

To: Maryland Adaptation Working Group  
From: Ken Colburn, Bill Dougherty, and Gloria Flora  
Date: January 4, 2008 (DRAFT)  
RE: Proposed Approach for Resolving Overlap Issues Among Priority Adaptation Options

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Greetings All,

Below is a proposed adjustment for the next phase of the adaptation work in Maryland for your review and feedback. At the December 7, 2007 ARWG Meeting, it became apparent there was significant overlap among priority adaptation options across TWGs. The purpose of this memo is to develop an approach to insure that these overlapping or common issues are developed into effective straw proposals without duplicating work. Of course, priority adaptation options that are exclusive to individual TWGs will also be developed concurrently.

Feedback received at the January 11 meeting will be folded into a final version of the approach, paving the way for TWGs to continue the next phase of their work developing straw proposals for all priority adaptation options, exclusive and common.

**The Concept:** We recommend simply that options consolidated from two or more TWG proposals be assigned to a single TWG for leadership. We have combined options as suggested at the last ARWG meeting and offer that reconfiguration and assignment for your approval. (See the appendix at the end of this document, and the supporting spreadsheets and explanatory notes sent under separate cover for the revised structure of the policy options for additional information and displays.\*)

The process that we use for straw proposal development is that members of each TWG volunteer to work on one or more sub-groups that convene independently to provide detailed descriptions and designs for an option. Each sub-group self-selects a leader whose responsibility is simply to initiate those sessions and see that the sub-group's product is forwarded to the TWG facilitator. All TWG members will have the opportunity to review those "works in progress" through a series of TWG calls. In the case of common options that have been consolidated, members from any TWG can volunteer to join the subgroup addressing that common option. Their rights and responsibilities are equal to all other sub-group members.

**Other Options Considered:** We considered reconfiguring the TWG structure or even adding an "Integrated Issues TWG". At this point in the process, however, it seemed that that would slow momentum, add confusion and potentially increase the workload for everyone.

*\*Tables to help explain the integration of common options are found in an Excel worksheet entitled *Overlap Development (v2)*. To view a display of the options in word format with the common options highlighted and assigned to various TWG's, see the Word document, *MD\_ARWG\_Policy Options Summary\_01\_02\_08*. Both have been sent separately.*

## **Interpreting the Tables Sent:**

### ***Baseline Option List Prior to the ARWG Meeting***

This table lists the options from each TWG as presented to the ARWG meeting on December 7, 2007. (See Worksheet One of the worksheet, entitled Options Pre-12/7ARWG Meeting.)

### ***Revised Option List Resulting from the December 7 ARWG Meeting***

This table lists options for each TWG after the ARWG feedback on December 7, 2007. (See Worksheet Two, entitled Options Post-12/7ARWG Meeting. (For those of you unfamiliar with this type of spreadsheet, there are small tabs at the bottom of the page that you click on to move from worksheet to worksheet.)

## **Integrated Issues Analysis**

Options that were common across two or more TWG's were identified, and the resulting integrated issues were then assigned to one TWG to shepherd completion of the Straw Proposal. See the recommended assignments below. (See Worksheet Three that shows how the options were combined and which TWG has responsibility for taking the lead in the development of the straw proposal.)

All TWG members are encouraged to volunteer for sub-groups to develop straw proposals. TWG members may also volunteer to work on integrated issues that are assigned to other TWG's if they are interested. Ideally, each common option would have at least one representative from each of the TWG's that originated a portion of the option.

The working titles are just that, working titles. The TWGs should adjust these titles as they see fit in keeping with the recommendations of the ARWG. Reference the notes from the ARWG meeting that were distributed earlier.

The responsibility for completion for each of the eight common options would be split among the different TWG's as suggested below.

- *Existing Built Environment and Infrastructure: there are 4 options that remain after accounting for options that are common to two or more TWGs; we assigned 2 integrated issues.*
- *Future Built Environment and Infrastructure: there are 3 options that remain after accounting for options that are common to two or more TWGs; we assigned 2 integrated issues.\**
- *Human Health, Safety and Welfare: there are 5 options that remain after consolidating options common to two or more TWGs; we assigned 3 integrated issues.\**
- *Natural Resources and Resource Based Industries: there are 6 options that remain after consolidating options that are common to two or more TWGs; we assigned 1 integrated issue.*

(\*To create more balance in the total number of options, at our January 11 meeting we will look at moving at least one option out of the HHSW group and assigning at least one more to the FBEI group.)

For your convenience, brief descriptions from the respective TWGs of the original policy options that have been combined are provided as an addendum at the end this memo.

## **Next Steps**

*ARWG Meeting #7(Jan. 11):* ARWG will review the overall options including the consolidation of common options and approve or modify. Any TWG having made progress on drafting straw proposals will provide those to the ARWG for information and review. The ARWG will review the assignments of the common options to TWGs and approve or modify.

*TWG meeting #1:* Each TWG will have an agenda that a) ensures an understanding of the straw proposal template, b) discusses the results of the 11 January ARWG meeting, c) finalize volunteers for subgroups to draft straw proposals\*\*, and d) provide guidance for the completion of the draft of the straw proposals.

*Between TWG meeting #1 and TWG meeting #2:* Subgroups would prepare their straw proposals for each policy option. For exclusive options, technical support would be provided by the TWG facilitator. For common options, support would be assembled by the TWG facilitator who has responsibility for the particular common option. It is expected that input will be solicited and incorporated from the other TWG(s) which shared the common option through a representative on the subgroup.

*TWG meeting #2:* Subgroups would report back to the full TWG and solicit feedback from the rest of the TWG members. On common options, input from other TWGs should be sought as well.

*Between TWG meeting #2 and ARWG Meeting #8:* Subgroups would revise their straw proposals on the basis of the feedback received.

*ARWG Meeting #8:* TWGs would present their straw proposals to the ARWG for approval.

We look forward to discussing this proposal with you on January 11.

Thanks!

The CCS Team

*See attachment below and two sent under separate cover.*

## Overview of Consolidated Issues and their Constituent Policy Options

*These descriptions do not reflect the latest work of the TWGs but rather what was approved by the ARWG to date.*

### **Human Health, Safety and Welfare**

This TWG will take the responsibility for three common options, in addition to the other policy options that are moving forward:

1. **Training and Capacity Building** (this would include all sectors with comprehensive coverage for training, education to persons, organizations and institutions which are directly related to capacity building in the event of long or short emergencies.) Public Awareness will be covered in a different policy option that includes outreach and education for K-12.

#### **FBEI 9 - Training and Capacity Building**

Training and capacity building among the multiple different groups involved in addressing the changing risks of sea level rise and coastal hazards will increase Maryland's capacity to respond effectively as new information on risks and policies becomes available. It will also expand the group of people able to explain new policies and support the implementation of new approaches. There are several types of training appropriate to reaching the diverse set of people and possible policy initiatives involved.

Establish structured capacity building and training for key adaptation sectors including building trades, infrastructure, finance and insurance, landscapers and others.

Establish structured training and vocational support for trades and others involved in implementation of new design standards.

Establish structured capacity building and training for public servants.

Integrate climate change and adaptation issues into advanced training in university, community college, and technical training programs.

Provide training for permit and planning agencies staff to address SLR and associated coastal hazards

Provide outreach and education to the broader population

#### **HHSW 7/11 – Education, Training and Outreach**

Provide appropriate training to emergency responders at all levels and locations that will assist them in making correct choices and in coordinating effectively with other units within the emergency medical system. Ensure that periodically tests are conducted of the emergency response system.

Train emergency services personnel in how to implement evacuation plans for those who lack the ability to respond appropriately and fully to evacuation orders, including those without automobiles or handicapped populations. Provide training and coordination capacity to implement alternatives if major highways are blocked or otherwise unusable.

*(modified from former HHSW 11 : Develop programs to inform care givers, pharmacists, churches, and others who work with vulnerable groups of the risks of and effective responses to emergencies. (deleted reference to sea level rise)*

#### **HHSW 8 – Protection of Service and Security Infrastructure**

Work with managers of hospitals, public buildings and infrastructure that provide emergency security, communications and health services to reduce the vulnerability of critical activities and equipment during an extreme event. Ensure that emergency services personnel are apprised of the location and sensitivities of these infrastructure components. Assess the feasibility of assigning prioritization codes to infrastructure requiring protection to ensure human health and security before, during and after a severe event.

2. **Public Awareness** - This differs from training and education as defined above in the sense that this is a more generalized approach to informing the citizenry – at all age levels, and in all regions potentially affected by sea level rise.

#### **EBEI 1: – Public Awareness Building**

Enhance public education programs aimed at informing the public about sea level rise and coastal hazards. This includes the development and implementation of standardized community education materials on coastal hazards that addresses the relationship between climate variability and climate change.

#### **HHSW 10 – Vector- and Waterborne Disease Awareness and Education**

Develop educational programs to increase awareness of the risks of vector- and waterborne diseases. Develop innovative delivery systems to ensure that diverse populations understand how to identify and appropriately respond to indicators of vector- and waterborne diseases. Education efforts should include school children, focusing on prevention techniques.

#### **RRI 6 – New Guidelines for Community Planning**

Develop and distribute guidance for local communities and municipalities to become sustainable in the face of climate change. Incorporate elements such as survey local governments throughout the state about what they're doing in response to seas level rise impacts, what they perceive as barriers and how best to share results. Also, develop and distribute stormwater runoff guides that consider greater extremes in storm events and coastal flooding.

3. **Hazard Preparedness and Early Warning Systems** – Because these are directly related to warning and preparing people for emergencies and long-term hazards associated with sea level rise, this is assigned to the HHSW TWG.

#### **HHSW 4 - Emergency Capacity Support**

Develop a plan to address insufficient surge capacity in dealing with issues of human health during and following extreme events such as flooding, storms and storm surges. Capacity must be present, consistent and effective in analyzing the safety of drinking water, monitoring for the appearance of vector-borne diseases and providing acute care for persons suffering from effects of the events. Issues to be addressed may include financial, human, and institutional capacity at all levels of government and institutional service providers.

#### **HHSW 6 – Early Warning Systems**

In collaboration with appropriate stakeholders, identify effective approaches to communicate early warnings for adverse public health events associated with climate change. Of particular concern are communication systems and plans that address low-income and under-served populations and other vulnerable groups. Ensure that municipalities that lack capacity to plan, develop or implement these systems are provided viable options to overcome those barriers.

#### **EBEI-9: Hazard Preparedness**

Improve hazard preparedness of residential homes and commercial entities by providing operational assistance or incentives. This includes the development of some sort of central information dissemination center in the State where such assistance and incentives would be offered.

## **Existing Built Environment and Infrastructure**

This TWG will take the responsibility for two common options, in addition to the other policy options that are moving forward:

1. **Coastal Protection Evaluation** - This will involve looking at what exists and what is necessary to increase and/or to develop to provide consistent protections.

### **EBEI-6: Assessment of Coastal Zone Adaptation Options**

Evaluate potential structural and non-structural options for beach protection including flood walls, dune restoration and creation, and periodic beach nourishment. This includes the evaluation of shoreline protection structures to determine their effectiveness under varying sea level rise scenarios, evaluation of the need for modification/replacement/abandonment, and the evaluation of shoreline erosion buffers for zones subject to flooding in which significant infrastructure is located.

### **FBEI 7 - Evaluate Shoreline Protection Structures**

Under conditions of sea level rise, changing coastal dynamics, and new coastal hazard management priorities, the relative merits of shoreline protection strategies are likely to change. In addition, there are gaps in the current state of knowledge on hard and soft structural options. A detailed analysis and inventories of the pros and cons of application of hard structural options (such as dikes, levees, floodwalls, and saltwater intrusion barriers) and soft structural options (such as dune restoration and creation, wetland restoration, creation, periodic beach nourishment, temporary barriers and other options) would inform strategies that anticipate the potential need to retreat or protect and minimize the impacts on systems facing other stresses.

2. **Building Standards** – For existing remodels or upgrades and for new construction and siting.

### **EBEI-8: – Building Code Revisions**

Strengthen existing building codes for new infrastructure and incorporate an increase in building inspection effectiveness as part of the strengthened codes. This includes the evaluation of infrastructure design standards/codes associated with retrofitting activities for existing infrastructure to account for sea level rise and increased severity of storms and storm surges, as well as a strengthening of construction protocols/conventions for piers and wharves for wave strength.

### **FBEI 3 - New Design Standards, Building and Zoning Codes to Facilitate Retreat, Avoid SLR Risks, and Increase Resilience When Other Strategies Are Not Viable**

This is a three part strategy to guide risk reduction in areas at risk to sea level rise and associated coastal hazards. It focuses on the development and implementation of new design standards, building and zoning codes in a coordinated strategy designed to avoid development in areas at risk, facilitate retreat from developed areas at increasing risk to SLR and associated coastal hazards, and increased ability to reduce costs (or increase resilience) where retreat or avoidance are not viable strategies.

This proposal would include the use of zoning to guide future development out of areas vulnerable to sea level rise and associated hazards and guide the retreat in areas that become damaged or a greater risk. It would also establish a mechanism to evaluate and recommend new design standards for structures that may be vulnerable to SLR and associated hazards and institute new hazard-resistant building codes and design standards to reduce vulnerability of structures to future sea level rise and associated hazards.

## **Future Built Environment and Infrastructure**

The FBEI will take on two common options.

1. **Planning** – This has a number of components including resources, but the natural environment provides the setting and context for the built environment and could reasonably be considered in this overarching Planning arena.

### **EBEI-7: Adaptation Planning**

Increase erosion and hazard planning focused on all coastlines, especially sheltered coastlines. This includes the development and implementation of an early warning system (i.e., enhance hazard preparedness) through incorporation of sea level rise in hurricane and storm-surge evacuation planning.

### **RRI 2 - Community Realignment Plans**

Encourage local governments to develop Community Realignment Plans, as a component of the comprehensive planning process, which will consider sea-level rise and the following adaptation elements:

- Phased transitions in coastal hazard areas including up- and down-scaling of density and public investment in infrastructure
- A suite of incentives and disincentives to restrict additional growth in and move existing growth out of high hazard areas
- Adaptive erosion control measures
- Wetland migration/retreat corridors
- Designated resource conservation – working lands and wildlife habitat

### **RRI 5 – Watershed Planning and Management**

Use a watershed approach, in both urban and rural settings, with consideration of broad floodplain management criteria, to plan, locate and design development in areas that best reduce and minimize storm and flood hazards, facilitate natural infiltration and protect/restore riparian buffers, wetlands and forests and allow wetland migration corridors.

### **FBEI 1 – Integrated Planning for SLR and Associated Coastal Hazards**

Efforts to integrate critical area planning and zoning requirements with comprehensive planning laws, including emergency planning and infrastructure planning requirements will improve the capacity of planners to avoid SLR and associated coastal hazards to the extent possible and minimize risks in other situations. The goal of this policy option is to increase coordination and consistency in planning approaches and support the integration of other climate adaptation proposals, such as new building and zoning codes (FBEI 3), into comprehensive planning.

## **2. Vulnerable Area Inventory, Mapping and Monitoring**

### **FBEI 6– Monitor, Map, and Inventory SLR and Vulnerable Areas and Property**

Strategies for minimizing future risks will depend on an understanding of the risks and vulnerabilities. This option views local information on sea level rise as fundamental to planning and response activities. It calls for research to track the local rate of sea level rise, recognizing the potential for significant differences in rates between areas in relatively close proximity. In addition, the policy option supports an inventory and mapping of public and private property and sensitive ecosystems so that risks can be tracked and managed. This information would support other planning and design efforts.

### **RRI 3 - Monitoring Programs**

Adapt Statewide monitoring programs or create new monitoring programs to detect biological, physical and chemical responses to direct and indirect effects of climate change. Systems monitored should include forests, wetlands, streams and other surface water bodies (lakes, rivers, estuaries), ground water, indicator species and other wildlife. (This has a specific sea level rise focus.)

### **EBEI-5: Assessment of the Vulnerability of Coastal Zone Infrastructure**

Develop an inventory of potentially impacted infrastructure and maintain this database relative to emerging projected sea level rise findings. This includes the identification of public and private systems and facilities at serious risk from sea level rise, the development of a system for siting such facilities away from vulnerable areas, and the evaluation of the presence and significance of threatened historical structures and develop plans for their relocation and/or protection.

## **Resource and Resource-Based Industries**

This TWG will take on one of the combined options since there are quite a few other unique options within your TWG.

### **1. Revision and Development of Legislation Related to Sea Level Rise**

#### **FBEI 2 - Mandate integration of MD CCC Findings and Recommendations into All Appropriate State and Local Programs**

This proposal calls for a strong statement of support for action on the MD Commission on Climate Change recommendations. Many of the FBEI policy suggestions address existing challenges that will need focused attention. Identification of existing state and local programs that could be modified and /or strengthened to accommodate for climate change, SLR, and the MCCC recommendations and requirements would support capacity for coordinated and more effective response to new information.

#### **RRI 7 – Modify Environmental Protection Regulations**

- Modify the Tidal Wetlands Act, other regulations and create incentives and disincentives to promote sustainable shoreline management practices on private land. Include these actions:
- Revise regulations enabling private land owners to put sediment on their tidal marshes, and continue to rebuild declining marshes on public lands using dredged materials from Army Corps projects.
- Encourage the use of living shorelines when private homeowners defend their coastlines against sea level rise so that vulnerable species which need the bay interface ecosystem to survive (e.g. Maryland Terrapins, Tiger Beetles, etc.) will not be lost.
- Provide landowners with technical assistance and subsidies when necessary to achieve successful shoreline stabilization projects.