



## Section 8 Mitigation Strategy

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As mentioned elsewhere, during the 2010 Plan Update portions of the original HMP were preserved, including some of the terms and language. This Section includes various elements from the original 2004 version of the Plan. In the original version, the mitigation actions were identified in Section 8, Hazard Mitigation Actions. This section is now integrated into the present Mitigation Strategy as Subsection 8.5 (Prioritized Mitigation Actions and Projects). The update also includes discussion about progress on the goals, strategies and actions from the December 2004 version of the HMP. This information is found in Section 8.2 (Mitigation Goals and Accomplishments).

### 8.1 IFR Requirements for Mitigation Strategy

***IFR §201.6(c)(3):*** *The plan shall include a mitigation strategy that provides the jurisdiction's blueprint for reducing the potential losses identified in the risk assessment, based on existing authorities, policies, programs and resources, and its ability to expand on and improve these existing tools.*

***IFR §201.6(c)(3)(i):*** *[The hazard mitigation strategy shall include a] description of mitigation goals to reduce or avoid long-term vulnerabilities to the identified hazards.*

***IFR §201.6(c)(3)(ii):*** *[The mitigation strategy shall include a] section that identifies and analyzes a comprehensive range of specific mitigation actions and projects being considered to reduce the effects of each hazard, with particular emphasis on new and existing buildings and infrastructure.*

***IFR §201.6(c)(3) (iii):*** *[The mitigation strategy section shall include] an action plan describing how the actions identified in section (c)(3)(ii) will be prioritized, implemented, and administered by the local jurisdiction. Prioritization shall include a special emphasis on the extent to which benefits are maximized according to a cost benefit review of the proposed projects and their associated costs.*



## 8.2 Mitigation Goals and Accomplishments

Goals are general descriptions of desired long-term outcomes. State and federal guidance and regulations pertaining to mitigation planning require the development of mitigation goals to reduce or avoid long-term vulnerabilities to identified hazards. Mitigation goals have been established by FEMA, the State of Maryland, and Anne Arundel County.

As part of the original (2004) Plan development process, the Planning Team and OEM met on numerous occasions to discuss possible mitigation measures to reduce or eliminate disaster-related damages in the County. Riverine flooding is the predominant hazard in the County, and was the focus of the discussions. The original planning team developed a list of actions for the December 2004 version of the plan; all the actions were developed as a means to move the County toward achieving its mitigation goals and objectives.

The 2004 Planning Team developed an overall goal to reduce or eliminate the long-term risk of loss of life and property damage from the full range of natural and man-made hazards. In addition to this overall goal, the Planning Team also established seven specific goals:

1. Protect the residents of Anne Arundel County from natural and man-made hazards.
2. Increase public understanding, support and demand for hazard mitigation.
3. Protect existing and new properties.
4. Build and support local capacity and commitment to become less vulnerable to hazards.
5. Maximize resources for investment in hazard mitigation.
6. Reduce the potential impact of natural and man-made disasters on the County's historic assets.
7. Reduce the potential impact of natural and man-made disasters on the County's natural systems.

As part of the 2010 HMP Update, the Mitigation Planning Committee (MPC) reviewed the goals from the first-generation HMP. The MPC determined that goal number one should be modified to remove the reference to man-made hazards since the main focus of the Plan update is on natural hazards. The remaining six goals were still valid and therefore remained unchanged in the Plan Update. The Planning Team also discussed the need to identify and describe progress towards achieving the goals since release of the 2004 Plan. Note that references to man-made hazards are removed from this point forward in the HMP, and that **Goal #1 is modified to read "Protect the residents of Anne Arundel County from natural hazards."** Also note that several of the goals and objectives noted in the subsections below have been modified to remove references to man-made hazards – this modification is noted in text.



## 8.3 Mitigation Objectives and Strategies

### Objectives

Objectives are well-defined intermediate points in the process of achieving goals. For the seven goals listed above, the Planning Team and the Anne Arundel County OEM established a list of objectives within each goal. Anne Arundel County mitigation planning objectives for each goal include:

#### Goal 1: Protect the residents of Anne Arundel County from natural hazards. [edited 2010 HMP]

- **Objective 1.1:** Advise the public and implement activities related to health and safety precautions that protect lives by making homes, businesses, critical infrastructure facilities, and other property more resistant to hazards.
- **Objective 1.2:** Target owners of properties within identified hazard areas for additional outreach regarding mitigation and disaster preparedness.
- **Objective 1.3:** Evaluate existing shelters to determine adequacy for current and future populations.
- **Objective 1.4:** Maximize the use of the latest technology to provide adequate warning, communication, and mitigation of hazard events.
- **Objective 1.5:** Continue to develop hazard data for Anne Arundel County to meet new threats and refine knowledge of existing threats.

#### Goal 2: Increase public understanding, support, and demand for hazard mitigation.

- **Objective 2.1:** Develop education and outreach programs and materials to increase public awareness of the risks associated with natural hazards. [edited 2010 HMP]
- **Objective 2.2:** Educate the public on actions they can take to prevent or reduce the loss of life or property from natural hazards. [edited 2010 HMP]
- **Objective 2.3:** Cultivate a spirit of cooperation between County residents and County government that ensures an ongoing commitment to future mitigation activities.

#### Goal 3: Protect existing and new properties.

- **Objective 3.1:** Reduce losses and repetitive damages from chronic hazard events by encouraging adequate and well-understood insurance coverage, including separate personal property coverage, among property owners.
- **Objective 3.2:** Use cost-effective approaches to protect existing buildings and public infrastructure from hazards.
- **Objective 3.3:** Ensure that development will not put people in harm's way or increase threats to existing properties.



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**Goal 4: Build and support local capacity and commitment to continuously become less vulnerable to hazards.**

- **Objective 4.1:** Build and support local partnerships to continuously become less vulnerable to hazards.
- **Objective 4.2:** Provide information on tools, partnership opportunities, and funding resources to assist in implementing mitigation activities.
- **Objective 4.3:** Ensure adequate training, exercise, and resources for emergency organizations and personnel.
- **Objective 4.4:** Build a cadre of committed volunteers to assist in safeguarding the community before, during, and after a disaster.
- **Objective 4.5:** Continue to foster collaboration with County departments so that hazard mitigation concerns are consistently incorporated into normal County operations (i.e. budgeting, planning, and zoning).

**Goal 5: Maximize resources for investment in hazard mitigation.**

- **Objective 5.1:** Strengthen communication and participation between public agencies, citizens, non-profit organizations, businesses, and industry to facilitate the mitigation process.
- **Objective 5.2:** Maximize the use of outside sources of funding.
- **Objective 5.3:** Encourage maximum participation of property owners, community associations, and special tax districts in protecting their property.

**Goal 6: Reduce the potential impact of natural disasters on the county's historic assets.**

- **Objective 6.1:** Identify and protect historic assets throughout the County that are at risk from natural hazards. [edited 2010 HMP]

**Goal 7: Reduce the potential impact of natural disasters on the county's natural systems.** [edited 2010 HMP]

- **Objective 7.1:** Balance natural resource management, and land use planning with natural hazard mitigation techniques.
- **Objective 7.2:** Preserve, rehabilitate, and enhance natural ecosystems to serve natural hazard mitigation functions.

As part of the 2010 Plan update the Planning Team reviewed the objectives from the 2004 Plan and determined they are still valid and therefore remain unchanged. The objectives identified above will be periodically reviewed as part of the Plan maintenance and any additional objectives or modifications will be incorporated into the next scheduled Plan update.



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## Strategies

Strategies are a specific course of action to achieve the objectives. As part of the 2010 Plan update, the original Action Plan was reviewed and many of the items listed re-defined as strategies based on the description. Table 8.3-1 identifies the Anne Arundel County mitigation planning strategies and status as of early 2010.

**Table 8.3-1  
Anne Arundel County: Status of Mitigation Strategies**

No.	Description of Strategy	Hazard	Status as of 2010
1	Acquire repetitively flooded structures	Flood	There is currently very little funding available for this activity. Also, in this area of the State, purchase of properties tends to be prohibitively expensive, limiting the potential for acquisitions except in unusual circumstances. The County will continue to pursue funding that may be available after Presidential Disaster Declarations, and through non-disaster-related FEMA programs (such as the FMA, SRL and PDM), as appropriate.
2	Elevate repetitively flooded structures	Flood	There is currently very little funding available for this activity. The County will continue to pursue funding that may be available after Presidential Disaster Declarations, and through non-disaster-related FEMA programs (such as the FMA, SRL and PDM), as appropriate.
3	Public awareness and education campaign for all hazards	All Hazards	<p>Completed and Ongoing: AA Co. Office of Emergency Management (OEM) has an all-hazards emergency preparedness program that includes community presentations, preparedness guide, website, Facebook and Twitter, and materials from FEMA, Red Cross and the Ready Campaign that includes information about many hazards.</p> <p><u>Specific Hazard Updates</u></p> <ol style="list-style-type: none"> <li>1. Coastal Erosion: Ongoing Emergency Management (EM) preparedness meetings, EM Preparedness Guide, Storm Surge Map on website.</li> <li>2. Extreme Heat: New Code Red Plan and supporting brochure.</li> </ol>
4	Educate residents about and promote the restraint of home heating oil tanks	Hurricane, Tropical Storm or Nor'easters	Completed. After TS Isabel in 2008, this information was spread widely to the community. Is ongoing at the start of hurricane season.



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No.	Description of Strategy	Hazard	Status as of 2010
5	Determine the adequacy and hazard resistance capability of existing shelters	Multi-hazard	Ongoing. Periodic shelter surveys completed in conjunction with DSS, Red Cross, OEM and RACES. Generator projects ongoing. One school, Annapolis HS, has been wired for a transfer switch/generator. Northeast HS scheduled renovation will include transfer switches.
6	Develop evacuation plans, policies, and procedures	Multi-hazard	Completed. Continuity of Operations Plan; Department of Public Works (DPW) P&P D-20, Building Emergency Plan DPW P&P D-25, Building Emergency Plan - 1 & 2 Story Buildings.
7	Develop coordinated interagency debris removal plan	Multi-hazard	Completed. Anne Arundel County Disaster Debris Management Plan.
8	Identify roles and responsibilities of County response agencies	Multi-hazard	Completed with the revision of the Emergency Operations Plan. Roles and responsibilities further defined and classified through exercises.
9	Ensure sufficient redundancy for E911 service	All Hazards	<p>a. Construction of Regional Communication Center (RCC) in Henry Hein Building, Glen Burnie within the County Emergency Operations Center. Completed spring 2008.</p> <p>b. Acquisition and installation of complete and redundant Verizon E911 Service within the RCC. Including E911 telephone service and all associated Police and Fire Department call taker telephone equipment. Completed summer 2008.</p> <p>c. Acquisition and installation of complete and redundant Computer Aided Dispatch capabilities for County Police and Fire Departments within the RCC. Including hot-standby Server equipment. Completed summer 2008.</p> <p>d. Acquisition and installation of complete and redundant 800MHz County Radio system communications capability. Completed summer 2008.</p> <p>e. Successful completion of full Police and Fire Dispatch operations during September 2008. Both Police and Fire dispatch operation were relocated to RCC during the month while primary facility renovations were completed.</p>
10	Promote use of new technologies to detect and suppress fires	Wildfire	Ongoing.
11	Enhance information base for future mitigation activities	Multi-hazard	The County is continuously evaluating needs in this subject area. The 2010 plan update process was used in part as a way to develop additional information to support mitigation activities going forward.
12	Identify situations where sheltering in-place is appropriate	Multi-hazard	Completed and Ongoing. OEM has an all-hazards emergency preparedness program that includes community presentations, website, Facebook and twitter and materials from FEMA, Red Cross and the Ready Campaign that includes information about many hazards.



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No.	Description of Strategy	Hazard	Status as of 2010
13	Formalize hazard mitigation as factor in community development planning	Multi-hazard	The County has incorporated Public Safety Services into the Draft General Development Plan (GDP) Update. Includes policies and actions to promote and train citizens and encourage coordination between the public and County departments.
14	Explore options for offsite storage of critical County records and data	Multi-hazard	<ol style="list-style-type: none"> <li>1. Identify critical systems and data. Completed December 2007.</li> <li>2. Implement automated electronic backup procedures Completed December 2007.</li> <li>3. Implement procedure for storage of tapes at Iron Mountain off-site facility. Completed 2007.</li> <li>4. Information Technology has a full Business Continuity Plan that has been implemented and tested for critical County computer systems. This plan includes a hot site operational facility and network connectivity to County locations. Completed summer 2008.</li> <li>5. Information Technology is also implementing document management solutions for County departments. For example, all critical and historical documents have been scanned and imaged for the County Council. Documents are available electronically and the associated backup media is stored off-site.</li> </ol>
15	Encourage citizens and County personnel to take CERT course	Multi-hazard	Completed and ongoing: Interested county personnel have taken classes offered to public. OEM has trained citizens in CERT (Community Emergency Response Teams). Currently instituting Teen CERT at Meade High School as part of the Homeland Security signature program.
16	Identify and protect County natural environmental assets	Multi-hazard	The office of Planning and Zoning (OPZ) is working with the DPW and the Parks Department on updating the Greenways Plan. The Draft GDP Update also covers protecting natural resources and the environment in the County.
18	Ensure adequate plans, procedures, and capabilities to respond to a dam failure	Dam Failure and Releases	Partially completed. For emergency responses, the Fire department staffed and equipped a Swiftwater/Floodwater rescue unit in 2006.
19	Enhance water and energy conservation at County facilities	Drought	DPW Complete. County is familiar with EPA WaterSense <a href="http://www.epa.gov/watersense/index.htm">http://www.epa.gov/watersense/index.htm</a> /. P&Z Provided staff with information regarding energy conservation and encourage all lights and computers to be turned off when not in use.
20	Create plan for cooling centers and shelters	Extreme Heat	Complete. Draft Plan completed in June 2009.



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No.	Description of Strategy	Hazard	Status as of 2010
21	Create cooperative relationship with news outlets for distributing information about extreme heat	Extreme Heat	Ongoing: periodic interview scheduled for OEM director. Most of this action will involve county Public Information Officers (PIO).
22	Promote use of NOAA "All Hazards" radios for early warning and post-event information to critical facilities	Multi-hazard	Complete and ongoing: this information is included in all hazards emergency preparedness program.
23	Research and evaluate hazards and data needs for next iteration of Plan	Multi-hazard	Completed and ongoing. All hazards of concern were re-evaluated as part of the 2010 HMP update, and the County will continue this effort indefinitely, revisiting the hazards and Plan as needed.
24	Increase use of insurance coverage	Multi-hazard	The County continually monitors and updates its insurance coverages as needed.
25	Identify and protect County historic assets	Multi-hazard	The County continually updates the list of County Historic Resources. Measures for protecting Historic Resources are outlined in the Draft GDP Update.
26	Ensure critical area restrictions are enforced	Multi-hazard	Staff has been working with the Critical Area Commission on updating the Plan and correcting errors on the maps. The effort is continuous and ongoing.
27	Conduct fire study using Geographical Information System (GIS).	Wildfire	Tridata Deployment Study completed in 2008 ( <a href="http://www.aacounty.org/Fire/Resources/TriData_2008.pdf">http://www.aacounty.org/Fire/Resources/TriData_2008.pdf</a> ) and ISO Public Protection Classification Report completed in 2009.
28	Create plan for warming centers and shelters	Severe Winter Storm	Shelter plan exists within the County EOP.
29	Create cooperative relationship with news outlets for distributing information about winter storms	Severe Winter Storm	Ongoing. Pre-season, information is distributed via County web site, informational letters to County Council & State politicians, snow info briefing goes to newspapers. A hot line is set up during major storm events with recorded operations information.
30	Established relationship with BGE to reduce power outages	Multi-hazard	Completed and Ongoing. Attend annual BGE meeting for emergency management. Schedule interagency meetings to resolve questions/problems. GIS works with BGE to create better reporting systems
31	Portable generators for water treatment and distribution facilities and shelters	Multi-hazard	Generators have been added to many critical areas. Several portable generators are maintained and areas where they may be needed have been prewired to accept them. This is ongoing. List in share drive: \OEM\Central Services
32	Existing enforcement plan for mandatory water rationing	Drought	Plan is implemented as needed.



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No.	Description of Strategy	Hazard	Status as of 2010
33	Program to inventory and restore submerged aquatic vegetation along shoreline areas	Coastal Erosion	Deleted. This program is handled through the Department of Natural Resources.
34	Identify environmentally sensitive areas for acquisition by the County	Coastal Erosion	On-going. The Office of Emergency Management works with other agencies to identify areas for potential acquisition.
35	Identify wetland sites for mitigation banking and establish a County wetland bank	Coastal Erosion	Deferred. The County is not currently pursuing the establishment of a County wetland mitigation site; however, they do direct developers/homeowners to private wetland mitigation banks, when available.
36	Enforce floodplain regulations	Flood and Coastal Flooding	On-going. Anne Arundel County is a member of the NFIP.
37	Work with the state to monitor and conserve existing water supplies in the County	Drought	On-going. DPW has several projects in the Capital Improvements Plan that outline ways to upgrade the County water supply.
38	Prepare Small Area Plans to refine the type, timing, location, and extent of future development, circulation patterns, and community design	Multi-hazard	Completed. This program was fulfilled through Planning and Zoning.
39	Develop a tidal shoreline mitigation fund	Coastal Erosion	Deleted. The County has decided not to pursue a fund, however, shoreline retrofitting projects are being pursued through the Capital Improvements Plan.
40	Use off-site drainage fees, Critical Area, and Tree Bill Reforestation fees to acquire mitigation sites	Coastal Erosion	On-going. Currently, off-site storm drainage fees are not used for this purpose. Article 16 and Article 17 off the County Code rewrite (not yet before Council) proposes to expand the types of fees that can be used for this purpose.
41	Existing strategy to revise development regulations to require undisturbed buffers along upland streams	Coastal Erosion	On-going. This is proposed as part of the 2010 Article 16 and Article 17 re-write.
42	Identify and develop incentives for achieving a net gain of tidal and non-tidal wetlands	Coastal Erosion	Deleted. This program is administered through MDE/ Army Corps. Of Engineers, as they issue the license for disturbance and require mitigation for impacts.
43	Incorporate new technologies related to water and wastewater treatment as they become technically feasible.	Multi-hazard	On-going. DPW is always working to use the most technically feasible technologies as the budget permits.
44	Identify preservation areas and establish growth boundaries	Multi-hazard	Completed. This was incorporated in the 2009 General Development Plan.



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No.	Description of Strategy	Hazard	Status as of 2010
45	Identify temporary shelter for residents of Highland Beach.	Multi-hazard	Completed. The Town Hall is suitable for temporary (2 day) shelter and is equipped with power generator, AED, first aid supplies, and water.
46	Establish evacuation route for residents.	Multi-hazard	Completed. Douglas Avenue or Bay Avenue have been designated as evacuation routes.
47	Create Emergency Operations Plan.	Multi-hazard	Completed. An EOP was created that provides the town with a framework for use in performing emergency functions.

## 8.4 Prioritized Mitigation Actions and Projects

As mentioned earlier in this section, a Mitigation Action Plan was prepared to develop specific actions to achieve the seven goals discussed in Section 8.2, Mitigation Goals and Accomplishments. The Action Plan identified an appropriate lead person for each action, a schedule for completion and possible funding sources. For the 2010 Plan update, the process that the MPC chose to help them consider potential action items in a systematic way was the Social, Technical, Administrative, Political, Legal, Economic, and Environmental (STAPLEE) Method. This method helped the MPC to weigh the pros and cons of different alternative actions for each of the identified objectives and strategies. Table 8.4-1 provides an explanation of the criteria used for the STAPLEE methodology.

**Table 8.4-1  
STAPLEE Methodology**

STAPLEE	Criteria Explanation
S – Social	Mitigation actions are acceptable to the community if they do not adversely affect a particular segment of the population, do not cause relocation of lower income people, and if they are compatible with the community's social and cultural values.
T – Technical	Mitigation actions are technically most effective if they provide long- term reduction of losses and have minimal secondary adverse impacts.
A – Administrative	Mitigation actions are easier to implement if the jurisdiction has the necessary staffing and funding.
P – Political	Mitigation actions can truly be successful if all stakeholders have been offered an opportunity to participate in the planning process and if there is public support for the action.
L – Legal	It is critical that the jurisdiction or implementing agency have the legal authority to implement and enforce a mitigation action.
E – Economic	Budget constraints can significantly deter the implementation of mitigation actions. Hence, it is important to evaluate whether an action is cost-effective, as determined by a cost benefit review, and possible to fund.
E - Environmental	Sustainable mitigation actions that do not have an adverse effect on the environment, that comply with Federal, State, and local environmental regulations, and that are consistent with the community's environmental goals, have mitigation benefits while being environmentally sound.



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The Anne Arundel County Office of Emergency Management (OEM) in coordination with the Planning Team members developed and prioritized the strategies from the original plan. For the Plan update, the Action Plan from the 2005 version was distributed to the MPC, and members were requested to update and provide comments. These updates and comments were integrated into the 2010 version of the Action Plan. The action items in Table 8.4-2 were prioritized by the MPC based on the STAPLEE criteria, as well as their potential to reduce risk to the County, including its citizens, operations, and physical assets. As mentioned above, many of the actions included in the original plan have been re-defined as strategies (See Section 8.3, Mitigation Objectives and Strategies). The highest priority actions are those that are most effective in reducing risks to multiple assets simultaneously.

The Steering Committee defined High, Medium, and Low priorities in the Action Plan to be as follows:

- High: Meets five of the seven STAPLEE criteria
- Medium: Meets four of the seven STAPLEE criteria
- Low: Meets three of the seven STAPLEE criteria

These same priorities were applied to update the Action Plan. The action items were sorted by high, medium, and low. As discussed in Section 7 (Risk Assessment), a key criterion in Anne Arundel County's prioritization of actions is the cost-effectiveness of actions and projects. High-priority actions and projects are assessed for feasibility and cost-effectiveness to determine if they are good candidates for mitigation actions. Cost effectiveness will continue to be central to the County's decision-making processes in identifying and funding mitigation actions. The table below includes all the specific actions listed in the original version of the HMP, and indicates their present status. There are also several new and ongoing projects and actions.

All of the original actions remain in the tables for reference purposes. Completed actions are noted in the status column, and also are indicated in light green highlighting. A few projects in the action table were identified from the 2010 Anne Arundel County Capital Budget Program. For these actions, the project reference number from the Capital Budget Program document has been included in the action item description column.

It is notable that the County has completed or is presently working on most of the actions that were listed in the 2004 version of the plan, and as a result has made further advances in protecting its infrastructure and citizens against losses from natural hazards.



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**Table 8.4-2**  
**Anne Arundel County: High, Medium, And Low Priority Mitigation Actions**

H = High (Meets at least five of the seven STAPLEE criteria)		M = Medium (Meets four of the seven STAPLEE criteria)			L = Low (Meets three or fewer of the seven STAPLEE criteria)			
No.	Priority	Action Item Description / Benefits	Lead Department	Funding/ Support	Schedule	Hazard	Cost-Effectiveness	Status as of 2010
1	H	Update Emergency Operations Plan	Office of Emergency Management	General Revenue and Grants	2010	Multi-Hazard	Cannot be determined; presumed highly cost-effective	Complete. Document has been updated. At the time of Plan update, awaiting final approval or in comments period.
2	H	Adopt future updates of International Building Code	Inspections and Permits	General Revenue and Grants	Ongoing	Multi-Hazard	Presumed highly cost-effective because low cost to implement	County adopted international building code in 2003.
3	H	Create severe weather action plans, conduct drills, designate tornado shelter areas	Office of Emergency Management	General Revenue and Grants	2009	Tornado	Cannot be determined; presumed highly cost-effective	Severe weather action plans complete. Utility Operations EOP-15 and EOP-23 series, Water / Wastewater respectively.
4	H	Implement 800 MHz radio system Countywide	Office of Emergency Management	General Revenue and Grants	2008	Flood, Hurricanes /TS, Earthquake, and Tornado	Cannot be determined; presumed highly cost-effective	1. Develop specifications and issue Request for Proposals. Completed spring 2002. 2. Evaluate and award contract. Completed December 2002. 3. Installation, renovation and construction. Completed 2007. 4. Testing of coverage areas. Completed summer 2008.



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H = High (Meets at least five of the seven STAPLEE criteria)		M = Medium (Meets four of the seven STAPLEE criteria)			L = Low (Meets three or fewer of the seven STAPLEE criteria)			
No.	Priority	Action Item Description / Benefits	Lead Department	Funding/ Support	Schedule	Hazard	Cost-Effectiveness	Status as of 2010
5	H	Conduct fire study using GIS	Fire Department	General Revenue and Grants	2009	Wildfire	Cannot be determined; presumed highly cost-effective because action contributes to identifying mitigation and response strategies	Tridata Deployment Study completed during 2008 ( <a href="http://www.aacounty.org/Fire/Resources/TriData_2008.pdf">http://www.aacounty.org/Fire/Resources/TriData_2008.pdf</a> ) and ISO Public Protection Classification Report completed during 2009
6	H	Cape St. Claire – Stormwater Runoff Controls (Project # D381800)	Dept. of Public Works	General county bonds and revenue from Storm Drain Fees Cost Estimate: \$4.71 million—budget is “umbrella” over multiple years	2010	Flood	Generally-cost effective, although sub-projects not examined on a case-by-case basis	The project is currently in the construction phase.
7	H	Emergency Operations Center (EOC) Replacement (Project # F524900)	Office of Emergency Management	General county bonds, public impact fees (65%) and other state grants	2009	All Hazards	Cannot be determined, but presumed very cost-effective because effective operation supports	Complete.
8	H	Shelters (Project #C541200)	Office of Emergency Management	Cost Estimate: \$265,000	TBD	Hurricane / TS, Tornadoes, Flood	Depends on potential usage, but presumed highly cost-effective because of life-safety considerations.	Four shelter locations have been identified at County High School Sites. One has been retrofitted to include back-up generator capabilities.



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No.	Priority	Action Item Description / Benefits	Lead Department	Funding/Support	Schedule	Hazard	Cost-Effectiveness	Status as of 2010
9	M	Shoreline Erosion Control (Project # P468700)	Dept. of Public Works	Cost Estimate: \$4 million – budget is “umbrella” over multiple years	Ongoing as annual funding is available	Flood, Coastal Flooding	Difficult to assess, but presumed low to moderate cost-effectiveness with usual criteria; long-term somewhat more cost-effective because of potential for significant erosion from a major surge event	Ongoing year to year, and as budget is available; some projects completed annually.
10	M	Shipleys Choice Dam Rehab (Project #Q543000)	Dept. of Public Works	Cost Estimate: \$3.71 million	Being determined	Flood	Limited because of low probability of significant failure.	County is currently working with MDE to initiate this project.
11	M	Emergency Storm Drain Measures (Project #D478500)	Dept. of Public Works	Cost Estimate: \$4.85 million – budget is “umbrella” over multiple years	Ongoing, as needed	Flood	Varies and depends on specific project site and conditions.	Projects initiated as needed.
12	H	Multiple Storm Drains: Storm Drainage Stormwater Management Infrastructure (Project #D537900)	Dept. of Public Works	Cost Estimate: \$7.38 million – budget is “umbrella” over multiple years	Ongoing, as needed	Flood, Coastal Flooding	Varies and depends on specific project site and conditions.	Projects initiated as needed.



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No.	Priority	Action Item Description / Benefits	Lead Department	Funding/Support	Schedule	Hazard	Cost-Effectiveness	Status as of 2010
13	H	Harmans Road Culvert replacement (Project #D515600)	Dept. of Public Works	General County Bonds and General Fund PayGo Cost Estimate: \$1.63 million	2011	Flood	Moderate cost-effectiveness	The project will be completed in 2011.
14	M	Conduct tabletop, functional, and full-scale disaster exercises	Office of Emergency Management	Varies; grants	ongoing	Multi-hazard	Cannot be determined; adds to County's preparation for disasters	P&Z Department representatives have participated in EOC tabletop demonstration.
15	M	Establish all-hazard resource clearinghouse	Office of Emergency Management	Various elements have different costs; General Revenue and Grants	Ongoing	Multi-hazard	Cannot be determined; presumed highly cost-effective because action has general effectiveness in reducing damages and preventing injuries and loss of life.	Completed and Ongoing: OEM has an all-hazards emergency preparedness program including community presentations, website, Facebook and twitter and materials from FEMA, Red Cross and the Ready Campaign that includes information about multiple hazards.
16	M	Install battery backup system for traffic signals	Dept. of Public Works	General Revenue and Grants	2009	Hurricane/TS, Tornado, & Flood	Relatively low to moderate	Complete. DPW has installed battery back-up units to keep signals operating in the event of a power failure.
17	M	Create database to track at risk populations from extreme heat and winter storms	Office of Emergency Management	General Revenue and Grants	TBD	Extreme Heat, Winter Storm	Highly cost-effective because of life safety issues and relatively low cost of action.	Deleted. Other County departments have been pursuing this action.



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Section 8 Mitigation Strategy

H = High (Meets at least five of the seven STAPLEE criteria)		M = Medium (Meets four of the seven STAPLEE criteria)			L = Low (Meets three or fewer of the seven STAPLEE criteria)			
No.	Priority	Action Item Description / Benefits	Lead Department	Funding/Support	Schedule	Hazard	Cost-Effectiveness	Status as of 2010
18	L	Implement early warning water quality monitoring system	Dept. of Public Works	General Revenue and Grants	In progress	Multi-hazard	Difficult to determine with any accuracy, but assumed very cost-effective because of public health purpose.	In progress and identified under the County Capital Improvement Plan (CIP).
19	L	Modify inactive County water/wastewater facilities	Dept. of Public Works	General Revenue and Grants	2009	Multi-hazard	Cannot be determined.	Complete.
20	L	Establish internal emergency operations plan for the County Department of Health	Dept. of Public Works	General Revenue and Grants	2008	Health-related hazards	Cannot be determined; presumed highly cost-effective because action contributes to identifying mitigation and response strategies	Completed December, 2008.
21	M	Fort Smallwood Shore Restoration	Dept. of Recreation and Parks	Cost varies by specific sub-project; general Revenue, potential federal or State grant	2010 +	Shoreline erosion	Moderate; benefits include avoided regular maintenance, and loss of use, periodic damages from major storms.	Project is likely to be phased based on availability of funding.