floodplain during severe storms.
- **Wolf River Wetland Restoration and Greenway** – Construction of a 36-mile greenway as well as nature-based improvements to adjacent parks that will reduce flooding and increase access to parkland.
- **South Cypress Creek Watershed and Neighborhood Development** – A series of open space and infrastructure investments that will repurpose vacant lots for community benefit (such as flood protection, and healthy food access) and increase transportation access.
- **Regional Resilience Plan** – Integration of resilience into the existing GREENPRINT regional plan to provide a model for other communities in the region.

LEAD AGENCY & PARTNERS

Shelby County (lead); Barge, Waggoner, Sumner, and Cannon; Memphis Center for Food and Faith; Chickasaw Basin Authority; City of Memphis; Community Development Council of Greater Memphis; GCR Inc.; Habitat for Humanity; Kimley-Horn and Associates Inc; Pique Public Relations; Sasaki Associates Inc.; University of Memphis; United Housing; University of Tennessee; Wolf River Conservancy

NDRC FUNDING

HUD is awarding \$60,445,163 to Shelby County.

LONG-TERM COMMITMENTS TO RESILIENCE

- Eighteen counties across three states have adopted GREENPRINT as their official plan and civic institutions have committed funding to staff the coordinator role.
- Over the next two years, the City of Memphis will conduct drainage studies for each of the 17 drainage areas in the city.

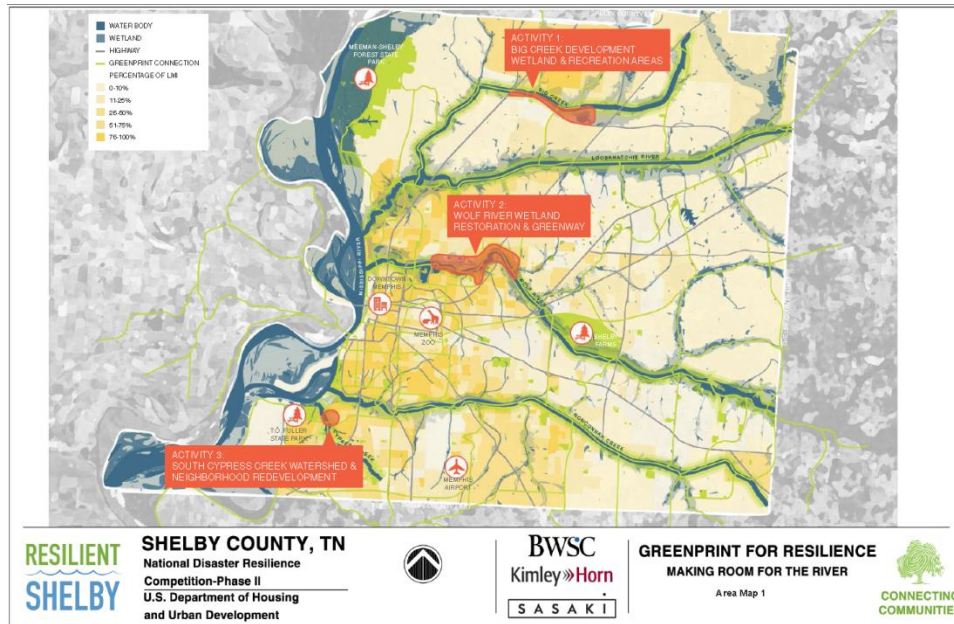


- In a little over a year, the Wolf River Conservancy has protected 481 acres, adding to their total of 13,500 acres of land in the Wolf River Watershed.
- Since October 2014, Resilient Shelby has reached 100,000 households with public awareness materials and reached an additional 5,000 people through their events to improve emergency preparedness.

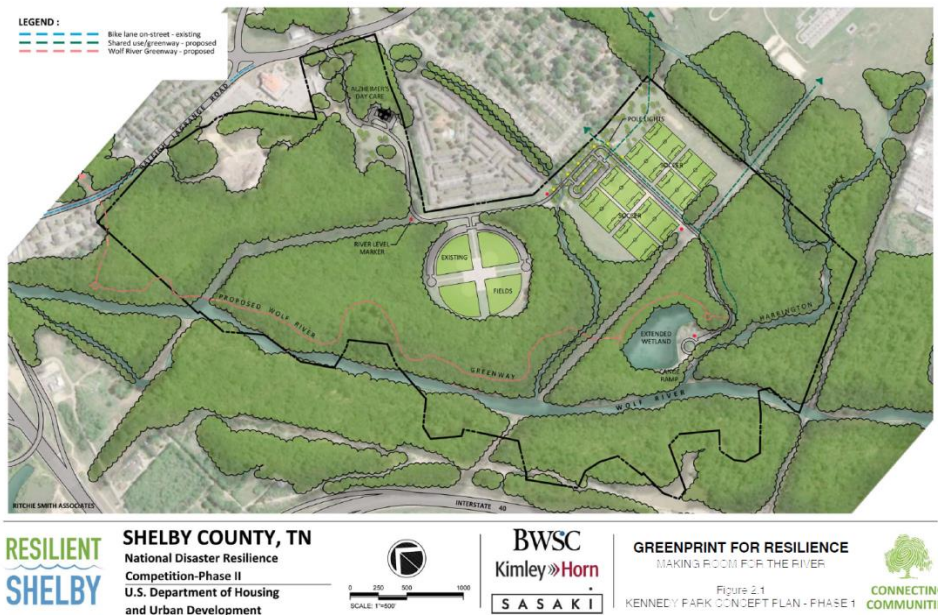
WEBSITE

<http://resilientshelby.com/>

MAPS AND GRAPHICS



Shelby County Projects Map



Wolf River Greenway and Kennedy Park Concept Plan



CITY OF MINOT, ND

SUMMARY

Minot is the regional trading center for northwestern North Dakota and Southern Saskatchewan. Sixty miles from the center of North America, it is a major agricultural, energy, and economic hub for the region. It's also home to Minot Air Force Base's global strike and nuclear deterrence capabilities. On June 22, 2011, flooding of the Souris River overwhelmed the City of Minot's levee system resulting in damage to 27% of the city's housing stock. During this same period, the Bakken Oil Fields economic boom brought hundreds of people to Minot, overwhelming the city's limited affordable housing options. Climate change and upstream land development suggest flooding may occur more frequently. In response, the City is launching a set of three integrated projects: 1) reduce flood risk and improve water management, 2) build affordable and resilient neighborhoods, and 3) foster economic resilience.

PROJECTS AND PROGRAMS

- **Reduce Flood Risk and Increase Resilience** – Implementation of a series of integrated approaches to reduce flood risk and increase community amenities, including: buyouts, open space restoration, greenway development, and more.
- **Build Affordable, Resilient Neighborhoods** – Construction of new energy-efficient affordable homes away from high-risk areas but connected to transit, jobs, and services.
- **Foster Economic Resilience and Diversification** – Construction and relocation of key institutions (including a new Center for Technical Education) to move them out of harm's way while creating sustained economic development opportunities.

LEAD AGENCY & PARTNERS

City of Minot (lead); Dr. Adnan Akyuz; Assiniboine River Basin Initiative; EAPC Architects Engineers; KLJ; Minot State University; North Dakota State University Department of Architecture and Landscape Architecture; SCAPE/Landscape Architecture LLC

NDRC FUNDING

HUD is awarding \$74,340,770 to the City of Minot.

LONG-TERM COMMITMENTS TO RESILIENCE

- The City of Minot has committed to a one-half cent sales tax to fund the local cost share for construction and implementation of the entire basin-wide flood protection plan, investing over \$337 million within 30 years.

WEBSITE

<http://www.minotnd.org/422/National-Disaster-Resilience-Competition>



STATE OF NEW JERSEY

SUMMARY

New Jersey's numerous estuarine and riverine communities experience significant flooding and storm surge events from hurricanes, tropical storms, and nor'easters. These events repeatedly affect homes, businesses, communities, and the environment. The costs of addressing the damage and of mitigating future impacts are substantial. For example, a preliminary estimate of repair and mitigation needs after Hurricane Sandy exceeded \$35B, including over \$25B in infrastructure. The State will work with university partners to develop a toolkit of best practices for multiple communities to assess their repetitive flooding risks and develop appropriate, replicable resilience building codes, plans, and other approaches.

PROJECTS AND PROGRAMS

- **Regional Resiliency Planning Grant Program** – Funding to regions to undergo a comprehensive planning process to identify and address vulnerabilities to increased flood risk, protection of environmental resources, and promotion of sustainable/smart growth development.
- **Resiliency Toolkit** – Lessons learned from the planning grant program will be synthesized into a toolkit to assist other communities across the State and Nation that face similar challenges, facilitating replicability of the State's NDR project, and as important, the multi-sector approach to assessing resilience investment.

LEAD AGENCY & PARTNERS

State of New Jersey (lead)

NDRC FUNDING

HUD is awarding \$15,000,000 to the State of New Jersey.

LONG-TERM COMMITMENTS TO RESILIENCE

- The Department of Environmental Protection adopted amendments to the Flood Hazard Area Contract Act, establishing new statewide minimum elevation standards for construction and reconstruction of houses and buildings in areas of high risk.

WEBSITE

<http://www.nj.gov/dep/floodhazard/index.htm>

COMMONWEALTH OF VIRGINIA

SUMMARY

The Hampton Roads region of Virginia has seen a relative sea level rise of 14” since 1930. This has made nuisance tidal flooding worse and increased the risk of flooding and storm surge due to storms. This increased risk is already being realized in communities across Virginia’s coast. Seven of the region’s 10 most severe storms, including Hurricane Irene, have occurred in the past thirteen years. This City of Norfolk epitomizes this issue. Surrounded by water, with 144 miles of shoreline, Norfolk is among the nation’s most vulnerable cities to coastal flooding. Naval Station Norfolk and the Port of Virginia are economic anchors of national importance that are both dependent on access to water and at risk to flooding. In addition, while the city is home to several major economic anchors it also has the highest concentration of poverty in the region. Virginia’s approach, THRIVE: Resilience in Virginia, is focused on building water management solutions, strengthening vulnerable neighborhoods, and improving economic vitality.

PROJECTS AND PROGRAMS

- **Ohio Creek Watershed** – Installation of a series of distributed green infrastructure projects (e.g. rain barrels, bioswales, and rain gardens) combined with the development of coastal living shoreline to address stormwater and coastal protection.
- **Coastal Resilience Laboratory and Accelerator Center** – Creation of economic development center that will serve as the nexus for technological and organizational innovation around community revitalization, water management, resilience measurement, and other water-sector business-related resilience challenges.

LEAD AGENCY & PARTNERS

Commonwealth of Virginia (lead); City of Norfolk, City of Newport News; Norfolk Redevelopment and Housing Authority; Work Program Architects; McNeilan and Associates; LLC, Concursive Corporation; Greater Norfolk Corporation; Elizabeth River Project; Downtown Norfolk Council; Hampton University; ARCADIS US, INC; Norfolk State University Research and Innovation Foundation; Old Dominion University; University of Virginia; Virginia Polytechnic Institute and State University (Virginia Tech); Virginia Institute of Marine Science; Waggoner and Ball Architects; Hampton Roads Planning District Commission

NDRC FUNDING

HUD is awarding \$120,549,000 to the Commonwealth of Virginia.

LONG-TERM COMMITMENTS TO RESILIENCE

- In January of 2014, the City of Norfolk updated its flood damage prevention ordinance to include stronger freeboard requirements for properties in the floodplain.

WEBSITE

<http://www.dhcd.virginia.gov/index.php/virginias-resiliency-plan.html>

