REQUEST FOR PROPOSALS
Economic Modeling Consultant for the Business Case for Resilience for Southeast Florida

ROLE: Economic Modeling Consultant/Team
LOCATION: Flexible, with some travel required
PROJECT DURATION: 4 months, with work concluding in April 2020
PROJECT BUDGET: Not to exceed $150,000, including travel expenditures and model costs
PROPOSAL DUE DATE: 7 pm ET on Tuesday, November 12th, 2019 (early submissions encouraged)
CONTACT: Resilience@uli.org

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PROJECT SUMMARY

The Southeast Florida community, under the auspices of the Southeast Florida Regional Climate Change Compact, is seeking to answer key questions and close identified gaps in the regional economic evaluation of flood risk and exposure, with the specific inclusion of sea level rise. The Urban Land Institute’s (ULI’s) Urban Resilience Program has been selected to serve as the overall project manager for the Business Case for Resilience for Southeast Florida project, and is seeking an Economic Modeling Consultant/Team to perform necessary economic analyses associated with the project. The Consultant may be a single company or team of companies.

The Consultant will work closely with the ULI project staff, a local project manager based in Southeast Florida, and other project partners. The Consultant will coordinate deliverables with ULI project staff and the local project manager. The Consultant’s contract will have a term of 4-5 months and a budget of not to exceed $150,000 over the project term (including travel expenditures and any required model licenses/costs). The selected consultant will need to manage cost in accordance with the project budget.

The Consultant will be expected to participate in weekly project update calls with the project team, and monthly project update calls with the broader project partners.

PROJECT BACKGROUND

The economics of sea level rise, flooding, and resilience are an essential component of encouraging continued action to address the challenges facing our community. Beyond the physical implications of rising seas, the economic implications of these impacts are an essential component of a smart cost-benefit analysis.

To further understand the business case for resilience, the proposed study will explore:

(1) the economic risks of flooding and the augmentation of that risk due to rising sea levels;
(2) the economic benefit of resilience action as a function of risk reduction and avoided economic losses;
(3) the economic opportunities associated with resilience investments; and
(4) recommended strategies to incentivize and improve resilience for our community.

The study will also provide a springboard for future analysis by collecting economic data on revenues by sector and risk not currently packaged and will explore national precedents and best practices from other cities seeking to quantify the return on their investments in resilience. The study will be consolidated into a final report with associated materials designed for consumption by multiple stakeholder audiences. The Consultant will assist in the development of the final report for the portions regarding the economic assessment. Specifically,

- the project study area shall include the four counties of southeast Florida and where feasible shall seek to employ regionally consistent data sets, tools, and models as the basis for assessments;
- where more granular analyses are required, the study approach should rely upon the use of representative corridors with findings that can be extrapolated to areas that share core characteristics;
- this proposal assumes complementary vulnerability assessments will be completed separate from this study to provide return on investment estimates for various stakeholders for specific physical infrastructure adaptations; and
- this study may offer opportunities for additional ‘case studies’ from communities within the four counties studied or a similar approach for different regions.
Analysis of the economic benefits associated with resilient investments will inform:

- Recommendations for collaborative planning;
- Targets for economic resilience;
- Potential strategies for future infrastructure investments; and
- Integration of this study with other resilience analyses.

All of which will ultimately contribute to a comprehensive evaluation of projections of return on investment in adaptation that specifically considers the risks of sea level rise, coupled with other flooding risks faced by Southeast Florida, including storm surge and tidal flooding.

**CONSULTANT SCOPE OF WORK**

The selected Economic Modeling Consultant for this study will (1) quantify the preservation of property values, tax revenues, and savings in insurance premiums to be gained through infrastructure improvements that mitigate for flood risk, and the specific adaptation options that could reduce economic losses, (2) evaluate direct and indirect benefits to a community because of adaptation investments, including augmentation in property values, development opportunity, reduced service disruptions, (3) analyze economic opportunities associated with resiliency investments, including sector-specific job growth, and (4) formulate recommendations, including the creation of a road map, noting which entities should do what, next.

The Consultant’s tasks include the following:

- **TASK A: Data Collection and Scenario Selection**
- **TASK B: Avoided Losses**
- **TASK C: Economic Benefit of Adaptation**
- **TASK D: Additional Economic Benefits**
- **TASK E: Recommendations for Economic Resilience Strategy**
- **TASK F: Communications & Roll-out**

*Should a respondent desire to use the REMI model for this project and does not have a current license for the Southeast Florida region, the respondent should include a $20,000-line item cost for a 70 Sector, Eight Region User License for this project within their budget. For more information on the model, [click here](#).*

The final deliverables of the project will include:

- A Draft Report to be reviewed by key stakeholders and experts within the Southeast Florida Regional Climate Change Compact summarizing the findings from task A through E (listed above) and cataloguing the methods, assumptions and data used. This report should include scenarios for the year 2045 and 2070, the nominal half-life and life of many infrastructure investments, respectively.
- A Final Report that incorporates recommendations from the Draft Report (Task F). This Final Report will be synthesized by ULI with national research findings and designed into an Executive Summary style-document and a document designed for readership by a broad land use, real estate, resilience and policymaker audience.
- Findings included in the Final Report will be rolled out into a communications strategy and shared with the general public and interested stakeholders.
**TASK A: Data Collection & Scenario Selection**

As a necessary first step for the economic modeling, the necessary data should be collected from appropriate sources, the scenarios to be analyzed should be selected, and appropriate mapping of the selected scenarios/sea level rise and corresponding exposure should be done.

- **Public Infrastructure and Data Collection** – The necessary public infrastructures, maps, and data to perform the analysis should be collected and detailed. It is appropriate to use existing and available maps and data, such as existing NOAA flood layers.
- **Scenario Selection** – Three (3) tidal flooding and high frequency storm surge events should be selected. Each scenario will be explored with current sea levels, and sea levels in 2045 and 2070 utilizing appropriate sea level rise curves, which will be determined in consultation with partners.
- **Sea Level Rise Mapping and Exposure** – Maps of the exposure associated with each of the scenarios will be created and with consideration of building/property values, building contents and business interruption potential. Value of critical infrastructure extracted from property appraiser data shall be reviewed for accuracy. Where feasible, damage estimates shall be based on regional impact data. Exposure shall be considerate of approved redevelopment projects under construction.

**Deliverable(s):**

- Spreadsheet of data collected with corresponding sources
- Description and discussion of scenario selections
- Exposure maps associated with scenario selection

**TASK B: Avoided Losses**

Economic benefits yielded from adaptation investments include, (1) avoided losses from damages from tidal flooding and storm events, (2) stability or enhancement of property values, (3) insurance premium savings, and (4) stability of the local tax base.

These elements are interdependent considering unaffordable insurance or infrastructure failure would impact property values and the tax base. Conversely, raising revenue from various sources can assist a community to afford and implement regional infrastructure improvements, thereby reducing risks in a vulnerable area, may positively affect property values and reduce insurance premiums. However, in order to ascertain the benefit of resilience action, it is essential to determine what is at risk. This Consultant will examine the current and future regional landscape, evaluating conditions predicted in the years 2045, and 2070.

The economic modeling consultant will:

- Examine the effect of tidal flooding and high frequency storm surge events on (what is currently at risk without adaptation action):
  - Public Infrastructure (e.g., schools, roads, hospitals, bridges)
  - Property Tax Revenue
  - Jobs, through both commute interruptions, business disruption and job losses
  - Damage losses through exposure modeling or similar analysis
  - All the above should include scenarios for the years 2045 and 2070.
- Explore a few select specific adaptation options that would reduce economic losses, such as:
  - Raised roads
  - Seawall enhancements
  - Beach restoration
  - Green infrastructure opportunities, such as Living Shorelines
Changes in Base Flood Elevation or raising of minimum Finished Floor Elevation
Improvements in major infrastructure assets
All the above should include scenarios for the years 2045 and 2070.

- Analyze sources of revenue for the County, detail vulnerabilities by sector and summarize jobs at risk by zip code, to the extent possible, and aggregated by municipal (including unincorporated areas), and the county level (see methodology, MARCO (2018)), including:
  - Compile estimates of the daily revenues from operations
  - Develop loss curves by sector for future modeling efforts

**Deliverable(s):**

- Discussion of methodology
- Results of the economic modeling results in an easy-to-share format with consideration of inclusion in the final report
- Discussion of adaptation options, including estimated cost for the actions (if possible), and how such actions would reduce economic losses
- Sector-by-sector assessment of jobs at risk by zip code to the extent possible and aggregated by municipal (including unincorporated areas), and the county level (spreadsheets and heat maps), including daily revenue losses by sector, and loss curves by sector for future modeling efforts

**TASK C: Economic Benefit of Adaptation**

Beyond avoided losses, there are additional economic benefits to adaptation. The approach for this task should include the assessment and comparison of total real estate values and average values per square foot by land use in areas within the County where improvements have been made to areas where limited or no improvements have been made, or alternatively redeveloped to non-redeveloped areas (see methodology, Stronge and Schultz (1997)).

Context for research methods:

- Estimates of the indirect benefits associated with maintained access to community resources to properties outside of the adaptation area may be used to derive the percent of property tax revenues derived from proximity to resilient corridors.
- Estimates of the benefits that protection of property values contributes to local taxing authorities may be applied to test the assumption that the cost of local government services including infrastructure investment is less than the contribution that high value waterfront properties generate or the loss of revenue if those parcels were removed from the tax roll.
- In this task, insurance savings based on types of policies specific sectors hold and estimation of percentage of risk offset or coverage to value ratio by insurance would also be estimated and compiled for a well-rounded view of the benefits provided by adaptation to properties and the tax base.

*Note:* The costs to date of local hurricane response, losses associated with events or changing conditions and replacement infrastructure costs resulting from flooding may serve as the basis for an estimated amount that could be avoided if adaptation occurs (see methodology, NIBS (2018) and ULI (2015)). The benefits and avoided costs determined in this task and previous tasks along with several estimates of the principal amounts and debt service required for various investment programs could be input into the National Institute of Standards and Technology (NIST) Economic Decision Guide Software (EDGe$) tool to derive benefit cost ratios and return on investment estimates.

**Deliverable(s):**
Discussion of methodology
- Estimates of the economic benefit of adaptation, including the avoided reductions in property values, and therefore property tax base, and effect of adaptation on insurance rates (quantitative to the extent possible, but likely more qualitative).
- Five (5) specific case studies of flooding and/or adaptation to provide demonstrable examples of the economics of flooding (these should be existing projects from distinct communities within the Southeast Florida area).

**TASK D: Additional Economic Benefits**
Beyond the direct benefit of infrastructure improvements, additional economic benefits will be derived from resilience action. This task will include:

- Explore qualitative and quantitative analysis of additional economic benefits. For example:
  - Estimates of new jobs created in response to infrastructure improvement projects by industry sector and lines of practice should be projected (see FIU (2017) methodology).
  - The sectors of focus will include but not necessarily be limited to property and real estate, banking and financing, professional, scientific and technical services, engineering and construction, hospitality and tourism, education and health services, and trade, transportation, utilities and logistics.
- Estimate the potential for job creation and retention and resulting new capital and local spending will be estimated and compared to the existing economy and projections without adaptation investments, if feasible.

*Deliverable(s):*
- Discussion of methodology
- Estimates of selected additional economic benefits (e.g. additional sector-by-sector jobs created) in spreadsheet and visual format
- Comparison between the scenario without and with adaptation actions, if feasible.

**TASK E: Recommendations for Economic Resilience Strategy**
The data collected and analyses performed in previous tasks will be used to understand the potential for greater economic resilience given investment in adaptation.

- Develop preliminary recommendations for the criteria for economic resilience at the regional and corridor scale
- Propose the incentives or partnerships necessary to reduce individual sector risk, stimulate investment in adaptation and compound the benefits yielded from investment across sectors
- Propose methods for tracking and verifying the return on investment to the economy once projects are implemented.

From these recommendations, decision makers can strategize and communicate the return on investment of adaptation more effectively, and appropriately connect these recommendations to more localized existing and in-progress resilience strategies.

*Deliverable(s):*
- Discussion of recommendations
TASK F: Communications & Roll Out
As part of this study, the consultant will be expected to assist with the communications roll out led by ULI and attend the launch event for the study. The communications roll-out may include additional in-person events beyond the launch, as well as other efforts such as webinars, articles and social media features.

Additionally, the consultant is recommended to attend the Southeast Florida Regional Climate Change Compact Leadership Summit on December 3-5, 2019 in Key West, Florida as part of the overall project.

Deliverable(s):
- Authoring of economic modeling portions of final report, report including a draft report, solicitation of feedback from key stakeholders, and assistance reviewing other portions of the report, and support the final report
- Assistance with communications and roll out of report
- Attendance at the launch event(s) in Southeast Florida
- Assistance with publicity efforts, including webinars, articles, and social media features
- Suggested attendance at the Southeast Florida Regional Climate Leadership Summit in Key West, Florida in December 2019.

PROJECT SUMMARY SCHEDULE

| November - December 2019 | ● Project Commencement  
|                          | ● Completion of Task A 
|                          | ● Completion of Task B 
|                          | ● Southeast Florida Regional Climate Leadership Summit (December 3-5) - optional 
|                          | ● Task C-D in progress 
|                          | ● Findings integration into Draft Report |
| January - February 2020  | ● Completion of Task C-D 
|                          | ● Completion of Task E 
| March 2020               | ● Delivery of Draft Report 
|                          | ● Revise Draft Report as needed |
| April 10, 2020           | ● Completion of Task F 
|                          | ● Final Report Delivery 
|                          | ● Launch Event(s) 
|                          | ● Report Rollout |
| Spring/Summer 2020      | ● Report Rollout (continued) |
REQUIREMENTS

- Capacity to complete the project in a condensed timeline, by March 2020 (final deliverables deadline is April 10, 2020).
- Demonstrated experience in economic modeling efforts, with specific experience with economic resilience modeling. Experience in Southeast Florida is preferred.
- Demonstrated experience and understanding of the Southeast Florida Regional Climate Change Compact.
- Ability to work with project partners to review key assumptions and parameters as well as deliverables and provide regular updates via scheduled team calls and meetings aligned with review periods.
- Demonstrated experience with education and outreach around flooding, sea level rise, and resilience issues.

The Consultant’s contract will have a term of 4 months and a budget not to exceed $150,000 over the project term. The project budget includes reimbursement for travel expenditures and any required model licenses/costs. The selected consultant will need to manage cost in accordance with the project budget. Travel expenses and are to be reviewed by the project manager before submitting for reimbursement.

SELECTION CRITERIA

The criteria below are not necessarily listed in order of importance. Proposals will be evaluated on the following criteria:

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Maximum Points</th>
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<tbody>
<tr>
<td>Qualifications &amp; Experience of Firm and Sub-Firm(s)</td>
<td>25</td>
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<tr>
<td>- Relevance of firm experience for this project</td>
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<td>- Relevance of past project experience</td>
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<td>- Access to all needed expertise within firm or dedicated subconsultants on project team</td>
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<td>- Organization chart</td>
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<td>- Strength of firm testimonials from past clients</td>
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<td>Qualifications &amp; Experience of the Person(s) Assigned to the Project</td>
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<tr>
<td>- Experience providing similar services successfully on projects of comparable size and scope</td>
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<td>- Alignment of person(s) skillset and roles of project</td>
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<tr>
<td>Project Understanding and Approach</td>
<td>25</td>
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<td>- Strength and detail of project plan, noting delivery strategy and timeline for each task item</td>
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<td>- Clear understanding of local conditions and initiatives that may impact project delivery</td>
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<tr>
<td>- Clear understanding of available data sources and limitations for the project</td>
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• Clear understanding of and experience with the relevant technologies to be leveraged for the project

<table>
<thead>
<tr>
<th>Project Timeline</th>
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<tr>
<td>• Ability to deliver within expected project timeline</td>
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<td>• Structured/clear timeline of approach with integrated check in points and key milestones</td>
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<td>• Timeline includes time for review by client team and input from consultation exercises</td>
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<td>• Timeline includes collaboration and contribution to larger overall final report</td>
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<th>Budget</th>
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<td>• Clarity of budget line items and summary budget table</td>
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<tr>
<td>• Proposed budget does not exceed $150,000, including travel expenditures and model costs</td>
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SUBMISSION INSTRUCTIONS

All proposal correspondence should be directed to leah.sheppard@uli.org. Proposals are due in a PDF format (max 25 MB) to that email address by 7 pm ET on Tuesday, November 12th, 2019. Early submissions are encouraged. Please submit any inquiries by Friday, November 8th, 2019. ULI will host a webinar to describe the project scope of work and answer any questions to interested applicants on Tuesday, November 5th, 2019. We welcome notifications that you are planning to apply so that we can send you any RFP updates.

Please submit a proposal that includes the following, in this order:

1. **Cover Letter:** Introducing the Consultant and/or Team and describing interest in the project. No more than 2 pages.

2. **Proposed Approach and Description of Work Plan for the Project:** Detail the approach for the project and include details and timeline of key milestones and deliverables for each Task in this section, ideally including a gant chart timeline. No more than 10 pages including any pictures, charts, or figures.

3. **Statement of Qualifications and Project Experience:** Describe the qualifications of the Consultant and/or Team, including economic modeling work (specifically economic resilience modeling), any work in the Southeast Florida region and work specifically with the Southeast Florida Regional Climate Change Compact. No more than 3 pages.

4. **Background of Key Staff:** Resumes should each be 1 page, and please provide no more than 10 key staff/team members and include a single-page organization chart and summary of staff roles on the project. No more than 11 pages total.

5. **Overall Project Budget:** Provide a detailed project budget including a Project Summary Budget Table (see example below), not to exceed $150,000, including staff time/rates, travel expenses and
any model licenses costs Please provide the Budget Summary Table on a single page, followed by additional information.

*Example Project Summary Budget Table*

<table>
<thead>
<tr>
<th>Economic Modeling/The Business Case for Resilience for Southeast Florida</th>
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<tbody>
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<td>TASK F: Communications &amp; Roll-out</td>
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<td><strong>TOTAL</strong></td>
<td><strong>$XXXX</strong></td>
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*Note: Should a respondent desire to use the REMI model for this project and does not have a current license for the Southeast Florida region, the respondent should include a $20,000-line item cost for a 70 Sector, Eight Region User License for this project within their budget.*

6. **Relevant Projects and References:** Provide three professional references representing the Consultant’s experience with similar projects. Please keep project sheets to one page each, with a maximum of 3 projects (3 pages total). Include:
   a. Project Name, description, and client
   b. Current status of project (e.g. in progress or complete)
   c. Project size and scale, including budget
   d. Description of key deliverables
   e. Reference name and current contact information
APPENDIX A: PREVIOUS STUDIES OF NOTE & REFERENCES

- Dania Beach Economic Resilience Study, Florida Department of Environmental Protection – National Oceanic and Atmospheric Administration Grant (2018)
- Cost-Benefit of Flood-Proofing/Buy Out Programs, Metropole (2015)

Select References

- NIST. 2018. *EDGeS* (Economic Decision Guide Software) Tool. Cost effectiveness of resilience projects: The tool allows you to specify frequency of hazards, cost of damage/adaptation and then benefits (cost savings). It then randomizes when the hazard occurs based on your input and shows the benefit cost ratio and ROI.
- MARCO. 2018. *Climate Change Vulnerabilities in the Coastal Mid-Atlantic Region*: blue economy, jobs at risk are based on zip codes in census. Notes: would be useful to run before the census is updated for comparison. The analysis of vacation housing may be interesting based on the previous article about slower response times to re-invest in vacation properties. Fisheries data would be useful.
- NIBS. 2018. *Natural Hazard Mitigation Saves: 2017 Interim Report*: After reviewing the outcomes of 23 years of mitigation grants funded by FEMA, the U.S. Economic Development Administration (EDA), and the U.S. Department of Housing and Urban Development (HUD), NIBS concluded that for every $1 invested in hazard mitigation, the United States saves $6 in future disaster-related and recovery costs. These costs include property loss, displacement and temporary sheltering, administrative costs related to insurance claims, and injuries and deaths. $1 on new construction exceeding codes, saves $4 in damage