

Hampton Roads Resilient Region Reality Check

Increasing community resilience and capacity to adapt to changes



March 17, 2015
Old Dominion University

A Program by the Urban Land Institute Hampton Roads and Old Dominion University



Authors:
Juita-Elena (Wie) Yusuf, Michelle Covi, Burton St. John III
Old Dominion University

Report Date: June 2015

Executive Summary

The Hampton Roads Resilient Region Reality Check event was held on March 17, 2015 at Old Dominion University. The event was built on three key themes: a **region-wide**, multi-sectoral, and **whole-of-community** approach that is oriented toward **actions** to address SLR and flooding. This event was a collaboration between the Urban Land Institute Hampton Roads (HRULI), Old Dominion University (ODU), and the Community Engagement Working Group of the Hampton Roads Sea Level Rise Preparedness and Resilience Intergovernmental Planning Pilot Project.

The overall goals of the event were to (1) capture the perceptions of the Hampton Roads community on their risks associated with sea level rise, (2) engage stakeholders in discussion within and across different stakeholder groups; and (3) assess the willingness, at a regional level, to address SLR-related issues and prepare for the coming changes.

Approximately 130 residents and stakeholders across government, non-profit, business, and civil society sectors within the Hampton Roads region participated in the event. The event focused on encouraging discussion concerning three items: (1) how flooding affects citizens, (2) what can citizens do about flooding, and (3) what resources are needed to address flooding? For each question, participants were also asked to discuss and identify two regional priorities.

From these discussions, six key themes arose:

1. The impacts of sea level rise and flooding are multi-faceted;
2. Sea level rise and flooding need to be incorporated into planning and decision making;
3. Land use planning plays an important role in building resilience;
4. Regional collaboration and regionally-adopted solutions are needed;
5. Financial and non-financial resources are needed;
6. Civic engagement and outreach are important.

In an end-of-the day prioritization activity, all attendees were asked to rank order the top priorities, selecting from a list of discussion items that had surfaced during this event. Across attendees, the following top priorities appeared (in rank order):

1. Pursue regional collaboration;
2. Revise zoning and land use;
3. Pursue public education/outreach;
4. Reduce carbon emissions;
5. Pursue natural solutions (e.g. coastal engineering, wetlands preservation).

Additionally, the results of a post-event survey point to how the event helped participants broaden their perspectives and understanding of flooding and SLR. These results show that the event had some effect on individual efficacy, as participants reported higher levels of knowledge about sea level rise risks and impacts coupled with greater willingness to pay taxes and fees to build community resilience. However, there was little impact on participants' perception of the community's willingness to take action.

Follow-up engagement efforts should build on the momentum from the Resilient Region Reality Check 2015 event. While these engagement efforts should continue to emphasize the whole-of-community perspective, a regional emphasis and an action orientation, further efforts should focus on bridging different stakeholders' perspectives. Greater emphasis should also be placed on bringing under-represented groups into the conversation and to the decision-making table.

Introduction

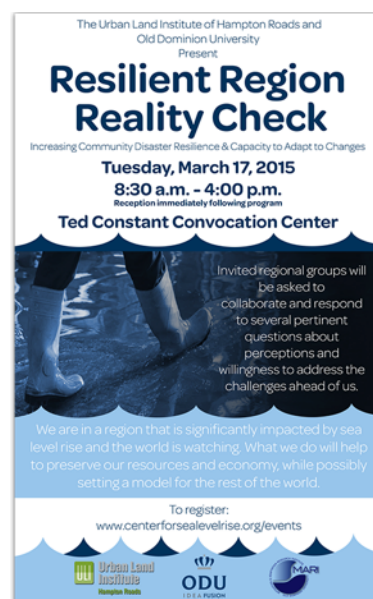
Virginia has one of the highest rates of relative sea level rise (SLR) on the East Coast, and the Hampton Roads region ranks 19th in the world in the value of assets (\$84.6 billion in current assets and \$581.7 billion in future assets) exposed to increased flooding associated with both storm surges and tidal flooding.ⁱ

This report describes the results and outcomes of the Hampton Roads Resilient Region Reality Check event held on March 17, 2015 at Old Dominion University (ODU). Approximately 130 residents and stakeholders across government, non-profit, business, and civil society sectors within the Hampton Roads region participated in the event. The event was built on three key themes: a **region-wide**, multi-sectoral, and **whole-of-community** approach that is oriented toward **actions** to address SLR and flooding. This event was a collaboration between the Hampton Roads Urban Land Institute (HRULI) and ODU.

The overall goals of the Resilient Region Reality Check 2015 event were to (1) capture the perceptions of the Hampton Roads community on their risks associated with sea level rise, (2) engage stakeholders in discussion within and across different stakeholder groups; and (3) assess the willingness, at a regional level, to address SLR-related issues and prepare for the coming changes.

Goals

1. Capture community perceptions of sea level rise and risks;
2. Engage stakeholders in discussion within and across groups;
3. Assess willingness to address issues and prepare for changes



Background

Resilience for Hampton Roads

Resilience refers to the ability to recover, or the ability to adapt to the consequences associated with an instance of failure or systemic breakdown.ⁱⁱ The Urban Land Institute (ULI) approaches resilience as the inherent qualities or capability of organizations and communities to recover quickly and resume their activities after natural catastrophes. As such, it encompasses a wide variety of strategies that seek to respond to vulnerabilities or to adapt to recent or anticipated risks.

Resilient communities, then, are ones with the ability to persist in the face of acute disruptions and chronic stresses. In order to thrive in the face of challenging issues, resilient communities assess their risks, mitigate impacts, and plan for longevity by adapting, evolving, and making wise investments. In a rapidly changing world, individuals, organizations, and regions must anticipate potential catastrophic events while also responding to current conditions. To create regional resilience, residents, businesses, organizations, as well as government have to work together to create the capacity to respond and even transform themselves.

The Hampton Roads region faces a significant and growing threat to life, property and prosperity due to increasing sea level rise. Rising waters exacerbate the effects of storms, which has resulted in increasing flood events that threaten lives and property. Even tidal cycles cause flooding in areas of Hampton Roads. Nuisance flooding (i.e., smaller flooding incidents) happens about nine times each year and are expected to increase to 182 events per year by 2045.ⁱⁱⁱ A study by the Hampton Roads Planning District Commission (HRPDC) estimates that, by 2100, sea level rise could result in direct economic costs at between \$12 and \$87 billion, with up to 877 miles of roads in the region permanently or regularly flooded.^{iv}

Researchers and environmental groups in Hampton Roads have recognized the threat of sea level rise to natural resources, such as wetlands, since at least 2005. In 2008, the Commission on Climate Change, when charged by the governor with assessing impacts to the Commonwealth of Virginia, recognized that sea level rise was the biggest threat to coastal regions. Since 2010, the HRPDC and the Hampton Roads Transportation Planning Organization (HRTPO) have studied the impact of sea level rise on regional infrastructure. Since 2012, over 20 reports by the Army Corps of Engineers, Core Logic, HRPDC, the City of Norfolk, the City of Hampton, the Virginia Institute for Marine Science, and other organizations have articulated the risk to the region from sea level rise and associated flooding as well as explored potential solutions.^v

The whole-of-community approach respects the value and importance of strengthening existing relationships and communication channels between all community stakeholders

To build resilience, however, all sectors of the whole community must be engaged in the process of building capacity. By engaging the community, including representatives from all levels of government, academia, non-governmental organizations, the private sector and citizens, we can better understand and bridge the different needs and priorities. This understanding is also crucial for determining how different stakeholders can (and will) contribute to improving regional resilience. Encouraging an authentic, action-oriented dialogue with the community can empower local action that can strengthen cohesion and resilience from the neighborhood level all the way up to the regional level.

Since 2010, ODU has recognized sea level rise and flooding as a focus area for research. At that time, ODU initiated the Climate Change and Sea Level Rise Initiative to facilitate networking in research and engagement. Since 2012, ODU and HRPDC, through funding from Virginia Sea Grant, have held quarterly Adaptation Forums.^{vi} These Adaptation Forums involve meetings with municipal staff, researchers, private sector engineers, and staff from area non-profits and non-governmental organizations (NGOs) to share the latest scientific research and lessons learned in responding to local flooding impacts. ODU is also partnering with the City of Norfolk and the non-profit Green Infrastructure Center on constructing shoreline restoration projects and providing green infrastructure training programs. In 2014, ODU initiated the Mitigation and Adaptation Research Institute (MARI) that focuses on practice-relevant knowledge for solution-oriented research.^{vii}

Also in 2014, the Hampton Roads Sea Level Rise Preparedness and Resilience Intergovernmental Planning Pilot Project (also referred to as the Pilot Project) was initiated at ODU.^{viii} Its mission was to develop an intergovernmental planning organization to effectively coordinate the sea level rise preparedness and resilience planning of government agencies and the private sector, taking into account the perspectives and concerns of the citizens in the region. The Pilot Project included several working groups, including the Citizen Engagement Working Group, which was specifically charged with creating a partnership between governmental agencies and citizens and other stakeholders to plan for, and adapt to, the challenges of sea level rise.

Recognizing synergistic efforts and building on a successful Hampton Roads Reality Check in 2013,^{ix} ULI Hampton Roads collaborated with ODU, MARI and the Citizen Engagement Working Group of the Pilot Project to develop a new program to address gaps in the resilience efforts in the region. The Resilient Region Reality Check 2015 was designed to identify the foundation for building capacity to adapt to changes and increase community resilience by bringing together government, NGOs, the private sector and citizens into a community conversation about flooding, the most apparent and severe impact of climate change in the region.



A Whole-of-Community Stakeholder Engagement Process

The engagement process for the Resilient Region Reality Check 2015 event was designed to allow for (1) in-depth conversation among stakeholders with similar backgrounds, and (2) the wider sharing of ideas across the broad spectrum of stakeholder groups. Three key themes underpinned the engagement approach. First, it adopted a multi-sectoral, whole-of-community framework to ensure inclusivity and diversity of stakeholders. This whole-of-community approach, developed by the Federal Emergency Management Agency (FEMA), emphasizes the value and importance of strengthening existing relationships and channels of communication between the full array of community stakeholders, including local, regional and state governments; non-governmental, faith-based and non-profit organizations; the private sector industry; educational, healthcare and other institutional stakeholders; and individuals, families and communities.^x Second, the focus was on prioritizing actions to address sea level rise and flooding, including identifying feasible solutions and assessing multi-sectoral willingness to act. Third, the emphasis was on engagement on a regional basis, rather than on a city-by-city basis.

The Foundation

The Resilient Region Reality Check was based on three themes:

1. Whole-of-community approach
2. Region-wide focus
3. Action orientation



The event was structured around facilitated discussion of three key questions and identification of top two priorities from each discussion. These facilitated discussions took place at tables with participants organized to ensure similarity in sectors or interests. The table discussions were followed by instantaneous reporting of discussion outcomes to the larger group of all participants. This “report out” format was designed to allow for information sharing and cross-pollination of ideas. The discussions and report outs were followed by an action prioritization activity to determine the activities that participants believed to be regional priorities for addressing sea level rise and flooding.

Resilient Region Reality Check

HRULI leadership and ODU experts developed the original concept for the Resilient Region Reality Check in August of 2014 based on a gap identified in whole-of-community engagement in resilience planning. The overall goal of the event was to (1) capture the perceptions of the Hampton Roads community on their risks associated with sea level rise, (2) engage stakeholders in discussion within and across different stakeholder groups; and (3) assess the willingness, at a regional level, to address SLR issues and prepare for the coming changes. The event was envisioned as a facilitated discussion among stakeholders representing diverse sectors of the regional community.

A steering committee was assembled that included representatives from ODU, HRULI, HRPDC, local government emergency management, and private sector business. The steering committee met during the fall 2014 months to flesh out details and logistics of the event. A planning team developed the overall program and established a strategy to identify and recruit participants representing diverse groups. The list of Steering Committee and Planning Team members is included in the Appendix.

Resilient Region Reality Check Program

- Welcome (ODU President Broderick)
- Introduction (Cathy Lewis)
- Overview of ULI Resilient Cities Program (Brenden McEnearney, ULI)
- Discussions of question 1 at each table
- Report of table discussion to the group
- Discussions of question 2 at each table
- Report of table discussion to the group
- Discussions of question 3 at each table
- Report of table discussion to the group
- Prioritizing our Actions Activity
- Overview of the Intergovernmental Pilot Project (Ray Toll)
- Thank you (Burrell Saunders, HRULI)
- Networking and Socializing

The event's program included an education and information component in the form of presentations on key issues related to regional resilience. Brenden McEnearney, ULI's Director of Resiliency provided an overview of the ULI Resilient Cities Program. The program also included a presentation on the status of the Pilot Project.

Participants

Resilient Region Reality Check participants were recruited from a broad spectrum of stakeholder groups spanning multiple sectors. These included representatives of neighborhood and civic league organizations; federal, state, and local governments; nonprofit, non-governmental or faith-based organizations; regional planning organizations; and businesses such as real estate, construction, tourism, utilities, and transportation. Individual residents were also invited to participate. The full list of organizations that registered to participate is included in the Appendix.

Approximately 130 stakeholders participated in the event. These participants were assigned to tables of 10 participants, organized by similar sector and interests. The table groupings were: government planners; government emergency managers; infrastructure managers; real estate businesses; tourism and waterfront businesses; civic leagues; environmental NGOs; and civic engagement NGOs. Due to logistical constraints several mixed tables were also formed.

Each table was assigned a discussion facilitator and note taker. These table facilitators and note takers were recruited from ODU faculty and graduate students, the CIVIC Leadership Institute and HRULI leadership. Table participants were tasked with discussing their perceptions of sea level rise and its associated risks, actions and solutions for addressing flooding due to sea level rise, and resource needs to support action.

Discussion Tables

- government planners
- government emergency managers
- infrastructure managers
- real estate businesses
- tourism and waterfront businesses
- civic leagues
- environmental NGOs
- civic engagement NGOs



Resilient Region Reality Check Program

Participants were given three questions to discuss. These questions were: (1) How does flooding affect you? (2) What should we do about flooding? Which actions are most effective? and (3) What resources are needed to address flooding? For each question, participants were also asked to discuss and identify two regional priorities. Specifically, participants were asked to identify: (1) the top two flooding issues that are of most concern; (2) the top two most effective actions; and (3) what two resources are most needed and how they could be acquired.

These 30-minute table discussions were followed by immediate sharing of the two key points from the discussion. Each table was given two minutes to report out and share the key points from their discussion. This approach allows for leveraging of sector-specific knowledge while ensuring sharing and cross-pollination of ideas across multiple sectors.

Participants were also given the opportunity to provide direct input, via a prioritization activity, on their individual priorities for taking action to address sea level rise and flooding. In this prioritization activity, participants were provided a list of the action items resulting from the second discussion question of “What should we do about flooding?” Each participant was given five sticker dots to use to vote for the actions he/she would most want to support or see resources used for.

Discussion Questions and Priorities Identification

Question 1: How does flooding affect you?

Priorities 1: Which issues are of most concern?

Question 2: What should we do about flooding?

Priorities 2: Which actions are most effective and why?

Question 3: What are the resources needed to address flooding issues? How should we pay?

Priorities 3: Which resources are most needed and how could they be acquired?

Initial Perceptions Regarding Sea Level Rise and Flooding

Participants for the Resilient Region Reality Check were asked to register in advance and complete a short survey. These survey questions provide insight into participants' initial perceptions of sea level rise and flooding.

Survey results point to four key issues regarding sea level rise and flooding:

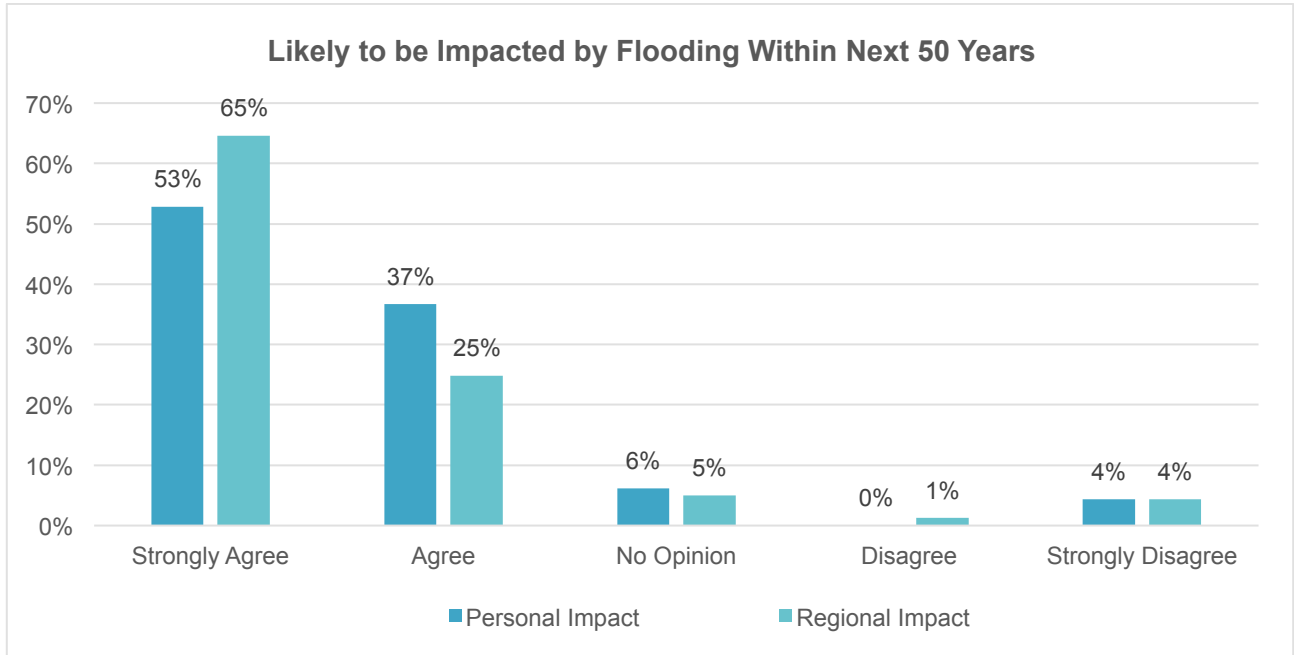
1. There are high levels of agreement that the impacts of flooding will be felt personally and regionally;
2. Most stakeholders feel knowledgeable about flooding risks and impacts;
3. There is some agreement that the community will take the actions necessary to deal with flooding and also some agreement on individual-level willingness to pay more in taxes or fees to make the community more resilient to flooding;
4. But, there is ambivalence about community and individual willingness to take actions necessary to address flooding and being more resilient.

Flooding Impact

- 90% agree that the region will be severely impacted by flooding
- 90% agree that they will be personally impacted by flooding

Willingness to Address Flooding and Building Resilience

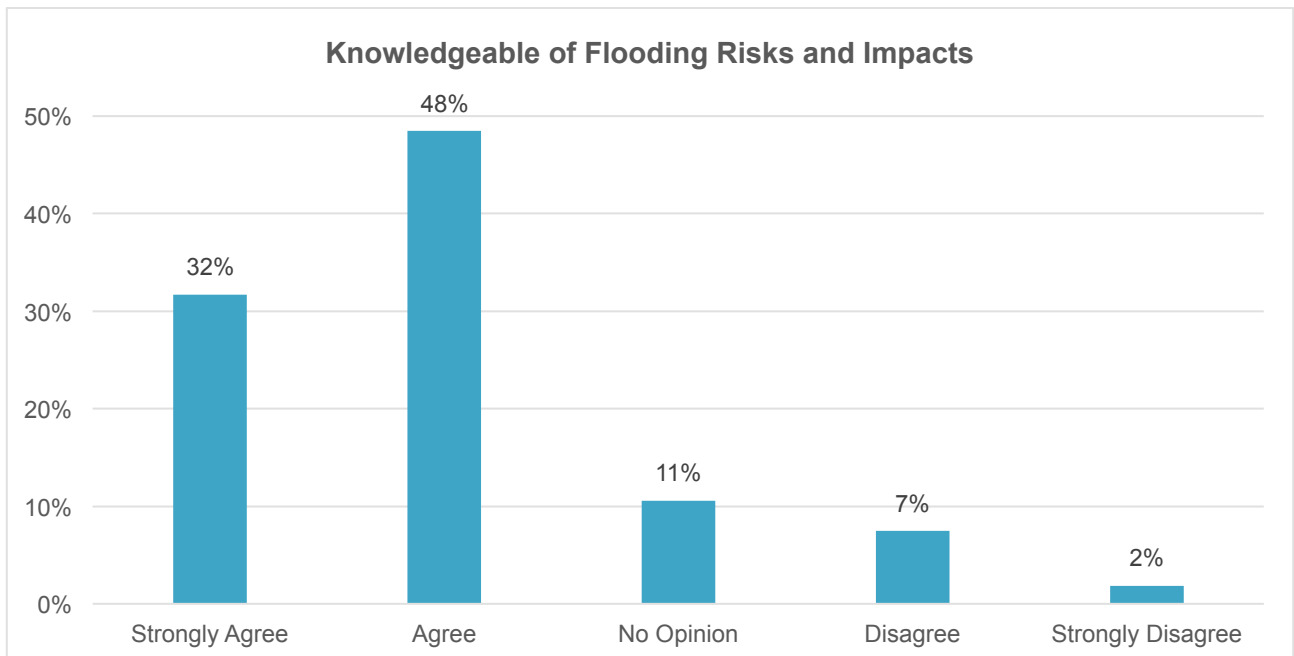
- 47% agree that their community will take necessary actions
- But 31% have no opinion about community willingness
- 63% are willing to pay more in taxes or fees to make the community more resilient
- But 32% have no opinion about individual willingness



Survey questions:

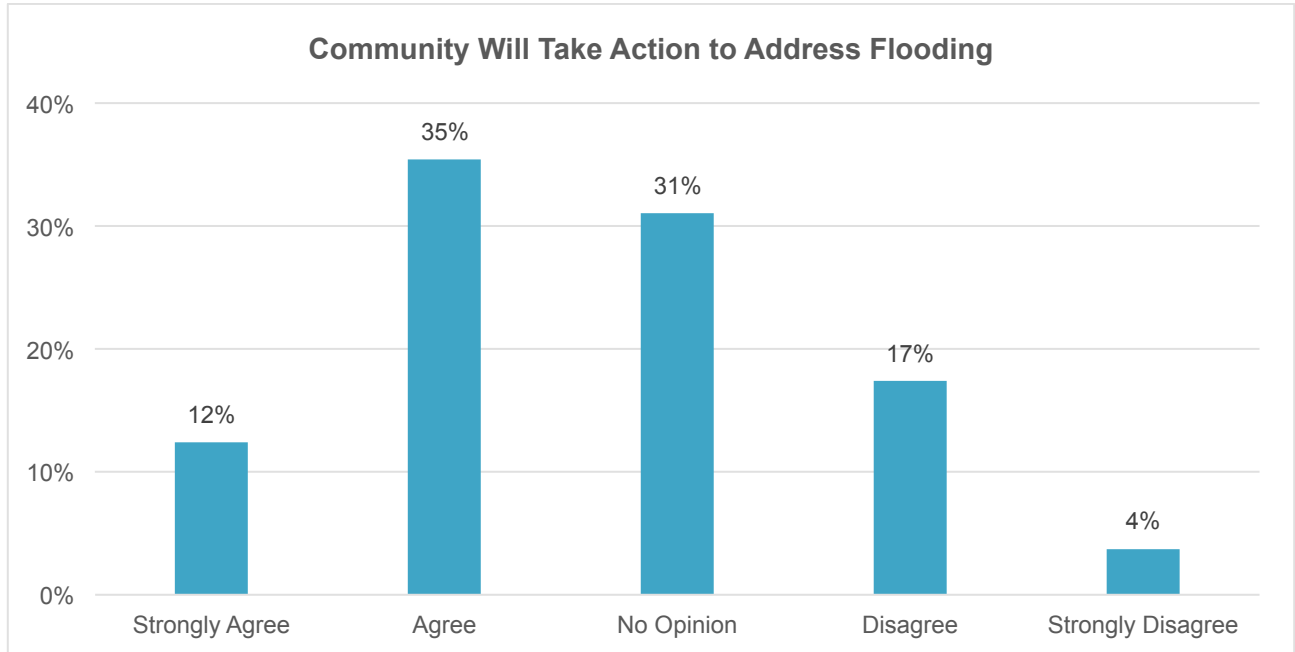
PERSONAL IMPACT: I am likely to be impacted by flooding within the next 50 years.

REGIONAL IMPACT: Hampton Roads will be severely impacted by flooding within the next 50 years unless action is taken.



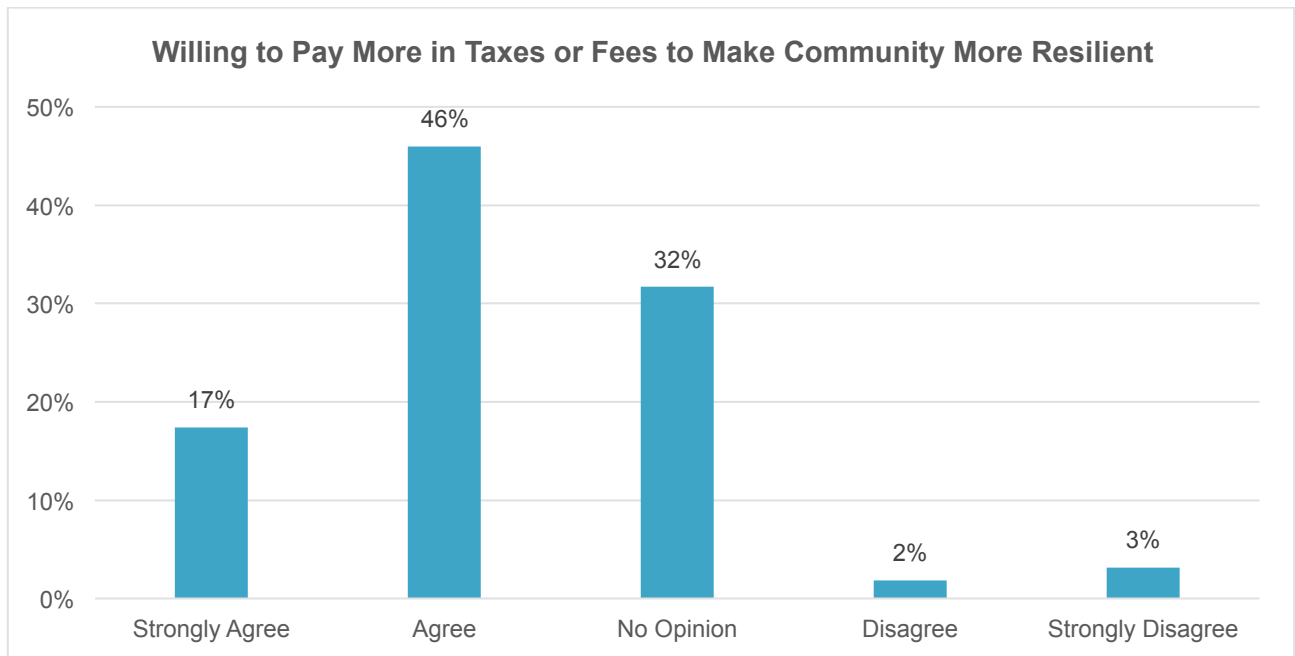
Survey question:

I feel knowledgeable about the risk of impact of flooding and future flooding to Hampton Roads.



Survey question:

My community will take the action necessary to deal with flooding in the next 50 years



Survey question:

I am willing to pay more in taxes or fees to make my community more resilient to flooding.

Results

Several themes emerged from the table discussions, report outs, and prioritization activity. First, participants highlighted that the impacts of sea level rise and flooding are multi-faceted. These include economic, quality of life, mobility, health, and equity impacts. Second, there is general agreement that sea level rise and flooding needs to be incorporated directly into planning and decision making at a regional level. Third, land use planning plays an important role in building resilience. In addition, there is widespread consensus that regional collaboration and regionally-adopted solutions are necessary to effectively address sea level rise and flooding. Participants also acknowledge that resilience requires a commitment of both financial and non-financial resources. Finally, the importance of educating and informing the public, civic engagement, and outreach was consistently emphasized.

Key Results

1. Impacts of sea level rise and flooding are multi-faceted
2. Sea level rise and flooding need to be incorporated into planning and decision making
3. Land use planning plays an important role in building resilience
4. Regional collaboration and regionally-adopted solutions are needed
5. Financial and non-financial resources are needed
6. Civic engagement and outreach are important

Question: How does Flooding Affect You?

Economic-related impacts were the most commonly identified by the majority of participants. Twelve out of the thirteen tables identified economic impacts as one of the top two flooding impacts. Several groups highlighted specific economic concerns such as property loss--especially damage to real estate and vehicles. Loss of property value in homes and the resulting impacts on the housing market were cited by two of the groups as primary areas of concern.

One group highlighted the interconnectedness of social, economic, and ecological impacts as an area of concern. Complex economic issues and linkages to other impacts were discussed at many of the tables. For example, questions of social equity and quality of life issues were connected to worries about the potential for the local economic situation to decline. Some tables discussed the dependence of the local economy on the Navy and the ports, and subsequently the need for their facilities and infrastructure to develop resilience. In addition to talking about flooding from large storm events, such as hurricanes, participants also discussed the effect of nuisance flooding on the region and that smaller storms can cause the area to shut down.



“This is going to be a difficult problem to solve because of all the different perspectives”

-Participant comment
in post-event survey



Transportation was also recognized by a majority of the tables as being impacted by flooding in Hampton Roads. Many of the participants had personal experiences of disruption to their lives or isolation in an area due to flooding on roads. This is reflected in comments such as “everyone gets stuck” and “Shore Drive is impossible to get to when there is flooding.” Concerns included work continuity, family concerns (especially if schools are inaccessible), and life safety issues related to the inability of first responders to travel to those in need.

Another issue identified as a top concern was the resilience of broader infrastructure including roads, bridges, building, and utilities. Planning horizons and costs associated with improving and maintaining infrastructure in an area that frequently floods were also raised. One participant noted, “Why would you plan so short – plan more on a 200 year schedule – makes bonds cheaper too... planning out more is better because the problem won’t just stop after 50 years.” Linking to the issue of infrastructure, one group identified public health impacts as a top concern. Participants in this group cited examples such as the backup of sewer systems into homes and flooded homes becoming toxic.

A related concern identified by one group of participants was “recognizing what is feasible.” This group thought that it is important to recognize and acknowledge how residents think about their home, despite the changing conditions. As noted by one participant in this group, “It is in the resident’s mind—especially those who have been staying here for long—and they want to know what the city is doing about it as they want to stay and moving is not an option that is in their mind. People here love the water.”

Many comments collected from the table discussions reflected the general perception that stakeholders are committed to the idea of making the region an area where people want to live, but flooding is affecting decisions about how and where to live in the community. Several participants expressed the opinion that “people need to change their mindset,” and that the region needs to consider sea level rise and future flooding potential in many aspects of planning and city management.

Question: What Should We Do About Flooding? Which Actions are Most Effective?

The second table discussion asked each group to identify actions to address flood conditions or flood risk within the region. The most effective actions identified by the participants included generalized approaches and specific actions that could be taken by individual residents, governments, or other entities. Consistent across these different actions was the idea that land use planning is the most effective way to build resilience in the region. Among the generalized approaches, several groups mentioned regional collaboration and consistency in planning strategies, zoning, and other infrastructure decisions.

Specific actions under the regional collaboration umbrella included having a comprehensive policy and plan that is a joint effort across all jurisdictions in the region. One group outlined an idea that would include the development of a Regional Resiliency Council formed from local city representatives and a Resiliency Certification program to give credibility and measure success. Participants generally perceived that regionally developed strategies and actions have the potential to be more widely adopted. Another suggested strategy for a regional approach calls on the Army Corps of Engineers to develop a regional resilience plan. Suggestions for regional land use included encouraging or requiring some level of consistency in specific areas such as building codes and standards, and having stronger working relationships between the HRPDC and the localities. Consistent messaging and information across the region was also identified as being important for creating a regional mindset for addressing sea level rise. In addition to strategies and actions, participants also identified barriers to regional action. One specific challenge was the current inability to blend funding sources to enable leveraging of federal investments.

Specific tools of land use planning, such as changes to zoning policies, restricting development, and creating regional building standards, were outlined by several groups as effective actions. For example, one participant noted that “government installations could be relocated and replaced with ones that address flooding issues.” Other land-use-specific strategies were also identified. Strategic, managed retreat from areas that experience flooding was also suggested. In addition, one participant group thought that the region should use “natural boundaries to absorb the impacts of water” and another commented that we should “design and adapt to where the water wants to go.”

Public education, civic engagement and outreach was another broad area that was raised by more than one group. Some of the outreach strategies highlighted were to create more citizen emergency response teams and increase the number of flooding signs. One group suggested homeowner education and another suggested that there is a need to “change the culture of Hampton Roads to help manage the fear of flooding because when people are educated, they are less likely to panic.”

“There is a consensus building that this is a serious issue and the only way to move forward on a solution is through regional collaboration.”

-Participant comment in post-event survey

Question: What Resources are Needed to Address Flooding?

The third table discussion focused on the resources needed to address flooding. Participants were asked to identify the most needed resources and, if possible, describe how these resources could be acquired. While techniques to finance many of the solutions previously described were one focus of discussion, another focus was on highlighting the need for non-financial resources.

Participants agree that investments in mitigation and adaptation were needed from local, state, and federal governments, in addition to from the private sector. Among the mechanisms identified by participants for funding flood mitigation and sea level rise adaptation projects were public-private partnerships, a carbon tax, a regional greenhouse gas initiative, cost-sharing programs, loans for mitigation projects, grants, and preferential taxes.

There was a wide range of non-financial resources identified by participants, including information sharing networks, a cross-regional communications task force, political will, education about climate change issues, apolitical messaging, marketing resources, and youth civic engagement. Training was suggested for several groups including professionals, government staff, and elected officials. Other resources needed were incentives for builders and cities to develop in high-density areas rather than high-risk areas, pre-planning for post-disaster construction, a comprehensive regional resilience plan, and a new policy that prioritizes adaptation over protection.

Activity: Prioritizing Action

The table discussions were followed by a prioritization exercise. Each participant was given five votes to prioritize the actions he/she identified as most effective for addressing flooding and sea level rise, and increasing resilience. The actions that participants were asked to prioritize were identified during the table discussions.

Consistent with table discussions, regional collaboration was identified as a high priority action. This action received the most votes (15%) from participants. Similarly, two other issues and actions that arose from table discussions – zoning/land use and public education/outreach – were also considered high priorities. Interestingly, reducing carbon emissions, the only mitigation strategy raised during table discussions, was also identified as a high priority action.



Top 5 Priority Actions

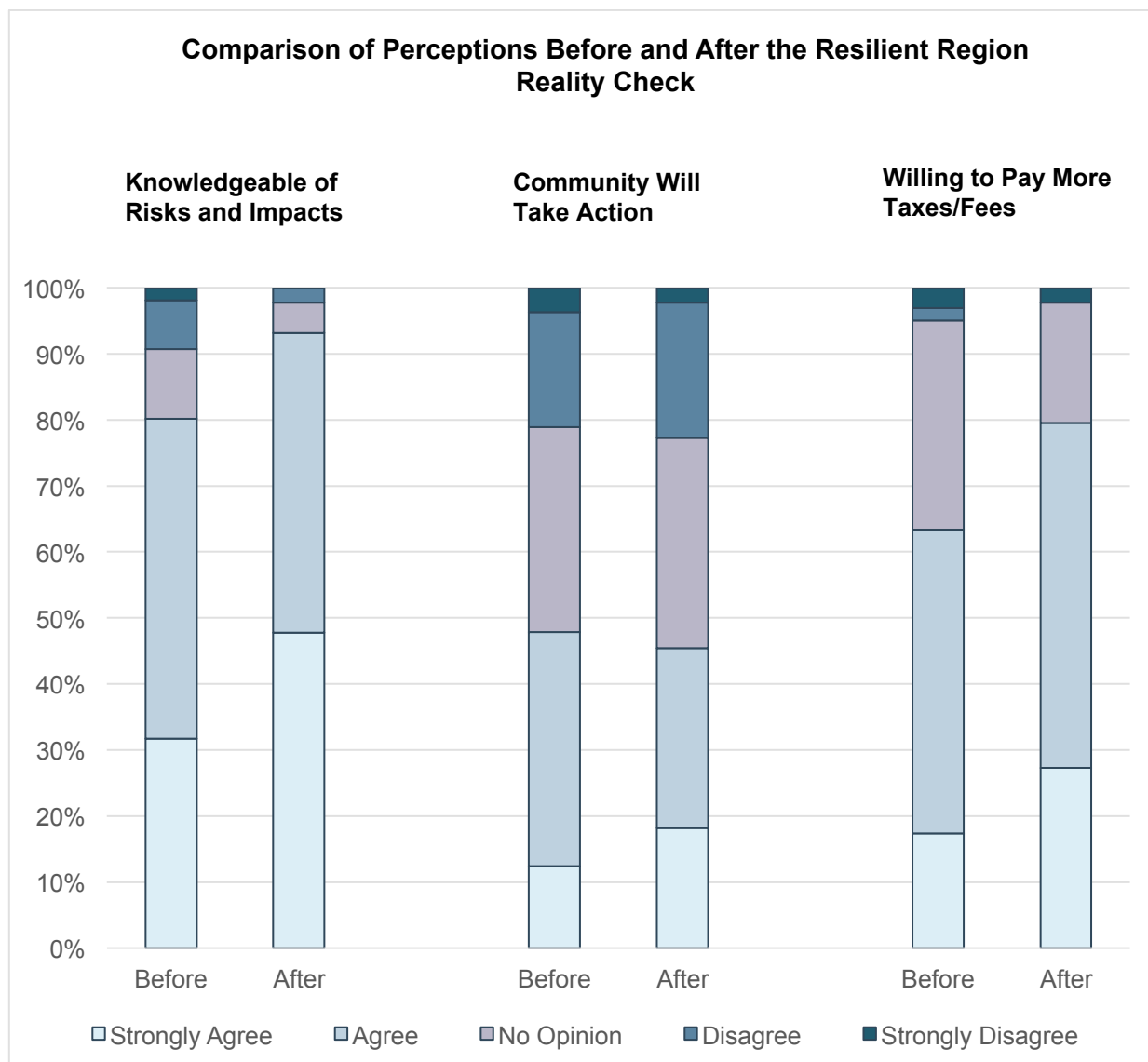
1. Regional collaboration to attract funding
2. Revise zoning and land use
3. Public education/outreach
4. Reduce carbon emissions
5. Natural solutions (e.g. coastal engineering, wetlands preservation)

Individual Priorities for Actions to Address Flooding and SLR	Votes (%)
Management	
Regional collaboration to attract funding	56 (15%)
Public education/outreach	48 (13%)
Improve emergency planning	19 (5%)
Pursue federal funding	2 (1%)
Land Use and Zoning	
Revise zoning and land use	51 (13%)
Regional building standards	31 (8%)
Elevate building and utilities	6 (2%)
Harden infrastructure	6 (2%)
Strategic	
Strategic managed retreat	19 (5%)
Create competitive economic strategy for flooding and sea level rise	15 (4%)
Technical Solutions	
Natural solutions (e.g. coastal engineering, wetlands preservation)	41 (11%)
Living with water designs	37 (10%)
Improved mapping/models	8 (2%)
Other	
Reduce carbon emission	42 (11%)
Non-flood priorities	1 (0%)
FEMA buyouts	1 (0%)

Conclusions and Next Steps

Discussion during the Resilient Region Reality Check event pointed to six key themes revolving around (1) multi-faceted impacts of sea level rise and flooding; (2) sea level rise should be an essential component in planning and decision making; (3) land use planning should play a key role; (4) the need for regional collaboration and regional solutions, (5) the need for financial and non-financial resources, and (6) the importance of pursuing civic engagement and outreach. General consensus among participants along these themes indicate a strong starting point for continuing the whole-of-community, action-oriented conversation about addressing SLR and flooding.

Following the event, participants completed a post-event, evaluation survey. Responses to the post-event survey show that the Resilient Region Reality Check has, to some extent, increased participants' level of knowledge regarding the risks and impacts of flooding. While there was minimal change in participants' perceptions that the community will take the actions necessary to address flooding, there was greater willingness, post-event, among participants to pay more in taxes or fees to make the community more resilient to flooding.



Results indicate that the event appears to have had an effect on individual efficacy, in that participants reported higher level of knowledge about sea level rise risks and impacts coupled with greater willingness to pay taxes and fees to build community resilience. However, at a more aggregate, community-wide level, there was little impact on participants' perception of the community's willingness to take action. This result further highlights the need for communicating and educating the public via civic engagement and outreach efforts.

“It was very eye opening to hear the views and concerns from others.”

“[The value of the event was] being allowed to participate and make input to our table's discussion and conclusions”

-Participant comments
in post-event survey

The post-event survey also points to how the Resilient Region Reality Check event helped participants broaden their perspectives and understanding of flooding and SLR. For example, almost 98% of participants responding to the post-event survey agreed that the event helped them understand the perspectives of different stakeholders from multiple sectors (government, business, non-profits, and the community) and more than 90% agreed that it helped them appreciate these different perspectives. Almost 89% agreed that the event helped them 1) understand shared concerns about flooding and SLR, and (2) understand the challenges the region faces in becoming resilient.

Responses to the post-event survey also provide some initial ideas for moving ahead with continued region-wide conversation about addressing flooding and SLR.

Participants identified several program elements as being valuable, including:

- (1) the inclusive whole-of-community approach allowed stakeholders and stakeholder groups to participate in the conversation about and process for addressing SLR and flooding;
- (2) the whole-of-community dialogue approach allowed for face-to-face conversations with others in the community interested in SLR and flooding;
- (3) the table discussion and report outs provided a venue for hearing different perspectives;
- (4) the table discussion, report outs, and prioritization activity generated action-oriented information.

The Resilient Region Reality Check surfaced, among participants, the recognition that different stakeholders have different perspectives which makes addressing the problems of flooding and SLR difficult. Furthermore, much of the discussion also focused on the need for regional cooperation. This regional theme arose consistently throughout the table discussion and report outs. One of the key issues that will need to be addressed moving forward is how to meet the need for a regional approach to addressing SLR and flooding.



Getting to Regional

Event participants noted the importance of a regional approach but also raised barriers and challenges to regional collaboration. For example, one group noted that we currently have “7 localities running their own ship,” while another identified that overcoming turf and territory issues would be a major challenge. However, there exist several regional organizations with varying levels of authority, different coordinating roles, and varying levels of involvement across the different local governments in the Hampton Roads region. These regional entities include the HRPDC, HRTPO, the Hampton Roads Sanitation District, Hampton Roads Transit, and the recently-created Hampton Roads Transportation Accountability Commission (HRTAC).

At one end of the spectrum, some participants identified that there currently is a mechanism for regional planning in the form of the HRPDC. At the other end of the spectrum, other participants suggested local government consolidation as one possible way to ensure a regional solution to important issues such as sea level rise and flooding.

“[There is] a lot of talk, little action, less money.”

“[It’s] so hard to get individuals to think beyond their own homes and neighborhoods, let alone getting people to think even city-wide. Constituents are not thinking regionally, so city officials are not going to think that way.”

-Notes from table discussion

Participants also pointed to HRTAC as an example of a regional organization with specific authority to make decisions at a regional level.^{xi} When asked about incentivizing regional coordination and collaboration, one group discussed how the availability of regional funds might be a method to encourage regional cooperation and regionally-focused actions. As one group noted in its discussion, “it comes down to money.” Another group suggested creating a regional tax that would support mitigation and adaptation efforts on a regional basis. In a similar vein, there was some discussion about having federal- or state-mandated regional coordination that is tied to funding. In one group discussion, participants noted that the federal government requires regional transportation planning to receive federal funding.

Lessons Learned and Next Steps

The Resilient Region Reality Check 2015 showed that it is possible to bring stakeholders from across the whole community together in an inclusive conversation about the impacts of sea level rise and flooding, and facilitate discussion of strategies, actions, and resources to increase resilience. As evident from participant feedback in the post-event survey, the event’s framework, which was based on a whole-of-community, region-wide, and action-oriented approach, was quite successful at engaging a wide range of stakeholders and focusing their attention on actions needed to address sea level rise and flooding as a region.

The event structure facilitated in-depth dialog among stakeholders with similar background and interests while allowing for information sharing and cross-pollination of ideas across the wider group of participants. Discussion during the event and responses to the post-event survey indicate that the event was successful at surfacing different stakeholders' perspectives and perceptions, and engaging them in discussion primarily within stakeholder groups. However, while some participants noted that they appreciated being able to hear the perspective of other stakeholder groups, the event's structure did not provide much opportunity for in-depth information sharing and exchange across different stakeholder groups.

Follow up engagement efforts will want to build on the momentum from the Resilient Region Reality Check 2015 event. These engagement efforts should continue to emphasize the whole-of-community perspective, the regional emphasis, and the action orientation. However, the follow-up events might want to focus on bridging different stakeholders' perspectives. This bridging focus will be important to move the conversation to the community level, rather than on an individual level. The Resilient Region Reality Check 2015 event was successful in increasing individual efficacy, but did not have much impact on perceptions about the community's willingness to take action. In addition, while invitations to participate in the Resilient Reality Check were sent to a wide range of stakeholder groups, some groups remained under-represented. Greater emphasis will need to be placed on bringing these under-represented groups into the conversation and to the decision making table.

Appendix A: Steering Committee and Event Team Members

Steering Committee

Dan Bell, Urban Land Institute Hampton Roads
Joseph Bouchard, Virginia Coastal Coalition
Michelle Covi, Old Dominion University and Virginia Sea Grant
Randy Keaton, Hampton Roads Planning District Commission
Elizabeth Kersey, Office of the President, Old Dominion University
Cathy Lewis, Office of Community Engagement, Old Dominion University
Karen Meier, Office of Community Engagement, Old Dominion University
Hans-Peter Plag, Mitigation and Adaptation Research Institute, Old Dominion University
James Reddick, City of Norfolk
Burrell Saunders, Urban Land Institute Hampton Roads

Event Team

Dan Bell, Urban Land Institute Hampton Roads
Michelle Covi, Old Dominion University and Virginia Sea Grant
Tamora Park Farinholt, Office of Community Engagement, Old Dominion University
Cathy Lewis, Office of Community Engagement, Old Dominion University
Karen Meier, Office of Community Engagement, Old Dominion University
Burton St. John III, Dept, of Communication and Theatre Arts, Old Dominion University
Wie Yusuf, School of Public Service, Old Dominion University

Appendix B: Stakeholder Organizations Participating in the Resilient Region Reality Check

Burgess & Niple	NAVFAC
Busch Gardens	Navy Region Mid-Atlantic
Care Coalition	Newport News Department of Planning
CDM Smith	NOAA
Central Business District Association	Norfolk Environmental Commission
Chesapeake Bay Foundation	Norfolk Planning Commission
Chrysler Museum of Art	Olde Towne Civic League
City of Chesapeake	Port of Virginia
City of Chesapeake	PortsmouthCityWatch.org
City of Hampton	Resilient Virginia
City of Norfolk	Resort Advisory Commission
City of Poquoson	S.L. Nusbaum Insurance
City of Virginia Beach	Saunders+Crouse Architects
CIVIC Scholars Program	Sierra Club--Virginia Chapter
County of Isle of Wight	Southeast Care Coalition
Cox, Kliewer & Company, P.C.	Terry Peterson Company
Downtown Norfolk Council	TGC
E.V. Williams	Tidewater Builders Association
Elizabeth River Project	Town-n-Gown
FEMA Region 3	Trinity Analysis & Development Corp.
Hampton Roads Center for Civic Engagement	U.S. Department of Energy
Hampton Roads Planning District Commission	USACE, Norfolk District
Hampton Roads REALTORS® Assoc.	USCG District Five
Hampton Roads Sanitation District	USEPA
Harcourt Brown & Carey: Energy Finance	Vector Real Estate Advisors
Harvey Lindsay	Virginia Beach Economic Development
Hourigan Construction	Virginia Beach Public Schools
HRBOR	Virginia DEM
Ionic Deizgn Studios	Virginia DEQ
Langley AFB	Virginia Eastern Shorekeeper
League of Women Voters	Virginia Natural Gas
Lynnhaven River NOW	Virginia Tidewater Consortium for Higher Education
McNeilan & Associates	Virginia Veterans Creations
NAACP	Wetlands Watch
Natural Event Mitigation Advisory Committee (NEMAC)	Wheeler Real Estate Investment Trust, Inc.
	Williams Mullen
	Work Program Architects

Appendix C: Participant Pre-Event Survey

When participants registered for the Resilient Region Reality Check, they were asked to complete a pre-event survey that included the following questions.

I am likely to be impacted by flooding within the next 50 years.

- Strongly Disagree
- Disagree
- No Opinion
- Agree
- Strongly Agree

Hampton Roads will be severely impacted by flooding within the next 50 years unless action is taken.

- Strongly Disagree
- Disagree
- No Opinion
- Agree
- Strongly Agree

I feel knowledgeable about the risk of impact of flooding and future flooding to Hampton Roads.

- Strongly Disagree
- Disagree
- No Opinion
- Agree
- Strongly Agree

My community will take the action necessary to deal with flooding in the next 50 years.*

- Strongly Disagree
- Disagree
- No Opinion
- Agree
- Strongly Agree

I am willing to pay more in taxes or fees to make my community more resilient to flooding.

- Strongly Disagree
- Disagree
- No Opinion
- Agree
- Strongly Agree

Appendix D: Participant Post-Event, Program Evaluation Survey

Following the Resilient Region Reality Check event, participants were asked to complete a post-event, program evaluation survey. Of the approximately 130 attendees, 45 participants opted to complete a post-event evaluation survey. Of those, 32% were from government, 16% from private industry, 11% from NGOs, 25% from academic institutions, and 16% were citizens.

The post-event, program evaluation survey included the following questions.

The program met my expectations.

- Strongly Disagree
- Disagree
- No Opinion
- Agree
- Strongly Agree

The program helped me understand the perspectives of different stakeholders from government, business, non-profits, and the community

- Strongly Disagree
- Disagree
- No Opinion
- Agree
- Strongly Agree

The program helped me appreciate the perspectives of different stakeholders from government, business, non-profits, and the community.

- Strongly Disagree
- Disagree
- No Opinion
- Agree
- Strongly Agree

The theme and focus was appropriate.

- Strongly Disagree
- Disagree
- No Opinion
- Agree
- Strongly Agree

The program helped me understand shared concerns about flooding and SLR.

- Strongly Disagree
- Disagree
- No Opinion
- Agree
- Strongly Agree

The program helped me understand the challenges the Hampton Roads region faces in becoming resilient to flooding and SLR.

- Strongly Disagree
- Disagree
- No Opinion
- Agree
- Strongly Agree

It was easy to participate.

- Strongly Disagree
- Disagree
- No Opinion
- Agree
- Strongly Agree

What was the most valuable part of the event for you?

- Strongly Disagree
- Disagree
- No Opinion
- Agree
- Strongly Agree

Evaluation respondents were overwhelmingly positive about the value of the program with only a few neutral comments and no negative comments about the program, theme or the achievement of program goals.

	Strongly Agree	Agree	Neither Agree Nor Disagree	Disagree	Strongly Disagree
The program helped me understand the perspectives of different stakeholders from government, business, non-profits, and the community	50.0%	47.7%	2.3%	0.0%	0.0%
The program helped me appreciate the perspectives of different stakeholders from government, business, non-profits, and the community	43.2%	47.7%	9.1%	0.0%	0.0%
The program helped me understand shared concerns about flooding and SLR	43.2%	45.5%	11.4%	0.0%	0.0%
The program helped me understand the challenges the Hampton Roads region faces in becoming resilient to flooding and SLR	43.2%	45.5%	11.4%	0.0%	0.0%

References

- i Nicholls, R. J., Hanson, S., Herweijer, C., Patmore, N., Hallegatte, S., Corfee-Morlot, J., Chateau, J. & Muir-Wood, R. (2007). Ranking of the World's Cities Most Exposed to Coastal Flooding Today and in the Future. *Organisation for Economic Co-operation and Development (OECD), Paris*.
- Hanson, S., Nicholls, R., Ranger, N., Hallegatte, S., Corfee-Morlot, J., Herweijer, C., & Chateau, J. (2011). A Global Ranking of Port Cities with High Exposure to Climate Extremes. *Climatic Change, 104*(1), 89-111.
- ii Brandes, Uwe, & Alice LeBlanc. *Risk & Resilience in Coastal Regions: A ULI Global Policy and Practice Forum Report*. Washington, DC: Urban Land Institute, 2013.
<http://uli.org/report/report-risk-resilience-in-coastal-regions/>
- iii Spanger-Siegfried, E., Fitzpatrick, M., & Dahl, K. (2014). *Encroaching Tides: How Sea Level Rise and Tidal Flooding Threaten U.S. East and Gulf Coast Communities over the Next 30 Years*. Cambridge, MA: Union of Concerned Scientists.
http://www.ucsusa.org/global_warming/impacts/effects-of-tidal-flooding-and-sea-level-rise-east-coast-gulf-of-mexico
- iv Hampton Roads Planning District Commission. (2012). *Climate Change in Hampton Roads: Sea Level Rise in Hampton Roads, Virginia*. Chesapeake, VA: Hampton Roads Planning District Commission.
http://www.hrpdcva.gov/uploads/docs/HRPDC_ClimateChangeReport2012_Full_Reduced.pdf
- v For example:
Hampton Roads Planning District Commission. (2013). *Coastal Resiliency: Adapting to Climate Change in Hampton Roads*. Chesapeake, Virginia: Hampton Roads Planning District Commission. Virginia Institute of Marine Science. (2013). *Recurrent Flooding Study for Tidewater Virginia*. Gloucester Point, VA: Virginia Institute of Marine Science.
Stiles, W., Jarbeau, S. H., Hughes, S., & Stiff, M.-C. (2014). *The Challenge of Mitigating Virginia's Flooding and Sea Level Rise Impacts*. Norfolk, VA: Wetlands Watch.
Hampton Roads Transportation Planning Organization. (2011). *Highway Network Analysis: Hampton Roads Military Transportation Needs Study*. Chesapeake, VA: Hampton Roads Transportation Planning Organization.
- vi For more information about the Adaptation Forums, go to
<https://www.odu.edu/research/initiatives/ccslri/2013>
- vii For more information about the Mitigation and Adaptation Research Institute, go to
<http://www.mari.odu.edu>
- viii For more information about the Hampton Roads Sea Level Rise Preparedness and Resilience Intergovernmental Planning Pilot Project , go to
<http://www.centerforsealevelrise.org>
- ix For an overview of the Reality Check 2013 event, go to:
<https://www.youtube.com/watch?v=vWxoCaAXuRE&feature=youtu.be>.
- x Centers for Disease Control and Prevention. (2013). *Building a Learning Community & Body of Knowledge: Implementing a Whole Community Approach to Emergency Management*. Washington, DC: Centers for Disease Control.
http://www.cdc.gov/phpr/documents/whole_community_program_report_october2013.pdf
Federal Emergency Management Agency. (2011). *A Whole Community Approach to Emergency Management: Principles, Themes, and Pathways for Action*. Washington, DC: Federal Emergency Management Agency. http://www.fema.gov/media-library-data/20130726-1813-25045-3330/whole_community_dec2011_2_.pdf
- xi The Hampton Roads Transportation Accountability Commission (HRTAC) was created by state legislation in 2014 with the specific task of managing the Hampton Roads Transportation Fund revenues for the Hampton Roads region, including decision about regional transportation resources and investments. For more information about HRTAC, go to <http://www.hrtac.org/>