Hurricane Sandy Coastal Resiliency Competitive Grants Program
Full-proposal Project Narrative

Project Title: Southern Connecticut Regional Framework for Coastal Resilience

A. Geographic Context:

Project Location/Context: Geographically, the project encompasses the central coast of Connecticut (approximately 30% of the state's coastline) from Fairfield to Madison The project area is comprised of ten coastal municipalities serviced by two Regional Planning Organizations (RPOs, South Central Regional Council of Governments and Greater Bridgeport Regional Council) with a combined population of 591,000 people (16% of Connecticut's population) including the first and second most populous cities in Connecticut—Bridgeport and New Haven. This project will benefit those half-a-million residents, as well as community organizations, natural resource managers, businesses, and decision-makers in the 10 coastal municipalities, two RPOs, and state and federal agencies. This project represents the first time in Connecticut that two RPOs with this many municipalities have collectively advanced a collaborative project focused on an environmental, economic, and social issue of this magnitude. Therefore, this **project is unique and critically important to the state of Connecticut as a regional framework for resilience.**

South Central Regional Council of Governments (SCRCOG) Service Area: The South Central Region of Connecticut is located within New Haven County and bordered by the Long Island Sound. The region is 369 square miles in size with 570,001 residents across fifteen municipalities and has an average population density of 1,544 people per square mile (U.S. Census Bureau, 2010). The coastal municipalities include from west to east – **Milford, West Haven, New Haven, East Haven, Branford, Guilford and Madison**. These towns are situated among the Coastal Lowlands, which is a narrow strip of level shore that runs along the Long Island Sound with elevation at or near sea level. The remaining inland towns of Bethany, Hamden, Meriden, North Branford, North Haven, Wallingford and Woodbridge are located in the Central Lowlands, which is characterized by a slightly to moderately sloping landscape of nutrient-rich farming soil.

Greater Bridgeport Regional Council (GBRC) Service Area: The Greater Bridgeport Region is located in Fairfield County, in Southwestern Connecticut, about fifty miles east of New York City. Six jurisdictions make up the region: the three coastal communities of **Fairfield, Bridgeport, and Stratford** and the three inland communities of Easton, Monroe and Trumbull. The coastal communities are more developed and urban in character. The inland communities exhibit more suburban and rural characteristics. Together these communities encompass about 145 square miles with a combined population of over 318,000 people. The population density of this area, 2,193 people per square mile, is the highest of any region in Connecticut (US Census Bureau, 2010).

This project will directly benefit the municipalities (from west to east) of Fairfield, Bridgeport, Stratford, Milford, West Haven, New Haven, East Haven, Branford, Guilford and Madison; Greater Bridgeport and Greater New Haven; the state of Connecticut; and the Hurricane Sandy-impacted area and beyond. The ten municipalities are represented by all three coastal U.S. Congressional Districts (Fourth, Third, Second) in Connecticut.

B. Project Narrative:

a. Project Goals:

Overview: It has long been recognized and recently driven home by events such as Hurricane Sandy that Connecticut's largest population centers (Greater New Haven and Greater Bridgeport) are significantly

vulnerable to extreme weather events, sea level rise, flooding, erosion and coastal change. This project will help to advance "smart" investments in proactive risk assessment, community engagement and on-the-ground projects that minimize the consequences of large-scale storms across some of the Eastern Seaboard's most significant population centers and at the same time strengthen the resilience of existing and future natural ecosystems.

Objectives: The main objective of this project entitled the Southern Connecticut Regional Framework for Coastal Resilience is to comprehensively assess, prioritize and advance resilience opportunities to reduce risk to the 591,000 residents across ten coastal municipalities and increase the viability of natural ecosystems along a significant portion (approximately 30%) of Connecticut's coastline. Key successes will include an integration of natural/green infrastructure concepts, principals and priority projects into core hazard mitigation, comprehensive planning and capital expenditure efforts for the ten municipalities within Greater New Haven and Greater Bridgeport. This unique and critical initiative for Connecticut will be achieved through the establishment of a **Regional Framework for Coastal Resilience** driven by the RPOs (SCRCOG and GBRC) in partnership with The Nature Conservancy and the ten municipalities alongside supporting NGOs, state and federal agencies, academic institutions, youth engagement organizations, businesses and civic groups.

To achieve this objective the project will execute **four phased and reinforcing components**:

- **Component #1 (RFP Category - Coastal Resiliency Assessment) - Project Year 1:** Conduct a comprehensive natural/green infrastructure assessment for the entire coastline of Greater Bridgeport and Greater New Haven (Fairfield to Madison, Connecticut). This assessment will identify and determine the type and feasibility of resiliency project opportunities that use natural/green infrastructure to protect adjoining communities and sustain natural ecosystems in the long term. This opportunity assessment will help to inform future management, policies and practices within and across the ten municipalities and the region as part of the first **Regional Coastal Resiliency Plan** in Connecticut. This assessment will also incorporate a survey of river infrastructure (i.e., dams, culverts) in priority coastal watersheds that pose potential risk due to catastrophic failure or impaired conveyance as well as opportunities to improve connectivity, floodplain habitat condition and lessen runoff contribution from surrounding land uses. **Outputs and Outcomes:** Detailed geospatial data sets and an assessment/characterization of the coastline and priority coastal watersheds for ten municipalities within the project area. Initial prioritization of resiliency opportunities and reporting results on public-facing websites and reports distributed to all municipalities, NGOs, state agencies, etc... Outputs from **Component #1 will provide the central core of the second phase of project – Component #2.**

- **Component #2 (RFP Category - Community Coastal Resiliency Planning) - Project Year 1-2:** Conduct community resilience planning meetings and workshops to further prioritize and integrate coastal and watershed assessment and other feasible environmental solutions into regional and municipal hazard mitigation, comprehensive planning and capital expenditure efforts. Component #2 will seek to coordinate all other resilience projects awarded to any of the ten municipalities through this DOI Hurricane Sandy Grant. This community engagement effort will include a legal, policy and regulatory audit of potential options to enable natural/green infrastructure applications going forward across the municipalities (i.e., setbacks, overlay zoning, etc...). **Outputs and Outcomes:** Municipal and regional planning meetings and workshops that increase awareness, recognition and integration of environmental solutions and policies into municipal and regional plans and consensus-based project lists to reduce risk to people and nature. Outputs from **Component #1 and #2 will provide the central core of the third phase of the project – Component #3.**

- **Component #3 (RFP Category - Project Planning and Design) - Project Year 2:** Scope and design of highest priority natural/green infrastructure projects to reduce risk and improve resilience

in pilot municipalities within Greater New Haven and Greater Bridgeport. The will involve contracting with an ecological engineering firm to develop final design plans for at least three catalytic projects in the project area. The specific projects will be selected through the community engagement process during Component #2. **Outputs and Outcomes:** Final design plans for signature/catalytic resilience projects to generate momentum to further advance environmental solutions to reduce risk for communities and strengthen natural ecosystems.

- **Component #4 (RFP Category - Community Coastal Resiliency Planning) - Project Year 1-2: Integration of Project Components #1, #2, and #3:** All three components will be incorporated as core elements into a **Regional Coastal Resiliency Plan** for Greater New Haven and Greater Bridgeport. The Plan will serve as an immediate and long-term guide for future natural hazard mitigation, comprehensive plans and capital expenditures within and across the ten municipalities to advance a **Regional Framework for Coastal Resilience**. This will be the first time a detailed, comprehensive risk management and community resilience engagement has been conducted at this scale in the state of Connecticut.

Ultimate Successes of Project: 1) **Component #1** - completed assessment of natural/green infrastructure opportunities; 2) **Component #2** – comprehensive integration and acceptance of opportunities into community mitigation approach, plans and actions; 3) **Component #3** – design of highest priority resilience opportunities across the project area; 4) **Component #4** - integration of three project components into the **Southern Connecticut Regional Coastal Resiliency Plan** for the Greater New Haven and Greater Bridgeport.

b. Priority:

The project location is comprised of ten municipalities along the central coast of Connecticut, from Fairfield to Madison, including Connecticut's largest cities: Bridgeport and New Haven. The ten coastal municipalities are served regional by two RPOs –GBRC and SCRCOG (Connecticut does not have a county governance structure). The RPOs coordinate and guide municipalities on local and regional issues of importance such as natural hazard mitigation planning, economic growth and redevelopment, conservation and transportation. The approach used in this proposal match the previous, current and future direction of the RPOs and will facilitate their fulfillment of municipal and regional requirements as mandated by the state Conservation and Development Policies Plan. The RPOs provide a natural conduit and way to synchronize efforts across the ten coastal municipalities under their purview. This proposal crosses RPO boundaries, which broadens the leverage and reach of the project, and to match the indiscriminate geopolitical nature of natural hazards such as Hurricane Sandy. The collaboration between the RPOs on an environmental, economic and social issue of such magnitude is currently unprecedented and unique within the state of Connecticut. This collaboration is all the more important given the size and economic importance of Greater New Haven and Greater Bridgeport to Connecticut. The project area has the highest density and most populated coastline on the Eastern Seaboard between New York City and Boston (US Census Bureau, 2010).

The underlying design of this project has been informed by sound science derived through studies of storm surge and sea level rise implications in Connecticut and New York by The Nature Conservancy's Coastal Resilience Program. The Coastal Resilience Program has worked directly with the NOAA Coastal Service Center (storm surge analysis – SLOSH), Association of State Floodplain Managers (FEMA-HAZUS replacement cost assessment) and NASA Goddard Institute for Space Studies/Columbia University (downscaled sea level rise projections) to inform the Coastal Resilience decision-support tool (www.coastalresilience.org) with highly-reliable risk visualization information for infrastructure, property, people and natural resources. This application of science has amplified the urgent need for the work proposed here at a municipal and regional scale. Other key science resources that continue to inform this project include reports, analysis and data provided through DOI's Northeast Climate Science Center (http://www.doi.gov/csc/northeast/index.cfm), NOAA CSC's Digital Coast (http://www.csc.noaa.gov/digitalcoast/dataregistry/#/) and the USFWS's North

Atlantic LCC (http://www.northatlanticlcc.org/projects). The project team will also look to utilize data and analysis provided through the newly-initiated Institute for Community Resilience and Climate Adaptation in Connecticut (cooperative between Department of Energy and Environmental Protection and University of Connecticut – 01/24/2014). The internal forty-five DOI Sandy projects also present a tremendous opportunity to further inform the outcome and objective of this project.

c. Sustained Benefits:

The development of a **Regional Coastal Resiliency Plan** will serve to ensure that immediate and long-term risk and resilience opportunities are implemented in the context of local municipal benefits and contributions to the larger regional need to reduce vulnerabilities and reinforce strengths in the most populous part of Connecticut. Project Component #1, in particular, incorporates as part of the assessment the implications of storm surge, sea level rise, and extreme precipitation events in determining the feasibility and potential risk-reduction effectiveness of natural/green infrastructure opportunities along this coastline and watersheds. This will ensure that prioritization during Project Component #2 (community resilience engagement and planning) focuses on areas with the most substantial gains (i.e., risk reduction benefits) and the lowest reoccurring costs over time. By comprehensively developing a long-term resiliency plan that includes the specific projects developed in Project Component #3, the project area will be a good position to help to avoid future costs to federal and state agencies in disaster response and recovery after subsequent large storm events. Furthermore, the regionally-prioritized natural/green infrastructure projects developed through this project will help to ensure that the largest and most intact ecosystems are sustained to the extent possible over the long term.

d. Leveraging:

Both SCRCOG and GBRC are committed to taking action to create a **Regional Framework for Coastal Resilience**. Each of the RPOs, with direct assistance from The Natural Conservancy, have recently completed a crucial first step (Regional Natural Hazard Mitigation Plans) towards the regional framework proposed here.

SCRCOG recently completed a Multi-Jurisdiction Natural Hazard Mitigation Plan for municipalities that were previously without Natural Hazard Mitigation Plans, including three coastal municipalities identified in this proposal: West Haven, Branford and Madison. The Plan has been reviewed by the Connecticut Department of Energy and Environmental Protection and has been submitted for review and eventual adoption to FEMA Region 1. This Plan has identified regional and municipal mitigation actions for natural systems protection and community resilience, which can reduce or eliminate risks and vulnerability caused by natural hazards. The risk assessment and risk analysis completed for the Plan incorporated sea level rise and the impact of climate change. The regional mitigation strategy and actions promote collaboration, which allows the Plan to be complementary and consistent with the hazard mitigation planning efforts completed individually by the four coastal communities in the South Central Region not involved in the Multi-Jurisdiction Plan: East Haven, Guilford, Milford and New Haven. SCRCOG is in the process of developing a regional GIS platform to create a seamless regional parcel layer and incorporate data developed as part of the Multi-Jurisdiction Natural Hazard Mitigation Plan.

GBRC recently submitted and received comments on a draft update of the Region's Natural Hazard Mitigation Plan from the Connecticut Department of Energy and Environmental Protection and will shortly submit to FEMA Region 1 for review and eventual adoption. Recommendations in the draft plan include the use of natural/green infrastructure solutions, consideration of sea level rise in future development decisions and implementation of FEMA's Community Rating System (CRS) program in member municipalities. Interest in the CRS program aligns with a recently-awarded FEMA Challenge/Rockefeller Foundation Grant to GBRC to facilitate the CRS program in member towns. A related component of the Challenge grant is outreach to municipalities in the region regarding flooding issues and community resiliency. GBRC is establishing a regional GIS platform to better support regional and parcel level coastal and watershed resilience. A key

opportunity for leverage will be to ensure both regional GIS platforms (GBRC and SCRCOG) are hosting contiguous resilience data generated via the project proposed here.

Going beyond the specific regional boundaries of the RPOs and leveraging existing efforts to reduce the impacts of natural hazards, in collaboration with The Nature Conservancy, will generate a much needed "RPO to municipal" risk reduction model for the state of Connecticut. The RPOs have recently reaffirmed their collaborative track record via the New York-Connecticut Sustainable Communities Initiative (http://www.sustainablenyct.org/) as part of a $3.5 million HUD-DOT-EPA Partnership for Sustainable Communities Regional Planning grant (http://portal.hud.gov/hudportal/HUD?src=/hudprograms/sci) designed to integrate housing, economic development, transportation and environmental planning.

As part of the RPOs mandate for coordinating and advancing issues of regional importance, discussions regarding proposal submittals from the ten coastal municipalities for this DOI Sandy RFP have been on-going and deliberative. This proposal is designed to incorporate any and all funded municipal-based projects into the development of the Regional Coastal Resiliency Plan. The key municipal-based submittals of importance include those by Bridgeport, Stratford, West Haven, New Haven and Guilford, Connecticut. This proposal provides the regional, risk-reduction "crown" upon which future municipal-based projects will form the "jewels".

As one of twenty demonstration sites for The Nature Conservancy's Global and North American Disaster Risk Reduction and Resiliency Strategic Initiative, this proposal's project area will benefit directly from the collective natural infrastructure expertise and "community-of-practice" exchange amongst the 1,000 plus scientists and natural resource professionals at the Conservancy. This proposal will help to advance a core directive for the Conservancy and for conservation in the 21st century: mainstreaming natural infrastructure approaches and practices as an integral part of overall risk reduction and resiliency for coastal and inland communities. Specific, additive resources available to support and leverage this proposal include the Conservancy's Disaster Risk Reduction and Resiliency, Central Science and Global Marine Team alongside the network of state-based practitioners across the Hurricane Sandy impacted area and the Gulf of Mexico (i.e., Deepwater Horizon funded natural/green infrastructure projects). This project is also a core focus of The Nature Conservancy's Coastal Resilience Program in Connecticut which is currently working directly with twenty coastal and inland communities to improve resilience for people and nature. The Conservancy's Coastal Resilience Program is currently servicing ten states and seven island nations (www.coastalresilience.org).

Of utmost importance to this proposal are the forty-five internal DOI projects funded via appropriations from the Disaster Relief Appropriations Act of 2013 (i.e., Hurricane Sandy Relief Funds to DOI). Our project team recognizes that there will be valuable data, decision-support approaches and modeling from those projects that have the potential to be of critical importance to elevating this project's outcomes. After a thorough review of all forty-five internal DOI projects (http://www.doi.gov/hurricanesandy/projects/index.cfm), the following DOI projects are of particular interest to our proposal team: GS2-5D (USGS – Forecasting Biological Vulnerabilities); GS2-3B (USGS – Storm Surge Science); GS2-5A (USGS – Evaluating Ecosystem Resilience); FWS - #24 (Decision-Support – Tidal Wetlands); FWS - #67 (Decision-Support – Beach Habitat); FWS - #63 (Culverts and Road Crossings Standards); FWS - #51 (Pond Lily Dam Removal); FWS - #32 (Tidal Marsh Bird Community Resilience); FWS - #30 (A Stronger Coast). We look forward to additional proactive coordination with the designated project coordinators and associated teams to ensure this project benefits from and advances these efforts across the southern coastline of Connecticut.

e. Speed to Functionality:

The Project Components will ensure the project's benefits are realized in Project Component #2 (community resilience engagement and planning) – Year 1-2. Through this facilitated community engagement process the priority actions and benefits will be realized. The project benefits will continue to be functional long after

completion as a result of the comprehensive guide to positive impact at the regional scale (Regional Coastal Resiliency Plan) with local and regional expectations and ownership.

C. Youth and/or Veteran Engagement:

The deep ties and relationships cultivated over decades of community building by the RPOs and The Nature Conservancy with the municipalities, stakeholders and educational organizations will ensure that youth engagement is at the core of this project. The project team fully recognizes that there is a responsibility to provide a meaningful experience for those individuals involved as part of the youth engagement. Therefore, the project team proposes to structure a youth engagement program that pairs graduate level and high school level students as teams within the overall project team. Project Component #2 (community resilience workshops) and Project Component #4 (Regional Coastal Resiliency Plan development and presentations) will be the principal youth engagement program opportunities. The students will be provided an opportunity to gain real-world exposure to how communities reach decisions and solve challenges (community resilience workshops), how to construct summary reports and present recommendations to diverse audiences. The students will also be expected to present to their school peers to further assist with the education of the next generation of decision makers in these communities. All of these tasks will provide critical experiences and advance skills needed for the students to be successful in their future endeavors.

Organizations and institutions that have both interest in participating on this project and a successful track record within Greater New Haven and Greater Bridgeport include The Nature Conservancy's Leaders in Environmental Action for the Future (LEAF) Program (http://www.nature.org/about-us/careers/leaf/), The Sound School of New Haven (http://www.soundschool.com/about.html) and the Yale School of Forestry and Environmental Studies (Graduate internship program).

The LEAF program provides high school student internships and helps educators from environmental high schools share best practices and scientific resources. The Sound School (320 students currently) is an accredited inter-district, college preparatory high school, one of the nineteen Vocational Agriculture Centers in Connecticut, and a part of the New Haven Public School System. The Sound School offers a Capstone – Senior Portfolio Project Program to provide students with real world exposure and training on coastal issues. Through an on-going mentoring relationship with Yale University's School of Forestry and Environmental Studies, The Nature Conservancy will secure graduate level internships for each of the project years.

While a formal safety plan will not be required given the proposed major activities of this project, every effort will be taken to ensure a safe and meaningful experience for the students.

D. Collaboration and Partnerships:

Stakeholder engagement is a core operating principal of the RPOs and of The Nature Conservancy's approach to natural hazard mitigation to date and will continue throughout this project. The recent regional NHMP efforts discussed above engaged hundreds of stakeholders from across the SCRCOG and GBRC regions and ten municipalities via dozens of focused planning meetings, individual interviews, public listening sessions, media outreach efforts and community resilience workshops. The project proposed here will build on the relationships fostered with elected officials, municipal staff, emergency managers, community leaders, neighborhood representatives, business owners, major employers, housing authorities, social and health services, natural resource managers and state and federal agencies. Many of the key stakeholders are in full support of this project's goal of a regional framework for coastal resilience and look forward to contributing to the success.

As part of the South Central Region's Multi-Jurisdiction Hazard Mitigation Planning Process an Advisory Committee was established. The Committee consists of representatives from municipalities in the South Central Region and other targeted stakeholders. The participation by the Advisory Committee throughout the planning process ensured continuous involvement by local staff and stakeholders on the significant issues

identified during the plan development. The committee continues to provide a forum for discussion and information sharing of activities related to natural hazard mitigation.

Of particular importance to this project will be the Conservation Technical Advisory Committee (CTAC) which is an advisory body to GBRC. The primary responsibility of the CTAC is to serve as the regional forum for consideration of any activity related to the enhancement of the natural environment within the region. This includes the monitoring of coastal resilience initiatives and other activities as they relate to the protection and conservation of the natural environment. Each Greater Bridgeport municipality is formally represented on the CTAC with a member of the local Conservation Commission and a staff member with responsibilities related to conservation. Meetings of the CTAC are held monthly and are open to the public. In addition to the appointed members, meeting attendees typically include local conservation organizations, residents, staff of the Connecticut Department of Energy and Environmental Protection and other regional stakeholders. The CTAC is in full support of this proposal.

E. Work Plan & Logistics:

Project Team:

Carl Amento is the Executive Director of the SCRCOG and has planning experience at both the local and regional levels. Prior to his work at SCRCOG, Mr. Amento served three consecutive terms as Mayor of Hamden and was the Assistant/Deputy Corporation Counsel for the City of New Haven. Mr. Amento holds a B.A. degree, cum laude, from Yale University, Master of Arts in Teaching degree in Secondary Education from the Harvard Graduate School of Education and a Juris Doctor degree, cum laude, from Boston College School of Law.

Eugene Livshits is the Regional Planner at SCRCOG. Mr. Livshits extensive experience in land use planning, stakeholder engagement and natural hazard mitigation planning, as well as GIS, will be a key asset for the project team. Mr. Livshits holds a B.A. in Environmental Design and a Masters in Urban Planning (M.U.P.) from the University of Buffalo.

Christopher Rappa is the Sustainability Planner at SCRCOG. Mr. Rappa has experience in natural hazard mitigation planning and spatial analysis. Mr. Rappa holds a M.A. in Geography from the University of Connecticut.

The following organizations will serve as contractors to SCRCOG: The Nature Conservancy and the Greater Bridgeport Regional Council.

Adam Whelchel, Ph.D. is the Director of Science for the Connecticut Chapter of the Nature Conservancy and a project lead for the Coastal Resilience Program in Connecticut and New York; a Conservancy initiative designed to engage and advance resilience in communities around the world. Dr. Whelchel has been involved with large-scale ecological restoration/resilience and community outreach in estuaries (including the Chesapeake, San Francisco, Delaware Bay and Long Island Sound) and various watersheds (United States, Kenya) for over twenty-two years. Dr. Whelchel is currently working with twenty communities in Connecticut on resilience opportunities through the Conservancy's Coastal Resilience Program. Dr. Whelchel is also serving as the lead facilitator and key advisor for the Puerto Rico Climate Adaptation Project as well as a Lead Author for the Northeast section of the U.S. National Climate Assessment. Dr. Whelchel holds a B.S. from University of Vermont, an M.A. from San Francisco State University and a Ph.D. from University of Delaware.

Brian Bidolli, **AICP**, is the Executive Director of the Greater Bridgeport Regional Council (GBRC). Through his experience at the local and regional levels, he has supported numerous quality of life initiatives in the San Diego and Greater Bridgeport regions with a focus on integrating environmental mitigation strategies into land use and transportation plans. Mr. Bidolli is a graduate of City University of New York-Hunter College, and

holds Masters Degrees in Public Administration from California State University and in City Planning from San Diego State University.

Meghan Sloan is a Senior Transportation Planner with the GBRC. Ms. Sloan's diverse experience in conservation and land use planning, as well as public outreach will be utilized throughout the project. Ms. Sloan holds a M.S. in Urban Studies from Southern Connecticut State University.

Jennie Cure is a Fellow with the Association of Climate Change Officers currently working with the GBRC. The fellowship focus is on the development and implementation of the Brownfields Program and Natural Hazard Mitigation Plan for the GBRC. Ms. Cure is a licensed Landscape Architect (Arizona), certified Horticulturist (American Association of Botanical Gardens and Arboreta) and Project Management Professional. Ms. Cure holds a M.S. in Technology from Arizona State University with a concentration in International Environmental Technology Management and a B.S. in Biology from Keene State College.

a. Work Plan:

Please Note: An additional more detailed description and visual of tasks and timelines for the following major activities are provided in an additional supplemental upload as part of this project's proposal package.

Of critical importance to the core project team are the specific categories and respective funding thresholds identified in the 2013 Hurricane Sandy Coastal Resiliency Competitive Grants Program RFP. As indicated in this proposal's objectives and work plan we have identified the specific RFP categories for each of the four Project Components. To ensure clarity: Project Component #1 (Coastal Resiliency Assessment); Project Component #2 and #4 (Community Coastal Resiliency Planning); Project #3 (Project Planning and Design). As part of our budget development, the project core team ensures that the funding thresholds for each RFP category are not exceeded in the budgets for the project proposed here.

Project Component #1 (RFP Category - Coastal Resiliency Assessment) - Project Year 1:

- **Comprehensive Natural/Green Infrastructure Assessment**. The major activities are the development of 1) high quality geospatial data layers derived from field surveys and 2) assessment reports, static coastal characterization map products and interactive web-based information on the coastline and priority coastal watersheds (i.e., Rooster, Pequonnock, West and Quinnipiac) for the ten municipalities across the project area. The coastal assessment will characterize the project area's coastline based on existing/future habitat type, landform, exposure, condition and types of existing structures present. **Responsible parties** will include The Nature Conservancy as project manager with leadership/staff support from the RPOs and an environmental engineering contractor with landscape architecture, geospatial and ecological restoration expertise (TBD through competitive bid process upon project award). **Project Component #1 will be completed in Year 1** of the overall project timeline. The budget for Project Component #1 does not exceed the "up to $1 million" funding threshold for the Coastal Resiliency Assessment RFP Category.

Project Component #2 (RFP Category - Community Coastal Resiliency Planning) - Project Year 1-2:

- **Community Resiliency Engagement.** The major activities are the prioritization and integration of coastal and watershed assessment and other environmental solutions (Project Component #1) into regional and municipal hazard mitigation, comprehensive planning and capital expenditure efforts. This will be achieved through community-based planning meetings and workshops within and across the project area. This activity will seek to incorporate all existing and future natural/green infrastructure approaches and projects awarded through this DOI Sandy RFP (i.e., Bridgeport, Stratford, West Haven, New Haven, Guilford) and other funding sources. An additional major activity will be a legal, policy and regulatory audit to identify options for advancement of prioritized approaches and projects. **Responsible parties** will include the RPOs with The Nature Conservancy for the community resiliency engagement. A separate contract will be

established to provide the legal, policy and regulatory assessment of options for the project area. **Project Component #2 will be completed in Year 1-2** of the overall project timeline. The budget for Project Component #2 with #4 falls within the "$100,000 to $500,000" range for the Community Coastal Resiliency Planning RFP Category.

Project Component #3 (RFP Category - Project Planning and Design) - Project Year 2:

- **Design of Highest Priority Projects.** The major activity is the design of specific projects derived through the assessment and community engagement process (Project Component #1 and #2) in several pilot municipalities within the project area. This will be achieved by developing final design plans and costs for at least three catalytic projects. **Responsible parties** will include the RPOs with select municipalities via a contract with an environmental engineering design firm (TBD through competitive bid process upon project award). **Project Component #3 will be completed in Year 2** of the overall project timeline. The budget for Project Component #3 does not exceed the "up to $250,000" funding threshold for the Project Planning and Design RFP Category.

Project Component #4 (RFP Category - Community Coastal Resiliency Planning) – Project Year 1-2:

- **Regional Coastal Resiliency Plan**: The major activities are to incorporate outcomes/outputs from Project Component #1, #2 and #3 and develop an immediate and long-term guide for future natural hazard mitigation, comprehensive plans and capital expenditures across and within coastlines and priority watershed for the project area. The Plan will include a detailed risk assessment, a visual catalogue of current conditions, review of feasible resiliency strategies and protection measures and the development of future resiliency projects across the project area. **Responsible parties** will include the RPOs with The Nature Conservancy supported by a graphic design firm (TBD through competitive bid process upon project award). The Plan will be modeled after the approach taken in New York City – http://www.nyc.gov/html/sirr/downloads/pdf/final_report/Ch3_Coastal_FINAL_singles.pdf. **Project Component #4 will be completed in Year 2** of the overall project timeline. The budget for Project Component #4 with #2 falls within the "$100,000 to $500,000" range for the Community Coastal Resiliency Planning RFP Category.

b. Monitoring and Measuring Performance:

The project team is very experienced at managing projects with multiple phases and sequenced major activities such as the Southern Connecticut Regional Framework for Coastal Resilience project. The principal method to monitor and measure progress throughout each of the four project components will be routine meetings and written quarterly progress reports by the core project team throughout the entirety of the two-year grant period timeline. Each of the RPOs (SCRCOG and GBRC) will report on progress quarterly to their respective councils which are comprised of the chief elected officials from each of the municipalities. The Nature Conservancy in Connecticut will also report to their Board of Trustees on a quarterly basis. In addition, the core project team fully anticipates and looks forward to defining a regular reporting mechanism from the project directly with the Department of Interior (or designee) to ensure progress is recognized and ultimately helps to advance the overall resilience of the Hurricane Sandy impacted area. For each of the four Project Components, a timeline with task-specific milestones will be strictly enforced by the core project team. The relatively short grant timeline requires an absolutely commitment to this core operating principal. The contractual work as part of this project will require the submittal of specific reports and other pre-determined deliverables within specific timelines (i.e., coastline assessment, community engagement summary reports, final design of catalytic green infrastructure projects, final Southern Connecticut Regional Coastal Resilience Plan, presentations, etc...).

The key measures will include 1) the development of a comprehensive coastline assessment to provide the characterization of selecting green/natural infrastructure opportunities, 2) the degree and extent of participation throughout the community engagement process (# of participants from each municipalities, state/federal

agencies, NGOs, other stakeholders) 3) the development of final design plans for at least three projects and 4) the completion of a Regional Coastal Resiliency Plan.

c. Return on Investment:

The return on investment from this project will be realized over time through a deeper commitment by the ten coastal municipalities to proactive mitigation that will reduce risk and associated response and recovery costs from future events like Hurricane Sandy. An independent report submitted to Congress by the Multihazard Mitigation Council (2005) (http://c.ymcdn.com/sites/www.nibs.org/resource/resmgr/MMC/hms_vol1.pdf) on behalf of FEMA stated that in communities with institutionalized hazard mitigation, the return on investment from FEMA mitigation grant programs produced $14B in discounted present value as compared to $3.5B of resources employed between 1993 and 2003 (i.e., "every dollar spent on mitigation saves the taxpayers $4 on average"). A further key finding (MMC 2005) strongly indicates that "mitigation is most effective when it is carried out on a comprehensive, community-wide, long-term basis" where single projects are integrated into a coordinated series of activities over time. The project team's **Southern Connecticut Regional Coastal Resiliency Plan** will provide a community derived and driven action plan to comprehensively mitigate risks (local action in regional resiliency) and, therefore, help to reduce the need for federal, state, local and private financial assistance in the future.

The emphasis on green/natural infrastructure opportunities and environmental solutions to reduce risk will help to increase the persistence of critical coastal ecosystems and avoid future costs associated with their loss or conversion due to extreme weather events and climatic changes like sea level rise. Ultimately, this project will provide the local and regional roadmap for a comprehensive, directed and dedicated approach to minimizing the need for future assistance by avoiding future costs; financially, socially and environmentally. The return of investment for DOI, taxpayers and the human-natural systems is anticipated to be greater in highly urbanized parts of our nation's coastline (Southern Connecticut - Greater New Haven and Greater Bridgeport) versus less populated coastal areas.

d. Risk:

The project team does not foresee any risk due to substantial project failure and/or negative impacts on coupled human natural system resilience as a result of the proposal project components.

e. Permits and Approvals:

Permits will not be required for the any of the Project Components.

f. Safety:

The core project team does not see a need for a safety plan on this Project.