

# Hampton Roads



## Roundtable

FINAL REPORT 2008



March 2009

PEP09-01

# **HAMPTON ROADS PLANNING DISTRICT COMMISSION**

## **HAMPTON ROADS WATERSHED ROUNDTABLE FINAL REPORT 2008**

**This project was funded, in part, through a grant from the U.S. Environmental Protection Agency's Chesapeake Bay Program at the Virginia Department of Conservation and Recreation (DCR) via grant number BAY-2007-10-PT. The views expressed herein are those of the authors and do not necessarily reflect the views of DCR.**

**Preparation of this report was included in the HRPDC Unified Planning Work Program for FY 2008 – 2009, approved by the Commission at its Executive Committee Meeting of March 19, 2008.**

**Prepared by the staff of the  
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(Formerly Lower James River Roundtable)  
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**ABSTRACT**

This report describes the Hampton Roads Watershed Roundtable activities conducted by the Hampton Roads Planning District Commission during 2008 under a grant from the Virginia Department of Conservation and Recreation. This program encompasses the development of the current Hampton Roads Watershed Roundtable and meetings of the Roundtable and the Hampton Roads Joint Environmental Committee, which addresses technical issue related to the work of the Roundtable. This report contains minutes from the Roundtable meetings and copies of presentations made to the Roundtable throughout the grant year. It recommends ongoing Roundtable activities for FY 2009 – 2010.

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## INTRODUCTION

In 2001, watershed roundtables were being established in each of the major watersheds in Virginia. Roundtables were comprised of representatives of local governments and representatives of business and industry, agriculture, forestry, fishing and environmental organizations, as well as other groups that are of special importance to the various watersheds. The purpose of the roundtables was to advise agencies of the Commonwealth of Virginia on refinement and implementation of Tributary Strategies for Nutrient and Sediment Reduction and related water quality initiatives. Moreover, the roundtables were to provide a mechanism for educating the participants on water quality issues, funding opportunities and technologies, and techniques for achieving water quality and living resource goals. The Roundtables were designed as a forum for exchange of information among the participants on water quality and related issues, including planning, implementation, and funding. The goal of these efforts was to build consensus among the Roundtable participants.

In 1995, the Hampton Roads region's sixteen (16) local governments established the Hampton Roads Tributary Strategies Project Steering Committee, under the auspices of the Hampton Roads Planning District Commission. That Committee included representatives of the region's local governments, Soil and Water Conservation Districts, and the Hampton Roads Sanitation District, and invited participation from several environmental organizations. The Committee worked for six years to build consensus among the region's localities on water quality issues and potential management strategies and to advise local and state government on implementation issues. Through this process, the HRPDC and local government staff analyzed local government programs to determine their ability to achieve nutrient and sediment reduction goals, developed a preliminary set of local government management options to assist in future implementation, conducted educational workshops and developed regional consensus on a number of Chesapeake Bay-related issues. In response to state direction and in part as a successor to this Committee, formation of a roundtable for the Hampton Roads portion of the James River Watershed was proposed in February 2001. The HRPDC and its partners in the establishment of the Lower James River (Hampton Roads) Watershed Roundtable – the region's localities and Soil and Water Conservation Districts and the Virginia Departments of Conservation and Recreation (DCR) and Environmental Quality (DEQ) – intended for the Roundtable to enhance existing efforts by broadening involvement and striving for a broader consensus.

In 2007, the Lower James River (Hampton Roads) Watershed Roundtable was restructured to promote participation from groups outside of state and local government and to meet HRPDC goals for citizen input. The reorganized roundtable includes representatives from the agricultural community, the development community, chambers of commerce, and industry and civic organizations, in addition to local and regional environmental organizations. Additionally, the Hampton Roads Watershed Roundtable now encompasses all the watersheds found in the region, including the James, York, Chowan, and Southern Rivers and Atlantic Coastal Basins. Coordination

with the York River and Albemarle-Chowan Roundtables occurs on a regular basis. As the structure of the group continues to evolve, the Hampton Roads Watershed Roundtable is providing greater value to the region as a vehicle for broad stakeholder interaction and discussion of topics of mutual interest.

## **PROGRAM OBJECTIVES**

The purpose of the restructured Hampton Roads Watershed Roundtable is to serve as a viable regional mechanism for improving dialogue between the private sector and state, local, and regional agencies on environmental issues. The focus of the Roundtable is on a broader community representation. Previous iterations of the group functioned primarily with representation from state and local government organizations with a few regional environmental representatives.

The Hampton Roads Roundtable provides stakeholder input to the HRPDC technical staff committees and to the HRPDC, which is the regional policy entity. The functions of the Roundtable include education, capacity building, information exchange, and dialogue between the private and public sectors.

## **PROGRAM ACCOMPLISHMENTS**

### **Watershed Technical Work**

The HRPDC Joint Environmental Committee, which is funded separately under the Virginia Coastal Zone Management Program, undertook activities to support the Hampton Roads Watershed Roundtable effort and to address the technical aspects of regional environmental issues. Issues of mutual interest identified by the Roundtable were researched by HRPDC staff and items requiring additional information and action were brought to the Committee for review. Issues addressed included implementation of regulatory programs, Total Maximum Daily Load (TMDL) and implementation plan development, and green infrastructure issues. HRPDC staff began development of TMDL implementation plans under separate funding sources and presented information on the process and content of the plans to the Roundtable. Roundtable members provided reaction on the potential impact of the plans on various regional efforts and constituencies. In addition, HRPDC staff began the process of updating the regional green infrastructure plan and provided the Roundtable with an opportunity to review the work and to help identify areas that might be considered for inclusion.

Exchange of information between the Roundtable and the Joint Environmental Committee allowed for the inclusion of a greater range of stakeholders and provided direction for future work. In order to provide a full understanding of the Committee's role, complete summaries of its meetings over the grant period are provided below.

- January 3, 2008 - HRPDC staff briefed the Committee on the status of stormwater permits and CBPA Phase III implementation. This meeting also included the annual committee retreat to discuss the status of regional

activities, program direction for FY 2007 – 2008, and the Regional Stormwater Management Program Budget.

- February 7, 2008 - DCR-DCBLA staff briefed the Committee on the development of procedures for Phase III implementation and on the status of annual implementation reports. HRPDC staff provided the Committee with a summary of the environmental planning retreat and discussed stormwater program budgets, which were circulated by letter ballot. Assuming the return of the outstanding letter ballots and favorable responses to them, the Committee agreed to ratify the letter ballot approvals. HRPDC staff also briefed the Committee on the activities of the Hampton Roads Watershed Roundtable, suggestions for new program initiatives, and the status of the Chesapeake Bay Program's 2030 Model.
- March 6, 2008 - DCR-DCBLA briefed the Committee on the development of procedures for Phase III implementation and on annual assessment questionnaires, nontidal wetlands guidance training, compliance reviews, and a perennial stream workshop. HRPDC staff provided the Committee with a briefing on the data being used for the Chesapeake Bay 2030 Model, informed the Committee that the grant proposal for the Technical Assistance Program under the Virginia Coastal Zone Management Program was being finalized for FY 2008 – 2009, and reported on a NOIRA issued for revisions to the state's stormwater management regulations. HRPDC staff also discussed participation in the Extreme BMP project and several new HRPDC initiatives.
- April 3, 2008 - DCR-DCBLA briefed the Committee on the status of Phase III and the annual assessment questionnaires. DCR staff provided the Committee with a briefing on the floodplain map modernization program. HRSD staff provided the Committee with a briefing on a multi-tiered approach to microbial source tracking (MST) methods. HRPDC staff provided briefings on the data review for the Chesapeake Bay 2030 Model and the Sustainable Community Planning element of the Virginia CZM Program.
- May 1, 2008 - DCR-DCBLA staff provided the Committee with an update on agency activities and program initiatives, including annual assessments and Phase III. Chesapeake city staff provided a brief to the Committee on the City's recently completed "State of the Urban Forest Report." Committee members supported exploring options for a regional study and recommended that arborists or equivalents from each locality should convene to discuss activities within each locality. Navy staff provided the committee with a review of the proposed changes to the Water Quality Standards that came out of the triennial review process. HRPDC staff briefed the Committee on the activities of the Plastic Bag Recycling Committee established by Isle of Wight County and provided a report on evolving state initiatives. HRPDC staff also requested that localities submit any additional comments on the 2030 Chesapeake Bay Model data.

- June 5, 2008 - Kimley-Horn staff reported that the Virginia Department of Environmental Quality entered into a Letter of Agreement (LOA) with the City of Virginia Beach concerning historical violations of elements of various wetlands permits (Virginia Water Protection Permits). The LOA included a provision for training of staff from throughout the region in coordination with the HRPDC. The Committee agreed that two training sessions should be held in July 2008. DEQ staff provided the Committee with a briefing on the Virginia Environmental Excellence Program (VEEP). Virginia Municipal League staff provided the Committee with a briefing on VML's new Go Green Challenge program. HRPDC staff provided the Committee with a summary of Mr. Stephen Walz's briefing on state energy policy and the Virginia Energy Plan, which was made to the HRPDC Executive Committee on May 21, 2008. HRPDC staff also reported that a special bacteria study subcommittee met in April and expressed interest in working with the researchers looking at alternatives to library based bacteria source tracking. Finally, they provided the Committee with a regulatory update, which included the status of state stormwater permits and an update on the CELCP grant process. The Committee agreed that a regional database of priority lands to be acquired for conservation would be useful.
  
- July 10, 2008 - DCR-DCBLA staff provided the Committee with an update on the local government annual reports process and compliance evaluations. Newport News staff provided the Committee with an overview of the city's Environmental Management System (EMS) program, a strategic approach designed to address environmental issues in a consistent, structured manner that facilitates risk avoidance, reduces regulatory liability, and provides cost savings. DEQ staff provided the Committee with an update on the Draft Water Quality Assessment and Impaired Waters Integrated Report for 2008. Local government staff provided the Committee with a report on the EPA policy documents suggesting that smart growth techniques may be used as BMPs. Committee members noted that comments on the EPA recommendations could be made through the Subcabinet on Sustainable Community Investment and through the Stormwater TAC.
  
- August 7, 2008 - DCR-DCBLA staff provided the Committee with an update on the Division's annual report requirements and on the development of the Phase III process. VIMS staff was present to discuss the reduction in advisory services provided to the VMRC and the local wetlands boards and the reasons for the reductions. Committee members indicated that those services are important to local governments and suggested requesting additional funding to restore the level of field support and to support the shoreline management program. HRPDC staff agreed to draft a letter addressing those items for approval at the September PDC meeting. HRPDC staff summarized the presentation on the state's climate change initiative given by Deputy Secretary of Natural Resources Nikki Rovner to the HRPDC at its July

- Quarterly Commission meeting. HRPDC staff also provided a summary of the first Smart Growth Subcommittee meeting. As a result of their discussions, HRPDC staff prepared a comment letter to send to DCR to request additional reductions in removal efficiencies to promote redevelopment, modification of the Comprehensive Stormwater Management Plan definition to address infill in urban areas, and adoption of a comprehensive performance zoning scenario similar to LEED for the Neighborhood Development rating system.
- September 4, 2008 - DCR-DCBLA staff provided the Committee with an update on the Division's activities, including annual reports, compliance evaluations, and Phase III development. VIMS staff provided the Committee with a briefing on a number of climate change projects being pursued by the Institute. These projects are generally categorized as mitigation or adaptation responses, with the greatest emphasis placed on the latter. Focus areas include greenhouse gas emissions reduction, carbon sequestration, renewable energy development, shoreline recession management, infrastructure planning, and ecological and erosion vulnerability assessment. Project locations include the York and Lynnhaven Rivers. DCR staff provided the Committee with a briefing on the Virginia Networked Education for Municipal Officials (NEMO) program. NEMO was created in the early 1990s to provide information, education, and assistance to local land use boards and commissions on methods for accommodating growth that also incorporates protection of natural resources and community character. Two localities expressed interest in assistance from NEMO. Chesapeake Stormwater Network staff provided the Committee with a briefing on the new Baywide Stormwater Action Strategy and plans for the upcoming Bay Stormwater Partners Retreat. HRPDC staff briefed the Committee on the development of a web-based local CBPA program compendium and also provided information on the Environment Virginia 2009 Conference. HRPDC staff also briefed the Committee on the proposed budget and work program development process.
  - October 2, 2008 – DCR-DCBLA staff provided the Committee with an update on Phase III development. Staff from the cities of Chesapeake and Virginia Beach reported on the actions of the Soil and Water Conservation Board at its meetings on September 24 and September 25, 2008, regarding the proposed stormwater regulations. HRPDC staff provided the Committee with briefings on the HR STORM Annual Report, the Regional Stormwater Cooperation Report, the Indicators of Stormwater Program Effectiveness reports, the Regional Conservation Corridor Program, and potential legislation being considered for the 2009 Session of the General Assembly.
  - November 6, 2008 – DCR-DCBLA staff provided the Committee with an update on the Division's activities, including compliance evaluations and Phase III development. USGS staff presented information on efforts by the Ohio Water Science Center to develop real-time forecasting capabilities on

bacteria levels at beaches. HRPDC staff updated the Committee on a number of regional activities, including the Extreme BMP Makeover project and the recent stormwater retreat. HRPDC staff also introduced some suggested changes to the Environmental Strategic Planning Process, which was previously reviewed by the Roundtable. HRPDC intends to use the annual retreat to formulate strategic priorities across the different committees for the next 3 to 5 years. Committee members were invited to suggest additional issues. The Committee also supported continuing the Roundtable process through a grant proposal to DCR.

- December 4, 2008 – DCR-DCBLA staff provided the Committee with an update on the Division's activities, including compliance evaluations and Phase III development. Norfolk city staff provided a briefing on invasive species and efforts to eradicate them. HRPDC staff provided updates on the regional Water, Wastewater and Stormwater RFP, the Extreme BMP Makeover project, and several regional reports. They also briefed the Committee on the activities of the Roundtable.

## **Roundtable Meetings**

The Roundtable held meetings in January 2008, November 2008, and January 2009. These meetings focused on the structuring of the Roundtable and the potential issues that could be addressed through that mechanism. Participants included representatives from environmental groups, homebuilders associations, chambers of commerce, farm bureaus, trade associations, and citizens groups.

Evolution of the Roundtable constituency continued throughout the year and opportunities for making connections between the Roundtable and the Joint Environmental Committee began to emerge. Progress in this area was reflected in the greater diversity of stakeholders attending the Roundtable's green community meeting in January 2009. In addition to representatives of the housing sector, agriculture, and soil and water conservation districts, local government representatives from the Joint Environmental Committee made use of this forum to discuss the development of green community initiatives and to gain valuable insights from the experience of others.

Summaries of Roundtable meetings over the grant period are included below. Complete minutes from these meetings are contained in Appendix A.

- January 18, 2008. This meeting included an open forum in which the members offered comments regarding water quality and other issues that might be of interest to the group as a whole. These included redevelopment, buffers, and growth management. The Roundtable members agreed that it is productive for them to meet and to be informed about the activities of the various groups represented. It was also noted that awareness of this group and the regional issues it hopes to address should be raised with the General Assembly. Additionally, the Roundtable agreed that education and information exchange

should be a focus for future meetings and discussed the value of input into the TMDL process.

- November 12, 2008. This meeting focused on regional initiatives previously identified by the Roundtable as items of mutual interest. HRPDC staff provided briefings on the TMDL development schedule for Virginia, the green infrastructure program in Hampton Roads, and proposed listening sessions for the regional climate change project. Roundtable members made a number of suggestions regarding the structure and content of the climate change stakeholder meetings. The Roundtable also discussed the group's mission and schedule. They agreed to quarterly meetings and suggested that scheduling now would allow members to plan to attend. Issues to be addressed by the Roundtable should include legislation (tree preservation), green building, affordable housing, code and ordinance reviews, inclusionary zoning, and lessons learned from local efforts like the Virginia Beach Green Ribbon Committee.
- January 30, 2009. This meeting focused on green building and green community initiatives, which were issues identified as important by Roundtable members at the previous meeting. Mr. Chuck Miller, the first local builder certified by the Earth Craft program, provided the Roundtable with an overview of the anatomy of a green house and the meaning of going green for the homebuilding sector of Hampton Roads. In addition, staff from the cities of Chesapeake and Virginia Beach provided information on their respective sustainable community and green programs. Roundtable members also discussed possible topics for future meetings. Suggestions include energy generation projects at landfills in Hampton and Gloucester and at the regional landfill in Suffolk.

### **HRPDC Staff Activities**

During the grant period, HRPDC staff activities related to the Roundtable fell into two categories: the process of developing the proper constituency and structure for the Roundtable and the logistics associated with scheduling, running, and documenting the Roundtable meetings. As part of the process of developing the structure for the Roundtable, HRPDC staff spent a considerable amount of time in determining the optimal mix of stakeholders and issues to be considered. Initially the focus was on identifying a group of stakeholders that was entirely different from the Joint Environmental Committee, with the idea being that the HRPDC staff would serve as the liaison between the two groups. The last meeting funded under this grant year followed a different formula from previous meetings. It focused on an area of interest previously identified by the Roundtable, and local government representatives were invited to participate through presentations and attendance. This arrangement proved to be much more dynamic and provided a valuable opportunity for members of the broader stakeholder groups to interact with local government staff. As described above, this structure led to a valuable exchange of information among representatives of the development community, the environmental community, and local government staff.

HRPDC intends to continue with this broader constituency as part of future Roundtable activities.

In regard to the second category of activity, the HRPDC staff provided the following support to the Hampton Roads Watershed Roundtable.

- Compiled and updated a membership roster for the Roundtable.
- Maintained contact with Roundtable members via telephone and email.
- Organized meetings based on Roundtable member suggestions. This includes contacting potential speakers and arranging for them to attend.
- Prepared agenda packets and distributing them to the Roundtable.
- Acted as meeting facilitator and chair; provided updates on pertinent issues.
- Provided updates on Roundtable activities to the Joint Environmental Committee.
- Represented the Roundtable at meetings of the Virginia Watersheds Association (VaWA); assisted with development of VaWA website for HR Roundtable.

## **CONCLUSIONS**

For nearly twenty years, the Hampton Roads Planning District Commission has facilitated the work of the HRPDC Joint Environmental Committee, which is comprised of representatives of the region's sixteen member localities, the Hampton Roads Sanitation District, five soil and water conservation districts, two towns in Isle of Wight County, and a number of state and federal agencies. About ten years ago, representatives of regional environmental and business organizations were invited to join the Joint Environmental Committee for purposes of addressing the development of Tributary Strategies for reducing nutrient and sediment discharge to the Chesapeake Bay and its tributaries. The expanded group became known as the Lower James River (Hampton Roads) Watershed Roundtable. The Roundtable was successful in developing consensus among the participating governmental entities and the environmental organizations on a number of Chesapeake Bay and Tributary Strategies matters. However, it was less successful in engaging the region's business community in this discussion.

During 2007, the HRPDC identified the need for developing citizen involvement in the environmental planning activities of the Commission and its technical committees. The identified need was all-encompassing with respect to environmental issues and was not restricted to watershed issues. It was determined that the Roundtable was an appropriate vehicle for addressing these issues.

Based on the region's experience to date, as described in this report, the Hampton Roads Watershed Roundtable is a viable mechanism for developing community input to the HRPDC on a range of environmental issues. There is considerable interest on the part of community groups in participating in this process and a general agreement on issues, specifically water quality planning and green infrastructures/green building that should be addressed. Participants in both the Roundtable and Joint Environmental processes are continuing to recruit new members, and the evolving structure and focus of the Roundtable is providing greater value to the region as a whole.

Based on this experience, the HRPDC finds that the Hampton Roads Roundtable is a viable means of involving the Hampton Roads community in addressing environmental issues facing the region. Steps should be taken by the HRPDC, in cooperation with its member jurisdictions and the private sector, to continue strengthening this initiative.

**APPENDIX A**

**HAMPTON ROADS WATERSHED ROUNDTABLE  
MEETING MINUTES**

**SUMMARY  
MEETING OF  
HAMPTON ROADS WATERSHED ROUNDTABLE  
Warwick Room  
Fountain Plaza II  
Newport News, Virginia  
January 18, 2008  
1:30 p.m.**

**1. Introduction and Discussion**

Mr. John Carlock, HRPDC, provided an overview of the Hampton Roads Roundtable concept and the principal environmental issues that might be addressed by the group. Mr. Carlock noted that the members of the Roundtable in attendance at the November meeting agreed to rotate the location and time of the meetings to accommodate the maximum number of people.

**2. Open Forum**

Mr. Carlock opened the floor to discussion. The Roundtable members offered the following comments regarding water quality and other issues that might be of interest to the group as a whole:

- Redevelopment is seen a part of the water quality solution, but dated infrastructure often causes redevelopment to be expensive and difficult.
- Regulations often make redevelopment more difficult and greenfields development more attractive and less expensive.
- The use of buffers to address water quality issues is restrictive to a select group of landowners and frequently causes objections. Compensation should be considered.
- Growth management options that might apply to all should be discussed.

The Roundtable members agreed that it is productive for them to meet and to be informed about the activities of the various groups represented. It was also noted that awareness of this group and the regional issues it hopes to address should be raised with the General Assembly. Roundtable members suggested a number of ideas to enhance future meetings and direct the activities of the Roundtable:

- Invite engineers who design BMPs and know what problems might arise with various approaches.
- Invite representatives from the U.S. Navy, Northrop Grumman, and the Virginia Maritime Association.
- Address additional issues such as air quality.
- Develop a mission statement and goals.

The Roundtable agreed that education and information exchange should be a focus for future meetings. They also agreed that a facilitated strategic planning activity would help the Roundtable decide how to focus its efforts.

Roundtable members agreed that day meetings are preferable and that alternating the location between the Southside and Peninsula is best. They decided to hold meetings on Friday mornings on a monthly basis.

### 3. Total Maximum Daily Load

At the November meeting, the Roundtable identified TMDL plan input as one of the issues that they might address. Mr. Dean McClain, HRCC, suggested that a synopsis of the Lynnhaven TMDL program could be used a success story to help in this effort. He added that the role of grassroots organizations in the Lynnhaven TMDL was crucial and warrants additional attention. The business community will cooperate in the effort to address water quality so long as the advocated methods are ones that work, such as BMPs that also function as site amenities.

Mr. Mal Branch, VSRA, noted that powerful community leadership and funding was also vital to the success of the Lynnhaven effort.

Mr. Carlock noted that community involvement helped speed the process. The creation of the No Discharge Zone was a direct result and helped contribute to the reopening of the oyster beds in 2007. A TMDL workshop for citizens has been suggested.

Mr. Chris Moore, CBF, suggested that a presentation on the work of the Green Ribbon Committee in Virginia Beach might also provide a model for the Roundtable.

### 4. Adjourn

#### Attendees:

Ms. Patricia Albert, Williamsburg Neighborhood Council  
Mr. Mal Branch, Virginia Ship Repair Association  
Mr. John M. Carlock, HRPDC  
Mr. Robert Duckett, Peninsula Housing and Builders Association  
Mr. Chuck Frederickson, James River Association  
Ms. Claire Jones, HRPDC  
Mr. Dean McClain, Hampton Roads Chamber of Commerce  
Mr. Chris Moore, Chesapeake Bay Foundation  
Ms. Susan Wenzel, Back Bay Restoration Foundation  
Mr. Chris Woodfin, Tidewater Builders Association

**SUMMARY  
MEETING OF THE  
HAMPTON ROADS WATERSHED ROUNDTABLE  
November 12, 2008**

**1. Total Maximum Daily Load Update**

Ms. Jenny Tribo, HRPDC, provided the Roundtable with an update on the current TMDL development schedule for waterways in Hampton Roads. Implementation plans are being developed by HRPDC staff for completed TMDLs in the region, including the Back and Poquoson Rivers, Mill and Powhatan Creeks, and several creeks in the Virginia Beach portions of the Chowan River basin. TMDLs will also have to be addressed in the Phase I and II stormwater permits.

The Roundtable discussed a number of issues related to TMDL development, including the incorporation of some areas into the larger Chesapeake Bay TMDL, the impact of TMDLs on planning issues, and methods for addressing additional pollutants such as PCBs. In response to questions from Roundtable members, Ms. Tribo noted that multi-jurisdictional cooperation has been good, although larger jurisdictions might have more issues to address. She also noted that watershed-wide planning might not make sense in areas that include unimpaired streams.

**2. Green Infrastructure in Hampton Roads**

Mr. Eric Walberg, HRPDC, provided an overview of the green infrastructure program and associated projects in Hampton Roads. The HRPDC has been awarded a grant to update the original green infrastructure project in order to reflect evolving future land use plans. The emphasis of the project will be a multiple benefits approach to meeting regulatory requirements for wetlands mitigation and management of nonpoint source pollution. The Roundtable noted possible overlap with the John Smith Trail efforts and local comprehensive plans. PDC staff noted that land acquisition activities should be based on a priority list.

The Roundtable was requested to provide input on the stakeholder process for this project and to help identify groups that should be included. Groups identified by the Roundtable included:

- Land trusts (limited in Hampton Roads)
- The Nature Conservancy
- Land Conservation Board
- Virginia Forever
- Horseback riding and biking groups

**3. Climate Change Listening Sessions**

Mr. Walberg provided the Roundtable with handouts on sea level rise and climate adaptation from the Albemarle-Pamlico National Estuary Program (APNEP). The

APNEP effort is suggested as the model for public listening sessions in Hampton Roads. The product expected from this effort is a literature review that identifies information specific to Hampton Roads and data gaps that should be filled. Public listening sessions will be conducted to help in the development of a framework for addressing climate change in the region. The timeframe for this phase of the project is one year.

Roundtable members made a number of suggestions regarding the structure and content of stakeholder meetings. They included:

- Provide good inundation maps using lower end of estimates.
- Discuss interim problems like floods, droughts, and storms. Separate mitigation from adaptation because the latter is easier to handle.
- Present available information (Mr. Skip Stiles recommended a Northrop-Grumman study).
- Coordinate with local processes and military plans. Invite DGIF to participate.
- Use a town hall format with information presentations at the beginning of the meetings. Include facilitated exercises.
- Schedule for public – evening or weekend.
- Find co-sponsors. Invite Ducks Unlimited and the Isaak Walton League.
- Get local government staff and elected officials involved.

#### **4. Roundtable Mission and Goals**

Roundtable members discussed the group's mission and schedule. They agreed to quarterly meetings and suggested that scheduling now would allow members to plan to attend. They also suggested including tourism groups, local museums, interfaith councils on public policy and energy issues, Empower Hampton Roads, and the Chesapeake Gateways Network program. They added that members should forward agendas to people that might be interested in joining the Roundtable.

Issues to be addressed by the Roundtable should include legislation (tree preservation), green building, affordable housing, code and ordinance reviews, inclusionary zoning, and lessons learned from local efforts like the Virginia Beach Green Ribbon Committee.

#### **Attendees:**

Mr. Robert Duckett, Peninsula Housing and Builders Association  
Ms. Christy Everett, Chesapeake Bay Foundation  
Ms. Karen Forget, Lynnhaven NOW  
Ms. Claire Jones, HRPDC  
Mr. Skip Stiles, Wetlands Watch  
Ms. Jenny Tribo, HRPDC  
Mr. Eric Walberg, HRPDC

**SUMMARY  
MEETING OF THE  
HAMPTON ROADS WATERSHED ROUNDTABLE  
January 30, 2009**

**1. Home Building Innovations – The Anatomy of a Green House**

Mr. Chuck Miller, Miller Custom Homes, provided the Roundtable with an overview of the anatomy of a green house and the meaning of going green for the homebuilding sector of Hampton Roads. There are several green building programs available to homebuilders, and adopting one of them will be essential to future work in the industry. Green building methods address a number of common elements including energy efficiency, water use, indoor air quality, materials, waste, and adherence to local building codes.

Roundtable members inquired about the differences between the available green programs. While the National Association of Home Builders program is newer, it is similar to the Earth Craft program; however, LEED – H is more expensive and requires more paperwork to complete.

The Roundtable also discussed comparisons between standard building materials and those used in green building, as well as the cost differences associated with green energy options and building methods. Mr. Miller noted that municipalities can help facilitate green building through assessment adjustments and decreased proffer costs in green developments.

**2. Green Initiatives in Hampton Roads – Sustainable Chesapeake**

Mr. Brian Ballard briefed the Roundtable on the City of Chesapeake's efforts to go green through the Sustainable Chesapeake initiative. City Council adopted a resolution in support of the program's goals and all aspects of city government are being reviewed for possible improvements. It is the city's goal to have a plan containing medium and long-range goals for Sustainable Chesapeake by August 2009. Mr. Ballard discussed the importance of having a supporter on City Council and stressed the need for third party verification in green building.

Mr. Michael King, Newport News, inquired about several aspects of the Chesapeake program, specifically overcoming obstacles to implementation of the program. Mr. Ballard recommended using national research to show cost differentials with the adoption of programs like LEED. Mr. James Freas, Hampton, added that LEED certification includes a 0-2% increase in costs, which is much less than many believe. Additionally, research shows that Hampton's LEED building costs are in line with standard building projects elsewhere in the state.

The Roundtable discussed two bills (Green Public Building Act) currently being considered by the General Assembly as a result of the Climate Change

Commission's recommendations. If adopted, this will require public bodies building structures greater than 5,000 gross square feet in size or renovating more than 50% of a building of that size to meet LEED Silver or Green Globes standards. The Roundtable also had a lengthy discussion of costs and savings associated with adopting green policies.

### 3. Go Green Virginia Beach

Mr. Charles McKenna briefed the Roundtable on green initiatives in the City of Virginia Beach, including plans to address sustainability, water quality, and alternative energy solutions. Three groups – the Green Ribbon Committee, the Joint Energy Committee, and the Sustainability Advisory Team – are working to address the needs of the city in each of these focus areas. In addition, the city's Clean Waters Task Force serves a number of functions including acting as a resource pool to help develop TMDL implementation plans. These efforts will assist the city in fostering clean alternative energy development, helping to create more economic development, research, and educational opportunities, and contributing to making the greater Hampton Roads regional a national leader in the new economy.

The Roundtable discussed modifying regulations to allow alternative energy generation from wind turbines and solar sources, both of which will require different rules than the ones that currently exist in most localities.

Mr. King remarked that Newport News has a green team, which will be considering ordinance changes and presenting its findings to city leadership. It was suggested that resistance that is being experienced in Newport News might be addressed through outside information, school programs, and strong marketing. Documents used by cities that already have green programs can be shared to help with new efforts in other localities.

### 4. Open Forum

Roundtable members discussed possible topics for future meetings. Suggestions include energy generation projects at landfills in Hampton and Gloucester and at the regional landfill in Suffolk.

#### Attendees:

Mr. Brian Ballard, Chesapeake  
Mr. Mal Branch, Virginia Ship Repair Association  
Mr. Roy Flanagan, Virginia Dare SWCD  
Mr. James Freas, Hampton  
Ms. Emily Gibson, Gloucester  
Mr. Saul Gleiser, Newport News  
Ms. Kathy James-Webb, Newport News  
Ms. Alison Jones, Gloucester

Ms. Claire Jones, HRPDC  
Mr. Michael King, Newport News  
Mr. Dean McClain, Hampton Roads Chamber of Commerce  
Mr. Charles McKenna, Virginia Beach  
Ms. Jenny McPherson, Virginia Beach  
Mr. Chuck Miller, TBA  
Ms. Johnette Powell, Virginia DHCD  
Mr. Al Riutort, Newport News  
Mr. Skip Stiles, Wetlands Watch  
Mr. Eric Walberg, HRPDC  
Mr. Olin Walden, Virginia Beach  
Ms. Barbara York, TBA

**APPENDIX B**

**PRESENTATIONS TO THE HAMPTON ROADS WATERSHED ROUNDTABLE  
2008-2009**



## *Green Infrastructure in Hampton Roads*

Eric Walberg, AICP  
Principal Planner  
Hampton Roads Planning District  
Commission



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## *Structure of Presentation*

- \*Regional Green Infrastructure Project
  - Context and Analytic Approach
  - Implementation
  - Future Directions



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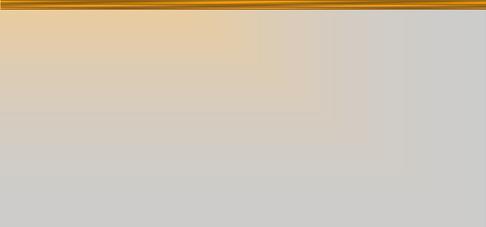
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## *Regional Green Infrastructure Project*



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## Project Overview

- \* Obtained grant from the Virginia Coastal Program based on the success of the SWAMP project
- \* Worked with all localities in the HRPDC to develop a corridor system that fits with local planning goals
- \* Corridor system is a framework to prioritize and potentially link several categories of open lands



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## Goals for the Project

- \* Determine local planning needs
- \* Identify a corridor system that provides multiple benefits:
  - Habitat Protection
  - Stormwater Management
  - Wetlands Mitigation
  - Total Maximum Daily Load Requirements
  - Comprehensive Planning
  - Recreation/Tourism
- \* Provide GIS mapping of corridor system to localities
- \* Educate public on benefits of the corridor system



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## Data Layers

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## National Land Cover Dataset (NLCD 2001)

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- \* Produced by USGS beginning in 2001 through 2006
- \* Terrain corrected Landsat imagery classified into land use/land cover
- \* Only way to get consistent land use/land cover data for a large region





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## NLCD Categories

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NLCD

- Open Water
- Developed Open Space
- Low Intensity Developed
- Medium Density Developed
- High Intensity Developed
- Barren Land (Rock/Sand/Clay)
- Deciduous Forest
- Evergreen Forest
- Mixed Forest
- Pasture/Hay
- Cultivated Crops
- Woody Wetlands
- Emergent Herbaceous Wetlands







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## Riparian Corridors

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- \* Developed from the products of the Virginia Base Mapping Project (VMBP)
- \* Data is from 2002
- \* Hydrology was extracted from DTM (digital terrain model)
- \* Created buffers in GIS of 100, 200, 300, 400, and 500 feet around features identified as streams, shorelines, and swamps





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### *National Wetlands Inventory*

- \* Produced by US Fish & Wildlife Service
- \* Extracted from interpretation of aerial photography over several years
- \* Updated infrequently



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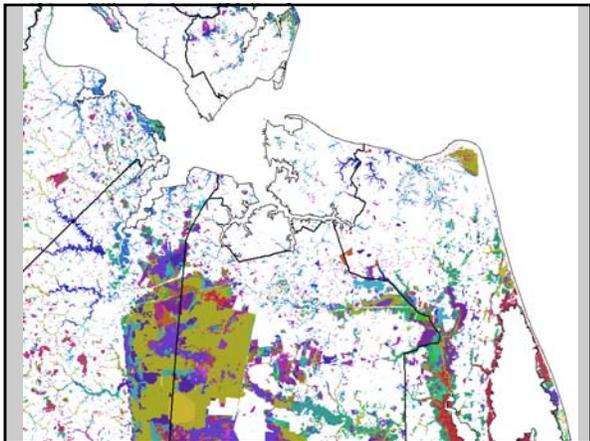
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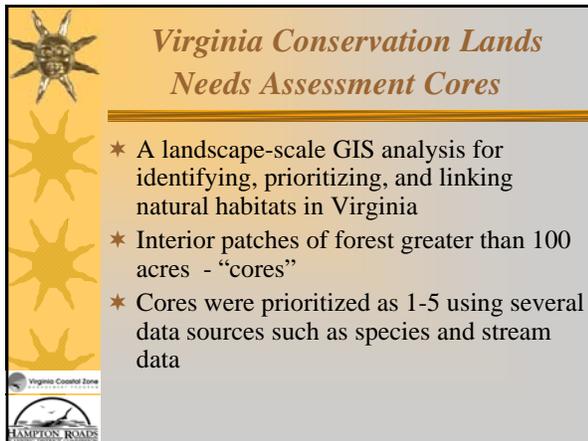
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**Virginia Conservation Lands Needs Assessment Cores**

- \* A landscape-scale GIS analysis for identifying, prioritizing, and linking natural habitats in Virginia
- \* Interior patches of forest greater than 100 acres - “cores”
- \* Cores were prioritized as 1-5 using several data sources such as species and stream data

Virginia Coastal Zone  
HAMPSON ROADS

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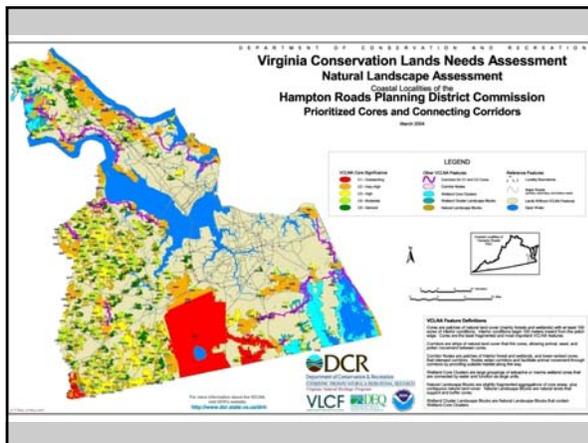
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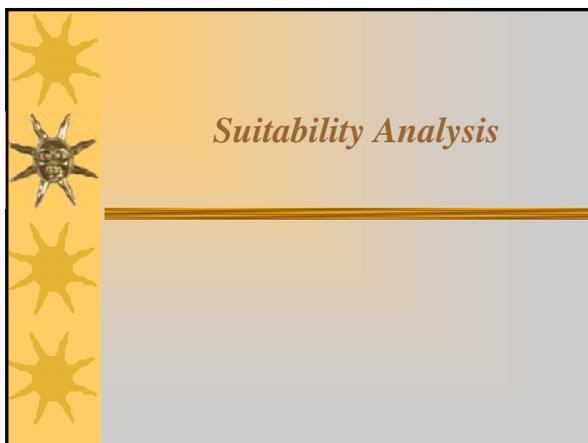
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**Suitability Analysis**

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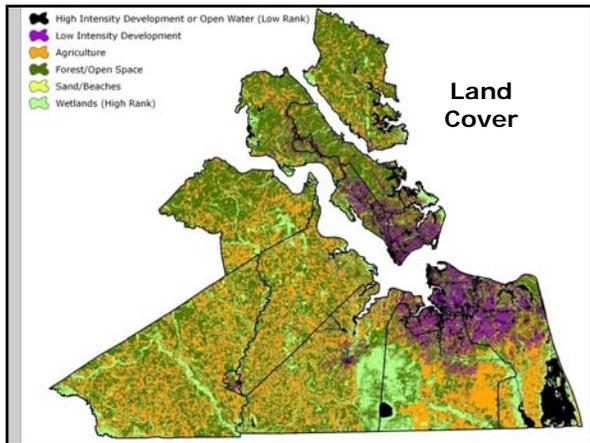
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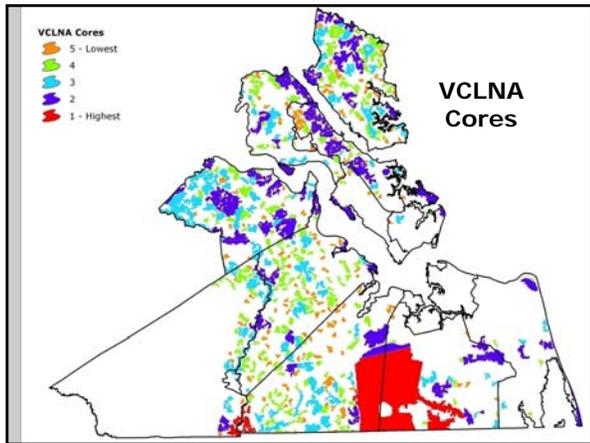
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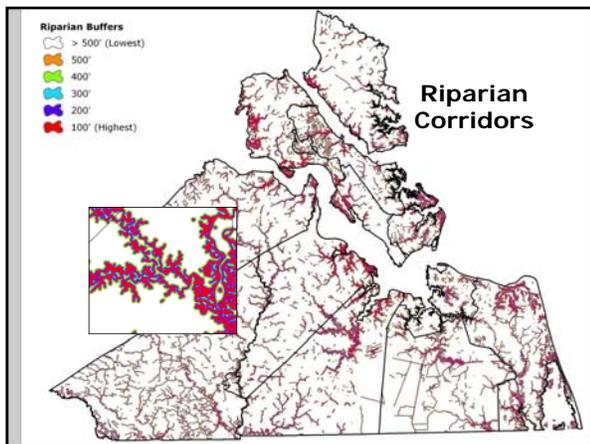
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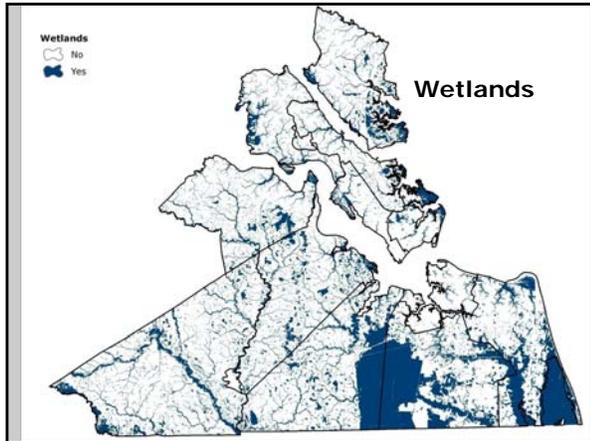
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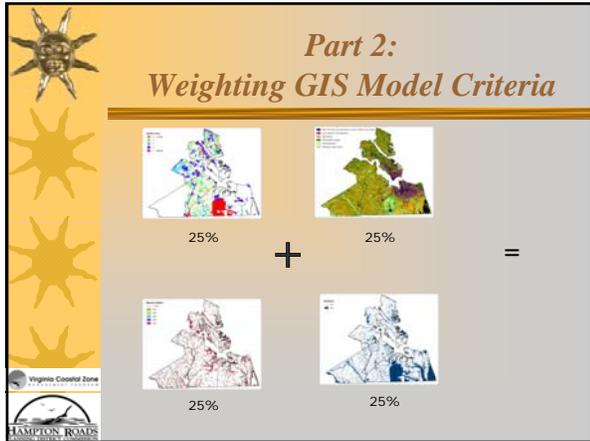
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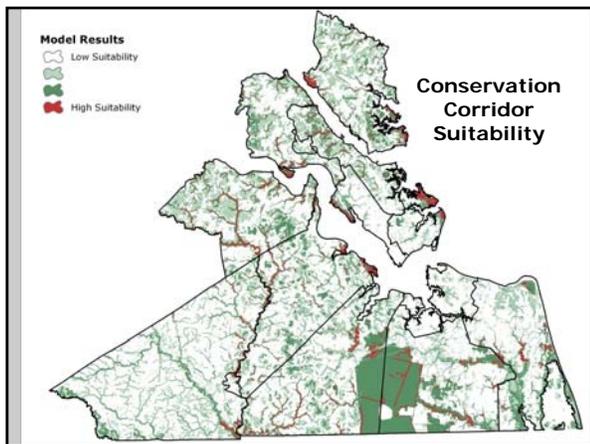
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## Stakeholder Input – Natural Resources Agencies

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- ★ Analytical Hierarchy Process (AHP)
  - A method which standardizes the multi-criteria decision-making process
  - Reduces decisions into a series of pair comparisons
  - Numerical results used in GIS suitability models





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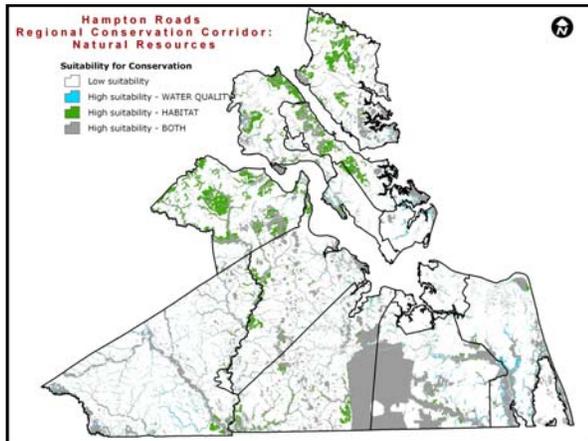
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## Stakeholder Input – Local Planners

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- ★ Met with Peninsula and Southside planners separately
- ★ Marked up maps showing existing or planned greenways, bikeways, etc.
- ★ Discovered new potential linkages





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## Opportunities for Connectivity

★ A generalized layer that highlights areas where there are opportunities to create a linked network of green infrastructure

Virginia Coastal Zone  
HAMPSON ROADS

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## *Green Infrastructure Summary Report*

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- \* Report title is Green Infrastructure in Hampton Roads
- \* Introduction to Green Infrastructure
- \* Synopsis of previous efforts
  - SWAMP
  - HRCCS
  - Workshops
- \* Case Studies
- \* Recommended Future Actions
- \* (Report is available on the HRPDC web site:  
<http://www.hrpdc.org/newpep/HRCCS.shtml>)





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## *Implementation*

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- \* Land Acquisition
- \* Green Infrastructure Workshops
- \* Total Maximum Daily Load Implementation Plans
- \* Stormwater Management Programs
- \* Military Base Encroachment
- \* Southampton County Parks and Recreation Plan
- \* Northwest River Watershed Plan
- \* Hampton Roads Green Infrastructure Network Update





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## *New Conservation Lands Acquired in HR*

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- \* Agreement between International Paper, The Nature Conservancy & The Conservation Fund to protect 218,000 acres in the southeastern U.S.
- \* 20,000 acres protected in Sussex, Surry, Southampton, and Isle of Wight Counties by TCF
- \* All tracts fall into the HR Conservation Corridor





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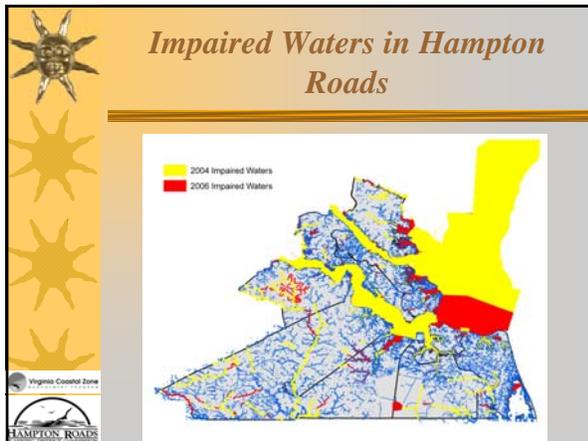
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### Stormwater Management

- \* New stormwater regulations and associated permits are under development in Virginia
- \* Concept of Maximum Extent Practicable (MEP): “selecting and implementing effective structural and nonstructural best management practices (BMPs) and rejecting BMPs only when the BMP would not be technically feasible or the cost would be prohibitive and unreasonable.”

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### Stormwater Management

- \* Low Impact Development: Definition in draft permits includes environmentally sensitive site features such as riparian buffers, wetlands, steep slopes, mature trees, floodplains, woodlands and highly permeable soils
- \* TMDLs are included in the draft permits

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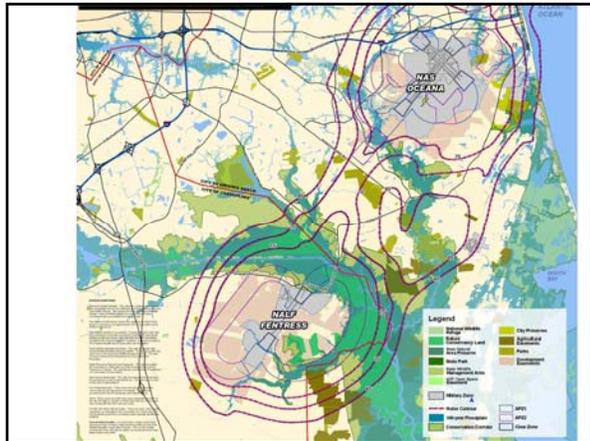
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### *Compatible Land Use Planning Workshop*

- \* A workshop on the use of green infrastructure to deal with encroachment of development on military bases was held on February 29, 2008.
- \* Agenda included an overview of the Readiness and Environmental Protection Initiative, the Onslow Bight Conservation Forum and the Hampton Roads Joint Land Use Study.





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### *Southampton County Parks and Recreation Plan*

- \* The recently completed Southampton County Parks and Recreation Plan includes analysis of potential conservation lands.
- \* The map of potential conservation lands was developed using methodology similar to the regional green infrastructure work.





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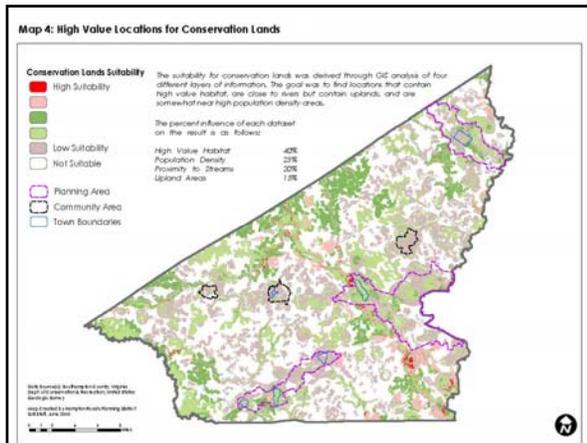
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### Northwest River Watershed Plan

- \*The HRPDC is currently working with The Nature Conservancy and the City of Chesapeake to develop a watershed management plan for the Northwest River

Virginia Coastal Zone  
HAMILTON ROADS

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### Northwest River Watershed Plan

- \*The Northwest River is the primary drinking water supply for the City of Chesapeake
- \*The watershed management plan will incorporate the green infrastructure network developed as part of the Southern Watershed Area Management Program

Virginia Coastal Zone  
HAMILTON ROADS

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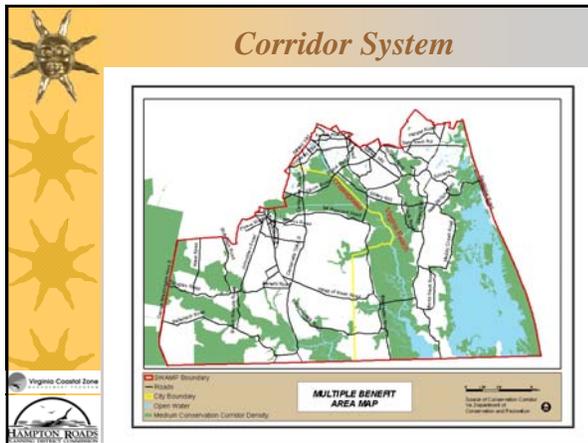
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### Hampton Roads Green Infrastructure Update Project

- \* Update of the regional conservation corridor network to reflect evolving future land use plans
- \* Emphasis on multiple benefits approach to meeting regulatory requirements for wetlands mitigation and management of nonpoint source water pollution
- \* Continue efforts to ensure integration of the Hampton Roads Conservation Corridor network with state and multi-state initiatives

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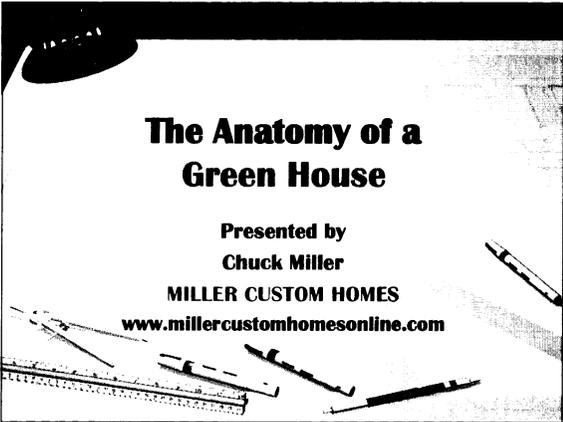
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**The Anatomy of a Green House**

Presented by  
**Chuck Miller**

**MILLER CUSTOM HOMES**  
[www.millercustomhomesonline.com](http://www.millercustomhomesonline.com)

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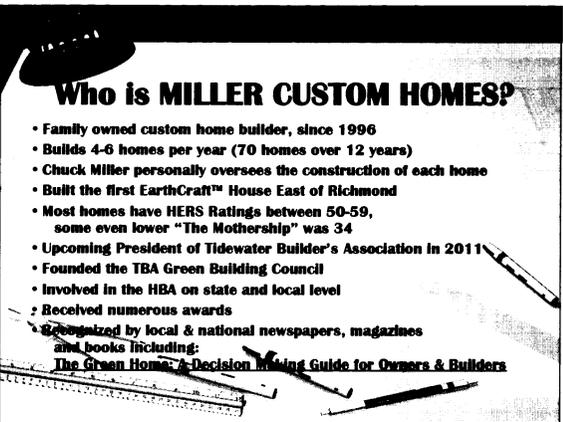
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**Who is MILLER CUSTOM HOMES?**

- Family owned custom home builder, since 1996
- Builds 4-6 homes per year (70 homes over 12 years)
- Chuck Miller personally oversees the construction of each home
- Built the first EarthCraft™ House East of Richmond
- Most homes have HERS Ratings between 50-59, some even lower "The Mothership" was 34
- Upcoming President of Tidewater Builder's Association in 2011
- Founded the TBA Green Building Council
- Involved in the HBA on state and local level
- Received numerous awards
- Recognized by local & national newspapers, magazines and books including:  
**The Green Home: A Decision Making Guide for Owners & Builders**

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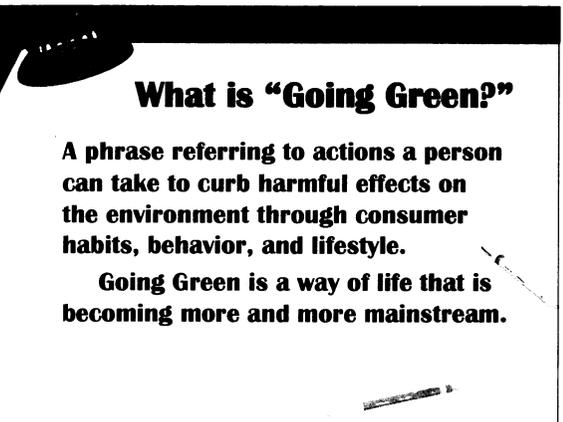
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**What is "Going Green?"**

A phrase referring to actions a person can take to curb harmful effects on the environment through consumer habits, behavior, and lifestyle.

Going Green is a way of life that is becoming more and more mainstream.

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**When did "Going Green" start?**



**The American Indian.**  
"Only the Mountains Live Forever."  
-Arapaho Indian Saying

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**When did "Going Green" start?**



- 1854 Henry David Thoreau wrote Walden. The first piece of literature about sustainable living.

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**When did "Going Green" start?**



"We don't inherit the Earth from our ancestors, we borrow it from our children." -Andre Gide(1869-1951)

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**When did "Going Green" start?**



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**When did "Going Green" start?**



"There is an intimate relation between our streams and the development and conservation of all the other great permanent sources of wealth."  
- Teddy Roosevelt (1858-1919)

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**When did "Going Green" start?**



- The American Hippie movement of the 60's. Peace, love and personal freedom. Hippies were eco-friendly, often vegetarians, lived off of the land and did not trust the government.

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## It's wasn't easy being "Green"



Not everyone liked hippies and they weren't welcome in a lot of places. The 1970's came and the hippies went away for a little while.

Why were they not liked?  
Was it because they wanted to live "Green?"

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## Why is "Green" cool now?

- **Global Warming Concerns,**
- **High Oil and Fuel Costs,**
- **Hippies are older and run businesses now. But they still have their core values,**
- **Corporate America has embraced the Green Movement instead of fighting the changes,**
- **All the kids are doing it. (So are the movie stars)**

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## Why is "Green" the Way to Go?

- 63 % of today's buyers are motivated by the lower operating and maintenance costs that come with energy and resource-efficient homes
- In 2007, the average U.S. home lost 5.7% of its value, eco-friendly homes held their value, actually appreciating in price
- Come sale time, a green property typically appraises 10% to 15% higher than comparable conventional homes
- Demand for green housing has been growing — 46 % of buyers would like a green home but supplies are limited
- The market for green homes is expected to boom from \$7.4 billion to \$38 billion by 2010

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**Who is "Green" today?**



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**Education and Awareness**



[www.greeniethebuilder.com](http://www.greeniethebuilder.com)

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**Green Building**

- **"If you are not building "Green" in ten years you won't be building."**  
Charlie Ruma 1999 NAHB President
- **"We know green is the future of building."**  
Brian Catalde 2008 NAHB President

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## What is Green Building?

- Green or sustainable building is the practice of creating healthier and more resource-efficient models of: construction, renovation, operation, maintenance and demolition.

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## Why Build Green?

1. A Green House is Healthier Than a Traditional House
2. A Green House is Better For The Environment
3. A Green House Cost Less to Live in and Operate
4. A Green House is Built Conserving Resources
5. Green Houses Help Reduce CO2 Emissions into the Air
6. Green Houses are More Comfortable in Which to Live
7. A Green House Will Have a Better Resale Value in The Future
8. Green Houses are Built Better Than Conventional Homes
9. A 3<sup>rd</sup> Party Inspector Certifies most Green Houses
10. Green Homes Will Save You Money in The Long Run

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## Which Green Certification Program Should I Choose?

- **Energystar**- Comes with other certifications [www.energystar.gov](http://www.energystar.gov)  
(Program is changing in 2010 to stay ahead of the curve)
- **EarthCraft**- Certification \$900/house + .15/SF add'l over 3000 SF  
(Inspections Included) [www.ecvirginia.org](http://www.ecvirginia.org)
- **NAHB**- \$200 Plus Inspection Costs [www.nahbgreen.org](http://www.nahbgreen.org)
- **LEED-H**- \$3000+/ Plus Inspection Costs [www.usgbc.org](http://www.usgbc.org)






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## What Do They Have in Common?

- Energy Efficiency
- Water Use
- Indoor Air Quality
- Materials
- Waste
- Local Building Codes

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## Need More Incentives? – Ask The Tax Man...

- **Tax Credits**
- Code Sec. 25D. Residential energy efficient property.
- (a) Allowance of credit. In the case of an individual, there shall be allowed as a credit against the tax imposed by this chapter for the taxable year an amount equal to the sum of,
  - (1) 30 percent of the qualified solar electric property expenditures made by the taxpayer during such year,
  - (2) 30 percent of the qualified solar water heating property expenditures made by the taxpayer during such year
  - (3) 30 percent of the qualified fuel cell property expenditures made by the taxpayer during such year
  - (4) 30 percent of the qualified small wind energy property expenditures made by the taxpayer during such year and
  - (5) 30 percent of the qualified geothermal heat pump property expenditures made by the taxpayer during such year.
- (b) Limitations.
  - (1) Maximum credit. The credit allowed under subsection (a) (determined without regard to subsection (c) ) for any taxable year shall not exceed,
    - (A) \$2,000 with respect to any qualified solar water heating property expenditures,
    - (B) \$500 with respect to each half kilowatt of capacity of qualified fuel cell property (as defined in section 48(c)(1)) for which qualified fuel cell property expenditures are made,
    - (C) \$500 with respect to each half kilowatt of capacity (not to exceed \$4,000) of wind turbines for which qualified small wind energy property expenditures are made, and
    - (D) \$2,000 with respect to any qualified geothermal heat pump property expenditures.

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## From The Ground Up

- **Conditioned Crawlspace**

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## From The Ground Up



- **Unconditioned Crawlspace**

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## Rough Carpentry

- OSB- Orientated Strained Board
- Advantech™ Flooring
- LVL- Laminated Beams
- I Joist- Floor Joists
- Tech Shield- Radiant Barrier



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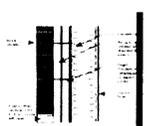
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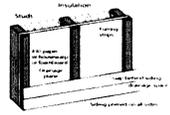
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## The Drainage Plane

- **Every Exterior Cladding System needs a drainage plane.**
- **No ECS keeps out 100% of the water.**
- **Brick**
- **Siding**
- **Stone**





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## California Corners

The diagram shows four cross-sections of window corners. The first is labeled 'No insulation' and shows a simple frame. The second is 'More insulation' with additional insulation layers. The third is 'No spacer' showing a gap between panes. The fourth is 'More spacer' with a thicker spacer bar. A pen is shown at the bottom for scale.

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## Insulated Concrete Forms (ICF)

• Polysteel™

A photograph showing a house under construction with ICF blocks. A pen is shown at the bottom for scale.

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## Windows and Doors

- **READ THE LABEL**
- **You Get What You Pay For**
- U Factor-Lower is better, \*Should be less than .35
- SHGC- Means LOW-E \*Should be less than .35
- VT – How much light gets through the glass \* Higher is better
- AL- \*Should be less than .30

Energy Star Certified  
A-M Energy

World's Best Window Co.  
September 2007  
Energy Star Certified  
Product Type: Multi-Pan  
Model: 1000-1000

ENERGY PERFORMANCE RATINGS	
U-Factor (U.S.I.P.)	Solar Heat Gain Coefficient
<b>0.35</b>	<b>0.32</b>
ADDITIONAL PERFORMANCE RATINGS	
Visible Transmittance	Air Leakage (U.S.I.P.)
<b>0.51</b>	<b>0.2</b>

\*Performance based on test data. See label for details. © 2007 Energy Star. All rights reserved. Energy Star is a registered trademark of the U.S. Environmental Protection Agency. Energy Star Certified is a registered trademark of the U.S. Environmental Protection Agency. Energy Star Certified is a registered trademark of the U.S. Environmental Protection Agency.

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**Windows and Doors-  
Break On Through To The Otherside**



- Use low expansion foam around the windows and doors for insulation

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**Up On The Roof...Roof Shingles**



- Slate- Will last Forever (It's Stone)
- Recycled Rubber Shingles- (Looks Like Stone) has 50 year warranty, 110 MPH Wind Rating
- Architectural- 25-35 Year Warranty
- 3 Tab- 20 Year Warranty
- Be Sure Felt Paper is Installed Properly

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**Up On The "Green" Roof**



- Provide amenity space for building users — in effect replacing a yard or patio
- Grow fruits, vegetables, and flowers
- Reduce heating and cooling loads on a building by adding mass and thermal resistance value, and by evaporative cooling. (especially if it is glazed in and acting as a terrarium/passive solar heat reservoir)
- Reduce the urban heat island effect
- Increase roof life span
- Reduce storm water run off
- Filter pollutants and CO2 out of the air
- Filter pollutants and heavy metals out of rainwater
- Increase wildlife habitat in built up areas

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## Green Plumbing Techniques

### Ways to be green:

- Water Flow
- No Flush/Low Flush Toilets
- Grey Water
- Tank-less Hot Water Heaters
- Solar Hot Water Heaters



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## Plumbing - Water Flow

- How do you save water and money?
- KISS
- Install aerators and water savers

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## Plumbing- No Flush/Low Flush Toilets



- Peat Toilets-smell bad but use no water
- 1.4 gallons/flush the new low flush standard
- Dual Flush-once for #1 and twice for #2

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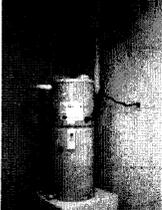
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**Plumbing - Grey water**



- Recycle The water right in your house

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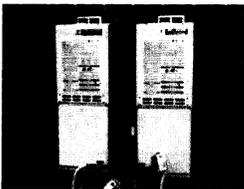
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**Plumbing  
Tank-less Hot Water Heater**



- Why Heat 80 gallons of Water 24 hours a Day?

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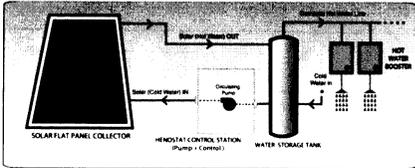
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**Plumbing  
Solar Hot Water Heater**



- The Sun Is Free

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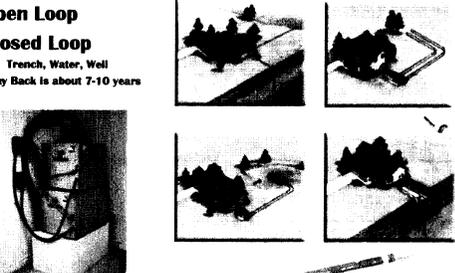
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**HVAC - Geo-Thermal**

- **Open Loop**
- **Closed Loop**
  - Trench, Water, Well
  - Pay Back is about 7-10 years





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**HVAC SEER vs. EER**

- **SEER - Seasonal Energy Efficiency Ratio**, measures how efficiently a cooling system will operate over an entire season.
- **EER - Energy Efficiency Ratio** is a measure of how efficiently a cooling system will operate when the outdoor temperature is at a specific level (95°F).
- Recent code changes mandated that all A/C systems must have a SEER of at least 13. ENERGY STAR qualified Central Air Conditioners must have a SEER of at least 14, and an EER of at least 11 for single package equipment and 11.5 for split systems.

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**Central Vacuum Systems**



**Brings dirt and dust to the outside of the house.**

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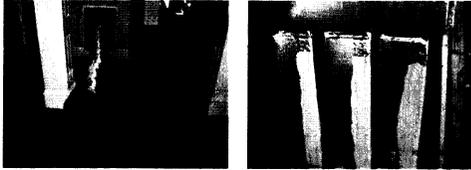
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## Duct Blaster Test



- Usually performed before wallboard is hung
- Be sure the duct work is taped and mastic is used

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## What is a HERS Index



- Home Energy Rater
- Ask your builder what the HERS Index is on his homes

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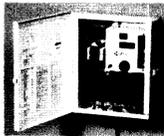
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## Electrical Management Systems



- Demand Management Systems
- Saves 20-50% Annually by monitoring how much electricity you are using and making sure you don't use too much during the peak times. These work!

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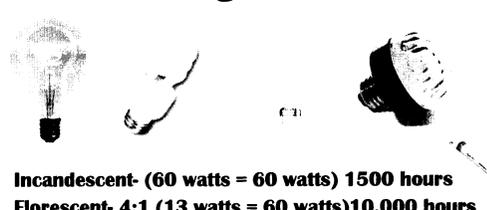
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## Light Bulbs



- **Incandescent- (60 watts = 60 watts) 1500 hours**
- **Florescent- 4:1 (13 watts = 60 watts)10,000 hours**
- **LED- (6 watts = 60 watts) 60,000 hours**

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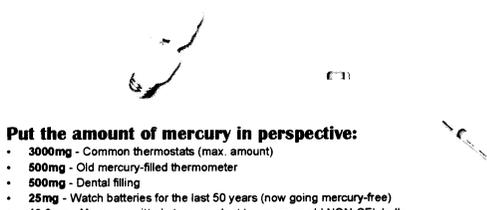
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## Mercury in Light Bulbs



**Put the amount of mercury in perspective:**

- **3000mg** - Common thermostats (max. amount)
- **500mg** - Old mercury-filled thermometer
- **500mg** - Dental filling
- **25mg** - Watch batteries for the last 50 years (now going mercury-free)
- **13.6mg** - Mercury emitted at power plant to power an old NON-CFL bulb
- **5mg** - Compact fluorescent light bulb
- **1-3 mg** - Low-mercury CFL's (e.g., Phillips and Turolight)
- Landfills and Home Depot™ take CFL's for recycling

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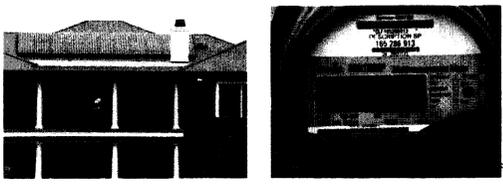
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## Solar Panels - "Here Comes The Sun"



- **Photovoltaic The wave of the future**
- **Net Metering- (Tied To The Grid)**
- **Battery Back Up- (Off The Grid)**

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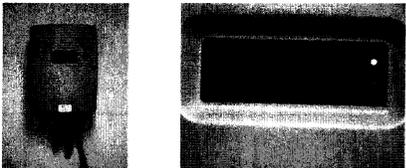
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**Solar Panels - "Here Comes The Sun"**



- Photovoltaic The wave of the future
- Net Metering- (Tied To The Grid)
- Battery Back Up- (Off The Grid)

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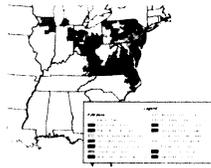
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**Solar Panels - Tax Credits/Energy Credits**



- Tax Credit - 30% of Cost, No Cap as of 1/1/2009 (one time)
- 1kw system cost is about \$9,000
- 5kw System Generates about \$100/month on average
- Energy Credits of about \$1400/year every year in VA

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**The Answer is Blowin' in the Wind**



- Big and Small versions of Wind Turbines
- Tax Credits
- Reduces Bat and Bird Populations

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**Air Infiltration**



- The house is breathing in the wrong place!

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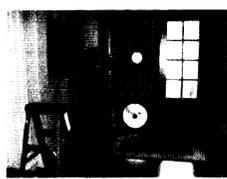
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**Air Infiltration - Blower Door Test**



- Checks for tightness
- Helps find leaks

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**Most Common Types of Insulation**

Insulation	SPRAYTITE <sup>®</sup>	Glass Fiber	Wool	Brown Cellulose	Open-Cell Foam
R-Value*	6.0	3.0	3.5	3.0	3.5
Approved Air Barrier System	Yes at 1-inch thickness	No	No	No	Yes at 5.5-inch thickness
Seamless Construction	Yes	No	No	No	Yes
Rigid	Yes	No	No	No	No
Fully Adhered	Yes	No	No	No	Yes
Adds Structural Strength	Yes	No	No	No	No
Long Service Life	Yes	No	No	No	Yes
Absorbs Water	<4% v/v	Yes	Yes	Yes	>40% v/v
Allows Moisture Vapor In	No	Yes	Yes	Yes	Yes

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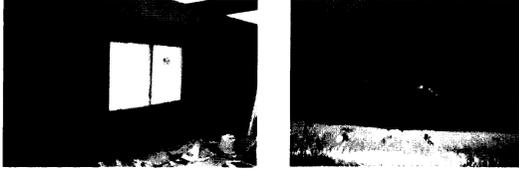
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## Types of Insulation - Fiberglass



- Traditional Insulation in America made from molten glass

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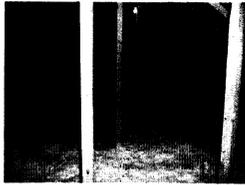
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## Types of Insulation - Mineral Wool



- Alternative to Fiberglass
- Made from molten rock instead of glass

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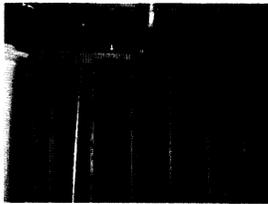
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## Types of Insulation - Cellulose



- Good for sound deadening.
- Made from recycled newspaper.
- Has fire retardant in the product.

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### Types of Insulation - Poly Foam



Closed cell in walls adds strength to the walls.

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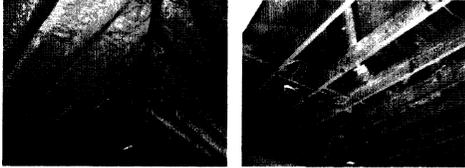
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### Insulation - Conditioned Attics



- Spray foam on rafters in attic, then covered by blown cellulose insulation or mineral wool.
- Must have ignition barrier!!! May require sheetrock.
- Keeps HVAC equipment in conditioned area, so it doesn't work as hard.

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### Insulation - R-value

- R-value insulation ratings are used to measure the ability of insulation to resist heat flow.
- The higher the R-value, the more effective the insulation.
- Insulation should be purchased based on its R-value, not thickness or weight.
- [http://www.ornl.gov/sci/roofs+walls/insulation/ins\\_02.html](http://www.ornl.gov/sci/roofs+walls/insulation/ins_02.html)

**2006 Insulation Codes**

- Slabs: R-10 (1st 2')
- Walls: R-13
- Ceilings: R-38
- Crawlspace Walls: R-10 or
- Crawlspace Floors: R-19

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**Interior Sheathing - Wallboards**



- Plaster/Drywall – Gypsum Product Used in dry areas
- Green Board - Moisture resistant used in bathroom but not showers
- Cement Board- Used in wet areas behind tile

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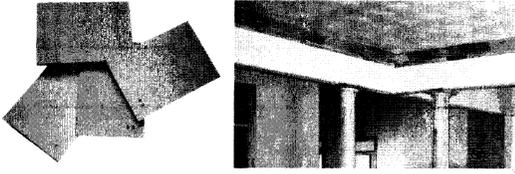
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**Trim Material**



- MDF- Medium Density Fiberboard
- Finger Jointed Wood
- Forest Stewardship Council

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**Trim Material**



- **Recycled Decking Boards:**  
Made from Grocery bags and wood

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**Paints - No & Low VOC**



- Original NO VOC paints
- Made from berries. So it can be done.

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**Paints - No & Low VOC**



**safecoat**

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**Paints - No & Low VOC**  
**How Low Can You Go?**

- **Zero VOC:**  
Any paint with VOC's in the range of 5 grams/liter or less can be called "Zero VOC"
- **Low VOC:**  
Must not contain VOCs in excess of 200 grams per liter. Varnishes must not contain VOCs in excess of 300 grams per liter. Must be water based.

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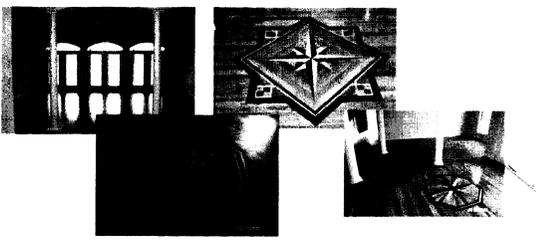
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**Hardwood Floors**



- "Reclaimed" Hardwood offers many design options

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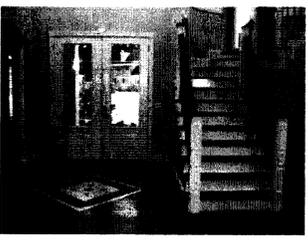
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**Alternative Flooring**



- Bamboo - Fast Growing Grass 3-5 Years

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**Alternative Flooring**



- Cork- Oak Bark that's harvested every 9 years

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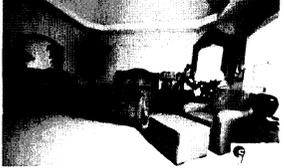
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## Alternative Flooring



- **Recycled Carpet - Made from old Carpet & 2 liter bottles**

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## Recycling Symbols



1. **Polyethylene terephthalate (PETE)** Soda bottles, water bottles, vinegar bottles, medicine containers, backing for photography film.
2. **High density polyethylene (HDPE)** Containers for: laundry/dish detergent, fabric softeners, bleach, milk, shampoo, conditioner, motor oil. Newer bullet proof vests, various toys.
3. **Polyvinyl chloride (PVC)** Pipes, shower curtains, meat wraps, cooking oil bottles, baby bottle nipples, shrink wrap, clear medical tubing, vinyl dashboards and seat covers, coffee containers.
4. **Low density polyethylene (LDPE)** Wrapping films, grocery bags, sandwich bags.
5. **Polypropylene (PP)** Tupperware®, syrup bottles, yogurt tubs, diapers, outdoor carpet.
6. **Polystyrene (PS)** Coffee cups, disposable cutlery and cups (clear and colored), bakery shells, meat trays, "cheap" hubcaps, packing peanuts, Styrofoam insulation.
7. **The number 7 (OTHER)** Products labeled as "other" are made of any combination of 1-6 or another, less commonly used plastic.

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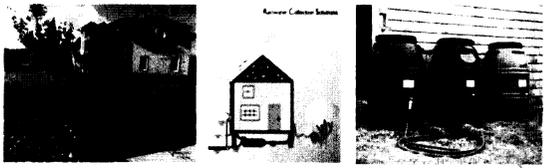
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## Green Landscaping



- Indigenous plants, drought tolerant grass
- Rocks and recycled mulch in beds or leave natural
- Rainwater harvesting
- Reduce harm to the environment
- Save time and money with lower maintenance
- Have healthier places to work and play
- Provide habitat for wildlife

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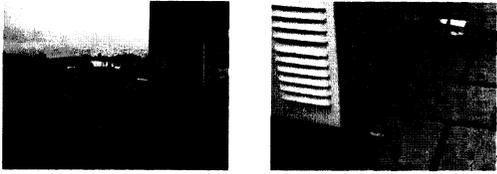
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**Permeable Surfaces - Pavers**



- Permeable pavers allow water to flow through them to the soil below.
- Used in CBPA areas to get larger homes on smaller lots.

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**Websites to Visit**

- - Miller Custom Homes
- - Monarch Mortgage
- - Retnauer Design Associates
- - Tidewater PolySteel
- - Solar Services, Inc.
- - Mechanical Services
- - TBA
- - Energy Star
- - EarthCraft
- - Earthcraft Homes of Virginia
- - National Association of Homebuilders
- - Residential Energy Services Network
- - Southface
- - U.S. Green Building Council

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### Green Building Task Force

Researched and explored green building topics and initiatives with a goal to create specific recommendations to present to Council

Rebecca Adams	City Council	Patrick Hughes	Neighborhood Services
Brian Ballard	Planning	Ron Jackson	CRHA
James Bokern	Planning	John Kish	HBA Architecture
William Broome Tim Winslow	General Services	Charles Miller	Miller Custom Homes
Barbara S. Brumbaugh	Fire	David Weatherly	Clark Nexsen
Craig Cope	Liberty Property	Jesse Williams	Chamber of Commerce
Joan Fowler	Economic Development	Len Wright	Chesapeake Public Schools
Randy Harrison	Parks and Rec	Barbara York	TBA Builders Services

Chesapeake

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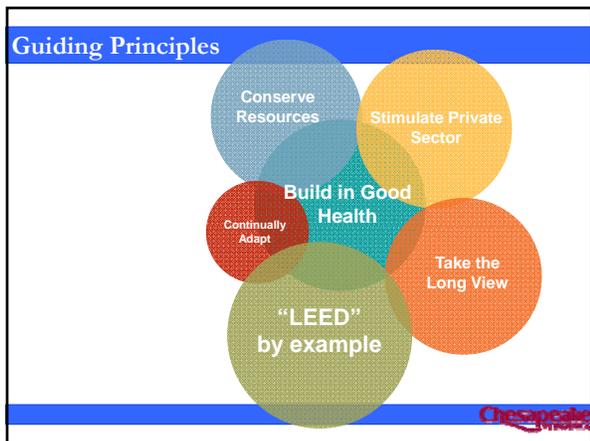
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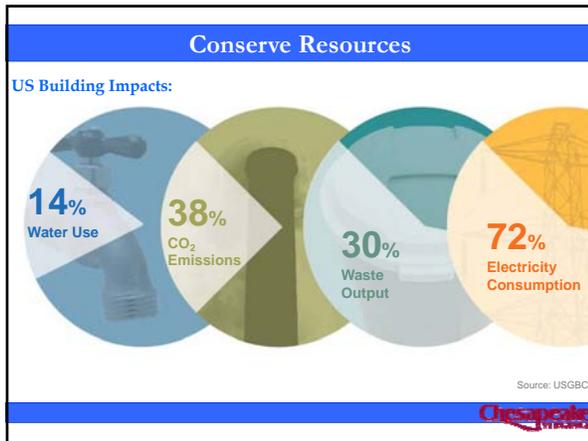
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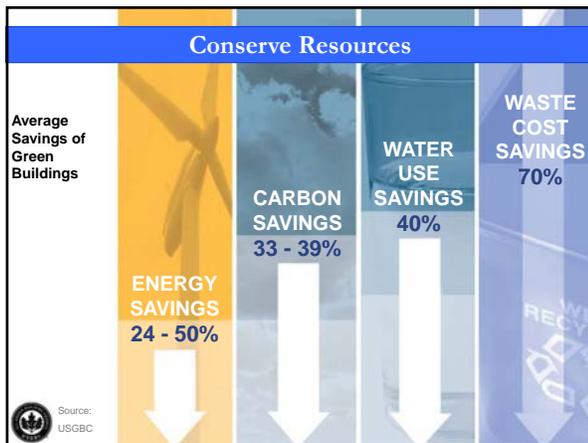
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### What is LEED?

- ✓ Leadership in Energy and Environmental Design
- ✓ Developed by the US Green Building Council (non-profit organization committed to expanding sustainable building)
- ✓ Third party certification and nationally accepted benchmark for the design, construction, and operation of high performance green buildings.
- ✓ Promotes a whole-building approach to sustainability by recognizing performance in five key areas of human and environmental health:
  - ✓ sustainable site development,
  - ✓ water savings,
  - ✓ energy efficiency,
  - ✓ materials selection,
  - ✓ indoor environmental quality.

Chesapeake Energy logo

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### What is LEED?

- ✓ LEED provides a roadmap for measuring and documenting success for many building types. Specific LEED programs include:
  - ✓ LEED-NC (New Construction & Major Renovations)
  - ✓ LEED-EB (Existing Buildings)
  - ✓ LEED-CI (Commercial Interiors)
  - ✓ LEED-CS (Core and Shell)
  - ✓ LEED-H (Homes)
  - ✓ LEED-ND (Neighborhood Development-Pilot Program)
  - ✓ LEED for Schools
  - ✓ LEED Retail for New Construction (Pilot Program)
  - ✓ LEED Retail for Commercial Interiors (Under Development)
  - ✓ LEED for Healthcare (Under Development)
  - ✓ LEED for Multiple Buildings (Under Development)




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### What is LEED?

Four levels of certification:

- ✓ Certified (26-32 points)
- ✓ Silver (33-38 points)
- ✓ Gold (39-51 points)
- ✓ Platinum (52+ points)





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### LEED by the numbers

- ✓ Over 172 local governments have LEED initiatives (includes resolutions, ordinances, policies, and incentives)
- ✓ At least 31 states have LEED initiatives (includes legislation and executive orders)
- ✓ Standards adopted by at least 12 federal agencies including GSA, US Navy, Army, Air Force, and EPA (e.g. LEED certification required by all GSA buildings).
- ✓ 26% of LEED projects owned by state, local, and federal government
- ✓ Over 5 Billion ft<sup>2</sup> of commercial building space either registered or certified under LEED




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### Local LEED Examples



**ODU's Engineering and Computational Sciences Building:**  
LEED Certified



**Liberty Property Trust - Liberty III:** LEED Silver



**US Navy Personal Support Facility:**  
LEED Silver



**VBPS Hermitage Elementary:**  
LEED Certified

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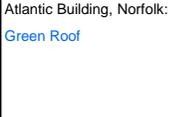
### Other Local Green Building Examples



**Grassfield High School:**  
Daylighting, Energy and Water Conservation



**Miller Custom Homes, Edinburgh Meadows:**  
EarthCraft Home



**Atlantic Building, Norfolk:**  
Green Roof



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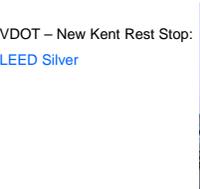
### Other Local Green Building Examples



Independence Place - Chesapeake  
LEED Gold



Oscar Smith Middle School  
Rainwater Harvest System



VDOT - New Kent Rest Stop:  
LEED Silver



Oscar Smith Middle School  
Rainwater Harvest System

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### Action Plan – Public Sector

- ✓ Join the United States Green Building Council (USGBC)
- ✓ All future City funded new construction will be designed and constructed to a minimum certification of LEED Certified.
- ✓ Train existing staff in all appropriate city departments to be LEED Accredited Professionals (AP) or trained in Green Building 101.
- ✓ Design a green-roof demonstration project on a public building
- ✓ Create education materials for distribution via multi-media approach
- ✓ Evaluate the Chesapeake City Hall Energy Services Contract as a model for other City facilities
- ✓ Evaluate the feasibility of purchasing Environmentally Preferred Products (EPP) for building interior rehab projects (e.g. carpets, paint, flooring)




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### Action Plan – Private Sector

- ✓ Create incentive package for voluntary application of green building techniques that may include:
  - Expedited Permit Review
  - Tax incentives
    - ex. General Assembly bill
  - Paying LEED Certification Fees
- ✓ Evaluate the integration of Green Building options/incentives into City Code




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**Sustainable Chesapeake Initiative**

- ✓ Created by memo from City Manager
- ✓ Includes representatives from every major City Department



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**VML – The Organization**

The Virginia Municipal League is a statewide, nonprofit, nonpartisan association of city, town and county governments established in 1905 to improve and assist local governments through legislative advocacy, research, education and other services. The membership includes all 39 cities in the state, 156 towns and 12 counties.



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**VML Green Government Challenge – What is it?**

VML urges all of its member local governments to participate in the Green Government Challenge, an important self-assessment to gauge the need for enacting or improving actions and policies that reduce carbon emissions. The Challenge is a friendly competition that can save your city, town or county money and lead to certification by VML as a "Green Government."

Earning 100 points in the Challenge leads to certification as a "Green Government".



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**City Council Resolution – August 12, 2008**

*08-R-052*

RESOLUTION FOR THE CITY OF CHESAPEAKE TO DEVELOP AN ENVIRONMENTAL SUSTAINABILITY PROGRAM KNOWN AS "GO GREEN CHESAPEAKE: THE SUSTAINABLE CHESAPEAKE INITIATIVE".

WHEREAS, a sustainable city with a high quality of life that meets the social and economic needs of its current and future citizens, employees, visitors, and business community, while maintaining and improving the quality of its natural environment is important to Chesapeake's citizens, economy, and future; and

WHEREAS, the City of Chesapeake is committed to protecting the health and welfare of its current and future citizens, employees, visitors, and business community and preserving the environment through the responsible management of

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**Council Resolution – Highlights**

- ✓ Unanimously approved by City Council in August 2008 and signed by Mayor Krasnoff
- ✓ Formally recognizes the creation of "Sustainable Chesapeake Initiative" (SCI) Committee
- ✓ Commitment by the City to the creation of an Environmental Sustainability Plan and Program with short and long term goals by 8/30/09. Plan will be dynamic with annual updates
- ✓ Commitment by the City to create a comprehensive Energy Management Program; Implement an Environmentally Preferred Purchasing Policy; Establish outreach and communication programs for employees and the public; and inventory baseline City carbon emissions and set reduction targets



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**Green Government Challenge – How We Got There**

Action	Points
Government Policy Adoption	10
Energy Efficiency	25
Green Buildings	15
Waste Management	5
Vehicles	10
Land Use/Transportation	15
Water/Air Quality	15
Education/Community Participation	10
Schools	5
Innovation	25





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**Green Government Challenge – How We Got There**

**Item 30: Innovation Credits (various)**

- ✓ LED Traffic Lights
- ✓ Creation of a "Sustainable Urban Forest Plan"
- ✓ Fleet Management Division E2 Certified by DEQ
- ✓ Chesapeake Schools green design features
- ✓ Legislative Initiatives and Support
- ✓ ICMA Sustainable Communities Commitment
- ✓ Great Bridge Design Guidelines include sustainable practices
- ✓ Ordinance requiring ESAs & disclosures for certain types of development

(25 total points)





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**Go Green Chesapeake – Blog**

**"Green" Discussion Forum for Chesapeake Employees**

<http://citygoesgreen.wordpress.com/>

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**SCI – Next Steps**

- ✓ Web Content – Intranet and Internet
- ✓ Workgroups drafting Environmental Sustainability Plan
- ✓ Creation of logo and "branding" for the initiative
- ✓ Greater community and in-house outreach
- ✓ Next VML Challenge





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**SCI – Working Groups**

- ✓ Fleet, Fuels, and Emissions
- ✓ Green Infrastructure
- ✓ Green Purchasing and Acquisition
- ✓ Sustainable Building and Resource Conservation
- ✓ Recycling and Waste Prevention
- ✓ Education and Outreach





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**"GO GREEN" VIRGINIA BEACH**

Charles McKenna  
Department of Planning  
Environmental Management Center  
City of Virginia Beach  
January 30, 2009



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**Presentation Objectives**

- ◆ Energy
- ◆ Water Quality
- ◆ Sustainability



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**Clean Waters Task Force**

- ◆ The CWTF is an outgrowth of a group originally created in 2004 to coordinate and address water quality issues in the Lynnhaven River watershed.
- ◆ The original group was formed to improve communication between the City organization and Lynnhaven River Now, and to allow LRN to be better informed on what the City was doing so it could "get the word out" to the Community.
- ◆ In 2006 the CWTF was expanded with the goal of having a City-wide focus for all watersheds and water quality issues and to communicate between the City organization and all Community watershed organizations.



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## CWTF Mission

- ◆ TO PROVIDE AN INFORMAL **FORUM FOR INFORMATION EXCHANGE** ON ACTIVITIES RELATED TO THE CITY'S WATERSHEDS
- ◆ TO HELP ENSURE **BETTER CITY AGENCY COORDINATION AND COOPERATION** ON WATERSHED RELATED ACTIVITIES AND ISSUES
- ◆ TO **IDENTIFY AREAS OF CONCERN** THAT MAY NEED TO BE ADDRESSED BY THE CITY RELATED TO THE CITY'S WATERSHEDS
- ◆ TO FOSTER A **COORDINATED CITY RESPONSE TO OTHER STAKEHOLDERS** WORKING ON WATERSHED RELATED ACTIVITIES AND ISSUES
- ◆ TO **SUPPORT THE EFFORTS OF INDIVIDUAL PARTICIPANTS** IN HELPING ACCOMPLISH WATER QUALITY PROTECTION AND ENHANCEMENT
- ◆ TO HELP FACILITATE AND **IMPLEMENT THE RECOMMENDATIONS OF THE GREEN RIBBON COMMITTEE**, ENSURING A MEASURE OF RESPONSIBILITY AND ACCOUNTABILITY TO THE GREEN RIBBON COMMITTEE PROCESS
- ◆ Monthly meetings facilitated by Planning Department since 2004 with expanding participation and regular participation by City Manager's Office



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## Community participants

- ◆ Community Representatives:
  - Back Bay Restoration Foundation – Susan Wenzel
  - Chesapeake Bay Foundation – Christy Everett
  - Elizabeth River Project – Marjorie Jackson
  - Lynnhaven River NOW – Karen Forget
  - North Landing Riverkeepers – Fred Adams
  - Crystal Club – Jason Barney and James Reidy



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## City participants

- ◆ City Representatives
  - Agriculture
  - City Manager's Office – Deputy City Manager
  - City Manager's Office – Media and Communications Group
  - Fire
  - Museums – Virginia Aquarium
  - Parks & Recreation - Clean Community Commission
  - Parks & Recreation - Planning, Design & Development Division
  - Parks & Recreation - Landscape Management Division
  - Planning - Environmental Management Center
  - Police
  - Public Utilities
  - Public Works - Water Resources Division
  - Virginia Dare Soil & Water Conservation District



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What geographic areas are covered?




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## Primary & Secondary Watersheds

### Primary Watersheds Approximate Acreage & Percent of City

- ◆ Chesapeake Bay 61,300 32.2%
- ◆ Southern Rivers 132,400 67.4%
- ◆ Rudee Inlet / Owl's Creek 2,800 1.4%
- ◆ **Total Area 196,500 100%**

### Secondary Watersheds Approximate Acreage & Percent of City

- ◆ Lynnhaven River 43,000 21.9%
- ◆ Little Creek 8,200 4.1%
- ◆ Elizabeth River 9,400 4.8%
- ◆ Small Coastal 700 0.4%
- ◆ Rudee Inlet /Owl's Creek 2,800 1.4%
- ◆ North Landing River 64,000 32.6%
- ◆ Northwest River 2,100 1.1%
- ◆ Back Bay 66,300 33.7%
- ◆ **Total Area 196,500 100%**




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## Benefits of group

- ◆ City organization works more closely on water quality matters
- ◆ Better information exchange and shared support on projects between City departments and Community organizations
- ◆ Direct support and assistance more commonplace
- ◆ Enhance ability of City departments to function as a team
- ◆ Implementation efforts more integrated and better understood




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## Challenges

- ◆ Federal and State water quality mandates continue to increase (Total Maximum Daily Loads, stormwater, drinking water, etc.)
- ◆ Funding assistance from Federal and State governments continues to decrease
- ◆ Water quality improvement demands are becoming more mainstream with increasing education
- ◆ Economic development and economic vitality more closely linked to environmental performance



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## An Example- Total Maximum Daily Loads (TMDLs)



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## TMDLs

- ◆ A calculation of the maximum amount (limit) of a pollutant that a waterbody can receive and still safely meet water quality standards
- ◆ Uniquely established for each waterway based on its attributes
- ◆ DEQ, State law mandates that TMDL implementation plans be developed to address how the limit will be met
- ◆ As of October 2008 21 individual TMDLs have been established, 1 implementation plan developed and 2 more implementation plans underway
- ◆ Over the next 10 years an additional 119 individual TMDLs will be established, also requiring a series of new implementation plans or plan amendments



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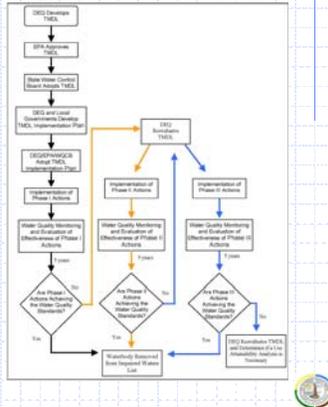
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## TMDL Approval and Revision Process




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## What can the Clean Waters Task Force Do?

- ◆ CWTF serves as a resource pool to help develop TMDL implementation plans
- ◆ Actions recommended in TMDL implementation plans are implemented and monitored by CWTF members
- ◆ Actions recommended by GRC are implemented and monitored by CWTF members
- ◆ CWTF Community members are major focus of public outreach and education
- ◆ CWTF City members are major focus of project management and implementation




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## Accomplishments

- ◆ No Discharge Zone for Lynnhaven Watershed
- ◆ Outdoors Plan Update
- ◆ VML Certified Green Community Designation
- ◆ Bacterial Source Tracking
- ◆ Nanney Creek Water Quality Modeling
- ◆ Pump Station Upgrades
- ◆ Sanitary Sewer Overflow Program
- ◆ Oyster Heritage Program
- ◆ Live Oak Tree Fund
- ◆ Boater Education and Pumpout Program
- ◆ Scoop the Poop Program




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## Green Ribbon Committee

- ◆ City Council appointed group in June, '06 comprised of City staff and citizens
- ◆ Group provides flexibility to developers in meeting water quality requirements and holds the City to same set of standards as private development
- ◆ Landscape practices, CBPA ordinance revisions, and city easement programs

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## Joint Energy Committee

- ◆ Joint City and Schools initiative to promote energy efficiency and conserve energy by identifying and developing courses of action for energy impacts affecting the City of Virginia Beach.
- ◆ Meets monthly to analyze costs of consumption-facilities, rate increases, performance contracts, desktop power management, plant operations, energy star program and other energy related topics for consideration.
- ◆ Usage projected out for future budgetary needs, identifying the largest consumers by square foot for possible improvements, and preparing reports for City Manager's Office on a monthly basis



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## Sustainability – What and Why?

- ◆ Acknowledge limited resources and rising costs (energy, land, water, natural amenities)
- ◆ Maximize community assets (economic, cultural, historic, educational, natural)
- ◆ Promote longevity of environmental quality and resources (air, water, timber, food, energy)
- ◆ Develop and adapt systems (agriculture, tourism, environmental, military, transportation) to be usefully productive indefinitely and responsive to change
- ◆ Meet needs of present generations without compromising the ability of future generations to meet their needs



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## Sustainability Advisory Team

- Help Council establish a strategy that is:
    - Integrated
    - Coordinated
    - Realistic
    - Practical
    - Effective
    - Communicated
  - Help Council prioritize, schedule, and report on tasks related to the strategy
  - Respond to inquiries
  - Pursue business opportunities, grants, workshops, conferences, etc.
  - Provide an integrated focus for our sustainability efforts
- ◆ Current City Representation:
    - Convention and Visitors Bureau
    - Finance
    - Management Services
    - Planning
    - Public Works
    - Schools
    - Add others as needed
  - ◆ Private Community Representation:
    - Civic Community
    - Business Community
    - Environmental Community



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## Go Green Virginia Beach Structure



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## What does the SAT hope to do in the Short Term?

- ◆ Completed and submitted the VML Go Green Challenge
- ◆ Identify low- to no-cost measures to help improve the City's performance in each of the 11 VML Go Green Challenge Categories
- ◆ Increase City and community awareness on sustainability and related issues
- ◆ Bring forward recommendations for City and Council consideration
- ◆ Start effort to develop a sustainability strategy



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## What can Virginia Beach hope to do in the Longer Term?

- ◆ Be recognized as a leader and an example in the region, state and nation of a sustainable community
- ◆ Market Virginia Beach as a location for promoting educational and economic development that is sustainable for the City, and recruiting businesses that export sustainable goods (services, products, programs and ideas)



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## Why an Energy Strategy?

- ◆ Offshore energy exploration and development is coming.
  - natural gas
  - wind
  - biodiesel
- ◆ Onshore energy research and development is underway.
  - uranium mining
  - coal power plant proposals
  - nuclear power plant proposal
- ◆ Energy conservation opportunities are significant.
  - Green building industry
  - City government initiatives
- ◆ Energy-related economic development opportunities are possible.
  - skilled research and labor force
  - clean industrial development



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## Challenges

- ◆ Forging a strong base of support among disparate groups.
- ◆ Safeguarding irreplaceable natural resources.
- ◆ Ensuring real sustainability as part of the overall effort.



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## Benefits

- ◆ Clean alternative energy development.
- ◆ Hampton Roads becomes national leader in new economy.
- ◆ Spearhead more economic development, research and educational opportunities.
- ◆ Promote new dynamic in region.



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## For Further Info

- ◆ Sustainability
  - [vbgov.com/sustainability](http://vbgov.com/sustainability) – coming soon!
- ◆ Clean Waters Task Force
  - [vbgov.com/waterquality](http://vbgov.com/waterquality) – coming soon!
- ◆ Energy
  - [vbgov.com/energy](http://vbgov.com/energy) - operational



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## Questions?



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# HAMPTON ROADS PLANNING DISTRICT COMMISSION

## CHESAPEAKE

AMAR DWARKANATH  
WILLIAM E. HARRELL  
CLIFTON E. HAYES, JR  
\* ALAN P. KRASNOFF  
ELLA P. WARD

## FRANKLIN

\* JUNE FLEMING  
ROSA M. LAWRENCE

## GLOUCESTER COUNTY

\* BRENDA G. GARTON  
GREGORY WOODARD

## HAMPTON

\* RANDALL A. GILLILAND  
JESSE T. WALLACE, JR.  
MOLLY JOSEPH WARD

## ISLE OF WIGHT COUNTY

W. DOUGLAS CASKEY  
\* STAN D. CLARK

## JAMES CITY COUNTY

\* BRUCE C. GOODSON  
SANFORD B. WANNER

## NEWPORT NEWS

\* JOE S. FRANK  
RANDY W. HILDEBRANDT  
SHARON P. SCOTT

## NORFOLK

ANTHONY L. BURFOOT  
\* PAUL D. FRAIM  
DR. THERESA W. WHIBLEY  
REGINA V.K. WILLIAMS  
BARCLAY C. WINN

## POQUOSON

JUDY WIGGINS  
\* GORDON C. HELSEL, JR.

## PORTSMOUTH

KENNETH L. CHANDLER  
\* DOUGLAS L. SMITH

## SOUTHAMPTON COUNTY

ANITA T. FELTS  
\* MICHAEL W. JOHNSON

## SUFFOLK

\* SELENA CUFFEE-GLENN  
LINDA T. JOHNSON

## SURRY COUNTY

\* TYRONE W. FRANKLIN  
JOHN M. SEWARD

## VIRGINIA BEACH

HARRY E. DIEZEL  
ROBERT DYER  
BARBARA M. HENLEY  
LOUIS R. JONES  
\* WILLIAM D. SESSOMS  
JAMES K. SPORE  
JOHN E. UHRIN

## WILLIAMSBURG

JACKSON C. TUTTLE, II  
\* JEANNE ZEIDLER

## YORK COUNTY

\* JAMES O. McREYNOLDS  
THOMAS G. SHEPPERD, JR.

\*EXECUTIVE COMMITTEE MEMBER

## PROJECT STAFF

DWIGHT L. FARMER

EXECUTIVE DIRECTOR/SECRETARY

JOHN M. CARLOCK  
ERIC J. WALBERG  
CLAIRE JONES

DEPUTY EXECUTIVE DIRECTOR  
PRINCIPAL PHYSICAL AND ENVIRONMENTAL PLANNER  
PHYSICAL AND ENVIRONMENTAL PLANNER

FRANCES D. HUGHEY

ADMINISTRATIVE ASSISTANT

ROBERT C. JACOBS  
MICHAEL R. LONG  
BRIAN MILLER  
CHRISTOPHER W. VAIGNEUR

GENERAL SERVICES MANAGER  
ASSISTANT GENERAL SERVICES MANAGER  
COMMUNICATIONS DESIGNER  
REPROGRAPHIC COORDINATOR