

# North Atlantic Coast Comprehensive Study Visioning Meetings Summary

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## FINAL Report

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# Executive Summary

As part of the efforts for the North Atlantic Coast Comprehensive Study (NACCS), a series of visioning meetings were held throughout the U.S. Army Corps of Engineers (USACE) North Atlantic Division region. Five USACE Districts (New England, New York, Philadelphia, Baltimore, and Norfolk) conducted in-person visioning and partnership meetings with representatives from Federal, state, and regional entities; non-governmental organizations (NGOs); academia, business, and industry; and local governments. A total of seven visioning meetings and two partnership meetings were conducted between January and March of 2014.

The purpose of the visioning meetings was to continue dialogue with the states and other stakeholders to develop a shared vision for resilience in response to risk and exposure, building upon the previous discussions and information that had been compiled to date. Partnering meetings were held in two locations in New York to continue dialogue with Federal, state, and local stakeholders in smaller settings where visioning was not as necessary due to existing comprehensive regional plans.

Similar to what is reported in the NACCS, these meetings reaffirmed that coastal storm risk management is a reality faced by many stakeholders throughout the study area. A summary of the most prominent common themes identified during the visioning and partnering meetings is included below. Details on stakeholder responses and feedback are included in Sections 3 and 4 of this report.

The reports from the visioning meetings aligned with the findings delivered from the NACCS main report, which include:

- Coastal populations and infrastructure are vulnerable.
- Methods of coastal storm risk management strategies must be redundant, robust, and adaptable to the future uncertainty of coastal flood risk.
- Flooding from storm surge and intense precipitation events/stormwater runoff threatens coastal communities.
- Interagency coordination and collaboration are quintessential to progress in making informed decisions.
- Low-lying shorelines, such as inland bays or back bays, are significantly susceptible to flooding.
- A common vision and coastal risk framework are needed to make decisions for future conditions.
- Addressing coastal storm risk is a shared responsibility borne by Federal, state, regional, local and other stakeholders.
- Emphasis on data collection, hazards and impacts prediction, support modeling, and the advancement of resources are needed to provide a complete, holistic picture.

# Table of Contents

<b>Executive Summary .....</b>	<b>ES-1</b>
<b>Section 1 Meeting Background and Purpose .....</b>	<b>1-1</b>
1.1 Background .....	1-1
1.2 Overview of Report Organization .....	1-3
<b>Section 2 Meeting Logistics .....</b>	<b>2-1</b>
2.1 Overview .....	2-1
2.2 Attendees .....	2-2
2.3 Meeting Format .....	2-2
<b>Section 3 Stakeholder Response Analysis and Common Themes.....</b>	<b>3-1</b>
3.1 Response Analysis.....	3-1
3.1.1 Vulnerabilities .....	3-1
3.1.2 Solutions .....	3-5
3.1.3 Policy Challenges .....	3-9
3.2 General Comments.....	3-12
<b>Section 4 Observations of Unique Regional Features .....</b>	<b>4-1</b>
4.1 Hurricane Sandy Impacts and Stakeholder Feedback .....	4-1
4.2 Shoreline Features and Focus Area Characteristics .....	4-2
4.3 Customization of Presentation Materials of Local USACE Districts.....	4-3
4.4 Stakeholder Representation.....	4-4
4.5 Comparisons of Stakeholder Worksheets to Report-Out Summaries.....	4-6
4.5.1 Vulnerabilities .....	4-6
4.5.2 Solutions .....	4-10
4.5.3 Policy Change or Legislative Solution .....	4-15
<b>Section 5 Conclusions .....</b>	<b>5-1</b>

## Appendices

- Appendix A: Nassau County Back Bays Visioning Meeting Interim Deliverable
- Appendix B: Delaware Inland Bays and Delaware Bay Coast Visioning Meeting Interim Deliverable
- Appendix C: Washington, D.C. (National Capital Region) Visioning Meeting Interim Deliverable
- Appendix D: Coastal Rhode Island Visioning Meeting Interim Deliverable
- Appendix E: Coastal Connecticut Visioning Meeting Interim Deliverable
- Appendix F: City of Baltimore Visioning Meeting Interim Deliverable
- Appendix G: City of Norfolk Visioning Meeting Interim Deliverable
- Appendix H: New York-New Jersey Harbor and Tributaries, New York City Partnering Meeting Memorandum for Record
- Appendix I: New York-New Jersey Harbor and Tributaries, Hudson River Valley Partnering Meeting Memorandum for Record

**List of Figures**

Figure 1 – NACCS Focus Areas .....1-2  
Figure 2 – Responses from Visioning Meetings: Vulnerabilities .....3-3  
Figure 3 – Word Cloud for Topic #1: Vulnerability .....3-5  
Figure 4 – Responses from Visioning Meetings: Solutions.....3-7  
Figure 5 – Word Cloud for Topic #2: Solutions.....3-9  
Figure 6 – Responses from Visioning Meetings: Policy Challenges.....3-10  
Figure 7 – Word Cloud for Topic #3: Policy Challenges .....3-12

**List of Tables**

Table 1 – Meeting Summary.....2-1  
Table 2 – Affiliation Breakdown .....2-2  
Table 3 – Area-Specific Presentations .....2-3  
Table 4 – Response by Visioning Meeting to Topic #1: Vulnerability.....3-4  
Table 5 – Responses by Visioning Meetings to Topic #2: Solutions .....3-8  
Table 6 – Responses by Visioning Meetings to Topic #3: Challenges.....3-11  
Table 7 – Hurricane Sandy Impacts to Stakeholder Feedback .....4-2  
Table 8 – Location Characteristics .....4-3  
Table 9 – USACE District Preferences .....4-4  
Table 10 – Stakeholder Representation .....4-5  
Table 11 – Synopsis of Reported Vulnerabilities .....4-7  
Table 12 – Synopsis of Reported Solutions .....4-11  
Table 13 – Synopsis of Reported Policy Challenges and Possible Solutions.....4-16



# Section 1

## Meeting Background and Purpose

### 1.1 Background

As authorized under the Disaster Relief Appropriations Act of 2013 (Public Law [PL] 113-2), the U.S. Army Corps of Engineers (USACE) is conducting the North Atlantic Coast Comprehensive Study (NACCS).

Specific language within PL 113-2 states, "...as a part of the study, the Secretary shall identify those activities warranting additional analysis by the Corps." Under contract from the USACE South Atlantic Division, Jacksonville District (Contract W912EP-10-D-0010, Task Order 006), a series of reconnaissance-level, focus area analyses were conducted within the USACE North Atlantic Division as part of the NACCS. The focus areas were identified as areas that were vulnerable to incur potential damage from future coastal storms. The purpose of the focus area analysis is to identify problems, needs, and opportunities for coastal storm risk management activities, and to determine whether there is interest to participate in future phases of study.

Within the boundaries of the USACE North Atlantic Division, the nine focus areas (**Figure 1**) are:

- Coastal Rhode Island
- Coastal Connecticut
- New York-New Jersey Harbor and Tributaries
- Nassau County Back Bays, NY
- New Jersey Back Bays
- Delaware Inland Bays and Delaware Bay Coast
- Baltimore Metropolitan Water Resources Area, MD
- Middle Potomac - Washington, D.C. and Metropolitan Area
- The City of Norfolk, VA

## NACCS Focus Areas

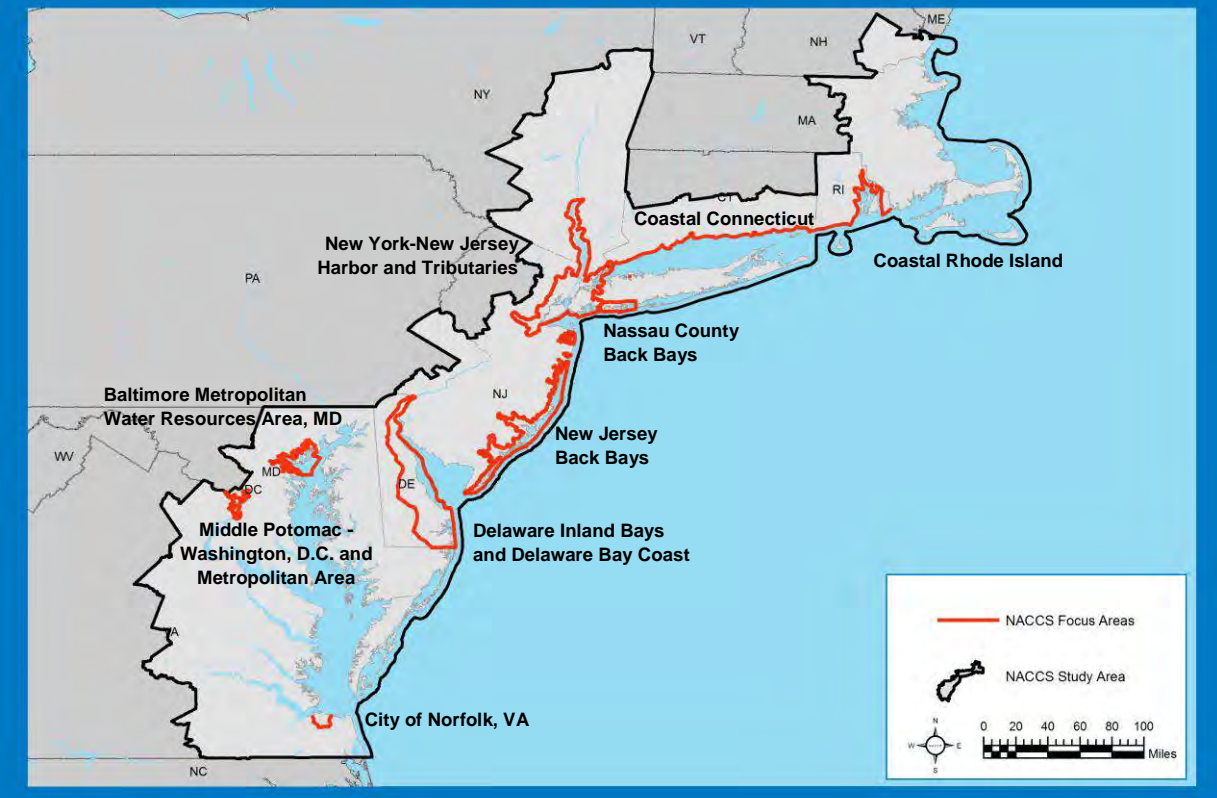


Figure 1. NACCS Focus Areas

During the focus area analysis, the extent of stakeholder engagement and actual stakeholder response varied depending on the focus area, the severity of impacts attributed to Hurricane Sandy, and the existing relationship between the USACE regional districts and the stakeholders. Establishing and maintaining close coordination with stakeholders and local communities is a vital component to the NACCS. Therefore, a series of visioning and partnership meetings were conducted for nearly all of the focus areas to engage representatives from Federal, state, and regional entities; non-governmental organizations (NGOs); academia, business, and industry; and local communities and governments to discuss coastal storm risk management. The intent of the visioning meetings was to share information, generate thoughtful discussion, and begin the process of local collaboration for a common vision to manage coastal flood risk and increase resilience within coastal communities. The visioning meetings were intended to:

- Be an educational opportunity to help participants understand the risks they may face in the future;
- Be a coordination opportunity to provide a forum for dialogue to reach a common vision on risk management and resilience;
- Focus on areas that need additional information provided by states and other stakeholders;
- Discuss how communities can use the NACCS analyses moving forward; and,
- Discuss ways to leverage additional Federal resources.

The general outcome from each visioning meeting was twofold. Stakeholder engagement and thoughtful discussion allowed for meeting attendees to acknowledge a common vision, yet discuss diverse issues. Additionally, the visioning meetings provided insight regarding the stakeholders' concerns and perceptions, which can be further emphasized in the overarching goals and themes of the NACCS.

In total, seven visioning and two partnering meetings were conducted. Due to scheduling conflicts and in response to the needs of the state and local stakeholders, a visioning meeting for the New Jersey Back Bay focus area was not conducted. In addition, a visioning meeting was not held for the New Jersey portion of the New York-New Jersey Harbor and Tributaries focus area.

## 1.2 Overview of Report Organization

This report documents the proceedings of the visioning meetings and is organized in the following sections:

- Meeting Logistics (Section 2)
- Stakeholder Response Analysis and Common Themes (Section 3)
- Observations of Unique Regional Features (Section 4)
- Conclusions (Section 5)

The interim deliverables for each visioning meeting included a meeting summary, an attendance list, photo documentation, and the attendees' worksheets. They are provided in **Appendix A** through **Appendix G** to supplement the material summarized in this report. For each partnering meeting, a memorandum for record was developed to document the meeting discussion. They are provided in **Appendix H** and **Appendix I**.

# Section 2

## Meeting Logistics

### 2.1 Overview

As part of the overall NACCS and in coordination with the information assembled for the focus area analysis, the coastal community engagement efforts are aimed at providing stakeholders with information about the NACCS, asking stakeholders about their perceptions about coastal flood risk and management approaches, and stimulating discussion across interagency boundaries. The visioning and partnering meetings were conducted for nearly all of the focus areas to engage representatives from Federal, state, and regional entities; non-governmental organizations (NGOs); academia, business and industry; local governments; and in one instance, a member of the general public, to discuss coastal storm risk management. A total of 248 attendees participated in the nine meetings (seven visioning meetings, two partnering meetings).

A typical in-person, visioning meeting was divided into two parts: a presentation summarizing the overall NACCS followed by facilitated, small group discussions. The partnering meetings were held in-person or via teleconference call, with a smaller, targeted group of stakeholders to discuss specific coastal storm risk management strategies and to enhance communication and partnership between agencies. **Table 1** describes the location, date, and number of attendees for all meetings conducted as part of these engagement efforts. Interim deliverables with introductory meeting materials for each meeting are provided in **Appendix A** through **Appendix G**. Memorandums for record of the partnering meetings are provided in **Appendix H** and **Appendix I**.

**Table 1. Meeting Summary**

Location	Date	Number of Attendees
New York-New Jersey Harbor and Tributaries, New York City (NYC)*	January 27, 2014	21
Nassau County Back Bays, NY	February 4, 2014	25
Delaware Inland Bays and Delaware Bay Coast	February 4, 2014	30
Washington, D.C. (National Capital Region)	February 10, 2014	35
Coastal Rhode Island	February 27, 2014	33
Coastal Connecticut	February 28, 2014	33
City of Baltimore, MD	March 6, 2014	30
City of Norfolk, VA	March 11, 2014	31
New York-New Jersey Harbor and its Tributaries, Hudson River Valley*	March 17, 2014	10

\*Partnering Meeting

## 2.2 Attendees

With coordination and direction from the local USACE district, a list of stakeholders was compiled and introductory meeting materials and invitations were distributed via email. Prospective attendees were asked to respond to the email invitation. Some visioning meeting attendees received forwarded invitations, or were proxies for original invitees, and were therefore not included in preliminary contact lists. Federal, state, and local affiliations accounted for the large majority of the attendees as summarized in **Table 2**.

**Table 2. Affiliation Breakdown**

Affiliation of Meeting Attendees	Percent of Total
Federal	32%
State	26%
Local	24%
NGO	6%
Academic	5%
Private	5%
County	3%

## 2.3 Meeting Format

Before each visioning meeting, attendees who had confirmed their meeting attendance were divided into pre-assigned small groups. The group assignments were intended to mix attendees of different affiliations to provide a diverse range of insight and priorities, as well as an opportunity to express opinions in a smaller group setting. Attendees who arrived on-site without registering were randomly assigned a group. Each group was also assigned a discussion facilitator from CDM Smith. The overall meeting was moderated by a CDM Smith representative.

Typically, the visioning meeting was divided into two parts: a presentation and a facilitated discussion. In most instances, the meeting was opened by either a representative from the USACE regional district and/or the local stakeholder(s) who hosted the meeting. A USACE spokesperson or a CDM Smith spokesperson presented an overview of the meeting detailing the meeting purpose, the NACCS background, and study timeline. After the general overview, the content of each meeting was customized to address specific issues and interests under the direction of the USACE regional districts. The additional information is summarized in **Table 3**. The meetings, at a minimum, addressed area-specific coastal storm risk management, but most addressed the focus area analysis, ongoing Federal recovery projects, and finally, state recovery efforts.

**Table 3. Area-Specific Presentations**

Location	Area-Specific Presentations
New York-New Jersey Harbor and its Tributaries, New York City*	<ul style="list-style-type: none"> <li>• NYC Mayor’s Office, Special Initiative for Rebuilding and Resiliency (SIRR) Efforts</li> </ul>
Nassau County Back Bays, NY	<ul style="list-style-type: none"> <li>• Focus Area Analysis</li> <li>• USACE New York District Sandy Recovery Projects</li> <li>• New York (State) Rising Community Reconstruction Program</li> </ul>
Delaware Inland Bays and Delaware Bay Coast	<ul style="list-style-type: none"> <li>• Focus Area Analysis</li> <li>• USACE Philadelphia District Continuing Authorities Program (CAP) Projects</li> </ul>
Washington, D.C. (National Capital Region)	<ul style="list-style-type: none"> <li>• Climate Change Considerations in the NACCS</li> </ul>
Coastal Rhode Island	<ul style="list-style-type: none"> <li>• Focus Area Analysis</li> <li>• USACE New England District Sandy Recovery Projects and Coastal Storm Damage Investigations Initiated</li> <li>• State Recovery Efforts</li> </ul>
Coastal Connecticut	<ul style="list-style-type: none"> <li>• Focus Area Analysis</li> <li>• USACE New England District Sandy Recovery Projects and Coastal Storm Damage Investigations Initiated</li> <li>• State Recovery Efforts</li> </ul>
Baltimore Metropolitan Area	<ul style="list-style-type: none"> <li>• Focus Area Analysis</li> </ul>
City of Norfolk, VA	<ul style="list-style-type: none"> <li>• Summary/Output of Norfolk Comprehensive Flood Risk Management Analysis Scoping Charrette</li> <li>• USACE Norfolk District CAP Projects and Limited Revaluation Report</li> </ul>
New York-New Jersey Harbor and its Tributaries, Hudson River Valley*	<ul style="list-style-type: none"> <li>• Sandy Impacts to the Hudson River Valley</li> <li>• Sandy-Related Projects and State Coordinated Response</li> </ul>

\*Partnering Meeting

Following the opening presentations in the visioning meetings, attendees were divided into their predetermined groups for the facilitated, small group discussions. Depending on the visioning meeting and meeting size, small groups typically ranged from five to ten attendees. In some visioning meetings, separate breakout rooms were used whereas in others, one large room was split into multiple corners to accommodate the groups.

Input from the attendees on key issues that related to coastal storm risk management was provided in the small groups. The foundation for each attendee’s input was from a worksheet addressing a question. Each attendee was asked to provide their individual written response on the provided worksheet. They silently generated their response to each question. Analysis of the worksheet responses is detailed in **Section 3**. For the majority of the meetings, three general topics discussed were vulnerability, potential solutions, and institutional/policy change related to coastal storm risk. Although there were slight modifications in wording, the worksheet questions were:

Q.1 How is your community (or agency/organization) most vulnerable to coastal storm risk?

Q.2 Based on one vulnerability noted above, what are 1-2 promising changes (or solutions) to address this vulnerability?

Q.3 What is the most prominent policy change or legislative change (or solution) that could improve coastal resilience?

The Washington, D.C. and the City of Norfolk visioning meetings presented slightly different questions. The Washington, D.C. visioning meeting was a concurrent meeting of the District of Columbia Flood Risk Management Working and the Monumental Core Climate Change Adaptation Working Group. Thus, the focus of the area-specific presentation was on climate change considerations in the NACCS. The one question asked was:

Q.1 What are the implications of Sea Level Change (SLC) on your agencies' missions, objectives, or operations?

The City of Norfolk visioning meeting was also slightly different due to a previous charrette conducted in August 2013. The USACE Norfolk District conducted a comprehensive flood risk management analysis scoping charrette focused on the City of Norfolk. Since initial stakeholder discussions regarding vulnerabilities and potential solutions were part of this charrette, the focus of the March 2014 visioning meeting was shifted to other related topics. The questions asked as part of the City of Norfolk visioning meeting were:

Q.1 What are the major institutional barriers that limit comprehensive coastal planning?

Q.2 What are prominent policy changes or legislative solutions that could improve coastal resilience?

Q.3 What management strategies/approaches are currently working to reduce risk from coastal storms?

Q.4 What strategies should be implemented to reduce risk from coastal storms?

Q.5 What is an acceptable level of risk?

After each question, each attendee read their response aloud as an opportunity to provide their input as time allowed. Then, the group, as a whole and with the help of the facilitator, summarized the main themes and responses for each question on large poster sheets. This was repeated for all questions. The completed worksheets were collected at the end of each meeting. At the conclusion of the group discussions, a volunteer from each group presented their group's findings and reported it to the entire audience. Characteristically, each visioning meeting had repeated answers amongst groups. Per each visioning meeting, the main themes from the report-out for all groups were further summarized as part of the interim deliverable. A general comment card was also distributed to participants requesting their feedback on the process, the NACCS, and any other remarks. All general comments submitted are summarized by visioning meeting in **Section 3.2**.

In comparison to the visioning meeting format previously described, the USACE New York District conducted two partnering meetings, one for New York City and another for the Hudson River Valley. These were both focused on coastal storm risk management measures and strategies. The meetings, which were held in conjunction with stakeholders from New York City and New York State, were informal in comparison to the other visioning meetings. Memorandums of record summarizing the discussion from these partnering meetings are included in **Appendices H and I**.

# Section 3

## Stakeholder Response Analysis and Common Themes

### 3.1 Response Analysis

Evaluation of the stakeholder written responses to questions provides further insight on the feedback which was left unspoken due to time constraints. Observations of group dynamics, even in a small group setting, demonstrated that specific observations of certain individuals tended to dominate the discussion and, in some instances, heightened certain priorities over others. Therefore, for further analysis, each stakeholder worksheet was assessed to identify any underlying trends, which was then compared to the group summaries for corroboration in each visioning meeting as further detailed in **Section 4.5**.

Written responses that identified with certain topics or keywords were counted and totals were tallied. Professional judgment was used to interpret responses on attendees' worksheets. In some instances, attendees may not have answered the question as it was intended, but in the spirit of capturing the responses as it was written, they were considered. All responses from each visioning meeting were compiled and then compared to other visioning meetings. The response analysis did not weight results to the number of meeting attendees as listed in Table 1; therefore, some meetings may show greater numbers than other meetings. Provided in the following sections is a description of overlap, trends, and commonalities on specific issues.

#### 3.1.1 Vulnerabilities

In total, 42 different topics from six of the seven visioning meetings were identified in response to the first question regarding vulnerabilities: "How is your community (or agency/organization) most vulnerable to coastal storm risk?" As mentioned previously in Section 2.3, the City of Norfolk visioning meeting addressed a variation of this topic during the charrette in August 2013 and therefore, was not included in this analysis.

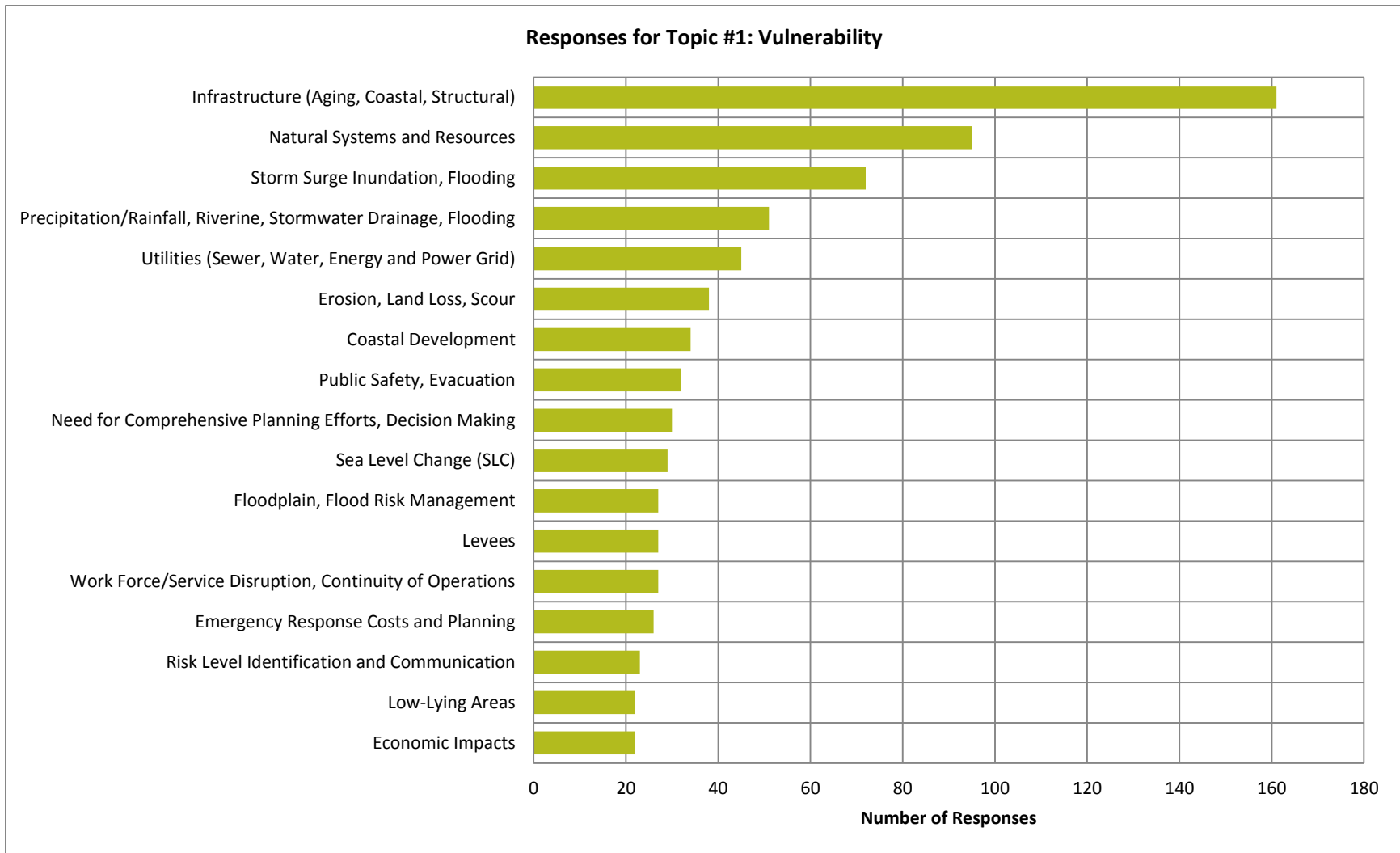
The purpose of the figures and tables on the following pages is to graphically represent the overall trends as interpreted from the responses. After studying each attendee's response and attributing them to certain topical groups by tally, the results were graphed in **Figure 2** to show the responses with the most tallies summed for all visioning meetings that addressed the subject of vulnerabilities. The 17 different topics shown in Figure 2 were attributed to at least 20 unique attendees. The cutoff number for the primary topical groups shown was chosen arbitrarily, but at a natural break in the dataset.

The first column of **Table 4** lists the topical groups: the general statements that were used to assemble the interpreted response from each attendee. The numeric values within each table are the summation of all of the responses attributed to that topical group for the specific visioning meeting listed in the table header. This raw data was used to create Figure 2, but is parsed out to show both the similarities and differences in responses for every visioning meeting. The top ten responses from



each visioning meeting are highlighted in red to accentuate the distribution of responses. **Figure 3** is a word cloud representation demonstrating the different words or phrases that visioning meeting attendees used to describe the vulnerabilities.

The most common responses were related to obvious impacts from flooding – both from storm surge and stormwater runoff caused by extreme precipitation. Two broad, distinct physical entities were identified as being particularly vulnerable. The general category of natural systems and resources (includes ecosystems, wetlands, tidal creeks, marshes, and wildlife habitats) and aging infrastructure (including, but not withstanding, roads, bridges, properties, structures, tunnels, etc.), were identified in all meetings. Similar to the themes of natural systems to include a multitude of terms, the general term “coastal infrastructure” also had a variety of interpretations. For example, some attendees listed “blocked roads, bridges, and tunnels” – which could be attributed to both the coastal infrastructure and the public safety theme. Depending on the context of the attendee’s response, the response could be counted for multiple themes. Unless explicitly stated or duplication occurred on the attendee’s sheet, an attempt was made to characterize each individual’s thought process. In addition, codependence of listed vulnerability groupings was noted, but not explicitly identified. For example, both natural systems and coastal infrastructure are vulnerable to flooding and to erosion and scour. These instances, although valid, were considered separately.

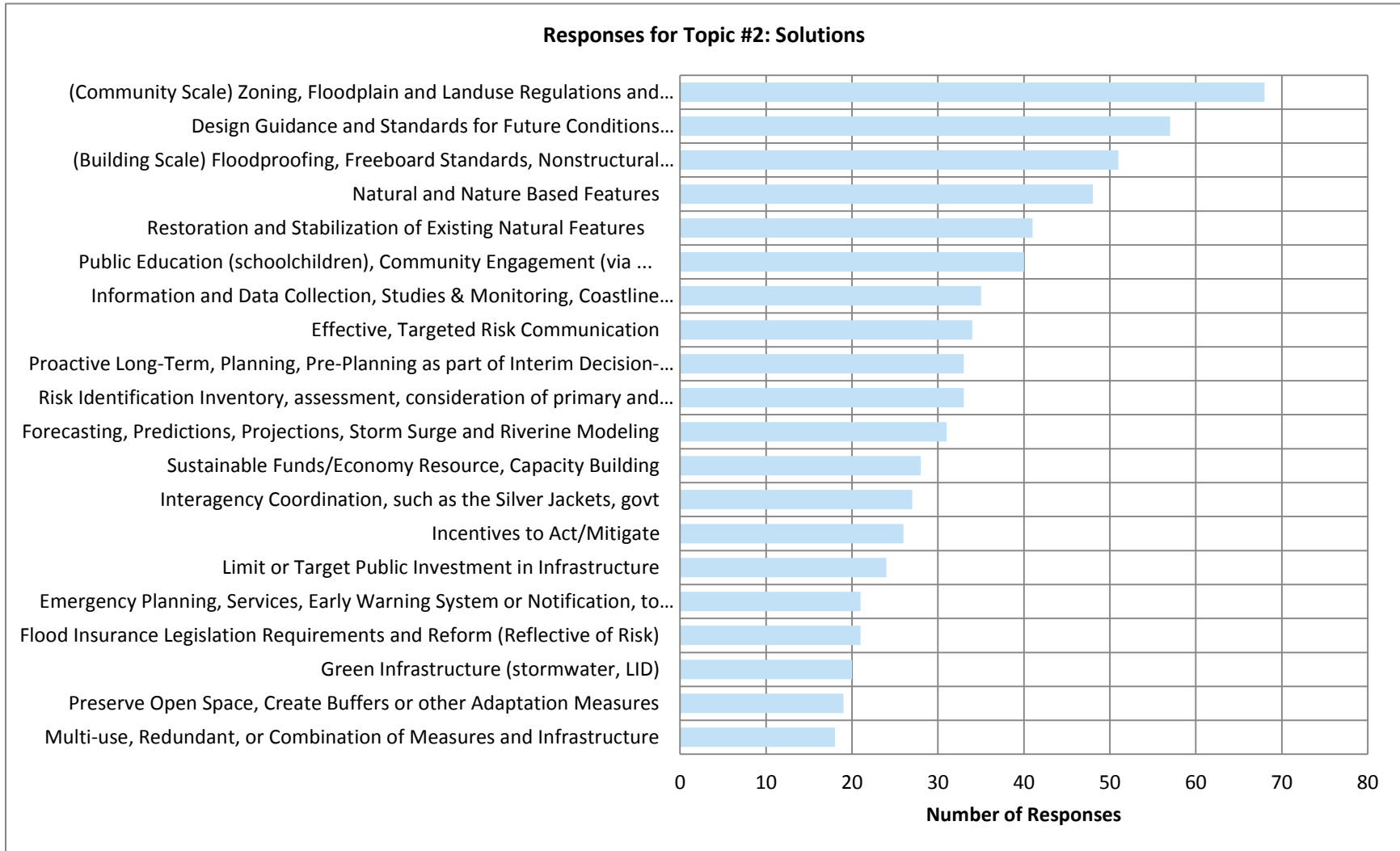


**Figure 2. Responses from Visioning Meetings: Vulnerabilities**  
 (This figure does not include the City of Norfolk visioning meeting.)

**Table 4. Responses by Visioning Meeting to Topic #1: Vulnerability**

Answer Themes	BALT	CONN	DEL	DC	NASS	RI
Infrastructure (Aging, Coastal, Structural)	24	43	26	26	17	25
Natural Systems and Resources	15	17	26	12	10	15
Storm Surge Inundation, Flooding	11	13	17	11	10	10
Precipitation/Rainfall, Riverine, Stormwater Drainage, Flooding	9	6	15	12	4	5
Utilities (Sewer, Water, Power Grid)	6	11	3	12	4	9
Erosion, Scour	6	7	12	0	6	7
Coastal Development	2	9	4	1	4	14
Public Safety, Evacuation	10	2	7	5	5	3
Need for Comprehensive Planning Efforts, Decision Making	3	7	7	7	2	4
Sea Level Change (SLC)	1	7	8	9	1	3
Work Force/Service Disruption, Continuity of Operations	2	6	3	11	3	2
Levees or other flood risk management measures	1	6	9	0	6	5
Floodplain, Flood Risk Management	2	4	11	3	6	1
Emergency Response Costs and Planning	5	5	2	6	4	4
Risk Level Identification and Communication	2	6	4	5	3	3
Economic Impacts	4	8	2	1	3	4
Low-Lying Areas	2	6	4	2	4	4
Resource Management Responsibilities	1	5	4	1	3	4
Asset Identification, Data Collection, and Uncertainty	3	3	3	2	0	4
Operation and Maintenance Issues	7	2	1	2	2	1
Water Quality Impacts, Contaminants	2	2	4	2	0	5
Recovery Decisions	2	2	5	1	3	2
Navigation, Ports, Harbors	6	0	6	1	0	1
Recreational Resources	1	1	2	4	0	6
Public Transportation (Light Rail, Bus)	1	4	1	1	1	1
Insurance Losses	2	5	0	0	0	2
Elderly, Special Needs, Vulnerable Populations	3	1	0	2	0	3
Access to Isolated Communities	1	4	0	1	1	1
Low Income Communities	2	1	0	2	0	3
Tax Base Impacts	0	5	1	0	0	2
Climate Change	1	0	0	6	0	0
Wind	1	2	0	0	0	4
Sedimentation	1	0	1	0	2	2
Forecasting, Predictions, Projections, Storm Surge and Riverine Modeling	0	0	0	5	0	0
Historic and Cultural Resources	0	0	0	5	0	0
Interagency Coordination and Communication	0	0	0	4	0	0
Sheltering	1	2	0	1	0	0
NED Projects, Optimized vs. Design	1	0	1	0	0	0
Fisheries	0	0	0	1	0	0
Sinkholes	1	0	0	0	0	0
Crawl Spaces/Illegal Basements	1	0	0	0	0	0
Not At Risk	1	0	0	0	0	0





**Figure 4. Responses from Visioning Meetings: Solutions**

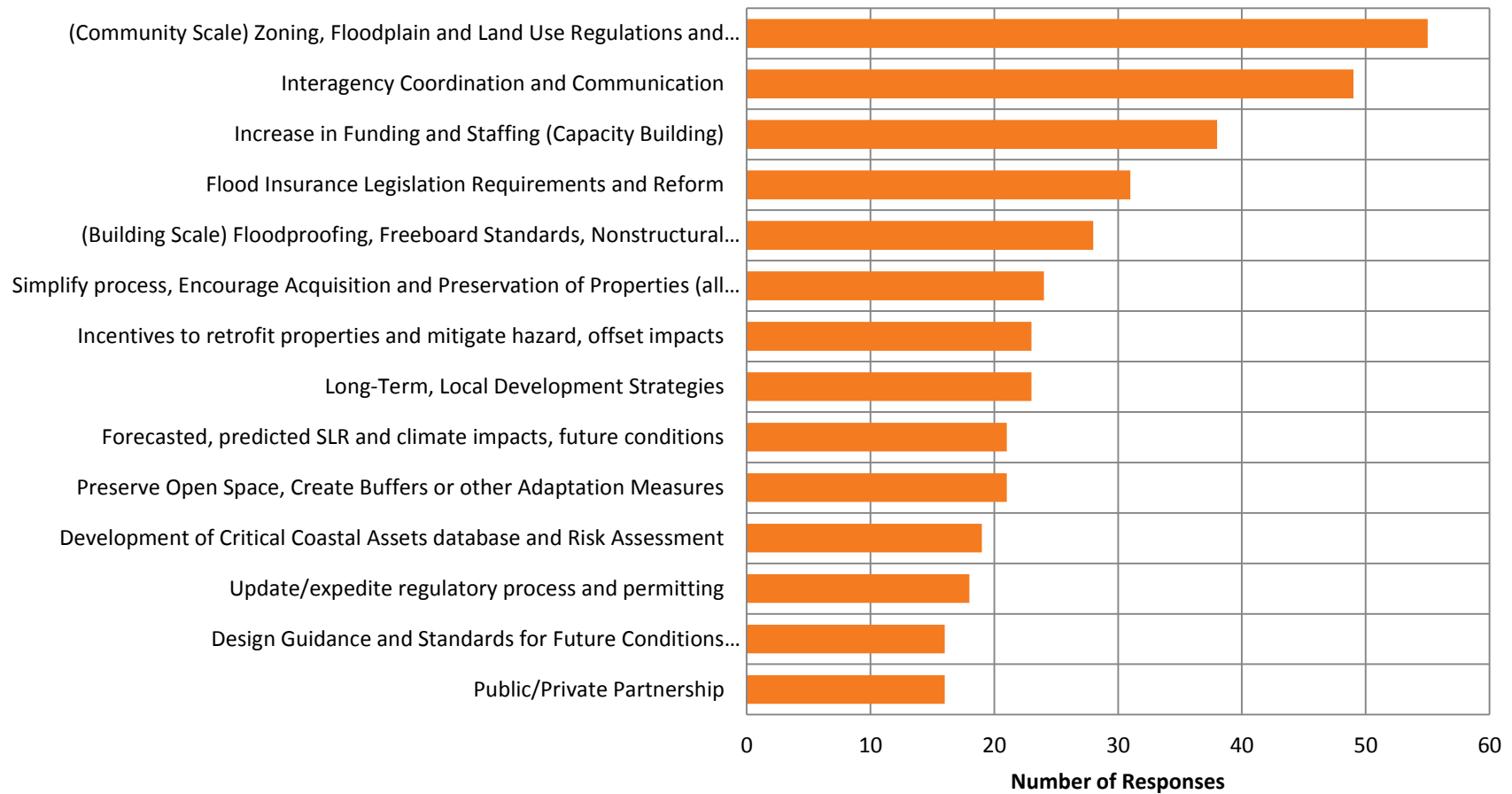
(The full-length topical group descriptions are found in the first column of Table 5.)

**Table 5. Responses by Visioning Meetings to Topic #2: Solutions**

Answer Themes	BALT	CONN	DEL	DC	NASS	NORF	RI
(Community Scale) Zoning, Floodplain and Land use Regulations and Management, Development and Redevelopment Restrictions, Retreat	4	17	5	3	8	15	5
Design Guidance and Standards for Future Conditions (SLR, coastal flood hazards, increased precipitation, climate change, range of scenarios)	13	10	4	11	6	4	7
(Building Scale) Floodproofing, Codes and Standards, Nonstructural Measures, Mitigation, Elevate	3	4	12	0	7	6	12
Natural and Nature Based Features	5	6	10	2	4	7	4
Restoration and Stabilization of Existing Natural Features	5	5	13	5	4	1	9
Public Education and Awareness, Community Engagement	12	8	3	5	3	3	2
Information and Data Collection, Studies & Monitoring, Coastline Mapping, High Water Marks	11	5	4	2	1	4	4
Effective, Targeted Risk Communication	7	9	1	0	1	6	3
Risk Identification Inventory and Assessment to consider primary and secondary effects	4	9	6	5	1	5	4
Proactive Long-Term, Planning, Pre-Planning as part of Interim Decision Making Process	5	7	5	7	7	4	7
Forecasting, Predictions, Projections, Storm Surge and Riverine Modeling	11	0	7	5	0	3	1
Sustainable Funds/Economy Resource, Capacity Building		5	2	3	2	5	6
Interagency Collaboration and Coordination (Silver Jackets)	5	5	0	4	2	8	1
Incentives to Act/Mitigate	1	4	0	4	0	4	9
Limit or Target Public Investment in Infrastructure	2	6	5	0	2	0	9
Flood Insurance Legislation Requirements and Reform to Reflect Risk	2	3	0	1	0	8	1
Emergency Planning, Services, Early Warning System or Notification, to enhance Public Safety	9	3	0	6	3	4	2
Green Infrastructure (Stormwater, Low Impact Development)	3	3	9	0	2	3	3
Preserve Open Space, Create Buffers or other Adaptation Measures	0	0	0	0	0	8	0
Multi-use, Redundant, or Combination of Measures and Infrastructure	4	7	1	0	1	0	5
Disaster Response Planning with Disaster Response Teams (Navigation)	2	4	0	0	2	0	2
Places Utilities Underground	1	1	1	0	2	2	3
Public/Private Partnerships	0	0	0	0	0	2	0
Recovery Planning and Decisions	1	2	0	1	0	0	0
Benefit-Cost analysis	0	0	0	0	0	2	0
FEMA Community Rating System	1	0	0	0	0	0	2
Grey Infrastructure	1	0	0	0	0	0	1
Simplify Permitting Process to Encourage Acquisition and Preservation of Properties	0	0	0	0	0	2	0
Cross-Training	1	1	0	0	0	0	0
Salt-Tolerable Plantings	1	0	1	0	0	0	0
Regional Sediment Management	0	0	0	1	0	0	0
Memorandums of Understanding/Memorandums of Agreement	1	0	0	0	0	0	0



### Responses for Applicable Visioning Meetings: Topic #3 Policy Challenges



**Figure 6. Responses from Visioning Meetings: Policy Challenges**

(This figure does not include the Washington, D.C. visioning meeting. The full-length topical group descriptions are found in the first column of Table 6.)



**Table 6. Responses by Visioning Meetings to Topic #3: Challenges**

Answer Themes	BALT	CONN	DEL	NASS	NORF	RI
(Community Scale) Zoning, Floodplain and Land Use Regulations and Management, Development and Redevelopment Restrictions, Retreat	13	10	9	8	11	17
Interagency Coordination and Communication	2	9	3	2	28	5
Increase in Funding and Staffing (Capacity Building)	3	6	10	5	12	2
Flood Insurance Legislation Requirements and Reform	6	5	5	3	8	4
(Building Scale) Floodproofing, Codes and Standards, Nonstructural Measures, Mitigation, Elevation	4	4	6	6	2	6
Simplify process, Encourage Acquisition and Preservation of Properties (all parties)	3	5	4	2	0	10
Long-Term, Local Development Strategies	2	4	2	3	7	5
Incentives to retrofit properties and mitigate hazard, offset impacts	4	3	1	3	3	9
Preserve Open Space, Create Buffers or other Adaptation Measures	4	5	4	2	0	6
Forecasted, predicted SLR and climate impacts, future conditions	8	1	2	1	6	3
Development of Critical Coastal Assets database and Risk Assessment	4	4	4	4	0	3
Update/expedite regulatory process and permitting	2	0	6	2	3	5
Public/Private Partnership	1	3	2	0	8	2
Design Guidance and Standards for Future Conditions (SLR, coastal flood hazards, increased precipitation, climate change, range of scenarios)	2	0	2	4	7	1
Needs for a cultural shift, supplementary education	1	2	4	0	2	5
Benefit-Cost analysis	1	4	4	1		2
Effective, Targeted Risk Communication	2	2	0	0	7	1
Encourage Natural and Nature-Based Features (NNBF)	1	4	0	1	3	1
Consistent authorities across all levels (local, state, Federal)	0	0	0	0	10	0
Information and Data Collection, Studies & Monitoring, Coastline Mapping, HWMs	0	0	0	0	6	0
Invest in Green Infrastructure	0	0	2	1	0	2
Multi-use, Redundant, or Combination of Measures and Infrastructure	0	0	0	0	1	0
FEMA Community Rating System	0	0	0	0	1	0



abandonment of a singly, deterministic storm surge forecast and rather provide a range of possible associated hazards and attributable scenarios.

Comments received for the Washington, D.C. visioning meeting:

- In response to specific meeting visuals, an attendee requested more distinct coloration of storm surge impacts on the map of Washington, D.C. under certain SLC scenarios. In response to the presentation, the attendee suggested the graphic depicting the USACE High SLC plots have appropriate titles and axes labels. In general, the attendee also suggested that the study provide scientific and technical information at a lay person level.
- An attendee provided comments regarding the presentation, stating that it was well presented, but too abbreviated due to the time constraints.

Comments received for the Coastal Connecticut visioning meeting:

- An attendee provided feedback requesting information regarding how the costs and benefits are calculated for current USACE projects in the context of associated present risk and how it is calculated or portrayed over the life of the project, potentially several decades. The attendee suggests that a comprehensive assessment is needed to evaluate the cost effectiveness of alternative structural and nonstructural approaches for coastal erosion control and references the disaster risk assessment that was performed for the Gulf of Mexico entitled, "Building a Resilient Gulf Coast." In addition, the attendee suggests the crucial need to connect regional approaches/studies for sediment management to the work being performed as part of regional ocean planning through two agencies: Northeast Regional Ocean Council (NROC) and the Mid-Atlantic Regional Ocean Council (MARCO). The attendee considers this pertinent to coastal storm risk management. Lastly, the attendee presented the need to ensure that all USACE projects are conducted in the context of a regional resilience framework. The examples presented for Connecticut are to suggest the State to establish a state-based framework to provide guidance, similar to what is currently provided, to some extent, in Connecticut State Hazard Mitigation Plan. This also includes concurrent plans for conservancy and/or development. By placing USACE projects within the context of regional resilience, the overall risk portfolio for Connecticut could potentially be reduced. The projects, specifically dredging and restoration projects can be singularly linked to this regional resilience framework. The attendee suggests that it would enhance comprehension and project integration from local to state agencies.

Comments received for the Delaware Inland Bays and Delaware Bay Coast visioning meeting:

- An attendee suggested additional engagement efforts to the communities in the Delaware Inland Bays area, in addition to the stakeholders at the county level.
- An attendee commended the presenters on an excellent concise process, which was both well-organized and facilitated. The attendee suggested that those stakeholders that were not present should be given an opportunity to provide feedback. The attendee felt that the resulted mix of site-specific and broad solutions would be helpful to prioritize and identify areas that are most vulnerable.

- An attendee suggested providing follow-up communication to the stakeholders who were unable to attend to provide an opportunity for feedback, similar to the topics and questions posed in the facilitated discussion.
- An attendee provided feedback that further engagement efforts are needed for all communities, that the USACE planning process is too cumbersome and does not result in enough action. In regards to the format of the meeting, the attendee noted that the group discussion was worthwhile.
- An attendee encouraged USACE to reach out to and aid smaller communities to be included in future processes.
- An attendee suggested that the meeting materials be provided to all attendees further in advance. The attendee also noted that it was unclear how the input being sought would be incorporated into the overall NACCS, specific to vulnerability and potential solutions. The attendee also suggested that more material and information be provided regarding the authorizing legislation, the outcomes from the NACCS, and the connection to the Continuing Authorities Program.
- An attendee appealed to USACE to review the comments and incorporate them into future planning needs for the State of Delaware
- An attendee stated that they gleaned more information regarding the NACCS, but that the use of abbreviations was confusing and ill-defined.
- An attendee suggested that the input from communities and representatives should be shared amongst all stakeholders. The attendee expressed gratitude and the intent to stay involved.
- An attendee stated that the next steps, as presented in the visioning meeting, were not well defined and that any further feedback and input may not contribute to any further information. The attendee stated that the visioning meeting seemed duplicative of information that was already received as part of the focus area analysis. The attendee asked to share information and the report to request specific feedback from stakeholders, including those at the municipal and county government level. The attendee noticed that no representatives from New Castle County were present at the meeting, which is a gap in communication since the issues that county faces may be different than those faced for Delaware Inland Bays and Delaware Bay Coast communities.
- An attendee encouraged USACE and local stakeholders to move forward and seek Federal funding for bayfront beaches.
- An attendee requested that a focus area/visioning meeting specific website be created so that documents and information could be easily shared amongst stakeholders.
- An attendee stated that the visioning meeting was productive, but that the results or outcomes from the meeting may be lost.

- An attendee requested that stakeholders are kept informed as the process and the NACCS continues and requested that USACE considers more public involvement.

Comments received for the Coastal Rhode Island visioning meeting:

- An attendee requested that State and local governments are kept informed during the NACCS review process to bolster collaboration, communication, and cooperation.
- An attendee suggested that there is overlap between NACCS, a study being performed by CRC, URI Bay Campus, and the statewide planning program with the hope that the organizations could correspond to share work.
- An attendee noted that most adjustments will have to, by definition, occur at the local level. The local communities have the least resources and the capability to deal with these issues.
- An attendee expressed interest in maintaining engagement and discussion for the area of South Kingston, Rhode Island.
- An attendee provided comments regarding appreciation of the discussion invoked as part of the visioning meetings. The attendee suggested a potential opportunity to provide coastal property owners a similar meeting to engage them in discussions and inform them of the potential realities of living in a high risk area.

Comments received for the Nassau County Back Bays visioning meeting:

- An attendee made a note to discuss the project life span of 50 years for the Long Beach Storm Reduction Project.

Comments received for the City of Norfolk visioning meeting:

- An attendee provided insight regarding the perceived impediments for resilience measure implementation, which were funding for large-scale, high impact resilience measures and capacity of the local communities to raise such funds – cooperation from state and Federal sponsors would be required. Secondly, the attendee requested a clear definition of the goals for coastal storm risk management, specifically whether communities should consider hardened defenses or retreat.
- An attendee suggested revising the question regarding “an acceptable level of risk”. The attendee suggested that it should specify what is at risk (such as life, property, natural defense, environment), and/or the scope of risk (local, individual people, regional, or global).
- An attendee suggested that for future stakeholder meetings, more time be allotted to discuss within the small group setting in order to debate and consider the topics.
- An attendee posted the question, “How do we get from framework to implementation? Studies will identify risks, what is the process for implementation?” In addition, the attendee noted that two state agencies, VADEQ and VRMC, were not present at the visioning meeting,

but these two agencies are important in the permitting and therefore, the implementation process.

- An attendee expressed the need for a clear use and goal of the NACCS. The attendee was under the impression or belief that money is available at the end of the NACCS for implementation of projects. Initiation of collaboration needs to happen at the Federal level.

## Section 4

# Observations of Unique Regional Features

Every visioning meeting had the same primary goal, which was to continue dialogue with stakeholders to develop a shared vision for resilience in response to risk and exposure, building on the previous discussions and information that had been pulled together to date. The visioning meetings were intended to share information, generate discussion, and begin the process of local collaboration for a common vision to reduce coastal flood risk and increase resilience within coastal communities. Topics discussed included vulnerabilities, solutions, and challenges related to flood risk as described in Section 3. The discussion topics were designed to be similar, but the essence of each visioning meeting was decidedly unique. These slight differences between visioning meetings are discussed in this section.

### 4.1 Hurricane Sandy Impacts and Stakeholder Feedback

The severity of impacts from Hurricane Sandy provided unique insight and revealed a range of reported experiences and responses from the visioning meetings. Some areas also suffered damages from Hurricane Irene in 2011. Two focus areas that were considered as experiencing “very high storm impact,” as conveyed by the Federal Emergency Management Agency (FEMA) Hurricane Sandy Impact Analysis Map, did not have standard visioning meetings. Leading up to the period of visioning meetings, the New York-New Jersey Harbor and Tributaries focus area and the New Jersey Back Bays focus area were undergoing a variety of major stakeholder engagement efforts via other state and Federal programs.

Stakeholders were being asked to provide similar information as part of the disaster recovery efforts conducted by FEMA and the Department of Housing and Urban Development (HUD) Rebuild by Design efforts in addition to local and state recovery and resilience efforts (e.g., New York Rising Community Reconstruction Program). Stakeholders from these focus areas expressed “data request fatigue” as they were still enduring the multiple requests as part of the recovery process. For each visioning meeting, the severity of impacts from Hurricane Sandy (from the FEMA Impact Analysis Map) was a significant factor in the themes of general responses and is presented in **Table 7**.

**Table 7. Hurricane Sandy Impacts to Stakeholder Feedback**

Visioning Meeting	Severity of Hurricane Sandy Impacts
Nassau County Back Bays	Very High Storm Impact: Stakeholders expressed that they were overloaded with information and data requests. The missions and requests from different agencies overlapped. Damages from Hurricane Sandy severely impacted the communities in this area and the recovery process was ongoing, the memory from Hurricane Sandy was still apparent.
Delaware Inland Bays and Delaware Bay Coast	High Storm Impact: Tidal flooding caused record high water levels during Hurricane Sandy. Flooding occurred in predictable areas. Impacts were felt along the Delaware Coast. General consensus during the visioning meeting was that the impacts could have been worse if the storm path had been different. Local and state stakeholders acknowledged this opinion and recognized that the NACCS was an opportunity to plan for future coastal storms.
Washington, D.C. (National Capital Region)	Moderate Storm Impact: During Hurricane Sandy, continuity of operations was moderately disrupted, but widespread tidal flooding was not publicized as apparent. However, the DC Silver Jackets and other stakeholders recognized that coastal flooding does occur, most recently attributed to Hurricane Isabel. Riverine and interior drainage flooding is a primary focus.
Coastal Rhode Island	Moderate to High Storm Impact: Coastal Rhode Island experienced impacts due to Hurricane Sandy. At the visioning meetings, communities expressed the need for completion of recovery projects in particularly damaged areas to prevent damages from future coastal storms.
Coastal Connecticut	High to Very High Storm Impact: Similar to coastal Rhode Island, impacts from Hurricane Sandy were experienced and communities expressed the need for completion of projects to prevent damages from future coastal storms.
City of Baltimore	High Storm Impact: For Hurricane Sandy, widespread tidal flooding and disruption was not publicized to have majorly impacted the area. Similar to Washington, D.C., severe flooding occurred more recently attributed to Hurricane Isabel.
City of Norfolk	High Storm Impact: The City of Norfolk experienced flooding during Hurricane Sandy, but similarly for the region, did not experience the brunt of the storm. Due to its particularly low-lying areas, the City is often subject to flooding due to coastal storms.

## 4.2 Shoreline Features and Focus Area Characteristics

Aside from the distinctions of each visioning meeting, notable differences in the regional geomorphology, shoreline usage, and land type provided additional differences in outcomes from the visioning meetings. As part of the NACCS, shoreline type and classifications developed by the National Oceanic and Atmospheric Administration (NOAA) - Environmental Sensitivity Index (ESI) were used to generally characterize the majority of the focus areas. The physical expanse of locations was also considered in observing differences. The focus areas ranged from a city-scale (Washington, D.C.) to county-scale (Nassau County) to statewide (Coastal Connecticut). These variances contributed to the specificity of how certain solutions and challenges were framed.



**Table 8. Location Characteristics**

Visioning Meeting	NOAA-ESI Shoreline Type	Distinguishing Physical Characteristics
Nassau County Back Bays	Beaches (Exposed), Manmade Structures (Sheltered and Exposed), Wetlands/Marshes/Swamps (Sheltered)	City of Long Beach and associated small incorporated villages fronted by a barrier island. Focus area analysis was on back bay areas.
Delaware Inland Bays and Delaware Bay Coast	Beaches (Exposed), Manmade Structures (Sheltered and Exposed), Wetlands/Marshes/Swamps (Sheltered) Vegetated high banks (Sheltered)	Small incorporated towns and villages with rural areas of unincorporated communities. National Wildlife Refuges along protected coastal areas in Delaware Bay.
Washington, D.C. (National Capital Region)	Manmade Structures (Sheltered and Exposed), Vegetated low banks (Sheltered)	Dense, urban metropolitan area subject to tidal influence from Potomac River and Chesapeake Bay. Historical and cultural resources such as national monuments, museums, and governmental buildings are significantly important.
Coastal Rhode Island	Beaches (Exposed) Manmade Structures (Sheltered and Exposed) Wetlands/Marshes/Swamps (Sheltered)	Patchwork of high density coastal populations characterized by town or city centers with a mixture of areas that are exposed and sheltered.
Coastal Connecticut	Beaches (Exposed) Manmade Structures (Sheltered and Exposed) Wetlands/Marshes/Swamps (Sheltered) Vegetated low banks (Sheltered)	Patchwork of high density coastal populations characterized by town or city centers, most subject to influence from Long Island Sound.
City of Baltimore	Man-made Structures (Sheltered and Exposed), Wetlands/Marshes/Swamps (Sheltered)	Dense, urban metropolitan area subject to tidal influence from Chesapeake Bay. Baltimore’s Inner Harbor is significantly important to the local economy. The Port of Baltimore is significantly important to the regional economy.
City of Norfolk	Man-made Structures (Sheltered and Exposed), Wetlands/Marshes/Swamps (Sheltered)	Dense, urban area subject to tidal influence at the mouth of Chesapeake Bay. Norfolk Harbor and naval facilities are significantly important.

### 4.3 Customization of Presentation Materials of Local USACE Districts

Generally, each local USACE district dictated how information was disseminated, the format of the meeting, and how the visioning meeting was conducted. In some cases, the meetings also took state or local stakeholders’ preferences into consideration (e.g., Washington, D.C.).

**Table 9. USACE District Preferences**

Visioning Meeting	Presentation Specific Details
Nassau County Back Bays	Representatives from New York State discussed the concurrent, ongoing efforts relating to the statewide coastal community resilience efforts called New York Rising. A summary of the stakeholder feedback received from the focus area analysis was discussed.
Delaware Inland Bays and Delaware Bay Coast	The USACE Philadelphia District discussed further details of the NACCS and presented a simple flow chart describing the different components of the overall study. The flow chart discussed the main body of the report, the state-specific appendices, and the focus area analysis. A summary of the stakeholder feedback received from the focus area analysis was discussed.
Washington, D.C. (National Capital Region)	The visioning meeting coincided with the District of Columbia Flood Risk Management Working Group and the Monumental Core Climate Change Adaptation Working Group monthly meeting. The meeting, held at the National Capital Planning Commission office, was primarily focused on climate change, particularly SLC, and its impacts to the region. The discussion of the NACCS SLC analysis aligned with the NASA SLC analysis that the Monumental Core Climate Change Adaptation Working Group has adopted. In addition, information from the NACCS regarding structural measures, natural and nature-based measures, non-structural and policy/programmatic options, were presented. The focus area analysis was not explicitly discussed.
Coastal Rhode Island	The USACE New England District provided information regarding current and future coastal storm risk management efforts for coastal Rhode Island. The focus area analysis was not explicitly discussed. Potential flooding and impacts defined by the SLOSH storm surge model was also presented.
Coastal Connecticut	Similar to Rhode Island, the USACE New England District provided information regarding current and future coastal storm risk management efforts, which was discussed for coastal Connecticut, but the focus area analysis was not explicitly discussed. The SLOSH storm surge model was mentioned as a product used for risk identification and to identify susceptible areas, but graphical representation of flooding and impacts was not presented.
City of Baltimore	The USACE Baltimore District provided an overview and update of the NACCS and presented a flow chart describing the components of the concurrent efforts and the connection between each NACCS work product. The focus area analysis was also discussed, including a summary of the stakeholder feedback received from the focus area analysis.
City of Norfolk	Since the USACE Norfolk District had already conducted an in-person workshop and charrette in August 2013, vulnerabilities and susceptible areas were already discussed with stakeholders. The Norfolk District had performed a significant amount of analysis as part of the comprehensive coastal flood risk management report (similar to the other focus area analyses). To avoid redundancy, the facilitated discussions and worksheet questions were focused on institutional/policy challenges and an acceptable level of risk.

## 4.4 Stakeholder Representation

The invitee list for each visioning meeting typically included a variety of individuals from local, state, and Federal agencies. Prior to each meeting, the stakeholders were divided into facilitated discussion groups in an attempt to distribute local, state, Federal, and other stakeholders amongst all groups.

Some regions have strong local authority and representation (such as Connecticut and Rhode Island) whereas in other regions, management is allocated at the county or state-level (Delaware and Maryland).

Within each facilitated discussion group, the individuals from each group could provide specific insight to their community’s or agency’s experience in addressing coastal storm risk. The attendees ranged from a local building inspector and their concerns on a site-specific scale to the director of a state emergency management agency that views the emergency response process on a regional or state level. This type of parity was apparent – and in all cases, provided perspective to all parties in understanding the levels of coordination required for coastal storm risk management.

**Table 10. Stakeholder Representation**

Visioning Meeting	Stakeholder Representation
Nassau County Back Bays	Representatives from local communities attended. The type of local stakeholders who attended ranged from building inspectors to deputy town commissioners to local village engineers. State representatives from the NY Rising Community Reconstruction Program and from the New York State Department of Environmental Conservation were also present. Since the focus area was for Nassau County, there was also representation at the county level.
Delaware Inland Bays and Delaware Bay Coast	There was a significant state presence at the visioning meeting and in particular from DNREC. DNREC was a lead contributor the focus area analysis and was an avenue for local communities to provide information. Local community officials, such as mayors and commissioners, attended as well as a private citizen. Representation from local NGOs specific to the region contributed focus to the ecosystems goods and services that the area provides. No county-level representatives were present at this meeting.
Washington, D.C. (National Capital Region)	The visioning meeting was attended by stakeholders from various Federal agencies that represented a broad array of agency missions and objectives. On occasion, representatives from certain agencies described that they could not participate or speak on behalf of their agency. Those that did express their opinions were focused on the continuity of operations (during and after a storm event) due to the functional importance of the Nation’s Capital. Other District agencies representing Metro Washington, D.C. were represented.
Coastal Rhode Island	The visioning meeting was attended by representatives from local communities such as engineers and planners, mayors, and building officials. Many of these communities have worked closely with the state and in with neighboring communities. Some conversations during the facilitated discussion were exceptionally fervent due to differing opinions in coastal zone management. It was evident during this meeting that the state, local, and Federal agencies have a high level of collaboration already.
Coastal Connecticut	There was a significant state presence at the visioning meeting and in particular from the Connecticut Department of Energy and Environmental Protection, the meeting host. Representatives from local communities attended, but no representation was present at the county level.

Visioning Meeting	Stakeholder Representation
City of Baltimore	The visioning meeting was attended by representatives from both the state and county level, in addition to the additional stakeholders from Federal agencies. This visioning meeting also coincided with the Maryland Silver Jackets meeting. Of those that attended, there was only one representative from the City of Baltimore. Coordination also occurred with representatives from the Port of Baltimore, but due to inclement weather and scheduling conflicts, they did not participate in-person at the visioning meeting.
City of Norfolk	The visioning meeting was attended by multiple representatives from the City of Norfolk including from the engineering, emergency management, and operations departments. Stakeholders representing the Navy were present. There were state representatives from the Department of Emergency Management and Department of Health, but representatives from the Virginia Department of Environmental Quality were not present.

## 4.5 Comparison of Stakeholder Responses to Report-Out Summaries

Section 3 presents the analysis of the individual stakeholder responses and the common themes that were represented in the response worksheets. An interim deliverable was developed for each visioning meeting. Within each interim deliverable, a summary of primary themes was reported. These primary themes, per topic, were derived from the summary posters that were used to present the group summary during the report-out portion of the visioning meeting. Comparison between the individual stakeholder response worksheet and these primary theme summaries is presented in this section to demonstrate the differences in how individuals answered the question and how the in-person group dynamic influenced what was reported. Observations of the trends associated with stakeholder responses are also captured in this section. Additional narratives are provided to address the three general topics discussed in the visioning meeting: vulnerabilities, solutions, and policy/legislative changes.

### 4.5.1 Vulnerabilities

The majority of stakeholder responses and poster summaries were synchronized regarding vulnerabilities. The visioning meeting attendees recognized that the areas where visioning meetings were held are susceptible to coastal, riverine, and stormwater flooding. The primary themes across most visioning meetings generally aligned, and specifics for each meeting are listed below in **Table 11**.

Review of the graphics and tables summarized in Section 3.1.1 was performed concurrently with the review of the report-out summaries. Of particular note were results from the Washington, D.C. visioning meeting. Unsurprisingly, since climate change was the main topic discussed at the visioning meeting, it was an often referenced topic. In addition, both the attendee response sheets and the summary report-out indicated that historical and cultural resources are highly vulnerable assets which are subject to flooding. Interpreted responses also indicated that Washington, D.C., with many of the Nation’s essential operations and staff, indicated that disruption of services and operations is another particular vulnerability. For the City of Baltimore, an important theme was vulnerability of navigation, ports, and harbors, most likely because Baltimore is famed for its Inner Harbor and historic seaport area. During the visioning meetings, attendees at both the Rhode Island and Connecticut meetings

expressed concern about current and future coastal development or coastal redevelopment in cases that had been impacted by Hurricane Sandy.

**Table 11. Synopsis of Reported Vulnerabilities**

Visioning Meeting and Observations from Worksheets	Interim Deliverable Summary of Vulnerability
<p><b>Nassau County Back Bays</b></p> <p><i>Stakeholder responses generally aligned with the summary of primary themes.</i></p>	<ul style="list-style-type: none"> <li>• Low-lying topography</li> <li>• Insufficient height and coverage of existing bulkheads</li> <li>• Issues with aging infrastructure and location of key infrastructure in high risk areas, such as:               <ul style="list-style-type: none"> <li>○ Development within the floodplain and low-lying areas</li> <li>○ Utilities are mostly above-ground</li> <li>○ Aging stormwater infrastructure</li> </ul> </li> <li>• Long-term/ongoing regional sediment management and beach maintenance is lacking</li> <li>• Safety               <ul style="list-style-type: none"> <li>○ Evacuation planning needed</li> <li>○ Lack of necessary communication</li> <li>○ Lack of education</li> </ul> </li> <li>• Cost and economics</li> <li>• New construction in high hazard areas</li> <li>• Habitat impacts</li> <li>• Coastal erosion and flooding</li> </ul>
<p><b>Delaware Inland Bays and Delaware Bay Coast</b></p> <p><i>Stakeholder responses generally aligned with the summary of primary themes. However, it is noted that during review of stakeholder worksheets, no written responses regarding modeling efforts were recorded. Through facilitated discussion, this was considered a vulnerability.</i></p>	<ul style="list-style-type: none"> <li>• Loss of land, habitat, and environmental concerns               <ul style="list-style-type: none"> <li>○ Delaware Seashore camp grounds, docks, and marinas</li> <li>○ Deterioration of beach</li> <li>○ Coastal forests</li> <li>○ Tidal marshes</li> <li>○ Freshwater wetlands</li> <li>○ Agricultural land loss caused by saltwater intrusion</li> </ul> </li> <li>• Coastal flood risk and realistic flood loss information is not communicated adequately to the public.               <ul style="list-style-type: none"> <li>○ Communicate information that is easy to understand</li> <li>○ Unincorporated communities are not represented in planning decisions</li> <li>○ Proper (scientifically-based) identification and communication of storm type</li> </ul> </li> <li>• Risks to utilities/infrastructure               <ul style="list-style-type: none"> <li>○ Loss of electrical power</li> <li>○ Health risks from releases of hazardous material</li> <li>○ Loss of business</li> <li>○ Transportation system threatened by rising waters and are a threat to public safety</li> </ul> </li> <li>• Coastal flooding/storm surge               <ul style="list-style-type: none"> <li>○ Current building codes are lenient, building standard flood levels are too low</li> <li>○ Build to new codes that include effects of barrier beaches, inlets</li> </ul> </li> <li>• Stormwater conveyance</li> <li>• Existing modeling efforts produce results that are too low, which impacts development and building requirements, and provides the public/decision makers with a false sense of security.</li> </ul>

Visioning Meeting and Observations from Worksheets	Interim Deliverable Summary of Vulnerability
<p><b>Washington, D.C. (National Capital Region)</b></p> <p><i>Stakeholder responses generally aligned with the summary of primary themes. Historical and cultural resources were identified as particularly vulnerable assets. Discussion also centered on the vulnerability of the Metro and DC Water infrastructure. In addition, SLC was identified in stakeholder responses, but was not explicitly captured in the report-out summary.</i></p>	<ul style="list-style-type: none"> <li>• Health, safety, and welfare</li> <li>• Flooding <ul style="list-style-type: none"> <li>○ Buildings and mechanical systems</li> <li>○ Critical infrastructure</li> <li>○ Historical and cultural resources</li> <li>○ Transportation</li> <li>○ Utilities</li> <li>○ Medical facilities</li> <li>○ Emergency response</li> </ul> </li> <li>• Cascading impacts <ul style="list-style-type: none"> <li>○ Environmental impacts on habitats, biological resources</li> <li>○ Displacement of coastal operations (and waterfront) <ul style="list-style-type: none"> <li>▪ Maintenance and continuity of operations for facilities and staffing</li> </ul> </li> <li>○ Cultural resources and infrastructure including National monuments and museums</li> <li>○ Recreation in tourism areas and redefinition of park boundaries</li> </ul> </li> <li>• Future infrastructure and design standards <ul style="list-style-type: none"> <li>○ Incorporating into capital planning and facilities plans <ul style="list-style-type: none"> <li>▪ Community/regional approach</li> </ul> </li> </ul> </li> </ul>
<p><b>Coastal Rhode Island</b></p> <p><i>Stakeholder responses generally aligned with the summary of primary themes.</i></p>	<ul style="list-style-type: none"> <li>• Natural systems <ul style="list-style-type: none"> <li>○ Beach, dune systems</li> <li>○ Back bay barriers, coastal wetlands</li> <li>○ Eel grass habitats</li> </ul> </li> <li>• Storm exposure (inland and coastal—southerly exposure) <ul style="list-style-type: none"> <li>○ Habitat loss</li> <li>○ Generally low topography <ul style="list-style-type: none"> <li>▪ Coastal hazards/flooding</li> <li>▪ Riverine flooding</li> <li>▪ Sea level change</li> <li>▪ Storm surge</li> </ul> </li> <li>○ Contamination</li> <li>○ Erosion</li> </ul> </li> <li>• Access <ul style="list-style-type: none"> <li>○ Emergency response</li> <li>○ Low-lying roads/ wash-over of sand onto roadways/ evacuation/detour routes</li> <li>○ Debris from trees</li> </ul> </li> <li>• Infrastructure <ul style="list-style-type: none"> <li>○ Public and private</li> <li>○ Above ground utilities and power supply</li> <li>○ Septic systems/wells</li> <li>○ Wastewater treatment plant</li> <li>○ Drinking water lines</li> <li>○ Coastal development</li> </ul> </li> <li>• Socioeconomic and cultural <ul style="list-style-type: none"> <li>○ Town and regional identity as coastal communities</li> <li>○ Property-by-property or town-by-town decisions</li> <li>○ Economic drivers—tourism and tax base</li> <li>○ Potential loss of tax base</li> <li>○ Adaptive capacity of communities</li> <li>○ Learn from past storms, but improve interagency coordination</li> <li>○ Changing mindset</li> </ul> </li> </ul>

**Coastal Connecticut**

*Stakeholder responses generally aligned with the summary of primary themes. Comprehensive planning effort was noted in stakeholder responses and a mention of poor historical planning is interpreted as a need for comprehensive planning. Erosion and scour were also noted in some stakeholder responses – land loss was interpreted as a similar response.*

- Low-lying areas (extensive shoreline)
  - Many residences
  - Utilities
  - Infrastructure – including major highways and rail lines
  - Coastal and inland flooding
  - Sea level change
  - Public amenities
- Economic impacts
  - Recovery costs
  - Implementation costs
  - Business loss of use
  - Loss of tax base
  - Tourism loss
  - Economic growth opportunity
- Environmental impacts
  - Habitat/land loss of wetlands, marshes, and bluffs
  - Sensitive ecological areas
  - Water quality
  - Human health
  - Needs for “green” infrastructure/buffer
- Infrastructure
  - Age/capacity
  - Water, WWTP, Power, Housing
  - Tree damage/debris
  - Roadways for emergency access and evacuation
  - Amtrak and other rail routes
  - Shelters required for people and pets
- Poor historical planning
  - Mitigation
  - Preparedness and through national response framework
  - Education/community engagement
  - Social vulnerability

Visioning Meeting and Observations from Worksheets	Interim Deliverable Summary of Vulnerability
<p><b>City of Baltimore</b></p> <p><i>Stakeholder responses generally aligned with the summary of primary themes.</i></p>	<ul style="list-style-type: none"> <li>• Critical infrastructure- Vulnerable to inundation flooding and aging <ul style="list-style-type: none"> <li>○ Utilities</li> <li>○ Transportation systems (including navigation channels)</li> <li>○ Power grid</li> <li>○ Wastewater treatment plants</li> <li>○ Other facilities</li> <li>○ Communication systems</li> <li>○ Stormwater systems</li> <li>○ Military facilities</li> <li>○ Conowingo Dam</li> </ul> </li> <li>• Stormwater and interior flooding</li> <li>• Lack of flood risk management projects</li> <li>• Wind impacts</li> <li>• Uncertainties associated with weather forecasting, SLC, and associated impacts</li> <li>• Natural resources/systems <ul style="list-style-type: none"> <li>○ Services they provide are compromised</li> <li>○ Systems are impacted by storm events and can become a liability</li> </ul> </li> <li>• Social considerations <ul style="list-style-type: none"> <li>○ Public safety</li> <li>○ Communities, vulnerable populations</li> <li>○ Hospitals/schools</li> <li>○ Emergency response system/access/communication</li> <li>○ Food supply and resilience planning after a hazard event</li> </ul> </li> <li>• Economic losses/impacts <ul style="list-style-type: none"> <li>○ Impacts to business/tourism</li> <li>○ Cost of road detours</li> <li>○ Underfunded operations and management budgets compared to capital improvements</li> <li>○ Flood insurance/mapping changes <ul style="list-style-type: none"> <li>▪ Uninsured residents in special flood hazard areas without a mortgage requiring a flood insurance policy</li> </ul> </li> </ul> </li> </ul>
<p><b>City of Norfolk</b></p>	<p>N/A, vulnerabilities were not explicitly discussed during this visioning meeting.</p>

### 4.5.2 Solutions

The majority of stakeholder responses corresponded to poster summaries. Visioning meeting attendees at various locations recognized that, in general, solutions would work if applied in the correct context. Review of the summarized results from the attendee worksheets in Section 3.1.2 provided insight into the potential preferences of certain areas.

Both the City of Baltimore and Washington, D.C. did not explicitly state potential “community scale” or “building scale” measures as a top tier solution to managing coastal flood risk. Most likely, difficulty in obtaining public acceptance of more stringent land use regulations or the impracticality of elevating historic structures disqualifies it as an appropriate solution.

However, the attendees at the City of Norfolk visioning meeting reported the “community scale” measures as its top potential solution. As mentioned in Section 3.1.2, comprehensive planning was another common theme amongst all visioning meetings.



Attendees at the Delaware visioning meeting identified that the restoration and stabilization of existing natural features was a top solution and this could be attributed to the multiple wildlife refuges within the study area.

An observation that is not clearly evident in the table below, involves two focus areas that are adjacent to each other and yet resulted in differing opinions regarding solutions. Solutions discussed in coastal Rhode Island revolved around the concept of balancing “managed retreat” with “loss of tax base.” This was discussed, at length, during the breakout sessions in Rhode Island. However, in coastal Connecticut, the concept of “managed retreat” was only peripherally discussed. Part of the reason for avoiding the phrase “managed retreat” during the Connecticut visioning meeting was due to a prior, statewide legislative attempt to incorporate retreat as a potential policy. The general public reacted negatively to the possibility of legislative reform and the topic has not been publicly vetted since.

**Table 12. Synopsis of Reported Solutions**

Visioning Meeting and Observations from Worksheets	Interim Deliverable Summary of Solutions
<p><b>Nassau County Back Bays</b></p> <p><i>Stakeholder responses generally aligned with the summary of primary themes. “Interagency coordination” was expressed on stakeholder worksheets, but was not explicitly summarized.</i></p>	<ul style="list-style-type: none"> <li>• Zoning policy and building code               <ul style="list-style-type: none"> <li>○ Infrastructure evaluation</li> </ul> </li> <li>• Elevate roads/homes/businesses</li> <li>• Smart reconstruction – two sides of the spectrum were recognized:               <ul style="list-style-type: none"> <li>○ Retreat from the shoreline, or</li> <li>○ Build and engineer solutions to protect the shoreline development</li> <li>○ Both types of solutions should be considered in any planning effort</li> </ul> </li> <li>• Preventing access via the Jones Inlet</li> <li>• Fund the Long Beach Project</li> <li>• Environmental concerns</li> <li>• Buyouts</li> <li>• Prepare communities for evacuation planning – identify protected routes               <ul style="list-style-type: none"> <li>○ Protect routes</li> <li>○ Communication</li> </ul> </li> </ul>
<p><b>Delaware Inland Bays and Delaware Bay Coast</b></p> <p><i>Stakeholder responses generally aligned with the summary of primary themes. “Risk Identification and Assessments” were expressed on stakeholder worksheets, but are not explicitly summarized.</i></p>	<ul style="list-style-type: none"> <li>• Unique and out-of-the-box solutions</li> <li>• Better modeling               <ul style="list-style-type: none"> <li>○ Improve flood prediction models and maps</li> </ul> </li> <li>• Better communication               <ul style="list-style-type: none"> <li>○ Improve education/engagement</li> </ul> </li> <li>• Beach nourishment/structural measures               <ul style="list-style-type: none"> <li>○ Coastal relief/restoration</li> <li>○ Raise seawall</li> <li>○ Jetty wall repair</li> <li>○ Storm surge barriers</li> <li>○ Wetlands restoration</li> </ul> </li> <li>• Land Use Policies and Building Permit Standards               <ul style="list-style-type: none"> <li>○ Update/create future decision standards by taking coastal flooding into account</li> <li>○ Smart planning</li> </ul> </li> <li>• Potential upgrades and assessments               <ul style="list-style-type: none"> <li>○ Manage development for transportation infrastructure</li> <li>○ Elevation of marshes/structures/infrastructure</li> <li>○ Storm drain assessment</li> <li>○ Relocation of homes</li> <li>○ Tide gates</li> <li>○ Dikes</li> </ul> </li> </ul>
<p><b>Washington, D.C. (National Capital Region)</b></p>	<p>N/A. Specific solutions were not explicitly discussed during this visioning meeting.</p>

**Visioning Meeting and  
Observations from Worksheets**

**Interim Deliverable Summary of Solutions**

**Coastal Rhode Island**

*Stakeholder responses generally aligned with the summary of primary themes. Although restoring natural systems is listed as a solution in the summary, “Green Infrastructure” and “Natural and Nature-Based Infrastructure” was expressed in worksheets, but are not listed herein.*

- Proactive adaptation and future mitigation planning
  - Coastal monitoring and better data
  - Improved mapping
  - Low impact development
  - Sea level change planning
  - Move utilities underground
  - Build roads at an elevation to prevent overwash
  - Design infrastructure
  - Alternative power sources
- Policy changes
  - Increasingly stringent building codes and flood insurance
  - Creating a sustainable economy
- Human influence
  - Restore natural systems
  - Move commercial nodes
- Increased awareness/engagement
  - Funding/public-private
- Infrastructure
  - Lead by example
  - Retreat/elevate/move/acquire
  - Relocate WWTPs or flood-proof critical infrastructure
  - Address vulnerable septic systems
  - Development in “smart” places
- Regional zoning (across town borders)
  - Designate areas of protection, retreat, and restoration
  - Provide incentives
  - Develop criteria
  - Conduct proactively
  - Enhance coordination

**Visioning Meeting and  
Observations from Worksheets**

**Interim Deliverable Summary of Solutions**

**Coastal Connecticut**

*Stakeholder responses generally aligned with the summary of primary themes.*

- Community education and capacity building
  - Education/collaboration on “real-risk” and unknowns
  - Identify vulnerabilities (infrastructure)
  - Decide how/where to rebuild
- Planning
  - Design resilient infrastructure
  - Hazard mitigation planning
  - Protect natural defenses
  - Planning and decisions for shoreline retreat and hardening
  - Coordinate emergency planning
- Research, reliable data, and innovation
- Policy changes
  - Building codes
  - Increase minimum standards such as those related to risk and uncertainty of forecasted SLC scenarios
    - At state level
    - Allow communities to better enforce
    - Address rebuilding post-storm
    - Identify resources (long term recovery coordinator at regional and local levels)
  - Zoning codes such as Coastal A-Zone regulations
  - Buyouts, including funding
  - Discourage buildings in sensitive areas
- Property acquisition - elevate, planned and managed retreat, adapt
  - Difficult politically
  - Economic incentives
  - From most vulnerable areas to help increase natural buffer

Visioning Meeting and Observations from Worksheets	Interim Deliverable Summary of Solutions
<p><b>City of Baltimore</b></p> <p><i>Stakeholder responses generally aligned with the summary of primary themes.</i></p>	<ul style="list-style-type: none"> <li>• Infrastructure <ul style="list-style-type: none"> <li>○ Evaluate existing infrastructure</li> <li>○ Maintain access to public infrastructure without increasing risk</li> <li>○ Identify high risk areas and critical assets</li> <li>○ Identify backup facilities</li> </ul> </li> <li>• Future planning <ul style="list-style-type: none"> <li>○ Consider future scenarios and conditions for infrastructure design and operations</li> <li>○ Floodplain management and mitigation</li> <li>○ Identify areas of natural protection</li> <li>○ Develop a better understanding of risks and vulnerabilities</li> <li>○ Collaboration across agencies / communities / NGOs / jurisdictions (example: Silver Jackets)</li> <li>○ Education/engagement</li> <li>○ Pre-position assets and continue future planning instead of retroactively <ul style="list-style-type: none"> <li>▪ Use of historic events (i.e., Hurricane Isabel) as a baseline assessment for flood risk management</li> </ul> </li> <li>○ Incorporation of SLC criteria</li> </ul> </li> <li>• Environmental <ul style="list-style-type: none"> <li>○ Improve mapping/modeling to inform solutions and identify high risk areas</li> <li>○ Improve information regarding the effectiveness of storm risk management techniques</li> </ul> </li> <li>• Communication <ul style="list-style-type: none"> <li>○ Move to analysis of a range of scenarios vs. one scenario when communicating risk</li> <li>○ Early warning and emergency plan systems</li> <li>○ Develop a common language to communicate risk</li> <li>○ Dissemination of flood depth grids</li> <li>○ Public engagement and education <ul style="list-style-type: none"> <li>▪ Safety, evacuation, preparedness</li> <li>▪ Uninsured property owners currently in the floodplain</li> </ul> </li> </ul> </li> <li>• Risk assessment <ul style="list-style-type: none"> <li>○ Support data collection to inform future planning and design efforts to limit risk</li> <li>○ Support science to improve forecasting and warning systems</li> <li>○ Enhance state-mandated rebuilding regulations</li> <li>○ Identify all risks-coastal, riverine, etc. <ul style="list-style-type: none"> <li>▪ Inventory of exposed areas</li> <li>▪ Determine risk sensitivity of structure</li> <li>▪ Adaptive capacity</li> </ul> </li> </ul> </li> </ul>
<p><b>City of Norfolk</b></p> <p><i>Stakeholder responses generally aligned with the summary of primary themes.</i></p>	<ul style="list-style-type: none"> <li>• More comprehensive strategy <ul style="list-style-type: none"> <li>○ Use of money for biggest positive impact</li> <li>○ Include private industry</li> <li>○ Must be multi-level, multi-tiered approach</li> </ul> </li> <li>• Improve communication of risk <ul style="list-style-type: none"> <li>○ Use graphics</li> <li>○ Risk identification with home sales and planning decisions</li> </ul> </li> <li>• Well defined egress and evacuation routes</li> <li>• Compare physical barriers vs. economics cost of relocation of major cities</li> <li>• Uniform guidance and data assets</li> <li>• Flood insurance actuarial rates</li> <li>• Funding for attending regional forum discussions</li> <li>• Regional approach to generator locations <ul style="list-style-type: none"> <li>○ Solar charging stations for cell phones [public]</li> </ul> </li> </ul>

### 4.5.3 Policy Change or Legislative Solution

The manner in which the visioning meetings were designed allowed for duplication of answers similar to those that were described and summarized in the previous section, 4.5.2, in regards to general solutions and management of coastal storm risk. Review of the summarized results from the attendee worksheets in Section 3.1.3 provided insight into the potential preferences of stakeholders in certain areas. Interagency coordination and communication was a repeated challenge for most visioning meetings. The need for collaboration and consensus was particularly expressed in multiple visioning meetings.

The Cities of Baltimore and Norfolk have both recently undertaken SLC impact studies and the policy challenges associated with implementation of the recommendations from those studies was discussed.

The City of Norfolk also had animated discussions regarding the need for public-private partnership in order to provide an economically sustainable waterfront area. Typically, allowable funding was identified as a significant policy change that would aid in implementation of proper coastal management.

Attendees from the Nassau County visioning meeting discussed the need for funding and capacity building to support the disaster recovery efforts.

Also, a lot of discussion revolved around potential changes to the FEMA National Flood Insurance Program (NFIP) and the potential changes from the Biggert-Waters Act of 2012. On March 21, 2014, the Homeowner Flood Insurance Affordability Act of 2014 amended some of the legislative mandates listed in the Biggert-Waters Act of 2012. Nevertheless, the responses listed herein reflect the responses from the visioning meetings that took place prior to the passage of the law. The documented suggestions to potential policy changes or legislative solutions are still valid.

**Table 13. Synopsis of Reported Policy Challenges and Possible Solutions**

Visioning Meeting and Observations from Worksheets	Interim Deliverable Summary of Policy Challenges
<p><b>Nassau County Back Bays</b></p> <p><i>Stakeholder responses generally aligned with the summary of primary themes.</i></p>	<ul style="list-style-type: none"> <li>• Benefit-cost analysis to be completed before reconstruction. The current situation seems to be spending money in a lot of different places without a concerted effort by all parties to identify the best solutions.</li> <li>• Funding:               <ul style="list-style-type: none"> <li>○ For mitigation/resilience/safety</li> <li>○ For improved reconstruction</li> <li>○ Flexibility</li> <li>○ To maintain open space</li> <li>○ Improved timing of funding</li> </ul> </li> <li>• 100% Federal funding</li> <li>• Partnership—clearer definitions of roles and responsibilities               <ul style="list-style-type: none"> <li>○ Legislative</li> <li>○ Fiscal</li> <li>○ Levels of government</li> <li>○ Interagency</li> <li>○ Regulatory consistency                   <ul style="list-style-type: none"> <li>▪ Decision making transparency</li> <li>▪ Federal funding</li> </ul> </li> </ul> </li> <li>• Floodplain management               <ul style="list-style-type: none"> <li>○ Building/zoning codes</li> <li>○ Insurance (cost and structure)</li> </ul> </li> <li>• Increased coordination and leadership between Federal, state, and local agencies</li> </ul>
<p><b>Delaware Inland Bays and Delaware Bay Coast</b></p> <p><i>Stakeholder responses generally aligned with the summary of primary themes. Stakeholder responses also suggest using “Community-scale Floodplain Management and Zoning” as a policy change, but was not explicitly summarized.</i></p>	<ul style="list-style-type: none"> <li>• Adoption of stricter building codes and standards to improve building resilience</li> <li>• Changes to NFIP programs (incentives)</li> <li>• Provide/disseminate information on costs and risks of coastal flooding</li> <li>• Flood risk maps for future scenarios</li> <li>• Funding mechanisms to address cost share issue</li> <li>• FEMA/USACE data sharing</li> <li>• Streamlined permitting for living shorelines (natural and nature-based features)</li> <li>• Changes in “Federal Standard” regarding dredge material disposal</li> <li>• Federal budgeting should consider regional budgeting instead of by business lines</li> </ul>
<p><b>Washington, D.C. (National Capital Region)</b></p> <p><i>Although specific policy solutions were not discussed, the summary of primary themes discussed policy issues and therefore is summarized here.</i></p>	<ul style="list-style-type: none"> <li>• Policy and regulation               <ul style="list-style-type: none"> <li>○ Differences between different levels of government</li> <li>○ Management of existing policies</li> <li>○ Changes/improvements to datasets, etc. that are provided to communities and other agencies</li> <li>○ Capacity building to instill flood risk issues</li> </ul> </li> <li>• Valuation/monetary assessment for vulnerabilities</li> </ul>

Visioning Meeting and Observations from Worksheets	Interim Deliverable Summary of Policy Challenges
<p><b>Coastal Rhode Island</b></p> <p><i>Stakeholder responses generally aligned with the summary of primary themes. Stakeholder responses also indicated that “Incentives” would be a potential policy change, but was not explicitly summarized.</i></p>	<ul style="list-style-type: none"> <li>• Policy reform <ul style="list-style-type: none"> <li>○ Policy change to maintain and better protect existing coastal resources</li> <li>○ Science and engineering based policy</li> <li>○ Implement solutions in sustainable way</li> <li>○ Flood insurance reform</li> <li>○ Pass carbon cap and trade tax to curb greenhouse gases</li> </ul> </li> <li>• Construction <ul style="list-style-type: none"> <li>○ Enforcement of existing policies, regulations</li> <li>○ More stringent codes on reconstruction and new construction</li> <li>○ Reduce repetitive loss claims</li> <li>○ Limit construction and reconstruction in areas subject to frequent storm damage</li> <li>○ Stop funding reconstruction and use free market to dictate construction/reconstruction</li> <li>○ Development of Standards <ul style="list-style-type: none"> <li>▪ Require standards that account for risk and uncertainty associated with forecasted SLR scenarios</li> <li>▪ Require CRMC permit that incorporate SLR setbacks</li> </ul> </li> </ul> </li> <li>• Rolling “Easement” <ul style="list-style-type: none"> <li>○ No current mechanism in state</li> <li>○ Some type of legacy lease</li> <li>○ State or community could buy out property, allow current landowner to resize for a set period of time (~30 years)</li> </ul> </li> <li>• Develop plan for prioritized mitigation <ul style="list-style-type: none"> <li>○ Get local buy-in</li> <li>○ Buyouts <ul style="list-style-type: none"> <li>▪ “1 strike and you’re out” for new construction</li> <li>▪ “Buyer beware” for vulnerable areas</li> </ul> </li> </ul> </li> <li>• Funding <ul style="list-style-type: none"> <li>○ Increased cost of compliance</li> <li>○ Mitigation funding as temporary solution</li> <li>○ Tax structure reform</li> </ul> </li> <li>• Investment support <ul style="list-style-type: none"> <li>○ Data sharing</li> </ul> </li> <li>• Education (statewide curriculum) <ul style="list-style-type: none"> <li>○ Resilience</li> <li>○ SLC</li> <li>○ Awareness of alternative solutions</li> </ul> </li> </ul>

Visioning Meeting and Observations from Worksheets	Interim Deliverable Summary of Policy Challenges
<p><b>Coastal Connecticut</b></p> <p><i>Stakeholder responses generally aligned with the summary of primary themes. Stakeholders expressed “Interagency Coordination and Collaboration” as a potential policy change, but it was not explicitly summarized.</i></p>	<ul style="list-style-type: none"> <li>• Regional planning authority and guidance <ul style="list-style-type: none"> <li>○ Prioritize coordination and communication</li> <li>○ Consistency and continuity among state/various Federal agencies <ul style="list-style-type: none"> <li>▪ Incentivize to encourage resilience and mitigation projects</li> </ul> </li> <li>○ Need for regional planning authority since individual decision making among towns are inconsistent</li> <li>○ Mandate benefit-cost risk analysis before any Federal/state funds are expended <ul style="list-style-type: none"> <li>▪ 50 year-minor improvements</li> <li>▪ 75 year-major improvements</li> </ul> </li> <li>○ Educate legislators on benefit-cost analysis to focus better on infrastructure resilience projects</li> </ul> </li> <li>• Funding <ul style="list-style-type: none"> <li>○ Public/private funding to incentivize adaptation</li> <li>○ Fund high impact and open space projects</li> </ul> </li> <li>• Refine Biggert-Waters 2012 (BW2012), but do not repeal</li> <li>• Revise land use and building codes to restrict or prohibit development especially in vulnerable area</li> </ul>
<p><b>City of Baltimore</b></p> <p><i>Stakeholder responses generally aligned with the summary of primary themes.</i></p>	<ul style="list-style-type: none"> <li>• Flood management <ul style="list-style-type: none"> <li>○ Easier process for buyouts and floodplain restoration</li> <li>○ Develop new long-term design standards</li> <li>○ Consider implementation of systemic, redundant approaches to minimize “down time”</li> <li>○ Mandate flood insurance to consider sea level rise and other projected future conditions</li> <li>○ Changes to zoning and planning to account for inundation risk</li> <li>○ Pay for your risk</li> <li>○ Improve incentives for floodplain restoration including wildlife habitat</li> <li>○ Consideration of multiple future scenarios to inform planning and design and warning statements</li> <li>○ Limit support to current properties in floodplains</li> </ul> </li> <li>• Enhanced agency, stakeholder, and policy maker communication and coordination</li> <li>• Coordinate interagency Memorandums of Understanding (MOU) to facilitate action</li> <li>• Risk assessment <ul style="list-style-type: none"> <li>○ Funding for forecasting improvements</li> <li>○ Education of risk</li> </ul> </li> </ul>



Visioning Meeting and Observations from Worksheets	Interim Deliverable Summary of Policy Challenges
<p><b>City of Norfolk</b></p>	<ul style="list-style-type: none"> <li>• Find ways to address repetitive flood losses</li> <li>• Engage local stakeholders in process and provide accurate information to the public</li> <li>• Local land use policies, constraints on development</li> <li>• Authority <ul style="list-style-type: none"> <li>○ Give more authority to agencies that do technical work and longer-term funding</li> <li>○ Give local authority to do comprehensive planning</li> <li>○ Provide/determine a lead for information dissemination and information credibility</li> <li>○ Have one group/agency in charge of a study</li> </ul> </li> <li>• More funding (public/private) <ul style="list-style-type: none"> <li>○ Short-term/mid-term/long-term</li> <li>○ Incremental, sustained effort</li> <li>○ Incentives to promote desired behavior</li> <li>○ Creative solutions for financing</li> </ul> </li> <li>• Legislative change on a commonwealth level <ul style="list-style-type: none"> <li>○ One common future condition to plan/design to</li> <li>○ Priorities for state and local</li> <li>○ Address policies which limit natural feature capabilities</li> <li>○ State leadership when working together</li> </ul> </li> </ul>

## Section 5

# Conclusions

The communication and learning experienced at the visioning meetings should continue through the duration of the NACCS and well into the follow-on relationships between Federal, regional, state, and local stakeholders. Most participants indicated that they were given an opportunity to provide USACE input during the visioning meetings. The goal of providing straightforward information regarding the NACCS, generating thought-provoking discussion, collecting the attendees' input on broader coastal storm risk management issues, and translating that input into common themes to inform the NACCS was achieved.

Two major observations were clear as part of the visioning meetings. First, the severity of impacts from a disaster will dictate the extent of stakeholder feedback, type of information, and level of stakeholder engagement. The two, substantially large focus areas that were most severely impacted by Hurricane Sandy, New York-New Jersey Harbor and its Tributaries and New Jersey Back Bays, did not conduct true visioning meetings. Both areas suffered from burdensome data and information requests as well as a multitude of various stakeholder engagement meetings, engagement events, town halls, etc. These areas experienced differing priorities from a multitude of Federal and state agencies, a lack of local capacity and staff to address such request, and general disaster fatigue. To some extent, a similar response was conveyed by the attendees of the Nassau County Back Bays visioning meeting.

The second lesson is that communication through the avenues of interagency collaboration is quintessential to engage and involve the population of local, state, academic, private, and other stakeholders. The cooperation between all of the agencies, be it Federal, state, and regional entities, is needed to deliver a shared vision to the local communities. Communities, who often bear the burden of knowing the absolute specifics of the issues that they face and the capacity to which they can implement coastal risk management measures, may follow suit in cooperation and could provide and seek additional support.

**Appendix A: Nassau County Back Bays Visioning Meeting Interim Deliverable**



US Army Corps of Engineers

**North Atlantic Coast Comprehensive Study  
Nassau County Back Bays  
Visioning Meeting  
Interim Deliverable**

**February 4, 2014**

**1:00 PM – 3:00 PM**

A series of visioning meetings are being held throughout the region in support of the North Atlantic Coast Comprehensive Study (NACCS). On Tuesday, February 4, 2014 the U.S Army Corps of Engineers (USACE) New York District conducted an in-person visioning meeting with representatives from state agencies, local communities, and concerned citizens with specific focus and dialogue related to the Nassau County Back Bays Focus Area. Twenty-four people attended the 2 hour meeting (see Attachment A), including individuals from the following organizations:

**Federal Agency:** US Army Corps of Engineers (USACE)

**State Agencies:** New York State Department of Environmental Conservation (NYSDEC)  
New York Rising Community Reconstruction Program (CRP)  
Department of State South Shore Estuaries Reserve (DOS SSER)

**Communities:** Town of Hempstead  
Village of Freeport  
Village of East Rockaway  
Village of Island Park  
Nassau County

**Other:** Bioengineering Group  
CDM Smith (meeting facilitation team)

**Location:** Merrick Road Park, 2550 Clubhouse Road, Merrick, New York

**Presentation:** The meeting agenda, included as Attachment B, consisted of two main parts. The first segment was driven by a presentation provided by Donald Cresitello, (USACE) on the overview of the NACCS, and Ginger Croom (CDM Smith) on an overview of the Focus Area Analysis conducted for this area as part of the NACCS. Anthony Ciorra (USACE) presented an overview of USACE Sandy Recovery efforts in Nassau County, and Long Island in general. Zachary Richner

(New York Rising) presented an overview of the NY Rising Community Reconstruction Program. These presentations are included in Attachment C. The second part of the meeting was a facilitated discussion aimed at surfacing participant insights on the vision for the local coastal issues. Photographs from the meeting are included in Attachment D.

Following the presentation, questions and discussion topics were raised.

#### **Questions/Discussion:**

- A member of the audience raised a question regarding other ongoing recovery efforts, such as Rebuild by Design, and whether the NACCS study team was coordinating efforts. Donald Cresitello answered that coordination with these other efforts is being considered and will be conducted to the extent possible. The NACCS is trying to coordinate with other programs to obtain additional relevant information to the extent possible.
- A member of the audience asked whether funds that will become available as part of the NY Rising Community Reconstruction Program could be used as the non-federal cost share for potential USACE projects, and the response was affirmative.

At the conclusion of the question and answer period, a brief break was followed by facilitated discussions with attendees broken out into three groups for brainstorming sessions. Each participant was asked to provide their ideas on a worksheet (Attachment E). The following section presents a summary of the primary themes addressed among the attendees from the small group discussions.

#### **Summary of Primary Themes from Facilitated Discussion:**

##### **Question 1: How is your community most vulnerable to coastal storm risk?**

- Low lying topography
- Insufficient height and coverage of existing bulkheads
- Issues with aging infrastructure and location of key infrastructure in high risk areas, such as:
  - Development within the floodplain and low-lying areas
  - Utilities-mostly above-ground
  - Aging stormwater infrastructure
- Long term / ongoing regional sediment management and beach maintenance is lacking
- Safety
  - Evacuation planning needed
  - Lack of necessary communication
  - Lack of education
- Cost and economics
- New construction in high hazard areas
- Habitat impacts
- Coastal erosion and flooding

##### **Question 2: Based on one vulnerability noted above, what are 1-2 promising solutions to address this vulnerability?**

- Zoning policy and building code
  - Infrastructure evaluation

- Elevate roads/homes/businesses
- Smart reconstruction – two sides of the spectrum were recognized:
  - Retreat from the shoreline, or
  - Build and engineer solutions to protect the shoreline development
  - Both types of solutions should be considered in any planning effort
- Preventing access via the Jones Inlet
- Fund the Long Beach Project
- Environmental concerns
- Buyouts
- Prepare communities for evacuation planning – identify protected routes
  - Protect routes
  - Communication

**Question 3: What is the most prominent policy change or legislative solution that could improve coastal resilience?**

- Cost-benefit analysis to be completed before reconstruction. The current situation seems to be spending money in a lot of different places without a concerted effort by all parties to identify the best solutions.
- Funding:
  - For mitigation/resilience/safety
  - For improved reconstruction
  - Flexibility
  - To maintain open space
  - Improved timing of funding
- 100% Federal funding
- Partnership—clearer definitions of roles and responsibilities
  - Legislative
  - Fiscal
  - Levels of government
  - Interagency
  - Regulatory consistency
    - Decision-making transparency
    - Federal funding
- Floodplain management
  - Building/zoning codes
  - Insurance (cost and structure)
- Increased coordination and leadership between federal, state, and local agencies

At the conclusion of the group discussions, one volunteer from each group stood and presented their groups' findings. A general comment card was distributed to participants requesting their feedback on the overall process. Their responses are included in Attachment F.

## **List of Attachments**

Attachment A – List of Meeting Attendees and Sign-in Sheets

Attachment B – Meeting Agenda and List of Handouts

Attachment C – Meeting Presentation

Attachment D – Photograph Log

Attachment E – Breakout Session Responses (to be further summarized in final deliverable)

Attachment F – General Comments (to be further summarized in final deliverable)

## Attachment A

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### List of Meeting Attendees and Sign-in Sheets



North Atlantic Coast Comprehensive Study  
 Nassau County Back Bays  
 Visioning Meeting - Facilitated Breakout Groups

<b>Name</b>	<b>Organization</b>
<b>Group A</b>	
Ginger Croom	CDM Smith (facilitator)
Zachary Richner	New York Rising CRP
Alan Fuchs	NYSDEC
Ron Masters	Town of Hempstead
Joe Madigan	Village of Freeport
Sergio Mauras	Village of Freeport
<b>Group B</b>	
Lauren Klonsky	CDM Smith (facilitator)
Phyllis Elgut	New York Rising CRP
Eric Star	NYSDEC
Michelle Gibbons	NYSDEC
Donald Cresitello	USACE
Roman Rakoczy	USACE
Juan Garcia	Village of East Rockaway
Jonathan Smith	Village of Freeport
Kent Katter	Village of Island Park
<b>Group C</b>	
Jamie Lekfowitz	CDM Smith (facilitator)
Sherry Forgash	DOS SSER Office
Brian Schneider	Nassau Conty
Satish Sood	Nassau County
Sean Sallie	NCDPW
Peter Scully	NYSDEC
<b>Other</b>	
Michael Scarano	Bioengineering Group
Nanette Vignola-Henry	CDM Smith
Mike Foley	Town of Hempstead

**NACCS Visioning Session**  
**Nassau County Back Bays - 2/04/2014**

Name	Community/Agency	Title	E-Mail	Telephone
Roman Rakoczy	USACE	Sr Planner	roman.g.rakoczy@usace.army.mil	518-698-4330
Ron Masters	Town Hempstead	Commissioner	rmasters@townhempstead.org	516-897-4118
AL FUCHS	NYDEC	DIRECTOR	ALFUCHS@NYDEC.GOV	518-402-8185
Nanette Vigorella	CDM Smith		Nanette.Vigorella@cdmsmith.com	516-496-2407
JOE MADIGAN	VILL. OF FRPT.	PLANNING MGR	JMADIGAN@FREEPORTNY.GOV	516-377-2243
Peter A Scully	NYS DEC	Regional Director	pscully@gw.dec.state.ny.us	631-44-0344
Michelle Gibbons	NYS DEC	Wildlife Manager	mgibbons@gw.dec.state.ny.us	631-444-0900
MIKE FOLEY	TOWN HEMPSTEAD	LAB DIRECTOR	MichFol@TOWNMAIL.ORG	516-897-4133
SERGIO A. MAURAS	VILLAGE OF FREEPORT.	BUILDING INSPECTOR	SMAURAS@FREEPORTNY.GOV	516-351-3316
Jonathan Smith	Village of Freeport	Building Inspector	JSmith@Freeportny.gov	516-659-1902
BRIAN SCHNEIDER	NASSAU COUNTY	ASST. TO DEP. COMM	bschneider@nassaucountyny.gov	516-571-9610
Kent Katter	Village of Island Park	Building Admin	Katter44@gmail.com	516-544-2220
MICHAEL SCARANO	BOENGEERING GROUP / PERKINS EASTMAN / BERGER	VP, PM/PGM	mscarano@earth.net	917-860-2271
	NYS DEC	EPS 2	EXSTARR@gw.dec.state.ny.us	631-444-0423
Donald E. Cresitello	USACE-NY	Planner	donald.e.cresitello@usace.army.mil	917-790-8605



## Attachment B

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### Meeting Agenda and List of Handouts

**USACE North Atlantic Coast Comprehensive Study (NACCS)  
Visioning Session  
Nassau County Back Bays**

**Merrick Road Park  
2550 Clubhouse Road, Merrick, New York**

**February 4, 2014  
1-3 pm**

- I. Introductions**
- II. Agenda Overview and Meeting Purpose**
- III. USACE NACCS**
  - a. Update
  - b. Focus Area Analysis
- IV. Other Updates**

**BREAK**

- V. Facilitated Discussion Topics**
  - a. Vulnerability
  - b. Potential Solutions
  - c. Policy and Institutional Barriers
- VI. Closing Remarks/Adjourn**

## **List of Handouts**

Agenda

Slide Deck handouts

8.5 x 11 map of the Focus Area Analysis boundary

North Atlantic Coast Comprehensive Study (NACCS) Study Synopsis

Attachment C

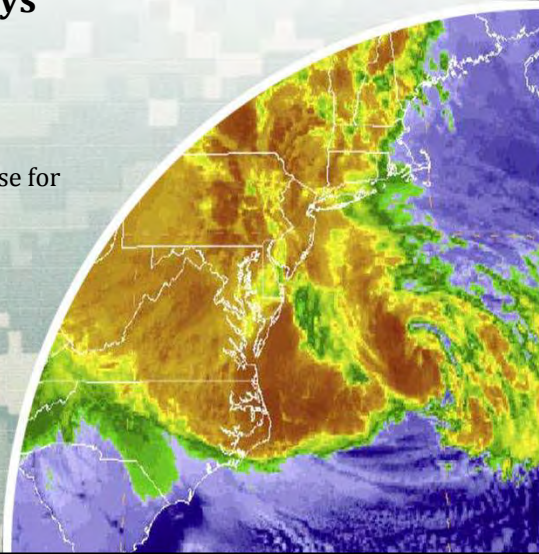
Meeting Presentation



# North Atlantic Coast Comprehensive Study Nassau County Back Bays Visioning Meeting

U.S. Army Corps of Engineers  
National Planning Center of Expertise for  
Coastal Storm Risk Management

4 February 2014



## Introductions

### USACE

- Donald E. Cresitello
- Roman Rakoczy
- Anthony Ciorra
- Peter Wepler

### NYSDEC

- Alan Fuchs
- Eileen Murphy
- Peter Scully

### CDM Smith - USACE Contractor

- Ginger Croom
- Lauren Klonsky
- Jamie Lefkowitz
- Nanette Vignola-Henry





# Agenda

- I. Introductions
- **II. Agenda Overview and Meeting Purpose**
- III. USACE NACCS
  - ▶ Update
  - ▶ Focus Area Analysis
- IV. Other Updates
- BREAK
- V. Facilitated Discussion (small groups)
- VI. Closing Remarks/Adjourn



# Meeting Purpose

- **Meeting focus:** Continued dialog with State and local stakeholders to develop a shared vision for resiliency in response to risk and exposure
- **Meeting outcomes:** Feedback received from this meeting will be incorporated into the USACE NACCS report to Congress in January 2015



# Sandy Overview

- ❑ Hurricane/Post-Tropical Cyclone Sandy moved to the U.S. Atlantic Ocean coastline 22-29 October 2012
- ❑ Affected entire east coast: 24 States from Florida to Maine; New Jersey and New York to Michigan and Wisconsin
- ❑ Areas of extensive damage from coastal flooding: New Jersey, New York, Connecticut
- ❑ Public Law 113-2 enacted 29 January 2013



Photo credits unknown

5

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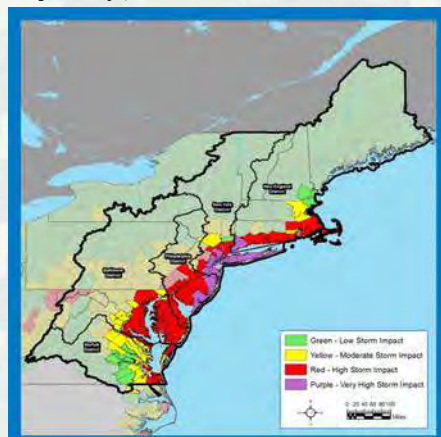
# NACCS Background

“That using up to \$20,000,000\* of the funds provided herein, the Secretary shall conduct a **comprehensive study** to address the flood risks of **vulnerable coastal populations** in areas that were affected by Hurricane Sandy within the boundaries of the North Atlantic Division of the Corps...” (\*\$19M after sequestration)

- Complete by Jan 2015

### Goals:

- Provide a Risk Reduction Framework, consistent with USACE-NOAA Rebuilding Principles
- Support Resilient Coastal Communities and robust, sustainable coastal landscape systems, considering future sea level rise and climate change scenarios, to reduce risk to vulnerable population, property, ecosystems, and infrastructure.



6

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### Technical Teams

- ❑ USACE Enterprise
- ❑ Agency Subject Matter

### Experts

- Engineering
- Economics
- Environmental, Cultural, and Social
- Sea Level and Climate Change
- Plan Formulation
- Coastal GIS Analysis



### Products

- ❑ Coastal Framework
  - Regional scale
  - Collaborative
  - Opportunities by region/state
  - Identify **range of potential solutions** and parametric costs by region/state
  - Identify activities warranting additional analysis and social/institutional barriers

- ❑ **Not a Decision Document**

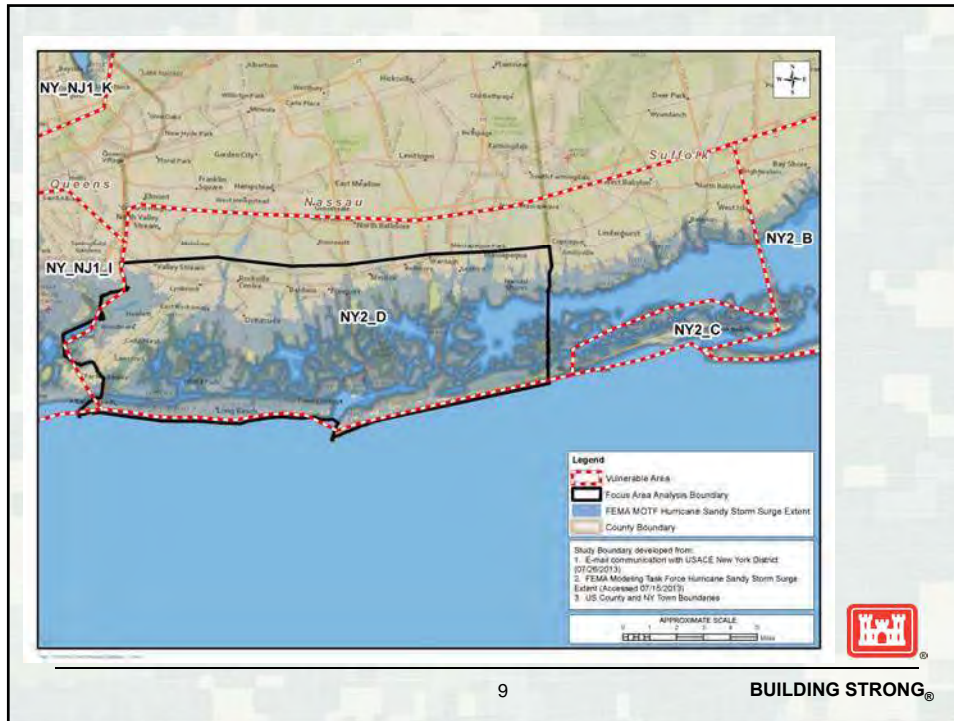
- No NEPA
- No Recommendations



## Focus Area Analysis

### Nassau County Back Bays





## Feedback Requested (Fall 2013)

- 1. Problem identification for your area:
  - ▶ Did your area experience storm surge?
  - ▶ Specify particular areas and water bodies within your jurisdiction that experienced storm surge.
  - ▶ What factors, if any, exacerbated damages from storm surge?





## Feedback Requested (Fall 2013)

- 2. Description of damages for your area:
  - ▶ Provide a narrative including the types of infrastructure damaged or temporarily out of use, structure (building) damages, personal injuries/fatalities.



## Feedback Requested (Fall 2013)

- 3. Prior related studies or projects (local, state, federal) in the damaged area
- 4. Measures that your jurisdiction has considered to address the problem



## Stakeholder Information

- **Nassau County** – Letter & Preliminary Damage Assessments of Facilities
- **City of Long Beach** – Meeting and Reports
  - ▶ Hurricane Sandy Storm Damage Report
  - ▶ Conditions Evaluation of Bulkheads & Outfall Structures
  - ▶ Comprehensive Plan Technical Memorandum Existing Conditions / Issues and Opportunities
  - ▶ Coastal Protection Study
- **Town of Hempstead** – Meeting and Correspondence
- **Village of Cedarhurst** – Letter



## Stakeholder Information

- New York State Standard Multi-Hazard Mitigation Plan (2011)
- Nassau County, New York Multi-Jurisdictional Natural Hazard Mitigation Plan (2007)
- New York Recovers Hurricane Sandy Federal Recovery Support Strategy (2013)



## Stakeholder Identified Problems

- Coastal Flooding
- Beach and Dune Erosion
- Stormwater / Collection System Flooding
- Aging Infrastructure



## Stakeholder Identified Measures

- Replace or repair and/or elevate aging bulkheads, and harden shorelines
- Elevate bridges and other county roadways
- Develop a collection system maintenance/management plan
- Construct stormwater force mains
- Install tide valves
- Provide submersible operation and emergency power at critical facilities



## Stakeholder Identified Measures

- Maintain County ponds to manage flooding
- Constructed reefs
- Rehabilitate wetlands within South Oyster Bay
- Restore dune and beach systems (include dune vegetation)



## Stakeholder Identified Measures

- Identify buyouts and relocation in high risk areas
- Improve hazard mitigation communication
- Develop bayside storm protection plans
- Update building codes and zoning regulations
- Apply regional sediment management
- Enhanced floodplain management





## NACCS Next Steps (Six Month Snapshot)

Early March 2014: Interagency release of the draft analyses

March 2014: Series of webinars to discuss/present the draft analyses with interagency partners

April-June 2014: Incorporation of input and finalization of the report for full review process



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19

## NACCS Current Status

- Draft Analyses Completed in September 2013
- Internal Review of Draft Analyses currently ongoing
- Five/Six Webinars in the Collaboration Series Completed
- Public website offers information and status updates  
([www.nad.usace.army.mil/compstudy](http://www.nad.usace.army.mil/compstudy))



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20

# QUESTIONS



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21

## Agenda Check-in

- I. Introductions
- II. Agenda Overview and Meeting Purpose
- III. USACE NACCS
  - ▶ Update
  - ▶ Focus Area Analysis
- **IV. Other Updates**

### **BREAK**

- **V. Facilitated Discussion** (small groups)
  - a. Vulnerability*
  - b. Potential Solutions*
  - c. Institutional/Policy Challenges*
- **VI. Closing Remarks/Adjourn**



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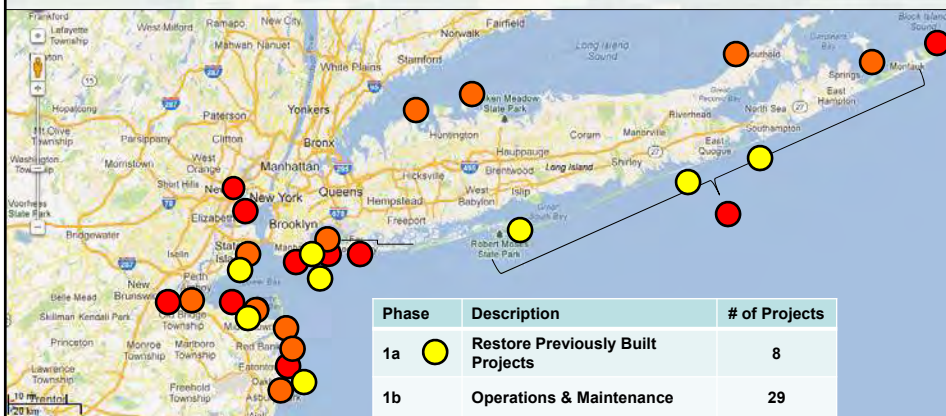
22

## Other Updates

- **USACE**
  - ▶ **Sandy Recovery (other than NACCS)**
  
- **NYS**
  - ▶ **New York Rising Community Reconstruction Program**



## New York District-Sandy Recovery



Phase	Description	# of Projects
1a	Restore Previously Built Projects	8
1b	Operations & Maintenance	29
2a	Authorized / Ongoing	7
2b	Authorized / Unconstructed	4
2c	Ongoing Studies / New Projects	11
2d	Continuing Authorities Program	3

**Program Estimate: \$3.25 B**  
**62 Projects**



## Sandy Recovery Project Phases

Phase	Description	# of Projects	Initial Estimate	Current Estimate
1a	FCCE Repair/Restore	8	\$336 m	\$298 m
1b	O&M	29	\$489 m	\$203 m
2a	Authorized / Ongoing	7	\$1.29 b	\$1.29 b
2b	Authorized / Unconstructed	4	\$553 m	\$553 m
2c	Ongoing Studies / New Projects	11	\$17 m (study costs only)	\$17 m
			\$850 m (est. construction cost)	\$850 m
2d	Continuing Authorities Program	3	\$3 m	\$10 m

**Total Current Program Estimate (62 projects): ~\$3.25 B**



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## New York Rising Community Reconstruction Program



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# BREAK



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27

## Agenda Check-in

- I. Introductions
- II. Agenda Overview and Meeting Purpose
- III. USACE NACCS
  - ▶ Update
  - ▶ Focus Area Analysis
- IV. Other Updates

BREAK

- **V. Facilitated Discussion** (small groups)
  - a. *Vulnerability*
  - b. *Potential Solutions*
  - c. *Institutional/Policy Challenges*
- VI. Closing Remarks/Adjourn



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28



## Small Group - Instructions

- **Group Assignments**
  - ▶ **Groups identified as A, B, or C based on name tag and table**
    - Group A: Ginger Croom
    - Group B: Lauren Klonsky
    - Group C: Jamie Lefkowitz
- **Discussion Topics**
  - ▶ *Vulnerability*
  - ▶ *Potential Solutions*
  - ▶ *Institutional or Policy Challenges*
- **Complete Individual Response Forms**
- **Develop Summary**
- **Report-out**



## Discussion Topics

1. How is your community most vulnerable to coastal storm risk?
2. Based on one vulnerability noted above, what are 1-2 promising solutions to address this vulnerability?
3. What is the most prominent policy change or legislative solution that could improve coastal resilience?



## Small Group Report-Out

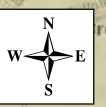
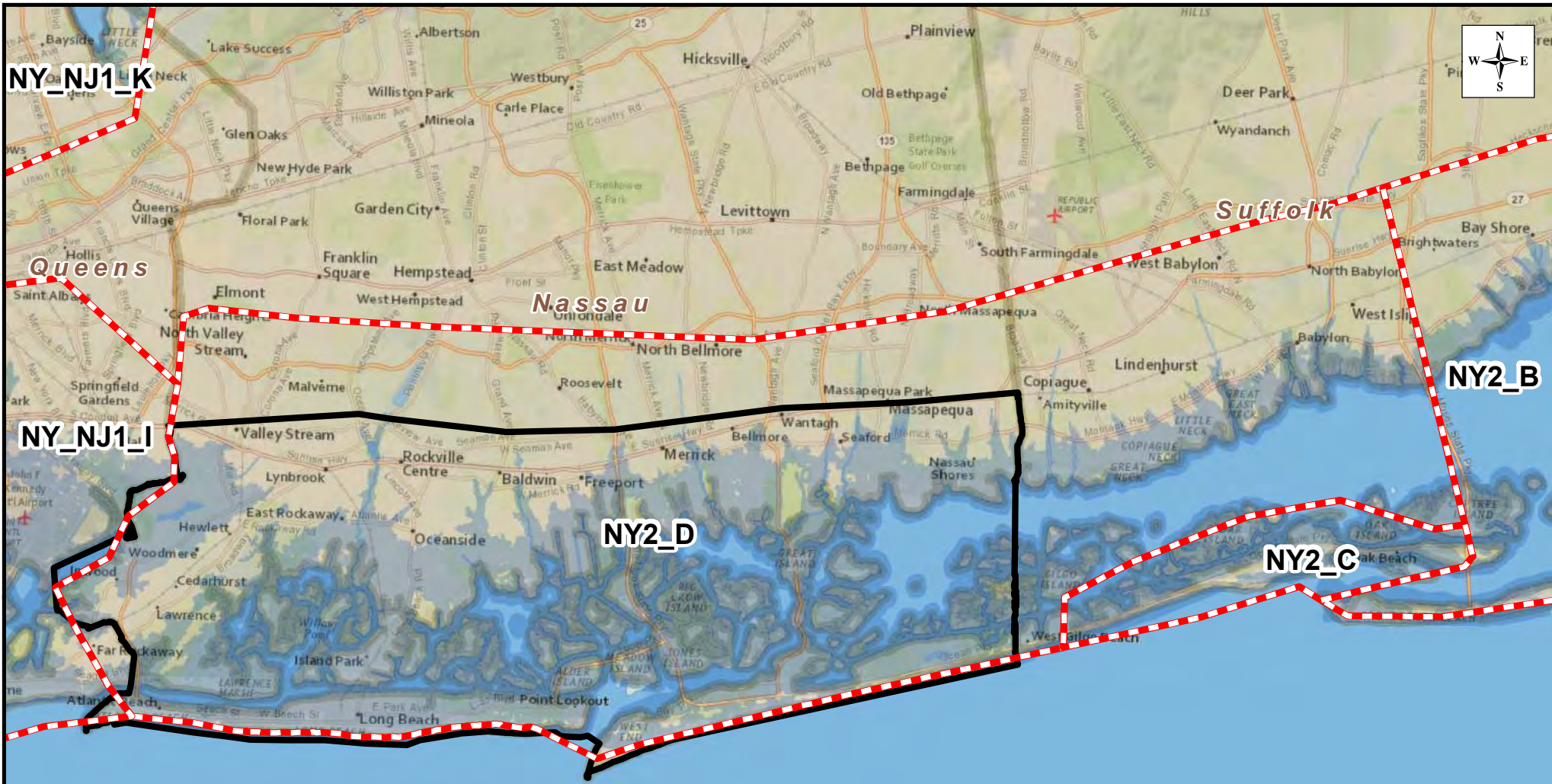
- Group A
- Group B
- Group C







## Contact Information

- Donald E. Cresitello– USACE
  - ▶ [Donald.E.Cresitello@usace.army.mil](mailto:Donald.E.Cresitello@usace.army.mil)
  - ▶ 917-790-8608 (ph)
- Roman Rakoczy – USACE
  - ▶ [Roman.G.Rakoczy@usace.army.mil](mailto:Roman.G.Rakoczy@usace.army.mil)
  - ▶ 518-698-4330 (ph)
- Ginger Croom – CDM Smith (USACE Contractor)
  - ▶ [croomgl@cdmsmith.com](mailto:croomgl@cdmsmith.com)
  - ▶ 617-452-6594 (ph and fax)
  - ▶ 617-999-9631 (mobile)



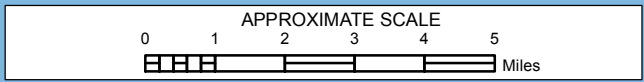


**Legend**

-  Vulnerable Area
-  Focus Area Analysis Boundary
-  FEMA MOTF Hurricane Sandy Storm Surge Extent
-  County Boundary

Study Boundary developed from:

1. E-mail communication with USACE New York District (07/26/2013)
2. FEMA Modeling Task Force Hurricane Sandy Storm Surge Extent (Accessed 07/15/2013)
3. US County and NY Town Boundaries





Attachment D

Photograph Log

North Atlantic Coast Comprehensive Study – Visioning Meeting  
Nassau County Back Bays



*Photo 1- Presentation for the Visioning Meeting*



*Photo 2 – Participants gather and prepare for the meeting*

North Atlantic Coast Comprehensive Study – Visioning Meeting  
Nassau County Back Bays



*Photo 3 – Zachary Richner from the New York Rising Community Reconstruction Program provides a program update.*



*Photo 4 – Meeting shifts toward breakout session discussions*



North Atlantic Coast Comprehensive Study – Visioning Meeting  
Nassau County Back Bays



*Photo 5 – Ginger Croom (CDM Smith) prepares to document responses from the breakout session discussion*



*Photo 6 – Ginger Croom (CDM Smith) leads break out session.*

North Atlantic Coast Comprehensive Study – Visioning Meeting  
Nassau County Back Bays



*Photo 7 – Jamie Lefkowitz (CDM Smith) documents responses from the breakout session discussion*



*Photo 8 – Brian Schneider (Nassau County) presents a summary of responses from Group C.*



North Atlantic Coast Comprehensive Study – Visioning Meeting  
Nassau County Back Bays



*Photo 9 – Ron Masters (Town of Hempstead) presents a summary of responses from Group A.*

# Attachment E

## Breakout Session Responses

USACE North Atlantic Coast Comprehensive Study (NACCS)  
Visioning Session  
Nassau County Back Bays / February 4, 2014

Name: JOE MARIANO

EMAIL: JMARIANO@FREEPORTNY.GOV

Organization: VILL. OF FREEPORT

Question 1: How is your community most vulnerable to coastal storm risk?

- ①. Approx 2/3 of Village is in a AE Flood Zone. Residential & Commercial.  
Approx 3,500 structures.  
All formerly marshland  
A direct line to Jones River Inlet.  
Geographically the water surges into Frat. Bay Area & Residential / Commercial Coastline. Freeport is one of the lowest elevations on L.I. South Shore.
- ②. ELEVATION of STREETS, HOMES, (SEA WALL AROUND P.R.) MARSH RENOVATION.



USACE North Atlantic Coast Comprehensive Study (NACCS)  
Visioning Session  
Nassau County Back Bays / February 4, 2014

Name: SERGIO A. MAURAS

EMAIL:

Organization: VILLAGE OF FREEPORT  
BUILDING DEPT.

SMAURAS@FREEPORTNY.GOV

-----  
Question 1: How is your community most vulnerable to coastal storm risk?

THE VILLAGE OF FREEPORT IS A LOW LYING COASTAL COMMUNITY ON THE SOUTH SHORE OF LONG ISLAND. THE TOTAL SURGE HEIGHT FOR SANDY EQUALED 10.12 WHICH EQUATED TO APPROXIMATELY 4000 STRUCTURES BEING AFFECTED BY FLOODING. WE HAD APPROX. 130 SUBSTANTIALLY DAMAGED PROPERTIES. THESE WERE (INCLUSIVE OF THE 4000) APPROX, 220 PROPERTIES OUTSIDE THE FLOOD ZONE WHICH ALSO WERE AFFECTED BY WATER. FREEPORT IS ALSO DIRECTLY AFFECTED BEING THAT THE JONES INLET ALLOWS FOR <sup>DIRECT</sup> WATER ACCESS FROM THE ATLANTIC OCEAN, THE SURROUNDING MARSH AREAS HAVE DETERIORATED AS SO HAVE THE BARRIER ISLANDS.

USACE North Atlantic Coast Comprehensive Study (NACCS)  
Visioning Session  
Nassau County Back Bays / February 4, 2014

Name: Kent Katter

EMAIL: Katter44@gmail.com

Organization: Village of Island Park

---

Question 1: *How is your community most vulnerable to coastal storm risk?*

The Village of Island Park is surrounded by water on 3 sides and has an average elevation of 5' above sea level. The aging and/or lack of sufficient infrastructure i.e. bulkheading, stormwater drainage system and ~~roadway~~ consistent beach erosion makes the Village vulnerable to coastal storms.

Key infrastructure - Village Hall, Fire station and evacuation routes are all located in the flood plain and flood consistently.

USACE North Atlantic Coast Comprehensive Study (NACCS)  
Visioning Session  
Nassau County Back Bays / February 4, 2014

Name: Phyllis Elgot  
Organization: NYSDOT/NYRCR

EMAIL: phyllis.elgot@dot.ny.gov

-----  
Question 1: How is your community most vulnerable to coastal storm risk?

There is a higher risk to storm events during high tide events, which could impact community assets i.e. residential homes, transportation network, utility services, recreational resources, etc.

- Safety
- Communications
- Travel
- Economic
- Access

USACE North Atlantic Coast Comprehensive Study (NACCS)  
Visioning Session  
Nassau County Back Bays / February 4, 2014

Name:

EMAIL:

Organization:

-----  
Question 1: *How is your community most vulnerable to coastal storm risk?*

1. Beach Erosion & development in Areas where homes & businesses should not be by ocean.
  2. Also Flooding from Bays
  3. All from seawater rise
  4. Long Beach Project Failure.
  5. DEC PERMITS APPROVAL (SPEEDY)
- Town Beaches  
Point Lookout

10

**USACE North Atlantic Coast Comprehensive Study (NACCS)  
Visioning Session  
Nassau County Back Bays / February 4, 2014**

**Name:** Jonathan Smith  
**Organization:** Village of Freeport

**EMAIL:** jsmith@freeportny.gov

---

**Question 1: How is your community most vulnerable to coastal storm risk?**

- large amount of <sup>older</sup> condensed Residential Housing located in the floodzone w/ low elevations.
- limited amount of emergency routes away from coast in a major event.
- ~~prone to~~ many areas regularly prone to coastal flooding.
- Key infrastructure built in floodzone - no space to relocate

C

**USACE North Atlantic Coast Comprehensive Study (NACCS)  
Visioning Session  
Nassau County Back Bays / February 4, 2014**

Name: Peter A Scully

EMAIL: pascully@gw.dec.state.ny.us

Organization: NYSDEC

---

**Question 1: How is your community most vulnerable to coastal storm risk?**

Long Island is most vulnerable to coastal storm risk due to coastal erosion impacts and related flooding of the Long Island main land. In addition, developed areas in and around the coastline of the barrier beach mainland are at significant risk for property damage during coastal storm events. Finally the impacts of Hurricane Sandy on the barrier beach eliminated dune areas along much of Fire Island, leaving Long Island's south shore at greater risk in any future storm.

USACE North Atlantic Coast Comprehensive Study (NACCS)  
Visioning Session  
Nassau County Back Bays / February 4, 2014

Name: SATISH SOOD  
Organization: NEDBW.

EMAIL: ssood@nassaucountyny.gov

-----  
Question 1: How is your community most vulnerable to coastal storm risk?

The whole South Shore (near Coastal area) is affected by Coastal Inundation (i.e. communally, physically and ecologically)



C

**USACE North Atlantic Coast Comprehensive Study (NACCS)  
Visioning Session  
Nassau County Back Bays / February 4, 2014**

Name: SEAN SALLIE

EMAIL:

Organization: NCDCPW

-----  
**Question 1: How is your community most vulnerable to coastal storm risk?**

- S/S
- Back-bay shoreline typology is predominantly engineered/hard-edge.
  - Storm water outfalls no longer clear ~~the~~ high tide mark.
  - High property values → potential for relocation / flood insurance relief.



USACE North Atlantic Coast Comprehensive Study (NACCS)  
Visioning Session  
Nassau County Back Bays / February 4, 2014

Name: Roman Rakoczy  
Organization: USACE

EMAIL:  
roman.g.rakoczy@  
usace.army.mil

Question 1: How is your community most vulnerable to coastal storm risk?

Flooding/Erosion - main problem

All advised construction in flood prone areas - looking to structural solutions to solve problem

Sea Level Rise / significant erosion

False security from storm risk damage projects (people tend to build in areas where there are flood protection projects)

Rebuild infrastructure damaged by flood events to the same standards prior to the event (no lesson learned from event)

B

**USACE North Atlantic Coast Comprehensive Study (NACCS)  
Visioning Session  
Nassau County Back Bays / February 4, 2014**

**Name:** Ocean Parkway

**EMAIL:**

**Organization:**

NYSDEC

EXSTAR@gw.dec.STATE.NY.US

**Question 1: How is your community most vulnerable to coastal storm risk?**

LACK of (pre-sandy) ANNUAL FUNDING TO maintenance  
dredge major inlets CREATES A SAND  
deficit which results in shoreline erosion  
reducing resiliency to COASTAL STORMS.

USACE North Atlantic Coast Comprehensive Study (NACCS)  
Visioning Session  
Nassau County Back Bays / February 4, 2014

Name: Michelle Gibbons

EMAIL: mlgibbon@gw.dec.state.ny.us

Organization: NYS DEC, Bureau of Wildlife

-----  
Question 1: *How is your community most vulnerable to coastal storm risk?*

habitat loss  
reconstruction during critical windows

USACE North Atlantic Coast Comprehensive Study (NACCS)  
Visioning Session  
Nassau County Back Bays / February 4, 2014

Name: BRIAN SCHNEIDER

EMAIL: bschneider@nassaucounty.ny.gov

Organization: NASSAU COUNTY DPW

---

**Question 1: How is your community most vulnerable to coastal storm risk?**

From the County's perspective there are many risks when dealing with a coastal storm. First and foremost is the health and safety of its residents. Managing ~~a~~ several hundred thousand people before, during and after a coastal storm is the number one priority and being in Newms way is a serious challenge. We are vulnerable in dealing with evacuations, relocation centers and delivering the basic services to the county residents

- Second, the County's infrastructure is vulnerable as was exhibited at the Bay Park STP.
-

6

**USACE North Atlantic Coast Comprehensive Study (NACCS)  
Visioning Session  
Nassau County Back Bays / February 4, 2014**

**Name:** JUAN A. GARCIA, P.E.

**EMAIL:** JGARCIA@VILLAGEOFEASTROCKAWAY.ORG

**Organization:** VILLAGE OF EAST ROCKAWAY

---

**Question 1: How is your community most vulnerable to coastal storm risk?**

ANY STORM THAT OVERCOMES ELEVATION 6.5 - 7 FLOODS ENTIRE SOUTHSIDE OF EAST ROCKAWAY. THE VILLAGE HAS BEEN ACTIVE TO ELEVATE LOW ROADWAYS THAT WOULD BE FLOODED BY NORMAL ~~HIGH~~ TIDAL WATERS. STORMS (EXCEED) THAT INCREASE THE MAXIMUM MOON TIDES FLOOD ~~WATER~~ ROADWAYS AND ENTIRE COMMUNITY SOUTH OF MAIN STREET EAST ROCKAWAY.

- 1- LOW LIFTING ROADWAYS
- 2- DRAINAGE INFRASTRUCTURES.
- 3- EMERGENCY INFRASTRUCTURE.

USACE North Atlantic Coast Comprehensive Study (NACCS)  
Visioning Session  
Nassau County Back Bays / February 4, 2014

Name:

EMAIL:

Organization:

---

Question 1: *How is your community most vulnerable to coastal storm risk?*

Includes:

Barrier Islands, Marsh Islands, Bulkheads, Storm  
Drains, Debris Removal, various utilities (water,  
elect, alt energy, aging power / gas distribution .  
2 ocean inlets, south shore mainland,

**USACE North Atlantic Coast Comprehensive Study (NACCS)  
Visioning Session  
Nassau County Back Bays / February 4, 2014**

Name: *Joe MADIGAN*  
Organization: *V.B.F*

EMAIL: *JMADIGAN@FREEPORT-NY.GOV*

**Question 2: Based on one vulnerability noted above, what are 1-2 promising solutions to address this vulnerability?**

*ELEVATION OF STREETS, HOMES,  
SEA WALL ABOVE FREEPORT*

USACE North Atlantic Coast Comprehensive Study (NACCS)  
Visioning Session  
Nassau County Back Bays / February 4, 2014

Name:

EMAIL:

Organization:

-----  
Question 2: *Based on one vulnerability noted above, what are 1-2 promising solutions to address this vulnerability?*

\* STONE\* - CORPS generosity  
Beach Rehab - projects to fixed.  
toe of Dune.



USACE North Atlantic Coast Comprehensive Study (NACCS)  
Visioning Session  
Nassau County Back Bays / February 4, 2014

Name: Sergio A Mauras

EMAIL:

Organization: Village of Freeport  
Building Dept

SMAURAS@FreeportNY.gov

Question 2: Based on one vulnerability noted above, what are 1-2 promising solutions to address this vulnerability?

IN MY OWN OPINION, PREVENTING ACCESS VIA JONES INLET WOULD GREATLY REDUCE THE EFFECTS OF STORM RELATED DISASTERS.

BUCKHEADING SHOULD ALSO BE ADDRESSED BUT MUST ALSO CONSIDER "NO ADVERSE IMPACT".

Village of Freeport's main Power Plant (DPLW) is located in the flood zone and was severely impacted by "Sandy". It needs to be relocated or protected by other means.

USACE North Atlantic Coast Comprehensive Study (NACCS)  
Visioning Session  
Nassau County Back Bays / February 4, 2014

Name: Michelle Gibbons  
Organization: NYS DEC

EMAIL: mlgibbon@gw.dec.state.ny.us

-----  
**Question 2: Based on one vulnerability noted above, what are 1-2 promising solutions to address this vulnerability?**

Habitat disturbance due to reconstruction  
Work with State & federal NR Agencies  
to design & implement Reconstruction  
projects that <sup>avoid or</sup> minimize impacts to  
Natural Resources.

USACE North Atlantic Coast Comprehensive Study (NACCS)  
Visioning Session  
Nassau County Back Bays / February 4, 2014

Name: Kent Katter

EMAIL:

Organization: Village of Island Park

---

**Question 2: Based on one vulnerability noted above, what are 1-2 promising solutions to address this vulnerability?**

new construction

- o Increased education and code changes  
for new construction within the flood plain.

storm drainage

- o ~~Re~~ Evaluation and Engineering Studies  
to reconstruct and rebuild an adequate  
storm drainage system.

C

**USACE North Atlantic Coast Comprehensive Study (NACCS)  
Visioning Session  
Nassau County Back Bays / February 4, 2014**

Name: SATISH SODI  
Organization: NC BPN

EMAIL:

---

**Question 2: Based on one vulnerability noted above, what are 1-2 promising solutions to address this vulnerability?**

1. Change in zoning laws to meet risks & near the coastal areas to ~~not~~ encounter coastal hazards
- 2 - Tax Reliefs for home owners / Businesses
- 3 - Affordable insurances available
- 4 - In advance weather predictions with evacuation plan

USACE North Atlantic Coast Comprehensive Study (NACCS)  
Visioning Session  
Nassau County Back Bays / February 4, 2014

Name: Sean Sallit

EMAIL:

Organization: NLOPCW

-----  
**Question 2: Based on one vulnerability noted above, what are 1-2 promising solutions to address this vulnerability?**

Large-scale improvements:

- ① upland stormwater retention/retention
- ② tidal gates/barriers
- ③ wetland restoration Bay-wide scale
- ④ Fortification of critical infrastructure
- ⑤ Redundancy in emergency management tools/resources (power, communication, damage recovery)

↓  
economies of scale

→ Education to those thought not to be in storm impact zone

- All residents should be aware of storm impacts and recovery efforts.

USACE North Atlantic Coast Comprehensive Study (NACCS)  
Visioning Session  
Nassau County Back Bays / February 4, 2014

Name: Juan A. Garcia, P.E.

EMAIL: jgarcia@villageofeastrockaway.org

Organization: Village of East Rockaway

-----  
Question 2: Based on one vulnerability noted above, what are 1-2 promising solutions to address this vulnerability?

- ROAD RAISING PROJECTS
- FLOOD VALVES PROJECTS ON EXISTING DRAINAGE SYSTEMS.
- INCREASE ELEVATION OF EXISTING BULK HEADS
- MAINTENANCE OF PROPOSED INFRA STRUCTURE. (FUNDING FOR)

C

**USACE North Atlantic Coast Comprehensive Study (NACCS)  
Visioning Session  
Nassau County Back Bays / February 4, 2014**

Name: Peter A Scully

EMAIL: pascully@gw.decs.state.ny.us

Organization: NYSDEC

---

**Question 2: Based on one vulnerability noted above, what are 1-2 promising solutions to address this vulnerability?**

The most promising solutions to address the inherent vulnerability to coastal erosion and related flooding are:

- ① restoration of dune areas damaged during Sandy to at least pre-storm conditions to better protect the mainland.
- ② Elevation and retrofitting of structures in at risk areas of the mainland so that they can better withstand flooding.



B

**USACE North Atlantic Coast Comprehensive Study (NACCS)  
Visioning Session  
Nassau County Back Bays / February 4, 2014**

Name: Phyllis Elgot  
Organization: NYSDOT / NYRCR

EMAIL: phyllis.elgot@dot.ny.gov

---

**Question 2: Based on one vulnerability noted above, what are 1-2 promising solutions to address this vulnerability?**

Transportation  
Infrastructure

Focus funding to address storm surge & vulnerable transportation infrastructure in high use/density areas to create a more storm resilient resource.

- Mapping of vulnerable transportation system network as they relate to FEMA risk maps.

- Identify funding or allocate new funding to implement projects to strengthen those storm surge vulnerable roads/highways.

- Establish a list/guide of best practices for roads in storm surge ~~and~~ vulnerable areas - strengthening roads in storm surge ~~and~~ vulnerable areas.

C

**USACE North Atlantic Coast Comprehensive Study (NACCS)  
Visioning Session  
Nassau County Back Bays / February 4, 2014**

**Name:** Brian Schneider

**EMAIL:** bschneider@nassaucounty.gov

**Organization:** Nassau County DPW

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**Question 2: Based on one vulnerability noted above, what are 1-2 promising solutions to address this vulnerability?**

- ① In order to fully address the vulnerability, we need to retreat from the coastline or rebuild to include structures/developments that are flood prone
- ② Build <sup>or identify</sup> evacuation centers that can house many more people
- ③ construct flood prone evacuation routes.
- ④ bridge across the LI sound

USACE North Atlantic Coast Comprehensive Study (NACCS)  
Visioning Session  
Nassau County Back Bays / February 4, 2014

Name:

EMAIL:

Organization:

---

Question 2: *Based on one vulnerability noted above, what are 1-2 promising solutions to address this vulnerability?*

PREVENT NEW CONSTRUCTION IN COASTAL ZONE  
AREAS. 50 year  
COMPLETE LONG BEACH ~~EROSION~~ STORM REDUCTION  
PROJECT. EROSION CONTROL

12

**USACE North Atlantic Coast Comprehensive Study (NACCS)  
Visioning Session  
Nassau County Back Bays / February 4, 2014**

Name: Jonathan Smith

EMAIL: JSmit4@freeportny.gov

Organization: Village of freeport

-----  
**Question 2: Based on one vulnerability noted above, what are 1-2 promising solutions to address this vulnerability?**

- long term multi-<sup>jurisdictional</sup> ~~year~~ plan
- ~~at~~ public education \* <sup>for safety</sup> - @ resiliency construction
- incentive to rebuild better (stronger) / relocate
-

**USACE North Atlantic Coast Comprehensive Study (NACCS)  
Visioning Session  
Nassau County Back Bays / February 4, 2014**

**Name:**

**EMAIL:**

**Organization:**

-----  
**Question 2: Based on one vulnerability noted above, what are 1-2 promising solutions to address this vulnerability?**

People forget. The more time passes, the less focused the public will be regarding flood protection. People should be reminded / educated of storm impacts between major storm events. Government should be vigilant in enforcing flood resistant construction between storm events.

**USACE North Atlantic Coast Comprehensive Study (NACCS)  
Visioning Session  
Nassau County Back Bays / February 4, 2014**

**Name:** Michelle Gibbons

**EMAIL:** ~~mmgibbons@dec.state.ny.us~~  
mgibbons@gw.dec.state.ny.us

**Organization:** NYS DEC Bureau of Wildlife

**Question 3: What is the most prominent policy change or legislative solution that could improve coastal resilience?**

Work together for mutually agreeable solutions

USACE North Atlantic Coast Comprehensive Study (NACCS)  
Visioning Session  
Nassau County Back Bays / February 4, 2014

Name: Kent Katter

EMAIL:

Organization: Village of Island Park

---

**Question 3: What is the most prominent policy change or legislative solution that could improve coastal resilience?**

Comprehensive and regional flood plain management.

Similar to the Nassau County Hazard mitigation plan.



**USACE North Atlantic Coast Comprehensive Study (NACCS)  
Visioning Session  
Nassau County Back Bays / February 4, 2014**

**Name:**

**EMAIL:**

**Organization:**

-----  
**Question 3: *What is the most prominent policy change or legislative solution that could improve coastal resilience?***

Dedicated Annual funding to maintain existing flood damage reduction projects & support enforcement of existing flood damage reduction building code.

**USACE North Atlantic Coast Comprehensive Study (NACCS)  
Visioning Session  
Nassau County Back Bays / February 4, 2014**

**Name:**

**EMAIL:**

**Organization:**

-----  
**Question 3: *What is the most prominent policy change or legislative solution that could improve coastal resilience?***

Modification of Laws (local, State, Federal)  
to work collectively and not against  
each other

**USACE North Atlantic Coast Comprehensive Study (NACCS)  
Visioning Session  
Nassau County Back Bays / February 4, 2014**

**Name:** Jonathan Smith

**EMAIL:**

**Organization:**

-----  
**Question 3: What is the most prominent policy change or legislative solution that could improve coastal resilience?**

Federal

Permanent funding for evaluated necessary safety projects.  
risk reduction projects as

**USACE North Atlantic Coast Comprehensive Study (NACCS)  
Visioning Session  
Nassau County Back Bays / February 4, 2014**

**Name:**

**EMAIL:**

**Organization:**

-----  
**Question 3: *What is the most prominent policy change or legislative solution that could improve coastal resilience?***

1. Prevention of new construction in Flood Plain
2. Maintenance of sand placement on south shore Required Beaches.

**USACE North Atlantic Coast Comprehensive Study (NACCS)  
Visioning Session  
Nassau County Back Bays / February 4, 2014**

Name: *Phyllis Elgot*  
Organization: *NYSDOT/NYRCR*

EMAIL: *phyllis.elgot@dot.ny.gov*

-----  
**Question 3: What is the most prominent policy change or legislative solution that could improve coastal resilience?**

*- Allow emergency funding to apply to improving/repairing damaged transportation resources and adjacent area beyond pre-storm conditions to create more storm resilience.*

USACE North Atlantic Coast Comprehensive Study (NACCS)  
Visioning Session  
Nassau County Back Bays / February 4, 2014

Name: Juan A. Garcia, P.E.

EMAIL: JGARCIA@VILLAGEOFEASTROCKAWAY.ORG

Organization: VILLAGE OF EAST ROCKAWAY

---

**Question 3: *What is the most prominent policy change or legislative solution that could improve coastal resilience?***

ALLOCATE FUNDING FOR STUDIES / CONSTRUCTION /  
MAINTENANCE OF INFRASTRUCTURES.

C

**USACE North Atlantic Coast Comprehensive Study (NACCS)  
Visioning Session  
Nassau County Back Bays / February 4, 2014**

**Name:** Brian Schneider  
**Organization:** NCDPW

**EMAIL:** bschneider@nassaucounty.gov

---

**Question 3: What is the most prominent policy change or legislative solution that could improve coastal resilience?**

- ~~Answer~~
- Cost of flood insurance > who knows what it will be ... it may be too expensive to live in a flood prone area ... even if you can't see the water.



C

**USACE North Atlantic Coast Comprehensive Study (NACCS)  
Visioning Session  
Nassau County Back Bays / February 4, 2014**

**Name:** Peter A. Scully

**EMAIL:**

**Organization:**

NYSDEC

pscully@gw.dec.state.ny.us

---

**Question 3: What is the most prominent policy change or legislative solution that could improve coastal resilience?**

The most prominent policy change or legislative solution that could improve coastal resilience would be an updating or revision of building and zoning codes to prohibit new construction in high risk areas and to require flood resistant construction methods in areas which are developed upon redevelopment.

USACE North Atlantic Coast Comprehensive Study (NACCS)  
Visioning Session  
Nassau County Back Bays / February 4, 2014

Name: FATISH SOO

EMAIL:

Organization: NCDPW

-----  
**Question 3: What is the most prominent policy change or legislative solution that could improve coastal resilience?**

- zoning changes to accommodate economic needs
- Tax Relief Buildings
- Build - storm Resilient infrastructure.

USACE North Atlantic Coast Comprehensive Study (NACCS)  
Visioning Session  
Nassau County Back Bays / February 4, 2014

Name: Sean Sallies

EMAIL:

Organization: NCDPW

-----  
**Question 3: What is the most prominent policy change or legislative solution that could improve coastal resilience?**

Quantifying

- Quantifying the economic ~~costs~~ costs/impacts of future storm events → this information can establish basis for choosing engineering solutions or land-use policy changes.

↳ \* compare costs of inaction vs. intervention

USACE North Atlantic Coast Comprehensive Study (NACCS)  
Visioning Session  
Nassau County Back Bays / February 4, 2014

Name: Sergio A Maura

EMAIL: smaura@FreeportNY.gov

Organization: Village of Freeport  
(Building Dept)

Question 3: What is the most prominent policy change or legislative solution that could improve coastal resilience?

The Village of Freeport has adopted a new Ordinance in regards to elevation of structures.

The state of NY has a Freeboard requirement which is new or substantially improved structures in the Flood Zone must construct 2' above the BFE. The Village is now 4' above the BFE or 2' above the state Freeboard requirement. We have also amended our Zoning Ordinance to allow for the increased height of structures.

Benefits:

Safety of the residents + their property.  
Low Flood Insurance Premiums. Better  
CRS credits which allows for insurance  
discounts to the policyholders.

USACE North Atlantic Coast Comprehensive Study (NACCS)  
Visioning Session  
Nassau County Back Bays / February 4, 2014

Name: Joe Mangano

EMAIL: JMangano@FreeportNY.gov

Organization: Vill. of FRPT

Question 3: What is the most prominent policy change or legislative solution that could improve coastal resilience?

Locally. ADDITIONAL MITIGATION  
local have for more Restrictive CODES  
than NFIP OR NYS.  
Regulatory Agencies

Attachment F

General Comments

USACE North Atlantic Coast Comprehensive Study (NACCS)  
Visioning Session  
Nassau County Back Bays / February 4, 2014

Name: MICHAEL FOLEY      EMAIL: MICH.FOL@TOWNMAIL.  
Organization: TOWN OF HEMPSTEAD      org

-----  
**Overall Comments:** *Please use this space and the back if you have comments that you would like to convey to the NACCS team.*

50 year Long Beach Storm Reduction Project



# **Appendix B: Delaware Inland Bays and Delaware Bay Coast Visioning Meeting Interim Deliverable**



US Army Corps of Engineers

**North Atlantic Coast Comprehensive Study  
Delaware Inland Bays and Delaware Bay Coast  
Visioning Meeting  
Meeting Notes**

**February 4, 2014**

**10:00 AM – 12:00 PM**

A series of visioning meetings are being held throughout the region in support of the North Atlantic Coast Comprehensive Study (NACCS). On Tuesday, February 4, 2014 the U.S. Army Corps of Engineers (USACE) Philadelphia District conducted an in-person visioning meeting with representatives from the Delaware Department of Natural Resources and Environmental Control (DNREC), local communities, non-profit organizations, and concerned citizens with specific focus and dialogue related to the Delaware Inland Bays and Delaware Bay Coast.

In general, a high level of collaboration was evident among state and federal agency staff as well as local communities and NGOs represented at this meeting. There was significant dialogue regarding how information being developed as part of the NACCS is being coordinated with stakeholders, as well as how information obtained during the visioning session would be incorporated into the NACCS.

Thirty people (see Attachment A) attended the 2 hour meeting, including individuals from the following organizations:

- Federal Agency:** US Army Corps of Engineers (USACE)
- State Agencies:** Delaware Department of Transportation (DelDOT)  
Delaware Department of Natural Resources and Environmental Control (DNREC)  
Delaware Emergency Management Agency (DEMA)  
Office of State Planning Coordination
- NGOs:** Alliance of Bay Communities  
Delaware Center for the Inland Bays  
Delaware Wildlands  
Partnership for the Delaware Estuary  
University of Delaware – Sea Grant
- Communities:** Bowers Beach  
Little Creek  
Pickering Beach  
Prime Hook Beach

**Other:** CDM Smith (meeting facilitation team)

**Location:** St. Jones Reserve, 818 Kitts Hummock Road, Dover, DE 19901

**Presentation:** The meeting agenda, included as Attachment B, consisted of two main parts. The first segment was driven by a presentation provided by J. Bailey Smith (USACE) on the overview of NACCS, the Focus Area Analysis, and the USACE Continuing Authorities Program (CAP) (Attachment C). The second part was a facilitated discussion aimed at surfacing participant insights on the vision for the local coastal issues. Photographs from the meeting are included in Attachment D.

Following the presentation, several questions and discussion topics were raised.

**Questions/Discussion:**

- A member of the audience asked if representatives from the three Delaware Counties were present. J. Smith replied that they were invited, but did not RSVP to attend. As a follow-up, there was discussion regarding how presentation materials would be made available to the communities, representatives, and others who were unable to attend. J. Smith replied that it was a decision that will be made as part of the overall study/stakeholder outreach.
- A member of the audience asked about what was meant by the term “sustainable coastal landscape”. J. Smith replied that it was used as a general term and that the findings of the NACCS could help communities properly adapt to sea level rise. It will include examples of maintaining dune or shoreline edge elevations or minimum beach widths to achieve greater resiliency so that communities can return to normalcy after a storm event.
- A member of the audience asked about the meaning of the phrase “review and enhance coastal guidelines” in respect to the focus area analysis. J. Smith replied that the responses shown from the focus area analysis were simply responses that were gathered as part of an expedited analysis of coastal needs and potential measures. Some of the responses may be more appropriate for a state-level discussion on guidelines.
- A member of the audience provided comments regarding the communities at risk along the Delaware Bayshore and Inland Bay areas. Coastal communities, both on the open coast, back bay and inland bays, are all exposed to potential flooding. Although there are ideas and measures being presented in this type of forum, not everything has the potential to be funded. The NACCS, Focus Area Analysis, and CAP are opportunities for measures that are fundable to demonstrate to Congress that forward investment in coastal risk reduction needs to a priority.
- Peter Blum (USACE) provided comments about the NACCS, the USACE process, and potential funding avenues. He considers the NACCS an “incubator” for projects and that the information/knowledge being assembled can be leveraged with current USACE authorizations, discretionary funding as part of the potential Omnibus Bill process, or for local partnership to be established as part of the next step past the Focus Area Analysis to a Feasibility Study.
- A member of the audience, representing the community of Little Creek, asked about how certain bayshore communities are being categorized both at the federal and state level. Little Creek does not necessarily have a shoreline, but is still impacted by coastal storms. Both Tony Pratt (DNREC) and J. Smith confirmed that Little Creek, and similar communities, are considered coastally impacted although less vulnerable compared to communities on the open coast. The

concept of the NACCS and the Focus Area Analysis is to reduce coastal flood risk to all coastal communities.

- A member of the audience asked about when the public is provided an opportunity to review the material set forth during the meeting and the NACCS. J. Smith answered that information is publically available on the USACE North Atlantic Division website, or through an internet search of the North Atlantic Coast Comprehensive Study. Webinars are also being used to inform the public. The decisions to release draft reports or information specific to the meeting has not been finalized.
- A member of the audience asked about more detail regarding the state appendices. J. Smith replied that as part of the NACCS, a state-by-state vulnerability analysis was performed and is an intermediary step between the overall Comp Study and the focus area analysis. The Delaware state appendix is broader than the Focus Area Analysis, but does characterize specific areas of vulnerabilities of the state.
- A member of the audience expressed concern regarding the timely manner of the dissemination of information. They were specifically concerned about the ability to provide comments or questions regarding the draft analysis. Although the meeting was intended to demonstrate the openness of the process, they felt as if this part of the process was not clearly defined.
- A member of the audience suggested that a website be made available for the public, or for communities/stakeholders that were not able to attend, to show the process and the steps that USACE are currently undertaking to ensure an open dialogue.
- A member of the audience asked for further clarification of the CAP. He referred to communication between DNREC and USACE in December of 2012 with respect to a letter of interest sent for flood abatement measures as part of Section 205. Peter responded with information regarding the procedure. Typically, a CAP project does not require Congressional approval and is generally available for projects that are on a smaller scale, that are not locally or hydraulically connected. The requirements are much simpler in terms of funding and require a letter of interest from the community.
- A member of the audience asked what the cost-share is for a CAP project. Peter replied a 50% federal, 50% local sponsor cost-share.

At the conclusion of the question and answer period, a brief break was followed by facilitated discussions with attendees broken out into three groups for brainstorming session. Each participant was asked to provide their ideas on a worksheet (Attachment E). The following section presents a summary of the primary themes addressed among the attendees from the small group discussions.

#### **Summary of Primary Themes from Facilitated Discussion:**

##### **Question 1: How is your community most vulnerable to coastal storm risk?**

- Loss of land, habitat, and environmental concerns
  - Delaware seashore camp grounds, docks, and marinas
  - Deterioration of beach
  - Coastal forests
  - Tidal marshes
  - Freshwater wetlands
  - Agricultural land loss caused by saltwater intrusion
- Coastal flood risk and realistic flood loss information is not communicated adequately to the public.

- Communicate information that is easy to understand
- Unincorporated communities are not represented in planning decisions
- Proper (scientifically-based) identification and communication of storm type
- Risks to utilities/infrastructure
  - Loss of electrical power
  - Health risks from releases of hazardous material
  - Loss of business
  - Transportation system threatened by rising waters and are a threat to public safety
- Coastal flooding/storm surge
  - Current building codes are lenient, building standard flood levels are too low
  - Build to new codes that include effects of barrier beaches, inlets
- Stormwater conveyance
- Existing modeling efforts produce results that are too low, which impacts development and building requirements, and provides the public/decision makers with a false sense of security.

**Question 2: Based on one vulnerability noted above, what are 1-2 promising solutions to address this vulnerability?**

- Unique and out-of-the-box solutions
- Better modeling
  - Improve flood prediction models and maps
- Better communication
  - Improve education/outreach
- Beach nourishment/protection measures
  - Coastal relief/restoration
  - Raise seawall
  - Jetty wall repair
  - Storm surge barriers
  - Wetlands restoration
- Land Use Policies and Building Permit Standards
  - Update/create future decision standards by taking coastal flooding into account
  - Smart planning
- Potential upgrades and assessments
  - Manage development for transportation infrastructure
  - Elevation of marshes/structures/infrastructure
  - Storm drain assessment
  - Relocation of homes
  - Tide gates
  - Dikes

**Question 3: What is the most prominent policy change or legislative solution that could improve coastal resilience?**

- Adoption of stricter building codes and standards to improve building resilience
- Changes to NFIP programs (incentives)
- Provide/disseminate information on costs and risks of coastal flooding
- Flood risk maps for future scenarios
- Funding mechanisms to address cost share issue
- FEMA/USACE data sharing
- Streamlined permitting for living shorelines (nature and natural based features)
- Changes in “Federal Standard” regarding dredge material disposal
- Federal budgeting- consider regional budgeting instead of by business lines

At the conclusion of the group discussions, one volunteer from each group stood and presented their groups’ findings. A general comment card was distributed to participants requesting their feedback on the overall process. Their responses are included in Attachment F.

DRAFT

## **List of Attachments**

Attachment A – List of Meeting Attendees and Sign-in Sheets

Attachment B – Meeting Agenda and List of Handouts

Attachment C – Meeting Presentation

Attachment D – Photograph Log

Attachment E – Breakout Session Responses (to be further summarized in final deliverable)

Attachment F – General Comments (to be further summarized in final deliverable)

DRAFT



## Attachment A

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### List of Meeting Attendees and Sign-in Sheets

North Atlantic Coast Comprehensive Study  
 Delaware Inland Bays and Delaware Bay Coast  
 Visioning Session - Facilitated Breakout Groups

<b>Group A</b>	
Frannie Bui	CDM Smith (facilitator)
Jim Bailey	Alliance of Bay Communities
Ron Hunsicker	Bowers Beach
Kate Hackett	Delaware Wildlands
Mike Powell	DNREC
Bob Scarborough	DNREC
Patrick Cooper	DNREC
Constance Holland	Office of State Planning Coordination
Jim Kirkbride	Pickering Beach
<b>Group B</b>	
Debra Beck	CDM Smith (facilitator)
Bob McDevitt	Bowers Beach
Chris Bason	Delaware Center for the Inland Bays
Jeff Reed	DeIDOT
Don Knox	DEMA
Tony Pratt	DNREC
Susan Love	DNREC
Glenn Gauvry	Little Creek
John Robinson	Prime Hook Beach Organization
Wendy Carey	University of Delaware - Sea Grant
Brian Mulvenna	USACE
<b>Group C</b>	
Mark Dunning	CDM Smith (facilitator)
Gene Donaldson	DeIDOT
Karen Bennett	DNREC
Kimberly McKenna	DNREC
Stephen Johnson	DNREC
Virgil Holmes	DNREC
Jennifer Adkins	Partnership for the Delaware Estuary
Nancy Lawson	Pickering Beach
J. Bailey Smith	USACE
Peter Blum	USACE

**NACCS Visioning Session**  
**Delaware Inland Bays and Delaware Bay Coast - 2/04/2014**

Name	Community/Agency	Title	E-Mail	Telephone
Tim Bailey	Alliance Bay Community	Chairman	concdsl.net southern.yankowsz@	302-687-4010
Karen Bennett	DNREC - DFW	DE Bayshore Initiative	karen.bennett@state.de.us	302-739-9124
Kim McKenna	DNREC - Shoreline & Waterway	geologist	kimberly.mckenna@state.de.us	302-739-9921
J B Smith	USACE	Geologist	jsmith@usace.army.mil	215 656 6575
FRANNIE BUI	CDM SMITH	ENGINEER	BUIFA@CDMSMITH.COM	017 452 6288
MARK DUNNING	CDM SMITH	PM	DUNNINGCM@CDMSMITH	703 966-2398
Debra Beck	CDM Smith	PM	Beckdf@cdmsmith.com	617-452-6277
Tony Pratt	DNREC	Admin	Tony.Pratt@state.de.us	701-235-992
Pam Coyne	DNREC	DNRE	pam.coyne@state.de.us	237-3800
DON KNOX	DEMA	NATURAL HAZARDS SUP.	Don.Knox@state.de.us	659-2204
JIM KIRKBRIDE	PICKERING BEACH		JFKIRKBRIDE	999-8112
Wendy Carey	UD Sea Grant	DE Sea Grant	wcarey@udel.edu	302-645-4258
CHRIS BASSON	DE CIB	Exec. Director	chrisbasson@inlandbay.org	226-8105
Nancy Lawson	Pickering Beach		Froggy1938@aol.com	734-5071
GLENN GARDNER	LITTLE CREEK	MAYOR	EROG@HORSESHOE CRAB.ORG	302 236 5383

**NACCS Visioning Session**  
**Delaware Inland Bays and Delaware Bay Coast - 2/04/2014**

Name	Community/Agency	Title	E-Mail	Telephone
Bob M. Devitt	Bowers	Town Comm	bob at Bowers @G.MAIL.COM	670-9766
Ron Hunsicker	Bowers	MA	Ronaldhunsicker@yahoo	302-572-9000
JOHN ROBINSON	PRIMEHOOK B	BOARD MEMBER	RJJR6@AOL.COM	302-684-2610
Peter Blum	US Army Corps	Chief, Planning Div	Peter.R.Blum@usace.army.mil	215-656-6540
Bob Scarborough	DNREC	Program Manager	Bob.Scarborough@state.de.us	302-739-9283
Mike Powell	DNREC	Program Mgr	michael.Powell@state.de.us	739-9921
Brian Mulvenna	USACE	Project mgr	brian.j.mulvenna@usace.army.mil	715-626-6889
SUSAN LOVE	DNREC DCP	Planner	Susan.love@state.de.us	302 739-9282
GENE DONALDSON	DEL DOT	TOL OPERATIONS MANAGER	GENE.DONALDSON@STATE.DE.US	302-659-4601
JEFF REED	Del DOT	S. DIST ENGINEER	Jeff.reed@State.de.us	302-00 853-1348
Kate Ketter	DE wild lands	Exec Dir	khacketto@de.wildlands.org	378-2736
VIRGIN HOLMES	DNREC	PROGRAM MGR	VIRGIN.HOLMES@STATE.DE.US	739-9381
Stephen Johnson	DNREC	Env Eng	stephen.johnson@state.de.us	302 395-2600
Jennifer Adams	POE	Exec. Dir.	jadkwo@DelawareEstuary.org	302-655-4990
Constance C. Holland	Office of St Planning	Director	Connie.Holland@St.de.us	302-739-3090

## Attachment B

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### Meeting Agenda and List of Handouts

**USACE North Atlantic Coast Comprehensive Study (NACCS)  
Visioning Session  
Delaware Inland Bays and Delaware Bay Coast**

Delaware National Estuarine Research Reserve, St Jones Reserve  
818 Kitts Hummock Road, Dover, DE 19901

**February 4, 2014**  
10 am – 12 pm

- I. Introductions**
- II. Agenda Overview and Meeting Purpose**
- III. USACE NACCS**
  - a. Update**
  - b. Focus Area Analysis**
- IV. USACE Continuing Authorities Program (CAP)**

**BREAK**

- V. Facilitated Discussion Topics**
  - a. Topic 1 - Vulnerability
  - b. Topic 2 – Solutions
  - c. Topic 3 – Policy/Institutional
  - d. Report Out
- VI. Closing Remarks/Adjourn**

## **List of Handouts**

Agenda

Slide Deck handouts

8.5 x 11 map of the Focus Area Analysis boundary

North Atlantic Coast Comprehensive Study (NACCS) Study Synopsis



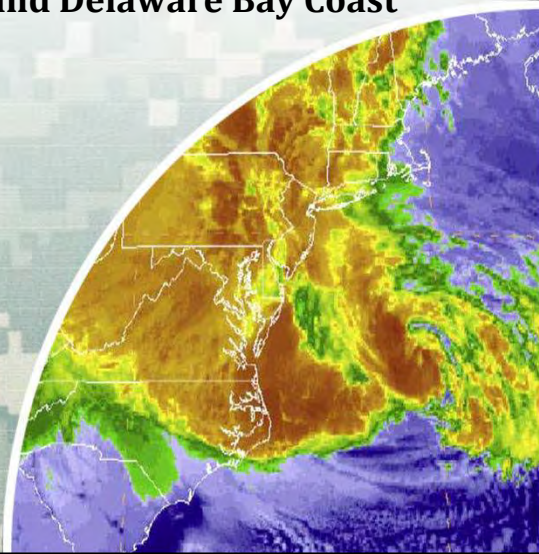
Attachment C

Meeting Presentation

# North Atlantic Coast Comprehensive Study Delaware Inland Bays and Delaware Bay Coast Visioning Meeting

U.S. Army Corps of Engineers  
National Planning Center for  
Coastal Storm Risk Management

4 February 2014



## Introductions

- J. Bailey Smith, USACE
- Charles McIntosh, USACE
- Peter Blum, USACE
- Kim McKenna, DNREC
- Tony Pratt, DNREC
- Mike Powell, DNREC
- Mark Dunning, CDM Smith
- Debra Beck, CDM Smith
- Frannie Bui, CDM Smith



## Agenda

- I. Introductions
- **II. Agenda Overview and Meeting Purpose**
- **III. USACE NACCS**
  - ▶ Update
  - ▶ Focus Area Analysis
- **IV. USACE Continuing Authorities Program**
- **BREAK**
- **V. Facilitated Discussion** (small groups)
- **VI. Closing Remarks/Adjourn**



## Meeting Purpose

- **Meeting focus**▣ Continued dialog with State and local stakeholders to develop a shared vision for resiliency in response to risk and exposure
- **Meeting outcomes**▣ Feedback received from this meeting will be incorporated into the USACE NACCS report to Congress in January 2015.



## Sandy Overview

- ❑ Hurricane/Post-Tropical Cyclone Sandy moved to the U.S. Atlantic Ocean coastline 22-29 October 2012
- ❑ Affected entire east coast: 24 States from Florida to Maine; New Jersey to Michigan and Wisconsin
- ❑ Areas of extensive damage from coastal flooding: New Jersey, New York, Connecticut
- ❑ Public Law 113-2 enacted 29 January 2013



Photo credits unknown

5

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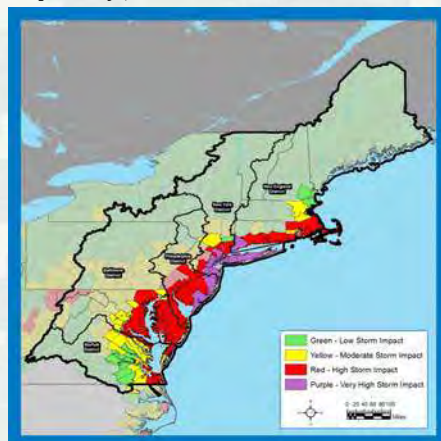
## NACCS Background

“That using up to \$20,000,000\* of the funds provided herein, the Secretary shall conduct a **comprehensive study** to address the flood risks of **vulnerable coastal populations** in areas that were affected by Hurricane Sandy within the boundaries of the North Atlantic Division of the Corps...” (\*\$19M after sequestration)

- Complete by Jan 2015

### Goals

- Provide a Risk Reduction Framework, consistent with USACE-NOAA Rebuilding Principles
- Support Resilient Coastal Communities and robust, sustainable coastal landscape systems, considering future sea level rise and climate change scenarios, to reduce risk to vulnerable population, property, ecosystems, and infrastructure.




6




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<u>Technical Teams</u>	<u>Products</u>
<ul style="list-style-type: none"><li>❑ USACE Enterprise</li><li>❑ Agency Subject Matter</li></ul> <p><b>Experts</b></p> <ul style="list-style-type: none"><li>▪ Engineering</li><li>▪ Economics</li><li>▪ Environmental, Cultural, and Social</li><li>▪ Sea Level and Climate Change</li><li>▪ Plan Formulation</li><li>▪ Coastal GIS Analysis</li></ul> 	<ul style="list-style-type: none"><li>❑ Coastal Framework<ul style="list-style-type: none"><li>▪ Regional scale</li><li>▪ Collaborative</li><li>▪ Opportunities by region/state</li><li>▪ Identify <b>range of potential solutions</b> and parametric costs by region/state</li><li>▪ Identify activities warranting additional analysis and social/institutional barriers</li></ul></li><li>❑ <b><u>Not a Decision Document</u></b><ul style="list-style-type: none"><li>▪ No NEPA</li><li>▪ No Recommendations</li></ul></li></ul>

7

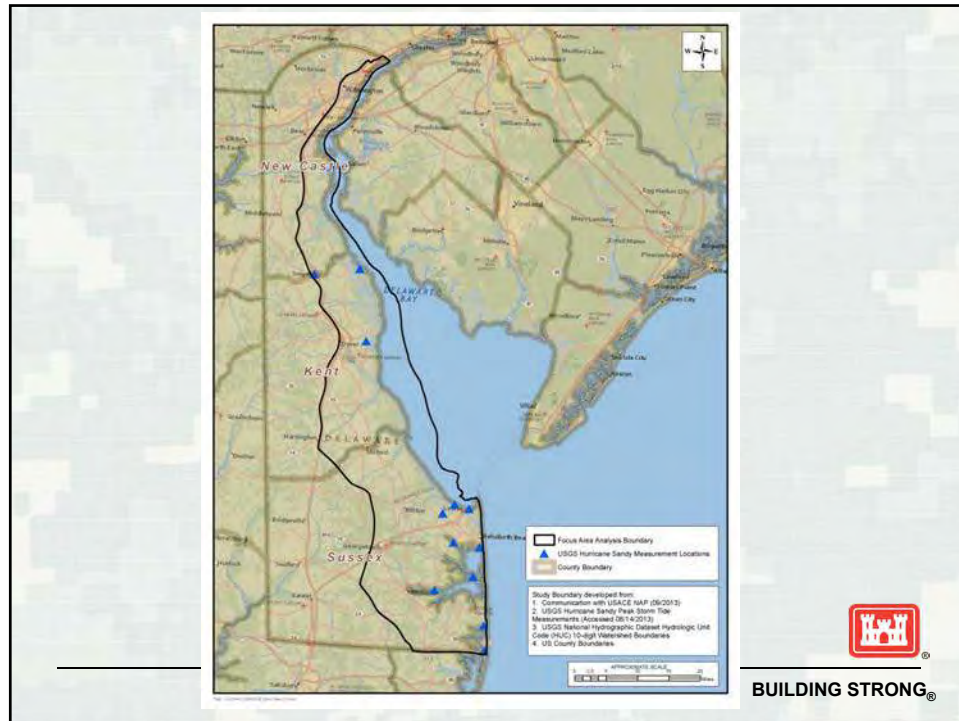
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**Focus Area Analysis**

**Delaware Inland Bays and Delaware Bay Coast**

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8



## Feedback Re<sup>u</sup>e<sup>s</sup>t<sup>e</sup>d (Fall 201<sup>2</sup>)

- 1. Problem identification for your area:
  - ▶ Did your area experience storm surge?
  - ▶ Specify particular areas and water bodies within your jurisdiction that experienced storm surge.
  - ▶ What factors, if any, exacerbated damages from storm surge?



## Feedback Requested (Fall 2012)

- 2. Description of damages for your area:
  - ▶ Provide a narrative including the types of infrastructure damaged or temporarily out of use, structure (building) damages, personal injuries/fatalities.



## Feedback Requested (Fall 2012)

- 3. Prior related studies or projects (local, state, federal) in the damaged area
- 4. Measures that your jurisdiction has considered to address the problem



## Stakeholder Information

- Delaware Natural Resources and Environmental Control (DNREC) - Letter
- Town of South Bethany Beach - Letter
  
- New Castle County Hazard Mitigation Plan
- Sussex County Hazard Mitigation Plan
- City of Lewes Mitigation and Climate Adaptation Action Plan



## Stakeholder Identified Problems

- Flooding by coastal storms
  - ▶ Storm surge
  - ▶ Wave action
  - ▶ Erosion
- Stormwater runoff
- Aging infrastructure





## Stakeholder Identified Measures

- Strengthen existing flood risk management measures
- Develop integrated flood risk management systems
- Create wetlands for stormwater retention
- Nourish beaches and dunes
- Acquire or elevate floodprone structures
- Incorporate regional sediment management practices
- Enhance waterfront zoning and permitting
- Review and enhance coastal area design guidelines



## NACCS Current Status

- Draft Analyses Completed in September 2013
- Internal Review of Draft Analyses currently ongoing
- Five/Six Webinars in the Collaboration Series Completed
- Public website offers information and status updates  
([www.nad.usace.army.mil/compstudy](http://www.nad.usace.army.mil/compstudy))



## NACCS Next Steps (Six Month Snapshot)

Early March 2014: Interagency release of the draft analyses

March 2014: Series of webinars to discuss/present the draft analyses with interagency partners

April-June 2014: Incorporation of input and finalization of the report for full review process



## USACE

### Continuing Authorities Program (CAP)



## USACE Hurricane Sandy CAP Overview

- Nine legislative authorities
- USACE can plan, design and implement certain types of water resources projects
- Federal Interest Determination, feasibility phase and implementation phase



## USACE CAP <sup>?</sup> Legislative Authorities

AUTHORITY	PROJECT PURPOSE
<a href="#"><u>Section 14, Flood Control Act of 1946, as amended</u></a>	Streambank and shoreline erosion protection of public works and non-profit public services
<a href="#"><u>Section 103, River and Harbor Act of 1962, as amended (amends Public Law 79-727)</u></a>	Beach erosion and hurricane and storm damage reduction
<a href="#"><u>Section 107, River and Harbor Act of 1960, as amended</u></a>	Navigation improvements
<a href="#"><u>Section 111, River and Harbor Act of 1968, as amended</u></a>	Shore damage prevention or mitigation caused by Federal navigation projects
<a href="#"><u>Section 204, Water Resources Development Act of 1992, as amended</u></a>	Beneficial uses of dredged material
<a href="#"><u>Section 205, Flood Control Act of 1948, as amended</u></a>	Flood control
<a href="#"><u>Section 206, Water Resources Development Act of 1996, as amended</u></a>	Aquatic ecosystem restoration
<a href="#"><u>Section 208, Flood Control Act of 1954, as amended (amends Section 2, Flood Control Act of August 28, 1937)</u></a>	Removal of obstructions, clearing channels for flood control
<a href="#"><u>Section 1135, Water Resources Development Act of 1986, as amended</u></a>	Project modifications for improvement of the environment



## USACE CAP Federal Interest Determination Phase

- Federal Interest Determination (FID) phase includes:
  - ▶ Letter of Support
  - ▶ FID report
  - ▶ Pathway to Feasibility phase



## USACE CAP Feasibility Phase

- Feasibility phase includes:
  - ▶ Development of alternative plans
  - ▶ Initial design and cost estimating
  - ▶ Environmental analysis
  - ▶ Real Estate analyses



## USACE CAP Implementation Phase

- Implementation phase includes:
  - ▶ Final design
  - ▶ Contract plans and specifications
  - ▶ Permitting
  - ▶ Real estate acquisition
  - ▶ Contract procurement
  - ▶ Construction



23

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## USACE CAP Typical Funding

- Federal Interest Determination 100% Federal funding
- First \$100,000 of feasibility phase federally funded
- Remaining funding for feasibility phase is 50/50 cost share with a non-federal sponsor
- Non-federal sponsor signs a Feasibility Cost Sharing Agreement (FCSA)
- Implementation
  - ▶ 65/35 cost share
  - ▶ Federal limit < \$7,000,000 depending on authority
- Focus Area Feasibility Study 50/50 cost share



24

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## Delaware CAP Re<sup>?</sup>uests

- Delaware Bayshore (Section 205)
- Specific locality identification to commence FID
- Letters of Support submittal
- Implementation of FAR-selected plan through CAP implementation authority



## Agenda Check-in

- I. Introductions
- II. Agenda Overview and Meeting Purpose
- III. USACE NACCS
  - ▶ Update
  - ▶ Focus Area Analysis
- IV. USACE Continuing Authorities Program

### **BREAK**

- V. Facilitated Discussion (small groups)
  - a. Vulnerability
  - b. Potential Solutions
  - c. Institutional/Policy Challenges
- VI. Closing Remarks/Adjourn



27

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## Small Group - Instructions

- Group Assignments
  - ▶ Groups identified as A, B, or C based on name tag and table
    - Group A: Frannie Bui
    - Group B: Debra Beck
    - Group C: Mark Dunning
- Discussion Topics
  - ▶ Vulnerability
  - ▶ Potential Solutions
  - ▶ Institutional or Policy Challenges
- Complete Individual Response Forms
- Develop Summary
- Report-out



28

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## Discussion Topics

1. How is your community most vulnerable to coastal storm risk?
2. Based on one vulnerability noted above, what are 1-2 promising solutions to address this vulnerability?
3. What is the most prominent policy change or legislative solution that could improve coastal resilience?



## Small Group Report-Out

- Group A
- Group B
- Group C



## Contact Information

- J. Bailey Smith – USACE Philadelphia District
  - ▶ [J.B.Smith@usace.army.mil](mailto:J.B.Smith@usace.army.mil)
  - ▶ 215-656-6579 (office)



Attachment D

Photograph Log

North Atlantic Coast Comprehensive Study, Visioning Meeting  
Delaware Inland Bays and Delaware Bay Coast



*Photo 1-Meeting preparations with Frannie Bui (CDM Smith)*



*Photo 2 – J. Smith (USACE) presenting an overview of the Focus Area Analysis*



North Atlantic Coast Comprehensive Study, Visioning Meeting  
Delaware Inland Bays and Delaware Bay Coast



*Photo 3 – Peter Blum (USACE) providing comments about the Comp Study, the USACE process, and potential funding avenues*



*Photo 4 – Attendees listen to J. Smith (USACE) as he presents the NACCS overview*

North Atlantic Coast Comprehensive Study, Visioning Meeting  
Delaware Inland Bays and Delaware Bay Coast



*Photo 5 – J. Smith (USACE) presents a diagram depicting the overall NACCS process*



*Photo 6 – Presenter J. Smith (USACE) provides his contact information*

North Atlantic Coast Comprehensive Study, Visioning Meeting  
Delaware Inland Bays and Delaware Bay Coast



*Photo 7 – Mark Dunning (CDM Smith) explaining breakout sessions*



*Photo 8 – Constance Holland (Office of State Planning Coordination) presenting responses from Group A*



North Atlantic Coast Comprehensive Study, Visioning Meeting  
Delaware Inland Bays and Delaware Bay Coast



Photo 9 – Susan Love (DNREC) presenting responses from Group B



Photo 10 – Jennifer Adkins (Partnership for the Delaware Estuaries) presenting responses from Group C

North Atlantic Coast Comprehensive Study, Visioning Meeting  
Delaware Inland Bays and Delaware Bay Coast



*Photo 11 – Tony Pratt (DNREC) adding to the discussion*

# Attachment E

## Breakout Session Responses

USACE North Atlantic Coast Comprehensive Study (NACCS)  
Visioning Session  
Delaware Inland Bays and Delaware Bay Coast/ February 4, 2014

Name: Jennifer Adkins

EMAIL: jadkins@DelawareEstuary

Organization: Partnership for the Delaware Estuary

-----  
Question 1: How is your community most vulnerable to coastal storm risk?

Tidal wetlands vulnerable to erosion, muddied - leads to loss of habitat, water quality, fish production, ~~and~~ coastal protection

Freshwater tidal wetlands vulnerable to salinity changes (in addition to above)

Oysters vulnerable to salinity & from flooding + diseases from warm waters, economic damage

Access to Bay vulnerable to flooding, storm damage, loss of economic viability of Businesses, ~~and~~

Freshwater marshes vulnerable to flooding, erosion, salinity &

Salt marsh marshes vulnerable to erosion + loss of marsh habitat

Harbor crabs vulnerable to beach/mud erosion + loss

Water quality impacted by flooding ignites in hazardous waste, sewage loss of wetlands, shellfish.

S. Wilmington - flooding of roads, basements, etc ~~and~~  
AMERICAN, hazardous waste / Biomaterials, high population  
Port

USACE North Atlantic Coast Comprehensive Study (NACCS)  
Visioning Session  
Delaware Inland Bays and Delaware Bay Coast/ February 4, 2014

Name: Jim Bailey  
Organization: Alliance of Bay Communities  
EMAIL: SouthernYankees2@comcast.net

-----  
Question 1: How is your community most vulnerable to coastal storm risk?

1 Delaware Bay shore is most vulnerable to storm surge, due to beach erosion. Unincorporated communities get little or no support from the counties.



**USACE North Atlantic Coast Comprehensive Study (NACCS)  
Visioning Session  
Delaware Inland Bays and Delaware Bay Coast/ February 4, 2014**

Name: Chris Bawon

EMAIL: chris.bawon@inlandbays.org

Organization: Delaware Center for the  
Inland Bays

**Question 1: How is your community most vulnerable to coastal storm risk?**

a measure of the degree to which a human or natural system is able to cope w/ adverse events.

The elevation of the IB shoreline communities and their structures and infrastructures is very near sealevel and the natural ecosystems that can protect these communities have decreased in average and ~~functional capacity~~ storm attenuation capacity. Current ~~state and local~~ land use policies and permitting <sup>and "subsidies"</sup> are encouraging growth in and around these communities @ low elevations. SLR is increasing groundwater table elevation and storm inundation. The Indian river inlet continues to scour (very likely) creating higher high tides. ~~Roads~~ ~~are~~ Roads are experiencing increased inundation and often become impassible during storms which could affect evacuation.

USACE North Atlantic Coast Comprehensive Study (NACCS)  
Visioning Session  
Delaware Inland Bays and Delaware Bay Coast/ February 4, 2014

Name: Karen Bennett

EMAIL: karen.bennett@state.de.us

Organization: DNREC f&w

Question 1: How is your community most vulnerable to coastal storm risk?

- \* Misspillion Harbor + Milford Neck Marshes  
loss of <sup>increasing water + salinity impacts.</sup>
- \* Tidal Marshes + channelization <sup>Back marsh flooding</sup>  
impacting vegetation/wetland function  
to act as buffer against community flooding risk.
- \* Coastal Impoundments - Levees + loss of habitat + vegetated areas to open water connection to bay eg. F&W
- \* Gene manages operations + evacuation + incident management under his section.
- \* Coastal Route <sup>evac route</sup> Route 1 @ RR + roadways to <sup>not high level of use.</sup> beach communities (used to lower bay)
- \* Hazardous Sites <sup>\$1500</sup> bridges + culverts
- \* Breaches @ dune line along central bayshore
- \* N to South coming out of wildlife area @ Pickering Beach + also Kets thummeek back to marsh flooding

FMI



USACE North Atlantic Coast Comprehensive Study (NACCS)  
Visioning Session  
Delaware Inland Bays and Delaware Bay Coast/ February 4, 2014

Name: Peter Blum  
Organization: USACE

EMAIL: Peter.R.Blum@USACE.  
Army.mil

-----  
Question 1: How is your community most vulnerable to coastal storm risk?

- Ocean coastline subject to inundation, wave attack & storm surge.
- Flood plain management not consistent w/ "Sea Level Rise"
- Bay areas & hard structures not "resilient" to storm surge/ structures built right adjacent to bulkheads & "hard structures"
- ~~no~~ No management plan for sediments, nourishment & dredging not synchronized.

USACE North Atlantic Coast Comprehensive Study (NACCS)  
Visioning Session  
Delaware Inland Bays and Delaware Bay Coast/ February 4, 2014

Name: Wendy Carey

EMAIL: wcarey@udel.edu

Organization: Univ. of Delaware Sea Grant

Question 1: How is your community most vulnerable to coastal storm risk?

Examples:

Delaware City - storm surge flooding (DE River - esp. tidal tributaries)

- public safety → evac. route flooding
- excessive precipitation
- stormwater infrastructure

high tides, excessive precip, drainage issues

Leves

→ erosion Leves break

→ pumping now back to river - SLR ISSUES

→ flooding from L/A canal side - impacts to property, city infrastructure, transportation, evac. routes

At coast Communities - Bayside Flooding

Inland Bays

- Fenwick
- S. Bethany
- Bethany (e.g. Loop Canal)
- Dewey

unincorporated communities around DE Inland Bays.

USACE North Atlantic Coast Comprehensive Study (NACCS)  
Visioning Session  
Delaware Inland Bays and Delaware Bay Coast/ February 4, 2014

Name: Pat Cooper

EMAIL: patricia.cooper@state.del.us

Organization:

DNREC Division of Parks & Recreation

Question 1: How is your community most vulnerable to coastal storm risk?

→ I oversee 5 state Parks and a marina along the Atlantic Coast Between Lewes / Fenwick Delaware..

- biggest issue

Cape ⇒ destruction of pier / boardwalk

Dune / Beach issues

destruction of habitat wildlife / nature

ASSD / Fenwick / ~~Holts~~

- cons and closures and Flooding Pt 1

- destruction of compound infrastructure

Indian River Marina

- Damage to boats

- Damage to docks and utilities

Holts landing

→ Damage habitat wildlife / natural

- pier / board ramp damage

C

**USACE North Atlantic Coast Comprehensive Study (NACCS)  
Visioning Session  
Delaware Inland Bays and Delaware Bay Coast/ February 4, 2014**

Name: *GENE DONALDSON* EMAIL: *GENE.DONALDSON@STATE.DE.US*  
Organization: *DELAWARE DEPARTMENT OF TRANSPORTATION*

---

**Question 1: How is your community most vulnerable to coastal storm risk?**

THE BIGGEST THREAT TO DELAWARE'S TRANSPORTATION SYSTEM IS WATER. WITH INCREASED SEVERITY AND OF WEATHER EVENTS, SEA LEVEL RISE, ~~AND~~ POPULATION GROWTH IN COASTAL AREAS HOW CAN WE INCREASE THE RESILIENCE OF TRANSPORTATION SYSTEM.

- \* CULVERTS
- BRIDGES
- ELEVATION OF ROAD
- EVALUATION ROUTES
- DETOURS
- PUBLIC SAFETY

USACE North Atlantic Coast Comprehensive Study (NACCS)  
Visioning Session  
Delaware Inland Bays and Delaware Bay Coast/ February 4, 2014

Name: GLENN GAUVAY

EMAIL:

Organization: MAYOR OF LITTLE CREEK

ERDG @ HORSESHOECRAB. ORG

-----  
Question 1: *How is your community most vulnerable to coastal storm risk?*

- FLOODING

- PROPERTY "LAND"
- STRUCTURES RES. & COMM.
- ROADS . MAIN & SECONDARY
- STORM DRAINS
- WETLAND WATER MANAGEMENT
- RIVER FLOW & UPRIVER DAM/SPILLWAY STRUCTURES

USACE North Atlantic Coast Comprehensive Study (NACCS)  
Visioning Session  
Delaware Inland Bays and Delaware Bay Coast/ February 4, 2014

Name: *Kate Hackett*

EMAIL: *khackett@  
dewildlands.org*

Organization: *Delaware Wild Lands*

Question 1: How is your community most vulnerable to coastal storm risk?

*containment issues from Superfund sites*

I represent a non-profit land trust that has spent millions of dollars ~~and~~ and leveraged millions of \$ in State, Federal & private funding - to protect open land, farmland and forestland along the DE Bayside area. Our natural resources and land and water based economics (agriculture, forestry, fisheries) are extremely vulnerable to saltwater deposition, degradation from sea level rise, loss of habitat (land and water based), loss of

*resources like coastal forests, freshwater tidal wetlands*

*loss of*

*migratory fish & fowl waterfowl birds aquatic species*

**USACE North Atlantic Coast Comprehensive Study (NACCS)  
Visioning Session  
Delaware Inland Bays and Delaware Bay Coast/ February 4, 2014**

**Name:** Constance C. Holland

**EMAIL:** Connie.Holland@State.de.us

**Organization:** Office of State Planning  
DE. State Government

---

**Question 1: How is your community most vulnerable to coastal storm risk?**

The Office of State Planning is very interested in supporting coastal communities through Comp Plans; assisting with "Planning" within their jurisdiction. Information-



D

**USACE North Atlantic Coast Comprehensive Study (NACCS)  
Visioning Session  
Delaware Inland Bays and Delaware Bay Coast/ February 4, 2014**

Name: *VIRGIL HOLMES*  
Organization: *DNREC*

EMAIL: *VIRGIL.HOLMES@STATE.DE.US*

-----  
**Question 1: How is your community most vulnerable to coastal storm risk?**

As SECTION MANAGER FOR THE WETLANDS AND SUBAQUEOUS LANDS SECTION, WE REVIEW AND ISSUE PERMITS FOR MOST COASTAL ACTIVITIES. THE VULNERABILITIES THAT ARE APPARENT INCLUDE:

DIKES - THAT CONTAIN CONTAMINATED SEDIMENTS

BEACH - BEACH EROSION

IMPOUNDMENTS - LOSS OF VEGETATION & STABILITY

ROADS - FLOODING & DAMAGE AT BRIDGES

DOCKS/PIERS/STRUCTURES - DAMAGE/LOSS FROM STORM ENERGY - POOR SITING

INFRASTRUCTURE - COMBINED SEWAGE/STORMWATER FACILITIES OVERWHELMED - LOSS OF OUTLET

WETLAND LOSS - EROSION & INUNDATION

**USACE North Atlantic Coast Comprehensive Study (NACCS)  
Visioning Session  
Delaware Inland Bays and Delaware Bay Coast/ February 4, 2014**

**Name:** Ron Hunsicker

**EMAIL:** ronaldhunsicker@yahoo.com

**Organization:** Town of Bowers

-----  
**Question 1: How is your community most vulnerable to coastal storm risk?**

STORM SURGE  
BACK BAY FLOODING

0

**USACE North Atlantic Coast Comprehensive Study (NACCS)  
Visioning Session  
Delaware Inland Bays and Delaware Bay Coast/ February 4, 2014**

**Name:** Stephen Johnson  
**Organization:** DNREC - Div of  
WASTE & HAZ MATLS

**EMAIL:** stephen-johnson@  
state-de.us

---

**Question 1: How is your community most vulnerable to coastal storm risk?**

Loss of electricity.  
Releases of haz materials.  
- fuel for example  
- catastrophic failure of tanks &  
cleanup complications  
Loss of businesses due to flooding  
- long & short term

u

USACE North Atlantic Coast Comprehensive Study (NACCS)  
Visioning Session  
Delaware Inland Bays and Delaware Bay Coast/ February 4, 2014

Name: JIM KIRKBRIDE  
Organization: PICKERING BEACH

EMAIL: JF KIRKBRIDE  
@COMCAST.NET

Question 1: How is your community most vulnerable to coastal storm risk?

FLOODING, BOTH FROM THE BAY AND FROM  
① THE WET LANDS WHICH BORDER PICKERING  
BEACH. DURING MOST STORMS THE ONLY  
ACCESS ROAD TO PICKERING BEACH IS FLOODED.

PICKERING BEACH IS A PRIMARY HORSESHOE  
CRAB SPAWN AREA. THE SHORE LINE IS  
② CHANGING AND REDUCING THE HORSESHOE CRAB  
REPRODUCING AREA.

BEACH NOURISHMENT APPEARS TO BE THE MOST  
③ OBVIOUS, TIMELY AND DEMONSTRATED APPROACH TO  
PROTECTING P.B SHORELINE.

④ IDENTIFY SOURCES OF \$\$\$ TO PROVIDE NEAR TERM  
BEACH NOURISHMENT

USACE North Atlantic Coast Comprehensive Study (NACCS)  
Visioning Session  
Delaware Inland Bays and Delaware Bay Coast/ February 4, 2014

Name: DON KNOX

EMAIL: Don.Knox@state.de.us

Organization: DEMA

---

Question 1: *How is your community most vulnerable to coastal storm risk?*

- 1) STORM SURGE - DESTROYING DUNES + BEACHING HOMES + BUSINESSES
- 2) BACK BAY FLOODING OF HOMES + ROADS

USACE North Atlantic Coast Comprehensive Study (NACCS)  
Visioning Session  
Delaware Inland Bays and Delaware Bay Coast/ February 4, 2014

Name: Nancy Lawson  
Organization: Picking Beach  
Resident

EMAIL: froggy1938@aol.com

---

**Question 1: How is your community most vulnerable to coastal storm risk?**

By Northeasters and Storm. - Losing Dunes on Beach  
& the closing of the PB Road by ~~with~~ High Water  
from High tides/Flooding (Water running North to South)  
out of the Little Creek Wild Life area.  
All drains Closed by sand over the years.

**USACE North Atlantic Coast Comprehensive Study (NACCS)  
Visioning Session  
Delaware Inland Bays and Delaware Bay Coast/ February 4, 2014**

Name: SUSAN LOVE

EMAIL: susan.love@  
state.del.us

Organization: DCP

-----  
**Question 1: How is your community most vulnerable to coastal storm risk?**

- \* Many counties + municipalities have projects outlined in their hazard mitigation program - use those plans as basis
- \* most communities suffer from combined sewer + storm surge out of city drainage systems, No where for water to drain
- \* SLR ↑ making all existing issues more problematic.



**USACE North Atlantic Coast Comprehensive Study (NACCS)  
Visioning Session  
Delaware Inland Bays and Delaware Bay Coast/ February 4, 2014**

**Name:** Bob McDevitt

**EMAIL:** bobatbowersbeach@gmail.com

**Organization:** Bowers Town Council

-----  
**Question 1: How is your community most vulnerable to coastal storm risk?**

TOWN OF BOWERS IS LOCATED BETWEEN  
2 RIVERS ON THE DEL BAY THE MURDERKILL ON  
THE SOUTH THE ST JONES ON THE NORTH  
THE ENTIRE TOWN IS IN A FLOOD PLAIN.

**USACE North Atlantic Coast Comprehensive Study (NACCS)  
Visioning Session  
Delaware Inland Bays and Delaware Bay Coast/ February 4, 2014**

**Name:** Kim McKenna

**EMAIL:** kimberly.mckenna@state.de.us

**Organization:** DE DPREC / Shoreline & Waterway

-----  
**Question 1: How is your community most vulnerable to coastal storm risk?**

regional - roadway flooding of roadways / evacuation routes  
shoreline erosion (open coast & Bay shoreline)  
back barrier flooding & erosion

**USACE North Atlantic Coast Comprehensive Study (NACCS)  
Visioning Session  
Delaware Inland Bays and Delaware Bay Coast/ February 4, 2014**

Name: *Brian Mulvaney*

EMAIL: *brian.j.mulvaney*

Organization: *USACE*

*Quisice.org, LLC*

-----  
**Question 1: How is your community most vulnerable to coastal storm risk?**

*LAND LOW  
WATER HIGH*

**USACE North Atlantic Coast Comprehensive Study (NACCS)  
Visioning Session  
Delaware Inland Bays and Delaware Bay Coast/ February 4, 2014**

Name: Michael Powell

EMAIL: ~~DELAWARE~~

Organization: DELAWARE  
DNREC

MICHAEL.POWELL@STATE.DE.US

**Question 1: How is your community most vulnerable to coastal storm risk?**

DELAWARE INLAND BAY COMMUNITIES EXPERIENCED BLDG. DAMAGE DURING SANDY DUE TO INADEQUATE FLOOR ELEVATIONS OF HOMES BUILT TO BASE FLOOD ELEVATIONS THAT WERE TOO LOW.

- 24 TOWNHOUSE SUBSTANTIALLY DAMAGED THAT WERE BUILT TO 1980<sup>S</sup> FLOOD LEVELS.

- USACE/FEMA PRELIMINARY FLOOD STUDIES LOWER 100 YEAR FLOOD LEVELS AND 500 YEAR FLOOD LEVELS WHICH WILL RESULT IN ADDITIONAL BUILDING BUILT AT RISK. SEA LEVEL RISE, COASTAL EROSION, DEEPENING OF INDIAN RIVER INLET INDICATE INLAND BAY FLOOD LEVELS SHOULD BE GOING UP NOT DOWN.

ADCIRC MODELING DOES NOT INCLUDE BARRIER ISLAND IMPACTS, EROSION, BREACHING ETC. WHICH LEADS TO FLOOD LEVELS WHICH ARE TOO LOW.

**USACE North Atlantic Coast Comprehensive Study (NACCS)  
Visioning Session  
Delaware Inland Bays and Delaware Bay Coast/ February 4, 2014**

Name: Tony Pratt

EMAIL: Tony.Pratt@state.de.us

Organization: DNREC

-----  
Question 1: **How** is your community most vulnerable to coastal storm risk?

Surge flooding - results in property damage and loss of land. Vulnerability is equal parts building in flood plain and surge heights.



USACE North Atlantic Coast Comprehensive Study (NACCS)  
Visioning Session  
Delaware Inland Bays and Delaware Bay Coast/ February 4, 2014

Name: JOHN ROBINSON

EMAIL: RJJR6@AOL.COM

Organization: PRIME HOOK BEACH ORGANIZATION (PHBO)

Question 1: How is your community most vulnerable to coastal storm risk?

RISK IS TWO FOLD:

- 1) FROM POTENTIAL STORM SURGE ON THE BAY SIDE - DUNE PROTECTING HOMES ON THE BAY SIDE IS CONTINUINGLY AT RISK AND BEING ERODED.
- 2.) FROM THE MARSH SIDE BEHIND OUR COMMUNITY DUE TO A "BREACHED" AREA (IN DUNE LINE) NORTH OF THE COMMUNITY.

**USACE North Atlantic Coast Comprehensive Study (NACCS)  
Visioning Session  
Delaware Inland Bays and Delaware Bay Coast/ February 4, 2014**

Name: Bob Scarborough  
Organization: DNRCE

EMAIL:

**Question 1: How is your community most vulnerable to coastal storm risk?**

Coastal Flooding and Storm Surge

Proper warning + estimates of flooding from coastal storms  
Flooding impacts can vary widely along DE Shoreline + Inland  
Bays. DE Bay coast estimates fair but Inland Bays and  
up trusting need to be refined

Categorizing storms by their potential impacts not just  
on wind speed (Hurricane rating system) but ~~include storm~~  
~~surge, rainfall, direction~~, This does not fully categorize  
storm and public may not take proper precautions  
or evacuation.



C

**USACE North Atlantic Coast Comprehensive Study (NACCS)  
Visioning Session  
Delaware Inland Bays and Delaware Bay Coast/ February 4, 2014**

**Name:** Jennifer Adams

**EMAIL:** j.adams@Delaware  
Estuary.org

**Organization:** Partnership for the Delaware Estuary

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**Question 2: Based on one vulnerability noted above, what are 1-2 promising solutions to address this vulnerability?**

Regional Sediment Management, including

- living shorelines

- beneficial use of sediment

Oyster Restoration

Wetland Restoration - some functions

USACE North Atlantic Coast Comprehensive Study (NACCS)  
Visioning Session  
Delaware Inland Bays and Delaware Bay Coast/ February 4, 2014

Name: Jim Bailey

EMAIL: Southernparks2  
@comcast.net

Organization: Alliance of Bay Communities

-----  
Question 2: Based on one vulnerability noted above, what are 1-2 promising solutions to address this vulnerability?

Beach berm restoration/maintenance  
Drainage management of marshes

**USACE North Atlantic Coast Comprehensive Study (NACCS)  
Visioning Session  
Delaware Inland Bays and Delaware Bay Coast/ February 4, 2014**

Name: Chris Basom

EMAIL: chrisbasom@inlandbays.org

Organization: Delaware CIB

**Question 2: Based on one vulnerability noted above, what are 1-2 promising solutions to address this vulnerability?**

Landuse policy that does permit or subsidize construction near the coast at low elevation. Do not permit or subsidize more vulnerabilities.

o ~~water~~ control ~~walled~~ <sup>1 reef/shoal line.</sup> ~~creation~~ ~~enhance~~ <sup>creation +</sup> ~~entirement.~~

C

**USACE North Atlantic Coast Comprehensive Study (NACCS)  
Visioning Session  
Delaware Inland Bays and Delaware Bay Coast/ February 4, 2014**

Name: Karen Bennett  
Organization: DNREC F&W

EMAIL: karen.bennett@  
state.de.us

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**Question 2: Based on one vulnerability noted above, what are 1-2 promising solutions to address this vulnerability?**

- \* Restore hydrology / wetland restoration upper bays
- \* Increase salt marsh restoration ~~low~~ central to lower bays
- \* Beach nourishment
- \* Innovative NWBF like living shorelines
- \* Improved culvert design
- \* Shoreline assessment to evaluate
- \* RSM - implement to local level
  - w/ living shoreline + beneficial reuse of sediment
- \* CAP - ecosystem restoration
- \* Manage develop + future design standards.
- \* Educated zoning to prevent future problems
- \* Remove <sup>exposed</sup> vulnerable structures

USACE North Atlantic Coast Comprehensive Study (NACCS)  
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Delaware Inland Bays and Delaware Bay Coast/ February 4, 2014

Name: Peter Blinn

EMAIL:

Organization: USACE

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Question 2: Based on one vulnerability noted above, what are 1-2 promising solutions to address this vulnerability?

- "Local protection plans" (e.g. "CAP")  
Regional
- Synchronizing Nourishment cycles to low tides
- "RBM" approach e.g. Mission.
- combine ecosystem restoration with the flood risk management (create buffer zones): also
- to
- beneficial use of dredged material for buffer zones & flood risk management.

**USACE North Atlantic Coast Comprehensive Study (NACCS)  
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Delaware Inland Bays and Delaware Bay Coast/ February 4, 2014**

**Name:** Wendy Carey      **EMAIL:** wcarey@udel.edu  
**Organization:** University of Delaware Sea Grant

**Question 2: Based on one vulnerability noted above, what are 1-2 promising solutions to address this vulnerability?**

support  
 vulnerability assessments esp. related  
 to city infrastructure, evac. route  
 elevation, private property,  
 stormwater systems, water  
 supply, etc.

→ elevation  
 adaptation options } education/  
 outreach re

Flood plain management,  
 improved building/zoning codes

- Best practice guidance

USACE North Atlantic Coast Comprehensive Study (NACCS)  
Visioning Session  
Delaware Inland Bays and Delaware Bay Coast/ February 4, 2014

Name: Paul Cooper

EMAIL: paul.d.cooper@usace.army.mil

Organization:

DNREC Anks

Question 2: Based on one vulnerability noted above, what are 1-2 promising solutions to address this vulnerability?

→ Better construction Along ~~of~~ of  
docks / boardwalks / piers.  
may include design/engineering

- We Division may need to rethink  
capital spending



USACE North Atlantic Coast Comprehensive Study (NACCS)  
Visioning Session  
Delaware Inland Bays and Delaware Bay Coast/ February 4, 2014

Name: GENE DWALDSON

EMAIL: GENE.DWALDSON@STATE.DE.US

Organization: DELAWARE DEPARTMENT OF TRANSPORTATION

-----  
Question 2: Based on one vulnerability noted above, what are 1-2 promising solutions to address this vulnerability?

1. MANAGED DEVELOPMENT
2. ~~ESTABLISH~~ FUTURE DESIGN STANDARDS FOR TRANSPORTATION INFRASTRUCTURE

USACE North Atlantic Coast Comprehensive Study (NACCS)  
Visioning Session  
Delaware Inland Bays and Delaware Bay Coast/ February 4, 2014

Name: GLENN GAUVRY

EMAIL:

Organization: MAYOR OF LITTLE CREEK

ERDG@HORSESHOE CRAB.ORG.

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Question 2: Based on one vulnerability noted above, what are 1-2 promising solutions to address this vulnerability?

- RIVER DREDGE & UP RIVER STRUCTURE MITIGATIONS
- WETLAND DRAINAGE ASSESSMENT & MITIGATIONS

**USACE North Atlantic Coast Comprehensive Study (NACCS)  
Visioning Session  
Delaware Inland Bays and Delaware Bay Coast/ February 4, 2014**

Name: *Kate Hackett*

EMAIL: *khackett@*

Organization:

*delwildlands.org*

*Delaware Wild Lands*

**Question 2: Based on one vulnerability noted above, what are 1-2 promising solutions to address this vulnerability?**

*assisted*

- ① *wetlands migration*
  - ② *marsh restoration methodologies, success rates & funding*
  - ③ *investments in non-traditional agriculture crops that*  
*change in*
  - ④ *increase elevation of tidal saltmarshes*  
*and restore natural hydrology of*  
*wetlands & marshes. (this starts*  
*to get at beneficial re-use)*
- salt-*  
*inundated*  
*areas*

USACE North Atlantic Coast Comprehensive Study (NACCS)  
Visioning Session  
Delaware Inland Bays and Delaware Bay Coast/ February 4, 2014

Name: Constance C. Holland EMAIL:

Organization:

Question 2: Based on one vulnerability noted above, what are 1-2 promising solutions to address this vulnerability?

\* Better Information - for communities - map @ Local level - TDR program - \$  
 Better PR - to be used in local communities -  
 Proactive - not reactive -  
 \$ down to local levels -  
Public Involvement !!

USACE North Atlantic Coast Comprehensive Study (NACCS)  
Visioning Session  
Delaware Inland Bays and Delaware Bay Coast/ February 4, 2014

Name: *Virgil Holmes*

EMAIL: *Virgil.Holmes@*

Organization: *DNREC*

*STATE, DE, US*

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**Question 2: Based on one vulnerability noted above, what are 1-2 promising solutions to address this vulnerability?**

*I see No Silver Bullet BECAUSE THE PROBLEM IS SO DIVERSE:*  
*EDUCATION AND ZONING TO PREVENT MORE FACILITIES FROM BEING CONSTRUCTED IN VULNERABLE AREAS, AND REMOVAL OVER TIME OF FACILITIES IN VULNERABLE AREAS.*

USACE North Atlantic Coast Comprehensive Study (NACCS)  
Visioning Session  
Delaware Inland Bays and Delaware Bay Coast/ February 4, 2014

Name: Ron Hunsicker

EMAIL: ron@dhunsicker@yahoo.com

Organization: Town of Bowers

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**Question 2: Based on one vulnerability noted above, what are 1-2 promising solutions to address this vulnerability?**

SEA WALL REPAIR

DRAINAGE IMPROVEMENT

BUILDING ELEVATION REQUIREMENTS

DUNE MAINTENANCE

USACE North Atlantic Coast Comprehensive Study (NACCS)  
Visioning Session  
Delaware Inland Bays and Delaware Bay Coast/ February 4, 2014

Name: S Johnson

EMAIL:

Organization:

-----  
**Question 2: Based on one vulnerability noted above, what are 1-2 promising solutions to address this vulnerability?**

Re location of above ground storage tanks  
that are vulnerable to surge.

OR UPGRADE TANK SYSTEMS.



USACE North Atlantic Coast Comprehensive Study (NACCS)  
Visioning Session  
Delaware Inland Bays and Delaware Bay Coast/ February 4, 2014

Name: DON KNOX  
Organization: DEMA

EMAIL: Don.Knox@state.de.us

-----  
Question 2: Based on one vulnerability noted above, what are 1-2 promising solutions to address this vulnerability?

- 1) BEACH RESTORATION
- 2) ~~BE~~ ELEVATION, (OF HOMES) ALSO ACQUISITION, DEMOLITION, OR RELOCATION
- 3) DRY FLOOD PROOFING OF HOMES + BUSINESSES
- 4) ZONING SETBACK REGULATIONS
- 5) MINOR LOCALIZED FLOOD REDUCTION
- 6) STRUCTURAL RETROFITTING OF EXISTING BUILDINGS

C

**USACE North Atlantic Coast Comprehensive Study (NACCS)  
Visioning Session  
Delaware Inland Bays and Delaware Bay Coast/ February 4, 2014**

**Name:** Nancy Lawson  
**Organization:** Pickering Beach  
Resident

**EMAIL:** froggy1938@aol.com

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**Question 2: Based on one vulnerability noted above, what are 1-2 promising solutions to address this vulnerability?**

Possibly More/Larger Dune on the Beach area. -  
Opening closed drainage ditches ~ possibly some  
work done in the Little Creek Wild life area to  
minimize flooding on Pickering Beach Rd.  
Raise a portion of our Road. -

**USACE North Atlantic Coast Comprehensive Study (NACCS)  
Visioning Session  
Delaware Inland Bays and Delaware Bay Coast/ February 4, 2014**

Name: Susan Love

EMAIL: susan.love@state.de.us

Organization: DCP

**Question 2: Based on one vulnerability noted above, what are 1-2 promising solutions to address this vulnerability?**

- Maint/improved tide gates, drainage systems, retrofits
- use wetlands for flood storage + wetland restoration
- Behavioral Reuse
- ↑ tools for storm protection + evacuation
- More vul. ability assessments - linked to specific actions
- Better models for SFR, surge + ↑ precip combined
- Dikes/seawalls ONLY in highly urbanized roadways
- living structures, off shore wave breaking structures.
- Avoid new impacts → Retreat from existing ones.

USACE North Atlantic Coast Comprehensive Study (NACCS)  
Visioning Session  
Delaware Inland Bays and Delaware Bay Coast/ February 4, 2014

Name: Bob McDevitt

EMAIL:

Organization:

-----  
Town of Bowers  
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Question 2: Based on one vulnerability noted above, what are 1-2 promising solutions to address this vulnerability?

- 1- Keep BEACH + DUNE MAINTAINED
- 2. Change out BLD. CODE TO ADD  
MORE FREEBOARD TO NEW CONSTRUCTION  
Raising sea wall in  
Revised DRAINAGE GRANT

0

**USACE North Atlantic Coast Comprehensive Study (NACCS)  
Visioning Session  
Delaware Inland Bays and Delaware Bay Coast/ February 4, 2014**

**Name:** Kim McKenna

**EMAIL:**

**Organization:** DE DNREC / Shoreline & Waterway

-----  
**Question 2: Based on one vulnerability noted above, what are 1-2 promising solutions to address this vulnerability?**

- <sup>or revolve</sup> raise v roadways
- add more sediment (beneficial uses of sediment) to balance losses.
- Create wetland buffers on back barriers.

USACE North Atlantic Coast Comprehensive Study (NACCS)  
Visioning Session  
Delaware Inland Bays and Delaware Bay Coast/ February 4, 2014

Name: *Brian Mulvaney*

EMAIL: *brian.j.mulvaney@usace.army.mil*

Organization: *USACE*

-----  
Question 2: *Based on one vulnerability noted above, what are 1-2 promising solutions to address this vulnerability?*

*STORM SURGE BARRIER AT  
INDIAN RIVER INLET*

USACE North Atlantic Coast Comprehensive Study (NACCS)  
Visioning Session  
Delaware Inland Bays and Delaware Bay Coast/ February 4, 2014

Name: MICHAEL POWELL

EMAIL: MICHAEL.POWELL  
@ STATE.DE.US

Organization:

DNREC

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Question 2: *Based on one vulnerability noted above, what are 1-2 promising solutions to address this vulnerability?*

~~ANSWER~~

- FLOOD LEVELS (REGULATORY) SHOULD BE BASED ON MODELING THAT INCLUDES DYNAMIC EFFECTS ON BARRIER BEACHES, AND SEA LEVEL RISES SHOULD BE ADVISORY ON ALL FLOODPLAIN MAPS
- A COMPREHENSIVE SURVEY SHOULD BE CONDUCTED TO IDENTIFY STRUCTURES AT EXTREME RISK FOR ACQUISITION/ELEVATION PURPOSES, WHERE FLOOD PROTECTION PROJECTS ARE NOT FEASIBLE.



**USACE North Atlantic Coast Comprehensive Study (NACCS)  
Visioning Session  
Delaware Inland Bays and Delaware Bay Coast/ February 4, 2014**

**Name:** Tony Pratt  
**Organization:** DNREC

**EMAIL:** Tony.Pratt@state.de.us

-----  
**Question 2: Based on one vulnerability noted above, what are 1-2 promising solutions to address this vulnerability?**

- refined <sup>improved</sup> flood prediction models and maps
- projects that reduce surge impacts on the ground

USACE North Atlantic Coast Comprehensive Study (NACCS)  
Visioning Session  
Delaware Inland Bays and Delaware Bay Coast/ February 4, 2014

Name: JOHN ROBINSON

EMAIL: RJR6197@AOL.COM

Organization: PHBO (PRIME HOOK BEACH)

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Question 2: Based on one vulnerability noted above, what are 1-2 promising solutions to address this vulnerability?

- 1.) POTENTIAL INCLUSION IN THE 10 YEAR PLAN (STATE) FOR BEACH REPLENISHMENT IF WE CAN BECOME A "PUBLIC BEACH"!
- 2.) DUNELINE TO BE CLOSED AND BUILT UP (HOPEFULLY!) IN LATE 2014 BY THE FISH + WILDLIFE SERVICE WHO OWNS THE LAND AT THE BROUGHTON AREA. (I.E. FOWLER BEACH)

**USACE North Atlantic Coast Comprehensive Study (NACCS)  
Visioning Session  
Delaware Inland Bays and Delaware Bay Coast/ February 4, 2014**

**Name:** Bob Scarborough  
**Organization:** DNRCC

**EMAIL:**

-----  
**Question 2: Based on one vulnerability noted above, what are 1-2 promising solutions to address this vulnerability?**

- 1) <sup>Improved</sup> ~~Flow~~ model of flow + storm surge, particularly in inland Bays and up rivers
- 2 Coastal Storm Severity Index based on wind, storm surge, ~~duration~~ duration, rainfall, tide. to better estimate impacts

**USACE North Atlantic Coast Comprehensive Study (NACCS)  
Visioning Session  
Delaware Inland Bays and Delaware Bay Coast/ February 4, 2014**

Name: Jennifer Adams

EMAIL: jenkins@DelawareEstuary.org

Organization: Partnership for the Delaware Estuary

**Question 3: What is the most prominent policy change or legislative solution that could improve coastal resilience?**

- ③ Streamlined permits for living shorelines (+ standards) (a req to LRM @ before any hard structure.)
- ④ A ~~no~~ <sup>USACE</sup> ~~policy~~ <sup>policy</sup> re: least cost required (with strong standards!)
- ⑤ Investment in green infrastructure (+ favorable tax policies) ... lack of appropriate investment in small coastal communities and harbor areas

USACE North Atlantic Coast Comprehensive Study (NACCS)  
Visioning Session  
Delaware Inland Bays and Delaware Bay Coast/ February 4, 2014

Name: Jim Bailey      EMAIL: Southcoastsubseas2@comcast.net  
Organization: Alliance of Bay Communities

-----  
Question 3: *What is the most prominent policy change or legislative solution that could improve coastal resilience?*

Realization of the actual value of  
The entire system that is the  
Delaware Bay Shore.

USACE North Atlantic Coast Comprehensive Study (NACCS)  
Visioning Session  
Delaware Inland Bays and Delaware Bay Coast/ February 4, 2014

Name: Chris Basom

EMAIL: chris.basom@inlandbays.org

Organization: DE Center for the Inland Bays.org

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**Question 3: What is the most prominent policy change or legislative solution that could improve coastal resilience?**

→ Statewide Critical Areas Act ~~similar to~~  
~~Some what similar to Maryland that really~~  
gets a handle on growth near the coast.

→ including flood insurance program being robust  
in not subsidizing insurance for  
flood zones.

**USACE North Atlantic Coast Comprehensive Study (NACCS)  
Visioning Session  
Delaware Inland Bays and Delaware Bay Coast/ February 4, 2014**

Name: Karen Bennett

EMAIL: karen.bennett@state.de.us

Organization: DUREC F&W

-----  
**Question 3: What is the most prominent policy change or legislative solution that could improve coastal resilience?**

\* Funding  
Mechanisms to address cost share

\* Easements

\* Permitting support for I.S.

\*



C

**USACE North Atlantic Coast Comprehensive Study (NACCS)  
Visioning Session  
Delaware Inland Bays and Delaware Bay Coast/ February 4, 2014**

Name: *Peter Blend*  
Organization: USACE

EMAIL:

-----  
**Question 3: What is the most prominent policy change or legislative solution that could improve coastal resilience?**

- Corps ~~Federal~~ Budget process needs to be done regionally ~~rather~~ (across "business lines") rather than by function (business line).  
E.g. Business lines have limited "pots" of \$, and we need to change that by stretching dollars, ~~to leverage~~ e.g. for multiple use; e.g. navigation dredge material for eco rest + flood risk management
- Flood Plain mgmt / zoning to preclude overdevelopment of Floodplains
- ~~Way~~ Improved way of measuring flood dam. reduction to include loss of life, etc. -

**USACE North Atlantic Coast Comprehensive Study (NACCS)  
Visioning Session  
Delaware Inland Bays and Delaware Bay Coast/ February 4, 2014**

Name: Wendy Carey

EMAIL: wcarey@udel.edu

Organization: Univ. of ~~Del~~ Delaware Sea Grant

**Question 3: What is the most prominent policy change or legislative solution that could improve coastal resilience?**

→ e.g. SB 64 - Drainage & Stormwater Recommendations

→ higher standards for flood plain management statewide <sup>consider (Future Flood risk)</sup>

→ higher standards for structures in flood prone areas

→ > setback lines along DE Bay & Atlantic Coast

→ > coastal construction standards

→ > education/outreach re-

nks & vulnerabilities across all sectors - property, infrastructure, nat. environ., economic, public safety, etc.

USACE North Atlantic Coast Comprehensive Study (NACCS)  
Visioning Session  
Delaware Inland Bays and Delaware Bay Coast/ February 4, 2014

Name: GLENN GAUVAT

EMAIL: ERDGE@HORSESHOECRAB.ORG

Organization: MAYOR OF LITTLE CREEK

-----  
Question 3: What is the most prominent policy change or legislative solution that could improve coastal resilience?

- PROF. ASSISTANCE IN WRITING CMPs, FEMA REPORTS, GRANTS ETC. (TEMPLATES ARE HELPFUL)
- SOLUTION TO SMALL COMMUNITY COST SHARING REQUIREMENTS.

**USACE North Atlantic Coast Comprehensive Study (NACCS)  
Visioning Session  
Delaware Inland Bays and Delaware Bay Coast/ February 4, 2014**

Name: *Kate Hackett*

EMAIL: *khackett@  
delwildlands.org*

Organization:

*Delaware Wild Lands*

**Question 3: What is the most prominent policy change or legislative solution that could improve coastal resilience?**

- ① increased \$!! , and ties of funding to priority / regional needs
- ② greater flexibility in Federal farm programs (such as WRP, EQ IP, etc.) , which have contracts that do not allow ~~the~~ flexibility to adapt to changes resulting from sea level rise and storm surges
- ③ requirement to look at costs of future funding and maintenance (sustainability of proposed measure & solution.)

USACE North Atlantic Coast Comprehensive Study (NACCS)  
Visioning Session  
Delaware Inland Bays and Delaware Bay Coast/ February 4, 2014

Name: *Constance C Holland*      EMAIL:  
Organization:

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Question 3: *What is the most prominent policy change or legislative solution that could improve coastal resilience?*

*(No paper)*

*Healthy Communities !!*

- \$ set aside for preservation — legislature*
- FEMA give \$ for main structure —*
- Building codes — Permits — for infrastructure  
    *storm water, roads —**

**USACE North Atlantic Coast Comprehensive Study (NACCS)  
Visioning Session  
Delaware Inland Bays and Delaware Bay Coast/ February 4, 2014**

Name: *Virgic Holmes*  
Organization: *DNREC*

EMAIL: *Virgic.Holmes@STATE.DE.US*

-----  
**Question 3: What is the most prominent policy change or legislative solution that could improve coastal resilience?**

*FUNDING + COST SHARE*  
*ZONING*  
*Less Budget -> More Implementation*

**USACE North Atlantic Coast Comprehensive Study (NACCS)  
Visioning Session  
Delaware Inland Bays and Delaware Bay Coast/ February 4, 2014**

Name: *Ron Hunsicker*

EMAIL: *ronaldhunsicker@yahoo.com*

Organization: *Town of Bowers*

-----  
**Question 3: What is the most prominent policy change or legislative solution that could improve coastal resilience?**

*REPEAL/MODIFY BIGGERT WATERS*  
*CHANGES TO NFIP INCENTIVE PROGRAMS*



2

**USACE North Atlantic Coast Comprehensive Study (NACCS)  
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Delaware Inland Bays and Delaware Bay Coast/ February 4, 2014**

**Name:** S Johnson

**EMAIL:**

**Organization:**

-----  
**Question 3: *What is the most prominent policy change or legislative solution that could improve coastal resilience?***

DON'T REBUILD.

**USACE North Atlantic Coast Comprehensive Study (NACCS)  
Visioning Session  
Delaware Inland Bays and Delaware Bay Coast/ February 4, 2014**

**Name:** DON KNOX

**EMAIL:** Don.Knox@state.de.us

**Organization:** DEMA

-----  
**Question 3: What is the most prominent policy change or legislative solution that could improve coastal resilience?**

SETBACK REGULATIONS & ZONING

C

**USACE North Atlantic Coast Comprehensive Study (NACCS)  
Visioning Session  
Delaware Inland Bays and Delaware Bay Coast/ February 4, 2014**

**Name:** Nancy Lawson  
**Organization:** Pickering Beach  
Resident

**EMAIL:** froggy1938@Ad.Com

---

**Question 3: What is the most prominent policy change or legislative solution that could improve coastal resilience?**

Protection for  
Spend more time/effort on the Beach/Coastal Communities  
as far as what ~~should~~ <sup>could</sup> be done as opposed to  
Cities + Industries -

**USACE North Atlantic Coast Comprehensive Study (NACCS)  
Visioning Session  
Delaware Inland Bays and Delaware Bay Coast/ February 4, 2014**

**Name:** Susan Love

**EMAIL:** susan.love@  
state.de.us,

**Organization:** DCR

**Question 3: What is the most prominent policy change or legislative solution that could improve coastal resilience?**

- DE communities have lack of technical + funding capacity for large scale infrastructure projects
- there is limited knowledge of the USACE CAP program at local and (state) level.  
USACE may need to improve its outreach on this program.
- link funding to local land use codes.  
why spend federal dollars unless locals are doing everything they can (buffers, set backs, building codes, wetland protection)
- Keep Biggert-Waters Intact!!
- Cost/Benefit ratios for USACE may not allow many DE projects. Amend criteria - build in flexibility?

USACE North Atlantic Coast Comprehensive Study (NACCS)  
Visioning Session  
Delaware Inland Bays and Delaware Bay Coast/ February 4, 2014

Name: Bob McDevitt

EMAIL:

Organization:

Town of Bowers

Question 3: What is the most prominent policy change or legislative solution that could improve coastal resilience?

A source for permanent funding for beach + dune replenishment.

**USACE North Atlantic Coast Comprehensive Study (NACCS)  
Visioning Session  
Delaware Inland Bays and Delaware Bay Coast/ February 4, 2014**

Name: *Kim McKenna*

EMAIL:

Organization: *DE DNREC / Shoreline & Waterway*

**Question 3: *What is the most prominent policy change or legislative solution that could improve coastal resilience?***

- add funding sources for DelDOT to address roadways
- <sup>USACE</sup> ~~funding~~ support <sup>& funding projects</sup> for Regional sediment Mgt.

USACE North Atlantic Coast Comprehensive Study (NACCS)  
Visioning Session  
Delaware Inland Bays and Delaware Bay Coast/ February 4, 2014

Name: BRIAN MULLVANNA  
Organization: USACE

EMAIL: bnmj.mullvanm@USACE.ARMY.MIL

Question 3: What is the most prominent policy change or legislative solution that could improve coastal resilience?

~~Response~~  
Improve DATA SHARING between FEMA  
PA/IA/HAZARD MITIGATION & NFIP  
PROGRAMS AND USACE PLANNING  
AND FLOOD RISK MANAGEMENT  
STUDY INVESTIGATIONS



USACE North Atlantic Coast Comprehensive Study (NACCS)  
Visioning Session  
Delaware Inland Bays and Delaware Bay Coast/ February 4, 2014

Name: MICHAEL POWELL

EMAIL:

Organization:

MICHAEL.POWELL@STATE.DE.US

---

**Question 3: What is the most prominent policy change or legislative solution that could improve coastal resilience?**

- PROVIDING REALISTIC INFORMATION ON THE FUTURE COSTS OF FLOOD INSURANCE, SHORE PROTECTION, AND INCREASED RISK (INCLUDING EVACUATION) TO ALL COASTAL RESIDENTS SO THEY (AND MARKETS) CAN ADJUST ACCORDINGLY. ECONOMICALLY INEQUITABLE SUBSIDIES, THAT ENCOURAGE THE OCCUPATION OF HIGH RISK AREAS, SHOULD BE RECONSIDERED
- FLOOD RISK MAPS THAT PORTRAY FUTURE RISK, IN AREAS WHERE RISKS ARE CHANGING.

USACE North Atlantic Coast Comprehensive Study (NACCS)  
Visioning Session  
Delaware Inland Bays and Delaware Bay Coast/ February 4, 2014

Name: Tony Pratt

EMAIL: tony.pratt@state.de.us

Organization: DVRREC

-----  
Question 3: What is the most prominent policy change or legislative solution that could improve coastal resilience?

Full analysis of costs of flooding with the budget decision making be informed by future costs of flood damage - mitigation to save money

insufficient funding - <sup>not</sup> choosing to fund flood reduction projects, ~~rather~~ only to wait to pay more to recover from the flood.

**USACE North Atlantic Coast Comprehensive Study (NACCS)  
Visioning Session  
Delaware Inland Bays and Delaware Bay Coast/ February 4, 2014**

Name: JOHN ROBINSON

EMAIL: RJJR6@AEL.COM

Organization: PI+BO (PRIMEHOOK)

-----  
**Question 3: What is the most prominent policy change or legislative solution that could improve coastal resilience?**

THANKFULLY, FUNDING IS IN PLACE -  
HALF FROM SANDY RESTORATION -  
TO CLOSE THE DUNE LINE + BUILD IT  
UP!

**USACE North Atlantic Coast Comprehensive Study (NACCS)  
Visioning Session  
Delaware Inland Bays and Delaware Bay Coast/ February 4, 2014**

**Name:** Bob Scarborough

**EMAIL:**

**Organization:**

-----  
**Question 3: *What is the most prominent policy change or legislative solution that could improve coastal resilience?***

Decrease Match Requirements on federal projects  
Don't rebuild to "existing conditions"  
Encourage migration policy changes

Attachment F

General Comments

**USACE North Atlantic Coast Comprehensive Study (NACCS)  
Visioning Session  
Delaware Inland Bays and Delaware Bay Coast/ February 4, 2014**

**Name:** Chris Bason  
**Organization:**

**EMAIL:**

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**Overall Comments: *Please use this space and the back if you have comments that you would like to convey to the NACCS team.***

Perhaps additional outreach to the communities in the Inland Bays would help. Also the counties. I believe they may be unaware of this process or unsure about why it is important.

C

**USACE North Atlantic Coast Comprehensive Study (NACCS)  
Visioning Session  
Delaware Inland Bays and Delaware Bay Coast/ February 4, 2014**

Name: Karen Bennett  
Organization: DNREC Div F3 W

EMAIL: karen.bennett@state.de.us

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**Overall Comments: Please use this space and the back if you have comments that you would like to convey to the NACCS team.**

Excellent concise process, well organized + facilitated. Agree that those <sup>not</sup> present representing

communities & <sup>other</sup> affected sectors (eg. agriculture) should be given opportunity to weigh in.

Report out resulted in mix of site/geographic specific + broad solutions, which is ok but worry about a ~~good~~ process for prioritizing or at least acknowledging most vulnerable areas w/o necessarily prioritizing, which gets very messy. Thank you!



USACE North Atlantic Coast Comprehensive Study (NACCS)  
Visioning Session  
Delaware Inland Bays and Delaware Bay Coast/ February 4, 2014

Name: Wendy Carey  
Organization: UD Sea Grant

EMAIL: wcarey@udel.edu

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**Overall Comments:** *Please use this space and the back if you have comments that you would like to convey to the NACCS team.*

consider sending follow-up communication to communities that were invited but could not attend. This would give them an opportunity to respond to the 3 questions discussed in breakout groups. This may be especially important since you were asking for community-specific input.

USACE North Atlantic Coast Comprehensive Study (NACCS)  
Visioning Session  
Delaware Inland Bays and Delaware Bay Coast/ February 4, 2014

Name: *Paul Cooper*

EMAIL:

Organization:

*DNRE*

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**Overall Comments:** *Please use this space and the back if you have comments that you would like to convey to the NACCS team.*

- ⇒ Good topic . Seems to be a need to reach out to all local communities
- ⇒ Planning process too cumbersome
- ⇒ need more Action
- ⇒ I like that we had group discussions

**USACE North Atlantic Coast Comprehensive Study (NACCS)  
Visioning Session  
Delaware Inland Bays and Delaware Bay Coast/ February 4, 2014**

**Name:** GLENN GAUVRY  
**Organization:**  
MAYOR OF LITTLE CREEK

**EMAIL:**  
ERDG@HORSESHOECRAB.ORG

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**Overall Comments:** *Please use this space and the back if you have comments that you would like to convey to the NACCS team.*

HELP SMALL COMMUNITIES BE INCLUDED IN THE PROCESS  
(THEIR FUTURE).

**USACE North Atlantic Coast Comprehensive Study (NACCS)  
Visioning Session  
Delaware Inland Bays and Delaware Bay Coast/ February 4, 2014**

**Name:** Kate Hackett

**EMAIL:**

**Organization:**

Delaware Wild Lands

kthackett@delwildlands.org

**Overall Comments: Please use this space and the back if you have comments that you would like to convey to the NACCS team.**

- ① Meeting leaders referred to the "local analysis" and "meeting materials package", which was not sent out in advance.
- ② was not clear what input was being sought for vulnerability and solutions, nor was how this info would be used.
- ③ more info or pre-meeting material needed about authority legislation, outcomes of this effort and what is the Continuity Authority Program

**USACE North Atlantic Coast Comprehensive Study (NACCS)  
Visioning Session  
Delaware Inland Bays and Delaware Bay Coast/ February 4, 2014**

**Name:** Constance C. Holland

**EMAIL:** Connie.Holland@State.de.us

**Organization:** Office of State Planning  
(Gov's office) State of Delaware

**Overall Comments:** *Please use this space and the back if you have comments that you would like to convey to the NACCS team. - Delaware needs help. Please review our comments to save our future. /*

USACE North Atlantic Coast Comprehensive Study (NACCS)  
Visioning Session  
Delaware Inland Bays and Delaware Bay Coast/ February 4, 2014

Name: JIM KIRKBRIDE  
Organization:

EMAIL: JFKIRKBRIDE  
@COMCAST.NET

PICKERING BRANCH  
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**Overall Comments:** *Please use this space and the back if you have comments that you would like to convey to the NACCS team.*

SOME NEW INFORMATION GLEANED.  
WOULD HAVE BEEN MORE INFORMATIVE  
IF FEWER ABBREVIATIONS USED SINCE  
THESE ARE CONFUSING AND NOT WELL  
DEFINED.

4

2

**USACE North Atlantic Coast Comprehensive Study (NACCS)  
Visioning Session  
Delaware Inland Bays and Delaware Bay Coast/ February 4, 2014**

**Name:** Nancy Lawson  
**Organization:** Pickering Beach  
Resident

**EMAIL:** froggy1938@AOK.com

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**Overall Comments:** *Please use this space and the back if you have comments that you would like to convey to the NACCS team.*

Share all input w/ Communities/Representative whether  
Industrial/State/ or Resident

As a private Resident - I would like to say  
thank you - I would like to stay involved



**USACE North Atlantic Coast Comprehensive Study (NACCS)  
Visioning Session  
Delaware Inland Bays and Delaware Bay Coast/ February 4, 2014**

**Name:** SUSAN LOVE  
**Organization:**

**EMAIL:** susan.love@  
stak.de.us

**Overall Comments: Please use this space and the back if you have comments that you would like to convey to the NACCS team.**

The next steps for USACE and for participants here were not well defined. I'm confused as to what you want from me.

Today's session seemed duplicative of the info you already received.

Please make sure you share your results and ask for specific feedback from stakeholders, including our municipal and county governments.

No communities from New Castle County were at this meeting. This is a big concern as their issues are significantly different than those of the other Delaware Inland Bay communities.

**USACE North Atlantic Coast Comprehensive Study (NACCS)  
Visioning Session  
Delaware Inland Bays and Delaware Bay Coast/ February 4, 2014**

**Name:** Bob McDevitt  
**Organization:**

**EMAIL:**

Town of Bowen

**Overall Comments:** *Please use this space and the back if you have comments that you would like to convey to the NACCS team.*

Keep moving forward seek Federal Funding for Bay Beaches (The same as Ocean Beaches)

C

**USACE North Atlantic Coast Comprehensive Study (NACCS)  
Visioning Session  
Delaware Inland Bays and Delaware Bay Coast/ February 4, 2014**

**Name:** Kim McKenna.  
**Organization:** DE DNREC

**EMAIL:**

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**Overall Comments:** *Please use this space and the back if you have comments that you would like to convey to the NACCS team.*

webpage w/ visioning Mtg minutes  
& FAA -

USACE North Atlantic Coast Comprehensive Study (NACCS)  
Visioning Session  
Delaware Inland Bays and Delaware Bay Coast/ February 4, 2014

Name: JOHNY ROBINSON  
Organization: PIHBO

EMAIL: RJJR6@AOL.COM

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-----  
**Overall Comments: Please use this space and the back if you have comments that you would like to convey to the NACCS team.**

STUDY- VISIONING IS GREAT

BUT

TOO OFTEN ACTUAL RESULTS  
SEEM TO GET LOST AT THE  
END.

JUST AN OBSERVATION - NOT  
MEANT TO BE NEGATIVE, BUT  
AN ONGOING CONCERN, ALWAYS

JOHNY

**USACE North Atlantic Coast Comprehensive Study (NACCS)  
Visioning Session  
Delaware Inland Bays and Delaware Bay Coast/ February 4, 2014**

**Name:** Bob Scarborough  
**Organization:** DNREC

**EMAIL:**

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**Overall Comments:** *Please use this space and the back if you have comments that you would like to convey to the NACCS team.*

Keep everyone informed as process continues  
Consider more public involvement

**Appendix C: Washington, D.C. (National Capital Region) Visioning Meeting Interim Deliverable**



US Army Corps of Engineers

**North Atlantic Coast Comprehensive Study  
National Capital Region  
Visioning Meeting  
Meeting Notes**

**February 10, 2014**

**1:00 PM – 3:00 PM**

A series of visioning meetings are being held throughout the region in support of the North Atlantic Coast Comprehensive Study (NACCS). On Monday, February 10, 2014, the U.S. Army Corps of Engineers (USACE) conducted an in-person visioning meeting hosted by the National Capital Planning Commission with representatives from the District of Columbia Flood Risk Management Working Group, the Monumental Core Climate Change Adaptation Working Group, other federal agencies, non-profit organizations, and CDM Smith to discuss the NACCS with specific focus and dialogue regarding climate change and sea level change considerations.

In general, a high level of collaboration was evident among the District, federal agencies, and NGOs represented at this meeting. There was significant dialogue regarding how information being developed as part of the NACCS is being coordinated with stakeholders, as well as how information obtained during the visioning session would be incorporated into the NACCS. The USACE sea level change presentation and related facilitated discussion topic framed the response. Many participants highlighted the significant cultural and historical assets that are vulnerable to future flooding.

Thirty-five people attended the 2 hour meeting (see Attachment A), including individuals from the following organizations:

- Federal Agency:**
- Department of Defense (DoD)
  - Department of Justice (DOJ)
  - General Services Administration (GSA)
  - Naval Facilities Engineering Command (NAVFAC)
  - National Oceanic and Atmospheric Administration (NOAA)
  - National Parks Service (NPS)
  - Department of the Treasury
  - USACE Baltimore and Jacksonville Districts
  - U.S. Global Change Research Program (USGCRP)
- District Agencies:**
- Department of Homeland Security (DHS)
  - District of Columbia Water and Sewer Authority (DC Water)
  - District Department of the Environment (DDOE)
  - Metropolitan Washington Council of Governments (MWCOG)
  - National Capital Planning Commission (NCPC)

Washington Metropolitan Area Transit Authority (WMATA)

**NGOs:** Center for Clean Air Policy (CCAP)  
Smithsonian

**Other:** CDM Smith (meeting facilitation team)  
CH2MHILL  
PEPCO  
University of Maryland

**Location:** NCPC: 401 9th Street NW, North Lobby, Suite 500, Washington, DC

**Presentation:** The meeting agenda, included as Attachment B, consisted of two main parts. The first segment began with an introduction and opening remarks provided by Amy Tarce (NCPC). Phetmano Phannavong (DDOE) provided additional remarks describing efforts to include the District as part of a more focused analysis in the NACCS. Karla Roberts (USACE, Baltimore District) presented an overview of the NACCS, followed by Dave Robbins (USACE, Baltimore District) presenting coastal flood risk management measures incorporated in the NACCS and next steps to complete the report. A presentation on the considerations for assessing climate change in the NACCS with emphasis on sea level change impacting the DC area was then given by Jason Engle (USACE, Jacksonville District). These presentations are included in Attachment C. The second part of the meeting was a facilitated discussion aimed at surfacing participants' insights. Many of those who attended are members of the Monumental Core Climate Adaptation Working Group and District of Columbia Flood Risk Management Team. Photographs from the meeting are included in Attachment D.

Following the presentation, questions and discussion topics were raised.

**Questions/Discussion:**

- A member of the audience commented on the nature/nature-based measures and policy/programmatic measures. She asked whether USACE will provide guidance for specific policies at different detail levels (state, local, tribal, etc.). Dave replied that the Comp Study will evaluate existing policies and identify institutional barriers facing implementation. The Comp Study is an opportunity to address current policy challenges.
- A member of the audience asked a question regarding the exposure analysis comparing the coastal areas of Maryland exposed to Chesapeake Bay and Washington, DC. Dave responded that storm surge from Hurricane Sandy was used to identify the extent of the study area. Although DC experienced minor impacts, the potential for increased water surface levels caused by sea level change reveal these possible vulnerabilities. This is the purpose for performing a focused analysis and to continue dialogue with DC and its stakeholders.



- A member of the audience asked about the tables of measures and its inclusion as part of the report or as a reference, as part of the framework. Dave responded that the tables will be presented in the Comp Study report.
- A member of the audience acknowledged that the Comp Study addressed current vulnerabilities, but asked whether future vulnerabilities were also being considered. Dave responded that future vulnerabilities are being considered based on EPA population estimates, projected development densities and patterns, and other future projections. These future scenarios are overlain with inundation mapping to assess impacted areas.
- A member of the audience stated that new LiDAR data was being flown for the DC area slated to occur within the 2014/2015 timeframe. She asked if data from the Comp Study or information about the vulnerability maps would be publicly available. Dave responded that the exposure and vulnerability data is a raster-based dataset to be compiled as a spatial geodatabase. Each grid cell is 10-meters to allow for a larger scale analysis given the study area. Site-specific analysis will have to be performed at a different scale, but at a community-level, the information is adequate for analysis. The purpose is to propose a framework and a suite of tools that address risk and incorporate it into future planning.
- A member of the audience asked about the economic analysis that was being performed by the USACE technical team as part of the Comp Study. Dave responded that USACE is currently updating the depth-damage functions for structures or buildings given the physical damage and interior contents as a product associated with the NACCS. In addition, costs are being evaluated for loss of life and emergency services. USACE also acknowledges secondary and tertiary effects similar to how other computer programs, such as HAZUS, consider costs and benefits. They are currently in the stage of performing expert elicitations.
- A member of the audience asked about the analysis and project implementation that happened Post-Hurricane Katrina. Dave answered that a system providing a 100-year level of protection was being implemented in the Gulf Coast. As part of that system, a robust, layered approach was implemented and includes wetland restoration. Jason provided information regarding the Louisiana Coastal Protection and Restoration Plan (LACPR) and Mississippi Coastal Improvements Program (MsCIP) on the different projects that are currently being undertaken.
- A member of the audience asked which Congressional committee would receive the Comp Study report. Dave responded that he was unsure, but that he would follow-up.
- A member of the audience referred to her previous question about future vulnerabilities and asked whether a similar tool for viewing sea level rise, which was available for New York and New Jersey, was being incorporated or provided as part of the Comp Study. Members of the audience responded that the tool was only available for NY/NJ and that it would not be part of the Comp Study scope once the report is delivered.
- A member of the audience asked about detailed depth-damage curves and considerations for the DC area in terms of cultural resources, national treasures, and historical properties. Dave responded that there were no immediate plans to develop specialized depth-damage curves for culturally significant properties. Allowable projects must comply with a cost-benefit ratio of greater than or equal to one. More detailed analyses would take into consideration the OSE or culturally significant structures when evaluating economic damages prevented. Each structure that is culturally significant would require further consideration.

- A member of the audience recommended that a standard set of curves should be developed for historical properties. Dave responded that certain facilities, on the list of properties that were impacted by Hurricane Sandy, did not have specific damage information since the damages were varied, therefore a standard set would not be applicable.
- A member of the audience requested verification of the location of the NOAA tide gage used in the statistical analysis. Jason confirmed that long-term NOAA tide gage for the DC area was used. In general, the tide gages used were chosen based on gage records greater than 40 years without major data gaps.

At the conclusion of the question and answer period, a brief break was followed by facilitated discussions with attendees divided into four groups for brainstorming sessions. Each participant was asked to provide their ideas on a worksheet (Attachment E). The following section presents a summary of the primary themes addressed among the attendees from the small group discussions.

**Summary of Primary Themes from Facilitated Discussion:**

**Please identify three key implications of SLC on your agencies' missions, objective, or operations.**

- Health, safety, and welfare
- Flooding
  - Buildings and mechanical systems
  - Critical infrastructure
  - Historical and cultural resources
  - Transportation
  - Utilities
  - Medical facilities
  - Emergency response
- Policy and regulation
  - Differences between different levels of government
  - Management of existing policies
  - Changes/improvements to datasets, tools, etc. that are provided to communities and other agencies
  - Capacity building to instill flood risk issues
- Valuation/monetary assessment for vulnerabilities
- Cascading impacts
  - Environmental impacts on habitats, biological resources
  - Displacement of coastal operations (and waterfront)
    - Maintenance and continuity of operations for facilities and staffing
  - Cultural resources and infrastructure
  - Recreation in tourism areas and redefinition of park boundaries
- Future infrastructure and design standards
  - Incorporating into capital planning and facilities plans
    - Community/regional approach

At the conclusion of the group discussions, one volunteer from each group stood and presented their groups' findings. A general comment card was distributed to participants requesting their feedback on the overall process. Their responses are included in Attachment F.

DRAFT

## Attachment A

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### List of Meeting Attendees and Sign-in Sheets

North Atlantic Coast Comprehensive Study  
National Capital Region  
Visioning Session - Facilitated Breakout Groups

<b>Name</b>	<b>Agency</b>
<b>Group A</b>	
Ginger Croom	CDM Smith
John Scheri	DC Water
Bradley Provancha	DoD
Louis Naber	DOJ
Susan Walker	NAVFAC
Amy Tarce	NCPC
Darlene Finch	NOAA
Shirley Harmon	PEPCO
Eric Bradley	Treasury
Dave Robbins	USACE
Emily Seyller	USGCRP
<b>Group B</b>	
Tim Feather	CDM Smith
Maureen Holman	DC Water
Phetmano Phannavong	DDOE
Amanda Campbell	MWCOG
Colin Clarke	NAVFAC
Jane Passman	Smithsonian
<b>Group C</b>	
Lauren Klonsky	CDM Smith
Walter Nielsen	DoD WHS
Erich Lutz	NAVFAC
Richard Owen	NAVFAC
David Stirrett	Smithsonian
Martha Newman	USACE
Sandra Knight	University of Maryland
<b>Group D</b>	
Frannie Bui	CDM Smith
Merideth Secor	DHS
Anthony Mondy	GSA
Stan Briscoe	NPS
Karla Roberts	USACE
Suzanna Sterling-Dyer	WMATA
<b>Other</b>	
Shana Udvardy	CCAP
Laurens van der Tak	CH2MHILL
Erin Morrow	MWCOG
Michael Sherman	NCPC
Mathieu Philippot	NCPC

**NACCS Visioning Session**  
**National Capital Region - 2/10/2014**

Name	Community/Agency	Title	E-Mail	Telephone
Martha Newman	US Army Corps Eng	Envi Spec.	martha.newman@usace.army.mil	410 962 4590
David Robbins	USACE	Project Manager	David.w.robbins@ <sup>usace.</sup> army.mil	(410) 962-0685
Karla Roberts	USACE	Study Manager	Karla.A.Roberts@ <sup>usace.</sup> army.mil	410-962-3065
John Schenl	HMM/DC WATER	VP	john.schenl@hatchmott.com	201-572-5026
Rick Owen	NAVFAC	Planning Coord.	richard.owen1@navy.mil	202-685-3101
Susan Walker	NAVFAC HQ	CC/LU Plnr	Susan.e.walker@ <sup>navy.</sup> mil	202-685-9323
Anthony Mandy	GSA	Proj Mgr	Anthony.mandy@ <sup>gsa.</sup> gov	202 2055166
Phutmano Phannavong	DOE	Floodplain Manager	phutmano.phannavong@doe.gov	202-439-5715
Colin Clarke	NAVFAC Wash	Com. Planner	Colin.clarke@navy.mil	202 685-3179
Maureen Holman	DC Water	Program Sustainability	Maureen.holman@dcwater.com	(202) 787-2666
FRANNIE BUI	CDM SMITH	ENGINEER	BUIFA@CDMSMITH.COM	617 452 6288
STANAC WILSON	CCAP	Policy Analyst	stanacwilson@ccap.org	202-288-0025
Emily Seyller	USGCRP	Program Mgr	eseyller@usgcrp.gov	(202) 419-3992
Darlene Finch	N O A A	Program Analyst	darlene.finch@noaa.gov	✓
David Sturteff	Smithsonian	Security Eng	sturteffd@si.edu	202 633 5673



**NACCS Visioning Session**  
**National Capital Region - 2/10/2014**

Name	Community/Agency	Title	E-Mail	Telephone
Eric Bradley	Treasury	ENV. / Energy Program Mgr.	eric.bradley@treasury.gov	202.622.0728
Meredith Secor	DHS	Analyst Strategy & Policy	meredith.secor@hq.dhs.gov	203-235-8172
Lewis Naber	DEPT OF JUSTICE	ASSISTANT DIRECTOR FACILITIES	louis.naber@usdoj.gov	202-616-3921
Shirley Harmon	Peeco Holdings, Inc.	Mgr - Env Compl & Perf Assnt	SHHarmon@pecoholdings.com	202-331-6640
Suzanna Sterling-Dyer	WMATA	Proj MGR - Flooding	ssterling-dyer@wmata.com	202-962-1264
Laurens vander Valk	CH2M HILL	VP	Laurens.vandervalk@ch2m.com	301-204-2436
Walt Nielsen	WHS - FSD	Gen Engr.	walter.e.nielsen.civ@naac1.mil	703-695-5624
ERICH LUTZ	NAVFAC Washington	Technical Discipline Coordinator - Architecture	erich.lutz@navy.mil	202-685-3846
ERIN MORROW	MWCOG	TRANSPORTATION ENGINEER	emorrow@mwcofus	202-962-3793
Lauren Klonsky	CDM Smith	Engineer	klonskyls@cdmsmith.com	617-452-6361
Tim Feather	CDM Smith	Facilitator	feather-t@cdmsmith.com	
Ginger Croom	CDM Smith	Facilitator / Manager	croomgl@cdmsmith.com	
Jane Passman	Smithsonian	Sr. Facilities Mgmt. Plan.	passmanj@si.edu	202-633-6549
Amanda Campbell	MWCOG	Env. Planner	acampbell@mwco.org	202-962-3324





## Attachment B

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### Meeting Agenda and List of Handouts

**USACE North Atlantic Coast Comprehensive Study (NACCS)  
Visioning Session  
National Capital Region**

**February 10, 2014  
1 pm – 3 pm**

**National Capital Planning Commission (NCPC)  
Main Commission Meeting Room  
401 9th Street NW  
North Lobby, Suite 500, Washington, DC**

**AGENDA**

- I. Introductions**
- II. Agenda Overview and Meeting Purpose**
- III. USACE NACCS Update**
- IV. Climate Change Considerations in the USACE North Atlantic Coast Comprehensive Study**
  - a. Methodology
  - b. Results
  - c. Q&A

**BREAK**

- V. Facilitated Discussion** (small groups)
  - a. What are the implications of SLC on your agencies' missions/objectives/operations
  - b. Report out on small groups
- VI. Adjourn**

## **List of Handouts**

Agenda

Slide Deck handouts

USACE Climate Change Adaption handout

NACCS Sea Level Change Analysis map focused on the study area

NACCS Sea Level Change Analysis map of the overall area

North Atlantic Coast Comprehensive Study (NACCS) Study Synopsis

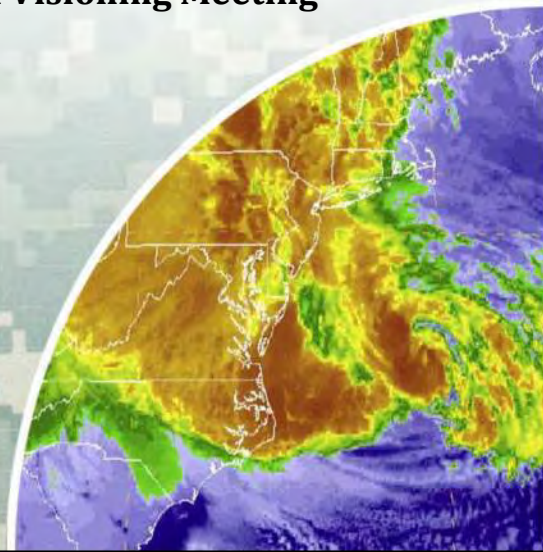
Attachment C

Meeting Presentation

# North Atlantic Coast Comprehensive Study National Capital Region Visioning Meeting

U.S. Army Corps of Engineers  
National Planning Center for  
Coastal Storm Risk Management

10 February 2014



## Introductions

- Amy Tarce - NCP, Monumental Core Climate Adaptation Working Group
- Phetmano Phannavong - DDOE , DC Flood Risk Management Team

### USACE

- Amy Guise
- Dave Robbins
- Karla Roberts
- Martha Newman

### CDM Smith (USACE Contractor)

- Ginger Croom
- Frannie Bui
- Tim Feather
- Lauren Klonsky



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## Agenda

- I. Introductions
- **II. Agenda Overview and Meeting Purpose**
- III. USACE NACCS Update
- IV. Climate Change Considerations in the NACCS
- **BREAK**
- V. **Facilitated Discussion** (small groups)  
*What are the implications of Sea Level Change on your agencies' missions, objectives or operations?*
- **Adjourn**



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## Meeting Purpose

- Joint meeting of Monumental Core Climate Adaptation Working Group and DC Flood Risk Management Team
- **Meeting focus :** Climate Change Considerations in the North Atlantic Coast Comprehensive Study (NACCS)
- **Meeting outcomes:** Feedback received from this meeting will be incorporated into the USACE NACCS report to Congress in January 2015.



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# Sandy Overview

- ❑ Hurricane/Post-Tropical Cyclone Sandy moved to the U.S. Atlantic Ocean coastline 22-29 October 2012
- ❑ Affected entire east coast: 23 States from Florida to Maine; New Jersey to Michigan and Wisconsin, and District of Columbia
- ❑ Areas of extensive damage from coastal flooding: New Jersey, New York, Connecticut
- ❑ Public Law 113-2 enacted 29 January 2013



Photo credits unknown

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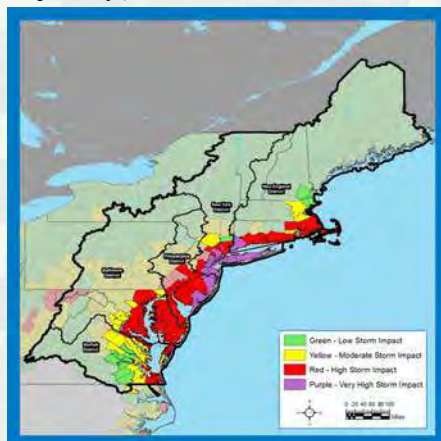
# Background

“That using up to \$20,000,000\* of the funds provided herein, the Secretary shall conduct a **comprehensive study** to address the flood risks of **vulnerable coastal populations** in areas that were affected by Hurricane Sandy within the boundaries of the North Atlantic Division of the Corps...” (\*\$19M after sequestration)

- Complete by Jan 2015

**Goals:**

- Provide a Risk Reduction Framework , consistent with USACE-NOAA Rebuilding Principles
- Support Resilient Coastal Communities and robust, sustainable coastal landscape systems, considering future sea level rise and climate change scenarios, to reduce risk to vulnerable population, property, ecosystems, and infrastructure.



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### Technical Teams

- ❑ **USACE Enterprise**
- ❑ **Agency Subject Matter Experts**
  - Engineering
  - Economics
  - Environmental, Cultural, and Social
  - Sea Level and Climate Change
  - Plan Formulation
  - Coastal GIS Analysis

### Products

- ❑ **Coastal Framework**
  - Regional scale
  - Collaborative
  - Opportunities by region/state
  - Identify **range of potential solutions** and parametric costs by region/state
  - Identify activities warranting additional analysis and social/institutional barriers
- ❑ **Not a Decision Document**
  - No NEPA
  - No Recommendations






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## Structural & NNB Measures

*Table IV-5. Structural and NNB Measure Applicability by NOAA-ESI Shoreline Type*

Measures	Rocky shores (Exposed)	Rocky shores (Sheltered)	Beaches (Exposed)	Man-made structures (Exposed)	Man-made structures (Sheltered)	Scarps (Exposed)	Scarps (Sheltered)	Vegetated low banks (Sheltered)	Wetlands/Marshes/Swamps (Sheltered)
<b>Structural</b>									
Storm Surge Barrier <sup>1</sup>									
Beach Restoration			x						
Breakwaters and Beach Restoration			x						
Groins and Beach Restoration			x						
Shoreline Stabilization/Protection						x	x	x	
Deployable Floodwall				x					
Floodwall		x		x				x	
Drainage Improvements	x	x	x	x	x	x	x	x	x
<b>Natural and Nature-Based Features</b>									
Living Shoreline						x	x	x	x
Wetlands							x		x
Reefs	x	x				x			x
SAV Restoration <sup>2</sup>									x
Overwash Fan <sup>3</sup>									x
Drainage Improvements	x	x	x	x	x	x	x	x	x

<sup>1</sup> The applicability of storm surge barriers cannot be determined based on shoreline type. It depends on other factors such as coastal geography.  
<sup>2</sup> SAV restoration is not associated with any particular shoreline type. Initially assumed to apply to wetland shorelines.  
<sup>3</sup> Overwash fans may apply to the back side of barrier islands which are not explicitly identified in the NOAA-ESI shoreline database.



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## Non-Structural and Policy/Programmatic Options

**Table IV-6. Non-Structural Measures Matrix**

Aggregated Measure Category	Specific Measures	Typical Design Level (Return Period in Years)	
		Storm Tide	Waves
Building Retrofit	Floodproofing Elevating Structures Relocating Structures Ringwalls	5-100	0-100
Acquisition and Evacuation	Acquisition Evacuation	5-100	5-100
Enhanced Flood Warning & Evacuation Planning	Early Warning Systems Emergency Response Systems Elevating Roads Modify/Remove Structures for Better Channel Function (ex. bridges) Floatable Development Floodable Development	NA	NA

**Table IV-7. Policy/Programmatic Measures Matrix**

Aggregated Measure Category	Specific Measures
Floodplain Management	Strategic Acquisition Rolling Easements Relocation/Managed Retreat
Landuse Planning	Landuse Zoning Subdivision Regulations Design and Location of Services and Utilities
State/Municipal Policy	Building Codes Housing Codes Tax Adjustments
Natural Resources	Wetland Migration Coastal Zone Management Beneficial Use of Dredged Material (RSM) Ecosystem Protection
Surface Water Management	Low Impact Development Stormwater BMPs
Increase Awareness in Vulnerable Coastal Populations	Education Special Assistance Programs



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## Current Status

- Draft Analyses Completed in September 2013
- Internal Review of Draft Analyses currently ongoing
- Five/Six Webinars in the Collaboration Series Completed
- Public website offers information and status updates  
([www.nad.usace.army.mil/compstudy](http://www.nad.usace.army.mil/compstudy))



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## Next Steps (Six Month Snapshot)

End of February 2014: Interagency release of the draft analyses

March 2014: Series of webinars to discuss/present the draft analyses with interagency partners

April-June 2014: Incorporation of input and finalization of the report for full review process



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# QUESTIONS



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## Contact Information

### USACE

- Amy Guise  
Phone: 410-962-6138  
Email: [Amy.L.Guise@usace.army.mil](mailto:Amy.L.Guise@usace.army.mil)
  
- Dave Robbins  
Phone: 410-962-0685  
Email: [David.W.Robbins@usace.army.mil](mailto:David.W.Robbins@usace.army.mil)
  
- Karla Roberts  
Phone: 410-962-3065  
Email: [Karla.A.Roberts@usace.army.mil](mailto:Karla.A.Roberts@usace.army.mil)



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## Contact Information

### National Capital Planning Commission

- Amy Tarce  
Phone: 202-482-7241  
Email: [amy.tarce@ncpc.gov](mailto:amy.tarce@ncpc.gov)

### District Department of the Environment (DDOE) Watershed Protection Division

- Phetmano Phannavong  
Phone: 202-439-5715  
Email: [phetmano.phannavong@dc.gov](mailto:phetmano.phannavong@dc.gov)



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# Climate Change Considerations in the North Atlantic Coast Comprehensive Study

Jason A. Engle  
Jacksonville District U.S. Army Corps of Engineers  
[jason.a.Engle@usace.army.mil](mailto:jason.a.Engle@usace.army.mil)



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## Climate Change Assessment for NACCS: Two-Phased Approach

Objective: provide consistent, up-to-date coastal forcing information for use in the NACCS and future project planning studies.

### Phase I: Storm Tide and Sea Level Change Initial Assessment

- ▶ New analysis based on existing data
- ▶ Used for engineering design criteria and validation of Phase II numerical Modeling
- ▶ Phase I draft report delivered October 2013

### Phase II: U.S. Army Engineering Research and Development Center 'CSTORM' analysis

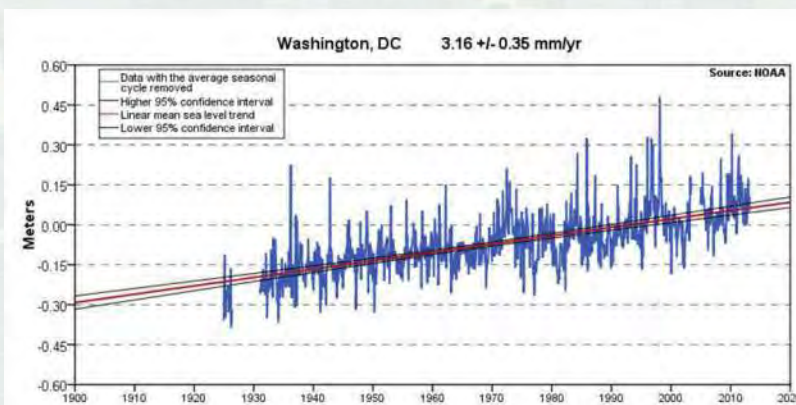
- ▶ Modern, risk-based storm climatology: Joint Probability Method (JPM)
  - Similar analysis performed for Gulf of Mexico following Hurricane Katrina
  - Future SLR incorporated into modeling
  - Evaluate storm climatology scenarios (frequency, track, intensity, etc)
  - Completely updated future storm risk with SLR
- ▶ Phase II delivery by January 2015



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## Water Level Measurements, Washington D.C.

NOAA Station 8594900, Water Street, Pier 5

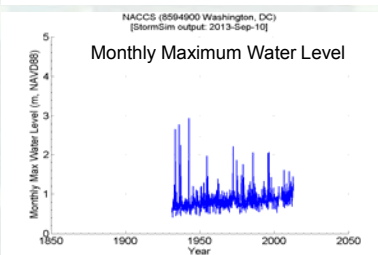
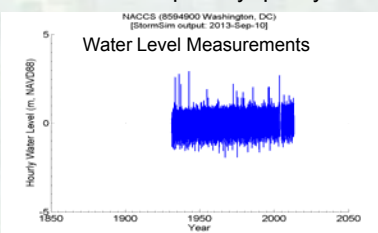


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## Extreme Water Levels Phase I: NOAA WL Gage Data Analysis

23 North Atlantic gages with sufficient data quantity/quality

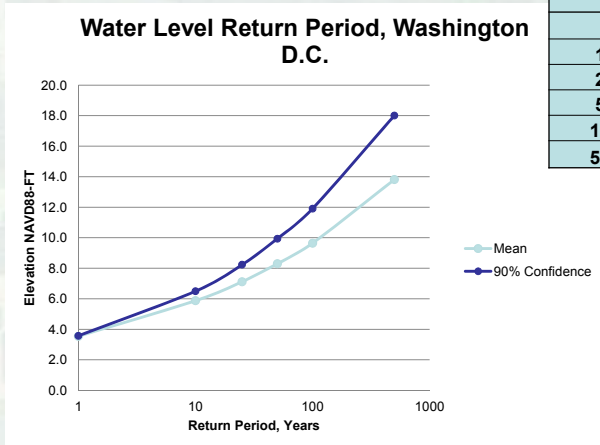
Station ID	Station Name	First Year	Last Year	Record Length (years)
8410140	Eastport, ME	1947	2012	66
8413320	Bar Harbor, ME	1912	2012	101
9418150	Portland, ME	1921	2012	92
8443970	Boston, MA	1932	2012	81
8447930	Woods Hole, MA	1965	2012	48
8449130	Nantucket Island, MA	1930	2012	83
8452660	Newport, RI	1938	2012	75
8454000	Providence, RI	1938	2012	75
8461490	New London, CT	1947	2012	66
8510560	Montauk Point Light, NY	1931	2012	82
8516945	Kings Point, NY	1893	2012	120
8518750	The Battery, NY	1932	2012	81
8531680	Sandy Hook, NJ	1911	2012	102
8534720	Atlantic City, NJ	1965	2012	48
8536110	Cape May, NJ	1919	2012	94
8557380	Lewes, DE	1943	2012	70
8571892	Cambridge, MD	1902	2012	111
8574680	Baltimore, MD	1928	2012	85
8575512	Annapolis, MD	1937	2012	76
8577330	Solomons Island, MD	1931	2012	82
<b>8594900</b>	<b>Washington, DC</b>	<b>1927</b>	<b>2012</b>	<b>86</b>
8638610	Sewells Point, VA	1975	2012	38
8638863	Chesapeake Bay Bridge Tunnel, VA	1947	2012	66



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### Extreme Water Level Return Period, Washington D.C.



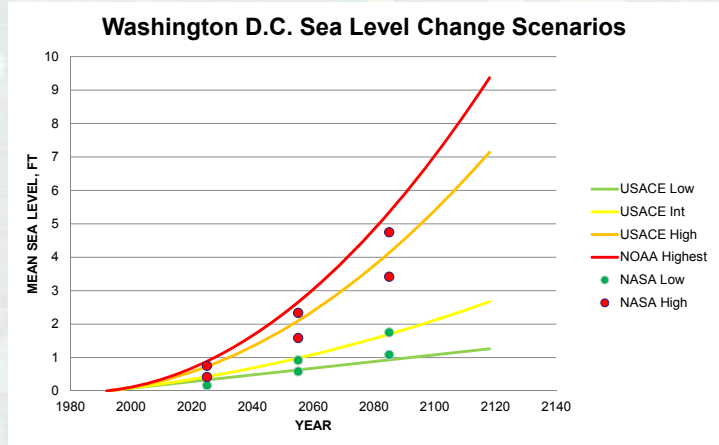
Return Period	Mean EWL	
	NAVD88-FT	90% Confidence NAVD88-FT
1	3.5	3.6
10	5.9	6.5
25	7.1	8.2
50	8.3	9.9
100	9.6	11.9
500	13.8	18.0



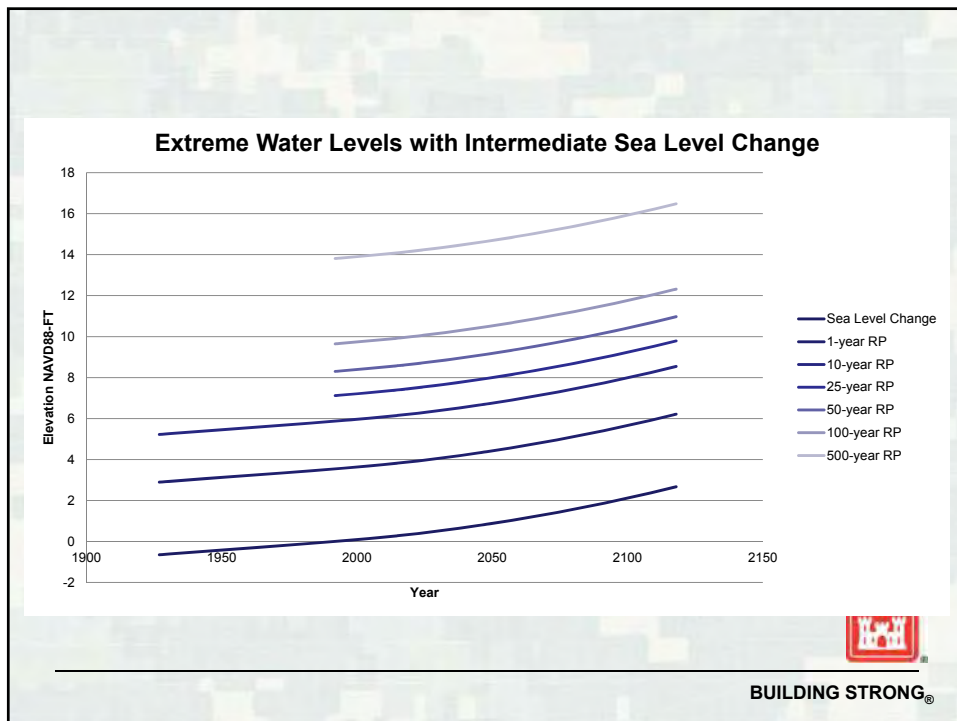
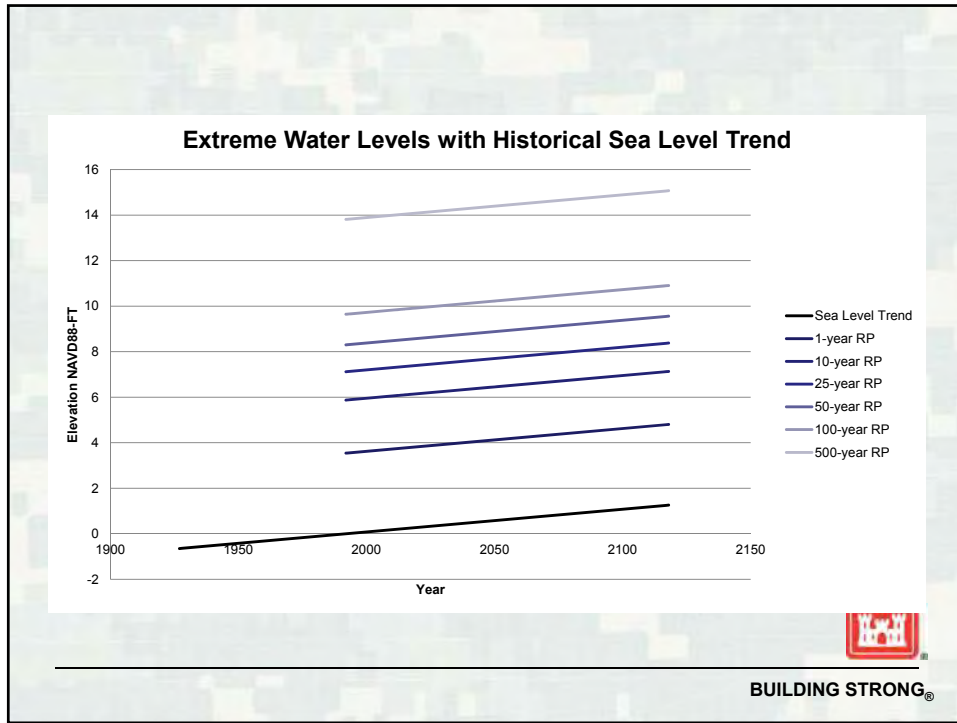
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### SLR Scenarios

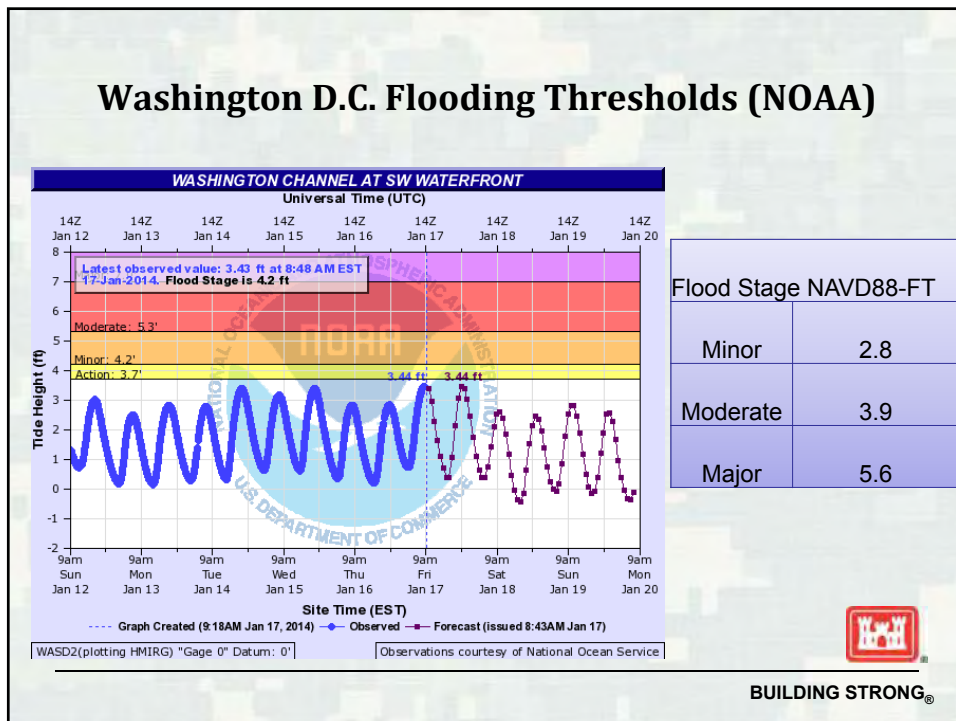
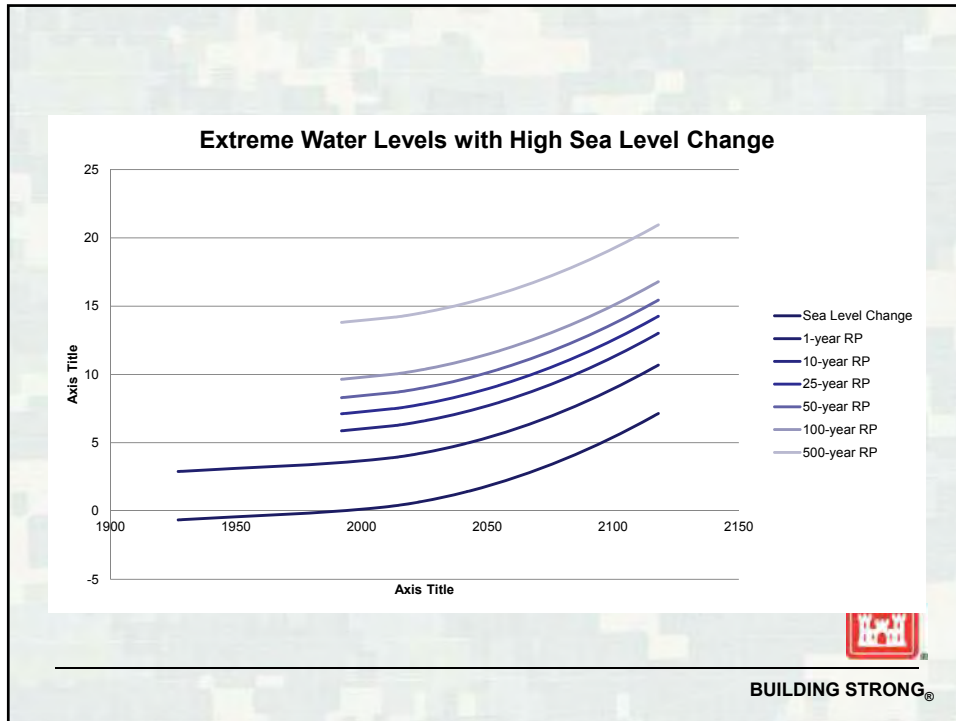
USACE 2011: Sea-Level Change Considerations for Civil Works Programs  
 NOAA 2012: Global Sea Level Rise Scenarios for the United States National Climate Assessment  
 NASA: Adapting to a Changing Climate, Federal Agencies in the Washington, DC Metro Area



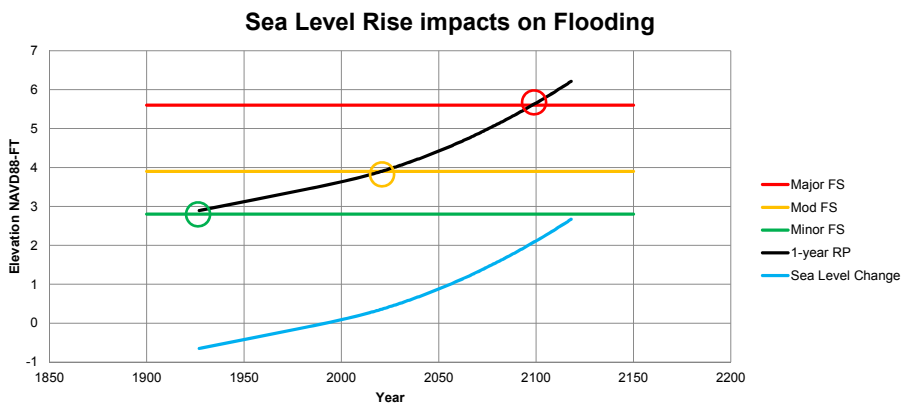
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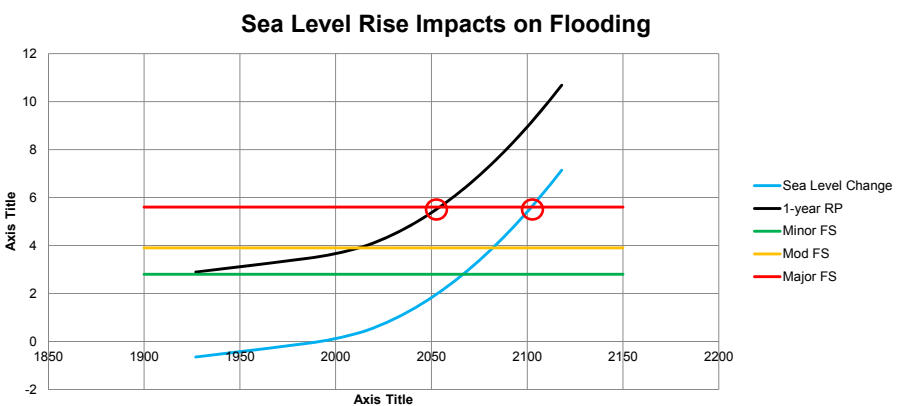


### USACE Intermediate SLC Scenario



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### USACE High SLC Scenario



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## Climate Change Adaptation

- Coasts are sensitive to sea level rise, changes in the frequency and intensity of storms, increases in precipitation, ocean acidification and warmer ocean temperatures.
- **Resilience** is ability of a coastal system to withstand environmental loading by minimizing or avoiding impacts and the ability to recover from impacts efficiently.
- Resilience of a system is enhanced through climate change adaptation planning.
- **Climate change planning** first requires understanding the potential changes to the coastal landscape and then accurate prediction of the impact to people and infrastructure



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## Climate Change Adaptation

- Climate change forecasts are inherently uncertain
- Because of this uncertainty, climate change adaptation planning is less quantitative, more future-oriented
- Due to climate change uncertainty, adaptation for existing/known vulnerabilities and exposures should not be lumped in with climate change adaptation planning
- Climate change adaptation strategies must be flexible to accommodate changes that are uncertain and that may be progressive in nature.



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## Adaptation Plans

- Climate change adaptation planning will key in on regional/site specific critical climate thresholds such as sea level elevations, etc.
- Site-specific plans are likely to include concurrent actions and progressive actions where one measure is phased out while another is phased in at critical thresholds.
- Example: Floodplain management + wetland creation + seawall + flood-proofing



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## NAACS Climate Change Future Actions

- Combined SLC and EWL analysis for all NOAA gage locations
- Climate change adaptation examples
- Suggestions?



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## Climate Change Adaptation Resources and Documentation

- Post-Sandy Climate Change Information  
<http://www.corpsclimate.us/Sandy/>
- USACE Climate Change Adaptation Policy Statement  
<http://www.corpsclimate.us/docs/USACEAdaptationPolicy3June2011.pdf>
- USACE Climate Change Adaptation Plan and Report  
[http://www.corpsclimate.us/docs/sept\\_2011\\_usace\\_climate\\_change\\_adaptation\\_plan\\_and\\_report.pdf](http://www.corpsclimate.us/docs/sept_2011_usace_climate_change_adaptation_plan_and_report.pdf)
- USACE Coastal Risk Reduction and Resilience: Using the Full Array of Measures  
[http://www.corpsclimate.us/docs/USACE\\_Coastal\\_Risk\\_Reduction\\_final\\_CW\\_TS\\_2013-3.pdf](http://www.corpsclimate.us/docs/USACE_Coastal_Risk_Reduction_final_CW_TS_2013-3.pdf)



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# QUESTIONS



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## Agenda Check-in

- I. Introductions
- II. Agenda Overview and Meeting Purpose
- III. USACE NACCS Update
- IV. Climate Change Considerations in the NACCS

### **BREAK**

- V. **Facilitated Discussion** (small groups)
  - What are the implications of Sea Level Change on your agencies' missions, objectives or operations?*
- **Adjourn**



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## Small Group - Instructions

- **Group & Room Assignments**
  - ▶ Groups identified as A, B, C, or D on name tag
  - ▶ Groups A, B - stay in room
    - Group A: Ginger Croom
    - Group B: Tim Feather
  - ▶ Groups C, D - small meeting rooms
    - Group C: Lauren Klonsky
    - Group D: Frannie Bui
- **Discussion Topic**
  - What are the implications of Sea Level Change on your agencies' missions, objectives or operations?*
- **Complete Individual Response Forms**
- **Develop Summary**
- **Report-out**



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## Small Group Report-Out

- Group A
- Group B
- Group C
- Group D



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## Stay in Touch!

Public website offers information and status updates  
[www.nad.usace.army.mil/compstudy](http://www.nad.usace.army.mil/compstudy)

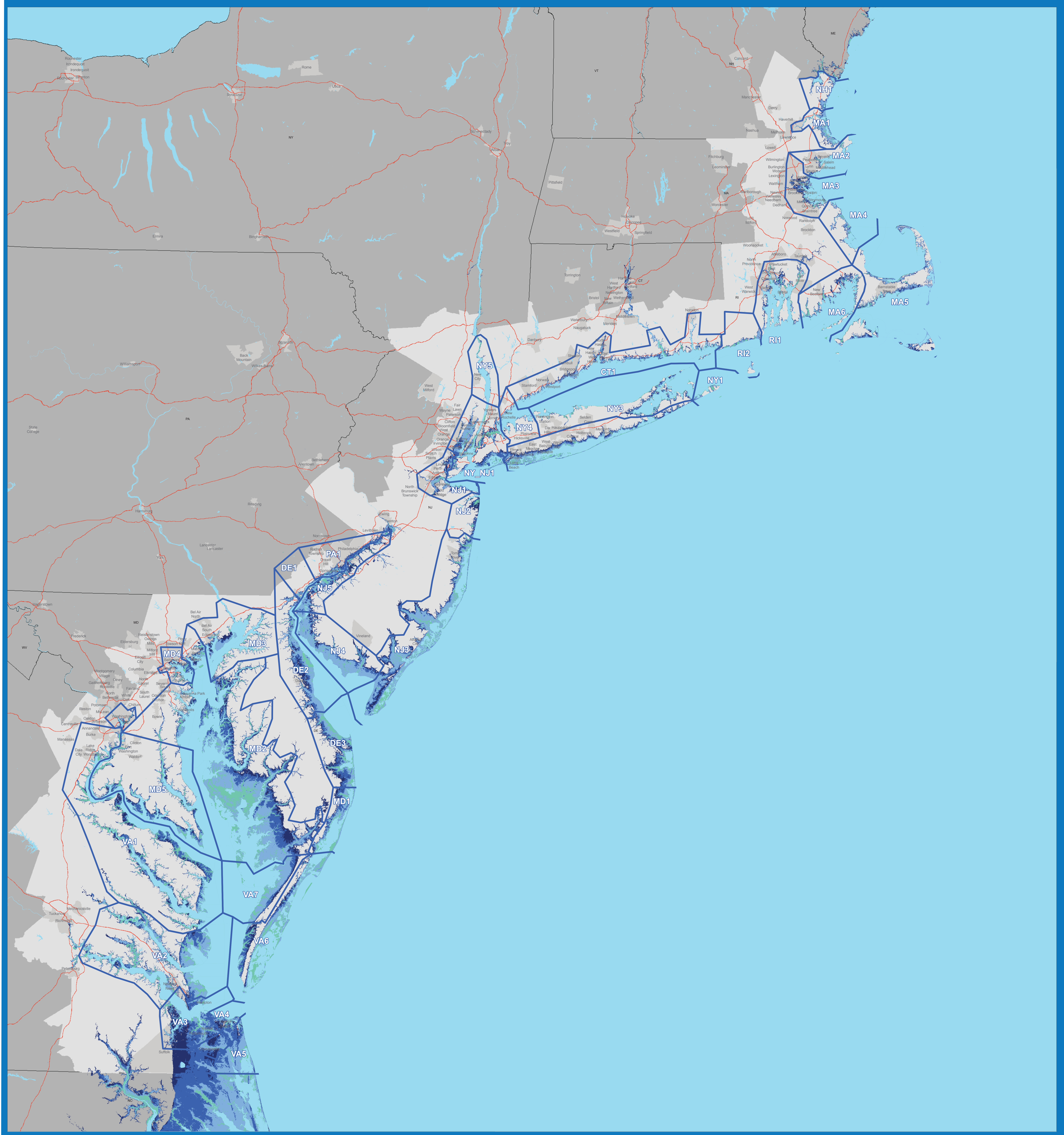
### USACE Points of Contact

- Amy Guise  
Phone: 410-962-6138  
Email: [Amy.L.Guise@usace.army.mil](mailto:Amy.L.Guise@usace.army.mil)
- Dave Robbins  
Phone: 410-962-0685  
Email: [David.W.Robbins@usace.army.mil](mailto:David.W.Robbins@usace.army.mil)
- Karla Roberts  
Phone: 410-962-3065  
Email: [Karla.A.Roberts@usace.army.mil](mailto:Karla.A.Roberts@usace.army.mil)



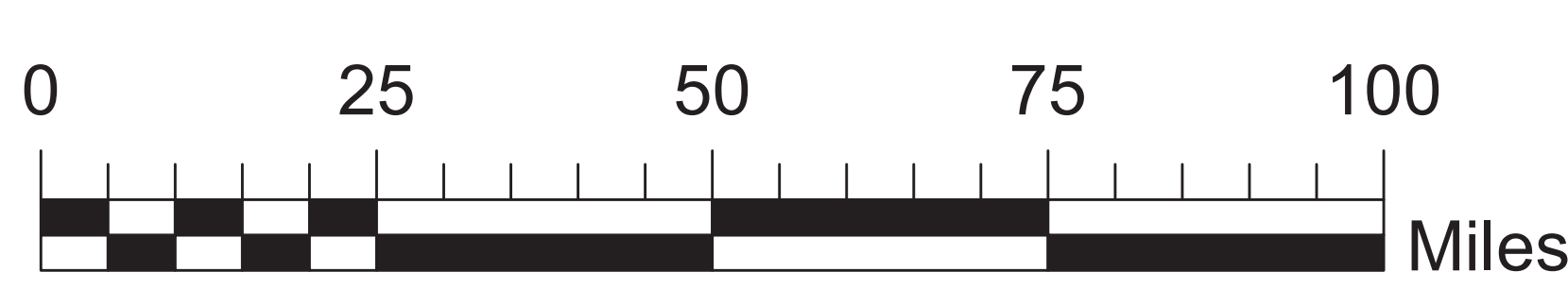
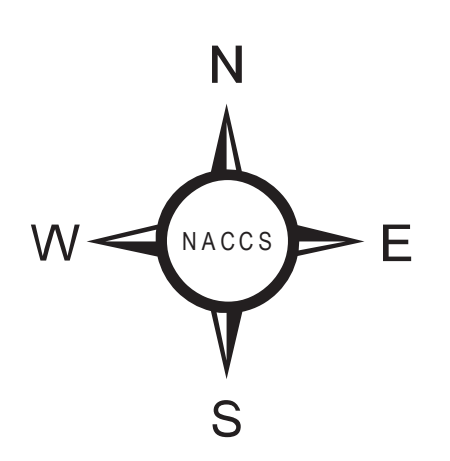
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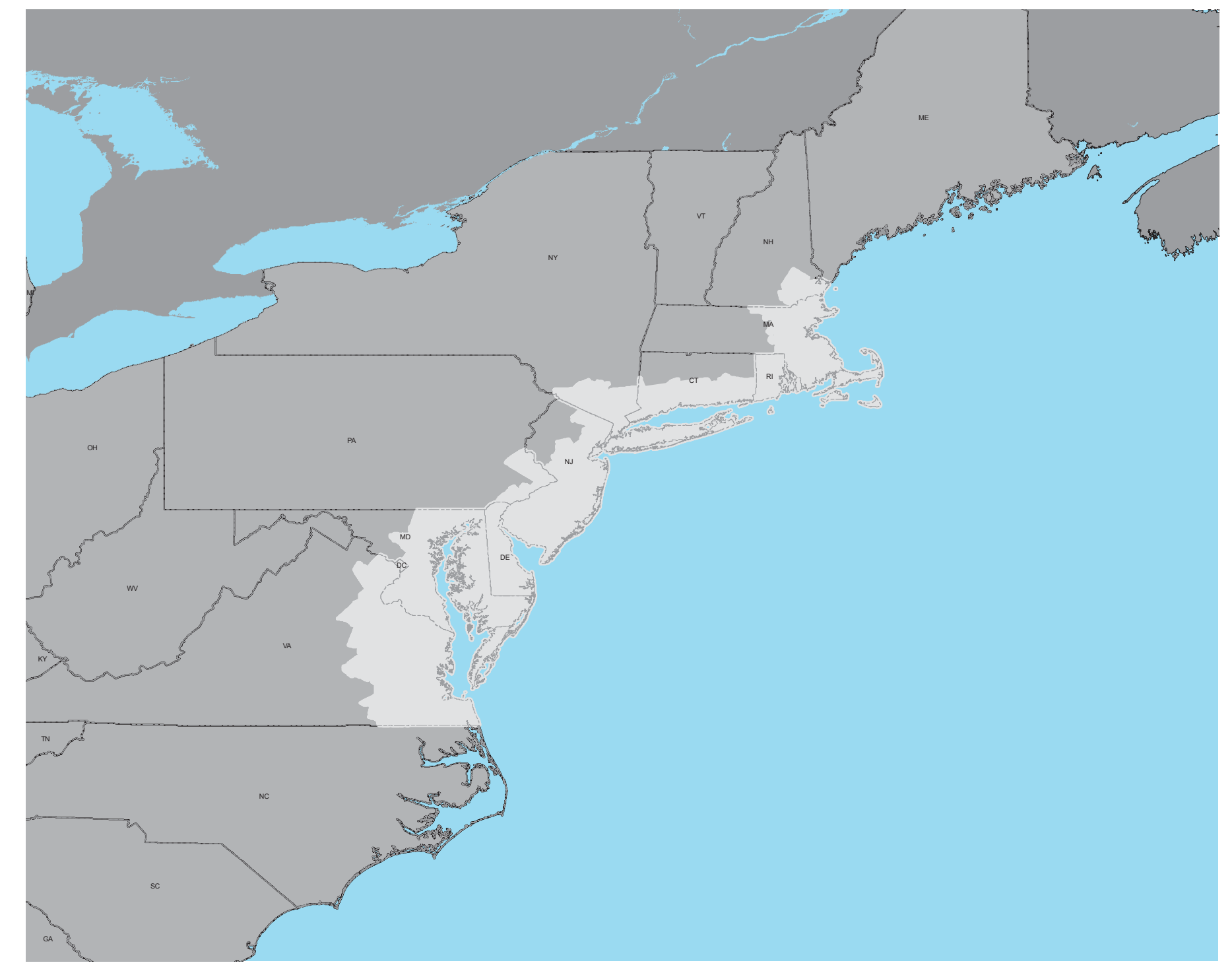


N O R T H A T L A N T I C C O A S T C O M P R E H E N S I V E S T U D Y

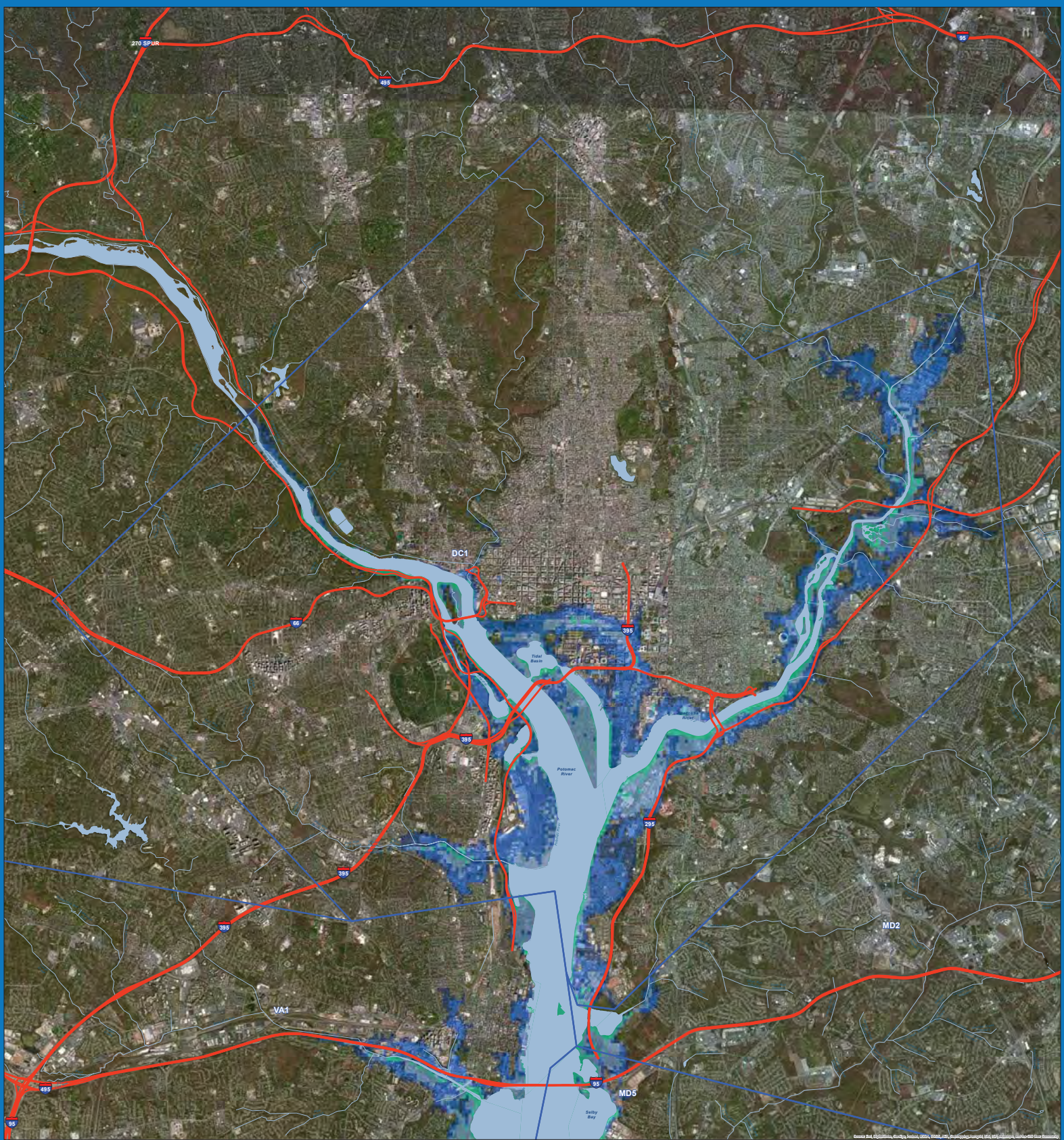
# NACCS Sea Level Change Analysis



- 2018 Sea Level Change
- 2068 Sea Level Change
- 2100 Sea Level Change
- 2118 Sea Level Change
- NACCS Planning Reaches
- Cities
- Interstate Highways



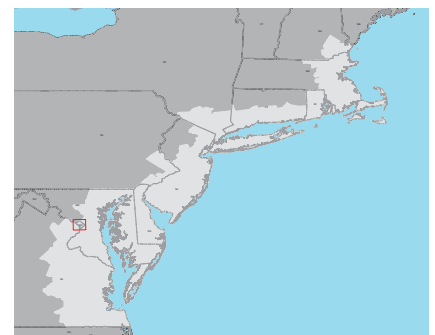
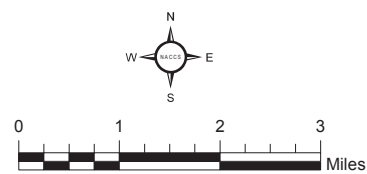




N O R T H   A T L A N T I C   C O A S T   C O M P R E H E N S I V E   S T U D Y

# NACCS Sea Level Change Analysis

- 2018 Sea Level Change
- 2068 Sea Level Change
- 2100 Sea Level Change
- 2118 Sea Level Change
- NACCS Planning Reaches
- Cities
- Interstate Highways



Calculated using the USACE high sea level change scenario



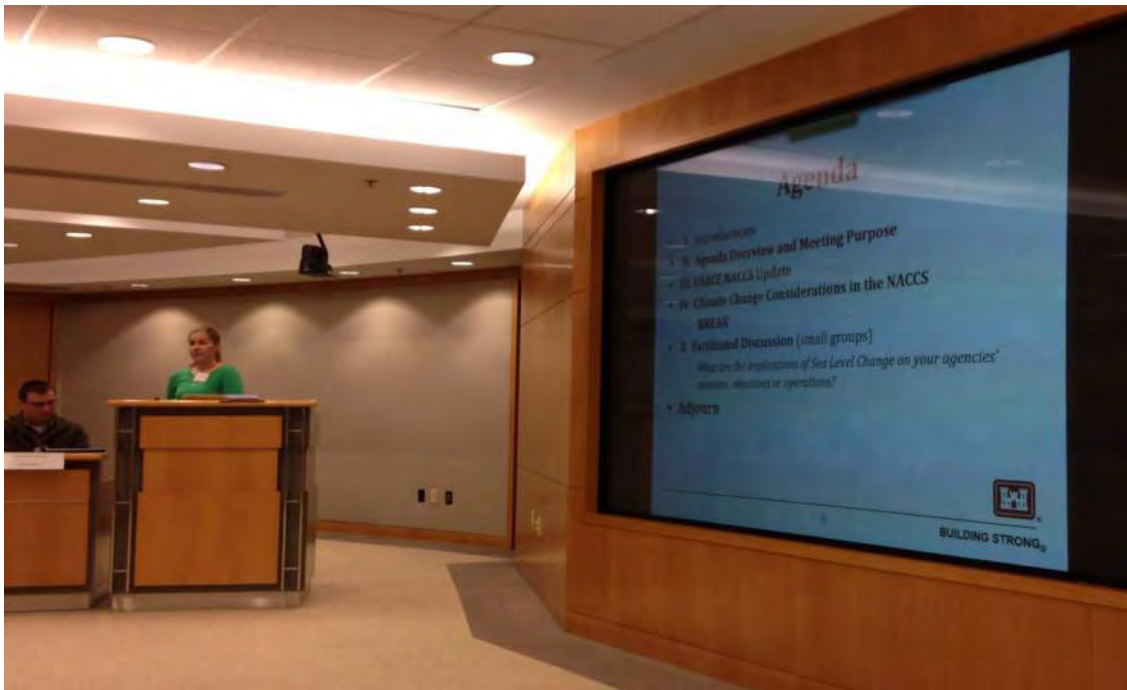
Attachment D

Photograph Log

North Atlantic Coast Comprehensive Study, Visioning Meeting  
National Capitol Region



*Photo 1- Phetmano Phannavong (DDOE) providing introductory remarks*



*Photo 2 – Karla Roberts (USACE) begins the NACCS presentation with an overview of the meeting agenda*

North Atlantic Coast Comprehensive Study, Visioning Meeting  
National Capitol Region



*Photo 3 – Dave Robbins (USACE) presents Structural & NNB Measures to the participants*



*Photo 4 – Ginger Croom (CDM Smith) facilitates Jason Engle's presentation to the audience*

North Atlantic Coast Comprehensive Study, Visioning Meeting  
National Capitol Region



*Photo 5 – Participants attending the Visioning Meeting take notes*



*Photo 6 – The forum is opened up for questions and discussion*



North Atlantic Coast Comprehensive Study, Visioning Meeting  
National Capitol Region



*Photo 7 – Topics discussed during the break-out session are presented to the group*



*Photo 8 – Emily Seyller (USGCRP) presents the responses of Group A to the others*



North Atlantic Coast Comprehensive Study, Visioning Meeting  
National Capitol Region



*Photo 9 – Colin Clarke (NAVFAC) presents the responses of Group B to the others*



*Photo 10 – David Stirrett (Smithsonian) presents the responses of Group C to the others*

North Atlantic Coast Comprehensive Study, Visioning Meeting  
National Capitol Region



*Photo 11 – Meredith Secor (DHS) presents the responses of Group D to the others*

# Attachment E

## Breakout Session Responses

USACE North Atlantic Coast Comprehensive Study (NACCS)  
Visioning Session  
National Capital Region / February 10, 2014

Name: Eric Bradley  
Organization: Department of the Treasury

EMAIL: eric.bradley@treasury.gov

-----  
Small Group Discussion: Please identify three key implications of SLC on your agencies' missions, objective, or operations.

1. Flooding of electrical support / IT facilities that are below grade.  
(Transformers (servers being moved to higher floors in places,))
2. Damage to facility support infrastructure (electricity, roads, etc) ~~not~~ on a local/regional basis. Could affect mint and printing capabilities.
3. Damage to employee property where ~~there~~ their focus is no longer on agency mission/ops.

USACE North Atlantic Coast Comprehensive Study (NACCS)  
Visioning Session  
National Capital Region / February 10, 2014

Name: Stan Briscoe (?) EMAIL:  
Organization:

-----  
Small Group Discussion: Please identify three key implications of SLC on your agencies' missions, objective, or operations.

B.

1. Park boundary changes, which may require additional land acquisition to maintain the park's wildlife.

A.

2. Cultural resources <sup>(artifacts)</sup> in some cases would have to be relocated burial ground items, small structures and large structures would be impacted. Peoples' histories.

3. Public would lose the use of some recreational sites (fishing, camping, site-seeing) activity



USACE North Atlantic Coast Comprehensive Study (NACCS)  
Visioning Session  
National Capital Region / February 10, 2014

Name: Amanda Campbell(?) EMAIL:  
Organization:

-----  
Small Group Discussion: Please identify three key implications of SLC on your agencies' missions, objective, or operations.

1. How to ~~keep~~ Increase resilience in a way that protects people, infrastructure of natural environment. Very interested in policy & financial incentives.
2. Were interested in understanding the model predictions for SLR, storm surge & riverine flooding.
3. Would like to see metrics for NNR on the ability of NNR <sup>measures</sup> to withstand/protect communities from SLR/storm surge.

USACE North Atlantic Coast Comprehensive Study (NACCS)  
Visioning Session  
National Capital Region / February 10, 2014

Name: Colin Clarke  
Organization: NAVFAC Washington

EMAIL: Colin.clarke@navy.mil

-----  
**Small Group Discussion: Please identify three key implications of SLC on your agencies' missions, objective, or operations.**

1. Impact on Continuity of Operations (COOP)
  - energy
  - transportation
  - land use, facilities planning/development
  - water
  - people/access
2. Impact on facilities planning solutions, e.g. siting design guidance
3. Impact on critical assets



USACE North Atlantic Coast Comprehensive Study (NACCS)  
Visioning Session  
National Capital Region / February 10, 2014

Name: Darlene Finch  
Organization: NOAA

EMAIL: darlene.finch@noaa.gov

from a coastal management perspective

Small Group Discussion: Please identify three key implications of SL on your agencies' missions, objective, or operations. NOAA is both a user and a 'consumer' of climate information.

1. Significant impacts on how the agency implements our management authorities (e.g. fisheries, other managed resources).

→ how natural systems are impacted and respond

~~X~~ Changes the nature of information we develop and deliver to coastal communities and decision-makers. <sup>of NOAA</sup>

3. Influences the kinds of activities we support with our programs and dollars.

- Information
- Implement what we do
- Implement our facility, spending
- Future plans

NCPC - Policy agency

Federal Plan goes back to 1791

major plans  
urban design  
transp.  
environment

**USACE North Atlantic Coast Comprehensive Study (NACCS)**

**Visioning Session**

**National Capital Region / February 10, 2014**

**Name:** Shirley Harmon (?)  
**Organization:**

**EMAIL:** NCPC will require agencies to incorporate / address climate

**Small Group Discussion: Please identify three key implications of SLC on your agencies' missions, objective, or operations.**

change in capital projects & cost effectiveness

1. Grid Resilience to extreme weather

What Pepco is doing:

2. Storm preparation, table top drills

Emerg. Restoration Improvement Project (ERIP) smart meters

- to reduce duration of outages (technology, s/w, interconnw/Renewables)
- to improve comm. w/ customers during storms

• working / collab. w/ Dept of Energy to coord. best practices & w/ industry to develop mutual assistance framework for nat'l response

3.

Integrated w/ DC Post Command Center on emerg. response

**USACE North Atlantic Coast Comprehensive Study (NACCS)  
Visioning Session  
National Capital Region / February 10, 2014**

Name: Maureen Holman  
Organization: DC Water

EMAIL: Maureen.holman@dcwater.com

**Small Group Discussion: Please identify three key implications of SLC on your agencies' missions, objective, or operations.**

1. Our facilities/critical infrastructure along the rivers (Potomac and Anacostia) may become completely inundated.
2. Our ability to provide wastewater treatment services to the region may be compromised.
3. Operations (staffing, resources/funding needed, & Capital Planning meeting CWA permit requests, etc.) will need to change to accommodate SLC and, more significantly in the near-term, extreme weather events.

c

**USACE North Atlantic Coast Comprehensive Study (NACCS)  
Visioning Session  
National Capital Region / February 10, 2014**

Name: Sandra Knight

EMAIL: skknight@umd.edu

Organization: University of Maryland  
Center for Disaster Resilience

---

**Small Group Discussion: Please identify three key implications of SLC on your agencies' missions, objective, or operations.**

1. As an academic institute looking at and analyzing flood risk in the DC, MD + VA area, clear guidance on expected SLR and uncertainty from authoritative sources (NOAA, USACE, others) will be critical in applying SLR to flood modeling.
2. To evaluate <sup>unique</sup> vulnerabilities, more information, data and analysis may be needed to identify current & future impacts to economy, social culture and ecosystems.
3. The DC area is a complex mix of agencies, interests and politics/policies. <sup>(governance)</sup> Integrated but targeted adaptation measures must be developed to ~~address~~ <sup>protect</sup> unique assets and address vulnerabilities.

C

**USACE North Atlantic Coast Comprehensive Study (NACCS)  
Visioning Session  
National Capital Region / February 10, 2014**

**Name:** Erich Lutz

**EMAIL:** erich.lutz@navy.mil

**Organization:** NAVFAC Washington

---

**Small Group Discussion: Please identify three key implications of SLC on your agencies' missions, objective, or operations.**

1. We are not authorized to speak for the NAVY today, but specific questions can be addressed to RDML Markham Rich, Commandant, Naval District Washington.

Flooding is a concern because of the need to avoid work stoppage.

2. The NAVY is involved in several studies that consider effects of climate change, primarily sea level rise & flooding.

Health, safety & welfare of the building occupants.

3. The NAVY is following relevant DoD directives and guidance with regard to contingency planning and installation master planning, including consideration of climate change effects.

Protection of historic artifacts

USACE North Atlantic Coast Comprehensive Study (NACCS)  
Visioning Session  
National Capital Region / February 10, 2014

Name: ANTHONY MONDY  
Organization: GSA

EMAIL: Anthony.Mondy@gsa.gov

Small Group Discussion: Please identify three key implications of SLC on your agencies' missions, objective, or operations.

1. INCREASED RISK OF Flooding OF FEDERAL BUILDINGS ALONG CONSTITUTION AVE.

2. SCARCE FUNDING (CAPITAL FUNDS) NEED TO BE ALLOCATED FOR FLOOD MITIGATION

3. RECOVERY PLANS NEED TO BE UPDATED TO ADDRESS RISKS.



USACE North Atlantic Coast Comprehensive Study (NACCS)  
Visioning Session  
National Capital Region / February 10, 2014

Name: Louis Naber (?)  
Organization:

EMAIL:

-----  
Small Group Discussion: Please identify three key implications of SLC on your agencies' missions, objective, or operations.

1. ~~Utilities~~ DOJ - Bureaus Will Have Different Issues  
BOP - SECURITY, FACILITIES, POPULATIONS, Real PROPERTY  
DEA -  
FBI -  
ATF -
2. UTILITIES - PROVIDERS MAY LOSE INFRASTRUCTURES  
- LOSS OF POWER CORIDORS & TRANSMISSION LINES  
- BACKUP POWER GENERATIONS / FUEL DELIVERIES ETC.
3. COMMUNICATIONS - INTRA-NET, DATA CENTER FAILURES  
INTERNAL COMMUNICATIONS



USACE North Atlantic Coast Comprehensive Study (NACCS)  
Visioning Session  
National Capital Region / February 10, 2014

Name: Walter Nielsen  
Organization: Wtts-FSD (Pentagon)

EMAIL: walter.e.nielsen.civ@mail.mil

-----  
**Small Group Discussion: Please identify three key implications of SLC on your agencies' missions, objective, or operations.**

1. Building operation is at risk; e.g. electrical power, chilled water, and heating capacity could be lost due to flooding  
—
2. Flooding could prevent employee access to building. Telecommuting might be possible; however, our heating & retriq. plant and electrical substation are in a low-lying area (i.e., if flooding prevents employees from reaching the building, then it's likely that the utility systems have also been impacted.
- 3.

C

**USACE North Atlantic Coast Comprehensive Study (NACCS)  
Visioning Session  
National Capital Region / February 10, 2014**

**Name:** Rick Owen

**EMAIL:** rickard.owen1@navy.mil.

**Organization:** Naval Facilities Engineering  
Command Washington

---

**Small Group Discussion: Please identify three key implications of SLC on your agencies' missions, objective, or operations.**

1. I'm not authorized to speak for the Navy today...  
listening mode only. Consult Naval District Washington.
2. The Navy is involved with several studies considering sea level rise and flooding.
3. The Navy is following all relevant DoD directives and guidance, including consideration of climate change effects.

... See others' comments

USACE North Atlantic Coast Comprehensive Study (NACCS)  
Visioning Session  
National Capital Region / February 10, 2014

Name: Jane Passman  
Organization: Smithsonian

EMAIL:

Sea Level Change

-----  
**Small Group Discussion:** *Please identify three key implications of SLC on your agencies' missions, objective, or operations.*

1. Need to protect facilities, collections, visitors from flood impacts (to DC facilities) - may involve sheltering in place or temporary closures
2. May want to direct research toward effects on coast (MD facilities)  
- change flood elevation
- 3.

USACE North Atlantic Coast Comprehensive Study (NACCS)  
Visioning Session  
National Capital Region / February 10, 2014

Name: Phetmano Phannavong  
Organization: DDOE

EMAIL: phetmano.phannavong  
@doe.gov

---

Small Group Discussion: Please identify three key implications of SLC on your agencies' missions, objective, or operations.

1. Current <sup>level</sup> regulations does not address the future impact -  
(100-year floodplain standards) -
2. More emergency response / coordination -  
need even more coordination -
3. Higher flood insurance premium  
for property owner

USACE North Atlantic Coast Comprehensive Study (NACCS)  
Visioning Session  
National Capital Region / February 10, 2014

Name:  
Organization: Dave Robbins  
USACE

EMAIL: David.W.Robbins@  
usace.army.mil

-----  
Small Group Discussion: Please identify three key implications of SLC on your agencies' missions, objective, or operations.

1. Erosion Projects (FRM/CSEM)

= Risk & uncertainty

2. Ecosystem Restoration

- natural environment & <sup>ecosystem</sup> ~~environmental~~ impacts

3. RSM

- changes in shoreline

- channels

= source/sink

USACE North Atlantic Coast Comprehensive Study (NACCS)  
Visioning Session  
National Capital Region / February 10, 2014

Name: Karla Roberts  
Organization: USACE

EMAIL: Karla.A.Roberts@  
usace.army.mil

---

**Small Group Discussion: Please identify three key implications of SLC on your agencies' missions, objective, or operations.**

1. FPM - Formulating projects that meet today's need for protection but also can be adapted for future storm events.

2. Need for policies/guidance that allow flexibility in project planning/formulation (Combinations - i.e. structural combined with NIBF)

3. Environmental impacts - SLC impacts to critical habitat. ~~restoration~~

USACE North Atlantic Coast Comprehensive Study (NACCS)  
Visioning Session  
National Capital Region / February 10, 2014

Name: John Scheri

EMAIL: john.scheri@hatchmott.com

Organization: Hatch Mott MacDonald (DC Water)

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**Small Group Discussion: Please identify three key implications of SLC on your agencies' missions, objective, or operations.**

1. Blue Plains WWTP - Ability to provide core mission of wastewater treatment to protect environment; public. Access to facility, power & communications will be impacted.
2. Water Distribution System - Most water facility assets are outside SLC influence. However, operational access to hydrants/valves will be restricted.
3. Sewer System - Protection of critical facilities is necessary because major infrastructure (pumping facilities, etc.) are located within the flood zone.

Emergency Planing / Response



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Visioning Session  
National Capital Region / February 10, 2014

Name: Menideth Secor

EMAIL: menideth.secor@hq.dhs.gov

Organization: DHS office of Infrastructure Protection

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**Small Group Discussion: Please identify three key implications of SLC on your agencies' missions, objective, or operations.**

1. Supporting voluntary resilience adoption -

IP is focused on helping our partners build resilient infrastructure by leveraging lessons learned/best practices. SLC changes the underlying assumptions about the infrastructure assets & its vulnerabilities. It is important for IP to have accurate assessment capabilities to help owners & operators.

2. Sharing information with the private sector

IP has a broad network of private sector infrastructure owners and operators, and we share information through our secure portal. We are interested in using SLC information to share it broadly with state & local communities

3. Managing + addressing future risk to critical infrastructure  
- working on climate change adaptation

4. Damage to lifeline sectors

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Visioning Session  
National Capital Region / February 10, 2014

Name: Emily Seylter

EMAIL: eseylter@usgcrp.gov

Organization: USGCRP (using HHS as an example)

HHS  
example

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**Small Group Discussion: Please identify three key implications of SLC on your agencies' missions, objective, or operations.**

1. <sup>current</sup> Safety concern with health facilities, flooding, CSOs, disease spread, getting people access to critical health needs, environmental justice (unhealthy pops)

Short- and long-term

2. Preparedness → New monitoring + obscurig systems needed for early warning; evaluation of successful mgmt of SLC

} need to integrate projections into existing models

3. Response → how should HHS respond to gradual SLC? Extremes related to SLC

USACE North Atlantic Coast Comprehensive Study (NACCS)  
Visioning Session  
National Capital Region / February 10, 2014

Name: Suzanna Sterling Dyer      EMAIL: ssterling-dyer@wmata.com  
Organization: WMATA (metro)

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Small Group Discussion: Please identify three key implications of SLC on your agencies' missions, objective, or operations.

1. Challenge in letting upper management understand how climate change affects metro.
2. Working together w/ various group w/in agency. Working w/ outside groups & presentations to those outside groups. Letting the outside world (stakeholders) understand the problem.
3. Not be re-active but pro active. Flood Emergency Response Plan.

C

**USACE North Atlantic Coast Comprehensive Study (NACCS)  
Visioning Session  
National Capital Region / February 10, 2014**

**Name:** David Stirrett

**EMAIL:** stirrettd@si.edu

**Organization:** Smithsonian Institution

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**Small Group Discussion:** *Please identify three key implications of SLC on your agencies' missions, objective, or operations.*

1. Potential for flooding of buildings along Constitution Ave
  - loss of mechanical systems
  - compromised protection of collections
  
2. Displacement of operations at coastal facilities
  - STRI - Panama
  - SERC - Chesapeake Bay
  - Ft. Pierce - Florida
  
3. Changes to the study of the natural environment

USACE North Atlantic Coast Comprehensive Study (NACCS)  
Visioning Session  
National Capital Region / February 10, 2014

Name: ~~John~~ Amy Tarce  
Organization: National Capital Planning  
Commission

EMAIL: amy.tarce@nccp.gov

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Small Group Discussion: Please identify three key implications of SLC on your agencies' missions, objective, or operations.

1. Impacts on Historic Plan of Washington - Policy changes to <sup>Comp Plan</sup> permanent change to image and land use pattern of L'Enfant City
2. Policy changes to Review criteria  
Will require applicants to consider adaptation strategies  
Section 106 Review - new priorities to include climate change adaptation should be balanced with preservation of cultural landscapes and historic buildings
3. Interruptions to commute of agency employees

Attachment F

General Comments

USACE North Atlantic Coast Comprehensive Study (NACCS)  
Visioning Session  
National Capital Region Visioning Meeting/ February 10, 2014

Name: Maureen Holman  
Organization: DC Water

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@dcwater.com

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**Overall Comments:** *Please use this space and the back if you have comments that you would like to convey to the NACCS team.*

- ① Please use more distinct colors on maps and charts to better see impacts (instead of 6 different shades of blue-green).
- ② The USACE High SIC Scenario graph needs proper titles on the axis (both vertical & horizontal)
- ③ It would be great for the study to include scientific/technical information at a level that the average lay person can understand.



**USACE North Atlantic Coast Comprehensive Study (NACCS)  
Visioning Session  
National Capital Region Visioning Meeting/ February 10, 2014**

**Name:** *Walter Nielsen*

**EMAIL:** *walter.e.nielsen.civ@mail.mil*

**Organization:** *WAS-FSD (Pentagon)*

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**Overall Comments:** *Please use this space and the back if you have comments that you would like to convey to the NACCS team.*

*Session was too abbreviated - it was good, but too short.*