Background:
The Cliff Stabilization Advisory Committee was established by the Board of County Commissioners in November 2010. Virginia (Ginger) Haskell, PhD was appointed chairperson. The Committee was charged with responding to the State Steering Committee Report, “Chesapeake Bay Cliff Erosion in Calvert County” and to make recommendations to the Board of County Commissioners on issues relating to cliff stabilization. The Committee is made up of residents representing Chesapeake Bay shoreline communities.

Discussion:
The Committee held monthly public meetings between January 2011 and June 2013. In an effort to educate the Committee and the community, the Committee invited geologists, biologists, engineers, academics and government officials to give presentations at 9 of their meetings. The Committee’s final report (attached) has 17 recommendations and includes the response to the State Steering Committee Report (Appendix E). The Committee continued to meet between June 2013 and April 2014 to complete the report. Dr. Haskell will present the report to the Board of County Commissioners on May 13, 2014 (see attached PowerPoint). A list of the Committee members is given on pages 15-16 of the Final Report and on the last slide of the PowerPoint.

Conclusion/Recommendation:
Recommend that the BOCC review the Final Report and submit the Final Report to Department Heads to get feedback on implementation of the recommendations within the report. Also recommend that the Committee receive formal recognition for their dedication and hard work over the past several years.

Fiscal Impact:
There is no fiscal impact to receive the Final Report. Fiscal impact will be determined by the number of actions and which particular actions the Board of County Commissioners decides to implement.
Advisory Committee

- Established by BOCC - November 2010
  - To respond to Steering Committee Report
  - To make recommendations to BOCC

- Made up of residents representing Chesapeake Bay shoreline communities

- Subcommittees: Legal, Technical, Communications, and Financing
Advisory Committee

• Monthly public meetings January 2011 - June 2013

• Presentations from 9 expert speakers, including
  • Geologists
  • Biologists
  • Engineers
  • Academics
  • Government officials
Conclusions

- Shoreline erosion control can help to stabilize the Calvert Cliffs.
- Permit processes are too complicated, too expensive, and take too long.
- Calvert County government can help.
Support for Previous Findings

- 1993 Calvert County Cliffs Task Force:
  - Develop County staff assistance with methods, funding, and permit processes
  - Establish Shoreline Erosion Control Districts
  - Educate the public
  - Encourage State funding
Recommendations

- Establish/endorse supportive policies
- Simplify the permit processes
- Provide community education
- Coordinate with other government agencies
- Support financing options
- Invest in long range planning
Establish/Endorse Supportive Policies

[1] The BOCC should promulgate a policy that the Commissioners and all County Agencies are to encourage and facilitate the efforts of shoreline property owners and communities who want to develop and construct appropriate cliff stabilization measures.
Simplify the Permit Processes

[2] The Calvert County Department of Community Planning and Building (DCPB) should designate a single point of contact (Shoreline Navigator) with responsibility for coordinating shoreline erosion control permits.
Simplify the Permit Processes

[3] The BOCC should simplify the County permit process.

• Simplify forms
• Hold joint review meetings
• Reduce bonds
• Change tree removal ordinance
Simplify the Permit Processes

[4] The Department of Community Planning and Building should develop templates, checklists, and other tools.
Provide Community Education

[5] The BOCC should provide a hard copy and a digital copy of this Cliff Stabilization Advisory Committee Report to every public library in the county. It should also be available at the Department of Community Planning and Building.
Provide Community Education

[6] The Department of Community Planning and Building should provide the existing brochure entitled “Chesapeake Bay Critical Area – What You Need to Know” to Realtors doing business in Calvert County. When, or before an offer is made, Realtors and property sellers should be required to provide this brochure to prospective purchasers of bay front property, to enable them to be informed about the critical area buffer.
Provide Community Education

[7] The County Department of Community Planning and Building should develop a new, more detailed brochure that provides information on how to find out which constraints apply to specific properties, such as Habitat Protection Areas, required construction setbacks, and other limitations on cliffs and bay front property.
Provide Community Education

[8] The County should advocate for and publish guidance on appropriate strategies for reducing erosion and storm water runoff.

- Expand plant list
- Provide guidance on invasive vines
- Negotiate stormwater control in Critical Area Buffer
Coordinate with Other Government Agencies

[9] The County should ask the Maryland Department of the Environment (MDE) to implement the Living Shoreline Protection Act fairly and show that the Calvert County’s Chesapeake Bay shoreline is appropriate for structural erosion control measures.
Coordinate with Other Government Agencies

[10] The County should **ask** the Maryland Department of the Environment (MDE) to **put no conditions on** shore alteration permits when Puritan Tiger Beetle (PTB) mitigation is paid.
Coordinate with Other Government Agencies

• [11] The County should petition MDE to adjust the Puritan Tiger Beetle (PTB) mitigation formula with the U.S. Fish and Wildlife Service to reflect more appropriate erosion rates and land type for specific properties.
  • Use documented erosion rate
  • Value land as Tidal Marsh or Woodland
  • Publish schedule to update PTB density count
Coordinate with Other Government Agencies

- [12] The County Department of Emergency Management should document the processes, procedures, and information required to apply for and execute a federal Hazard Mitigation Grant, and actively provide annual community education.
Support Financing Options

- [13] The County should assist homeowners in financing approved shore erosion control projects.
  - Create Special Taxing Districts
  - Create Shoreline Erosion Control Districts
  - Enact a real property tax credit
Support Financing Options

[14] The County should work through the Steering Committee, and State legislatures if necessary, to advocate for reinstatement of Type III (hardscape) erosion control structures in the loan program provided by the Maryland Department of Natural Resources (DNR) in the areas that are appropriate for Living Shoreline.
Invest in Long Range Planning

[15] The County should conduct a site-specific analysis of the 83 homes located within twenty feet of the cliffs as a starting point.
Invest in Long Range Planning

[16] The County Department of Community Planning and Building should review the 50-year plan and feasibility study for the Chesapeake Bay, undertaken by the U.S. Army Corps of Engineers, and make additional policy and action recommendations to the Board of County Commissioners relating to cliff erosion and stability.
Invest in Long Range Planning

[17] The Department of Community Planning and Building should review, and make available to the public, the new planimetrics and aerial photographs by the County Department of Technical Services, which will establish more current cliff heights and distances between cliffs and dwellings and which can be used to develop priorities and solutions.
Conclusions

- Shoreline erosion control can help to stabilize the Calvert Cliffs.

- Permit processes are too complicated, too expensive, and take too long.

- Calvert County government can help.

- The Advisory Committee has provided practical, reasonable recommendations for action.
CSAC Membership

Vivian Cawood MS
Locust Grove

Diane Jaklitsch
Holiday Beach

David Yakaitis MBA
Camp Roosevelt

Ray Bacorn
Charles Fowler
Pam White
Willows Community

James Taylor PhD
Dares Beach

Richard Kelly
Windcliff

Jason Saglimbene
Cove Point

Daniel Head JD
Norman Prince
Scientists’ Cliffs

Tom Cratty
Kenwood Beach

Ella Ennis
James Strain
Jack Heberle
Western Shores

Gretchen Butts
Doug Crow
Lisa Zalovick
Calvert Beach

Gregory Yowell
Sandra Jean Bell
Governors Run

Virginia Haskell PhD
Tony Vajda
Chesapeake Ranch

Curtis Larson PhD
Drum Point

Bill Brier
Park Chesapeake

David Portyrata
Long Beach
EXECUTIVE SUMMARY

The Calvert County Cliff Stabilization Committee (CSAC) has spent the last three years educating its members about the factors involved in the stabilization of Calvert Cliffs with the goal of offering meaningful and practical recommendations to the Board of County Commissioners (BOCC).

The Committee has looked at the existing process for allowing citizens to take actions to protect the toe of their cliff and to take other actions designed to protect the cliffs from erosion. The general conclusion is that the process takes too long, is too complicated, and is too difficult. People want to take timely action. Regulations and bureaucratic processes that exist in multiple agencies are preventing this from happening.

Set forth in this report are some steps the BOCC or employees of County agencies can take to assist in stabilizing the Calvert Cliffs and to allow citizens to protect their property. There are seventeen (17) major recommendations in six (6) categories. (See Attachment A for a summary of the seventeen recommendations without discussion.)

INTRODUCTION

The Calvert County Commissioners (BOCC) established the Cliff Stabilization Advisory Committee on November 23, 2010. The Advisory Committee was composed of Calvert County residents who represent Chesapeake Bay shoreline communities. They were assisted by several county employees who provided invaluable support and liaison to other government agencies. (See Attachment B for a list of participants.)

The full Advisory Committee met monthly through June 30, 2013. Several working groups (Technical, Legal, Communications, Financing, and Steering Committee Review) held additional meetings. The CSAC meetings were always open to the public and often were advertised in local newspapers, radio, and television. Meeting notes were posted to the County’s website. Several meetings drew large audiences to hear the knowledgeable speakers. (See Attachment C for a list of CSAC presentations.) This report presents the recommendations of the committee, which have been derived from information presented at meetings, personal experiences, and additional research. In addition, there is a discussion of positive actions which were taken by the County during the time that the Advisory Committee met and which were discussed and proposed by the Advisory Committee.
The committee wishes to express its appreciation to the BOCC for sponsoring its work. Informed public policy regarding the Calvert Cliffs is important to everyone in the county.

BACKGROUND

In 1993, the Calvert County Cliff Policy Task Force presented a report entitled “Recommendations to the Board of County Commissioners for the Preservation of and Development Adjacent to Calvert Cliffs.” In their introductory paragraph, they stated that “The Calvert County Critical Area Program recognized the need for ‘public policy which addresses whether to allow modifications to the cliffs for safety and erosion control or to preserve them in their original condition for intrinsic value’.” They organized into three subcommittees: Preservation, Setbacks and Development Criteria, and Shore Erosion Control. The Task Force concluded that a “balanced approach would allow protection of the shoreline from continued erosion in most of the developed cliff edge areas while protecting undeveloped eroding cliff areas for future generations to study, enjoy and experience.” See Attachment D for an additional summary of the 1993 report, including recommendations of each subcommittee.

As a result of the 1993 recommendations, Calvert County has established setbacks for new construction and cliff “levels” which govern preservation and construction. In addition, the County has applied resources to address stormwater runoff and created a brochure with information about the risks of building on the cliffs.

Some recommendations from 1993 do not appear to have been implemented and were also independently identified by the 2013 committee as needs which should be addressed now. They include developing County staff capability to assist property owners 1) with evaluating erosion control methods, 2) with identifying funding resources, and 3) with proceeding through permitting processes. In addition the County should make it easier to establish Shoreline Erosion Control Districts and should encourage the State to fund erosion control projects. There remains a need to provide education regarding erosion rates in the area, existing regulations, and government programs which may be helpful. Given the 20 years between the two studies, these common concerns should be regarded as significant and given strong consideration for immediate implementation.

Government regulations restrict property owners in what they can do on Chesapeake Bay shoreline property, and it is incumbent on the government to help property owners do what they can within those restrictions. When possible, the County government should reduce local restrictions and advocate for common sense revisions to State and Federal regulations to make it easier for owners to protect their property.

As the result of a Town Hall meeting convened in 2010 by State Delegate Tony O’Donnell to address citizens’ concerns about Chesapeake Bay cliff erosion in Calvert County, a Steering Committee of federal, state, and county agencies was created by the Maryland Secretary of the Department of Natural Resources. The Steering Committee presented a Draft Report, with a recommendation that Calvert County officials establish a Citizens’ Advisory Committee to review their report. Attachment E provides the requested Response, compiled from comments from the general public as well as the research and experience of Advisory Committee members.
In addition to establishing the Cliff Stabilization Advisory Committee, the County government has recognized the findings of the Steering Committee in the Calvert County Hazard Mitigation Plan. It states (page 63): “The Chesapeake Bay Cliff Erosion in Calvert County Draft Steering Committee Report (2010) states that erosion is one of the most significant problems currently facing Maryland’s diverse coastal environment. Today, approximately 69% of Maryland’s coastline is experiencing some degree of erosion. Studies estimate that Maryland loses approximately 260 acres per year to shore erosion. Sea level rise influences on-going coastal processes that drive coastal erosion, in turn making coastal areas ever more vulnerable to both chronic (on-going) erosion and episodic events (e.g., tropical storms, hurricanes). Such impacts pose a significant threat to the steep cliffs, wetlands and marshes, tidal estuaries, sandy beaches, and barrier islands that comprise Maryland’s coastal environment.”

RECOMMENDATIONS

The Advisory Committee has worked diligently to develop recommendations for practical and effective action which can be taken by the BOCC or employees of County agencies. In March 2012, the Advisory Committee made three recommendations to the BOCC for immediate implementation: 1) Designate a Shoreline Permit Navigator, 2) Develop a Calvert County Guidebook to shoreline permitting, and 3) Provide easily accessible financial assistance for shoreline preservation projects. These recommendations were provided in writing and discussed at a BOCC meeting. (See Attachment F for a copy of the March 2012 recommendation document.) Those recommendations are among the sixteen (16) recommendations in six categories provided in this Final Report. The six categories are:

A. Establish/Endorse Supportive Policies
B. Simplify the Permit Processes
C. Provide Community Education
D. Coordinate with Other Government Agencies
E. Support Financing Options
F. Invest in Long Range Planning

A. ESTABLISH/ENDORSE SUPPORTIVE POLICIES

The BOCC should adopt a policy of support for individuals and communities interested in stabilizing eroding cliffs for the following reasons:
(1) Crumbling cliffs present a danger to public safety, and have, in fact, killed a child;
(2) Recent erosion events have caused an increasing number of homes and infrastructures to be at risk of damage or destruction from continued erosion;
(3) The county government has a legal mandate to meet quotas to reduce sediment and nutrient pollution into the Chesapeake Bay, and therefore should continue to be committed to doing everything it can to decrease the pollution from sediment and waste water, which inhibits the healthy development of aquatic life in the Chesapeake Bay;
(4) The county government has a responsibility to protect and preserve property values in the county;
(5) The county government has a fiscal responsibility to preserve the county’s tax base;
(6) It is incumbent upon the county government to act to ensure a desirable quality of life for all current and prospective county residents;
(7) Calvert County is fortunate to include private and public waterfront properties;
The county recognizes that there is considerable diversity in height and slope of its cliffs, and therefore cliff areas require specific assessment and the coordination of multiple levels of government agencies to determine the best stabilization solution for an individual property.

**Recommendation 1**: The Board of Calvert County Commissioners should promulgate a policy that the Commissioners and all County agencies are to encourage and facilitate the efforts of shoreline property owners and communities who want to develop and construct appropriate cliff stabilization measures.

Many of the following recommendations, if implemented, could encourage development of cliff stabilization. However, the required involvement of many government agencies means the process will continue to take many months. Therefore, the County should actively encourage property owners to take action before their situation is critical.

There is some evidence that as erosion continues, the size and cost of cliff stabilization and shore erosion control structures on the Chesapeake Bay will increase. In general, Highway 2/4 is the high point of the county, with land sloping from that point down toward the Chesapeake Bay to the east and the Patuxent River to the west. Therefore, as the cliffs erode, they usually increase in height. From both an aesthetic and a cost perspective, taking action when the cliff height is lower should be preferred. Sooner is better than later.

**B. SIMPLIFY THE PERMIT PROCESSES**

The permit process for shore erosion control on the Chesapeake Bay is too long, too expensive, too complicated, and too difficult. Many people and communities are willing to spend their own money to install shore erosion control structures at the base of their cliffs, to plant vegetation to hold soil, and to control stormwater runoff. The process should take weeks, rather than months or years.

Regulations and bureaucratic processes in multiple agencies make the permit process unreasonable and have made it almost impossible for private citizens to protect their own property. This hurts Calvert County, the Chesapeake Bay, the economy, individuals, and is probably at odds with the intent of the regulations that have been passed relating to erosion.

**Recommendation 2**: The Calvert County Department of Community Planning and Building (DCPB) should designate a County single point of contact (Shoreline Navigator) with responsibility for coordinating shoreline erosion control permits.

This person would be responsible for coordinating and facilitating citizens’ efforts to apply for necessary permits. S/he would work as a shoreline erosion control and cliff stabilization consultant in developing the documentation needed for applications. This person would also act as an advocate for the project with other agencies, and should attend the Federal and State Joint Evaluation Committee meetings in Annapolis as frequently as possible, and definitely whenever a Calvert County project is on the agenda. A knowledgeable Shoreline Navigator would provide consistency among applications submitted to reviewing agencies and could expedite the review process.
Members of the Committee and other citizens who have tried, and continue to try, to get the necessary permits to protect their property from cliff erosion and to build erosion control structures have spent years trying to get the required approvals. The knowledge and time necessary to take a project from the initial submission to closure is daunting. Even individuals or groups of individuals with engineering and legal degrees have struggled with the permitting process and with getting a project through all of the agencies and requirements involved in this complicated and time-consuming effort. The County Shoreline Navigator needs to be a source of knowledge, a resource for moving a project through the permitting process, and a strong advocate for county applicants. The County Shoreline Navigator should have an extensive understanding of the entire permitting process, examples of documentation, scenarios that have been run through the interactive permit website, and the ability to provide informed assistance. This kind of support would be invaluable to citizens who might otherwise be overwhelmed by the requirements of the permitting process. Additionally, the County Shoreline Navigator will need the full support of Calvert County management and the Board of County Commissioners in order to coordinate these projects with other county, state, and federal agencies.

** Recommendation 3: The Board of County Commissioners (BOCC) should simplify the County permit processes.**

a) The County should revise and simplify its permit application forms required for construction of shoreline erosion control. When County applicants apply for federal and state permits which must be granted before County permits can be considered, the County forms should not ask again for information previously provided to federal and state agencies. County departments should recognize and accept the engineering and environmental expertise that federal and state agencies have already applied to the permit request.

b) When multiple county departments must review a permit application, there should be a joint meeting so that individual or community applicants can appear and respond to questions once.

c) Bonds for work in the Critical Area Buffer should be reduced in time and amount. The bonding requirements as they presently exist impose an impediment to some who want to protect their property. A resident wanting to work in the critical area buffer must currently get a permit to do so, develop a planting plan or Buffer Management Plan, and post a bond that is held for two years to ensure that vegetation planted will survive. While these bonding requirements may be a manageable cost of doing business for a developer, for an individual property owner they can be prohibitive.

d) Amend the county Ordinance regarding the Critical Area Buffer to allow any tree to be removed that is within 10 feet of a cliff or on the cliff face without requiring mitigation or a buffer management plan. Trimming or removing trees on the face of a cliff or on top of a cliff is helpful to keep them from taking large amounts of cliff with the root ball when they fall. This Committee supported creating a Hazardous Tree Guidance document for county-wide use, and specifically recommended the designation of any tree within ten (10) feet of the edge of a cliff as a hazardous tree. This designation would remove the requirement for mitigation as part of the permit to remove. The DCPB sought and received approval from the County Commissioners and the State to waive mitigation.

However, it appears that the County is asking for additional proof (such as exposed roots or significant leaning) that the tree is in danger of falling in addition to being within 10 feet. This was not the
committee’s intent, as going onto the shore below the cliff to get a photo of exposed roots is dangerous and should not be required, and by the time the tree is leaning, even professional removal of the tree (from the top down) would be extremely dangerous. The current county Ordinance states that “no mitigation or buffer management plan is required for the removal of a tree within 10 feet of a cliff, which is in danger of falling and has a diameter of four inches or greater at four feet above ground.” The only requirement to prove that a tree might cause “accelerated shore erosion” should be that the tree is within 10 feet of a cliff (including on the cliff face), as that factor alone should qualify a tree as hazardous.

Recommendation 4: The Department of Community Planning and Building (DCPB) should develop templates, checklists, and other tools.

The Advisory Committee has supported and eagerly anticipated the recent efforts of the County to develop an electronic Calvert Shoreline Development Guide with flow charts and decision points. The result proves how complicated and confusing the process can be. Unfortunately, most citizens are totally unfamiliar with the terminology and criteria of the processes cited in the Guide. The addition of a glossary of terms may be helpful, but the need for applicants to understand the specific and technical language of the multiple permit processes only underscores the potential usefulness of a knowledgeable county Shoreline Navigator (see Recommendation 2) who could provide clarification and guidance.

Additional support could be provided if a companion reference notebook were compiled, with checklists and examples of federal and state, as well as county applications. The notebook should include:

- Chart of all the permits and variances to be acquired and the fees required by each
- List of information to be collected to complete all the forms
- List of agencies which sit on the review boards
- Examples of completed forms, such as a Buffer Management Plan, that previous applicants have submitted to be used as models
- Samples of drawings to exemplify the level of detail required
- List of activities for which property owners must obtain only a County permit (e.g., tree removal)
- List of activities for which no county, state, or federal permits are needed

These lists should also be posted on the County website. The notebook should be kept in the DCPB office and should be updated by the County Shoreline Navigator (see Recommendation 2) at least annually. There should also be an accessible hard copy of the Calvert Shoreline Development Guide at the DCPB office to assist people who are unable to use the online version.

C. PROVIDE COMMUNITY EDUCATION

Recommendation 5: The Board of County Commissioners should provide a hard copy and a digital copy of this Cliff Stabilization Advisory Committee report to every public library in the county. It should also be available at the Department of Community Planning and Building (DCPB) and on its website.
The members of this committee acquired valuable knowledge from the presentations and discussions at their meetings. This report and its attachments include much of that information and should be available to the public, especially current and future bayfront landowners. It should also be available on the County’s website.

**Recommendation 6:** The Calvert County Department of Community Planning and Building (DCPB) should provide the existing brochure entitled “Chesapeake Bay Critical Area - What You Need to Know” to Realtors doing business in Calvert County. When, or before an offer is made, Realtors and property sellers should be required to provide this brochure to prospective purchasers of bayfront property, to enable them to be informed about the Critical Area Buffer.

By state law ([Annotated Code of Maryland, Real Property Article, Section 10-702](http://www.nps.gov/plants/pubs/chesapeake/)), purchasers of real estate property in Maryland are entitled to a disclosure of property condition statement from the seller. The major focus of the current form is the condition of the building and infrastructure. Only a few items deal with the land, one of which is that the property is in the Chesapeake Bay Critical Area. But no mention is made of the Buffer Area or high erosion areas (cliffs), and the regulations governing the 100-foot Buffer are significantly greater than those affecting the rest of the Critical Area.

Prospective purchasers, and many current owners, do not have a clear understanding of the potentially overwhelming restrictions on the use of property in the Critical Area Buffer. This brochure lists and explains the various constraints on properties in the Chesapeake Bay Critical Area Buffer. Cost-effective distribution might be accomplished if the County published the brochure on its website, enabling Realtors and property sellers to download and transmit electronically or print a pdf. The wording of the County’s requirement should be coordinated with the Southern Maryland Association of Realtors. Attachment G provides the brochure.

**Recommendation 7:** The County Department of Community Planning and Building (DCPB) should develop a new, more detailed brochure that provides information on how to find out which constraints apply to specific properties, such as Habitat Protection Areas, required Construction Setbacks, and other limitations on cliffs and bayfront property.

This brochure should also provide information on how to contact the County Shoreline Navigator (see Recommendation 2) and the tools (see Recommendation 4) which have been developed to assist shoreline and cliff property owners.

**Recommendation 8:** The County should advocate for and publish guidance on appropriate strategies for reducing erosion and stormwater runoff.

a) The County Department of Community Planning and Building (DCPB) should expand its list of plants for erosion control by recommending the reference developed by the U.S. Fish & Wildlife Service, called “Native Plants for Wildlife Habitat and Conservation Landscaping, Chesapeake Bay Watershed” ([http://www.nps.gov/plants/pubs/chesapeake/](http://www.nps.gov/plants/pubs/chesapeake/)). The county should encourage not only plants that have been approved by the Critical Area Commission for other Chesapeake Bay shorelines but also plants that are non-native, non-invasive, and deemed by appropriate experts to be helpful cliff related vegetation for shoreline erosion control purposes. Cliff erosion can be greatly improved by planting vegetation on the top, face, and/or base of cliffs to help prevent landslides and to absorb water from rain that might
otherwise cause seepages. There are plants whose roots provide a binder to reinforce soil formations and specific vegetation which can help prevent surface runoff as well as reducing cliff erosion.

b) The County should also provide guidance to property owners on how to eliminate invasive vines that are currently damaging coastal area landscapes and how to replant those areas. County residents would find it useful to have a list of approved plants that could meet their specific objectives in planning improvements to existing Buffer Area landscaping. The County Extension Service might be able to assist with this recommendation.

c) The County should help property owners negotiate approval for appropriate stormwater control measures in the Buffer Zone that might not otherwise be allowed by the Critical Area Commission. Cliff erosion is exacerbated in many places by stormwater runoff at the top of cliffs and in ravines.

D. COORDINATE WITH OTHER GOVERNMENT AGENCIES

The County cannot change, but can advocate to improve, federal and state permit processes. The Commissioners should employ their political influence and media access to ensure that other governmental agencies understand and are trying to address needed changes.

Recommendation 9: The County should ask the Maryland Department of the Environment (MDE) to adopt the existing Department of Natural Resources (DNR) Coastal Atlas Map, in order to implement the Living Shoreline Protection Act fairly and to show that Calvert County’s Chesapeake Bay shoreline is appropriate for structural erosion control measures.

The Living Shoreline Protection Act (the Act), Annotated Code of Maryland, Section 16-201, provides that improvements to protect against erosion shall be nonstructural shoreline stabilization measures except: (I) in areas designated by the Maryland Department of the Environment (MDE) mapping as appropriate for structural shoreline stabilization measures and (II) in areas where a person can demonstrate to MDE’s satisfaction that nonstructural measures are not feasible, Section 16-201C(1)(I)(II).

As regards the first exception, in the six (6) years since the Act was signed into law (4/24/2008), MDE has not developed a map of Calvert County to show areas appropriate for structural shoreline stabilization measures. There is a map on the MDE website which shows one inland stream in Calvert County as appropriate for structural shoreline stabilization measures; representatives of MDE have described that map as a “placeholder” on the website which is not meant to be used.

However, on the DNR web site, there is a Coastal Atlas of Shorelines, including a map covering Calvert County. That DNR map shows that all of the Chesapeake Bay shoreline of Calvert County is unsuitable for living shoreline. Therefore, the County should request MDE to adopt the DNR Coastal Atlas map as its map showing that the Chesapeake Bay shoreline in Calvert County is appropriate for structural erosion control measures. If MDE is developing its own map, the DNR map should be used until the MDE map is ready.
Currently, MDE expects a property owner to discover the appropriate contact person at MDE and ask for a determination via telephone or email as to whether their property is appropriate for structural measures. This is not a transparent process and it should be remedied. But until it is changed, the Calvert County Shoreline Navigator could be the local contact who knows how to get in touch with the one individual at MDE who has this responsibility.

As regards the second exception, because there is no MDE map, Calvert County residents may be required to execute the waiver process. The Act directs MDE, in consultation with DNR, to adopt regulations to implement the provisions of the Act, including a waiver process where a person can demonstrate that nonstructural measures are not feasible. Such regulations are in place in COMAR Title 26, Subtitle 24, and the waiver form is on the MDE website. This process puts an extraordinary burden on individual property owners to prove that nonstructural measures are not feasible. If the waiver process is to be required of Calvert County residents, it should be easily found on the MDE website and it should be easily completed by most property owners.

**Recommendation 10:** The County should ask the Maryland Department of the Environment (MDE) to put no conditions on shore alteration permits when Puritan Tiger Beetle (PTB) Mitigation is paid.

When the PTB mitigation formula was being developed by the U.S. Fish and Wildlife Service and MDE, property owners were told that there would be no restrictions on what alterations could be made to the cliff, because the agencies would assume that no PTBs would survive or be able to re-inhabit a site where structural shoreline erosion control was built. However, recent permits, issued with PTB mitigation, in fact prohibit the disturbance of the bluff tops.

The Committee heard from several experts that shorelines protected by hard engineering (structural measures) should consider the need for stable slopes approximating an angle of repose. Presentations from Dr. Curt Larsen formerly of the U.S. Geological Survey, Scott Hardaway from the Virginia Institute of Marine Science, and Dr. Tuncer Edil from the University of Wisconsin may be found in Volume 2 of this report. Of note, the USFWS provides Dr. Larsen’s views and research on their Chesapeake Bay website.

In addition, the County requires significant setbacks for new construction along the bluffs for the same reason: vertical cliff tops can be expected to recede, depending upon the soil’s cohesiveness, until a stable angle of repose is attained. Logically, once a property owner obtains a permit for the taking of a PTB area, that permit should include the entire project area in question and allow the bluff tops to be cut back to stable angles as geotechnical engineers recommend.

**Recommendation 11:** The County should petition the Maryland Department of the Environment (MDE) to adjust the Puritan Tiger Beetle (PTB) Mitigation Formula with the U.S. Fish and Wildlife Service to reflect more appropriate erosion rates and land type for specific properties.

The current mitigation formula calculates a fee for a permanent easement on the land which might be expected to erode over the next 100 years, at a rate of two (2) feet per year. (This assumes that effective erosion control measures will stop erosion completely, that the entire shoreline erodes at the same rate, and that erosion is required to maintain an unvegetated PTB habitat. Thus, a property owner is expected to pay for acreage based on the linear footage of shoreline to be protected, by 200 feet
deep, regardless of whether the property in question is 200 feet deep.) Second, there is a count of total PTB along the shoreline and the percentage of the PTB population at an individual property is calculated using a five-year average count.

a) If an applicant can provide empirical evidence of an erosion rate less than two (2) feet per year, the PTB mitigation formula should use that rate, rather than two feet per year. For building permits, Calvert County uses the rate provided by the applicant and checks it against the DNR Coastal Atlas website. The DNR Coastal Atlas indicates variable erosion rates along the coastline and can provide the rate for any given property address.

b) The easement value applied should be for Tidal Marsh or Wooded land. The current mitigation formula uses the Geographic Area Rate Cap for permanent easements for Cropland established by the Natural Resources Conservation Services (NSCS) of the U.S. Department of Agriculture (USDA). The current rates published on the USDA Wetlands Reserve Program website for Calvert County are $5889 per acre for Cropland and $3226 for Wooded land. Furthermore, the Tidal Marsh category is only available in those counties with tidal water shoreline along a major river or the Chesapeake Bay; Calvert is one of those counties and the Bay’s tidal water is a major cause of shoreline erosion and cliff instability. The rate cap for a permanent easement on Tidal Marsh is $215 per acre.

c) The schedule for changing the average density count of PTB should be published. Currently, the five-year average of PTB is based on 2005-2009. These counts are done every year and the mitigation formula should be updated regularly to reflect more recent PTB population density.

Recommendation 12: The County Department of Emergency Management should document the processes, procedures, and information required to apply for and execute a federal Hazard Mitigation Grant, and actively provide annual community education.

The County should use its recent experiences in coordinating property acquisition through Federal and Maryland Emergency Management Agency (FEMA/MEMA) grants to record how to apply for and manage these grants. This document should be made available to future applicants so they and County employees will have realistic expectations of the steps and timeline necessary to execute such a grant, including the various county agencies that are involved.

The County should sponsor an annual FEMA/MEMA Community Meeting at which agency representatives provide information on the various federal and state programs and grants which could be utilized by Calvert County property owners. This would be consistent with several items in the County Hazard Mitigation Plan.

E. SUPPORT FINANCING OPTIONS

Aside from the permitting process, the most challenging part of cliff stabilization and erosion control efforts is the financing of an approved project. There are engineered solutions (such as revetments and jetties) and shoreline protection measures (such as planting vegetation that will help hold soils in place) that can protect waterfront properties and communities, extend their viability, and make them more resilient to coastal hazards. Structural stabilization currently can cost as much as $1000 or more per
linear foot, depending partly on method of access to the property. Whether the cost of cliff stabilization is prohibitive or reasonable is a determination the property owner should make.

A review of county property tax information reveals several facts. Smaller properties with water view or access are often double the land value (and property tax revenue) of larger properties on the opposite side of the same road. Also, there has been a substantial decline in property value of homes most threatened by erosion. Substantial property tax revenue is being lost by the county. Unabated, the impact of lost revenues to the county could eventually impact county services and the quality of life in Calvert County.

**Recommendation 13: The County should assist homeowners in financing approved shore erosion control projects.**

Financial programs can be planned and managed without negative impact to County finances and credit rating. Cost analysis shows that shoreline erosion control can provide significant environmental and socio-economic benefits to the public, meeting the criteria for use of public funds for private initiatives. Marine contractors and their suppliers are small businesses; the success of small businesses provides economic benefit to the County.

a) **The County should create Special Taxing Districts** to assist homeowners in the financing of approved erosion and cliff stabilization projects. This process is currently used by Calvert County for upgrading roads and water facilities and has been used in the past for erosion control projects.

Due to the length of time it takes to design and obtain all the permits for approved projects, the County would be able to plan for these districts, eliminating any possible impact on the county’s bond ratings. The county would know well in advance exactly how many projects would be likely in a given year and could plan accordingly. This is another area which a County Shoreline Navigator could monitor and facilitate. Calvert County would benefit from higher property values once projects are completed.

b) **The County should create Shore Erosion Control Districts** allowed under Maryland law and created specifically for projects outlined in the legislative authorization to County governments. The authority is broadly based and has been used in St. Mary’s, Anne Arundel, Queen Ann, Dorchester, and Cecil counties to finance approved projects. For example, a private community in St. Mary’s County recently completed a beach erosion project. The state recommended stone revetment as the best way to stop rapid land loss and the structure will be high enough to withstand a once-in-25-year storm.

Experts suggest that properly implemented erosion control efforts can protect properties along the shoreline and increase property values that will produce more property tax revenue for the county. Reasonable financing mechanisms will enable residents to take remedial action deemed necessary to protect their properties and will allow peace of mind for many communities along the Chesapeake shore.

c) **The County should enact a real property tax credit** for installation of shoreline erosion control structures pursuant to Section 9-217 of the Tax-Property Article of the Annotated Code of Maryland. In September, 2006, the County Attorney drafted an ordinance providing for a tax credit against County property tax imposed on real property on which erosion control structures or devices were installed or
for which erosion control procedures were implemented that halted or retarded erosion of shorelines and deposit of eroded sediments in the waters of the State.

The ordinance proposed in 2006 is provided a cap on the county’s annual liability and could be used today with an adjustment for inflation. There was no legal objection to the ordinance, but at the time, the ordinance was not approved because there was concern for uncertain impact on adjoining properties. Today, the projects approved by the federal and state governments are scrutinized to ensure that they are designed to have minimal impact on the environment and on adjoining properties. What is certain is that if nothing is done, erosion will occur on unprotected properties.

**Recommendation 14:** The County should work through the Steering Committee, and State legislators if necessary, to advocate for reinstatement of Type III (hardscape) erosion control structures in the loan program provided by the Maryland Department of Natural Resources (DNR) in the areas which are inappropriate for Living Shoreline.

Although the law allows structural projects to receive DNR loans, agency personnel have stated that they will only provide loans for Living Shoreline construction. The preference is understandable, but it excludes Calvert County’s bayfront properties from a government assistance program intended to benefit all Maryland waterfront properties. A DNR map acknowledges that Living Shorelines would be unsuitable and ineffective due to the high wave energy on Calvert County’s eastern shore, so the current DNR practice discriminates against those Calvert County properties.

It is important to note that there are other State supported programs, such as the Linked Deposit mechanism, which are designed to encourage private financing and provide a source of low interest loans, but which are not attractive to financial institutions when interest rates are low.

**F. INVEST IN LONG RANGE PLANNING**

**Recommendation 15:** The County should conduct a site-specific analysis of the 83 homes located within twenty feet of the cliffs as a starting point in evaluating risk.

The Steering Committee Draft Report made this recommendation and the Advisory Committee seconds it. Since several years have elapsed since the Steering Committee’s analysis, the County would be wise to reach out to all shoreline property owners. A first step could be a letter with a return postcard could be used to seek initial information on approximate cliff height, distance of house structures from the cliffs, and individual interest in erosion prevention projects.

**Recommendation 16:** The County Department of Community Planning and Building (DCPB) should review the 50-year plan and feasibility study for the Chesapeake Bay, undertaken by the U.S. Army Corps of Engineers, and make additional policy and action recommendations to the Board of County Commissioners relating to cliff erosion and stability.

DCPB may need to coordinate with DNR to determine the current status of the Corps project. This feasibility study was to result in a Chesapeake Bay Shoreline Management Guide that identifies vulnerable and hot spot locations and management opportunities throughout the Maryland Chesapeake
Bay coastal zone and a Technical Guide to assist local planners and professionals that are responsible for shoreline protection. For those projects identified in the plan to be federally-justified, a feasibility study could be developed for implementation through the Corps’ civil works program when non-Federal sponsors are identified.

Senators Mikulski and Cardin (MD) and Representative Kratovil (MD-01) are listed on the Corps web site among the persons with “Congressional Interest” in this feasibility study. If the study is incomplete, the County Commissioners should appeal to current appropriate Senators and Representatives to renew their interest.

**Recommendation 17:** The County Department of Community Planning and Building (DCPB) should review, and make available to the public, the new planimetrics and aerial photographs by the County Department of Technical Services, which will establish more current cliff heights and distances between cliffs and dwellings and which can be used to develop priorities and solutions.

This information can facilitate community planning and provide a more current risk assessment. Advances in data gathering, geographic information systems (GIS), and information technology (IT) have greatly improved the ability to identify vulnerable areas and opportunities for coastal hazard mitigation both pre- and post-disaster. More current data generates more accurate analyses and could provide a basis to develop a short term executable plan that is consistent with goals and strategies outlined in the Calvert County Hazard Mitigation Plan and recommended in the Chesapeake Bay Cliff Erosion Report.

The documents provide valuable data which can be used to educate the public. The county has established a robust GIS architecture. Initially the GIS information was limited to county departmental use primarily because of technology limitations. However, advances in technology now provide various mechanisms that let the county share data with the public via the county website.

In addition, some of this information is needed by individuals and communities in order to obtain permits to construct shoreline erosion control measures. A useful tool, which could be developed by DCPB, would be a map with various layers, including environmental constraints, cliff category, erosion rates, structures, fetch and other information relevant and required for permitting. Much of that information is discoverable by searching through multiple existing on-line county maps, but there could be one map with all pertinent layers.

**ACHIEVEMENTS DURING THE TERM OF THE ADVISORY COMMITTEE**

Stone toe revetments placed at the base of the cliff would help keep the base of the cliff from damage caused by waves, especially during storms. The county had a policy that a “shoreline erosion control device” would need to be built at or below Mean High Water (MHW), or else the “structure” would need to be presented at a hearing and approved by the Board of Appeals. The Advisory Committee recommended that the policy be amended so that structures built within the 25-year storm surge height would be included as shoreline erosion control devices. This change in interpretation is now being used by the DCPB, but still needs to be clarified in writing in the County Zoning Ordinance.
Based on CSAC recommendations, the County has adopted several other Zoning Ordinance amendments, including:

- Allowing removal of trees within ten (10) feet of a cliff without mitigation or a Buffer Management Plan
- Reducing the mitigation (Fees in Lieu) for removal of other trees in the Critical Area Buffer from $1.50/sqft to $0.50/sqft
- Not extending the Critical Area Buffer beyond a drainage divide

At the request of the Advisory Committee, the Calvert County Department of Emergency Management investigated options for owners of endangered houses to apply for Federal Emergency Management Agency (FEMA) buy-outs as a result of Hurricane Isabelle. Several educational meetings were conducted, with representatives from the Maryland Emergency Management Agency (MEMA) and FEMA present to answer property owners’ questions. Applications were submitted and a grant was awarded. Ten houses were purchased and have been removed. The properties have been turned over to the County to maintain in a natural state.

Much of the confusion for homeowners applying for permits in the Critical Area is the difficulty in determining the category of protection required for their property. The committee proposed that the County request DNR to make its Critical Area Habitat Protection Area maps generally available to the public. This has been accomplished.

It is a daunting task for a homeowner or community official to determine the agencies involved, process, forms, and cost to initiate a permit for work in the Critical Area. This committee kept returning to this problem as a major source of frustration for residents trying to protect their properties from further erosion. The Advisory Committee supported the County application for a Coastal Communities Initiative Grant, provided by the National Oceanographic Atmospheric Administration (NOAA) and administered through DNR. The grant enabled the development of the Calvert County Shoreline Development Guide. The DCPB undertook the difficult task of identifying all of the interested parties, the decision points, and the forms, documentation, and fees required. They also created flow charts to explain the process.

This also resulted in the initiation of a web-based, interactive shoreline development guide with decision points to guide the applicant, but that task has not been completed. DCPB has begun working with the Department of Technical Services to complete the on-line Guide. (An additional capability of entering one’s address and receiving a list of regulations which apply to that particular property would be a worthwhile investment, benefiting both current and prospective property owners.) Even with this tool, most property owners will need the assistance of a knowledgeable County Shoreline Navigator to navigate it. The Committee urges the Commissioners to make this tool available to the public as soon as possible.

**CONCLUSION**

The Calvert County Cliff Stabilization Advisory Committee (CSAC) has looked at the issue of cliff erosion and stabilization, as well as at the existing process for allowing citizens to take actions to protect the toe of their cliffs and to take other actions designed to protect the cliffs from erosion. The committee
concluded that the issues are complicated and that the process takes too long and is unreasonably
difficult. Citizens want to take timely action. Citizens want to protect their property and to protect the
cliffs. Regulations and the bureaucratic processes of multiple agencies are preventing this from
happening in a timely fashion.

There are constructive and reasonable actions that the Calvert County Board of County Commissioners
(BOCC) can take to support property owners and contribute to the desirability of living in Calvert County.
The Cliff Stabilization Advisory Committee (CSAC) has set forth in this report some specific steps that the
BOCC and the County administration can take to assist in stabilizing the Calvert Cliffs and allowing
citizens to protect their property.

The CSAC has spent three years educating its members about the factors involved in the stabilization of
Calvert Cliffs with the goal of offering meaningful and practical recommendations to the BOCC.
Committee members have learned a great deal about erosion and about the permitting process. The
Advisory Committee hopes that its recommendations and the information presented will inform any
actions that will be taken by the BOCC with regard to the important issues facing the residents of Calvert
County who live on the Chesapeake Bay shoreline.

By its action in establishing the CSAC and by the actions that may be taken in response to the CSAC Final
Report recommendations, the BOCC could achieve a significant win-win outcome. County homeowners
would be permitted to protect their property from shore erosion in a timely and effective way. As a
result, the county would maintain its valuable tax base and fulfill its responsibility to reduce sediment
and nutrient pollution in the Chesapeake Bay. Additionally, actions taken by the BOCC and the County
representatives could foster interagency cooperation at the county, state, and federal levels which
would in turn provide better service to the public, as well as better protection of the environment,
specifically the health of the Chesapeake Bay. These would be admirable achievements.

Respectfully submitted,
Calvert County Cliff Stabilization Advisory Committee

Locust Grove                      Vivian Cawood, MS
Holiday Beach                     Diane Jaklitsch
Camp Roosevelt                   David Yakaitis, MBA *
Willows Citizens Association      Ray Bacorn
                                Charles F. Fowler *
Dares Beach Association          Pam White, MBA
Windcliff                        James Taylor, PhD
Scientists’ Cliffs Association    Richard Kelly
Governors Run Homeowners Assoc    Daniel Head, JD
Gregory Yowell                   Norman Prince
Sandra Jean Bell
Kenwood Beach Civic Association  Tom Cratty *
Western Shores Civic Association Ella Ennis
Calvert Beach Civic Association
  Gretchen Butts
  Doug Crow *
  Lisa Zalovick

Long Beach Civic Association
  David Portyrata *

Cove Point
  Jason Saglimbene *

Park Chesapeake Association
  Bill Brier *

POA of Chesapeake Ranch Estates
  Virginia Haskell, PhD
  Tony Vajda

Drum Point POA
  Curtis Larsen, PhD

*Indicates members who were President of a community while serving on the Committee

The Advisory Committee gratefully acknowledges support from County Staff:
  David Brownlee, PhD, AICP, Principle Environmental Planner, Dept of Community Planning and Building
  Pam Anderson, Office Assistant, Dept of Community Planning and Building
  Greg Bowen, Director, Planning and Zoning
  Denise Cherry, Executive Assistant, Dept of Community Planning and Building
  Bobby Fenwick, Division Chief, Emergency Management

Volume 1 of this report contains the Report and seven (7) attachments:
  Attachment A – Summary of Recommendations
  Attachment B – CSAC Membership List
  Attachment C – List of CSAC Presentations
  Attachment D – Summary of 1993 Task Force Report
  Attachment E – Response to Steering Committee
  Attachment F – March 2012 Recommendations from the CSAC to the BOCC
  Attachment G – Brochure: “Chesapeake Bay Critical Area - What You Need to Know”

Volume 2 of this report contains the presentations listed in Attachment C.
CSAC - Attachment A

Summary of Cliff Stabilization Advisory Committee Recommendations
SUMMARY OF CSAC RECOMMENDATIONS

The Calvert County Cliff Stabilization Advisory Committee makes seventeen (17) recommendations in six (6) categories:

A. ESTABLISH/ENDORSE SUPPORTIVE POLICIES

Recommendation 1: The Board of Calvert County Commissioners should promulgate a policy that the Commissioners and all County agencies are to encourage and facilitate the efforts of shoreline property owners and communities who want to develop and construct appropriate cliff stabilization measures.

B. SIMPLIFY THE PERMIT PROCESSES

Recommendation 2: The Calvert County Department of Community Planning and Building (DCPB) should designate a County single point of contact (Shoreline Navigator) with responsibility for coordinating shoreline erosion control permits.

Recommendation 3: The Board of County Commissioners (BOCC) should simplify the County permit processes.

a) The County should revise and simplify its permit application forms required for construction of shoreline erosion control.

b) When multiple county departments must review a permit application, there should be a joint meeting so that individual or community applicants can appear and respond to questions once.

c) Bonds for work in the Critical Area Buffer should be reduced in time and amount.

d) Amend the county Ordinance regarding the Critical Area Buffer to allow any tree to be removed that is within 10 feet of a cliff or on the cliff face without requiring mitigation or a buffer management plan.

Recommendation 4: The Department of Community Planning and Building (DCPB) should develop templates, checklists, and other tools.

C. PROVIDE COMMUNITY EDUCATION

Recommendation 5: The Board of County Commissioners should provide a hard copy and a digital copy of this Cliff Stabilization Advisory Committee report to every public library in the county. It should also be available at the Department of Community Planning and Building (DCPB) and on its website.

Recommendation 6: The Calvert County Department of Community Planning and Building (DCPB) should provide the existing brochure entitled “Chesapeake Bay Critical Area - What You Need to Know” to Realtors doing business in Calvert County. When or before an offer is made, Realtors and property sellers should be required to provide this brochure to prospective purchasers of bayfront property, to enable them to be informed about the Critical Area Buffer.

Recommendation 7: The County Department of Community Planning and Building (DCPB) should develop a new, more detailed brochure that provides information on how to find out which constraints...
apply to specific properties, such as Habitat Protection Areas, required Construction Setbacks, and other limitations on cliffs and bayfront property.

**Recommendation 8:** The County should advocate for and publish guidance on appropriate strategies for reducing erosion and stormwater runoff.

a) The County Department of Community Planning and Building (DCPB) should expand its list of plants for erosion control by recommending the reference developed by the U.S. Fish & Wildlife Service, called “Native Plants for Wildlife Habitat and Conservation Landscaping, Chesapeake Bay Watershed” (http://www.nps.gov/plants/pubs/chesapeake/).

b) The County should also provide guidance to property owners on how to eliminate invasive vines that are currently damaging coastal area landscapes and how to replant those areas.

c) The County should help property owners negotiate approval for appropriate stormwater control measures in the Buffer Zone that might not otherwise be allowed by the Critical Area Commission.

**D. COORDINATE WITH OTHER GOVERNMENT AGENCIES**

**Recommendation 9:** The County should ask the Maryland Department of the Environment (MDE) to adopt the existing Department of Natural Resources (DNR) Coastal Atlas Map, in order to implement the Living Shoreline Protection Act fairly and to show that Calvert County’s Chesapeake Bay shoreline is appropriate for structural erosion control measures.

**Recommendation 10:** The County should ask the Maryland Department of the Environment (MDE) to put no conditions on shore alteration permits when Puritan Tiger Beetle (PTB) Mitigation is paid.

**Recommendation 11:** The County should petition the Maryland Department of the Environment (MDE) to adjust the Puritan Tiger Beetle (PTB) Mitigation Formula with the U.S. Fish and Wildlife Service to reflect more appropriate erosion rates and land type for specific properties.

a) If an applicant can provide empirical evidence of an erosion rate less than two (2) feet per year, the PTB mitigation formula should use that rate, rather than two feet per year.

b) The easement value applied should be for Tidal Marsh or Wooded land.

c) The schedule for changing the average density count of PTB should be published. Currently, the five-year average of PTB is based on 2005-2009.

**Recommendation 12:** The County Department of Emergency Management should document the processes, procedures, and information required to apply for and execute a federal Hazard Mitigation Grant, and actively provide annual community education.

**E. SUPPORT FINANCING OPTIONS**

**Recommendation 13:** The County should assist homeowners in financing approved shore erosion control projects.

a) The County should create Special Taxing Districts to assist homeowners in the financing of approved erosion and cliff stabilization projects.
b) The County should create Shore Erosion Control Districts allowed under Maryland law and created specifically for projects outlined in the legislative authorization to County governments.

c) The County should enact a real property tax credit for installation of shoreline erosion control structures pursuant to Section 9-217 of the Tax-Property Article of the Annotated Code of Maryland

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**F. INVEST IN LONG RANGE PLANNING**

**Recommendation 15:** The County should conduct a site-specific analysis of the 83 homes located within twenty feet of the cliffs as a starting point.

**Recommendation 16:** The County Department of Community Planning and Building (DCPB) should review the 50-year plan and feasibility study for the Chesapeake Bay, undertaken by the U.S. Army Corps of Engineers, and make additional policy and action recommendations to the Board of County Commissioners relating to cliff erosion and stability.

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CSAC Participants

*Indicates members who were President of a community while serving on the Committee

Locust Grove          Vivian Cawood, MS
Holiday Beach         Diane Jaklitsch
Camp Roosevelt        David Yakaitis, MBA *
Willows Citizens Association Ray Bacorn
                          Charles F. Fowler *
                          Pam White, MBA
Dares Beach Association James Taylor, PhD
Windcliff             Richard Kelly
Scientists’ Cliffs Association Daniel Head, JD
                          Norman Prince
Governors Run Homeowners Assoc Gregory Yowell
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                          Jack Heberle
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Support from County Staff:
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Pam Anderson, Office Assistant, Dept of Community Planning and Building
Greg Bowen, Director, Planning and Zoning
Denise Cherry, Executive Assistant, Dept of Community Planning and Building
Bobby Fenwick, Division Chief, Emergency Management
CSAC - Attachment C

Presentations Made at Meetings of the Cliff Stabilization Advisory Committee
List of CSAC Presentations

Volume 2 of this report provides materials from these presentations.

Unless otherwise indicated, meetings were held at the Courthouse Square Conference Room, Prince Frederick, MD.

5/17/11 - Curtis Larsen, Ph.D.
“So, You’d Like to Stop Shore Erosion along the Calvert Cliffs. You’d Better Think before You Act”
Dr. Larsen presented geological information about the western shore of the Chesapeake Bay.

8/30/11 – Joseph P. Gill, Deputy Secretary, Maryland Department of Natural Resources
“The Maryland Puritan Tiger Beetle Habitat Conservation Program”
Meeting held at Calvert County Library, Prince Frederick
Mr. Gill presented an outline of what the State is proposing for tiger beetle mitigation. He is hopeful that the proposed policy will be available by mid-September. A draft of the policy will be sent to this committee and the County, to become final about a month later. Adjustments to the regulations can occur afterward. It was discussed that CSAC recommend to the Board of County Commissioners concerning engineered structures what County policies should be instituted and what policies the BOCC should recommend to the State. It was noted that a study needs to be done on natural predators of the Puritan Tiger Beetle.

9/20/11 – Scott Hardaway, Geologist, Virginia Institute of Marine Science, College of William and Mary
“Design and Performance of Shore Protection Structures in Chesapeake Bay”
Dr. Hardaway spoke about shoreline erosion projects. His presentation included a slide presentation and discussion on various types of revetments and breakwater systems.

10/18/11 - Andrew Roach, U.S. Army Corps of Engineers, Planning Division, Baltimore District
Mr. Roach gave a PowerPoint presentation on federal programs focused on Chesapeake Bay shoreline erosion and Maryland coastal management.

3/20/12 – Julie Thompson Slacum, US Fish & Wildlife Service
“Puritan Tiger Beetle – Applicant Information Packet for Shoreline Erosion Control Projects”
Ms. Slacum from the US Fish & Wildlife Service discussed her work in coordinating the various State agencies in the permitting process for shoreline erosion control projects. She brought a draft manual for joint fed/state application.

5/15/12 – George Tournell, former community President, Western Shores
Western Shores Community Revetment Project
Mr. Tournell discussed some experiences Western Shores had establishing a Shore Erosion Control Tax District, getting permits, and constructing a revetment.
8/21/12 – Tuncer B. Edil, Ph.D., P.E., D.GE., Professor Emeritus, University of Wisconsin – Madison, College of Engineering
“Erosion of Coastal Slopes and Landslides”
Dr. Edil, professor and expert on geotechnical and geo-environmental engineering, made a presentation on cliff erosion, recession and stabilization. His message was that engineered solutions are possible and have been used on similar cliffs in Wisconsin on the Great Lakes. He focused more on long-term solutions vs. short-term help, recommending engineers to design shore erosion control structures. He presented an array of variables which are important for solutions.

9/18/12 - Dr. C. Barry Knisley, Research Professor Emeritus, Dept of Biology, Randolph-Macon College
“Puritan and Northeastern Beach Tiger Beetles: Threatened Species in Calvert County”
Dr. Barry Knisley spoke about his research on Tiger Beetles.

11/20/12 – Bonnie Zwissler, Master’s degree candidate, Michigan Technology University
“The Impact of Freeze Thaw on Cliff Recession: A Case Study of Calvert Cliffs in Calvert County, Maryland”
Ms. Zwissler gave a PowerPoint presentation of the results of her research conducted during the summer of 2012. She was investigating whether erosion is more driven by wave action or freeze/thaw (orientation of shoreline to sun).
CSAC - Attachment D

Summary of the 1993 Calvert County Cliff Policy Task Force Report
Summary of the 1993 Calvert County Cliff Policy Task Force Report

NOTE: There are a few differences between the 1993 Task Force and the 2013 Advisory Committee. The 1993 Task Force defined cliffs as “all cliffs of twenty-five feet or more in height. This includes the waterfronts of Chesapeake Bay, Patuxent River, and its tributaries.” In contrast, the 2013 Advisory Committee focused only on the Calvert Cliffs abutting the Chesapeake Bay in Calvert County. Also, the 1993 Setbacks and Development Criteria Subcommittee addressed guidelines for development and new construction, while the 2013 Advisory Committee focused only on existing homes and the extent to which shoreline communities and homeowners could reasonably secure their safety through shoreline erosion control or other stabilization measures.

On October 12, 1993, the Calvert County Cliff Policy Task Force presented a report entitled “Recommendations to the Board of County Commissioners for the Preservation of and Development Adjacent to Calvert Cliffs.” In their introductory paragraph, they stated that “The Calvert County Critical Area Program recognized the need for ‘public policy which addresses whether to allow modifications to the cliffs for safety and erosion control or to preserve them in their original condition for intrinsic value’.” They organized into three subcommittees, Preservation, Setbacks and Development Criteria, and Shore Erosion Control.

The Preservation Subcommittee recommended three levels of protection for cliff areas. Level 1 was designated “for undeveloped cliff sections with significant preservation needs,” with “a ban of any development on top of the cliffs within the Critical Area and a ban of any shore erosion control measures,” with appropriate compensation to current property owners. Level 2 was designated “for developed cliff sections with significant preservation needs,” with no additional structures cliffward and no new shore erosion control measures unless all other measures were exhausted, but allowing maintenance of existing shoreline erosion controls. Level 3 was designated as all remaining cliff sections, with development to be restricted by setbacks. They concluded that “the seven sections of cliff recommended for preservation” (1. All park and preserve land fronting on cliffs and associated shoreline, 2. Columbia LNG to Baltimore Gas & Electric Nuclear Power Plant, 3. Parker Cliffs including the Parker Creek mouth shoreline, 4. Randle Cliffs, 5. Matoaka Cliffs north of jetties, 6. Governors Run Cliffs, 7. Cliffs north of Willows Beach Colony) “each meet the overlapping needs of species habitat preservation, paleontological/geological preservation, and scenic preservation. ... by preserving these few sections we can achieve the majority of the preservational needs of the resources explored in this study.”

The Setbacks and Development Criteria Subcommittee recommended establishing ER15 and ER50 lines on site plans of proposed construction or grading. ER15 designates where the cliff edge could be expected to be after 15 years of historical erosion rates (similarly ER50 after 50 years). No permanent building structures would be allowed within ER15. The building setback for houses should be the ER50 line, or a minimum or 100 feet if there are no erosion control structures in place.
The Shore Erosion Control Subcommittee recommended that the county should make every effort “to assist property owners in their evaluation of alternative methods, in obtaining state assistance and state funding, and in proceeding through the local permitting process.” They concluded that local politicians and officials should encourage the State to fund shore erosion control, that the county should make it easier for residents to establish Shoreline Erosion Control Districts, that the county “should develop staff capability” to provide information and technical assistance to property owners, and that the county “should develop specific stormwater runoff regulations that apply to areas which discharge toward cliffs and within natural drainage ravines.”

Additionally, the Task Force recommended more “Citizen Education,” including developing a brochure entitled “Building on Calvert Cliffs” and a county-wide seller’s disclosure statement for all tidal waterfront properties. In their report they stated, “A number of the problems of developing along cliff areas could be avoided with a good citizen education program. Buyers of cliff front property and existing owners are often unaware of erosion rates in the area, existing regulations on cliff front development, how to best handle stormwater run-off in these areas and how federal insurance programs may be able to assist them in relocating homes away from the edge.”

The Task Force concluded that a “balanced approach would allow protection of the shoreline from continued erosion in most of the developed cliff edge areas while protecting undeveloped eroding cliff areas for future generations to study, enjoy and experience.”
CSAC - Attachment E

Calvert County Citizens Advisory Committee Response to Draft Steering Committee Report, “Chesapeake Bay Cliff Erosion in Calvert County”

And

Draft Steering Committee Report with Citizens’ Comments
The purpose of this document is to respond to the content of the Draft Steering Committee Report and recommend issues and alterations for consideration for the Final Report. These recommendations are based on public feedback, combined with research done by the Advisory Committee. In addition, the Advisory Committee requests that the Steering Committee support its recommendations to the Calvert County Board of County Commissioners.

Background
As a result of a Town Hall meeting convened by State Delegate Tony O’Donnell in February, 2010, a Steering Committee of federal, state, and county agencies was created by the Maryland Secretary of the Department of Natural Resources. In a presentation the following October, to the Calvert County Board of Commissioners, the Steering Committee presented a Draft Report and recommended that County and local officials establish a Calvert County Citizens Advisory Committee to review the Draft Report and meet with the Steering Committee. Comments and questions from the public were referred to the Director, Calvert County Planning & Zoning (now Calvert County Community Planning & Building).

In January, 2011, the Calvert County Cliff Stabilization Advisory Committee was convened. It consists of over 20 representatives from communities along the Chesapeake Bay shoreline in Calvert County. Some of the representatives have been the President of their respective homeowner associations. About half have property on the shoreline. A few have been involved for several years in trying to address shoreline erosion; others were new to the issues. The Advisory Committee has met monthly, has shared considerable reading material, and has called on a wide variety of experts to speak at meetings, in an effort to provide an informed response to the Steering Committee and practical recommendations to the County. The Advisory Committee has not had an opportunity to meet with the Steering Committee.

After the Draft Report was released in November, 2010, nine citizens took the time to submit comments on it. At the end of this Response is an expanded Draft Report, consisting of the original Draft Report with citizens’ comments inserted next to the appropriate paragraph or section. Each person who responded was assigned a letter of the alphabet, so the comments are labeled as Response A, Response B, etc., generally in the order they were submitted. The expanded document was read by the members of the Cliff Stabilization Advisory Committee, who then discussed the comments they considered to be larger issues which should, at a minimum, be addressed in a revised Final version of the Steering Committee Report.
Recommendations
The following recommendations are derived from citizens’ comments and Advisory Committee discussion.

1) Revise the Steering Committee Report
If the Draft Report is not to be re-written, using the feedback of the Advisory Committee and of the citizens, we recommend that the Final Report consist of the Draft Report, this Response, and the expanded Draft Report which includes citizens’ comments.

2) Provide additional information
There is appreciation for the time and effort that went into producing the Steering Committee Report. However, erosion on the cliffs can cause loss of property or diminution of its value, which has a negative effect on the tax base of the County and State. The expeditious approval of erosion control measures could reduce or eliminate this negative effect and enable people to stay in their homes. It would be constructive to include an appendix to the Steering Committee Report which spells out the procedures and permits required, including appropriate contact information for people and resources. For example, “The application form can be found at www.mde.gov” is not adequate guidance.

The Draft Report often seems to present opinions and assumptions, without documentation, as if they were facts. Confidence in the Draft Report, and its educational value, would be improved if more documentation were provided, perhaps as appendices.

3) Provide Maps or Charts
It would be helpful if the report contained an appendix with a map showing the various beetle locations and Calvert cliff formations listed in this report. In particular, the property addresses of the 234 homes, used as the basis for various statistics, should be provided and referenced to all the statements about them, so readers can determine if and how their property is affected. A relatively simple way to do this would be to provide a coded map. (If there are privacy issues, the map could be kept at a county government office and made available on request.

There is an issue as to the locations of Puritan Tiger Beetle (PTB) habitat. The Draft Report indicates that half of the 234 properties do not have habitat, inferring that the other half does. Again, the properties are not specifically identified, and a reasonable argument can be made that recent high erosion rates may not support habitat for many of the properties.

The Steering Committee report used 2003 LIDAR data to identify homes close to the cliffs, which ignores the storm damage and dramatic erosion that has occurred since September 2003 Hurricane Isabel. This is not a large number of properties, so it would seem advisable for County and/or State officials to contact the people living in these houses to determine their current situation with regard to erosion, so an up to date database of houses in greatest danger can be maintained by the County.
For example, the Draft Report sets out certain statistics on the 234 homes located within 100’ of the Calvert County cliffs, again without providing the property addresses: Of the 234, 83 are within 20’ of the cliffs. Of the 83, one (1) overhangs the cliff, 19 are within 5’, 20 within 10’ and 43 within 20’. On page 11 of the Draft Report, at the end of the Soil Composition section, it states that 47 of the 83 within 20’ are in the Scientists’ Cliffs community. However, a recent survey in Scientists’ Cliffs found 79 houses to be Bay front and only 40 were arguably within 20’ of the cliff. (Forty (40) is not a definitive number since some of the homes are located on the 12 ravines that run from the beach into Scientists’ Cliffs.) The exact location of the 47 houses cited in the Draft Report would help Scientists’ Cliffs to clarify its position with regard to the potential danger from cliff erosion.

4) Support Erosion Control
The assertion that there is no proven engineering solution for steep cliffs is not accurate. Proven approaches for cliff protection are often used for roads, for example. Stepped measures with wood, stone and/or planting can be economical and last indefinitely with minor maintenance.

The Draft Report states that there are no proven effective engineering solutions that have been tried directly on steep cliffs and that the cost of implementing any solutions are likely prohibitive and likely to have a negative impact on adjacent properties. Lastly, it states that extensive research concludes that erosion cannot be completely stopped until cliffs attain a natural “angle of repose.” The Advisory Committee concurs that completely stopping erosion is an inappropriate goal, but cliff erosion can be slowed tremendously by preventing wave action from eating away at the bottom, or “toe,” of the cliffs. This can be done by using wire cages filled with rocks or by using other forms of revetments where waves and storm surge are strong. Actions like terracing or using railroad ties to help hold soil on the face of Calvert Cliffs have also proven to be effective. Building revetments far enough seaward from the toe of the cliff to allow back-fill to improve the angle of repose is a technique worth considering,. Planting appropriate grasses and deep rooted shrubs is also cost effective for slowing erosion where wave action is less severe, but is inadequate for the Calvert Cliffs shoreline.

The Draft Report states that there is “an absence of readily available cost-effective engineering solutions” for houses truly in immediate danger. Reports from the Army Corps of Engineers and the Virginia Institute of Marine Science suggest that an armored toe constructed sufficiently seaward to allow backfill to a natural angle of repose could be effective. It is up to the property owner alone to determine whether a solution is cost-effective. The Steering Committee report would be greatly improved if it included discussion of the engineering solutions that have been examined and their relative costs. At the least, the Engineering section of the Draft Report should provide more detail about the engineering solutions which were explored; this could be done as an appendix. However, a more constructive revision would be to replace this section with descriptions of actions which can effectively slow erosion.
and provide those living on the cliffs with the security of knowing there are ways to protect their homes.

5) Revise Puritan Tiger Beetle section
This section of the Draft Report could be revised to reflect any recent actions taken to protect Puritan Tiger Beetle (PTB) habitat. Also, it should be noted that the Fish and Wildlife Service’s final ruling (published in the Federal Register – Vol. 55, No. 152, August 7, 1990) did not establish a Critical Habitat for the PTB, nor did it undertake an economic assessment of the cost of implementing its ruling on homeowners or the County.

The second paragraph of this section states that any attempt to stabilize the shoreline by preventing erosion “could” potentially destroy PTB habitat, and then states that such actions “will” result in the destruction of threatened or endangered species or its habitat. Shifting from “could” to “will” without citing objective proof is inappropriate. While it has been popular to state that the PTB needs cliff erosion, a careful reading of Dr. Knisely’s research suggests that what the PTB actually needs is suitable non-vegetated habitat. There may well be actions that can slow erosion without destroying PTB habitat. The agencies responsible for protecting and preserving wildlife should be encouraged to seek alternatives to protect both the cliffs and the Puritan Tiger Beetle populations. It is worth noting that cliffs at Scientists’ Cliffs have been vegetated for decades, except for brief periods when a slump occurs, yet the Puritan Tiger Beetle has survived there.

The ability to find out the precise location of the properties having PTB habitat would greatly assist individuals and communities in evaluating appropriate erosion control measures. If the Steering Committee has been able to identify that 38 of the 83 homes within 20’ of the cliff have no PTB, an appendix to the Draft Report consisting of a map with property lines and coded for presence/absence of PTB should be achievable.

6) Include Additional References
Among the references in the Draft Report is the PhD thesis, 1983, conducted by A.J. Miller on shore erosion processes on the Potomac Tidal River and Estuary. The Steering Committee should consult another PhD thesis, perhaps more relevant to “Chesapeake Bay Cliff Erosion in Calvert County”, by David S. Miller, 1995, also with Johns Hopkins, titled A Field Investigation of the Controls of the Dominant Erosion Processes on the Actively Undercut, Non-lithified Coastal Slopes of Calvert County, Maryland. This work prompted the Scientists’ Cliffs community to contract with Dr. Miller to develop a best management plan for their shoreline and cliffs and is used as guidance for planning and proposing projects. The geology of Scientists’ Cliffs is representative of the Calvert Cliffs geology and this guidance could be usefully consulted for planning projects in other areas of the county.
Request Support for Calvert County Actions

This Response is being released simultaneously with and as part of the Final Report from the Advisory Committee to the Board of County Commissioners (BOCC). Steering Committee support for the recommendations made in that Report could be helpful in dealing responsibly with the cliff erosion into the Chesapeake Bay.

In particular, there are several recommendations that the BOCC advocate with State and Federal agencies to take action which would assist Calvert County citizens. Those recommendations include:

- Requesting that the Maryland Department of the Environment (MDE) adopt the existing Department of Natural Resources (DNR) Coastal Atlas Map
- Requesting that US Fish and Wildlife Services (USFWS) and MDE put no restrictions on shore alterations permits when Puritan Tiger Beetle (PTB) mitigation has been paid
- Requesting adjustments to the PTB Mitigation Formula
- Requesting reinstatement of Type III erosion control structures in the DNR loan program, where Living Shoreline is inappropriate

The Advisory Committee has also recommended that the County establish an individual or department to become the recognized “expert”, responsible for assisting citizens in submitting erosion control permit requests and for serving as a conduit with all government agencies, ensuring that questions are asked and answered promptly and that all relevant agencies get the same information in a timely fashion. It is hoped that this Point of Contact (POC) would be welcomed and assisted by the various agencies represented on the Steering Committee.

The Steering Committee’s Draft Report suggests that the County should conduct a site-specific analysis of the 83 homes located within 20’ as a starting point in evaluating risks to houses along the cliffs. The Advisory Committee recommends pursuing more outreach to all shoreline homeowners, to determine individual interest in erosion prevention projects, possibly with a response postcard and web site. At the same time, since several years have elapsed since the Steering Committee analysis, information could be requested regarding approximate cliff height and distance of house structures from the cliff.

The Advisory Committee also made several recommendations to increase community education regarding the Chesapeake Bay Critical Area (especially the Buffer) and strategies for reducing erosion and stormwater runoff.

Conclusion

This Response from the Advisory Committee is based on thoughtful consideration of the issues addressed in the Draft Steering Committee Report and on the extensive research conducted by the Advisory Committee during its tenure. The Advisory Committee sincerely hopes that its recommendations, both to the Steering Committee and to the Board of County Commissioners, will provide practical suggestions that will lead to effective erosion control measures, improved
policies, timely solutions, and a better informed and engaged public. The ability of citizens to protect their properties through effective application of erosion control measures is critical. It maintains the value of waterfront properties, protects the Chesapeake Bay, and ensures and improves the tax base for both Maryland and Calvert County. This will, in turn, accrue to the long-term benefit of the County, the State, and all of our citizens.

Respectfully submitted,
CALVERT COUNTY CLIFF STABILIZATION ADVISORY COMMITTEE

<table>
<thead>
<tr>
<th>Community</th>
<th>Members</th>
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<tr>
<td>Calvert Beach Civic Association</td>
<td>Gretchen Butts</td>
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<td>Doug Crow *</td>
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<td>Camp Roosevelt</td>
<td>David Yakaitis, MBA *</td>
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<td>POA of Chesapeake Ranch Estates</td>
<td>Virginia Haskell, PhD</td>
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<td>Tony Vajda</td>
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<td>Cove Point</td>
<td>Jason Saglimbene *</td>
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<td>Dares Beach Association</td>
<td>James Taylor, PhD</td>
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<td>Drum Point POA</td>
<td>Curtis Larsen, PhD</td>
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<td>Governors Run Homeowners Assoc</td>
<td>Gregory Yowell</td>
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<td>Diane Jaklitsch</td>
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<td>Tom Cratty *</td>
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<td>Vivian Cawood, MS</td>
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<td>Park Chesapeake Association</td>
<td>Bill Brier *</td>
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<td>Scientists’ Cliffs Association</td>
<td>Daniel Head, JD</td>
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<td>Western Shores Civic Association</td>
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<td>Ray Bacorn</td>
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<td>Charles F. Fowler *</td>
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<td>Pam White, MBA</td>
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<td>Windcliff</td>
<td>Richard Kelly</td>
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* Indicates members who are or have been President of the community
Chesapeake Bay Cliff Erosion in Calvert County
Draft Steering Committee Report

Calvert County
Maryland Department of Natural Resources
Maryland Department of the Environment
United States Army Corps of Engineers
United States Fish and Wildlife Service
Maryland Emergency Management Agency

October 26, 2010
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*And this should be section VI.*

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*Response F:*

*And this should be section VII.*

VII. **REFERENCES**

*Response F:*

*And this should be section VIII.*
General Comments:

Response A:

As a CRE owner of a home at xxx, situated very near the Calvert cliffs, I read the draft report of the Steering Committee with great interest. My overall reaction is to congratulate you and the Committee for producing a concise, yet comprehensive report. It constitutes a useful step forward in addressing a very complex and urgent problem faced by our community. Still, I have a number of suggestions that are intended to strengthen the usefulness of the report for the community, as well as a number of questions ...

Again, thank you for the good work and I look forward to your responses to my suggestions and questions.

Response B:

The stated goal of the effort is to study and develop recommendations to address the impact of shoreline erosion on houses located near the eroding cliffs in Calvert County. It is obvious that lots of qualified people have spent lots of time working on this issue and they deserve our thanks.... I am wondering how many people within 20 foot of the cliff will want relocation assistance or to have their homes purchased with government funds. I think most people want the study to address what options are available for stabilizing the shoreline from tidal activity and waves that are eroding the base of the cliffs. They would also like to see if other things can be done to help deal with erosion.

Response C:

First, Scientists' Cliffs Association (SCA) endorses the comments made January 14, 2011 by Greg Yowell of Governors Run as setting our many helpful suggestions for reducing cliff erosion and promoting cliff stabilization in Calvert County. SCA does have the following comments on the Draft Steering Committee Report (Draft Report) that may be of value to the County Advisory Committee on Cliff Stabilization (Advisory Committee).

Response D:

First I want to say Thank You for reaching out to get these comments...The comments may seem a little passionate, and they are. These are not just peoples' homes – they also represent a large tax base for the county and state, and I believe a huge financial liability for all of us taxpayers if the homeowners continue to be denied the right to protect them. I do not want to pay for my neighbors homes just because they were denied a permit which should cost almost nothing.

The mean value of these homes, although I have not documented it- will likely be around $500K each. (Mine is $1.2M from last month) If the county and state are found responsible for taking them a quick
multiplication should be worrying somebody besides me, and I think the report needs to reflect that this is a potential risk. It is almost guaranteed that a home owner or mortgage company that suffers a total loss will go back and seek why the homes were prevented from implementing simple, low cost protection, and then seek damages.

Response E:
The major problem with this report is the number of times that opinions and assumptions are stated, without documentation, as if they were facts. The report should be revised to discuss how the problems can be fixed, rather than minimizing what can be done. The value of the report would be improved if appendices were added to provide documentation. In particular, the data for the 234 homes should be provided, by property address, that is the basis for the statistics that are used to discuss the various conditions.

Response F:
Thank you for your work. I hope you will take this feedback as constructive criticism; I am interested in the Committee’s Report reflecting a sincere attempt to study the problem of shoreline erosion in Calvert County, to offer strategies which include input from and can be assumed to be supported by the plethora of Federal, State and County agencies governing activity on the Chesapeake Bay, and to present helpful information and suggestions for affected property owners.

Response H:
This is an important beginning to creating a plan that addresses a difficult and critical problem facing the citizens of Calvert County. Thank you.

Response I:
The report provides useful general and historical information for someone unfamiliar with cliff erosion in Calvert County. It’s strength lies in the inclusion of the many factors and factions involved. It is not a comprehensive document on the matter. It would be unrealistic to presume that was the intention of the Steering Committee or that all of the factors and issues involved could be assembled into a single report. The report could be enhanced with: a description of the “Steering Committee’s scope of authority, perhaps its genesis, level of authority as a group, and clarity of its intent.
I. INTRODUCTION

Following a February 20, 2010 Town Hall meeting in Calvert County, state, federal and county agencies formed a Steering Committee to study and develop recommendations to address the impact of shoreline erosion on houses located near the eroding cliffs in Calvert County. The cliffs have been naturally eroding for hundreds of years. The presence of the federally threatened and state endangered Puritan Tiger Beetle (PTB) living at various locations along the shoreline, and the potentially adverse impact that cliff and shoreline stabilization could have on its habitat, adds another dimension to the problem. The Committee has now developed a preliminary framework for addressing these issues. It is presented here as a Draft Report for public input and discussion, and includes short-term, medium-term and long-term options. The paths for each of these options will to some extent run in parallel to one another.

Response I:
As presented the report intent appears to be "... to study and develop recommendations to address the impact of shoreline erosion,..." and "... [develop] a preliminary framework for addressing these issues." The first has been met, but the latter has not. Due to the size and members of the Steering Committee there is also an intimation that the information provided is more complete and sound than it may actually be. In addition the report quickly narrows its focus to the first 100 feet of inhabited shoreline causing a skewing away from larger, more effective solutions.

Short-Term

There are 234 homes located on the Calvert County cliffs. The County should conduct a site-specific investigation of the 83 homes that are within twenty (20) feet of the cliffs to identify the homes that are potentially in immediate danger and develop of a set of options available to willing landowners, including funding for house relocation or acquisition.

Response F:

As of what date were there 83 homes? A better recommendation might be an "... investigation of all the homes that are within twenty (20) feet of the cliffs (there were 83 as of x/x/xx) to identify ..."
These homes are located in Port Republic (Scientists Cliffs), St. Leonard, Chesapeake Beach, Prince Frederick and Lusby, including the 7 properties in Chesapeake Ranch Estates that are most at risk according to CRE’s engineering consultant.

Response F:

Either include the date and/or consultant’s document in the References, or just say “… including 7 properties in Chesapeake Ranch Estates.”

The County should apply for Maryland Emergency Management Assistance funds for the investigation and as appropriate, relocation and acquisition of homes from willing landowners. MEMA has up to $3 million available from the Federal Emergency Management Agency for this work, which will enable payment of 75% of the costs. The Committee recommends that the County and DNR explore options for funding the non-Federal share, including allocation of State Program Open Space funds.

Response D:

If a home is with 20 of an unprotected cliff you do not need to do any inspections. They are in immediate danger from another single major storm event. MEMA funding of $3M will have no impact to the homeowners or county for these homes. They are valued at $500,000 to $1,200,000 each, without including removal and restoration of the area the homes are located in. Loss of tax base alone makes the $3M of no consequence.

Response H:
Whole-hearty agrees with the comment above. Three million dollars is just a drop in the bucket.

Medium-Term

Half of the 234 properties do not have PTB habitat. For these properties, the Committee has identified a range of potential engineering solutions. It is important to note, however, that there is no proven engineering solution that has been tried directly on the steep cliffs.
For the properties that have PTB habitat, the United States Fish and Wildlife Service in consultation with the Department of Natural Resources has now developed a set of draft guidelines for processing applications for shore erosion control permits that would allow for the incidental take of some PTB. A “take” will require mitigation and DNR would use Program Open Space funds for initial acquisition of PTB habitat which may be counted toward mitigation.

Response D:

The statement that half of the properties do not have habitat infers that the other half do. This is misleading. Habitat would infer population sustaining conditions – and the current, documented erosion rates do not support habitat conditions for almost, or perhaps all, of the properties. To say there is no proven engineering solution for steep cliffs is completely wrong. There are many proven approaches that can be used for up to 200 ft soft cliffs. They are used all over the country for roads. Stepped approaches with wood, stone, and/or planting can be economical and will last indefinitely with minor maintenance. There is no indication that any of the properties are sustainable habitat. There is no indication that any of the properties have been Federally identified as habitat. If they have been designated none of the property owners have ever been notified. With no Habitat there is no need for a “take”. Creating a habitat would require erosion control to reduce the erosion rates to < 1 ft or so per year, even if open space was purchased or the houses were removed.

Response F:

How does one find out if one’s property is with or without PTB? This should be in the References.

It may be true that no engineering solution has been tried on THESE steep cliffs, but there are similar steep cliffs elsewhere in the world that have been engineered. It is unreasonable to imply, by saying “it is important to note”, that there is no engineering solution which could be successful here. However, if the revetments, etc. that the U.S. Army Corps of Engineers and Calvert County have helped construct along our western shoreline and the structures at Scientists’ Cliffs can be considered “engineered”, then, in fact, there are “engineering solutions” which homeowners describe as successful.

Where can one find the “draft guidelines for processing applications for shore erosion control permits that would allow for the incidental take of some PTB”? Please provide a reference more helpful than the implication that one should look up USF&W in the phone book or on the internet.

How much money does DNR have in Program Open Space? Is it a realistic amount? Are they pursuing PTB mitigation habitat or is this something that a homeowner seeking mitigation would have to ask about?
Long-Term

Beginning in early 2011, the Committee would work with the United States Army Corps of Engineers to conduct a two-year feasibility study of the eroding shorelines in Calvert, Kent and Cecil Counties to seek to develop a comprehensive solution to address the eroding cliffs. The USACE would fund 75% of the cost of the study. The Committee recommends that the County and DNR explore options for funding the non-Federal share, including in-kind contributions.

In addition, DNR and FWS will identify and pursue fee simple or easement acquisition of PTB habitat within the Calvert County subpopulations. Permanently protecting PTB habitat reduces the risk of jeopardy to the species and expands opportunity for incidental take of the subpopulations.

Response D:

-Agree with all comments

Response F:

Is the Steering Committee coordinating the three counties and DNR to request the study? If not, who should?

Calvert County Citizens Advisory Committee

The Steering Committee recommends that Calvert County State and local officials establish a Citizens Advisory Committee to review the Draft Report and meet with the Steering Committee going forward.

Response I:

“Going forward” to where?
Comments and Requests for Assistance

A copy of this Draft Report and the October 26, 2010 PowerPoint presentation to the Calvert County Commissioners is available on-line at www.co.cal.md.us. Comments and questions about this Draft Report or requests for assistance in implementing its draft recommendations may be sent to:

Gregory A. Bowen
Director, Calvert County Department of Planning and Zoning
County Services Plaza,
150 Main St.
Prince Frederick, MD 20678
(410) 535-1600, ext. 2332
bowenga@co.cal.md.us

II. THE STEERING COMMITTEE

Members of the Committee included the Maryland Department of Natural Resources (DNR), the Maryland Department of the Environment, the United States Fish and Wildlife Service (FWS), the United States Army Corps of Engineers (USACE), Calvert County and the Maryland Emergency Management Agency (MEMA). The Committee has had over a dozen meetings during the past six months, beginning in March and continuing through October. In between, the Committee has conducted its work in conjunction with ad hoc technical subcommittees from our various agencies.
III. OVERVIEW

A. The Cliffs in Calvert County

1. Homes on the Cliffs

A cliff is defined in the Calvert County Zoning Ordinance as a “high steep face of 10 feet or higher from the toe of the slope with a slope in excess of 50 percent either vegetated or non-vegetated.” Using 2003 Light Detection and Ranging (LIDAR) data, Calvert County staff identified 234 homes situated along the Chesapeake Bay cliffs of Calvert County that are within 100 feet of the cliffs. LIDAR is an optical remote sensing technology that measures properties of scattered light to find range and/or other information of a distant target. The properties are located in the following area codes: Chesapeake Beach, Huntingtown, Port Republic, Prince Frederick, St. Leonard, and Lusby. Within these area codes are the following communities: Randle Cliffs, Locust Grove, Holiday Beach, Camp Roosevelt, Roosevelt Cliffs, Willows Colony, Dares Beach, Windcliff, Scientists Cliffs, Kenwood Beach, Western Shores, Calvert Beach, Long Beach, Cove Lake, Park Chesapeake, and Chesapeake Ranch Estates. Considering the degree of accuracy and age of the data, the housing count provides a good estimate, although not necessarily a final count of the number of homes within 100 feet of the cliffs.

Of the 234 homes:

- 1 house overhangs a cliff,
- 19 houses are within five (5) feet of the cliff,
- An additional 20 houses are within 10 feet of the cliff, and
- 43 more houses are within 20 feet of the cliff.
Response A:

Question 1. Your report has included a great deal of statistical material from various studies and reports, but it is all very aggregated. How can a homeowner like myself find out in what category his property falls with respect to (a) whether there is PTB or not, (b) distance from the cliff, (c) rate of erosion, (d) slope of the cliff, (e) degree of vegetation?

Question 2. How is distance to the cliff defined? Does it relate to the house itself or to the edge of a deck connected to the house?

Response C:

The Draft Report on pages 4 and 6 indicates that there are 234 homes located within 100’ of the Calvert County cliffs, of which 83 are within 20’ of the cliffs. Of the 83, 1 overhangs a cliff, 19 are within 5’, 20 within 10’ and 43 within 20’. Also, on page 11, the Draft Report states that 47 of the 83 within 20’ of a cliff are in Scientists’ Cliffs. The Report should be more specific as to the exact location of these houses. By a personal survey in Scientists’ Cliffs, 79 houses were found to be Bay front and only 40 were arguably within 20’ of a cliff. The number of 40 is arguable since certain of the homes are located in the numerous ravines that run from the beach into the community. An exact location of the 47 houses cited in the report would be very helpful for SCA to clarify what its exact position is with regard to potential danger from erosion.

Response D:

Agree with all comments.

Response E:

[T]he 234 homes located on the Calvert Country cliffs, that were referenced, were identified using 2003 Light Detection and Ranging (LIDAR) data. Homeowner comments about the marked increase in the erosion rate of the Calvert County cliffs point to the increased erosion rate since the September 2003 Hurricane Isabel hit the area. Use of the 2003 LIDAR data could be expected to significantly underestimate the number of properties that are at risk. This report repeatedly refers to the 234 homes as if they are the only properties at risk. The report should be revised to acknowledge the impact of Hurricane Isabel and recognize that the 2003 data is dated.

Response F:

Using 2003 Lidar data to identify homes within 100 feet of the cliff ignores the storm damage and chunks of erosion that have occurred in the last 8 years. This does not seem to be an unmanageably large number
of properties to measure. A professional survey is not needed, only a reasonably good linear measurement. One might think that the County and State would be concerned enough about the safety of the citizens who live in these houses to get in touch with them individually and ask to be updated on erosion events as they occur, so an accurate database of houses in greatest danger could be maintained.

Don’t make the reader remember that there were 83 homes and that you’re using the 2003 LIDAR data. Recommend that you add: “Of the 234 homes”, 83 were within 20 feet of the cliff in 2003:

Response H:

Agree with all comments.

2. Soil Erosion

Soil erosion is one of the most significant problems currently facing Maryland’s diverse coastal environment. Today, approximately 69 percent of Maryland’s coastline is experiencing some degree of erosion. Studies estimate that Maryland loses approximately 260 acres per year to shore erosion. Sea level rise influences on-going coastal processes that drive coastal erosion, in turn making coastal areas ever more vulnerable to both chronic (on-going) erosion and episodic events (e.g., tropical storms, hurricanes). Such impacts pose a significant threat to the steep cliffs, wetlands and marshes, tidal estuaries, and sandy beaches, and barrier islands that comprise Maryland’s coastal environment.

Erosion rate is the landward movement of the shoreline over time. Historic erosion rates were determined from the two most recent shoreline studies available for the Calvert coast. According to the Maryland Geological Survey, from Scientists Cliffs northward the available shorelines are 1960 and 1993; south of Scientists Cliffs the shorelines are 1942 and 1993. These are historic averages over relatively long time spans and are not meant to represent rates on shorter time scales, or specific slumping occurrences. Based upon this data, the cliffs in Calvert County historically have eroded at an average rate of less than 2 feet/year. There are 234 properties along the Calvert County shoreline, with the following erosion rates:
<table>
<thead>
<tr>
<th>Number of Properties</th>
<th>Erosion Rate ft/yr</th>
</tr>
</thead>
<tbody>
<tr>
<td>102</td>
<td>0</td>
</tr>
<tr>
<td>131</td>
<td>&lt;2</td>
</tr>
<tr>
<td>1</td>
<td>2 to 4</td>
</tr>
</tbody>
</table>

**Response E:**

The draft report discusses erosion rates based on shoreline date in 1942 and 1993 for areas south of Scientists Cliffs. Since this data does not take into account the erosion rate since Hurricane Isabel, this data is misleading. The report sites three specific examples of significant loss of cliff material as if they are isolated instances. The report should be revised so as not to minimize the more accurate current erosion rates.

**Response F:**

The paragraph and chart on erosion rates is irrelevant to what this Steering Committee is meant to address. If there is no scientific data for decade 2000-2010, anecdotal data should be collected. It is citizens' alarm over the recent accelerated erosion that prompted the formation of the Steering Committee. It is inappropriate to treat a property as if it were experiencing historical erosion rates when it is not.

**Response I:**

Data more recent than 18 years old and pre-Isabel and Ernesto is needed.

Anecdotally, the rate of erosion at one community, Chesapeake Ranch Estates (CRE) appears to be closer to two feet/year. The CRE Community Association commissioned a study from the engineering firm Ryan and Associates to look at erosion in the CRE community. The ten houses located closest to the cliffs in the CRE Community as identified by the Ryan study experienced 1.67 feet/year of erosion according to Calvert County's 2003 shoreline data. Specific properties have experienced higher rates of cliff erosion. When one property owner bought his property in 1991, his house was 60 feet from the edge and the County recommended he armor the cliff's toe to prevent further erosion. This did not occur and his house is now 20 feet from the edge -- an erosion rate of two feet/year. A second property owner who moved to his house in 1996 has lost 40 feet of shoreline since then, or 2.8 feet/year. When a third property owner bought her
house a year ago, the cliff was 52 feet from their deck. It is now 12 feet, or an average of 4 feet per year.

**Response F:**

Were all three of these other houses in CRE? If armoring the toe was appropriate in 1991, why isn’t it appropriate now?

One recurrent issue is that shore erosion rates are not constant. Rather, the bluffs, some of which are made up of higher amounts of sand, can give way without warning. This occurred in 1996 when a cliff suddenly collapsed and caused the death of a young girl on the beach below. Recently, one property owner lost 10 to 15 feet at the top of the cliff in one event even though the shore at the base was protected with a stone revetment. Heavy rains at the end of September 2010 caused additional sloughing at another property whose house was already only eight feet from the cliff. Calvert County inspectors subsequently advised the property owners to stay off the wooden deck.

**Response D:**

Historical erosion rates prior to property development are not pertinent to the issues at hand. Focus needs to be on current erosion rates and protection of homes to survive storm events. These rates are far in excess of the historical rates before intensive development, high volume ship traffic and dredging of the bay channels.

3. **Calvert County Zoning – Building Restrictions**

In 1997, the County adopted an ordinance establishing cliff setbacks ranging from 100 feet to 300 feet, depending on the existing development pattern and erosion rates. Most of the homes along the cliffs were built before the ordinance was adopted. However, the ordinance applies to any new construction or location of new structures on shoreline parcels. As an example, one property owner’s outdoor hot tub that fell with a cliff collapse last January had been illegally constructed. The County ordinance further provides: (a) if structures on a property are damaged due to cliff failure or shoreline erosion, property owners are financially liable for all cleanup costs, and (b) construction permit applicants shall sign a Cliff Liability Waiver to hold the Board of County Commissioners and County employees harmless for any personal injury or property damage sustained by result of construction, development, building or building permit issued or allowed by the County.
Response D:

– My home was built in 2000, after the ordinance. I did due diligence at the county office. No mention of beetle habitat. When I asked about cliff protection, I was told all I needed to do was submit a permit and use a plan the county gave me. I asked to build further back from the cliff – I was told no – I had an approved build plan that came with the lot. This process is at best unethical. And I was not asked to sign a cliff liability waiver and would never have considered the property if I had been told I would not be able to protect it.

Response F:

The sentence about the hot tub is irrelevant and unnecessary.

Seriously, the County, State and Federal governments prohibit the installation of effective shoreline erosion control, and then they expect the homeowner to finance the cleanup of damage caused by cliff failure or shoreline erosion?

4. **Efforts to Address Soil Erosion**

Several news reports have stated that the government has prevented landowners from attempting to address erosion in one of the communities in Little Cove Point – Chesapeake Ranch Estates (CRE). Our investigation found otherwise. DNR has been performing shoreline inspections and offering technical and/or financial assistance to landowners at CRE since 1975. An engineering firm retained by CRE, Ryan and Associates (Ryan) identified 56 property owners at CRE deemed to be in “immediate danger.” Of these:

- 45 landowners either have not applied for permits or shore erosion control assistance, or did not pursue the application once filed;
- 11 permits were issued
For some of these property owners, later requests for revised permits required submission of additional information which has not been provided. As of this writing, there are two permit applications pending.

**Response A:**

Suggestion 1. It would be useful for you to recommend and the County Government to establish a "One-Stop" office where citizens needing to get project approval to deal with erosion can go to get their permits and other paperwork. Given the very large number of federal, state and local organizations whose approval is needed to get a project going, many citizens basically give up in trying to get permits – as you noted. This problem will be compounded by the additional requirements related to PTB incidental " takings". I note in this regard that the FWS and DNR are preparing a PTB review process (p. 18). This is not enough. Citizens need to have one place in the County where they can go and get all the information and permits they need – rather than chases various Federal, State and Local government agencies with different requirements and procedures.

Suggestion 2. You need to include an annex in the Report spelling out the procedures and specific permits required for projects on the cliffs as well the names and addresses of contact people in the various agencies whose permission would be required to get a permit. This of course would vary depending on whether PTB exist in a property or not.

**Response D**

- Efforts to address soil Erosion - This is not correct. I have had a permit in process since starting my home in 1999. The county has still not approved any erosion control measures. I still have an active permit request in. DNR's official response (Andy Moser) in the last meeting was "I do not want to set a precedent" when presented with high erosion rate documentation and requests for 4 different engineering approaches to erosion control. He set the precedent by assuring the homes would be destroyed by preventing any shoreline protection. This is a clear, documented case of a Taking if my house is lost.

**Response E:**

Re: "[We] deny that the government has prevented landowners from attempting to address erosion in Chesapeake Ranch Estates." There is ample documentation that individual homeowners have been thwarted in their attempts to protect their property (e.g., Tony Vajda, Walter Bohorfoosh, Marcia Seifert/Phyllis Bonfield, and David Ector/Lidia Cucurull). In fact, the permit that was approved to allow the building of a breakwater for Marcia Seifert and Phyllis Bonfield was a compromise over the permit that they had requested two years earlier. It should be noted that the breakwater permit resulted in the homeowners spending thousands of dollars at their own expense and that the solution would not provide
the required protection. (See “Shoreline Management in Chesapeake Bay”, C. S. Hardaway, Jr and R. J. Byrne, Virginia Institute of Marine Science, October, 1999 and Army Corps of Engineers Chesapeake Bay Shore Erosion Recommendations http://www.nab.usace.army.mil/Regulatory/Pubs/ShoreErosionControlBooklet.pdf). The report should be revised to avoid these contentious statements.

Response F:

This section is insulting to many of us who have been watching the CRE applications with great interest for 5 years or more. Why should we put our time, effort and money into making applications when our neighbor has been trying unsuccessfully for 14 years? When someone succeeds, others will file because they will have a model to copy to maneuver through the contorted, confusing, and technical process of application. When were those 11 permits issued? One of those two pending applications is for multiple properties. Also, what DNR did or didn’t do at CRE between 1975 and 1990 is irrelevant to this report. Among the advice given to a homeowner about 5 years ago, was the statement “Don’t bother to apply. You’ll never get a permit.”

Response I:
The “investigation” needs attribution and detail. What is not noted are the numerous property owners who have declined to file after even the briefest of inquiry. Informal discussion is common and the existence of a successful project without considerable difficulty is unknown. Homeowners bear a burden of knowledge and competence in regards to the care and maintenance of their property, but the level needed for any waterfront project is unreasonable. The high level of regulatory and statutory complexity is a government creation and calls for a government solution to avoid discouragement of viable solutions.

B. Considerations

There are three overall issues that should be considered in addressing erosion along the Calvert Cliffs:

1. Geology

The cliffs are naturally eroding. Geologists point out that even if the base of the cliff is protected from continued shore erosion that the cliff itself will continue to slump until a natural “angle of repose” is attained. This continued slumping is due to processes
operating on the sediments that compose the cliff, and include groundwater flow from the land surface to the cliff face, freeze-thaw action, direct water flow down the face of the cliff, rainwater impacts on the cliff face and wind erosion of the sediments. Due to the variable composition of the cliff sediments and land use, the relative importance of these factors is variable along the length of Calvert County (Miller 1983). For example, installing a septic field in an area that was formerly forested will increase the movement of water through the sediments composing the cliffs which can potentially increase the rate of slumping and increase in the freeze-thaw action. Studies conducted at Cove Point, Flag Ponds Nature Park, and the Flag Harbor Marina suggest that the natural angle of repose for these cliffs is between 25 and 40 degrees (45 to 85 percent slope), and that these angles are attained in a period of 35-40 years (Clark, Larsen et al. 2004).

**Response D:**

*We are not talking about natural erosion. These areas are highly developed with roads, significant deforestation, and septic systems. Natural erosion arguments ended when development was enabled. And natural angle of repose has no meaning unless the erosion at the foot of the cliff is stopped. Natural erosion to repose is only an engineering choice after the foot erosion is stopped.*

**Response F:**

*A diagram to show a 25-40 degree angle of repose and a 45-85 percent slope would be helpful to the reader who is not an engineer.*

2. **Engineering**

There are no proven effective engineering solutions that have been tried directly on the steep cliffs. The cost to implement any of these solutions are likely prohibitive, and because of the close proximity of neighboring properties, any work on steep cliffs would have to be comprehensive (i.e., include many property owners) or there would likely be a negative impact on adjacent properties.

Some property owners have suggested that it is possible to stop erosion completely by armoring the base of the cliff. Extant research, however, concludes otherwise. Continued erosion and slumping of the cliff face is likely to continue until the cliff attains the natural "angle of repose" discussed above.
Response C:

The Draft Report concludes that there are no proven engineering solutions that have been tried directly on steep cliffs, that the cost of such action is likely prohibitive and, because of the nearness of neighbors, they would have to be included because of a likely negative impact. However, there is one instance in Scientists' Cliffs where a water leak caused a massive slide that threatened a cliff side house. The owner contracted to have large railroad ties driven into the cliff face to prevent further erosion. This was effective and now, at least 25 years later, that cliff is stabilized; the railroad ties are covered with vegetation and the house is no longer in danger. In addition, an approach that could be tried to combat cliff erosion would be hydro-seeding. It has been used with success on slopes on highways. Why not try it on the cliffs? This would not have the cost as some of the other proposals.

The Draft Report states that some owners suggest erosion can be stopped by armoring the base of the cliff (probably by using toe revetments) but that extant research concludes otherwise. What that extant research is, is not identified. While it may be correct that toe revetments may not stop erosion completely, they are very helpful in slowing erosion. As empiric evidence of this, residents of Scientists' Cliffs saw that following Hurricane Isabel in September 2003, the cliff areas with toe revetments were much better protected than those that didn't have them. The storm water had come 10' up onto the cliffs, and the cliff bases with toe revetments remained intact while those without had large gouges out of their bases. There are photographs that verify this situation.

Response D:

- This section is not correct and is grossly misleading. This section should be prepared and reviewed by an engineer or engineering team. It is completely inappropriate in the current form.

- The Saval property on Taos Trail does have a complete top to bottom stepped engineered solution. It was economical, and with maintenance will last indefinitely. This was an approved county example. There are many others of various types.

- Bulkheads of wood, stone, concrete, iron, and filter cloth materials have been used in high water erosion conditions for many decades. They last indefinitely with maintenance.

- Steep cliff protection using stepped wood, concrete in various forms, stones in cages, planting are a few of the many approaches available. These are all commonly used for roads and construction projects.

- There is no need for any of these properties to have to go to a natural angle of repose.
**Response E:**

The report states "Some property owners have suggested that it is possible to stop erosion completely by armoring the base of the cliff. Extant research however concludes otherwise." The report should be revised to delete this statement and to acknowledge that this sort of erosion can be halted. See "Shoreline Management in Chesapeake Bay", C. S. Hardaway, Jr and R. J. Byrne, Virginia Institute of Marine Science, October, 1999, p 27. In particular, the current cliff could be retained, without grading, by the building of a revetment far enough seaward from the toe of the cliff to allow backfill to achieve the natural "angle of repose". This approach to recover land from the Chesapeake Bay is authorized by this ACOE reference:


**Response F:**

Correction, there are not proven effective engineering solutions that have been tried directly on these cliffs. Prohibitive to whom and how do you know they would be prohibitive if you don’t know that a proven solution exists? Proper engineering can mitigate impact on adjacent properties; would it have to be comprehensive, or just more desirable? The second paragraph is another gratuitous slam at Calvert County citizens. This paragraph should be re-written, deleting any mention of property owners.

**Response H:**

Agrees with the above comments. I could not have stated it any better.

**Response I:**

The "extant" research may reject complete erosion control, but no one involved in the matter has disputed that armoring the base is almost always the first step in any erosion control. Is there an intimation that the natural "angle of repose" is inevitable, unavoidable, preferred, or more ecologically sound?

3. **The Puritan Tiger Beetle**

Parts of the shoreline are populated by the federally threatened and state endangered Puritan Tiger Beetle. The PTB occurs at only a few sites along the Connecticut River in New England and the Chesapeake Bay in Maryland. Generally, an endangered species is a species in danger
of extinction, and a threatened species is one that is likely to become an endangered species within the foreseeable future. The reasons for listing the Puritan tiger beetle federally as a threatened, rather than an endangered species are provided in the Federal Registers proposing the species for listing (10/2/89) and the final rule (8/7/90). A major reason for the threatened status was that "certain areas along the Connecticut River where the beetle has been extirpated may be suitable for recolonization." This is a factor that would not be considered in the state listing by Maryland, which only considers the status within the state. However, the Fish and Wildlife Service's 2007 five-year status review for the species recommends revising the Federal listing to "endangered" due to loss and degradation of habitat and decline in population size.

PTB undergo their entire life cycle on or near cliffs and adjacent sandy beaches, and require some cliff erosion to maintain suitable unvegetated habitat conditions. Thus, any attempt to stabilize the shoreline by preventing erosion could potentially destroy PTB habitat. For this reason and as discussed below, a person who wishes to take action that will result in the destruction of threatened or endangered species or its habitat – here, the habit of PTB on the cliffs -- must obtain an “incidental take” permit from the FWS and DNR. Further, before issuing a federal permit for shore erosion control, the Corps of Engineers must consult with the U.S. Fish and Wildlife Service and Maryland DNR to ensure that the action is not likely to jeopardize the continued existence of any endangered or threatened species.

**Response A:**

Some place on the report, you might wish to note that the FWS in its Final Rule published in the Federal Register (Vol. 55, No. 152, August 7,1990) did not establish a “Critical Habitat” for the PTB, nor did it undertake an economic assessment. Arguably, had the latter been done, some of the problems faced by the homeowners, the County and your Steering Committee would have been avoided.

**Response D**

– It may be true that completely vegetated slopes are not good habitat – But cliffs do not have to erode to be good habitat.

– Cliffs that erode an average of more than 1 ft a year are also not good habitat. And rates of 2 ft or more are useless as habitat.

– You can remove vegetation and have habitat without erosion, as was demonstrated in Connecticut.

– You can not have habitat without reducing the erosion rate

– Erosion control is also needed (simple groins) to maintain beach areas for the beetles in the high erosion areas (they have no beaches either)

• A Proper, scientific approach to consideration of the Tiger beetle would:

– Require a significant decrease in erosion rates

– Ideally Stop the foot erosion completely (to reduce silt and nutrient run-off into the bay) and de-vegetate as needed to maintain/create habitat

– Require Groins to maintain at least a minimal beach area (and provide silt filtering and vegetation growth area for the rest of the endangered plants and animals in the bay.

• The Current Cliff Policies are completely counter productive to the intent of the State and Federal Endangered Species Acts for both the beetles and all other endangered plants and animals in the bay.

Response E:
The report does not acknowledge that since the PTB burrows up to 24 inches in the cliffs (http://www.ct.gov/dep/cwp/view.asp?A=2723&Q=326064) that no PTB would be able to survive where the loss rate is greater than 24 inches per year. The report should be revised to acknowledge this fact and to affect the criteria that would apply to the continued designation of any specific PTB habitat.

Response F:
But it’s now 2011 and the Federal listing is still “threatened.” How is the 2007 recommendation relevant to now?

Correction: PTB need “suitable unvegetated habitat” … they do NOT need cliff erosion. There are terracing designs that could maintain the top terrace bare, where the larvae live for 2 years, while protecting the toe and majority of the cliff face. Stabilizing the shoreline doesn’t have to destroy the PTB habitat.

Correction: Permits are issued by the US Army Corps of Engineers and the Maryland Department of the Environment, not by FWS and DNR.

Please provide the reference for how to file for an “incidental take.” By the way, in this one paragraph, you’ve gone from “could potentially destroy PTB habitat” to “will result in the destruction of … habitat.”
III. SHORT-TERM POTENTIAL SOLUTIONS

Response F:

This should be Section IV.

A. Site Characterization

The first step in identifying homes that are potentially in immediate danger begins with characterizing the 234 homes along the Calvert Cliffs by considering a number of factors. In addition to erosion (discussed above), the factors include soil composition, the presence of shoreline structures to stabilize the cliff, the degree of slope; erosion rates at the bank; vegetative cover; the presence of the Puritan Tiger Beetle, and other data, including a video of the Calvert County shoreline. A description of those factors follows.

Response A:

Suggestion 3: It would be helpful, if the report contained an annex with a map showing the various beetle and Calvert cliff formations and locations listed in the report.

Response F:

... the 234 homes within 100 feet of the edge of the Calvert Cliffs ...

Response H:
A map indicating the locations of the PTB would be extremely helpful.

2. Soil Composition

Response F:

This should be numbered section 1, not 2.
The Calvert Cliffs are comprised of three formations which were deposited in marine environments of varying depths over a period of approximately 10 million years during the Miocene Epoch (Shattuck 1904; Gernant 1970; Gernant, Gibson et al. 1971; Kidwell 1997). During the deposition of the sediments there were multiple deepening and shallowing cycles but overall the oceanic waters were becoming shallower over time. In general, the coarser sandier sediments were deposited in relatively shallower waters and the finer clay and silt rich sediments in deeper water. Throughout the formations there are variable numbers and varieties of fossil marine mammals and invertebrates that lived in those waters. The three formations, from oldest to youngest are: Calvert, Choptank and Saint Marys, although the not all researchers are in agreement as to the dividing lines between the various formations.

Overlying these three formations along the entire Calvert County shoreline are cliff top sands and gravels that were emplaced into fluvial or shallow intertidal channels cut into the underlying sediments. The thickness and composition of the sediments in these infilled channels are variable but are generally coarser than the underlying formations, and they are considerably younger than the underlying Miocene sediments (Kidwell 1982).

All of the Miocene age formations dip to the southeast and thus the oldest (Calvert Formation) is located along the northern portions of the cliffs and the youngest (St. Marys) in the southern part of the county. Because of the southeast slope, the formations gradually dip to the south on the cliff face and descend below the waterline at various points. The Calvert Formation descends into the subsurface between Matoaka (Calvert Beach) and Camp Conoy. The younger Choptank Formation appears at the top of the cliffs at about Plum Point and disappears below the surface near Cove Point Beach. The youngest St Marys Formation appears at the top of the cliffs between Scientists Cliffs and Governor Run and comprises all of the cliffs, with the exception of the incised fluvial gravels, to the south of Cove Point Beach.

While the compositions of the various layers in these formations are variable, in general the Calvert Formation has a large occurrence of fine grained sediments and is interpreted to have been deposited in a muddy inner to middle continental shelf area. The Choptank Formation predominantly reflects a sandier inner shelf to shoreface environment, and the St. Marys
Formation represents marginal marine and intertidal deposits that are mixed sandy and muddy layers (Shattuck 1904; Gernant 1970; Kidwell 1982).

Although there are a number of factors that lead to shore erosion and cliff slumping at any particular location, the general underlying geology has a large effect on relative erosion and slumping rates:

- North of Calvert Beach much of the cliff base is comprised of the Calvert Formation, which has a relatively higher clay content than the other formations. The overlying Choptank Formation which is present in the upper section of the cliffs from Plum Point south to Calvert Beach has a higher proportion of sand, but numerous clayey layers are present. As a result, in a very general sense, cliff failures in this area are less common.

- South of Calvert Beach the relatively sandier composition of the cliffs results in potentially higher rates of erosion and slumping. In addition, the sand and gravel filled incised channels at the cliff top are much thicker and common south of Calvert Beach. These sediments apparently have much lower resistance to erosion and slumping than the older Miocene aged Calvert, Choptank and St Marys Formations and have resulted in some of the major slumping and landslide events that occurred at Chesapeake Ranch Estates as noted above.

- The cliffs south of Cove Point are also relatively solid clay at the base and the overlying portions of the St Marys Formation and the cliff top sands and gravels have very little fine clays that increase the resistance to slumping.

- Cliff slumps along Scientists Cliffs in Port Republic are usually less than two-foot thick, according to Peter Vogt, a retired geoscientist living there. By counting the rings of trees that fell this year in the Scientists Cliffs area Vogt determined that most were up to 20 years old, indicating that the cliffs in that area were eroding at a relatively low rate and were almost stable. Forty-seven (47) of the 83 houses located within 20 feet of the cliffs are in Scientists Cliffs.
Response D:

– Nice review but not pertinent to the issue of protecting homes.

Response F:

At the end of each numbered factor section, one might add a paragraph relating back to the introductory paragraph of section A, as to a concluding or suggested assessment based on that factor. For example, the Soil Composition analysis suggests that areas south of Calvert Beach and south of Cove Point are in more immediate danger of slumping than the areas north of Calvert Beach and in Scientists’ Cliffs. It is less important to say 47 or 83 houses are in Scientists’ Cliffs, than it would be to say how many are in the areas of more immediate danger.

2. Presence of Shoreline Structures

The Virginia Institute of Marine Sciences (VIMS) surveyed the shoreline in 2006 and identified the locations of hard structures in place for shoreline protection. The various structures identified included: bulkheads, groin fields, riprap, and unconventional types (sandbags, culverts, or other miscellaneous material placed neatly along the shoreline). Shoreline protection reduces the risk of cliff failure, although it does not entirely eliminate it. Thirty-eight (38) houses along the cliffs have shoreline structures; the majority of these structures protect houses that are within 20 feet of the cliffs.

Response B:

Homeowners might be interested in the areas listed below: Getting permission to put up wire cages filled with rocks at the base of their cliff. Conduct a study to see if jetties or something else can be put up and down the county to help build up sandy beach areas and protect the base of the cliffs.

Response C:

The specific locations of these houses are not provided. This detailed information would assist each community to assess the risk of damage from erosion. And, the shoreline structures should be identified to evaluate what protection is being afforded.
Response D:
This seems to go against the statements about not being able to protect homes made earlier on page 9, section 2.

Response F:
This section seems to indicate that at one time (prior to 2006?) it was considered appropriate to construct shoreline protection for houses close to the cliffs. “A majority” could be as few as 20 of the 83 houses that are within 20 feet … and how many of those are in the “immediate danger because of soil composition” areas? A chart identifying the assessment of each of these 8 (really 7) numbered factors, specifically for each of the 83 houses within 20 feet would be helpful. A chart with all 234 would be even better.

3. **Degree of Slope**

As discussed earlier, the percentage of slope was calculated by Calvert County using 2003 planimetric data. Cliff height (rise) is divided by cliff length (run) to determine the slope. Steeper slopes – e.g., 90 to 100% -- are more likely to fail. Fifty-two (52) houses have slopes that are less than 60% and are less likely to fail; the majority of these houses are located within 20 feet of the cliffs.

Response D:
I agree with this assessment.

Response F:
2003 data to define today’s slope angles, after several years of slumping, is ridiculous. If you don’t have relevant data, it shouldn’t be a factor. Garbage in, garbage out. If you can get current data, a diagram of rise to run should be included to illustrate.

4. **Soil Erosion at the Bank**
VIMS surveyed the banks in 2006 and made the following assessments of the bank erosion rates, based on visual observations:

- Low = minimal erosion on bank face or toe;
- High = includes slumping, scarps, exposed roots; and
- Undercut = lower portion of bank is eroded causing upper portion of bank to hang over.

Higher erosion rates indicate increased the chances of the cliffs failing at the toe. One hundred four (104) houses have low erosion rates at the bank; the majority of the low-eroding banks (63) are at houses that are located 20 feet from the cliffs.

Response B:

Work on water runoff that erodes the top on the cliff and channel it to specially constructed places where erosion can be better controlled.

Response F:

2006 data is also largely irrelevant to current conditions. If you can’t be bothered to make a current assessment, this should not be a factor. Also, if 47 houses within 20 feet are in Scientists’ Cliffs, where there is a low rate of erosion (see section 1 above), and at least 20 houses within 20 feet have shoreline structures (see section 2 above), it is no wonder that the majority (which might be only 32) of the 63 houses with low-eroding banks are within 20 feet. This report seems to keep reporting on how many houses are relatively safe, which gives the impression that the report tries to minimize the problems about which the citizens have been complaining. I thought the purpose was to assess the problem … how many houses have a problem, how severe are the situations, and what can be done to help.

5. Vegetative Cover

The VIMS survey in 2006 also assessed the amount of vegetative cover at the bank. The assessments included the following categories:
- total = >75%;
- partial = 25% to 75%; and
- bare = <25%.

Larger amounts of feet of the cliffs vegetative cover provide some stability to the cliff face and may reduce the likelihood of failure. Eighty (80) homes are on sites with total vegetated cover; 50 of these homes are within 20 feet of the cliffs.

Response B:
Help in doing away with wood chucks that drill huge holes into the cliffs. Allowing people to cut trees that are overhanging the cliffs to keep the trees from falling and taking huge amounts of soil with them once they go. Allowing people to trim trees on the cliffs to keep them from becoming so large that they fall from their own weight. Help people plant vegetative cover on the cliffs to slow down erosion.

Response D:
- All slopes will fail if the slope undercutting is not stopped.

Response F:
I challenge you to do a current assessment of vegetative cover and tell us that this 2006 assessment is accurate today. Scientists’ Cliffs does have quite a bit of cover and 47 houses within 20 feet of the cliffs; are they 47 of the 50?
Again, a chart or map showing how much each valid factor applies to each property would be helpful. In most cases, it will be for individual properties, not sections of cliff, that government agencies and property owners will be trying to figure out what their situation is and what to do.

6. **Puritan Tiger Beetle**

Of the 234 properties within 100 feet of the cliffs, 114, or about one-half, have some degree of PTB habitat based upon PTB surveys conducted by FWS annually for the past five years. There is no PTB habitat present for 38 of the 83 homes (45%) within 20 feet of the cliffs.
Response C:

The precise location of the properties having PTB habitat would greatly assist the communities involve in deciding what erosion control measures to pursue. Further, page 9 of the Draft Report discussing the PTB indicates that the premise for viability of its habitat is maintenance of suitable unvegetated conditions on the cliff. However, the cliffs at Scientists’ Cliffs have been vegetated for decades, except for brief periods when a slump occurs. Yet, the PTB has survived. Similarly, page 18 of the Draft Report concludes that a shore erosion control project that prevents a cliff from eroding will likely result in the destruction of the PTB. However, most efforts by homeowners is to slow down erosion because to stop it would be cost prohibitive and probably not effective. And erosion control measures meant to slow erosion would probably not destroy the PTB or its habitat but just reduce the habitat.

Response D:

Again – A habitat requires more than just finding a beetle (that can fly several miles) on the beach. If the erosion rate is high the property can clearly be eliminated as a habitat – but this is not being considered.

Response F:

Since Dr. Knisely’s reports only identify the presence of PTB according to his arbitrary sectioning of the shoreline, it is currently not possible for some individual property owners to determine whether they have this issue. How did you determine that 38 of the 83 homes do not have PTB and 45 of the 83 homes do? Again a chart would be helpful!

7. Other Data

The FWS surveys provided descriptions for some of the shorelines. In addition, on May 20, 2010, DNR shot a video of the Calvert Cliffs shoreline from the water while cruising at approximately 2 knots and maintaining a distance of about 400 feet to 500 feet from the shore. The video was recorded using a digital video camera. A Global Positioning System (GPS) device was used to record the location of the boat. The time-stamped coordinates downloaded from the GPS device were matched to the time-stamped images from the digital video that was recorded. This process provided a series of images where the location from which the image was taken was able to be displayed on a map. It is therefore possible to compare the view of various properties from the water with aerial imagery of those properties and with data
provided by Calvert County, Maryland Geological Survey and the Virginia Institute of Marine Sciences.

**Response D:**

Good for documenting

**Response F:**

*So the Committee has the ability to create a map with property lines that would be useful to individual homeowners, and code it with relevant, current factors.*

However, that video may already be out of date for some properties. The County should have a way of letting property owners report erosion as it happens so the data could be kept current.

8. **Characterization**

The Steering Committee has compiled the foregoing data for each of the 234 properties located within 100 feet of the cliffs.

**Response F:**

*This is not really a factor. It also suggests that you could make the chart/map requested. The sentence could be added to the introductory paragraph of this section.*

**B. Assessment of Properties at Highest Potential Immediate Risk**

Using the data described above, the Steering Committee conducted a preliminary valuation and assessment of the properties that are at the highest potential immediate risk. The Committee explored three approaches to this assessment:

1. **Ryan and Associates**
By letter dated March 1, 2010 to the CRE Property Owner’s Association, Ryan, the engineering firm, identified 56 homes within 300 feet of the cliff indicating an “IMMEDIATE (slope failure and potentially leading to complete collapse) concern for any housing that is within 58’ of the edge of any 100’ (vertical elevation) cliff.” The analysis went on to state that the “area of concern” is proportionally reduced for cliff elevations less than 100’, e.g., “for a 50’ cliff any house within 29’ is an immediate concern.” Ryan identified 56 homes stated as meeting this criterion – 55 within 100 feet and one 300 feet from the cliff.

The Committee had three issues with the Ryan framework. First, the analysis was limited to CRE and did not consider the rest of the homes situated on Calvert Cliffs. Second, the Ryan analysis did not as stated proportionately reduce the level of risk for houses on cliff elevations less than 100 feet. Only 12 of the 56 CRE houses have cliffs that are higher than 100’ according to Ryan. However, the Ryan analysis appears to use distance to the cliff as the single factor of concern within CRE. Finally, given the historical erosion and failure rates of the Calvert County cliffs and the fact that 49 of the 56 CRE homes are at least 25 feet from the cliff and the majority over 40 feet away, the proposition that every home that is 100 feet from the cliff (55 of the 56 CRE homes) are in “IMMEDIATE” danger goes too far.

**Response D:**

– The Ryan definition is a proper Engineering approach to the definition of house in danger. The committee objections do not appear to have any justification.

– The failure criteria is conservative and assumes soft soil –

– The study was, as stated, for the CRE homes. It can, and should be applied to the other homes on cliffs in the county.

– If Ryan did not use the proportional risk as outlined – it would be incorrect, just as the county is incorrect in not using cliff elevations in its setback rules.

– Site Specific analysis - There is no reason not to immediately provide permits for all the homes already assessed to be in danger.

These are Certified engineering reports. I do not see any certified engineers refuting them. To delay permits now that they are documented would cause undue liability to the State and county for failures of the cliffs.
- Other homes near the cliffs should also be assessed and treated the same way.

**Response E:**

The report takes issue with the Ryan Associates report based on the assumption that “historic erosion and failure rates of the Calvert County cliffs” apply. This comment does not take into account the increased rate of cliff loss since hurricane Isabel. The report should be revised to state that the data from the Ryan Associates report should be further investigated to validate those properties that are designated as in IMMEDIATE danger.

**Response F:**

The first issue is not an issue; it’s a limitation. It is not reasonable to criticize a CRE report as invalid or inadequate because it doesn’t address the rest of the county.

If “immediate” means “danger of falling before the government agencies take multiple years to figure out whether and/or how to help people save their homes”, then perhaps Ryan is justified in using the term. Assuredly, the Committee’s assertion that “historical erosion and failure rates” should be applied, equally goes too far.

The question is not whether the Ryan report was definitive. The question should be whether there is any data in the Ryan report that is useful to the Committee.

2. **International Residential Code**

The International Residential Code (IRC) applies to all new residential permits in Calvert County. Section 403.1.7.2 of the IRC states that the house setback “shall be measured from an imaginary plane 45 degrees to the horizontal, projected upward from the toe of the slope,” where the slope is steeper than 100%. A slope is steeper than 100% when the rise (y) is greater than the run (x). While most of the homes on the Calvert County shoreline were built before the current Code was adopted, were the Code to apply, houses built to that criteria would potentially be in danger. Thus, standing alone, the IRC is not a useful tool for establishing safe distances from the edge of a cliff or assessing risk when those distances are exceeded.
Response D:

– IRC rules – (Should this be IBR?) - This is a useful conservative technique – all houses in this range are in danger if the foot of the cliff, and potential the sides of the cliff, have not been stabilized.

Response E:

The report describes the International Residential Code (IRC) (p 14). A drawing is needed to illustrate the definitions (e.g., x versus y and where the slope is steeper than 100%). It is also not clear why the report states “...the IRC is not a useful tool....”. Clarification should be provided in the report if the IRC will not be used.

Response F:

If the 45 degree formula is meant to define a “danger zone”, I do not see why that criteria would not be a useful tool “for establishing safe distances from the edge of the cliff ...” That seems to be to be exactly the purpose of the code, and when a house was built is irrelevant to whether it is at risk.

3. Site-Specific Analysis

As discussed above, there are multiple factors that weigh in any evaluation of risk to homes along the cliffs, including distance from the cliffs, soil composition, the presence of shoreline structures, the degree of the slope, erosion rates at the bank, vegetative cover and the presence of PTB. Because of this, in order accurately to assess the properties at the highest potential immediate risk, a site-specific analysis is required. The question is where to begin? In view of the longer-term historic erosion rates but at the same time cognizant of the occasional cliff slumps, in the Steering Committee’s view the appropriate starting point for Calvert County is to conduct a specific site assessment of the 83 homes that are located with twenty (20) feet of the cliffs. These homes are located in Port Republic (Scientists Cliffs), St. Leonard, Chesapeake Beach, Prince Frederick and Lusby, including the 7 properties in CRE that are most at risk according to Ryan.
Response C:

The Draft Report on pages 4 and 14 suggest that the County should conduct a site-specific analysis of the 83 homes located within 20’ as a starting point in evaluating risks to houses along the cliffs. This analysis may be hard to accomplish since the homes are all on private property and some homeowners may not wish to be involved in such a project. While such an analysis would no doubt be of value, perhaps it would be advisable to pursue more outreach to the owners, along the lines of the November 22, 2010 letter from Planning and Zoning to homeowners on the cliffs.

Response D:

- There is no reason not to immediately provide permits for all the homes already assessed to be in danger. These are Certified engineering reports. I do not see any certified engineers refuting them. To delay permits now that they are documented would cause undue liability to the State and county for failures of the cliffs.

- Other homes near the cliffs should also be assessed and treated the same way.

Response F:

I disagree with your assessment of where to begin. Historic erosion rates are misleading and your use of the word “occasional” is belittling.

Assessing the potential immediate risk should begin with the site-specific map/chart that can be (has been?) created by the GPS data, etc. that the Committee compiled. And why is the Committee passing the buck to Calvert County? The barriers to erosion control have been created by the Federal and State government agencies; the County just enforces those policies. I thought the Committee was to convene those Federal and State agencies with the purpose of understanding the erosion problem and developing an action plan for citizens that all the agencies could support. Instead you have conducted a study with a recommendation that another study should be done.

C. Potential Short-Term Solutions

1. Relocation or Acquisition
Given the pace of erosion, the recent history of occasional slumps, and the absence of readily available cost-effective engineering solutions, the only reasonably viable option for houses that are truly in immediate danger is property relocation or government acquisition.

Relocation of a home, e.g., to move the house back from the cliffs but on the same property, will require County permits. Calvert County’s Department of Planning and Zoning manages the issuance of permits, including permits for new wells or septic systems, stormwater management, sediment and erosion control, building codes, and setback, land use and environmental regulations for the Chesapeake Bay Critical Area. If an application to move a house meets all applicable regulations, a permit in the Critical Area can be approved in 6 to 12 working days. However, if changes are required or variances must be obtained, the process could take several months. Of course, it is ultimately up to the affected property owners whether exercise one or other of these options.

Response D:

– This makes no sense. There are simple, inexpensive solutions. In fact-no solution to fixing the cliffs is as expensive as buying and removing the homes. Even the most difficult, such as Laramie lane—would only cost $100,000 to stabilize and protect.

– Relocation of homes would also cost more than stabilizing the cliffs, and would only result in a short time until the problem returns again. It makes no sense.

Response E:

The report also states “...the absence of readily available cost-effective engineering solutions...” as if the available solutions had been examined. Where is the discussion of the engineering solutions that have been examined? This statement that “the only reasonably viable option for houses (sic) that are truly in immediate danger is property relocation or government acquisition” should be revised. The previously cited reports (see above) by the Army Corps of Engineers and the Virginia Institute of Marine Science apply.

Response F:

Again, I object to the use of the word “occasional”.

What is the basis for the statement that there is an “absence of readily available cost-effective engineering solutions”? What engineering solutions did you research, and what did they cost? Should the
Committee even make a judgment as to whether something is cost-effective? At the least, cost-effectiveness in this situation is related to the market value of the property, and there is a wide range of home values along the Calvert County shoreline. Relocation and government acquisition may be viable options, but you have not made a case that they are the only ones, and therefore the statement is inappropriate.

May I suggest that “Of course,” creates a tone of condescension and is unnecessary to the last sentence?

Response I:
Acquisition or relocation does not solve an erosion problem. It solves individual home owner problems and even at that probably not very well. I have great sympathy for the homeowners in immediate danger and may well be one myself in the future. Expenditures of millions of dollars for a handful of homes, millions more on study, and time delays that have no current solution in sight seems terribly inefficient in addressing erosion as a whole. Perhaps if there was a wider solution available the endangered homes could be the first venues of action.

2. Funding

The Federal Emergency Management Agency (FEMA) has a set of Hazard Mitigation Assistance (HMA) programs that provide funding through a variety of grants that are available for eligible hazard mitigation activities. HMA programs are administered by the Maryland Emergency Management Agency (MEMA) and managed by local jurisdictions or county agencies. While the statutory origins of the programs differ, all share the common goal of reducing the risk of loss of life and property due to natural hazards. The HMA grant programs that may be considered for the mitigation of at-risk properties located along the Calvert Cliffs include:

- **Hazard Mitigation Grant Program (HMGP).** This program assists in implementing long-term hazard mitigation measures following a Presidential disaster declaration. Funding is available to implement projects in accordance with State and local priorities. As a result of the December 2009 and February 2010 severe snow storm disaster declarations the State of Maryland is eligible for approximately $9 million in HMGP funding.

Response F:
How much of that $9 million has already been committed? Who decides which projects get the Maryland funds?
• **Pre-Disaster Mitigation (PDM).** This program could be used as a vehicle for HMGP. It provides funds on an annual basis for hazard mitigation planning and the implementation of mitigation projects prior to a disaster. The goal of the PDM program is to reduce overall risk to the population and structures, while at the same time, reduce reliance on Federal funding from disaster declarations. PDM grants are judged on a national competitive basis. The 2011 application period was opened on June 1, 2010 and MEMA is currently accepting PDM applications until December 3rd when final applications will be forwarded to FEMA. The maximum that can be awarded under a PDM grant is 3 million dollars. However, large projects such as the Calvert County Cliffs Erosion Projects can be submitted under multiple applications and spread over the course of a number of years.

For all HMA programs the total cost to implement approved mitigation activities is generally funded by a combination of Federal and non-Federal sources. HMA funds may be used to pay up to 75 percent of the eligible activity costs. The remaining 25 percent of eligible activity costs are derived from non-Federal sources. The non-Federal share must be an eligible cost used in direct support of the approved activities under the guidance and the grant awarded. Contributions of cash, in-kind services or materials, or any combination thereof, may be accepted as part of the non-Federal cost share.

**Response D:**

- **Currently most homes are willing to protect themselves.**

- **For those that can not or do not want to they can be sold – If the new owners can have a permit.**

- **Permitting now will save most, if not all of the homes in danger – without cost to the government or taxpayers.**

- **Permitting now will protect the significant Tax Base these home provide**

- **Permitting now will keep the liability for taking homes from the state and county.**

2. **The County MEMA/FEMA Application**

On June 1, 2010, CRE asked Calvert County to apply as subapplicant for a FEMA pre-disaster mitigation grant. The application was for assistance to 51 CRE homes and 500 feet of Golden West Way, a road within CRE that is now 25 feet from cliff edge. On August 31, 2010, the
County wrote to MEMA attaching a “Notice of Interest” to serve as the subapplicant for the grant application. However, the County’s letter stated that the County was awaiting the findings from this Steering Committee. The letter also stated that over 200 homes were within 100 feet of the bay shore of Calvert Cliffs and “would not be equitable to only focus FEMA funds on property owners within one community.”

The County’s Notice of Interest provided the following “Project Information”:

The proposed mitigation project is to prevent additional loss of property and life as a result of severe cliff erosion along Calvert County’s Chesapeake Bay shoreline. There are 234 homes identified in Calvert County that are currently affected by the bay cliffs erosion problem.

Suggested activities to mitigate loss of property and prevent additional loss of life are: relocation of homes, government purchase of property that is deemed unstable for supporting housing, condemnation and removal of structures that are deemed unsafe or in immediate danger of collapse due to cliffs erosion.

The purposes of this project are: (a) to identify and prioritize the homes that are affected; (b) to evaluate solutions that work for each property involved; (c) to evaluate long term solutions for the bay cliffs erosion problem; (d) to recommend final solutions for each property; (e) to implement recommended solutions.

The County estimated that the study, planning, and implementation of projects for year one were estimated to be 4 million dollars, including the local match. Its application for these funds is due December 3, 2010.
Response F:

Was this letter from the County considered to be an application? If so, what has happened to it? If not, the Committee gave the County less than a month to apply, and if the County did not meet that deadline, the grant process would not be available for another calendar year! How much erosion will occur by the time these studies have been done? There is certainly merit to evaluating and considering a county-wide solution, but what happens to the people who are determined to be at immediate risk? This is NOT a "Potential Short-Term" solution.

Response I:
The paragraph above provides a more tangible listing of the focus of both committees.

3. Implementation

Response F:

Your format indicates that this title should be indented.

The Steering Committee recommends that the County move forward to complete the application process for MEMA funds and conduct a site-specific analysis to inform final decisions on risk assessment. MEMA funds may be used first to conduct this assessment and then to provide funding to implement solutions for affected and willing property owners, including relocation or acquisition. FEMA/MEMA will fund 75% of the cost of this effort. The Committee recommends that the County and DNR explore options for funding the non-Federal share, including in-kind and State Program Open Space funds.

Response E:
The draft report states, “The 2011 application period was opened on June 1, 2010 and MEMA is currently accepting PDM applications until December 3rd when final applications will be forwarded to FEMA.” (Predisaster Mitigation (PDM) para. above). The report also states on page 16, “The County estimated that the study, planning, and implementation of projects for year one were estimated to be 4 million dollars, including the local match. Its application for these funds is due December 3, 2010. At a recent meeting of residents, I heard that Mr. Bobby Finwick of Calvert County stated that the current
County Hazard Mitigation Plan (2005-2010 extended one year to 2011) doesn’t provide for submission of PDMs. If this is the case, any reference to the December 3rd deadline should be eliminated.

Response F:

The map/chart mentioned multiple times could provide a site-specific risk assessment, with a point system for each factor, to determine what properties need help before a multiple-year government-sponsored study and funding process can be completed.

IV. MEDIUM-TERM POTENTIAL SOLUTIONS

The medium term potential solutions for address the eroding Calvert Cliffs will need to consider two sets of issues: (a) engineering, and (b) the impact of erosion control on the PTB. A preliminary framework for these potential solutions is discussed below. The Steering Committee will continue to develop this framework.

Response F:

The first line should say “for addressing” or “to address”.

A. Engineering

1. Cliff Stabilization

Different types of applications have been used world-wide to help stabilize eroding banks and cliffs. Traditional solutions include “soil nailing,” “slurry walls”, “retaining walls”, and “mechanically stabilized earth.” Soil nailing or bank pinning is a technique for stabilizing slopes and for constructing retaining walls. This process typically involves the installation of steel rods into a pre-drilled hole and then grouted into place. A rigid or flexible facing or isolated nail heads may be used at the surface. The facing may be pneumatically applied concrete or may be precast panels made for vegetated cells. A recent proposal suggests use of mechanical anchors, geosynthetic mesh and root reinforced vegetation for cliff stabilization.
However, the feasibility of using this proposal on the steep vertical cliffs in Calvert County, the difficulty of establishing long-term vegetation on vertical slopes without grading them back, and other technical issues (including the impact on Puritan Tiger Beetle habitat) are issues that have not been explored.

A determination of the appropriate solution, if any at all, will depend on many factors including site conditions, environmental impacts, aesthetics and cost. None of these solutions, however, have been tried at the Calvert Cliffs and, as noted, most may be infeasible due to cost and the impact of any solution on adjacent properties.

**Response E:**
The description of cliff stabilization (p 17) is incomplete (see above) and makes the statement about solutions that "most may be infeasible due to cost and the impact of any solution on adjacent properties."

**Response F:**
I look forward to seeing the work of the Committee in developing "this framework." The fact that it needs additional information suggests that the final comment that solutions "may be infeasible" is inappropriate, since the issues "have not been explored." The Calvert Cliffs are certainly special, but the soil composition is not unique in the world, and there are solutions that have been successfully implemented.
The effectiveness of the hard structures that do exist at 38 properties (see Short-Term Potential Solutions, section A.2.) on the Calvert County shoreline indicates that there are some cost-effective solutions, even here.

**Response I:**
Do the engineering solutions cited for cliff stabilization offer a contemporary range of options?

2. **Shoreline Stabilization**

Shoreline stabilization can be achieved through the use of revetments, sills, breakwaters or other structures which prevent wave and tidal activity from eroding the toe of the slopes. These structures are defined as follows:
**Revetment** - An assemblage of stones or concrete, commonly known as riprap, placed to prevent shore erosion, fortify a bulkhead, or stabilize an embankment.

**Sill** - A low profile offshore structure designed to retain sand and marsh on its landward side and generally constructed parallel to the shoreline and with a crest at or slightly above the elevation of mean high water.

**Breakwater** - an offshore structure designed to protect any landform or water area behind them from direct assault of waves.

**Groin/Jetty** - A shore protection structure built perpendicular to the shore to trap sand and retard shoreline erosion.

These types of structures are typically designed and built where shorelines are eroding in higher energy areas such as the Chesapeake Bay front shorelines in Calvert County. However, there are associated impacts which need to be considered with each of these structures such as the disruption of longshore sediment movement, the potential loss of beach and shallow water habitat and impacts on adjacent properties. Most importantly, stabilization of the shore at the base of the cliffs will not result in complete stabilization of the cliff face. Continued erosion and slumping of the cliff face is likely to continue until the cliff attains the natural “angle of repose” which appears to be between 25 and 40 degrees or 45 to 85 percent. This is particularly the case for those high cliffs where the current slope is 70% or higher. Selection of the appropriate structure will require assessment of a range of engineering factors.

**Response D:**

- This is a better representation of the options.
- If the County or state wants to pay for a particular solution – that is great.
- Otherwise – let the home owner decide what approach is best for him.
- Preventing a homeowner from protecting his property will result in liability suits, starting very soon.
Response F:

Perhaps concerns over sediment movement should be less important that the amount of sediment the slumping cliffs are dumping into the Bay.

Geologists, and even long-term residents, tell us that shorelines are constantly moving, and where there were wide beaches 20 or 40 years ago, there are thin strands of sand now, and vice versa. They will continue to ebb and flow, whether people build erosion control structures or not.

Most homeowners agree that “complete stabilization” of the cliff face is unlikely, but if we are allowed to protect the toe of the cliff from erosion, many properties have enough land between the house and the edge of the cliff to allow the natural “angle of repose” to be achieved over time without moving the house. How many properties don’t have that amount of space? Perhaps they should have high priority for immediate permits.

Response I:

The shoreline solutions appear comprehensive of current available technologies. Where, if at all, does the living shoreline initiative tie into this report – specifically to this section?

B. Impacts on the Puritan Tiger Beetle

1. The Regulatory Framework

A shore erosion control project that prevents a cliff from eroding will likely result in the destruction of PTB. The State and federal endangered species acts do allow for “incidental take” of Puritan tiger beetles. Incidental take means the taking (including killing) of a listed species that is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity (such as erosion control). Under federal and state law, a person may obtain a permit for the incidental take of Puritan tiger beetles if certain conditions have been met. Those conditions are:
(i) The incidental taking will not appreciably reduce the likelihood of the survival or recovery of the Puritan tiger beetle in the wild;
(ii) The applicant will, to the extent practicable, minimize and mitigate the impacts of the incidental taking;
(iii) Adequate funding for the conservation plan is available and the plan will be implemented; and
(iv) The applicant has obtained the required federal authorization for the incidental taking of the Puritan tiger beetle.

To streamline applications for incidental take permits, the FWS in consultation with DNR is developing a PTB Review Process for reviewing projects involving PTB that allows for some loss of Puritan tiger beetle habitat with offsetting conservation or mitigation measures based upon an updated Population Viability Analysis.

**Response F:**

*When will the PTB Review Process be ready? How can I get a copy?*

*When will the Population Viability Analysis be ready? How can I get a copy?*

2. **Population Viability Analysis**

FWS prepared a population viability analysis (PVA) for the PTB in the Chesapeake Bay in 2005 and re-ran the analysis in 2010. The 2010 PVA defines the maximum number of beetles counted (\(x^2\)) in the last 5 years (2005-2009) to be the carrying capacity of the subpopulation. The conclusion of the PVA is that it is important to keep all of the sub-populations in the Chesapeake Bay, but that some reduction of existing PTB may occur without jeopardizing the continued existence of the species. This means that a permit for an incidental take of some PTB may be issued. The draft PVA is currently undergoing additional review.

3. **Minimization & Mitigation**
Different types of shore erosion control measures have various impacts on the PTB. To assist property owners in understanding these measures and selecting the appropriate control measure, the PTB Review Process will provide a summary of the impacts of various erosion control structures on the PTB.

A property owner whose erosion control project results in destruction of PTB habitat is also required to mitigate the impact of this action. This can be achieved by protecting an equivalent amount of the habitat destroyed. One method for doing so would be to establish a conservation bank that would sell credits for PTB habitat protected through conservation fee simple or easement acquisitions. The conservation easements would prohibit shoreline stabilization or alteration of the cliff face on the property. DNR and FWS will identify and pursue fee simple or easement acquisition of PTB habitat within the Calvert County subpopulations. Permanently protecting PTB habitat will reduce the risk of jeopardy to the species – thereby expanding opportunity for incidental take of the subpopulation – and may be counted toward mitigation.

**Response D:**

- It has already been presented that the properties are not habitat – and therefore protecting the cliffs would have no impact on species survivability.

- There are no federally designated sites so Federal authorization is not required.

- Long term funding to establish suitable habitat is a great idea- but is not an issue since these high erosion sites are not suitable habitat.

**V. LONG-TERM POTENTIAL SOLUTIONS**

**Response F:**

This should be section VI.

DNR and USACE are finalizing the Chesapeake Bay Shoreline Erosion Management Guide, Maryland, and plan to scope a more comprehensive effort to encompass the Calvert, Kent and Cecil County shorelines. This effort, to be cost shared 75% Federal and 25% non-Federal, will include the identification of various locations for local, State, Federal, private or non-profit
restoration and/or stabilization. The scoping process will determine how many sites will include planning level designs and costs.

Response F:

When will the Guide be ready? How can I get a copy?

USACE is currently awaiting their FY11 appropriations and is coordinating internally to determine available funding under the Continuing Resolution. The Committee recommends that the County and DNR explore options for funding the non-Federal share, including in-kind contributions.

In addition, DNR and FWS will identify and pursue fee simple or easement acquisition of PTB habitat within the Calvert County subpopulations. Permanently protecting PTB habitat reduces the risk of jeopardy to the species and expands opportunity for incidental “take” of the subpopulations. DNR and FWS will also explore establishing a conservation bank that would sell credits for PTB habitat protected through conservation fee simple or easement acquisitions.

VI. CONCLUSION

Response F:

This should be section VII.

The Steering Committee will continue its work as described in this Draft Report, and looks forward to receiving public comments on the draft report, including meeting with a Citizens Advisory Committee established by Calvert County State and local officials. In addition, the Committee will begin work on the shoreline analysis of Kent and Cecil Counties and recommends that the local officials of those Counties establish a Citizens Advisory Committee for review and consultation on the Steering Committee’s draft report, once prepared.
Specific Other Suggestions/Questions:

Response C:

The Draft Report on page 20 cited among its references an A.J. Miller who did a PhD Thesis on shore erosion processes on the Potomac Tidal River and Estuary. There is another PhD Thesis by David S. Miller, also with John Hopkins, in 1995. His work is titled *A Field Investigation of the Controls of the Dominant Erosion Processes on the Actively Undercut, Non-lithified Coastal Slopes of Calvert County, Maryland*. This work prompted SCA in 2003 to contract with Dr. Miller to develop a best management plan for the shoreline and slopes along Scientists' Cliffs. It is his report that guides the work our community does, or will propose to do in the future.

Response D:

Preventing a homeowner from protecting his property will result in liability suits, starting very soon. There are no scientific or engineering reasons for the County and State to continue to deny permits for protection of these endangered homes.

Response I:

- Narrowed or more specific focus of the report or make it first in a series.
- Improved range of reference material
- Improved attribution
- Accompanying graphics
- Detailed list of various agency contacts

VII. REFERENCES

Response F:

This should be section VIII.

Calvert County Zoning Ordinance, Article 8-2.


March 2012 Interim Recommendations from the Cliff Stabilization Advisory Committee to the Calvert County Board of County Commissioners
To: Calvert County Commissioners  
From: Calvert County Cliff Stabilization Advisory Committee  
Subject: Recommendations for Immediate Implementation at the County Level  
March 20, 2012  
The Calvert County Cliff Stabilization Advisory Committee has identified a list of several key recommendations, which we believe should be strongly considered for immediate implementation by the Calvert County Commissioners. The list was compiled through a combination of extensive research by Committee members, discussions with subject matter experts, and testimonials provided by Calvert County residents directly impacted by the devastating effects of cliff erosion on their properties. The recommendations for administrative or staff action are as follows:

1. Designate a Shoreline Permit Navigator, an individual in Planning and Zoning, whose job description includes being THE County employee who will work as an advocate and coordinator for County Residents seeking permits to stabilize cliff erosion on their individual waterfront property and/or that of their Community.

Our rationale behind this recommendation is that the current permitting process is daunting for anyone attempting to secure permits at the County level. And the process is overwhelming when the individual also has to work with State and Federal officials, while navigating a dizzying array of permitting rules and regulations at every level of Government. While MDE and DNR are expected to provide technical expertise and assistance to all Maryland residents, many residents of Calvert County find themselves no closer to obtaining required permits not only months, but several years into the permitting process. In fact, inconsistent support and the maze of requirements have caused delays which enable the cliffs to continue to deteriorate and increase the cost of remediation. By establishing a designated County facilitator, the County would provide a needed service to its residents and would have someone in the County government ensuring that Calvert County’s needs receive the attention they deserve from State and Federal agencies. This is a service which requires someone to become familiar with the personnel and complicated processes of the Federal and State agencies, as well as the County regulations.

2. Develop a Calvert County Guidebook to shoreline permitting. Currently, there is a grant (expiring September 2012) supporting the development of a draft document with similar intent. We recommend that the County apply for a continuation of that grant to finish the guidebook and support its implementation as a pilot project. If the grant is not extended, we recommend that the County fund this important work. It would be the primary tool used by the Navigator, recommended in item 1 above, to assist Calvert County residents.

Our rationale behind this recommendation centers around the fact that Calvert County residents who have a critical need to protect their property, essentially enter the process blindly without any insight regarding: regulations, required permits, permitting process, time lines, and costs. The guidebook should provide detailed information on the entire permitting process, Federal,
State and County, including but not limited to: a flowchart of the permitting process, contact information for each agency at all government levels, estimated costs (for permits, engineering studies, and contractors), detailed maps with property lines, actions that residents can undertake with and without government approval, proven techniques that have resulted in cliff preservation, and a model planning document for individual property owners and communities to review so that they can weigh all the variables prior to going forward with a shoreline preservation project.

3. Provide easily accessible financial assistance for shoreline preservation projects. The County should develop several alternatives with respect to assisting County residents with financing for individual or community shoreline preservation projects. The financing could consist of 0% or low interest loans (repayments would be added to residents’ tax bills over a multi-year period), grants, or loan guarantees, or any other financial arrangement available to the County government.

Our rationale for this recommendation centers around the fact that some residents, who are in dire need of preserving their properties from cliff erosion, often do not have the required financial resources to even consider cliff preservation. State funds for no-interest loans for shoreline erosion control are not available for the kinds of structures needed to mitigate the storm surges that affect the western shore of the Chesapeake Bay. A low interest loan or grant, provided by the County, would be a win-win for Calvert County and its residents impacted by cliff erosion, since the County would preserve its tax base and the residents would preserve their homes. There are some permits in process now, and financial assistance may be needed within a few months.

In summary, the members of the Calvert County Cliff Stabilization Advisory Committee hope that you will strongly consider these three recommendations as a first step in assisting Calvert County residents, who are suffering physical, emotional, and financial stress as a result of their properties being ravaged by the effects of cliff erosion. The negative consequences for not acting in a timely fashion to preserve our shoreline are only going to grow over time, affecting not only individual property owners, but also entire waterfront communities.

The members of this Committee look forward to presenting additional recommendations to the Calvert County Commissioners in the near future, since our charter ends January 2013. We appreciate your continued support and guidance.
Sincerely,
Calvert County Cliff Stabilization Advisory Committee
CSAC - Attachment G

Brochure: “Chesapeake Bay Critical Area - What You Need to Know”
What is the Critical Area?

All land within 1,000 feet of the mean high tide line of tidal water or tidal wetland. State law recognizes that the land immediately surrounding the Bay and its tributaries has the greatest potential to affect water quality and wildlife habitat for our crabs, oysters, herons and waterfowl. The purpose of the Critical Area Program is to mitigate the damaging impact of water pollution and loss of natural habitat, while also accommodating the County’s future growth.

What YOU Need to Know

You live in the Chesapeake Bay Critical Area. The Critical Area includes all lands within 1,000 feet of the bay and the rivers, creeks, and streams that flow into it. This land is “critical” because the health of the Bay including the plant and animal life living in it are impacted by what you do on your property.

The Critical Area Program is designed to help keep up the good work and curb the harmful effects to the Bay that often come from development. The Program, adopted by Calvert County in 1988, is in response to legislation passed by the State of Maryland after many studies demonstrated that the health of the Chesapeake Bay was in decline.

This brochure will provide an overview of how the Critical Area regulations apply to your property, and give guidance on how to protect the Bay as you use and develop your land. YOU can make a difference!
How can you make a difference?
- Plant a tree or shrub to help improve our air quality and absorb nutrients before they enter the Bay.
- Participate in the Critical Area Program and follow all regulations.

How does the Critical Area Law affect YOU?
Special regulations apply to the following activities:
- Tree removal or clearing of underbrush or other vegetation.
- Construction of any house, addition, shed, deck, pool, pier, bulkhead, sidewalk, driveway, or other structure through which water cannot pass.
- Grading or contouring of the land.
- Farming and/or timber harvesting.
- Subdivision of your property.

What is the Critical Area Buffer?
Within the Critical Area, the first 100 feet from mean high tide is known as the Critical Area Buffer. The Buffer may be extended for adjacent steep slopes and other sensitive areas, such as Habitat Protection Areas. In areas adjacent to non-tidal wetlands, the buffer is 50 feet. A naturally vegetated or forested Buffer filters out much of the harmful sediments and toxic runoff before it reaches the Bay.

What are some of the added costs that may be involved when you develop in the Critical Area?
- Trees must be replaced on a 1:1 basis.
- Lots must have a minimum of 15 percent tree cover.
- Refundable bonds must be posted when trees are required to be planted on site.
- Fees-in-lieu must be paid when tree replacement cannot be accomplished on site.
- Penalties are imposed for unauthorized clearing.

What activities are regulated in the buffer?
- No cutting or clearing is allowed without a permit.
- No structure or building is allowed without a permit.
- Grading, adding fill material, or shore erosion control methods require permits.
- Dead trees may be removed with a permit.
- Trees posing immediate threat to a structure may be removed without a permit, but with prior Planning and Zoning approval.
- The lower one-third of branches on mature trees may be pruned without a permit, but with prior Planning and Zoning approval.
- Invasive vines may be removed without a permit, but with prior Planning and Zoning approval.
- Maintenance of existing lawns is permitted.
- Stiff penalties are imposed for unauthorized clearing in the buffer.

Would you like to receive “free” trees to plant on your property in the Critical Area?
Applications for “free” trees are available from the Department of Planning and Zoning. Planting is done by a County contractor in the Spring and Fall. Requests may range from one tree to acres of seedlings and will be reviewed by the Critical Area Reforestation Evaluation (CARE) Committee twice a year.

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Thanks for your help!
For more information please contact:
Calvert County Department of Planning and Zoning
Critical Area Program
County Services Plaza, 150 Main Street
Prince Frederick, MD 20678
410-535-2348 or 301-855-1243 x502
http://www.co.cal.md.us

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