

# **A G E N D A**

## **JAMES CITY COUNTY BOARD OF SUPERVISORS**

### **READING FILE**

**September 11, 2007**

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#### **FOR YOUR INFORMATION**

1. Builders for the Bay Implementation – Better Site Design
2. Cool Counties Declaration

091107bosrf.age

MEMORANDUM

DATE: September 11, 2007

TO: The Board of Supervisors

FROM: Michael D. Woolson, Senior Watershed Planner

SUBJECT: Builders for the Bay Implementation – Better Site Design

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In April 2006, select staff was directed by the Development Manager to start the implementation phase of the Builders for the Bay Initiative, *Recommended Model Development Principles for James City County, Virginia*. This initiative was a direct result of the approved Powhatan Creek Watershed Management Plan, Priorities 13 and 14; the approved Yarmouth Creek Watershed Management Plan, Priority 10; and the 2003 Comprehensive Plan, Environmental Section, Action 5. In concert with the Peninsula Housing and Builders Association, members of the design and development community were asked to participate with the County in developing the implementation measures needed to ensure that Better Site Design can be incorporated into the fabric of the community.

Attachments to this memorandum include a report on the committee's findings, *Better Site Design in James City County*, including all the appendices. Due to the volume of materials, these are provided as a reading file item now with the understanding that a work session is scheduled for September 25, 2007. The discussion at the work session will cover the major items included in the summary and can include other items in the report if desired. The material in the appendices should be considered draft and includes, among other things, some proposed ordinance changes. It is staff's desire to bring forth the proposed ordinance changes in the appendices together through both the Planning Commission and Board of Supervisors process instead of individually.

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Michael D. Woolson

CONCUR:

  
 John T.P. Horne

MDW/tlc  
 BettrSiteDes.mem

Attachment

# **Better Site Design in James City County:**

Report and Findings from the Better Site Design  
Implementation Committee

September 2007

## Executive Summary

The James City County Local Site Planning Roundtable was established to review existing development codes and identify regulatory barriers to environmentally sensitive residential and commercial development at the site level. The Roundtable recommendations include suggested general and specific code and ordinance revisions that will increase flexibility for site design standards and promote the use of open space and flexible design development in James City County (County). The objectives of Better Site Design (BSD) are to:

1. reduce overall site impervious cover;
2. preserve and enhance existing natural areas;
3. integrate stormwater management; and
4. retain a marketable product.

According to the Roundtable recommendations, the Committee has identified specific County ordinances, codes, policies, and/or program areas that should be modified, will remove regulatory hurdles, and provide the incentives, flexibility, and guidance requested in the Roundtable consensus document such that developers can implement BSD on their projects.

The following table summarizes the 24 principles and the Committee's proposed implementation recommendation. The Committee proposes to bring recommended ordinance revisions to the Planning Commission and Board of Supervisors for action by both bodies. Some recommendations include refinement to existing County educational programs, some recommendations are additions or clarifications to existing County policy and manuals, and others are ordinance revisions that require legislative action. The purpose of this document is to summarize the findings of the Committee in preparation for a BSD work session between Committee representatives, the Planning Commission (PC), and the Board of Supervisors (BOS). The document can then be used to guide recommended actions. Once revisions to County programs, manuals, or ordinances are complete, the final products will be brought back before the BOS.

## Introduction

This is the final installment of the James City County Local Site Planning Roundtable, a consensus building process by the Builders for the Bay, including the Center for Watershed Protection, the Alliance for the Chesapeake Bay, the Peninsula Housing and Builders Association, and James City County. A document developed through the roundtable process, *Recommended Model Development Principles for James City County, Virginia*, included suggested general and specific policy and ordinance revisions to increase the flexibility for site design standards while promoting the use of open space and flexible design development in James City County. Implementation and application of these Better Site Design (BSD) principles will remove regulatory hurdles and provide incentives, flexibility, and guidance for developers such that development within James City County meets four critical BSD objectives: (1) reduction of overall site impervious cover, (2) preserve and enhance existing natural areas, (3) integrate stormwater management, and (4) retain a marketable product. Some of the BSD principles also address natural open space maintenance issues and provide guidance for homeowners within the County.

The task of the Better Site Design Implementation Committee (Committee) was to either implement or develop an implementation schedule for the recommendations put forth in the Roundtable consensus document. The Committee is comprised of members of the Peninsula Housing and Builders Association, Planning Division staff, Environmental Division staff, and a Planning Commissioner. The Chairman would like to thank the following people for their help in achieving our goals: Mr. Robert Duckett, Mr. Mark Rinaldi, Mr. Tim Cleary, Mr. Robert Cosby, Mr. Sean Fisher, Mr. Joel Almquist, Mr. Bradley Weidenhammer, Mr. Khoi Nguyen, Ms. Beth Davis, Ms. Sarah Kadec, Ms. Ellen Cook, Mr. Jose Riberio, Ms. Leanne Reidenbach, Ms. Terry Costello, Ms. Alexis Maxwell, Ms. Gwen Kennedy, Ms. Shereen Hughes, Mr. Scott Thomas, Mr. Don Davis, Mr. Allen Murphy, and Mr. John Horne.

Roundtable Principle #			Roundtable Recommendation	Responsible Party	Recommended Action	Appendix
1	Street Width	1	Virginia Department of Transportation (VDOT) should accept staff recommendations and not require BOS action	Planning Commission Policy Committee (Policy Committee)	To Be Determined (TBD) pending further discussion with VDOT	—
		2	VDOT should reduce permissible street widths from 26 to 24 feet	Policy Committee	TBD pending further discussion with VDOT	—
2	Street Length	1	Continue to encourage alternative street designs to reduce overall imperviousness	Planning and Environmental staff, PRIDE	Better Site Design Guidance document - Pending -	—
3	Rights-of-Way (ROW)	1	Adopt a “joint trench initiative” requiring telephone, electric and cable to use same trench	Peninsula Housing and Builders Association (PHBA), Environmental and/or JCSA staff	Legislative or policy	I. PHBA letter, Virginia Department of Conservation and Recreation (DCR) response
		2	Require utility easements to be shown on preliminary plats	None	None	—
		3	Design, location and construction requirements for water/sanitary sewer utilities to be constructed within pavement section	Planning and JCSA staff, VDOT	Legislative or policy	—
		4	Reduce ROW according to Principle #1b	Policy Committee	TBD	—
4	Cul-de-Sacs	1	County standards are in accordance with national benchmarks	Plan review staff	None	—
5	Vegetated Open Channels	1	Implementation is allowable by ordinances and regulations	Environmental staff	Low Impact Development (LID) section in Stormwater Best Management Practices (BMP) Manual - Pending -	—
6	Parking Ratios	1	Provide additional information why minimum parking requirements are	Plan review staff	None	II. Site plan checklist

Roundtable Principle #			Roundtable Recommendation	Responsible Party	Recommended Action	Appendix
			exceeded			
		2	Encourage pervious surfaces for additional parking beyond minimums	Plan review staff	Porous Pavement Brochure	III. Porous Pavement Brochure
7	Parking Codes	1	Model shared parking agreement	Planning staff	Model Shared Parking Agreement - Complete -	IV. Shared Parking Agreement
8	Parking Lot Size	1	Meet Americans with Disabilities Act (ADA) requirements for handicapped stalls	Planning staff	Legislative	V. Memo and Ordinance
9	Green Development Certification	1	Create an award for development/engineering community for using BSD in projects	Protecting Resources in Delicate Environments (PRIDE) program	Award program	—
10	Open Space Development	1	Support open space development	Staff	None	—
		2	Open space development by-right in R-1 as base density	Policy Committee	Legislative (Ordinance revisions)	VI., VII., VIII. Committee Recommendation Documents
		3(1)	PC and BOS to consider if Special Use Permit (SUP) process creates a barrier for R-1 and R-2 open space development above base density	PC and BOS	TBD	—
		3(2)	PC and BOS to consider if SUP process provides adequate environmental protection incentives	PC and BOS	TBD	—
11	Setbacks	1	Reduce front setback for R-1 and R-2 to 25 feet for conventional development	Planning staff	Legislative	IX. Memo and Ordinance
12	Sidewalks	1	Eliminate mandatory requirements for sidewalks on all streets for low and medium density developments	None	None	—
		2	Slope sidewalks to pervious surfaces	Environmental staff	LID section in BMP Manual	—

Roundtable Principle #			Roundtable Recommendation	Responsible Party	Recommended Action	Appendix
					- pending -	
		3	Use alternative pavement materials and promote LID	Environmental staff	LID Section in BMP Manual - pending -	—
13	Driveways and Alternative Surfaces	1	Shared driveways and alternative driveway surfaces	Environmental staff, PRIDE	Award Program; LID section in BMP Manual - pending -	—
13		2	Maintenance agreements required to be resigned/reactivated at time of sale	Planning staff	Model Shared Driveway Agreement - complete -	X. Model Shared Driveway Agreement
14	Open Space Management	1	Annual re-education opportunities for managing and sustaining water quality improvement practices	PRIDE program	Continue existing program, Homeowner BSD Brochure	XI. Homeowner BSD Brochure
		2	Homeowners Association (HOA) guidance for management of conservation areas should be more explicit	PRIDE program	Guidance Document, Homeowner BSD Brochure	XI. Homeowner BSD Brochure
		3	Portion of open space in new developments should be managed in a natural condition	Planning and Environmental staff, PRIDE program	Guidance Document, Homeowner BSD Brochure, ordinance revisions	XI. Homeowner BSD Brochure
15	On-Site Sewage Disposal Systems	1	Continue enforcing Chesapeake Bay Preservation Ordinance	Environmental staff	Continue existing program	—
		2	Use of alternative septic systems	Planning and Environmental staff	TBD	—
		3	Routine maintenance if alternative septic systems are used	Environmental staff	Guidance Document - pending -	—
16	Infill and Redevelopment	1	Environmentally sound landscaping, building and redevelopment techniques to be encouraged	Plan review staff	None	—
		2	Land development and infill projects to minimize land disturbance and impervious cover	Plan review staff	None	—



Roundtable Principle #			Roundtable Recommendation	Responsible Party	Recommended Action	Appendix
17	Buffer Systems	1	Homeowner brochure of native plants	PRIDE program	Homeowner BSD Brochure	XI. Homeowner BSD Brochure
		2	Native plant posters at nurseries and garden centers	PRIDE program	Continue existing program	—
		3	Educate employees of nurseries and garden centers	PRIDE program	Continue existing program	—
17		4	Big box education	PRIDE program	Continue existing program	—
		5	Native plant society as source of native plants	PRIDE program	Continue existing program	—
		6	Expand educational opportunities for County residents	PRIDE program	Continue existing program	—
		7	Native plant information in HOA newsletters	PRIDE program	Continue existing program	—
		8	Protection of intermittent streams	Environmental staff	BMP Manual update, legislative (TBD)	—
		9	HOAs as avenue to educate homeowners on intermittent streams	PRIDE program	Homeowner BSD Brochure	XI. Homeowner BSD Brochure
18	Buffer Maintenance	1	Revise approved native plant list	Environmental staff	Homeowner BSD Brochure	XI. Homeowner BSD Brochure
		2	Educate homeowners on stream buffers and regulations	PRIDE program	Homeowner BSD Brochure	XI. Homeowner BSD Brochure
19	Clearing and Grading	1	Erosion and sediment control of public utility project authority to be granted to the County	PHBA, Environmental staff	TBD	XII. PHBA letter, DCR response
20	Tree Conservation	1	Continue conceptual plan review roundtable process	Plan review staff	Continue existing program	—
21	Conservation Incentives	1	Expand open space options in County BMP manual	Environmental staff	BMP Manual update	—

Roundtable Principle #			Roundtable Recommendation	Responsible Party	Recommended Action	Appendix
		2	PC should examine possible incentives and a means of flexibility for conservation incentives and make recommendations to the BOS	Policy Committee, PC, BOS, Planning and Environmental staff	TBD, BMP Manual update	—
22	Stormwater Management	1	Continue current course	Environmental staff	Continue existing program	—
23	Parking Lot Runoff	1	Formal program that defines acceptable LID practices	Environmental staff	LID section in BMP Manual - pending -	—
		2	Encourage the use of pervious surfaces in overflow parking	Plan review staff	Continue existing program, Porous Pavement brochure	III. Porous Pavement Brochure
24	Rooftop Runoff	1	Extra stormwater credit for careful management of roof top runoff	Environmental staff	BMP Manual revision - pending -	—
		2	Stormwater credit for the reuse of stormwater runoff for irrigation	Environmental staff	BMP Manual revision - pending -	—

*Recommended Model Development Principles for James City County, Virginia, Better Site Design (BSD) principles and the associated recommendation(s) from the document are provided for clarification purposes and are listed in order, in bold, underlined, italicized text. Discussion the Committee had on each principle and the implementation recommendations are summarized by principle. The Appendix section provides additional information, such as brochures or suggested ordinance revisions.*

**Principle 1 – Street Width - Roundtable**

*Design residential streets for the minimum required pavement width needed to support travel lanes; on-street parking; and emergency, maintenance, and service vehicle access. These widths should be based on traffic volume.*

**First Recommendation - Roundtable**

*When concurrence of local JCC officials is required to reduce street width below the base VDOT design standards, VDOT should accept JCC staff recommendations and not require JCC Board of Supervisors action. This will help to streamline the process and reduce time required to get approval for street width reduction.*

**Second Recommendation - Roundtable**

*VDOT should reduce the permissible street width from 26 to 24 feet.*

**Discussion:**

For streets carrying up to 400 vehicles per day (vpd), the minimum street width required by VDOT is 28 feet. However, the street width could be reduced from 28 to 26 feet for streets carrying up to 400 vpd. The review process for this street width reduction request can be performed administratively on a case-by-case basis with the concurrence of local officials (e.g. James City County's Planning Director) and with the support of VDOT. Reductions beyond that, for instance, 24 feet for streets carrying up to 400 vpd, may be approved with support from the local governing body (e.g. James City County's Board of Supervisors). The process for the administrative and legislative review referenced above could be waived if Countywide street reduction design standards for certain types of subdivision development were established (e.g. Neo-traditional subdivision). In addition, VDOT notes that Virginia's General Assembly just passed a bill requiring VDOT to update its street acceptance requirements, with one of the items to focus on being "provisions to minimize stormwater runoff and impervious surface area," which means that VDOT will probably be reducing the street widths again some time soon

**Recommendation:**

To achieve the first and second recommendations of the Roundtable, this Committee recommends that the Policy Committee study the issue of further street width reductions. Specifically, the Policy Committee should determine which County agency is responsible for developing the specific guidelines for street width reduction, if the current street width reduction policy guidelines are still acceptable to VDOT, and whether or not the County should develop street reduction design standards for specific types of subdivision developments such as Neo-Traditional.

### **Principle 2 – Street Length - Roundtable**

*Reduce total length of residential streets by examining alternative street layouts to determine the best option for increasing the number of homes per unit length.*

#### **First Recommendation - Roundtable**

*The Roundtable supports this principle and recommends that the County continue to encourage the use of alternative street designs to reduce the overall imperviousness of the development site.*

#### **Discussion:**

The Committee agrees with the Roundtable recommendation. Staff will continue to encourage alternative street designs to help reduce overall development site imperviousness at all opportunities. The Committee also wanted to see some consistency in the process and suggested a checklist be developed to help provide some clarity and guidance to the development community.

#### **Recommendation:**

To achieve quality, alternative street designs, this Committee recommends that staff, in cooperation with PRIDE personnel, develop guidance, such as a Better Site Design (BSD) checklist, that includes alternative street design considerations. Furthermore, this Committee fully supports this Roundtable recommendation and supports staff in their endeavor to encourage alternative street designs at all opportunities.

### **Principle 3 – Rights-of-Way, First Recommendation - Roundtable**

*Wherever possible, residential street right-of-way widths should reflect the minimum required to accommodate the travel-way, sidewalk, and vegetated open channels. Utilities should be located within the pavement section of the right-of-way (ROW) whenever feasible.*

#### **First Recommendation - Roundtable**

*JCC should adopt a policy that telephone, cable, and electrical utilities are to utilize the “Joint Trench Initiative” in order to reduce disturbance.*

Discussion:

Mr. Robert Duckett of the Peninsula Housing and Builders Association (PHBA) is continuing his discussions with the various utility companies to get them to agree to utilize a joint trench initiative.

Recommendation:

The Committee fully supports the PHBA in this endeavor, and recommends that staff continue to monitor the progress of this PHBA endeavor.

**Second Recommendation - Roundtable**

*JCC should require utility easements to be shown on preliminary plats.*

Discussion:

The types of utilities typically installed in a subdivision include the ‘major’ utilities (stormwater, sanitary sewer, and water) and the ‘minor’ utilities (power, cable, gas, and telephone). The installation of major and minor utilities usually occurs at different stages in the development process. The major utilities are installed with the major infrastructure. Whereas, the minor utilities usually are installed after the major infrastructure is in place but prior to a granting of Certificates of Occupancy.

Separate easements are required for the major utilities and the easements are shown on preliminary plats when submitted for staff review. Separate easements typically are not required for the minor utilities. These utilities are usually placed within the road right-of-way. The location of these minor utilities is often unavailable at the time of plan preparation and preliminary plat submission.

Recommendation:

Due to the inherent difficulty in planning for all of the separate utilities, this Committee cannot support the statement that JCC should **require** that all utility easements be shown on the preliminary plat. However, the Committee supports staff in their efforts to encourage that all utility easements be shown on the preliminary plat when the locations are known.

**Third Recommendation - Roundtable**

*James City County and the James City Service Authority should work with VDOT to develop adequate requirements for design, location, and construction of water and sanitary sewer utilities to be constructed within the pavement limits. Such provisions shall include requirements that will ensure that adequate testing and inspection is performed to minimize future settlement.*

Discussion:

Since the Roundtable process was completed, staff has received an update from VDOT. VDOT has indicated that the Williamsburg Residency does allow water and sewer utilities to be constructed within the pavement limits. VDOT currently reviews construction plans and requests that testing and inspection-related notes be placed on plan sets. VDOT staff did indicate that even though this is the case, they would like to work further with the County on formalizing the requirements for testing and inspection provisions.

Recommendation:

The Committee recommends that County staff work with VDOT to formalize the requirements for testing and inspection provisions.

**Fourth Recommendation - Roundtable**

*Reduce ROW width according to Table 1 Principle #1 Street Width.*

Discussion:

As discussed above in Principle 1, the allowable street width for streets carrying up to 400 vpd is 28 feet. The corresponding right-of-way width for a 28-foot wide road section is 40 feet. A reduction in right-of-way may be allowed with specific approval of the locality and the resident engineer.

Recommendation:

The minimum right-of-way recommended by VDOT should be 40 feet or the width necessary to accommodate all road elements. To address the issue of further street width and right-of-way reduction, this Committee recommends that the Planning Commission's Policy Committee study the issue of further rights-of-way reductions in conjunction with street width reductions as previously discussed in Principle 1.

**Principle 4 – Cul-de-Sacs - Roundtable**

*The radius of cul-de-sacs should be the minimum required to accommodate emergency and maintenance vehicles in order to reduce the amount of impervious cover. Landscaped cul-de-sac islands that reduce impervious cover and/or enhance stormwater management should be encouraged.*

**First Recommendation - Roundtable**

*The Roundtable endorses this principle and acknowledges that the County's minimal cul-de-sac radii are in accordance with the national benchmark for cul-de-sac radii.*

Discussion:

Discussions on this principle revolved around retrofitting existing cul-de-sacs that were designed to a different standard and are extremely large for

the intended purpose. While this is an area that staff is aware of, there are no mechanisms in place to require retrofitting.

**Recommendation:**

The Committee agrees with the Roundtable and no action is required. In addition, the Committee agrees with the statement “Landscaped cul-de-sac islands that reduce impervious cover and/or enhance stormwater management should be encouraged” and suggests that staff be directed to encourage the use of such landscaped cul-de-sac islands when feasible and appropriate.

**Principle 5 – Vegetated Open Channels - Roundtable**

*Where density, topography, soils and slope permit, vegetated open channels should be considered as an option for conveying and treating stormwater runoff.*

**First Recommendation - Roundtable**

*The Roundtable supports this principle and acknowledges that there are no impediments to its implementation in James City County ordinances and regulations.*

**Discussion:**

Committee discussions centered on vegetated open channel characteristics and the associated stormwater quality benefits derived from the vegetated open channels.

**Recommendation:**

The Committee recommends that the Environmental Division develop a Low Impact Development Manual for inclusion by reference in the *James City County Guidelines for Design and Construction of Stormwater Management BMP's* with guidelines for design, installation, and maintenance of vegetated open channels.

**Principle 6 – Parking Ratios – Roundtable**

*Existing parking ratios should be reviewed for conformance taking into account local and national experience to see if lower parking ratios are warranted and feasible. Excess parking space construction should be discouraged.*

**First Recommendation - Roundtable**

*One of the performance standards of the Chesapeake Bay Preservation Ordinance is to keep impervious cover of a site to a minimum. If established minimum parking lot requirements are exceeded for a land development project, County plan of development review staff can request that the applicant provide additional information to support, justify, or explain why the minimum requirements were exceeded for the intended use.*

Discussion:

The Committee recognizes that parking and parking lot designs are of concern to many citizens for a variety of reasons. In relation to other matters, planning staff has been directed to research the concerns and the Committee determined that this research should be conducted outside of this Committee. Further discussions were held over what the current process is regarding the issue of excessive parking.

Recommendation:

The Committee recognizes that staff currently does require written explanations when parking requirements are exceeded and encourages staff to continue the current practice. The site plan submittal checklist has been updated to include an item requesting an explanation for parking beyond the minimums.

**Second Recommendation - Roundtable**

*In cases where there is a need for additional parking beyond the minimum requirements, the use of pervious surfaces should be encouraged.*

Discussion:

A porous pavement brochure was developed by JCC staff (Appendix III). This Committee has reviewed the brochure and anticipates that the brochure will assist staff in encouraging the development community to use pervious surfaces.

Recommendation:

The Committee recognizes the environmental benefits of using pervious parking surfaces for overflow parking needs and recommends that staff be directed to encourage the use of pervious parking surfaces where feasible. In addition, the Committee recommends that staff utilize the porous pavement brochure to educate the development community on the subject.

**Principle 7 – Parking Codes - Roundtable**

*Parking codes should be revised to lower parking requirements where mass transit or other transportation modes are available or enforceable shared parking arrangements are made.*

**First Recommendation - Roundtable**

*The Roundtable recommends that a model shared parking agreement be available to developers through the Planning Division. The model agreement should include standard language specifying the rights and responsibilities of each landowner; ramifications of future changes in land use and whether more spaces can be added if the land uses change. This document should be submitted and*



*reviewed by the County during site plan review but can also apply to existing or changing land uses.*

**Discussion:**

A model shared-parking agreement was developed based upon several different models available or in use at the current time.

**Recommendation:**

Staff has developed a Model Shared Parking Agreement (Appendix IV) and the Committee supports the staff-developed agreement. The agreement is currently available through the County web site.

**Principle 8 – Parking Lot Size - Roundtable**

*Reduce the overall imperviousness associated with parking lots by, minimizing stall dimensions, incorporating efficient parking lanes, and using pervious materials in spill over parking areas.*

**First Recommendation - Roundtable**

*The Roundtable endorses this principle and acknowledges that the County already supports this principle by meeting national benchmarks for minimum stall widths of 9' for 90 degree parking; encouraging shared parking, and requiring parking studies when parking lots greatly exceed minimum parking requirements. The Roundtable also recommends lowering the handicapped stall width to meet ADA requirements.*

**Discussion:**

Staff continues to encourage shared parking and pervious parking lot materials where feasible or warranted. Lowering the stall width for handicapped spaces to comply with the Americans with Disabilities Act (ADA) will require an ordinance amendment.

**Recommendation:**

Staff has prepared the ordinance amendment (Appendix V) and recommends that the Planning Commission and the Board of Supervisors approve the amendment.

**Principle 9 – Green Development Certification - Roundtable**

*Provide meaningful, non-regulatory, incentives to encourage the use of Better Site Design techniques in James City County.*

**First Recommendation - Roundtable**

*The Roundtable supports this principle and recommends that County staff involved with the County PRIDE (Protecting Resources in Delicate Environments) water quality education program should consider, investigate and*

*establish a provision in the program to recognize/award the development and engineering community and applicants who incorporate the principles of better site design into their site development projects (establishment of such a provision in the PRIDE program would be consistent with priority #14 of the approved Powhatan Creek watershed management plan and Priority #10 of the approved Yarmouth Creek watershed management plan).*

Discussion:

The PRIDE program intends to award the first development Better Site Design award in calendar year 2007. This award will be on the BOS agenda for recognition.

Recommendation:

The Committee supports the PRIDE program and their on-going efforts to implement a developer recognition award program for Better Site Design.

**Principle 10 – Open Space Development - Roundtable**

*Encourage open space development that incorporates smaller lot sizes, minimizes total imperviousness area, conserves natural areas, provides community open space, reduces total construction costs, protects water quality, and promotes watershed protection.*

**First Recommendation – Roundtable**

*The [Roundtable] acknowledges that properly designed open space developments do reduce impervious cover, promote open space, and improve water quality, as compared to conventional development.*

Discussion:

Staff will continue to encourage open space development where appropriate to help reduce impervious cover and improve water quality.

Recommendation:

The Committee agrees with the Roundtable and no action is necessary.

**Second Recommendation – Roundtable**

*The use of open space developments should be by-right in R-1 at base density, with adequate ordinance provisions for new development adjacent to existing residential development in order to protect the character of existing conventional development.*

Discussion:

The Committee concurs with this Roundtable recommendation; however, the Committee has concerns that the current Cluster Ordinance "as is" does not have adequate provisions to ensure that open space developments will be properly designed or implemented nor does the ordinance contain adequate provisions to protect the character of existing conventional

subdivisions from new development adjacent to existing residential development. In addition, the current Cluster Ordinance predates the most recent Chesapeake Bay Preservation Ordinance amendments as well as the administrative policies for the Yarmouth Creek and Powhatan Creek watershed management plans most recently adopted by the Board of Supervisors.

Possible improvements to the current Cluster Ordinance were identified (discussed in Appendix VI.). However, the Committee concluded that the task of rewriting the Cluster Ordinance to ensure proper open space development design that achieves the objectives of this principle is outside the scope of this Committee and would require additional input and direction from the Planning Commission, the Board of Supervisors, and other interested parties. Therefore, the Committee is forwarding its recommendations for improvements to the current ordinances and procedures to the Planning Commission and Board of Supervisors.

**Recommendation:**

The Committee recommendations regarding open space development are based on the premise that environmental benefits are derived from this conservation-type form of development that maximizes natural open space preservation, avoids environmentally sensitive areas, and minimizes impervious cover and site disturbance. The Committee's detailed assessment of the current Cluster Ordinance recommendations is contained within Appendix VI. An example of open space design guidelines is provided in Appendix VII and an example of open space development, maintenance, and ownership language from the Code of Hanover County, Virginia is provided in Appendix VIII.

**Third Recommendation – Roundtable**

*The Planning Commission and the Board of Supervisors, with broad-based stakeholder input, should consider if the time requirement and complexity of the existing special use permit (SUP) process:*

- 1) Creates a barrier to allowing R-1 and R-2 open space developments with densities above the base density, and*
- 2) Provide adequate incentives to ensure additional environmental protection.*

**Discussion:**

Through the course of our discussions, this Committee determined that the question of incentives and disincentives or barriers is multifaceted. Prior to finalizing any of the recommendations, more stakeholder input is required to address perceived versus actual barriers and develop an effective incentive program. Because "time is money", the Committee believes that a more predictable and expedient approval process (whether by-right or SUP) would encourage more open space development.

However, other barriers contribute to the reasons that applicants avoid applying open space development techniques and implementing optimum environmental protection measures. For instance, some developers avoid the open space approach because of the financial uncertainty associated with trying something "new". The Committee generally believes the County needs to explore other possible innovative incentives besides "reduced infrastructure costs" and density bonuses.

**Recommendation:**

The Committee recommends conducting a stakeholder work session to identify disincentives and strategize on effective incentives. The Committee recommends that either the Policy Committee or another specially charged committee should conduct at least one public hearing and a work session during an investigation of possible changes to the Cluster Ordinance to address the suggestion that broad-based stakeholder input is included. The Committee further recommends that one or more members of the Better Site Design Implementation Committee be included in the process. Finally, the Committee recommends that as a component of the process, an educational session for staff, PC, BOS, stakeholders, and members of the public be held with one or more experts on open space design.

**Principle 11 – Setbacks, First Recommendation**

*In cases where open space development is not possible, relax setbacks to achieve greater flexibility of design, minimize driveway lengths for housing, reduce grading areas, minimize land disturbance for construction, and promote the efficient use of land.*

**First Recommendation – Roundtable**

*For conventional development, reduce the minimum front setbacks to 25 feet in the R-1 and R-2 residential zones.*

**Discussion:**

The Committee notes that currently, the minimum front setback for structures located in R-2 Zoning Districts is 25 feet.

**Recommendation:**

Staff developed a memorandum and an ordinance amendment to the R-1 zoning districts to reduce the front setback per the recommendation. The Committee supports the staff-developed ordinance (Appendix IX.).

**Principle 12 – Sidewalks - Roundtable**

*Promote more flexible design standards for residential subdivision sidewalks. Where practical, consider locating sidewalks on only one side of the street and providing common walkways linking pedestrian areas.*

### **First Recommendation - Roundtable**

*Eliminate the mandatory requirements for sidewalks on both sides of all streets for low density (0-4 du/acres) and moderate density (4-12 du/acre) developments.*

#### **Discussion:**

James City County Zoning Ordinance does not require sidewalks on two sides of the street. The residential Cluster Ordinance (County Code, Chapter 24, Article VI, Division I) outlines certain items, including sidewalks on both sides of the street, the provision of which allows for specified densities of development.

#### **Recommendation:**

The Committee recommends no action on this recommendation given that the Cluster section of the Zoning Ordinance provides for trails and/or sidewalk combinations and there is a mechanism in this section of the ordinance that allows for a waiver or a modification of such requirement. As a result, the Committee determined that the flexibility recommended by the Principle already exists.

### **Second Recommendation - Roundtable**

*Where practical, sidewalks shall be sloped such that they drain to a pervious surface to allow runoff to infiltrate.*

#### **Discussion:**

The Committee discussed several ways to achieve this recommendation, including trying to codify the requirements. In the final analysis, the Committee decided to have the Environmental Division include standards for design in the Low Impact Design section of the COUNTY BMP Guidelines manual. Through discussions with VDOT, consideration of allowing sidewalks to drain to pervious surfaces will be considered on a case-by-case basis, subject to potential liability issues.

#### **Recommendation:**

The Committee suggests that the Environmental Division develop a Low Impact Development section to the *James City County Guidelines for Design and Construction of Stormwater Management BMP's* to address guidelines for design, installation, and maintenance of sidewalks, where those sidewalks are intended to be used as credit for LID.

### **Third Recommendation - Roundtable**

*Non-monetary incentives should be offered to developers to use alternative pavement materials and promote low impact development. For example, the use of these materials should be able to satisfy stormwater management criteria.*

#### **Discussion:**

The Committee interpreted the “non-monetary incentives” as a 10-point BMP-type credit that might enable developers to derive credit similar to open space credit. The Committee discussed several non-monetary incentives for the use of sidewalks as LID features. The Committee concluded that incentives, such as stormwater management crediting, are already in place.

Recommendation:

The Committee agrees with the Roundtable and, although having determined that no action is necessary to achieve the recommendation, concludes that additional clarification within the JCC BMP Guidelines would be beneficial. Therefore, the Committee does recommend that a LID section or separate manual be included in the JCC BMP Guidelines manual. This LID section should identify sidewalk design characteristics required to classify the sidewalks as an LID feature suitable for stormwater management credit.

**Principle 13 – Driveways and Alternative Surfaces - Roundtable**

*Reduce overall lot imperviousness by promoting alternative driveway surfaces and shared driveways that connect two or more homes together.*

**First Recommendation - Roundtable**

*Incentives should be available for developments that reduce impervious cover through the use of shared driveways and alternative surfaces.*

Discussion:

Possible incentives were discussed by the Committee members. One suggestion was an Environmental Award or some kind of recognition that the developers could use as a marketing tool.

Recommendation:

The Committee recommends that the use of shared driveways and/or alternative surfaces be included as part of the checklist that is used to evaluate projects for the PRIDE award discussed in Principle 9. In addition, the Committee recommends that these items are considered as part of the LID section of the BMP manual so that stormwater credit may be given.

**Second Recommendation - Roundtable**

*A maintenance agreement should be available to developers and should be required to be resigned/re-activated by landowners at time of sale.*

Discussion:

It was noted that in the ordinance, shared driveways are only addressed with regards to minor subdivisions. This should be changed to include major subdivisions as well.

Recommendation:

A standard shared maintenance agreement has been developed and will be available on the County website (see Appendix X.). The Committee supports this endeavor.

**Principle 14 – Open Space Management - Roundtable**

*Clearly specify how community open space will be managed and designate a sustainable legal entity, such as a homeowners association, responsible for managing both natural and recreational open space.*

**First Recommendation – Roundtable**

*Conduct proactive, annual re-education opportunities geared toward managing and sustaining water quality improvement practices, areas, and facilities.*

Discussion:

The Committee determined that the efforts associated with this recommendation correspond with the goals and program elements of the existing PRIDE program.

Recommendation:

The Committee recommends that the PRIDE program take responsibility for the activities associated with this recommendation. The homeowner BSD brochure developed by PRIDE (see Principle 17) and reviewed by this Committee can be used to educate communities (see Appendix XI.).

**Second Recommendation - Roundtable**

*County and developer guidance for homeowners associations (HOAs) should be made more explicit on how to manage conservation areas and should include responsibilities and a checklist of standard management measures and benefits.*

Discussion:

Committee discussion for the second and third recommendation focused on how to implement these recommendations and establish standard procedures during the development process (from plan design, approval, implementation, County oversight and inspection during construction, release of bonds, and finally transfer of maintenance responsibility to HOAs) to ensure that land, established as natural open space and conservation areas, is maintained as such during the development process and later by HOAs. The Committee determined that natural open areas and ownership (common area HOA, public conservation easement, or private conservation easement) should be shown on a map/plat. This map

should be referenced in the homeowner by-laws and conveyed to the homeowners association by the developer or the County, when the development is turned over to the HOA. The Committee also determined that characteristics and uses of “natural” open space should be included in the code.

**Recommendation:**

The Committee recommends that:

1. The County incorporate, into code, a definition for “natural” open space/area that outlines the desirable characteristics, permitted uses, types of ownership, and maintenance associated with “natural” open space.
2. Require applicants to identify “natural common open space” on preliminary and final plats, clearing and grading plans, and landscape plans to ensure that the area is protected and preserved during construction and after completion of development.
3. Either the Planning Department or the Environmental Division should confirm, through each stage of inspection, that the natural open area is protected, revegetated (if necessary), and maintained during construction and at project completion.
4. The PRIDE program should assume the responsibility of developing a checklist and guidance (see Homeowners BSD brochure) which can be provided to HOA. In addition, a final plat should be provided to the HOA. The plat should be referenced in the HOA by-laws in order to ensure that the information is available in future years.
5. HOA associations can be educated through PRIDE and Neighborhood Connections.

**Third Recommendation- Roundtable**

*A portion of open space in new residential developments should be managed in a natural condition. It should be specified how it will be managed (public, private, park, etc.). In higher density zoning districts, open space should consist of a balance between natural areas and passive or active recreation areas.*

**Discussion:**

The open space development technique by Randell Arendt recommends that approximately 50% of open space in a low to moderate density subdivision should be preserved and maintained as natural open space. Definitions for types of open space within the zoning ordinance include “*open space*” and “*landscaped open space, area, strip.*” “Common open space” is a general term defined in the subdivision ordinance, which may include any land or area of water within a development that is held in common with other owners of the development. If the open space is within an RPA or Natural open space easement, then according to the



subdivision ordinance, the applicant is required to note the following on the plat:

“Wetlands and land within resource protection areas shall remain in a natural undisturbed state except for those activities permitted by section 23-7 (c) (1) of the James City County Code.”

and

“Natural open space easements shall remain in a natural undisturbed state except for those activities referenced on the deed of easement.”

If the open space is a landscaped open space or area (as defined in the zoning ordinance), it will be characterized and defined in a Landscape Plan according to the Landscape Section of the Zoning Ordinance. If the open space is a common area, which was not used as “natural open area” to comply with the JCC 10-Point BMP system; then the County does not require the applicant to differentiate between landscaped and natural common areas on the plat.

Recommendation:

See discussion and recommendation for 2<sup>nd</sup> recommendation. Also, refer to Appendix VIII for an example of the Hanover County, Virginia code regarding open space ownership and maintenance.

**Principle 15 – On-site Sewage Disposal Systems - Roundtable**

*Routine maintenance and repair of on-site sewage systems (OSDS) should be required and enforced. Homeowner education on the regulations and maintenance requirements of on-site sewage disposal systems should occur on a regular basis to promote proper system function.*

**First Recommendation - Roundtable**

*JCC should continue to utilize and enforce existing Chesapeake Bay Preservation Ordinance provisions for on-site sewage disposal system maintenance.*

Discussion:

Discussion centered on the Chesapeake Bay Ordinance enforcement requirements for septic system pump out. In an effort to enforce the Ordinance in 2000, the Environmental Division sent out letters to everybody on record as having a septic system and identified approximately 600 landowners whose systems were in non-compliance. However, no further action was taken to enforce septic system pump outs. The Environmental Division is now

sending out letters in batches of 50 to 100 and following up with some type of legal action on those who are in non-compliance.

Recommendation:

The Committee agrees with the Roundtable on this principle. However, because compliance with the Ordinance provisions has been mixed, this Committee recommends that the Environmental Division identify alternative means of enforcement for those cases where repeated non-compliance has been demonstrated. For example, the County could implement a pump out maintenance program similar to the grinder pump maintenance program where the owners of septic tanks who have been repeatedly in non-compliance are charged a maintenance fee with the County responsible for the septic tank pump out.

**Second Recommendation - Roundtable**

*The County should consider incentives for promoting the use of alternative systems where conventional on-site sewage treatment practices are typically utilized.*

Discussion:

The Committee discussed what possible incentives could be considered. The Committee discussed whether some form of tax incentive could be implemented at the County level.

Recommendation:

The Committee recognized that input from other County departments and/or divisions would need to be sought to pursue this type of incentive and recommended staff follow up with the appropriate parties.

**Third Recommendation - Roundtable**

*If alternative systems are utilized, routine maintenance should be required and enforced.*

Discussion:

The Committee discussed what possible incentives could be considered. The Committee discussed whether some form of tax incentive could be implemented at the County level.

Recommendation:

The Committee supports the recommendation of routine maintenance for alternative septic systems and recommends that the Environmental Division develop an enforcement procedure where these types of systems are used.

**Principle 16 – Infill and Redevelopment - Roundtable**

*Redevelopment and infill reduce the demands on areas outside of the Primary Service Area, minimize additional impervious cover, reduce sprawl, and promote environmentally sound techniques that enhance and preserve water quality.*

**First Recommendation - Roundtable**

*Encourage environmentally-sound landscaping practices, building, and redevelopment techniques, as applicable.*

**Discussion:**

The Committee agrees with the Roundtable recommendation.

**Recommendation:**

Staff will continue to encourage engineers and developers to pursue the use of environmentally sound landscaping practices, environmentally sound building practices, and environmentally sound redevelopment techniques as applicable for all infill and redevelopment sites.

**Second Recommendation – Roundtable**

*Promote land redevelopment and infill practices that minimize site disturbance and impervious surfaces.*

**Discussion:**

The Committee agrees with the Roundtable recommendation.

**Recommendation:**

Staff will continue to promote (among engineers and developers) those infill and redevelopment practices that minimize impervious surfaces and site disturbances to preserve water quality.

**Principle 17 – Buffer Systems - Roundtable**

*Create a naturally vegetated buffer system along all perennial streams that also encompasses critical environmental features such as the 100-year floodplain, steep slopes, and freshwater wetlands.*

**First Recommendation - Roundtable**

*Provide homeowners with a brochure at closing, or after closing, that lists plants that homeowners typically prefer in buffers and other areas with comparable preferred alternative plants. The brochure should include photographs and locations where the plants can be purchased.*

**Discussion:**

Discussion centered on how to best compile the information and get it into the hands of new homeowners. The PRIDE program agreed to write and publish a homeowner BSD brochure.

Recommendation:

Committee members have worked with the PRIDE program, Virginia Cooperative Extension Service for James City County/New Kent County, the JCC/Williamsburg Master Gardener Association, and the John Clayton Chapter Virginia Native Plant Society to draft a brochure for homeowners. The brochure includes discussions on the importance of natural open space and natural vegetated buffers around resource protection areas (RPA) and intermittent streams, how to maintain the natural areas, and a recommended native plant list. The Committee recommends that the PRIDE program work with the Real Estate Division, Peninsula Homebuilders Association, Homeowners Associations, and the Master Gardener Association to target the new and existing homeowner audience.

**Second Recommendation - Roundtable**

*Display posters at nurseries and garden centers that have the same information as the brochure discussed in the first recommendation.*

Discussion:

This Committee met with Ms. Beth Davis, PRIDE Environmental Education Coordinator, and discussed how PRIDE works with several nurseries and garden centers on citizen education efforts.

Recommendation:

The Committee recommends that the PRIDE program continue on-going efforts to provide citizen education in all forms as suggested in the principle.

**Third Recommendation - Roundtable**

*Educate employees of nurseries and garden centers. However, this may need to be a continuous program since there may be high employee turnover.*

Discussion:

At the Committee/PRIDE meeting, Ms. Davis also discussed how PRIDE works with several nurseries and garden centers to address employee education efforts.

Recommendation:

The Committee recommends that the PRIDE program continue on-going efforts to provide citizen education in all forms as suggested in the principle.

#### **Fourth Recommendation - Roundtable**

*Garden center education avenues should reach “big box” centers (i.e. Lowe’s) as well as “mom and pop” stores.*

##### **Discussion:**

At the Committee/PRIDE meeting, Ms. Davis discussed how PRIDE works with several big box stores to address citizen education efforts.

##### **Recommendation:**

The Committee recommends that the PRIDE program continue on-going efforts to provide citizen education in all forms as suggested in the principle.

#### **Fifth Recommendation – Roundtable**

*Local native plant society should be further explored as a source of native plants for homeowners.*

##### **Discussion:**

PRIDE worked with the John Clayton Chapter of the Virginia Native Plant Society (Society) to develop a native plant list that is commercially available. In addition, PRIDE is working with the Society as well as several other nurseries to encourage them to become native plant seed sources.

##### **Recommendation:**

The Committee recommends that the PRIDE program continue to work with local nurseries and the John Clayton Chapter of the Virginia Native Plant Society to develop local native seed sources and plant materials for homeowners.

#### **Sixth Recommendation - Roundtable**

*JCC should use avenues already in place to educate residents, including articles in the Gazette and by expanding the current education program with nurseries to include the “big box” stores.*

##### **Discussion:**

At the Committee/PRIDE meeting, Ms. Davis also discussed how PRIDE is working with several big box stores and the Virginia Gazette for citizen education efforts.

##### **Recommendation:**

The Committee recommends that the PRIDE program continue on-going efforts to provide citizen education in all forms as suggested in the principle.

#### **Seventh Recommendation - Roundtable**

*JCC should provide information on native plantings for homeowner association newsletters, which are often looking for information to print.*

##### **Discussion:**

The Committee discussed how to compile a list of natural vegetation for homeowners based on the Virginia Cooperative Extension and commercial lists to ensure availability of native plantings. The PRIDE program should develop a program on native plantings for this specific purpose.

##### **Recommendation:**

The Committee recommends that the PRIDE program continue on-going efforts to develop educational pamphlets or programs for native plantings for homeowner association newsletters.

#### **Eighth Recommendation - Roundtable**

*The County should provide an incentive for the protection of intermittent stream buffers by incorporating them into the County's 10-point system. Points received for protecting intermittent stream buffers as open space should have higher value than general open space protection on a site.*

##### **Discussion:**

The Committee met with Scott Thomas, COUNTY Environmental Division, to discuss the County's 10-point system and what types of development practices qualify for point credit. The Committee was informed that, although they are not specifically called out, intermittent streams can be used for point credit in the current BMP manual and because of their position within the landscape, they would qualify for 'extra' credit. Committee members recommended that intermittent streams be specifically identified in the BMP manual.

##### **Recommendation:**

The Committee recommends that intermittent streams be specifically listed as a type of open space in the BMP manual and recommends that all Committee-proposed BMP manual revisions be addressed at the same time.

#### **Ninth Recommendation – Roundtable**

*The County and private developers should utilize homeowner associations as an avenue to educate homeowners on the protection of intermittent streams.*

Discussion:

Committee discussions regarding homeowner education centered on the optimum method for ensuring that homeowners received appropriate educational materials recommended by the Roundtable. The Committee concluded that one brochure should be developed through the PRIDE program. As discussed previously, members of the Committee worked with PRIDE and other parties to develop this homeowner BSD brochure.

Recommendation:

The Committee recommended that the PRIDE program incorporate language within the homeowner BSD brochure that educates the public on the importance of protecting intermittent streams and stream buffers. The Committee has reviewed the preliminary brochure to ensure that this language is included and concludes that the aforementioned distribution strategy for this brochure will satisfy the objectives of this BSD principle.

**Principle 18 – Buffer Maintenance - Roundtable**

*The riparian stream buffer should be preserved or restored with County-approved vegetation that can be maintained throughout the plan review, delineation, construction, and occupancy stages of development.*

**First Recommendation – Roundtable**

*The County should revisit its approved plant list and consult with the College of William and Mary and other stakeholders to update the list.*

Discussion:

An approved plant list has been developed through consultation with The College of William and Mary, Virginia Cooperative Extension, and the John Clayton Chapter of the Virginia Native Plant Society. A brochure was developed using this information.

Recommendation:

The Committee recommends that the approved plant list be reviewed and updated periodically to ensure that the list remains relevant.

**Second Recommendation - Roundtable**

*Educate homeowners on the importance of stream buffers, the appropriate plants to use, and the stream buffer regulations.*

Discussion:

The Committee agreed to investigate the possibility of a relationship with the Real Estate Division to notify new homeowners through lot-specific conservation education. Furthermore, the different educational brochures created for other recommendations can be used here.

Recommendation:

As stated previously, the Committee recommends that the PRIDE program utilize the homeowner BSD brochure to implement this Roundtable recommendation.

**Principle 19 – Clearing and Grading – Roundtable**

*Clearing and grading of forests and native vegetation at a site should be limited to the minimum amount needed to build lots, allow access, and provide fire protection. A portion of any community open space should be managed as protected green space in a consolidated manner.*

**First Recommendation – Roundtable**

*The County does not have erosion and sediment control inspection or enforcement authority for construction associated with public utilities within residential subdivisions and commercial development projects. The County and the Peninsula Housing and Builders Association should jointly petition the State to request that this authority be given the County. This would be restricted to inspection and enforcement of erosion and sediment control practices for utility construction within individual residential subdivision and commercial development projects.*

Discussion:

The Committee discussed polling the development community, having PHBA draft a letter to the State in cooperation with the County, and contacting the utilities directly in order to gain enforcement authority for the County over utility maintenance and installation. Mr. Robert Duckett, Director of Public Affairs, PHBA, wrote a letter to the Department of Conservation and Recreation asking that erosion and sediment control inspection and enforcement be granted to James City County (see Appendix XIV for letter and response).

Recommendation:

The Committee strongly urges PHBA to keep the pressure on the State either to enforce the regulations at the State level or to permit willing localities the authority to enforce the regulations themselves.



### **Principle 20 – Tree Conservation – Roundtable**

*Conserve trees and other vegetation at each site by planting additional vegetation, clustering tree areas, and promoting the use of native plants. Where practical, manage community open spaces, street rights-of-way, parking lot islands, and other landscaped areas to promote natural vegetation.*

### **First Recommendation – Roundtable**

*A conceptual site plan review meeting may provide a forum for identifying tree conservation and open space preservation opportunities on development sites. This Roundtable supports the continued use of the voluntary conceptual plan review process for all developments.*

#### **Discussion:**

Two Committee members recently attended a Sustainable Building Practices seminar. All three keynote speakers at the seminar, including an environmental engineer, an environmental consultant from WEG, and open space development designee Randall Arendt recommended that developers conduct the site analysis prior to developing a conceptual plan. The site-specific data should then be used to guide the conceptual plan development and review.

This approach was discussed with all Committee members and with Environmental staff. All concurred that this approach has a number of benefits including: reduced plan review and approval time; increased environmental sensitivity of development; more effective stormwater management systems; and advice to and guidance for applicants early in the design process (prior to engineering expenditures associated with the preliminary plat/site plan design).

#### **Recommendation:**

The Committee agrees with the Roundtable recommendation. Staff will continue to encourage engineers and developers to pursue the use of the conceptual site plan review process. In addition, the Committee recommends that the conceptual site plan review process include a detailed site analysis that includes RPAs and other primary and secondary conservation features (see Appendix VII for a list of potential conservation features).

### **Principle 21 – Conservation Incentives - Roundtable**

*Incentives and flexibility such as, but not limited to, density compensations, buffer averaging, property tax reduction, stormwater credits, and by-right open space development should be considered to promote the conservation of stream buffers,*

*forests, meadows, rare species, or unique habitat, and other areas of environmental value over and above current regulations. Additional off-site mitigation consistent with locally adopted watershed management plans should be considered where on-site credit is not possible.*

**First Recommendation - Roundtable**

*Expand the list of open space options that may receive points under the 10-point system. In particular, the County should assign higher point values to priority conservation areas identified in the County's watershed management plans, to buffers that are preserved along intermittent streams, and in consultation with the Department of Conservation and Recreation Division of Natural Heritage, to areas that provide habitat to rare or threatened species.*

**Discussion:**

The types of open space discussed in this recommendation already are assigned extra point values with the current 10-point system and may receive extra point value based upon the landscape position of the open space. The Committee reviewed the open space section of the current BMP manual and determined that some clarification or specification of these types of open spaces is warranted.

**Recommendation:**

The Committee recommends that the Environmental Division consider reconvening the Stormwater Task Group to address BMP manual revisions. Furthermore, the Committee recommends that the BMP manual revisions specifically include the types and characteristics of open space that can receive points under the 10-point system.

**Second Recommendation – Roundtable**

*With broad-based stakeholder input, the Planning Commission should examine possible incentives and means of flexibility and make recommendations to the Board of Supervisors.*

**Discussion:**

The Committee concurs with this recommendation and feels that this issue is somewhat related to the third recommendation for Principle 10 “Open Space Development”. In addition, the Committee concluded that this issue should be addressed during the BMP manual revision process.

**Recommendation:**

The Committee recommends that the Planning Commission address this issue during the work session recommended for

Principle 10. The results of the work session should be considered by the Environmental Division during the BMP manual revision process. The Committee also recommends that the Environmental Division consider design and management criteria.

**Principle 22 – Stormwater Management – Roundtable**

*Stormwater runoff from new development should be treated per the James City County Chesapeake Bay Preservation Ordinance and the Erosion and Sediment Control Ordinance.*

**First Recommendation - Roundtable**

*The Roundtable supports this principle and acknowledges that there are no impediments to its implementation in James City County ordinances and regulations.*

**Discussion:**

Environmental Division staff will continue to pursue stormwater compliance on all development projects, per current ordinances and approved stormwater management plans.

**Recommendation:**

The Committee agrees with the Roundtable recommendation: there are no impediments for stormwater compliance through the implementation of current ordinances and regulations.

**Principle 23 – Parking Lot Runoff - Roundtable**

*Wherever possible, provide stormwater treatment for parking lot runoff using bioretention areas, filter strips, and/or other practices that can be integrated into required landscaping areas and traffic islands.*

**First Recommendation - Roundtable**

*The County should adopt a formal program that defines acceptable low impact development practices and provide credits for their use.*

**Discussion:**

The Committee reviewed a New Kent County LID manual and determined that the County should develop a similar LID section in the BMP manual.

**Recommendation:**

The Committee agrees with the Roundtable recommendation and encourages the Environmental Division to incorporate a LID section into the BMP manual during the revision process.

### **Second Recommendation - Roundtable**

*The County should encourage the use of pervious surfaces (i.e. turf) in overflow parking areas.*

#### **Discussion:**

Staff will continue to encourage pervious surfaces in overflow parking areas where appropriate to help reduce overall development site imperviousness at all opportunities.

#### **Recommendation:**

The Committee agrees with the Roundtable recommendation. Staff will encourage applicants, as appropriate, as development plans come forward. Staff will also provide applicants with the porous pavement brochure (see Appendix III) as appropriate.

### **Principle 24 – Rooftop Runoff - Roundtable**

*Direct rooftop runoff to pervious areas such as yards, open channels, or vegetated areas and avoid routing rooftop runoff to the roadway and the stormwater conveyance system.*

### **First Recommendation - Roundtable**

*Investigate allowing extra stormwater management points to be earned through careful management of rooftop runoff.*

#### **Discussion:**

The Committee discussed addressing this recommendation through modifications to the BMP manual.

#### **Recommendation:**

The Committee recommends that the Environmental Division address incorporation of rooftop runoff management into the BMP point system during the BMP manual revision process.

### **Second Recommendation – Roundtable**

*JCC should provide credit within the stormwater management points system for the reuse of stormwater for irrigation.*

#### **Discussion:**

The Committee discussed addressing this recommendation through modifications to the BMP manual.

#### **Recommendation:**

The Committee recommends that the Environmental Division address inclusion of “reuse of stormwater for irrigation” into the BMP point system during the BMP manual revision process.

## Summary

The table at the beginning of this document summarizes work that has already occurred, as well as specifying the recommended responsible party and action for the remaining items. Overall, the major remaining items include:

- Development of a Better Site Design (BSD) checklist
- Incorporate BMP manual revisions for Low Impact Development (LID) principles and BSD elements
- Consideration of ordinance changes (Cluster Ordinance) and policy development regarding street widths
- Development and/or continuation of a variety of educational materials

## Additional Opportunities

The preparation and publication of the BSD document entitled *Recommended Model Development Principles for James City County, Virginia* represents progress in identifying areas in which the County can enact and encourage change in standard development techniques to:

1. reduce overall site impervious cover;
2. preserve and enhance existing natural areas;
3. integrate stormwater management; and
4. retain a marketable product.

The final goal of implementing these BSD techniques is to protect County wetlands, surface waters, and the Chesapeake Bay. BSD techniques are only effective if applied and a key component in implementation of these principles is education of all interested parties: staff, legislators, the development community, county citizens, local businesses, etc. The BSD publication has been available, through the County website, for a number of years and many of the BSD principles can be applied now. Lately, through the encouragement of some staff and legislators, some of BSD features have been proposed for several future developments. However, members of this Committee have noted that knowledge of BSD principles and techniques varies among County staff, legislators, and planners/engineers within the development community. This inconsistency and lack of knowledge and training is a major hurdle in implementing the BSD principles. Opportunities are lost during the design review process if staff or legislators do not request inclusion of BSD features in a development plan.

As a result, the Committee strongly recommends that the County conduct a one-day, internal BSD training seminar to educate staff, Planning Commissioners, and the Board of Supervisors. This internal seminar should train attendees on the benefits of BSD; how

to encourage applicants, early in the design and approval process, to apply BSD techniques; and how to respond to typical misconceptions associated with BSD techniques.

## **Appendix I.**

- Peninsula Housing and Builders Association letter to Department of Conservation and Recreation (DCR) regarding utility companies and erosion and sediment control enforcement
- DCR response letter



**PENINSULA HOUSING & BUILDERS ASSOCIATION, INC**  
**760 MCGUIRE PLACE, NEWPORT NEWS, VA 23601**  
**www.penhousing.com • 757-595-1600 • 757-595-8983 FAX**

February 21, 2007

Joseph H. Maroon, Director  
Department of Conservation and Recreation  
203 Governor Street  
Richmond, VA 23219-2094

Dear Director Maroon,

The Peninsula Housing & Builders Association, James City County, The Center for Watershed Protection and the Alliance for the Chesapeake Bay co-sponsored "Builders for the Bay" in 2004. This collaborative effort solicited input from a broad range of stakeholders. We pushed to reach consensus on our recommendations, and the resulting document promotes 22 model site design principles.

One recommendation may be of interest to your department. During the process, a number of our member firms, as well as county environmental staff, expressed their frustration with utility companies' construction. Specifically, the disregard by utilities or subcontractors employed by utility companies for erosion and sediment (E/S) control measures that are in place prior to trenching work. E/S measures are frequently damaged or removed during trenching for power, gas or cable lines, but local governments lack enforcement authority over public utilities or subcontractors working on their behalf, and so localities are forced to demand repairs by the developer. Obviously, developers cannot force the subcontractors to repair the damage because the subcontractors are hired by the utilities.

We note Dominion Power's and Virginia Natural Gas's willingness to work toward a solution. Both utilities have provided developers with names and phone numbers of their construction supervisors that can be contacted in the event of damage to E/S measures. Both utilities assume the responsibility to repair any damages caused by subcontractors in their employ. We encourage other utilities to provide ways for developers/builders to quickly report damage to E/S measures caused by trenching activity, so that repairs can be made in a timely fashion. PHBA has been an ardent supporter of the joint trench initiative, which would coordinate installation of underground utilities and minimize environmental impact of development.

I hope your department will consider changes that permit localities to have both E/S control inspection and enforcement authority for utility construction within residential subdivisions and commercial developments. I will telephone you next week to discuss the matter further. Please feel free to contact me with any comments or questions.

Best Regards,

Robert Duckett, Director of Public Affairs  
Peninsula Housing & Builders Association



L. Preston Bryant, Jr.  
Secretary of Natural  
Resources



Joseph H. Maroon  
Director

## COMMONWEALTH of VIRGINIA

### DEPARTMENT OF CONSERVATION AND RECREATION

203 Governor Street, Suite 302  
Richmond, Virginia 23219-2010  
Phone: (804) 786-6124 Fax: (804) 786-6141

March 19, 2007

Mr. Robert Duckett  
Director of Public Affairs  
Peninsula Housing & Builders Association, Inc.  
760 McQuire Place  
Newport News, VA 23601

Dear Mr. Duckett:

Thank you for your letter of February 21, 2007, regarding your concerns with utility companies or their subcontractors frequently damaging or removing erosion and sediment control (ESC) measures during the installation of their power, gas or cable lines. In your letter you also requested that the Department consider changes that would permit localities to have inspection and enforcement authority over utility construction with residential and commercial development.

As you are aware, utility companies are required to file general erosion and sediment control specifications annually with Soil and Water Conservation Board for review and approval according to 10.1-563D of the Virginia Erosion and Sediment Control Law. In addition, utility companies are also required to develop site-specific erosion and sediment control plans according to 4VAC50-30-30 B of the Virginia Erosion and Sediment Control Regulations. These citations result in the Department having inspection and enforcement over-site of projects carried out by utility companies with DCR approved annual standards and specifications.

Our department staff has responded to a number of complaints pertaining to utility companies or more often their subcontractors damaging ESC measures. Our staff has resolved these complaints by contacting the utility company responsible for the damage and requiring them to repair the damage resulting from their activity. During complaint investigations our staff discovered that the developers of residential and commercial sites are signing contracts with utility companies for the installation of the utility. These contracts often contain a statement that

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Mr. Robert Duckett  
March 19, 2007  
Page 2

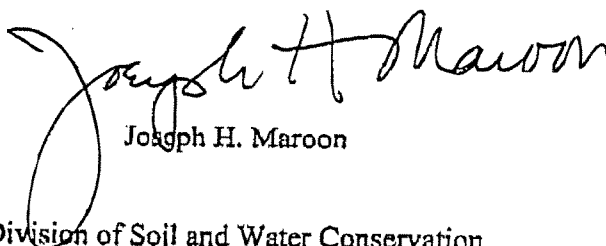
the developer is responsible for all ESC measures required or damaged during the utility installation. We believe these contracts are resulting in an increase in the damage of ESC measures on development sites during utility installation.

In an effort to address the damage of ESC measures on development sites during utility installation, DCR has increased the number of inspections on utility projects statewide. We are also considering as a condition of our approval of an annual standards and specifications that the utility company be responsible for the repairs of any damage to ESC measures that result from their activity. Further, we are considering additional measures for utilities that are repeat violators of the erosion control annual standards and specifications. For example, if DCR did not approve annual standard and specifications the utility company would have to submit an erosion and sediment control plan to the locality for approval of their land-disturbing activity, which would enable the locality to have both ESC inspection and enforcement authority.

We appreciate you bringing your concerns and suggestions to our attention. Again, the Department is willing to consider changes to address these concerns. In addition, each of our regional offices has a list of contacts for utility companies and will respond to complaints when notified. We encourage members of your association to utilize this avenue as well.

If you have further questions or concerns, please feel free to contact Jack Frye, DCR Director of the Division of Soil and Water Conservation at (804) 786-2152.

Sincerely,



Joseph H. Maroon

c: Jack Frye, Director, DCR Division of Soil and Water Conservation

## **Appendix II.**

- James City County Site Plan Checklist

**CHECKLIST OF SITE PLAN CONTENTS**  
**(Updated 10/5/2006)**

**I. COVER SHEET: GENERAL INFORMATION REQUIRED**

- ☐ A. Title of project
- ☐ B. Names of engineer, architect, landscape architect, and/or licensed surveyor
- ☐ C. Name of property owner
- ☐ D. Location map with scale no less than 1 inch = 2,000 feet
- ☐ E. North arrow
- ☐ F. Graphic and written scale
- ☐ G. Address and Tax Map ID of site
- ☐ H. Site Plan Amendments: JCC Case Number of Site Plan being amended and description of amendment
- ☐ I. Zoning of Site
- ☐ J. Calculation for Parking Requirements:
  - ◆ Use category
  - ◆ Number of spaces required
  - ◆ Number of handicapped spaces required (marked by sign)
  - ◆ Number of spaces provided
  - ◆ Justify number of spaces provided in excess of spaces required
- ☐ K. Open Space Data
  - ◆ Total site acreage
  - ◆ Total amount and percent of site covered by buildings/impervious surfaces
  - ◆ Amount, type and percent of site covered by open space
  - ◆ Total disturbed area
- ☐ L. Building Data (Existing and Proposed)
  - ◆ Total floor area of each building and floor area ratio
  - ◆ Height of each building
  - ◆ Number of floors in each building
  - ◆ Type (classification group and construction type as per the Virginia Uniform Statewide Building Code)

**CHECKLIST OF SITE PLAN CONTENTS**  
**(Updated 10/5/2006)**

- ☐ M. General Note: "All new utilities shall be placed underground."
- ☐ N. General Note: "All new signs shall be in accordance with Article II, Division 3 of the James City County Zoning Ordinance."
- ☐ O. General Note if streets are private: "All roads shall be private right-of-ways and shall not be maintained by James City County or the Virginia Department of Transportation (VDOT)."
- ☐ P. A list of any proffers or special use conditions that affect the property
- ☐ Q. Note if any waivers to the zoning ordinance have been granted.

**II. EXISTING FEATURES TO BE SHOWN**

- ☐ A. Streets: Name and route number, width of right-of-way and width of road surface
- ☐ B. Streams, bodies of water, and watercourses on this and adjacent property
- ☐ C. Property lines and setbacks
- ☐ D. Easements: Type, ownership, and dimensions
- ☐ E. Septic tank, distribution tank size and type
- ☐ F. Water supply: well and/or tank capacity
- ☐ G. Water mains on and nearby site, with sizes indicated
- ☐ H. Location of all underground utilities (i.e., compressed gas lines, petroleum lines, electricity, etc.)
- ☐ I. Culverts and underground structures on or adjacent to the property (fuel tanks, etc).
- ☐ J. Location, type, and size of all entrances to the site
- ☐ K. Existing topography (minimum five-foot contours)

**CHECKLIST OF SITE PLAN CONTENTS**  
**(Updated 10/5/2006)**

- ☐ L. Woodline before site preparation with predominant species and average diameter of trees indicated; Approximate location, type, and diameter of single trees in open areas; Average size and predominant species of trees to be removed having a diameter of 12 inches or greater
- ☐ M. Provisions for off-street parking, loading spaces, and pedestrian walkways, including sidewalks
- ☐ N. Sanitary and storm sewers on and adjacent to site (size(s) and type(s))
- ☐ O. Fire hydrants (size(s) and type(s)); Location of Fire Department connections and underground fire service lines (valve pit details, where appropriate)
- ☐ P. Indication of 100-year flood plain and flood elevation noted

**III. PROPOSED PROJECT: FEATURES TO BE SHOWN**

- ☐ A. Proposed street names and street width; proposed easements and width
- ☐ B. Entrances designed to standards as set forth in VDOT Minimum Standards of Entrances to State Highways manual, with indication as to which standard is applicable, and details of entrance
- ☐ C. Proposed finished contours where regrading is necessary, indicated at intervals of no more than two feet
- ☐ D. Landscaping plan including areas to be landscaped with approximate arrangements, plant types, and sizes
- ☐ E. Areas to be screened, fenced, and walled with heights indicated, and location of gates and openings; Fence detail provided
- ☐ F. Provisions for pedestrian and vehicular circulation and parking:
  - ◆ Location and cross sections of pedestrian walkways, sidewalks, trails and bike paths
  - ◆ Dimensions of parking spaces, traffic aisles and medians
  - ◆ Location of curbs and bumpers
  - ◆ Type of parking surface with detail of cross-section
  - ◆ Loading spaces, bus spaces and bicycle spaces (if required)

**CHECKLIST OF SITE PLAN CONTENTS**  
**(Updated 10/5/2006)**

- ☐ G. Solid waste disposal facilities: location of dumpster pad and detail of enclosure
- ☐ H. Stormwater control measures in accordance with Environmental Division requirements
- ☐ I. Location, type, and details of sedimentation and erosion control devices to be used during and after construction in accordance with Environmental Division requirements
- ☐ J. Water Supply: Well location, type, size, as per Health Department specifications; or water lines in accordance with JCSA specifications
- ☐ K. Sanitary waste disposal facilities: Septic tank and drainfield, as per Health Department specifications; or sewer lines in accordance with JCSA specifications
- ☐ L. Fire hydrants (size(s) and type(s)); Location of Fire Department connections and underground fire service lines (valve pit details, where appropriate)
- ☐ M. For multi-family residential developments: number, size, and type of dwelling units
- ☐ N. Recreational facilities: layout and type of equipment
- ☐ O. Lighting Plan: fixture height, design and illumination patterns (iso-footcandle diagrams)
- ☐ P. Location of proposed monument signage

**IV. OTHER INFORMATION**

- ☐ A. Copy of adjacent property owner notification letter
- ☐ B. Water and Sewer Data Sheets and JCSA Checklist
- ☐ C. Kitchen plans must be submitted to and approved by the Health Department if structure will contain food preparations/serving areas
- ☐ D. VDOT Subdivision and Site Plan Checklist

**CHECKLIST OF SITE PLAN CONTENTS**  
**(Updated 10/5/2006)**

- ☐ E. Environmental Checklist
- ☐ F. Homeowners Association Documents (residential only)
- ☐ G. Wireless Communications Facilities: Supplemental Checklist



## **Appendix III.**

- Porous pavement brochure - draft

## Resources

For more general information about porous pavement, please see the following sources:

Environmental Protection Agency  
<http://www.epa.gov/owm/mtb/porouspa.pdf>

The Stormwater Manager's Resource Center  
<http://www.stormwatercenter.net/>

The Cahill Associates  
<http://www.thcahill.com/pub.html>

For more detailed installation processes, please see the construction examples used for porous asphalt, pervious concrete, and grass porous pavers.

- 1 Michigan Department of Environmental Quality. "Porous Asphalt Pavement". 1 Dec. 1992. [www.deq.state.mi.us/documents/deq-swq-nps-pap.pdf](http://www.deq.state.mi.us/documents/deq-swq-nps-pap.pdf).

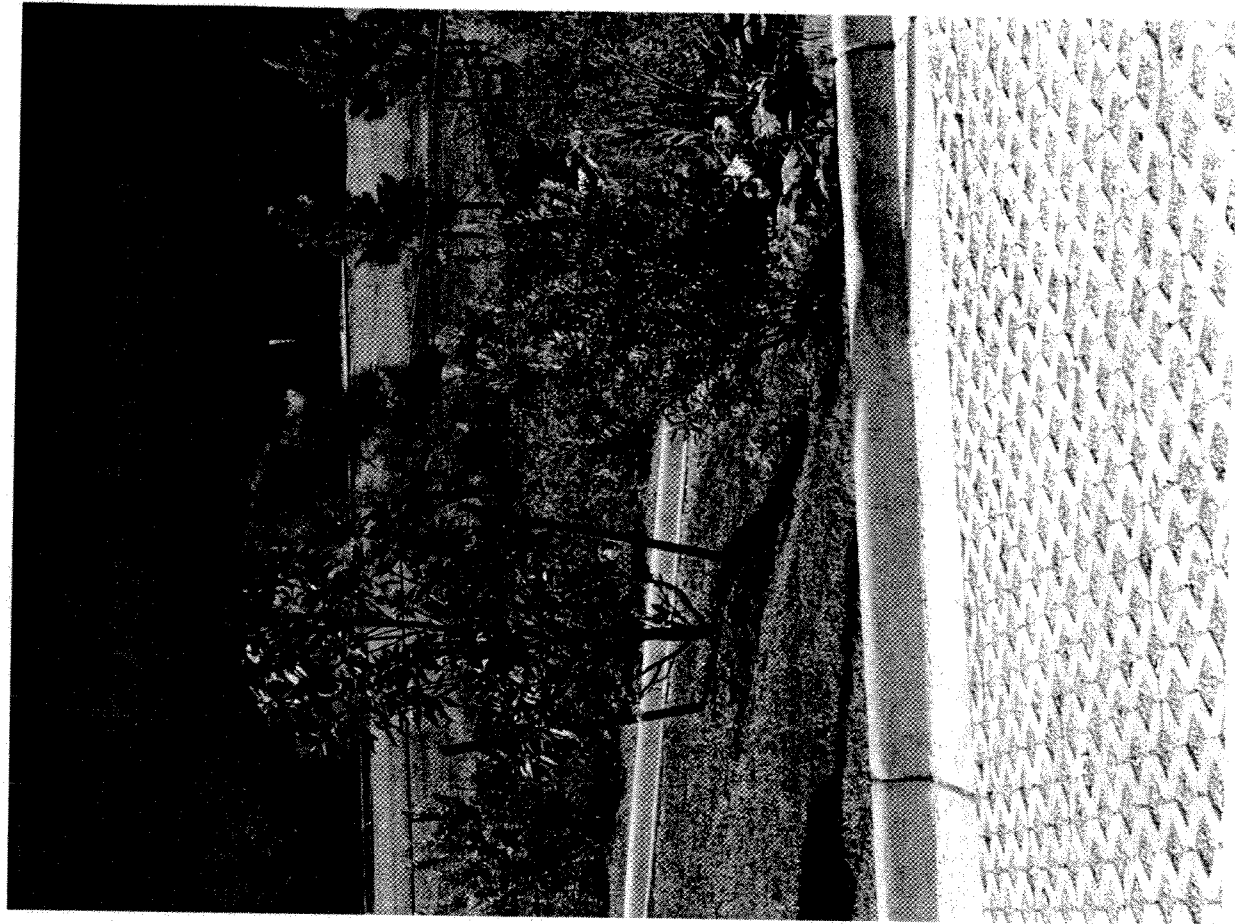
Virginia Department of Conservation and Recreation.  
"Minimum Standard 3.10: General Infiltration Practices."  
3.10 D. [www.state.va.us/dcr/sw/docs/swm/Chapter\\_3-10.pdf](http://www.state.va.us/dcr/sw/docs/swm/Chapter_3-10.pdf)

- 2 National Ready Mix Concrete Association. "Pervious Concrete: When it Rains, it Drains." 2006.  
[www.concreteparking.org/pervious/pervious.htm](http://www.concreteparking.org/pervious/pervious.htm).

National Ready Mix Concrete Association. "Construction." 2006. [www.perviouspavement.org/construction.htm](http://www.perviouspavement.org/construction.htm)

- 3 Presto Products Company. "Geoblock® System General Design and Construction Package" 2004. [www.alcoa.com/alcoa\\_consumer\\_products/prestogeo/en/solutions/Geoblock/porous\\_pavement.asp](http://www.alcoa.com/alcoa_consumer_products/prestogeo/en/solutions/Geoblock/porous_pavement.asp).

December 2006



James City County Planning Division  
101-A Mounts Bay Road  
P.O. Box 8784  
Williamsburg, VA 23187  
Phone: (757) 253-6685 Fax: (757) 253-6850

### *What is porous pavement?*

Porous pavement is a permeable pavement surface that incorporates an underlying stone reservoir made of gravel or crushed stone to allow percolation of surface runoff and materials.

### *Types of porous pavements*

There are three types of porous pavements predominantly used. These include:

- **Porous Asphalt**– Consists of an open-graded aggregate; bonded together by asphalt cement, with sufficient interconnected voids to make it highly permeable.
- **Pervious Concrete**– Consists of specially formulated mixtures of Portland cement, uniform, open-graded coarse aggregate, and water. Allows for rapid percolation of liquids through pavement.
- **Grass or Filler Interlocking Pavement**– Consists of interlocking concrete blocks or synthetic fibrous grid systems with open areas for grass to grow and/or for sand, mulch, or gravel filler.

Other porous pavement materials include porous aggregate, porous turf, plastic geocells, open-jointed paving blocks, and open-celled paving grids.

### *Advantages of porous pavements*

When implemented properly, porous pavements provide several different advantages over regular pavements. These benefits include:

- Decreases in storm water run-off
- Captures and removes heavy metals, oils, and other contaminants
- Recharges local aquifers
- Less likely for freeze thaw damage
- Grass porous pavements are very cost effective

2. The geosynthetic layer should be rolled out over the prepared subgrade, and aligned with the reinforced surface. Make sure the layer is pulled taut to ensure no folds.

3. Although the strength of the system is provide by a stable engineered base, the health of the vegetation requires that the engineered base be loose to facilitate root penetration.

4. Topsoil, not exceeding the aggregate void percentage of 30%, should be added and blended to produce a homogenous mixture prior to placement.

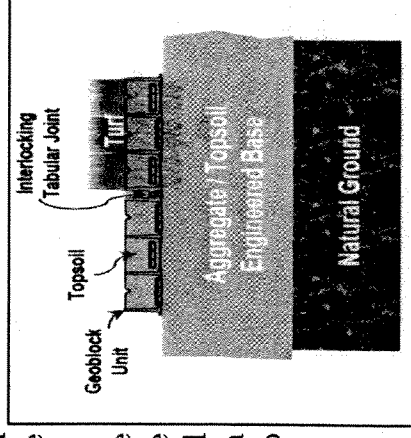
6. The engineered base mixture should be compacted to a California Bearing Ratio of 7% maximum.

7. If using for an access lane, arrange in bricklayer pattern. If the area has random traffic flow, use herringbone pattern.

8. Slide units together so the interlocking tab joint is fully engaged as shown in the picture below. Allow room for thermal expansion during placement.

9. Install Geoblock units on cooler days. The carbon black in the system has a high rate of thermal conductivity and expansion.

10. Infill the Geoblock unit with material that is appropriate for its intended application. For vegetated systems, the units should be infilled with suitable topsoil.



This picture shows how the units should slide together to that the interlocking tab joint is fully engaged.

3. Correct any irregularities, rutting, or misalignment of the subbase before placing the concrete. The concrete placement should be continuous, and spreading and strike off should be rapid. Mechanical, manual, or laser screeds can be used. Strike off about a half to three quarters of inch above form to allow compaction.
4. For consolidation, roll over the concrete with a steel pipe roller immediately after screeding. This should be done fifteen minutes after placement to avoid the hardening effect of evaporation.
5. Place control joints at least 20 feet apart to prevent cracking shortly after consolidation.
6. Directly after placing, compaction, and jointing (20 minutes max), the concrete should be fog-misted with a curing compound, and then should be covered with plastic sheeting for a minimum of seven days. High ambient temperatures and windy conditions could have an effect on curing.
7. Open pervious concrete to low traffic volumes after curing.

#### GRASS or FILLER INTERLOCKING PAVEMENT<sup>3</sup>

Grass or filler interlocking porous pavers provide the same function as porous asphalt and pervious concrete, but in a more aesthetically pleasing way (the end product being a lawn). The system components will be different depending on who produces the product. The construction example here comes from the GeoBlock® System.

1. Start excavation, allowing for the Geoblock unit thickness and the engineered base depth (where required). After adequately draining soil, finish-grade the in-situ soil as if the Geoblock units are installed without an engineered base. Eliminate large rocks and pieces of wood that could disrupt the system.

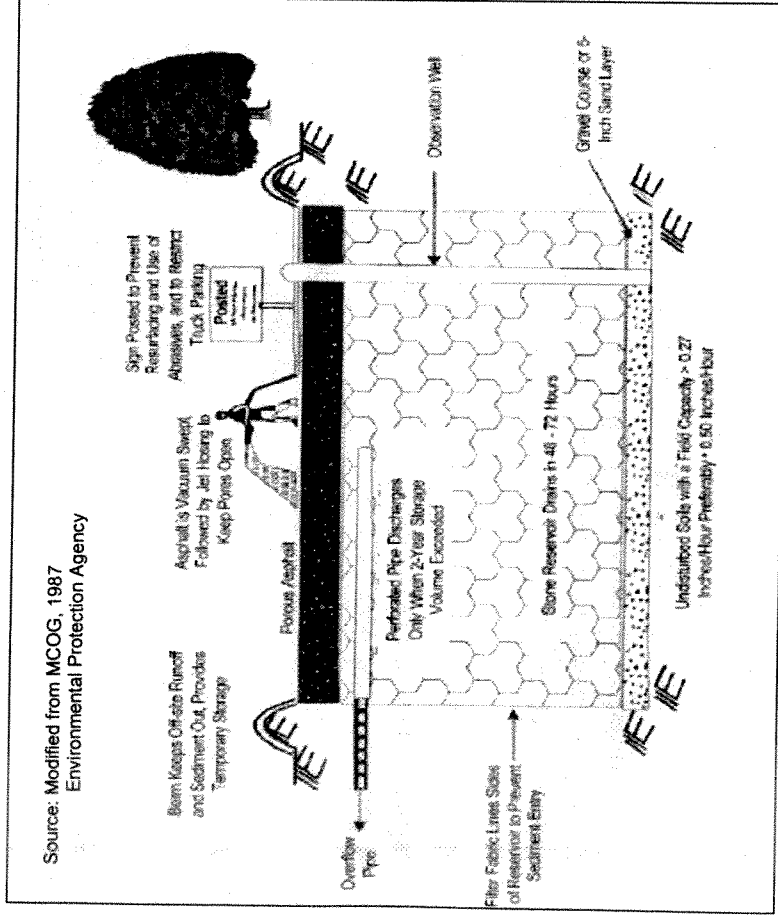
## Design and Site Considerations

Porous pavements are constrained by several different factors including:

- Soil permeability between 0.5 and 3.0 inches per hour.
- Bottom of the stone reservoir has to be completely flat so that water can infiltrate entire surface.
- Not recommended on slopes greater than 5%.
- Located at least 4 feet above seasonally high ground water table or bedrock, 100 feet from drinking water wells.
- Use only on low traffic or over flow parking areas; avoid areas with high truck traffic.
- Drainage area should be less than 15 acres. Drainage time recommended to be set at least 24 hours, with a minimum of 12 hours and a maximum of 72 hours.
- Minimum setback from building foundations: 10 feet down gradient and 100 feet upgradient.
- Avoid snow removal operations. Signs should be posted that restrict the use of sand, salt, and other chemicals.
- Design for storm water run-off is highly variable and depends on both regulatory requirements and the site.

There are five design features that should be incorporated in porous pavement practices:

- Pretreatment- Since the pavement usually acts as a pretreatment to the stone reservoir below or has a fine gravel layer above the coarse gravel treatment, clogging can occur without proper maintenance. Using an “overflow edge”, a trench surrounding the edge of the pavement, connected to the stone reservoir below the surface of the pavement will act as a backup if surface clogs occur.
- Landscaping- The objective for landscaping ensures that the drainage area is fully stabilized to prevent clogging of the pavement by sediment.



*This picture shows several site and design characteristics that demand consideration.*

- **Treatment-** The stone reservoir below the pavement surface should be composed of a small stone layer, and the stone bed below the permeable surface should be sized to attenuate storm flows for the storm event to be treated.
- **Conveyance-** A geosynthetic liner and sand layer should be placed below the stone reservoir to prevent preferential flow paths and to maintain a flat bottom. To convey larger storms to the storm drain system, storm drain inlets can be set slightly above the surface elevation of the pavement to allow for temporary ponding above the surface if it clogs.
- **Maintenance Reduction-** A carefully worded maintenance agreement is essential to the life of the porous pavement. The agreement should include specific guidance to the parking lot, routine maintenance techniques, and how to repave the surface.

5. The porous asphalt surface course should be laid directly over the aggregate base course in one lift when the air temperature is above 50°F and the layer temperature should be between 230-260°F.
6. The mix should be transported to the site in a clean vehicle with smooth dump beds sprayed with a non-petroleum release agent.
7. Compaction of the surface course should be completed with at 10-ton roller while the surface is cool. One or two passes of the roller are sufficient for proper compaction.
8. Traffic should be kept off of the porous pavement for a minimum of one day to allow proper hardening.

## PERVIOUS CONCRETE<sup>2</sup>

Pervious concrete creation, placement, and curing are usually all done on-site. Although it can be transported and mixed using the same trucks as its impervious concrete counterpart, the structural and physical characteristics of pervious concrete require specialized installation processes. The National Ready Mixed Concrete Association has established an installation process for this concrete. They also have established a certificate program for contractors who place pervious concrete.

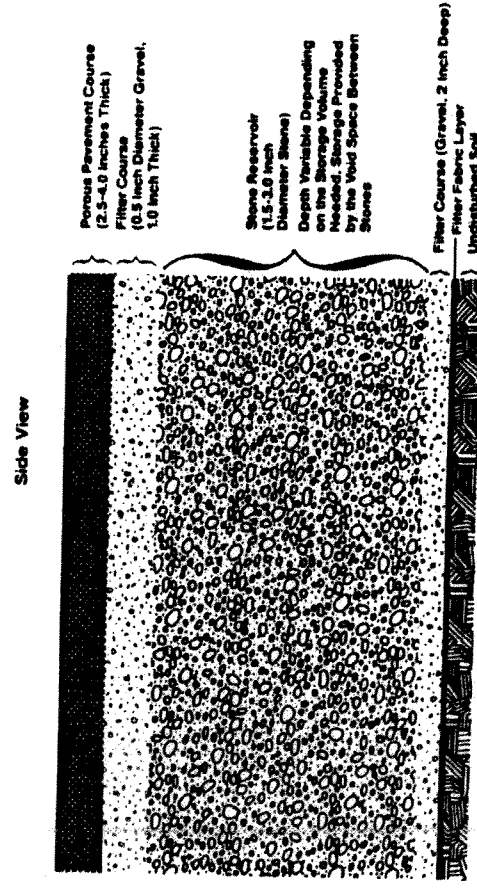
1. Since the sub-base component is critical to the pervious concrete, the installation process should pay particular attention to hydrological and structural design factors. Pay particular attention to infiltration rates of soils. Soils with a percolation rate of 0.5 inches per hour are suitable for subgrade under pervious pavements.
2. To provide adequate strength and permeability, water content is limited to a narrow range in the batching and mixing process. Pervious concrete should have a void content of 15-25%, with a 0.35-0.45 water to cementitious materials (w/cm) ratio.

## Construction

Porous pavement construction is extremely complex and is highly critical to the function and success of these permeable surfaces. This section provides construction considerations for porous asphalt, porous concrete, and grass pavers. By following these basic construction practices, you should effectively prevent failure of your porous pavement. For specific details about construction, contact the product manufacturer.

### POROUS ASPHALT<sup>1</sup>

1. Block off development area to prevent equipment from compacting underlying soils.
2. After preparing and refining the subgrade to the required grades and sections as shown on the drawing, excavation can be completed with equipment that uses tracks or oversized tires. Avoid narrow tires that may cause compaction.
3. Line the bottom and sides of the stone reservoir with filter fabric or sand.
4. Use clean crushed stone to form the reservoir or base course at a minimum depth of nine inches. A two inch layer of stone should be placed over this course.

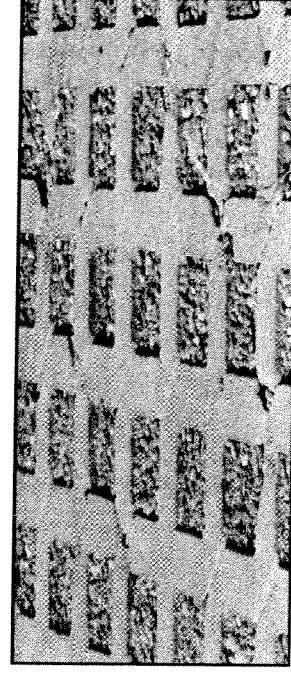


Source: Michigan Department of Environmental Quality

## Challenges of porous pavements

When porous pavements were first introduced, they had exceedingly high failure rates. Although these pavements have vastly improved over the years, there are still several challenges to overcome.

- Porous pavements require routine maintenance. Once a month, some one must ensure that the paving area is clean of debris, that it dewater between storms, and the area is clean of sediments. The area also needs to be vacuumed out at least three to four times a year, and it should be inspected annually for deterioration or spalling along the surface. Annual costs for maintenance will be about 1-2% of the construction costs.
- Traditionally, porous pavements have been more expensive than their counterparts. Porous asphalt costs much more than traditional asphalt, and modular paving stones can cost as much as 4x more. The underlying bed rock required for these pavements is much more expensive than a conventional compacted sub-base. However, less infrastructure and pipes tends to balance these out. New techniques that use recycled plastics are very cost effective and are less expensive.
- Design/Site considerations and installation are very important to the success of porous pavements. Failures that occur are mostly attributed to these factors.



This concrete porous pavement shows deterioration and spalling that can occur if construction is not done properly.

## **Appendix IV.**

- Model Shared Parking Agreement

## MODEL SHARED PARKING AGREEMENT

Tax Map Nos \_\_\_\_\_, \_\_\_\_\_

This SHARED PARKING AGREEMENT ("Agreement") is entered into and effective \_\_\_\_\_, 20\_\_\_\_, by and between \_\_\_\_\_,  
(Date) (Yr) ("Applicant" – party in need of parking)  
\_\_\_\_\_, and the County of James City, Virginia, a political  
(Supplier supplying off-site spaces)  
subdivision of the Commonwealth of Virginia (The "County" and together with the  
Applicant and supplier, the "Parties").

### RECITALS

WHEREAS, pursuant to Sections 24-55 and 24-59 of the James City County Zoning Ordinance (the "Zoning Ordinance") the County specifies criteria which must be met in order to utilize off-site shared parking agreements to satisfy on-site parking requirements.

NOW, THEREFORE, in consideration of the recitals and mutual obligations of the parties as herein expressed, \_\_\_\_\_,  
(Applicant)

\_\_\_\_\_, and The County agree as follows:  
(Supplier)

1. \_\_\_\_\_, the owner of the property located at  
(Supplier)

\_\_\_\_\_, agrees to provide \_\_\_\_\_,  
(Address of Supplier) (Applicant)

the owner of the property located at \_\_\_\_\_



*(Applicant's Property Address & Legal Description)*

with the right to the use of \_\_\_\_\_ parking spaces on  
*(# of spaces)*  
\_\_\_\_\_ from \_\_\_\_\_ as shown  
*(on the days of the week)* *(hours of the day)*  
on Exhibit A to this Agreement on property located at \_\_\_\_\_.  
*(Address of supplier)*

1.1 \_\_\_\_\_  
*(Applicant)*

Tax Map Number is \_\_\_\_\_.  
*(Parcel Number)*

Legal Description

\_\_\_\_\_  
*(Legal Description)*

\_\_\_\_\_  
*(Supplier)*

Tax Map Number is \_\_\_\_\_.  
*(Parcel Number)*

Legal Description

\_\_\_\_\_  
*(Legal Description)*

2. The number of parking spaces referred to in this Agreement have been determined to conform to current County numerical standards for parking spaces, and both the Applicant and Supplier agree to maintain the required number of parking spaces to meet County standards. The initial costs of maintaining said shared spaces (as specified in item 1 above), and all subsequent costs of maintaining said shared spaces in essentially the same condition and to the same standards and quality as said shared spaces were in when initially constructed, shall be borne by the Applicant and Supplier, their respective heirs,

successors and assigns, in the following percentages: (a) The Applicant shall be responsible for the payment of \_\_\_\_\_ percent of all such costs; and (b) the Supplier shall be responsible for the payment of \_\_\_\_\_ percent of all such costs. If maintenance responsibility for the shared spaces is split between the Applicant and Supplier, and if either fails or refuses to contribute his/their share of such costs, that party shall be subject to a lien against his/their Property in favor of the contributing party, for his share of such construction/maintenance costs plus all attorney fees and Court costs incurred in the enforcement of the lien.

Notwithstanding the foregoing, the Applicant and Supplier shall be solely responsible for the repair of all damages to the shared spaces (excluding normal deterioration, wear and tear from normal use) caused by or resulting from their use thereof and the use thereof by such Applicant's or Supplier's agents, contractors, employees, guests or invitees. The Applicant or Supplier shall effectuate the repairs for which they are responsible within fifteen (15) days from the date that such damage occurred. If the Applicant or Supplier does not promptly repair his damage within fifteen (15) days from the date that such damage has occurred, then the other party may repair the damage and shall have the right to establish and enforce a lien on the other party's Property who is responsible for the damage.

3. The Parties understand and agree that if for any reason the off-site parking spaces are no longer available for use by \_\_\_\_\_, \_\_\_\_\_  
(Applicant) (Applicant)

will be in violation of the James City County Zoning Ordinance requirements. If the off-

site parking spaces are no longer available, Applicant will be required to cease operation and use of the property at the Applicant's address or decrease such use and operation to an intensity approved by the County in order to bring the property into conformance with the Zoning Ordinance requirements for parking. Applicant and Supplier agree to waive any right to contest enforcement of the County's Zoning Ordinance in this manner should this circumstance arise. Although the Applicant may have recourse against the Supplier for breach of this Agreement, in no circumstance shall the County be obligated by this Agreement to remedy the breach. The Parties acknowledge and agree that the County may invoke any remedy provided for in the Zoning Ordinance to enforce such violation against the Applicant.

4. The initial costs of maintaining said shared spaces (as identified in item 1 above), and all subsequent costs of maintaining said shared spaces in essentially the same condition and to the same standards and quality as said shared spaces were in when initially constructed, shall be borne by the Applicant and Supplier, their respective heirs, successors and assigns, in the following percentages: (a) The Applicant shall be responsible for the payment of \_\_\_\_\_ % of all such costs; and (b) the Supplier shall be responsible for the payment of \_\_\_\_\_ % of all such costs. If maintenance responsibility for the shared spaces is split between the Applicant and Supplier, and if either fails or refuses to contribute his/their share of such costs, that party shall be subject to a lien against his/their Property in favor of the contributing party

4. The provisions and conditions of this Agreement shall run with the land for those properties referenced in paragraph 1 of this document and be enforceable against successors in interest and assigns of the Applicant and Supplier.

5. Title to, and the right to use the lots upon which the parking is to be provided will be subservient to the title to the property where the primary use it serves is situated.

6. The property or portion thereof on which the parking spaces are located will not be made subject to any other covenant or contract for use which interferes with the parking use, without prior written consent of the County.

7. This Agreement is in perpetuity and can only be terminated if replacement parking has been approved by the James City County Zoning Administrator and written notice of termination of this Agreement has been provided to the other party at least sixty (60) days prior to the termination date.

8. This Agreement shall be kept on file in the Planning Division of James City County in association with \_\_\_\_\_ and shall be recorded on the titles of those  
(Case #)  
properties referenced in paragraph 1 of this document.

In witness whereof, the undersigned have executed this Agreement.

DATED: \_\_\_\_\_ By \_\_\_\_\_  
Applicant

DATED: \_\_\_\_\_ By \_\_\_\_\_  
Party Supplying Spaces

County of James City

By: \_\_\_\_\_  
Zoning Administrator  
Planning Division  
Development Management

Approved as to form

By \_\_\_\_\_  
County Attorney

(attach notary certificates)

## **Appendix V.**

- Draft handicap stall width Ordinance amendment
  - cover memo and Ordinance language

## MEMORANDUM

Date: TBA

To: The Planning Commission

From: Jose Ribeiro, Planner

Subject: TBA

---

Staff is proposing to amend an existing ordinance section, related to Handicap Parking. The changes would be as follows:

1. In accordance with the Better Site Design Principles and the Americans with Disabilities Act, amend Section 24-56 of the Highways, Streets, Parking and Loading ordinance to reduce the Required Dimensions for Handicap Parking.

Currently, the required space dimensions for handicap parking stalls in James City County are 9' by 18'. The American with Disabilities Act requires all accessible handicap parking spots be at least 96 in (8') wide. Principle #8 of the Recommended Model Development Principles for James City County, Virginia recommends reducing the overall imperviousness associated with parking lots by, minimizing stall dimensions, incorporating efficient parking lanes, and using pervious materials in spill over parking areas. Thus, handicap parking lot widths should be reduced to 8' so the James City County ordinance compiles with the Better Site Design Principles and maintains the standards of the Americans with Disabilities Act.

### RECOMMENDATION:

Staff believes that reducing the width of handicap parking spots should be incorporated into the County Zoning Ordinance. Staff recommends the Planning Commission approve the attached ordinance amendment.

---

Jose Ribeiro

### Attachments

1. Revised Ordinance

---

ZO-x-06

ORDINANCE NO. \_\_\_\_\_

AN ORDINANCE TO AMEND AND REORDAIN CHAPTER 24 ZONING, OF THE CODE OF THE COUNTY OF JAMES CITY, VIRGINIA, BY AMENDING ARTICLE II, SPECIAL REGULATIONS, DIVISION 2, HIGHWAYS, STREETS, PARKING AND LOADING, SECTION 24- 56, HANDICAP PARKING.

BE IT ORDAINED, by the Board of Supervisors of the County of James City, Virginia, that Chapter 24, Zoning is hereby amended and reordained by amending Section 24-56, Handicap Parking.

Chapter 24. Zoning

Article II. Special Regulations

Division 2 Highways, Streets, Parking and Loading

Sec. 24-56. Handicap Parking.

Parking spaces for the handicapped and any necessary curb cuts, ramps and accessible routes to the proposed use shall be provided in and from parking areas in conformance with the regulations issued by the U.S. Department of Justice pursuant to the Americans with Disabilities Act (ADA) (See 28 CFR Part 36, Nondiscrimination on the Basis of Disability by Public Accommodations and in Commercial Facilities).

(a) *Dimensions.* The required dimensions for parking spaces and aisles shall be in conformance with those provided in the following table.

Dimensions for Handicap Parking			
Type of Handicap Space	Required Space Dimensions	Required Width of Adjacent Aisle (Aisle shall be clearly marked)	Minimum Number of Spaces Required
Standard	<del>9' by 18'</del> 8' by 18'	5-feet	Refer to Sec. 24-56(d)
Van Accessible	<del>9' by 18'</del> 8' by 18'	8-feet	1 in every 8 required handicap accessible spaces shall be van accessible, but not less than 1.

No more than two spaces may share an aisle. Each aisle shall be headed by a curb cut or ramp, with a detectable warning, to allow unimpeded access to the use.



\_\_\_\_\_  
John J. McGlennon  
Chairman, Board of Supervisors

ATTEST:

\_\_\_\_\_  
Sanford B. Wanner  
Clerk to the Board

Adopted by the Board of Supervisors of James City County, Virginia, this \_\_\_\_\_ day of  
\_\_\_\_\_, 2007.

## **Appendix VI.**

- Open Space Development Assessment and Recommendations

The recommendations by the James City County Local Siteplanning Roundtable raised several points of concern including:

1. What constitutes "properly designed open space developments"?
2. Does the County Cluster Ordinance "as is" and applied in a "by-right" manner encourage and support "properly designed open space developments" in the County?
3. Will the current ordinance ensure that the character of existing conventional R-1 subdivisions is protected if open space development is allowed "by-right" in R-1?
4. Is the current approval process (because of either time requirements or complexity) a disincentive for "open space development"?
5. Does the current approval process/ordinance provide adequate incentives to ensure additional environmental protection is incorporated into proposed development?
6. What other incentives will encourage applicants to utilize the open space development techniques and ensure additional environmental protection?

This Committee reviewed a number of documents and open space development ordinances from other jurisdictions to determine what constitutes "properly designed open space development" and how to ensure proper application of this development technique to ensure optimum results. Two members of the Committee attended a workshop and based on this review, the Committee has several observations regarding the open space development concept versus the County Cluster Ordinance.

1. Conceptually, in terms of design hierarchy, clustering is considered one possible open space design option whereas; the County Cluster Ordinance establishes "open space development" as a cluster option.
2. Unlike conventional subdivision design, the first step in the open space design process is a site analysis that identifies critical environmental, historical, and cultural site features and characteristics and guides site design.
3. The environmental benefits derived from open space development techniques are maximized if stormwater management is integrated into the very core of site design rather than developed as an afterthought in the design process.
4. Simply making open space development by-right either via the cluster option or within the R-1 ordinance is unlikely to provide enough incentive to achieve the goals and objectives of Principle 10.

In conclusion, the Committee has determined that the current County Cluster Ordinance should be amended to ensure "properly designed" open space developments, include adequate provisions to protect the character of existing conventional subdivisions, and include adequate incentives to promote the use of open space development techniques (either via by-right or SUP process).

However, this Committee determined that Cluster Ordinance revisions are outside the scope of this Committee's designated tasks because no such action is contained in the language of the original consensus document. Therefore, the Committee recommends that Planning Commission and Board of Supervisors re-examine and evaluate the Cluster Ordinance and the R-1 Ordinance and revise either or both ordinances.

The following are provided for consideration during the amendment process:

1. Definitions - In order to ensure proper application of open space development principles, the County should define and provide guidance regarding the following terms utilized in Article VI, Division 1:
  - a. Identify the "principles of open space development design"
  - b. Define or identify what is considered "usable and meaningful open space"
  - c. Define what constitutes "unusual or extraordinary environmental protection" - linking these requirements to innovative stormwater management plans, natural resource protection, low impact development techniques, better site design techniques, etc.
  - d. "Developable area" should not include land that cannot be developed according to state, federal, or County laws. The current definition does not exclude 100-ft RPA buffers that cannot be developed according to the Chesapeake Bay Ordinance.
2. Cluster Approval Process - Examine how the process can be expedited; determine whether preliminary conceptual master plans should be required or strongly encouraged in the ordinance; require applicants to conduct site analyses prior to conceptual plan development and incorporate primary conservation features into the preliminary conceptual plan; have applicants demonstrate during the conceptual master plan approval process how open spaces relate to environmental benefits.
3. Open Space Requirements - Examine whether the percentage of open space required is appropriate. Most documents reviewed suggest that a properly designed open space development requires a minimum of 50% of developable land to be set aside as open space (50% of which should be left in an undisturbed, natural state). The open space characteristics are critical factors associated with the effectiveness of stormwater management, habitat preservation, etc.

4. Density - Examine how density is calculated and whether the calculation should start with a net or gross calculation. This concept is linked to the developable area concept. How to calculate density bonuses, preservation of property development rights, protecting the character of adjacent conventional subdivisions, and the disincentive to open space development if not handled correctly.
5. Incentives versus disincentives - Examine whether the current ordinance provides sufficient incentives or represents disincentives to developers, particularly in a by-right scenario.
6. Open Space Design Guidelines - The Committee recommends that the County develop a companion document that describes the open space design process, provides examples of the different development options such as varying the lot sizes within a development, and provides clear guidance on what features should be considered for conservation in open space areas, as well as examples of how stormwater management can be incorporated into the design process. An example of these open space design guidelines is attached.
7. Coordination/Compatibility with Rural Conservation Cluster Option - The Committee acknowledges that some of the recommendations of the Better Site Design consensus document may be implemented because of the current rural lands initiative. The Committee would recommend that whatever action may be taken with regard to the Cluster Ordinance be coordinated and compatible with any ordinance changes that may result from this initiative.
8. Education of and Marketing to Stakeholders - Once a design guideline document is developed, the Committee recommends that a one-day education workshop should be conducted. The workshop should be co-sponsored by the County and the Peninsula Housing and Builders Association to educate developers, staff and other stakeholders on the open space development benefits and design techniques.

## **Appendix VII.**

- Open Space Design Guidelines
  - adapted from Delaware Stormwater Manual
  - adapted from “Growing Greener” by Randall Arendt

## OPEN SPACE DEVELOPMENT DESIGN GUIDELINES

### DESIGN PROCESS – 4 STEPS

#### STEP 1 – SITE ANALYSIS - CHARACTERIZE AND MAP THE SITE - DEMONSTRATE THAT YOU KNOW YOUR SITE – *Could provide a series of questions to answer*

PRIMARY CONSERVATION FEATURES INCLUDE: Land which cannot be disturbed by law (wetlands, perennial bodies of water, RPA buffers, slopes >25%, etc., endangered habitats/species) not included in developable area and not used for open space bonuses.

#### SECONDARY CONSERVATION FEATURES MIGHT INCLUDE:

- Contiguous Forests – need to identify county wide
- Prime Agricultural Soils – need to identify county wide
- A/B Soils
- Enhanced Riparian Buffers
- Intermittent Streams and buffers
- Rural Landscape and/or Viewsheds
- Active Farmland/Forestry
- Historical and/or Archeological Sites – Some required by law
- Wildlife Refuge
- Recreational – Extension of existing parks and rec. or areas identified in the Parks and Rec. Master Plan
- Greenways – Mapped and identified in the Greenway Master Plan
- Greenspace – Mapped and identified by County for future acquisition
- Additional Improved Stormwater Management Plan credits (includes LID measures or SSC type features)
- Compliance with or recognition of Existing Watershed Management Plans, bring existing sites up to current standards

#### STEP 2 DEVELOP SITE MAPS OF ALL PERTINENT FEATURES – Figures 13 through 15 and Figure 6

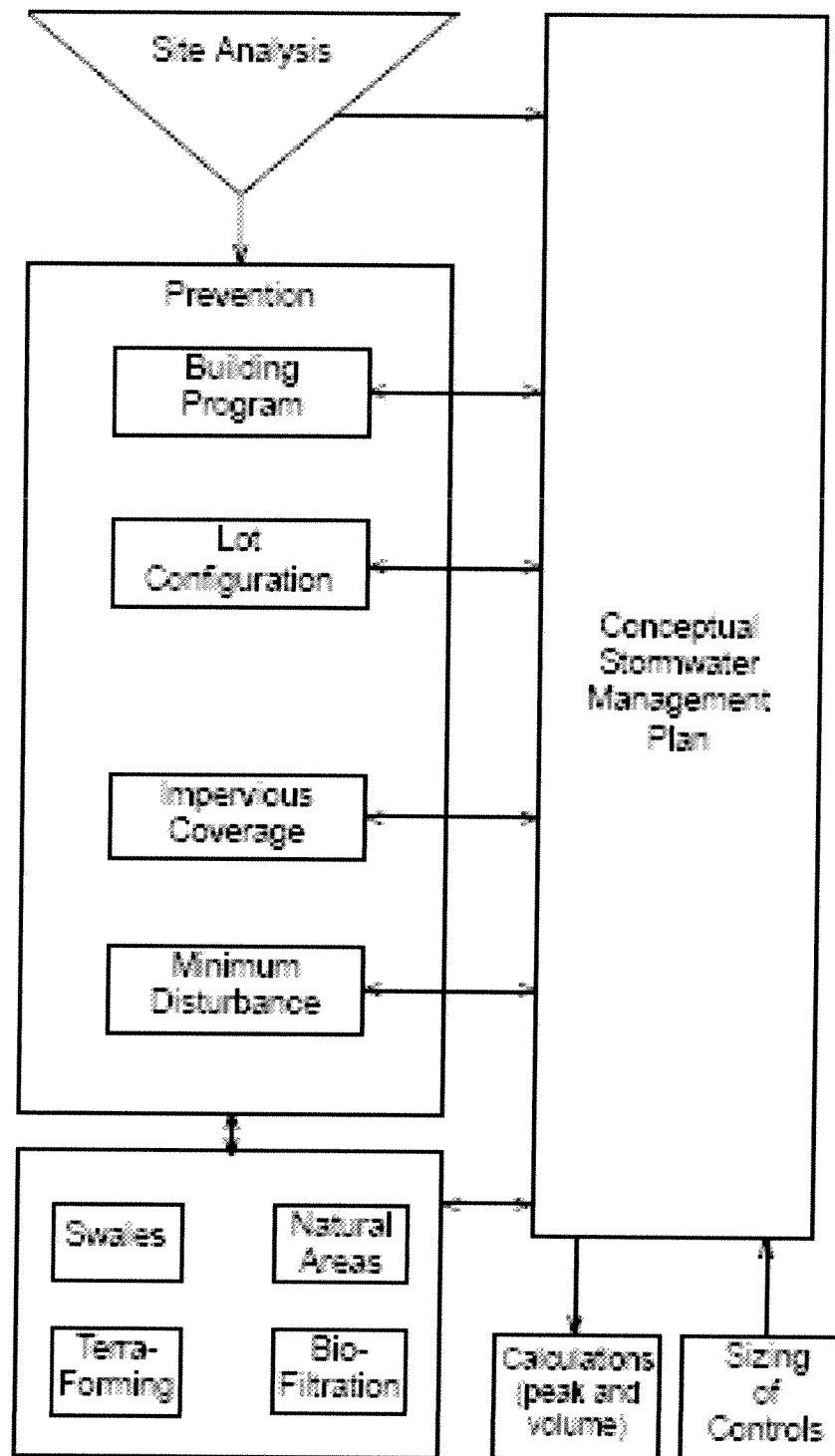
- Create Site Maps - Primary and Secondary Conservation Features, Potential Development Areas, Potential Stormwater Management Areas
- Rank the Importance of Secondary Conservation Features – Should be accomplished with some county input or based on Community Comp Plan
- Develop a Stormwater Management Strategy based on Site Characteristics and Features – Figure 4-1
- Delineate Buildable Land and Calculate Total Allowable Units

#### STEP 3 DESIGN PROCESS - CONCEPTUAL DESIGN LAYOUT – Figures 7 through 11 and 16 through 18

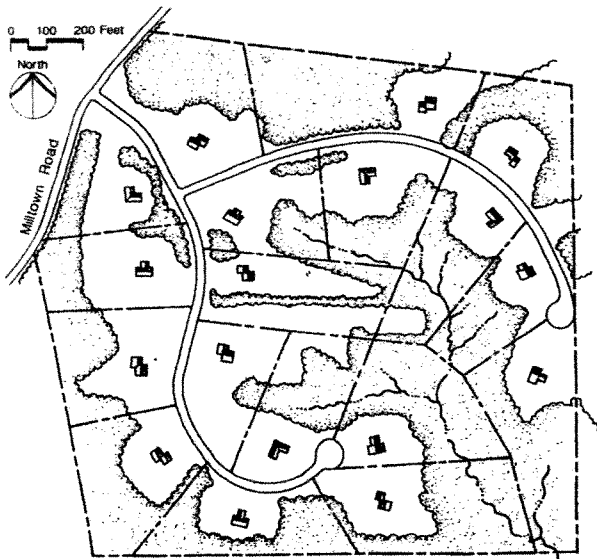
- Locate House Sites
- Design Street Alignments and Trails
- Draw Lot Lines
- Layout Preliminary Stormwater Management Plan

#### STEP 4 CONCEPTUAL DESIGN REVIEW/APPROVAL –

Figure 4-1  
Conservation Design Procedure

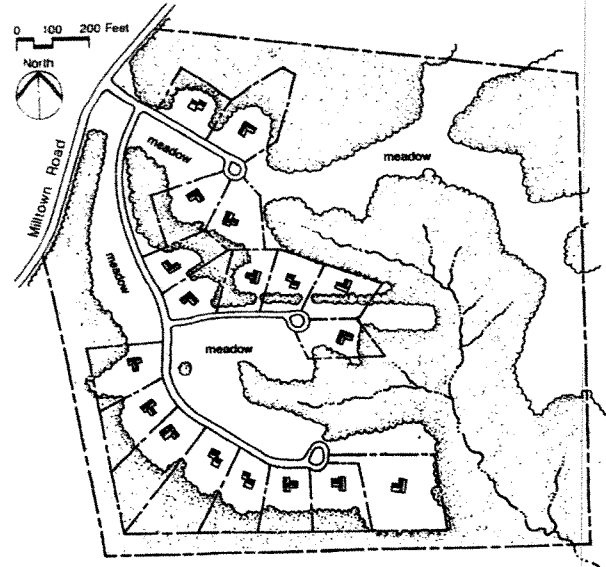




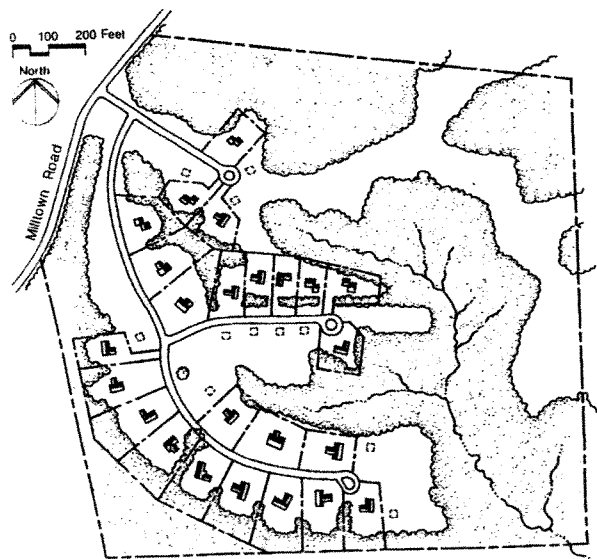


**Figure 6** YIELD PLAN  
BY-RIGHT ESTIMATE  
1 UNIT/GROSS ACRE

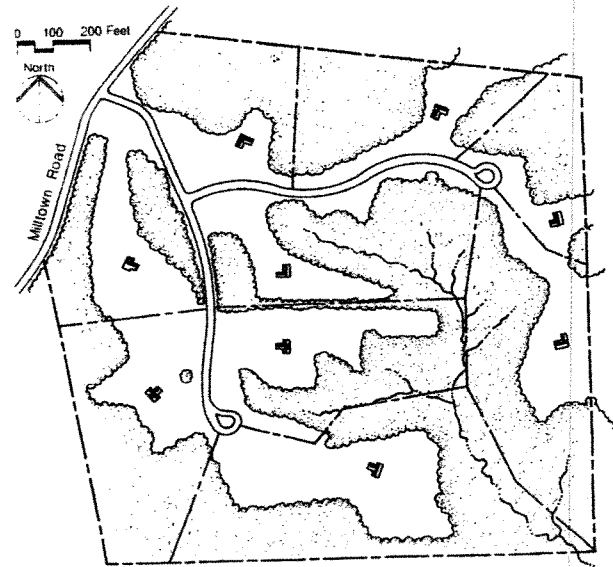
The kind of subdivision most frequently created in Pennsylvania is the type which blankets the development parcel with houselots, and which pays little if any attention to designing around the special features of the property. In this example, the house placement avoids the primary conservation areas, but disregards the secondary conservation features. However, such a sketch can provide a useful estimate of a site's capacity to accommodate new houses at the base density allowed under zoning—and is therefore known as a "Yield Plan."



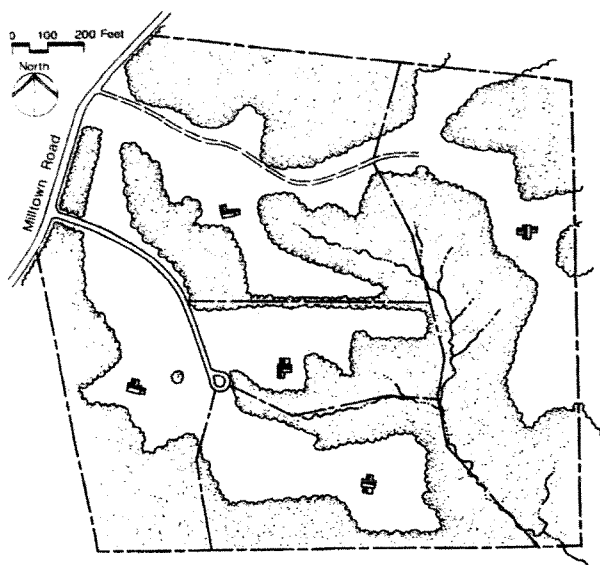
**Figure 7** OPTION 1  
Density-neutral with Pre-existing Zoning  
18 lots  
Lot Size Range: 20,000 to 40,000 sq. ft.  
50% undivided open space



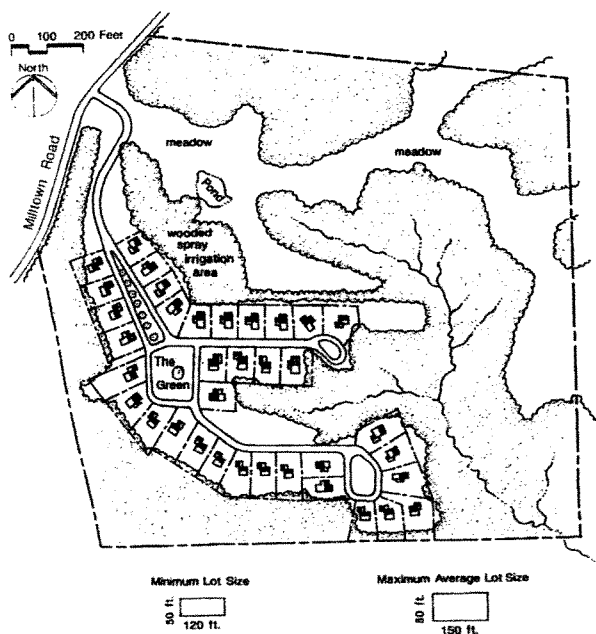
**Figure 8** OPTION 2  
Enhanced Conservation and Density  
24 Lots  
Lot Size Range: 12,000 to 24,000 sq. ft.  
60% undivided open space



**Figure 9** OPTION 3  
50% Density Reduction  
9 Lots  
Typical Lot Size: 160,000 sq. ft. (4 acres)  
Estate Lots



**Figure 10** OPTION 4  
Country Properties  
5 Lots  
Maximum Density: 10 acres per principal dwelling  
70% density reduction



**Figure 11** OPTION 5  
Hamlet or Village  
36 Lots  
Lot Size Range: 6,000 to 12,000 sq. ft.  
70% undivided open space

Uses subject to a set of extensively illustrated design standards.

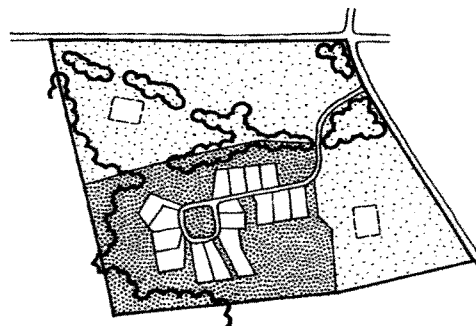
Developers wishing to serve the "estate lot" market have two additional options. One involves lots containing at least four acres of unconstrained land (Figure 9: "Option 3"). The other is comprised of "country properties" of at least 10 acres, which may be accessed by gravel drives built to new township standards for very low-volume rural lanes (Figure 10: "Option 4"). An additional incentive to encourage developers to choose this fourth option would typically be permission to build up to two accessory dwellings on these properties. Those units would normally be limited in size, subject to architectural design standards to resemble traditional estate buildings, and restricted from further lot division.

Two or more of these options could be combined on a single large property. One logical approach

would combine Options 4 and 5, with the Option 4 "country properties" comprising part of the required greenbelt open space around an Option 5 village (see Figure 12).

Conspicuously absent from this menu of choices is the conventional full-density subdivision providing no unfragmented open space (Figure 6). Because that kind of development causes the largest loss of resource land and poses the greatest obstacle to conservation efforts, it is not included as an option under this approach.

For illustrative purposes, this booklet uses a one dwelling unit per two acre density. However, conservation zoning is equally applicable to higher density zoning districts of three or four units per acre. Such densities typically occur in villages, boroughs, urban growth boundary areas and TDR receiving areas where open space setbacks are critical to the residents' quality of life.



**Figure 12**  
An Option 5 village surrounded by its own open space and buffered from the township road by two "country properties" (Option 4).

# 4 Conservation Subdivision Design

## A Four-Step Process

Designing subdivisions around the central organizing principle of land conservation is not difficult. However, it is essential that ordinances contain clear standards to guide the conservation design process. The four-step approach described below has been proven to be effective in laying out new full-density developments where all the significant natural and cultural features have been preserved.

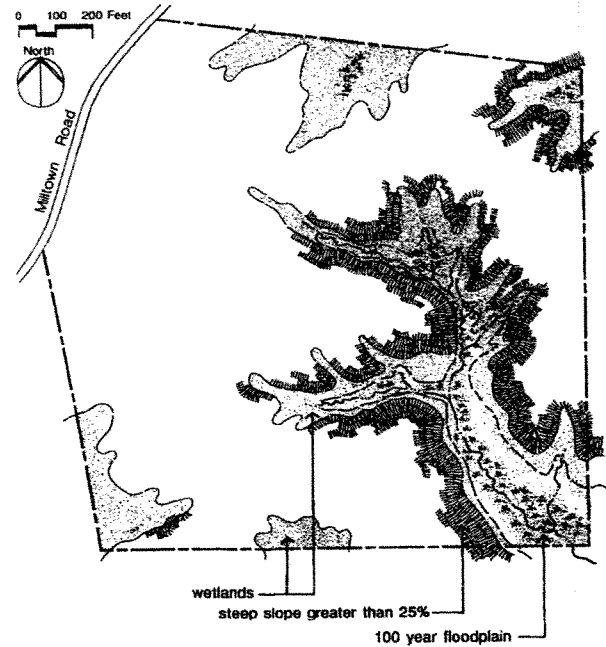
**Step One** consists of identifying the land that should be permanently protected. The developer incorporates areas pre-identified on the community-wide *Map of Potential Conservation Lands* and then performs a detailed site analysis in order to precisely locate features to be conserved. The developer first identifies all the constrained lands (wet, floodprone, and steep), called *Primary Conservation Areas* (Figure 13). He then identifies *Secondary Conservation Areas* (Figure 14) which comprise noteworthy features of the property that are typically unprotected under current codes: mature woodlands, greenways and trails, river and stream corridors, prime farmland, hedgerows and

individual free-standing trees or tree groups, wildlife habitats and travel corridors, historic sites and structures, scenic viewsheds, etc. After "greenlining" these conservation elements, the remaining part of the property becomes the *Potential Development Area* (Figure 15).

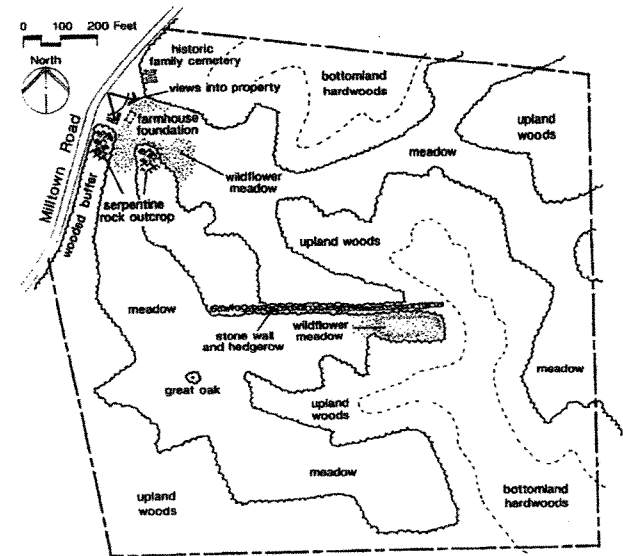
**Step Two** involves locating sites of individual houses within the Potential Development Area so that their views of the open space are maximized (Figure 16). The number of houses is a function of the density permitted within the zoning district, as shown on a *Yield Plan* (Figure 6). (In unsewered areas officials should require a 10 percent sample of the most questionable lots—which they would select—to be tested for septic suitability. Any lots that fail would be deducted and the applicant would have to perform a second 10 percent sample, etc.)

**Step Three** simply involves "connecting the dots" with streets and informal trails (Figure 17), while **Step Four** consists of drawing in the lot lines (Figure 18).

This approach reverses the sequence of steps in laying out conventional subdivisions, where the

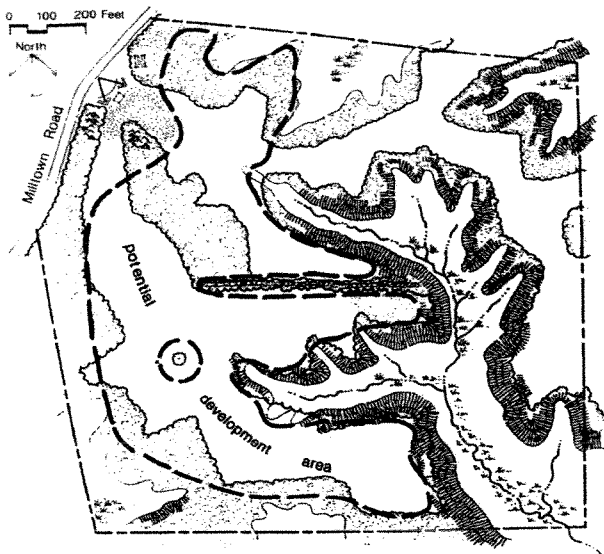


**Figure 13** STEP ONE, Part One  
Identifying Primary Conservation Areas

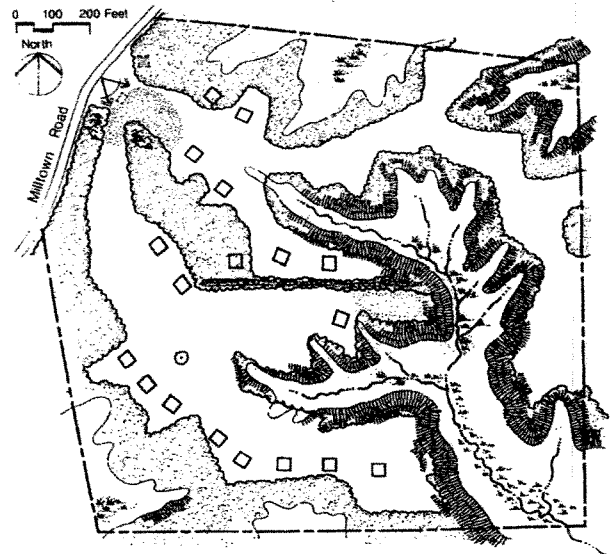


**Figure 14** STEP ONE, Part Two  
Identifying Secondary Conservation Areas

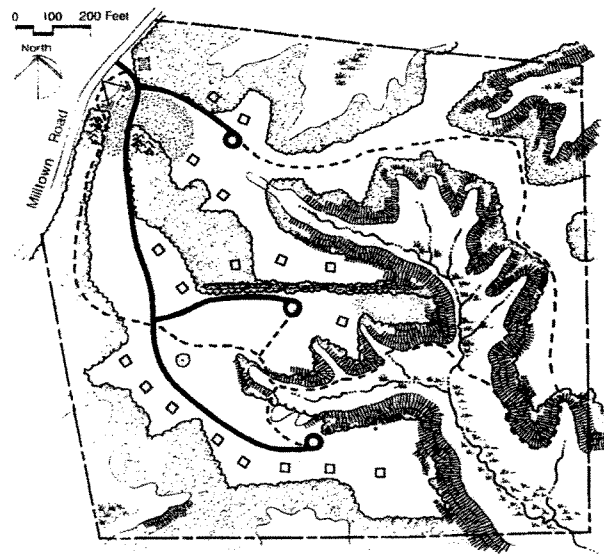
Typically unprotected under local codes, these special features constitute a significant asset to the property value and neighborhood character. Secondary conservation areas are the most vulnerable to change, but can easily be retained by following this simple four-step process.



**Figure 15** STEP ONE, Part Three  
Potential Development Areas  
for Options 1, 2, and 5



**Figure 16** STEP TWO  
Locating House Sites



**Figure 17** STEP THREE  
Aligning Streets and Trails



**Figure 18** STEP FOUR  
Drawing in the Lot Lines

## **Appendix VIII.**

- Example of Open Space Design guidelines

Example of Open Space Development, language from the Code of Maintenance and Ownership, Hanover County, Virginia.

Hanover County, VA has successfully incorporated the Open Space Development technique by Randall Arendt into County code, the development review and approval process, and the County Comprehensive Plan.

Article 5 Zoning Ordinance,

Section 1A, RC, Rural Conservation District

3. *Conservation and development areas.* Conservation areas shall be those areas comprising at least seventy (70) percent of the net acreage of the district and all areas of Chesapeake Bay Resource Protection Areas and slopes in excess of twenty-five (25) percent. The remainder of the district shall be development area, in which the residential lots are to be located. To the extent practicable, conservation areas shall incorporate all of the following resources located on the tract:

- a. Stream valleys and wetland complexes; ponds, streams, and natural drainage swales; and 100-year floodplains.
- b. Aquifer recharge areas.
- c. "Prime" and "of statewide importance" soils.
- d. Moderate slopes (fifteen (15) percent to twenty-five (25) percent).
- e. Healthy woodlands, groups of trees, large individual trees of botanic significance, and other vegetational features representing the tract's rural past.
- f. Significant natural areas of species listed as endangered, threatened, or of special concern.
- g. Historic structures, features, and sites.
- h. Visually prominent topographic features such as knolls, hilltops and ridges, and scenic viewsheds as seen from public roads (particularly those with historic features).

Article 5, Section 3, RS Single Family Residential District,

3.9 *Development standards and procedures*

2. Open and common space areas. When a proposed district includes the creation of open and/or common space, the minimum areas required in the district shall be provided based on the requested density for the district to be created. The remainder of the district shall be development area, in which the residential lots are to be located. Open and/or common space areas shall also incorporate all lands deducted from the gross acreage to determine net acreage (Chesapeake Bay Resource Protection Areas, using the actual boundaries of resource protection areas, and slopes of thirty-five (35) percent or greater), but the acreage of these areas shall not be included in the minimum acreage requirements for common or open space areas.

3. Conceptual plan; standards for review. The conceptual plan shall provide for adherence to the following standards:

- a. The open and common space areas shall be directly accessible to the largest practicable number of lots within the district. Non-adjoining lots shall be provided with safe and convenient pedestrian access to neighborhood common and open space.
- b. The common and open space areas shall be suitable for recreational uses, either active or passive, without interfering with adjacent dwelling units, parking, driveways, and roads.
- c. The open and common space areas shall be undivided by public or private roads, except where necessary for proper traffic circulation.
- d. Open space areas shall be left in their natural state to the maximum practicable extent, unless located to provide a screening buffer from adjoining property and roadways. Pedestrian paths may be located within the open space, including the buffer areas.

e. Historic features other than structures, when identified on the property, shall be incorporated into the open space areas and a preservation plan shall be provided for protection and maintenance of the features. If approved by the board, historic structures may be included in common space for use by the homeowners or may be located on a residential lot for conveyance and use as a residence.

f. Streets shall generally be designed to minimize the area within the project devoted to vehicular travel; calm traffic speeds; promote pedestrian movement; and terminate in views of open or common space or other appropriate vista.

4. Ownership and maintenance.

a. Prior to or contemporaneous with final subdivision approval for any property within an RS District, applicants shall record documents which create an owners' association, convey all common and open space areas to the association and require that the association maintain all open space, common areas and amenities, including recreation facilities, street lights, street trees, alleys, and pedestrian paths, with mandatory membership of all lot owners and authority for the association to assess fees and impose liens on members' property for the cost of maintenance of those areas; provided that alternate arrangements for the open space may be approved by the board of supervisors, as described below.

b. Unless alternate arrangements are approved by the board of supervisors, prior to or contemporaneous with final subdivision approval for any property within an RS District, applicants shall record documents conveying open space easements applicable to the common and open space, to the County, with content approved by the County, requiring preservation of features so designated on the plan, requiring maintenance in perpetuity of the common and open space, prohibiting further division of those areas, and prohibiting any use not permitted by the zoning ordinance.

c. The board of supervisors may approve conveyance of the open space and any open space easement to a qualifying nonprofit or governmental entity other than the owners' association or the County, upon a finding:

(1) That such a conveyance will achieve purposes of open space or historic preservation consistent with the character of the RS District;

(2) That the conveyance will be beneficial to the future owners within the district and to the public; and

(3) That the purposes and resources of the entity and the proposed conveyance are consistent with the perpetual preservation of the open space and significant features.

## **Appendix IX.**

- Draft R1 setback modification Ordinance amendment
  - cover memo and Ordinance language



## MEMORANDUM

Date: TBA

To: The Planning Commission

From: Jose Ribeiro, Planner

Subject: TBA

---

Staff is proposing to amend an existing ordinance section, related to Setback Requirements in R-1. The changes would be as follows:

1. In accordance with the Better Site Design Principles, amend Section 24-236 of R-1 Limited Residential ordinance to reduce the required dimensions for setbacks.

Currently, setbacks in R-1 require a minimum of 35 feet away from any street right-of-way which is 50 feet or greater in width and 60 feet from the centerline of any street where the right-of-way is less than 50 feet in width. Principle #11 of the Better Site Design notes that Zoning Codes often create strict requirements that govern the geometry of the lot and by relaxing setbacks, the County will be able to achieve greater flexibility of design, minimize driveway lengths for housing, reduce grading areas, minimize land disturbance for construction, and ultimately promote efficient use of the land. Thus, setbacks should be reduced to 25 feet for any street right-of-way which is 50 feet or greater in width and to 50 feet from the centerline of any street where the right-of-way is less than 50 feet in width so the James City County ordinance compiles with the Better Site Design Principles.

### RECOMMENDATION:

Staff believes that reducing the required dimensions for setbacks from 35 feet to 25 feet for any street right-of-way which is 50 feet or greater in width and from 60 feet to 50 feet from the centerline of any street where the right-of-way is less than 50 feet in width in R-1 Zoning Districts should be incorporated into the County Zoning Ordinance. Staff recommends the Planning Commission approve the attached ordinance amendment.

---

Jose Ribeiro

### Attachments

1. Revised Ordinance

---

ZO-x-07

ORDINANCE NO. \_\_\_\_\_

AN ORDINANCE TO AMEND AND REORDAIN CHAPTER 24, ZONING, OF THE CODE OF THE COUNTY OF JAMES CITY, VIRGINIA, BY AMENDING ARTICLE V, DIVISION 3. SECTION 24-236, SETBACK REQUIREMENTS.

BE IT ORDAINED by the Board of Supervisors of the County of James City, Virginia, that Chapter 24, Zoning, is hereby amended and reordained by amending Article V. Division 3. Section 24-236, Setback requirements.

Chapter 24. Zoning

Article V. Districts

Division 3. Limited Residential District, R-1

**Sec. 24-236, Setback requirements.**

Structures shall be located a minimum of ~~35~~ **25** feet from any street right-of-way which is 50 feet or greater in width. Where the street right-of-way is less than 50 feet in width, structures shall be located a minimum of ~~60~~ **50** feet from the centerline of the street. This shall be known as the “setback lines”; all subdivision platted and recorded prior to March 1, 1969, with building setback lines shown on their recorded plat, shall be allowed to adhere to these established setback lines.

\_\_\_\_\_  
John J. McGlennon  
Chairman, Board of Supervisors

ATTEST:

\_\_\_\_\_  
Sanford B. Wanner  
Clerk to the Board

Adopted by the Board of Supervisors of James City County, Virginia, this \_\_\_\_\_ day of \_\_\_\_\_, 2007.

## **Appendix X.**

- Model Shared Driveway Agreement

Model Shared Driveway Agreement

Users are owners of adjacent properties in James City County, Commonwealth of Virginia. User One: \_\_\_\_\_ is owner of the property located at \_\_\_\_\_ (address) and further identified as James City County Tax Parcel No. \_\_\_\_\_ (“Property One”). User Two: \_\_\_\_\_ is owner of the property located at \_\_\_\_\_ (address) and further identified as James City County Tax Parcel No. \_\_\_\_\_ (“Property Two”, and together with Property One, The “Properties”). User One and User Two (together, “the Users”) own properties that abut each other and have access from \_\_\_\_\_ (Road/Route). There is a driveway that serves both properties (“Common Driveway”). This Common Driveway is further shown on \_\_\_\_\_ (Case Title of Subdivision Plat or Easement Plat) dated \_\_\_\_\_, prepared by \_\_\_\_\_ (Name of Surveyor) and recorded at the Courthouse as Instrument \_\_\_\_\_. The Users have determined that it is in their mutual interest to have executed and recorded an agreement for sharing the costs of maintenance and repair of the Common Driveway (the “Agreement”). The purpose of this Agreement is to place into writing the mutual rights and obligations of the Users of the jointly used Common Driveway.

The initial costs of constructing said Common Driveway, and all subsequent cost of maintaining said Common Driveway in essentially the same condition and to the same standards and quality as said Common Driveway was in when initially constructed, shall

be borne by the Users of the Properties sharing the Common Driveway, their respective heirs, successors, and assigns in the following percentages: User One shall be responsible for the payment of \_\_\_\_percent of all such costs and User Two shall be responsible for the payment of \_\_\_\_percent of all such costs. Any User who fails or refuses to contribute the specified share of such cost shall be subject to a lien against their Property in favor of the contributing User, for their share of such maintenance cost plus all reasonable attorney's fees and Court costs incurred in the enforcement of the lien.

Notwithstanding the foregoing, the respective Users of each Property sharing said Common Driveway shall be solely responsible for the repair of all damages to the Common Driveway (excluding normal deterioration, wear and tear from normal residential use) caused by or resulting from their use thereof by such User's agents, contractors, employees, guests or invitees. The User shall make the repairs for which they are responsible within fifteen (15) days from the date such damage occurred. If the respective User responsible to make the repairs fails to do so within the specified fifteen (15) day period, the other User may repair the damage and shall have the right to seek reimbursement for the repairs from the User responsible for the damage. In the event the User responsible to make the repairs fails to reimburse the other User for the necessary repairs, the other User shall be entitled to establish and enforce a lien on the property of the User responsible for the damage.

In the event of any dispute arising between the respective Users with respect to what, if any, repairs or maintenance shall be made to the Common Driveway, including the necessity thereof, the cost thereof, the timing thereof, and the individual entity who

shall perform such repairs or maintenance, such dispute shall be submitted to the  
\_\_\_\_\_ (Name of HOA or other legal entity) for resolution.

This Agreement shall not be modified except in writing signed  
by the Users, their successors or assigns. This Agreement and its obligations and  
benefits shall run with the land and shall be binding upon and inure to the benefit of the  
parties hereto and their respective successors and assigns.

This Agreement dated this \_\_\_\_\_ day of \_\_\_\_\_, 20 \_\_\_\_.

\_\_\_\_\_  
(Signature – User One)

\_\_\_\_\_  
(Print Name – User One)

\_\_\_\_\_  
(Signature – User Two)

\_\_\_\_\_  
(Print Name – User Two)

## **Appendix XI.**

- Homeowners Better Site Design brochure - draft





Mailing Address Line 1  
Mailing Address Line 2  
Mailing Address Line 3  
Mailing Address Line 4

(DRAFT DOCUMENT)  
Better Site Design and The  
James City County Guide to  
Protecting the Environment  
through natural  
Open Space Maintenance

**Funded in part by:**

- U.S. EPA Chesapeake Bay Program
- Chesapeake Bay Restoration Fund
- Virginia Environmental Endowment
- Virginia Department of Conservation and Recreation

(757) 253-6640

101 A Mounts Bay Road  
James City County, VA 23185

## Protect and Preserve the Environment on your property:

### Table of Contents

How to Protect the Stream in Your Backyard.....	3-4
Plants Native to James City County.....	4-15
Large Trees.....	6-7
Small Trees.....	6-7
Shrubs.....	8-9
Perennials.....	10-13
Grasses.....	12-13
Vines.....	14-15
Ferns.....	14-15
How can my Homeowner's Association Help?.....	16
Sources for Additional Information.....	18

## Thanks to

Michael Woolson, CLA  
James City County Environmental Division  
Senior Watershed Planner

Ellen Cook  
Senior Planner  
James City County Planning Department

Jose Ribeiro  
Planner  
James City County Planning Department

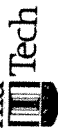
Leanne DuBois,  
Extension Agent, Horticulture  
Virginia Cooperative Extension  
James City County/New Kent County

Sue Voigt  
Helen Hamilton  
JCC/Williamsburg Master Gardener Association John  
Clayton Chapter Virginia Native Plant Society.

## Virginia Cooperative Extension

*Knowledge for the CommonWealth*

Virginia



VIRGINIA POLYTECHNIC INSTITUTE  
AND STATE UNIVERSITY



VIRGINIA STATE UNIVERSITY

James City County Environmental

## Protect the Stream in your backyard:

### Creating and/or maintaining a natural stream or wetlands buffer

James City County is home to a delicate watershed environment dominated by streams and wetlands. The natural vegetation and soils in and around wetlands and streams are like natural sponges and filters, removing pollutants, holding sediments, and slowing down stormwater runoff. As a result, these natural areas protect and improve water quality, reduce soil erosion, and reduce flooding potential downstream. Small changes upstream may have significant impacts on the watershed and the amount of pollutants that runoff into the Chesapeake Bay.

Land development increases impervious surfaces, disturbs or removes natural vegetation, and compacts and erodes soil. This urbanization results in an increase in the amount of stormwater runoff and sediments flowing into local streams. This increase in water and sediment changes the composition of wetland soils and vegetation and reduces the effectiveness of our watershed to absorb nitrates and other pollutants and reduce flooding.

Each homeowner can protect the Chesapeake Bay and our local water resources and improve water quality by creating and/or maintaining a healthy stream buffer system.

Planting or maintaining natural vegetation along streams and wetlands and in natural open spaces increases infiltration

A Healthy Stream Buffer  
System



(757) 253-6640

and filtering of stormwater, reduces stormwater runoff, helps prevent flooding and bank erosion, stabilizes banks and creates an appealing aesthetic environment. A naturally vegetated stream buffer physically protects and separates streams and wetlands from land development activities. Moreover, a healthy stream buffer will help protect your property from flooding and erosion.

### What about intermittent streams?

An intermittent stream is any natural or engineered channel that flows only part of the year, and is dry for the remainder of the year. Intermittent streams and natural vegetation adjacent to the streams should be protected because they provide many of the stormwater management and environmental benefits of perennial streams; they reduce flooding and sediment flow downstream and provide aquatic habitats for plants and animals.

Leave the intermittent stream and stream buffer alone! Nature provides the best protection for intermittent streams and normal human activities such as lawn mowing or planting non-native species, clearing native vegetation, and filling in intermittent stream channels can destroy the benefits of an intermittent stream. The recommended buffer for an intermittent stream is 50 feet of natural vegetation.

## Additional Information

- James City County  
[www.protectedwithpride.org](http://www.protectedwithpride.org)
- Center for Watershed Protection  
<http://www.cwp.org/>
- Alliance for the Chesapeake Bay  
<http://www.acb-online.org>
- The John Clayton Chapter Virginia Native Plant Society  
[www.claytonvnps.org](http://www.claytonvnps.org)
- Virginia Master Gardeners  
<http://www.vmsga.net/>
- Virginia Tech Agricultural Resource Center  
<http://www.vaes.org.vt.edu>
- Plant List and Information  
<http://www.nps.gov/plants/pubs/chesapeake/>

Residents of James City County including reduced stormwater runoff, reduced flooding, improved surface water quality, increased infiltration of precipitation and groundwater recharge, and increased water conservation, while improving the natural beauty of the community.

*Why should my Homeowner's Association get involved in conservation management?*

Homeowner's Associations are local 'grassroots' organizations that can reach the 'hard to reach' citizens Natural Open Space. to educate and provide information about the importance of preserving and protecting our environment.

## **Status of the Chesapeake Bay Watershed**

Every year, over 2 million acres of land are altered as a part of the development process. Development has historically led to degradation in surface water quality and biological integrity (NCRS, 2001). The impacts of watershed urbanization on the water quality, biology, and physical condition of aquatic systems have been well documented (CWP, 2003). Urbanization also impacts groundwater by increasing storm water run off and reducing infiltration of precipitation which recharges the groundwater system. The development radius around many of our cities and smaller municipalities continues to widen at a rapid rate, far outpacing the rise in population (Leinberger, 1995). In the Chesapeake Bay Region, it is estimated that more than 90, 000 acres of open land are altered annually by development—a rate four to five times greater per person than seen 40 years ago (Chesapeake Bay Foundation, 2002). To ensure future sustainability, local codes and ordinances that promote reduced impact of development on local water resources are critical. In James City County, the Chesapeake Bay Ordinance is a local ordinance which minimizes disturbance of local water resources and wetlands (Resource Protection Areas) and adjacent naturally vegetated 100-foot buffers.

In order to balance development, redevelopment, and the protection of natural resources, James City County also has adopted a set of model development (!!! Give a link or reference!!!). These principles, known as the Better Site Design principles, provide guidance on development design, installation, and maintenance techniques. Many of these techniques can be applied by homeowners and Homeowners Associations in James City County? The benefits and goals for the homeowner are summarized on the following page.

### **How do I create and protect the stream buffer along my stream?**

**Don't** alter the existing natural stream buffers! Native plants in existing stream buffers and resource protection areas are best suited to preserving and protecting James City County's environment.

**Do** plant or replace non-native plants with vegetation in and near existing stream buffers and resource protection areas.

**Don't** install lawns within buffers and don't place lawns directly up to the edge of the stream.

**Do** use "turf nutrient management" techniques and minimize the use of chemical fertilizers.

### *Why is it important to manage conservation areas?*

Creating and maintaining natural, undeveloped land protects and preserves water quality in the Chesapeake Bay and is an important Better Site Design objective which is relevant to all residents of James City County. The importance of natural open space in buffers and RPAs has already been discussed in this bulletin. Everything is interconnected—the water you use to water your lawn and the stormwater that flows through your community will ultimately enter streams and eventually the Chesapeake Bay and is a source for aquatic life.

Natural open space in upland areas also are valuable natural resource areas where precipitation can infiltrate into the ground and recharge the shallow groundwater system instead of flowing into a stormwater management system as runoff. Shallow groundwater either flows down recharge deeper aquifers or discharges into low-lying areas such as wetlands and streams. Soil and organic matter in the soil store and filter water as it infiltrates into the ground; as a result, stormwater runoff is reduced and water quality is improved. Recharge from infiltration and percolation of precipitation to the deeper aquifers may take anywhere from tens of years to millions of years. Most of the water supply in James City County is a finite resource and comes from groundwater in the deeper aquifers.

By maintaining and preserving natural open space, your community can achieve the several critical goals for all

## How can my Homeowner's Association help?

*Things an HOA can do to manage Natural Open Space*

1. Encourage residents to plant, not pave because plants filter rainwater and decrease storm-water runoff.
2. Plant only native plants in your community's Natural Open Space and do not disturb these natural open space areas. Native plants are best suited to the Chesapeake Bay region, add beauty, and require less care because they tend to be drought, insects and disease resistant.
3. Practice "turf nutrient management" in common areas and use chemical fertilizers sparingly as rain-water events move excess pollutants into the Chesapeake Bay Watershed.
4. Leave the storm drains for the storms. Paint on the storm drains "Do not Dump. Drains into Chesapeake Bay."
5. Encourage residents to "scoop the poop," bacteria from animal waste is a major contributor of pollution in the Chesapeake Bay watershed.

For more information call the James City County  
Environmental Division

James City County Environmental

**Don't** use the stream as a dumping place for trash and yard debris or a storage area for lawn care products.

**Don't** water your driveway! This pushes dirt and pollutants directly into the streams and Chesapeake Bay.

Contact James City County Environmental Division to determine the relationship between your property, existing streams and Resource Protection Areas & for further information on how to create an effective stream buffer.

(757) 253-6640

# Plants Native to James City County

Common Name      Scientific Name      Flower Color

## Large Trees

Red maple*	Acer rubrum	red flowers	orange-red	S; F, fruit	D-M	SU	50'	2-4
River birch	Betula nigra		orange	SM-F	D-M	SU	35-70'	3-4
Eastern red cedar*	Juniperus virginiana		white	L SM	D-M	SU-SH	1'	1-4
Black gum, Sour gum*	Nyssa sylvatica	white blooms	white	SM-F	M	PS-SH	30'	2-3
Sourwood	Oxydendrum arboreum	white blooms	yellow	S	M	SU-PS	20'	2-4
Loblolly pine*	Pinus taeda		coral	S-F	M	SU-PS	20-36'	2-4
White oak*	Quercus alba		fruit blue on red stems	F (fruit)	M-D	SU-SH	40'	2-4
Scarlet oak*	Quercus coccinea		lavender	S-SM	M-D	SU-PS	12-36'	3-4
Pin oak	Quercus palustris		purple, pink, or blue	E SM	M	SU	12-36'	2-4
Bald cypress	Taxodium distichum	purple						

## Small Trees

Canada serviceberry	Amelanchier canadensis	white blooms			M	SH	2'	3-4
Eastern redbud*	Cercis canadensis	pink flowers			M	SH	to 4'	2-3
White fringe tree*	Chionanthus virginicus	white blooms			M-W	SH	to 5'	3-4
Flowering dogwood*	Cornus florida	white blooms			M	SH	to 2'	4
American holly	Ilex opaca	white flowers			M-W	PS-SH		1-3
Sweetbay magnolia	Magnolia virginiana	white flowers			M-W	PS-SH	1'-2'	1-3
					M	SH	1'-3'	1-2

\* Drought Resistant



# Plants Native to James City County

Common Name	Scientific Name	Bloom Time	Soil	Light	Plant Height	Riparian Zones
<b>Vines</b>						
Crossvine*	Bignonia capreolata					
Trumpet creeper	Campsis radicans					
Virgin's bower*	Clematis virginiana	S	M-W	SU	40'-100'	1-4
Climbing hydrangea	Decumaria barbara		M-W	SU	50'-100'	2-3
Carolina jessamine	Gelsemium sempervirens		D, DT	SU	10'-75'	2-4
Trumpet honeysuckle*	Lonicera sempervirens	S	D-W	SU-PS	30'-75'	2-4
Virginia creeper*	Parthenocissus quinquefolia	SM	D-M	PS-SH	15'-50'	3-4
Passionflower*	Passiflora incarnata		D-W	SU	70'-90'	2-4
American wisteria	Wisteria frutescens		D-M	SU-PS	75'-100'	3-4
			D-M	SU	40'-70'	3-4
			M-W	SU	50'-80'	2-3
		S	M-W	SU	50'-100'	1-3
<b>Ferns</b>						
Sensitive fern	Onoclea sensibilis					
Cinnamon fern	Osmunda cinnamomea					
Royal fern	Osmunda regalis					
Christmas fern	Polystichum acrostichoides	S	M	PS	35'-50'	2-4
Marsh fern	Thelypteris palustris	S	M	PS-SH	20'-35'	2-4
Netted chain fern	Woodwardia areolata	S	M	SU-PS	12'-35'	3-4
Virginia chainfern	Woodwardia virginica	S	D-M	PS	15'-50'	3-4
		S	D	SU-SH	15'-50'	2-4
* Drought Resistant		S	W-M	SU-SH	10'-30'	2-3

# Plants native to James City County

Common Name	Scientific Name	Flower Color	Bloom Time	Soil	Light	Plant Height	Riparian Zones
Shrubs							
Common (smooth) alder	<i>Alnus serrulata</i>						
Red chokeberry*	<i>Aronia arbutifolia</i> ( <i>Photinia pyrifolia</i> )	blue	S-SM	M	PS	6"-18"	2-4
Groundsel tree, high tide bush*	<i>Baccharis halimifolia</i>	, yellow	SM-F	M-D	SU-PS	2-6'	2-4
American beautyberry*	<i>Callicarpa americana</i>	lavender, violet	SM-F	D-M	SU-SH	1'-3'	3-4
Button Bush	<i>Cephalanthus occidentalis</i>	violet-blue	L SM-F	D-M	SU	1-3'	2-3
Sweet pepperbush, summer sweet	<i>Clethra alnifolia</i>	purple	L SM	M	SU	2-7'	2-4
Silky dogwood	<i>Cornus amomum</i>						
Inkberry*	<i>Ilex glabra</i>						
Winterberry	<i>Ilex verticillata</i>						
Virginia willow, sweetspire	<i>Itea virginica</i>						
Mountain laurel*	<i>Kalmia latifolia</i>	reddish	F	D-W	SU	6'	2-3
Fetterbush, sweetbells, swamp dog-hobble	<i>Leucothoe racemosa</i> ( <i>Eubotrys racemosa</i> )	light brown	F	M DT	SU	3'-6'	3
Wax myrtle or Bayberry*	<i>Myrica cerifera</i> ( <i>Morella cerifera</i> )	tan	F	D	SU	2-5'	3-4
Swamp azalea	<i>Rhododendron viscosum</i>	tan	F	M	PS	2-5'	2-4
Highbush blueberry*	<i>Vaccinium fuscum</i> ( <i>V. corymbosum</i> )	purple	SM-F	D-M	SU	1-3'	2-4
Arrowwood*	<i>Viburnum dentatum</i>	red, purple	SM-F	M-W	SU	4-6'	1-3
Possumhaw, swamp-haw*	<i>Viburnum nudum</i>	blue foliage, red fall foliage	SM	D-M	SU	3-5'	2-4

\* Drought Resistant

# Plants Native James City County

Common Name	Scientific Name	Flower Color	Bloom Time	Soil	Light	Plant Height	Riparian Zones
<b>Perennials, Continued</b>							
Blue-eyed grass	Sisyrinchium angustifolium	purple catkins	S	W-M	SU	12'-20'	1-3
Sweet, gray, seaside, late, wrinkleleaf goldenrod	Solidago sp (odora, nemoralis, sempervirens altissima, rugosa)	white blooms	S	M	PS	2'-12'	2-4
Aster (blue wood, smooth)	Symphyotrichum (cordifolium, laeve )	white to green	S	W-D	SU	6'-12'	2-4
		light pink	S	D-M	SH-PS	6'	3-4
New York aster	Symphyotrichum novi-belgii	white blooms	SM	M-W	SU-SH	3'-12'	1-2
New York Ironweed	Vernonia noveboracensis	white blooms	SM	M-W	PS-SH	6'-12'	2-3
		white blooms	S	W-M	SU-PS	6'-12'	2-3
		white	ESM	D-M	SU-SH	6'-10'	2-3
		white blooms	L S	M-W	SU-SH	6'-12'	2-4
		white blooms	L S	M-W	SU-SH	3'-10'	2-3
		white-pink	E SM	D-W	PS-SH	5'-20'	4
Big bluestem *	Andropogon gerardii	pink	S-SM	M-W	SH-SU	6'-12'	2-3
Bushy bluestem	Andropogon glomeratus	green	S	D-M	SU-SH	5'-15'	1-4
Split Bluestem	Andropogon ternarius	white-pink	L S	W	PS	5'-12'	2-3
River oats, Indian oats *	Chasmanthium latifolium	pale pink	S	D-W	SU-SH	6'-12'	2-4
purple lovegrass	Eragrostis spectabilis	white blooms	L S-SM	D-M	SU	10'-15'	2-4
Switchgrass *	Panicum virgatum 'Shenandoah', 'Heavy Metal', 'Dallas Blue', 'Northwind'	white blooms	SM	M-W	SU-SH	6.5'-20'	1-3
Little Bluestem *	Schizachyrium scoparium	white blooms					

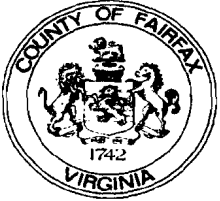
\* Drought Resistant

# Plants Native To James City County

Common Name Scientific Name

## Perennials

Blue Star	Amsonia tabernaemontana	Pale Blue	S	M, DT	SU	3'	3-4
Columbine	Aquilegia canadensis	red & yellow	S	M	PS-SH	1-2'	4
Butterfly Weed	Asclepias tuberosa	Orange	SM	D, DT	SU-PS	1-3'	4
Green & gold	Chrysogonum virginianum	yellow	S	M	SU-SH	.5-1'	4
Maryland golden aster	Chrysopsis mariana	yellow	SM-F	D	SU	.5-2'	4
Mistflower, wild ageratum	Conoclinium coelestinum	Blue, lavender	SM, Late	D-W	PS-SH	1'-3'	3-4
Lanceleaf coreopsis	Coreopsis lanceolata	yellow	SM	D, DT	SU		4
Threadleft coreopsis	Coreopsis verticillata	yellow	SM	D-M, DT	SU-PS	.5-3'	4
Coneflower	Echinacea sp (E. purpurea)	White, Yellow, Pink-purple	SM	M-D	SU-SH	3'	3-4
Joe-pye weed, Trumpetweed	Eupatorium fistulosum Barratt	pink, purple	SM	D-W	SU-PS	1.5'-10'	2-4
Wild geranium, spotted geranium	Geranium maculatum	lavender, pink	S	D-M	SU-PS	1'-2'	4
Sneezeweed	Helenium autumnale	Yellow	F	M	SU-PS	1.5'-6'	1-3
Oxeye Sunflower	Heliopsis helianthoides	Yellow	SM	D-M	SU-PS	1'-5'	4
Rose mallow	Hibiscus moscheutos	pink or white	SM	W	SU	3'-6'	1-2
Virginia blue flag	Iris virginica	blue	L S	M-W	SU-PS	1'-3'	1-2
Turk's cap lily	Lilium superbum	Orange	L SM	M-W	SU	3'-8'	3-4
cardinal flower	Lobelia cardinalis	red	SM	M-W	SU-PS	2'-4'	1-3
lupine	Lupinus perennis	blue	L S	D	SU-PS	1'-3'	4
Virginia bluebells	Mertensia virginica	pink-blue	S	M-W	PS	1'-2'	3-4
Wild Quinine, American fever-few	Parthenium integrifolium	White	SM	D	SU	1'-3'	4
Wild blue phlox	Phlox divaricata	blue, white	S	M-D	PS-SH	.5'-1.5'	3-4
Virginia meadow beauty	Rhexia virginica	pink	SM	W	SU	1'-3'	2-3
Black-eyed Susan, orange cone-flower	Rudbeckia hirta; fulgida, triloba,	Yellow	SM	D-M	SU-PS	1'-4'	3-4
Hyssop skullcap, Helmet flower	Scutellaria integrifolia	blue, pink, white	SM	M	SU	1-2'	2-3



GERALD E. CONNOLLY  
CHAIRMAN

COMMONWEALTH OF VIRGINIA  
**COUNTY OF FAIRFAX**  
BOARD OF SUPERVISORS  
FAIRFAX, VIRGINIA 22035

Suite 530  
12000 GOVERNMENT CENTER PARKWAY  
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[chairman@fairfaxcounty.gov](mailto:chairman@fairfaxcounty.gov)

July 18, 2007

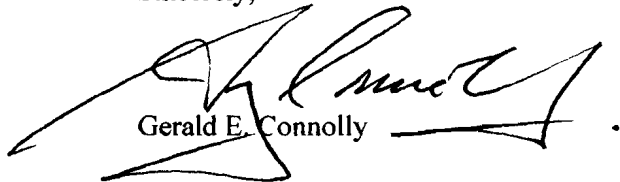
The Honorable John McGlennon  
Chairman  
James City County Board of Supervisors  
2817 Mockingbird Ln  
Williamsburg, VA 23185

Dear Chairman McGlennon:

Thank you for the efforts of your Board to promote smart growth and protect open space in James City County. Citizens across Virginia will benefit from a healthier Bay as a result of your efforts to protect the York and James Rivers. Protection of much of James City County as open space will also preclude the emission of thousands of tons of greenhouse gas emissions that would otherwise exacerbate global warming. Your Board also deserves credit for developing watershed plans to protect sensitive creeks. Your efforts are a critical part of the effort to protect the Bay and combat global warming.

Over the past 6 months I have been working Ron Sims from King County, Washington, as well as other local elected officials, to develop the Cool Counties program. Cool Counties is designed to help counties across the country reduce greenhouse gas emissions through environmentally responsible land use policies, use of renewable energy, and other tools mentioned in the template. Since your Board has already adopted far-sighted open space preservation and watershed protection policies, I hope you and your colleagues will consider signing the Cool Counties Declaration. You will find the Declaration and best practices template enclosed with this letter. Thank you again for your leadership, and please do not hesitate to contact me if you have questions about Cool Counties or suggestions of best practices to add to the template.

Sincerely,



Gerald E. Connolly

GEC/zf

## **U.S. Cool Counties Climate Stabilization Declaration**

WHEREAS, there is a consensus among the world's leading scientists that global warming caused by human emission of greenhouse gases is among the most significant problems facing the world today;

WHEREAS, documented impacts of global warming include but are not limited to increased occurrences of extreme weather events (i.e., droughts and floods), adverse impacts on plants and wildlife habitats, threats to global food and water supplies – all of which have an economic impact on communities and their local governments;

WHEREAS, leading scientists have projected that stabilization of climate change in time to minimize such impacts will require a reduction of global warming emissions to 80 percent below current levels by the year 2050;

WHEREAS, currently the United States is responsible for producing approximately 25 percent of the world's global warming pollutants;

WHEREAS, many leading U.S. companies that have adopted greenhouse gas reduction programs to demonstrate corporate and operational responsibility have also publicly expressed preference for the federal government to adopt precise and mandatory emissions targets and timetables as a means by which to provide a uniform and predictable regulatory environment to encourage and enable necessary and long-term business investments;

WHEREAS, state, regional and local governments throughout the United States are adopting emissions reduction targets and programs and that this effort is bipartisan, coming from Republican and Democratic leadership;

WHEREAS, the U.S. Conference of Mayors has endorsed the U.S. Mayors Climate Protection Agreement, which commits cities to reduction of global warming emissions to 7 percent below 1990 levels by 2012, and calls for a federal limit on emissions;

WHEREAS, the State of California has mandated statewide reduction of greenhouse gas emissions to 80 percent below 1990 levels by 2050;

WHEREAS, more than 100 county leaders signed a letter written by Dane County, Wisconsin, that was sent to the President in March 2006 calling for increased energy investment and development of jobs focused on clean energy technologies;

WHEREAS, counties have a unique role to play in reducing greenhouse gas emissions and preparing for the impacts of climate change through their regional jurisdiction over policy areas such as air quality, land use planning, transportation, zoning, forest preservation, water conservation, and wastewater and solid waste management;

WHEREAS, the economic arguments for implementing climate solutions are compelling, from the near-term economic gains of energy efficiency to the long-term climate stabilization that can prevent irreparable harm from catastrophic climate change impacts;

WHEREAS, many counties throughout the nation, both large and small, are reducing global warming pollutants through programs that provide economic and quality of life benefits such as reducing energy bills, preserving green space, implementing better land use policies, improving air quality, promoting waste-to-energy programs, expanding transportation and work choices to reduce traffic congestion, and fostering more economic development and job creation through energy conservation and new technologies;

NOW, THEREFORE WE DECLARE,

We as Cool Counties will take immediate steps to help the federal, state, and our governments within our county to achieve the 2050 climate stabilization goal by making the following commitments:

- i. Create an inventory of our county government (operational) greenhouse gas ("GHG") emissions and implement policies, programs and operations to achieve significant, measurable and sustainable reduction of those operational GHG emissions to help contribute to the regional reduction targets as identified in paragraph ii;
- ii. Work closely with local, state, and federal governments and other leaders to reduce county geographical GHG emissions to 80 percent below current levels by 2050, by developing a GHG emissions inventory and regional plan that establishes short-, mid-, and long-term GHG reduction targets, with recommended goals to stop increasing emissions by 2010, and to achieve a 10 percent reduction every five years thereafter through to 2050.
- iii. Urge Congress and the Administration to enact a multi-sector national program of requirements, market-based limits, and incentives for reducing GHG emissions to 80 percent below current levels by 2050. Urge Congress and the Administration to strengthen standards by enacting legislation such as a Corporate Average Fuel Economy ("CAFE") standard that achieves at least 35 miles per gallon (mpg) within 10 years for cars and light trucks.

We will take immediate steps to identify regional climate change impacts; we will draft and implement a county plan to prepare for and build resilience to those impacts.



## **Cool Counties Policies and Programs Template**

**Presented at the National Association of Counties Annual Conference  
July 16, 2007**



# Preface

## **Cool Counties Climate Stabilization Initiative**

The threats of global climate change are now widely recognized as being among the most pressing issues facing us today. Recent statements by the world's scientific community affirm that there is no longer any doubt that human influences and activity play a major role in climate change.

Acting individually to address climate change will help, but we also must have a concerted, coordinated effort if we are to address this problem adequately. We as local governments may not regulate emissions from power plants, automobiles or even lawn and garden equipment, but we have both the opportunity and the responsibility to take aggressive steps to reduce our operational greenhouse gas emissions, while at the same time leveraging our collective resources within our regions through the appropriate boards and committees. We also must recruit our state and federal partners to take similar actions.

The "Cool Counties" Initiative consists of two parts: A pledge on our part to take action and a plan to carry that out. The U.S. Cool Counties Climate Stabilization Declaration serves as the pledge piece. The drafting of this declaration was led by King County, Washington, with input from the partners, including Fairfax County and the Sierra Club. Fairfax County took the lead on the operational planning guidance. The Cool Counties Policies and Programs Template provides a menu of policies and actions that local governments can use to help achieve the goals identified in the Cool Counties Declaration. The Template is still a work-in-progress, one that we envision turning over to our partners for development as a national best practices manual.

The Cool Counties Declaration consists of three key elements. The first asks county governments to commit to reducing their operational greenhouse gas (GHG) emissions by first creating an inventory of their local emissions and then planning and implementing policies and programs to achieve significant, measurable and sustainable reductions.

The second element of the Declaration calls on local governments to work closely with their regional and state governments and others to reduce regional GHG emissions to 80 percent below current levels by 2050. The idea is to develop regional GHG emissions inventories and create regional implementation plans that establish short-, mid-, and long-term emissions reduction targets. The goal is to stop the increase in emissions by 2010, and to achieve average reductions of 10 percent every five years thereafter through to 2050.

The third element of the Declaration calls on counties to urge Congress and the Administration to enact a multi-sector national program of market-based limits and incentives for reducing GHG emissions to 80 percent below current levels by 2050, and to urge Congress and the Administration to strengthen standards by enacting legislation such as a Corporate Average Fuel Economy ("CAFE") standard that achieves at least 35 miles per gallon (mpg) within 10 years for cars and light trucks.

The Cool Counties Policies and Programs Template, the menu or tool kit of suggested policies and programs for implementation, is designed to provide counties guidance on developing their own greenhouse gas emissions reduction plans. The document is divided into seven solution areas that are common to all local governments. It is not expected that every county will implement all of the policies and/or actions within the template, just those that are most applicable to their situation. Bridging diverse local and regional interests requires a flexible initiative that allows different types of commitments for different counties. Each solution area contains policies, actions and strategies for achieving emissions reductions. While each jurisdiction's Cool Counties plan will be unique, at a minimum, the plans (either as a separate plan or a plan that is woven into a larger environment or land use plan) should specify how each county is addressing global climate change.

In conclusion, it is worth noting the U.S. Mayors Climate Protection Agreement provided a necessary catalyst to facilitate dialogue on this important environmental issue. Likewise, the Sierra Club's Cool Cities program was instrumental in recruiting cities from across the country to sign the agreement and develop solutions to reduce their greenhouse gas emissions to 7 percent below 1990 levels. To date, nearly 600 cities have accepted the challenge. Cool Counties will complement Cool Cities, but will be more rigorous and comprehensive.

Gerald E. Connolly  
Chairman  
Board of Supervisors  
Fairfax County, Virginia

Ron Sims  
County Executive  
King County, Washington

Carl Pope  
Executive Director  
Sierra Club

# Planning Guide

## Cool Counties Climate Stabilization Initiative

While every local jurisdiction's Cool Counties Climate Change Stabilization Plan will be unique, the four steps shown below can be used as a general guide in the development of a plan.

1. **Conduct a baseline emissions inventory.** Ideally, the inventory should be as comprehensive as possible. However, as a starting point, the local government could choose to begin by conducting an initial inventory on the energy efficiency solutions area in the template. The starting base year would be selected based upon the availability of reliable data (e.g., 2005). The inventory will provide a base emissions benchmark against which the county can measure future reductions and success.
2. **Adopt an emissions reduction target.** In the Cool Counties Declaration, individual counties pledge to "create an inventory of county government (operational) greenhouse gas ("GHG") emissions and implement policies, programs and operations to achieve significant, measurable and sustainable reduction of those operational GHG emissions..." The county may elect to pass a resolution or adopt a policy to reduce energy consumption in county operated buildings by a specified percentage (e.g., 1% per year). The target would help guide the planning and implementation of solutions to achieve "significant, measurable and sustainable" reductions of county operational GHG emissions while supporting the regional goal of reducing emissions 80% below current levels by 2050.
3. **Develop and implement a Cool Counties Climate Stabilization Plan.** While every local jurisdiction's plan will be unique and based on specific circumstances of the county, at a minimum each plan should include policies, programs and operations that the local government will take to reduce greenhouse gas emissions and achieve its emissions reduction target(s). An implementation plan may also include timelines, a description of financing mechanisms, and an assignment of responsibility to departments and staff. In addition, a successful plan should include a public outreach and education effort. Please see the Cool Counties Policies and Programs Template for a list of actions that local governments can implement.
4. **Monitor and verify results.** Monitoring and verifying progress on the implementation of policies, programs and operations to reduce or avoid greenhouse gas emissions is an essential and ongoing process. Monitoring begins once actions are implemented and continues for the life of the action, providing important feedback that can be use to improve the action over time.

Additional planning guidance can be found through the U.S. Environmental Protection Agency's website at [www.epa.gov](http://www.epa.gov).



# Cool Counties Policies Template<sup>1</sup>

## Solution Areas

1. Energy Efficiency
2. Renewable Energy
3. Fleets/Vehicles/Equipment
4. Land Use
5. Transportation
6. Education and Outreach
7. Water Conservation

<b>POLICIES</b>			
Has your jurisdiction adopted policy to address the following? Check "yes" or "no" or "not applicable" for each of the following:			
<b>I. Energy Efficiency Policies</b>	<b>Yes</b>	<b>No</b>	<b>Not Applicable</b>
a. Promote waste reduction	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Promote energy efficiency in county owned and operated facilities	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Promote energy efficiency in residential and commercial buildings.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. Promote green building certification for new county facilities (e.g., LEED or equivalent)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. Promote green building certification for new commercial facilities (e.g., LEED or equivalent)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f. Promote employee energy conservation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g. Promote energy conservation through energy-efficient outdoor lighting design in public and private sector development projects	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
h. Promote use of energy-conserving landscaping on publicly and privately owned properties	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
i. Promote environmental performance contracting	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
j. Promote clean, distributed energy projects (power generated on site rather than transmitted)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

<sup>1</sup>The checklist is a tool to help you gauge your jurisdiction's current level of policies, programs and operations that can be effective in reducing greenhouse gas emissions. Further, the checklist can also assist you in plans for the future. The "not applicable" column is provided because not all programs and operations are applicable in all jurisdictions. Therefore, once the checklist is completed, the "nos" can assist you in identifying potential future priorities to reduce greenhouse gas emissions in your jurisdiction and region.

## POLICIES TEMPLATE (cont'd)

Has your jurisdiction adopted policy to address the following? Check "yes", "no", or "not applicable" for each of the following:

2. Renewable Energy Policies	Yes	No	Not Applicable
a. Promote use of energy from renewable energy resources	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Promote use of incentives for residential and business buildings that generate energy from renewable energy resources	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Promote net metering (allows owners to be reimbursed for any excess electricity they generate from alternative sources)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Alternative Fuels Policies</b>			
a. Promote driver behavior and/or incorporate technologies to reduce vehicle engine idling	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Promote use of incentives for purchase of hybrid alternative fueled vehicles with lower greenhouse gas emissions	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Promote use of alternative fueled, electric, hybrid, or plug-in hybrid drive vehicles with lower greenhouse gas emissions within fleet	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. Promote retrofitting and re-powering of fleets and equipment to maximize fuel efficiency and greenhouse gas emissions reductions	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. Promote fuel economy goals for own fleet operations	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Land Use Policies</b>			
a. Promote mixed use development	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Promote transit-oriented development	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Promote tree preservation and tree planting efforts	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. Establish tree cover goals	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. Promote the protection and preservation of natural areas	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

## POLICIES TEMPLATE (cont'd)

Has your jurisdiction adopted policy to address the following? Check "yes" or "no" or "not applicable" for each of the following:

Transportation Policies			
a. Promote motorized transportation practices that reduce emission of greenhouse gases	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Promote non-motorized transportation practices that reduce emission of greenhouse gases	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Promote transportation demand management measures	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Water Conservation Policies			
a. Promote the education of county staff on Global Climate Change, and county efforts to reduce greenhouse gas emissions, and sequestration of natural carbon forms	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Promote the education and outreach to county residents and businesses on Global Climate Change, and county efforts to reduce greenhouse gas emissions, and sequestration of natural carbon forms, as well as best practices that can be implemented in the home or business to reduce greenhouse gas emissions	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Promote education and outreach to schools on Global Climate Change, county efforts to reduce greenhouse gas emissions, and sequestration of natural carbon forms, as well as best practices that can be implemented to reduce greenhouse gas emissions	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Water Conservation Policies			
a. Promote the education of county staff, residents, businesses and schools on Global Climate Change and its impacts on potable water resources as well as county efforts to conserve water through "wise water use" policies	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Promote development of a local and/or "regional" water conservation policy and plan, where applicable	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>





# Cool Counties Programs Template

## Cool County Solution Areas

1. Energy Efficiency
2. Renewable Energy
3. Fleets/Vehicles/Equipment
4. Land Use
5. Transportation
6. Education and Outreach
7. Water Conservation

<b>Programs &amp; Operations</b>			
Has your jurisdiction adopted programs or operations to address the following? Check "yes" or "no" or "not applicable" for each of the following:			
<b>1. Energy Efficiency Programs and Operations</b>			
a. Waste reduction programs. Examples include: recycling; composting; reuse; source reduction (source reduction = use of durable, reusable and remanufactured products; products with no, or reduced, toxic constituents; and products marketed with no, or reduced packaging)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Energy efficiency in county owned and operated facilities			
<ul style="list-style-type: none"> <li>All new county buildings are designed to include energy efficient and low emission equipment. (Energy Star ® compliant appliances, heating and cooling equipment, lighting fixtures, electronics, commercial food services, e.g., vending machines)</li> </ul>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<ul style="list-style-type: none"> <li>Renovations of existing buildings are designed to reduce energy consumption. (Energy Star ® compliant appliances, heating and cooling equipment, lighting fixtures, electronics, commercial food services, e.g., vending machines)</li> </ul>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<ul style="list-style-type: none"> <li>All new county buildings are designed to be at least 30% more efficient than the ASHRAE standards. Examples to achieve this include: life cycle cost analysis; energy management control systems; energy use tracking; energy review of new designs; incorporating day lighting designs in new buildings</li> </ul>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>



1. Energy Efficiency Programs and Operations (cont'd)	Yes	No	Not Applicable
h. Use of energy efficient landscaping practices on publicly and privately owned properties	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
i. Contracts include language that requires vendors to meet emissions performance standards for construction equipment	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

### **Cool County Solution Areas**

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<b>Programs &amp; Operations</b>			
Has your jurisdiction adopted programs or operations to address the following? Check "yes" or "no" or "not applicable" for each of the following:			
<b>2. Renewable Energy – Programs and Operations</b>	<b>Yes</b>	<b>No</b>	<b>Not Applicable</b>
a. Purchase or generate energy from renewable energy resources. Examples include: solar; wind; geo-thermal; biomass; hydro-electric; energy-from-waste; landfill gas-to-energy; waste heat recovery	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Installation of clean, distributed energy projects (solar; wind; geo-thermal; biomass; hydro-electric; energy-from-waste; landfill gas-to-energy; waste heat recovery) that result in power generated on-site rather than transmitted	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Established incentives for owners of buildings (residential and business) that generate energy from a renewable resource	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. Use net-metering (home/business owners are reimbursed for any excess electricity they generate from alternative sources)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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<b>Programs &amp; Operations</b>			
Has your jurisdiction adopted programs or operations to address the following? Check "yes" or "no" or "not applicable" for each of the following.			
Fleets/Vehicles/Equipment Programs and Operations			
a. Engine idling reduction programs/operations. Examples include: Institution of enforceable engine idling regulations; incorporation of systems to power accessories with vehicle engine off (e.g., APU, battery powered systems, share power systems; improve efficiency of weigh station operations to reduce idling; driver education and outreach program; automatic idle shut-offs; orientation for new drivers and periodic refresher information on idle reduction techniques	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Established incentives for purchased hybrid or other vehicles with reduced greenhouse gas emissions. Examples include: tiered or graduated rated based on greenhouse gas emissions (rather than by fuel type or technology) by class or category; targeted incentives for specific fuels or technologies (e.g., biodiesel or plug-in hybrids)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Purchase low greenhouse gas emitting vehicles to replace existing or "retiring" conventional, fossil-fuel vehicles	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. Engine retrofits or re-powers to maximize use of advanced engine technologies and low greenhouse gas emitting fuels	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. Establish a fleet fuel use tracking program to find areas needing improvement. Examples include: report fuel use by class against an established standard; report use by vehicle against a class standard	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

### Cool County Solution Areas

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### **Programs & Operations**

Has your jurisdiction adopted programs or operations to address the following? Check "yes" or "no" or "not applicable" for each of the following:

a. Incorporate language in county zoning ordinance and/or other applicable ordinance to support mixed use development (compact development incorporating a mix of residential, commercial, employment/office, and/or civic land uses)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Incorporate language in county zoning ordinance and/or other applicable ordinance to support transit-oriented development (concentration of new development in proximity to transit facilities)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Established minimum tree preservation and tree planting thresholds/requirements for new development and redevelopment projects	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. Tree conservation program	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. Protection and preservation of natural areas through land acquisition and/or acquisition of conservation easements. Examples include: purchase land for protection and passive recreation; partner with land trusts to acquire conservation easements for preservation and protection; acquire conservation easements through development process	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

## **Cool County Solution Areas**

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### **Programs & Operations**

Has your jurisdiction adopted programs or operations to address the following? Check "yes" or "no" or "not applicable" for each of the following:

5. Transportation - Programs and Operations			
a. Motorized transportation practices that reduce emission of greenhouse gases. Examples include: HOV or HOT lanes; traffic signalization; reduce toll congestion; regional pass system (e.g., SMART, E-Z pass), "smart bus" system at stops displaying time until next bus arrives; enforceable idling regulations; expeditious clearing of traffic accidents; airport traffic mitigation programs and practices	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Non-motorized transportation practices that reduce emission of greenhouse gases. Examples include: provision of secure bicycle facilities; bicycle lanes; locker/shower facilities in offices; extensive, well-maintained, safe, and well-connected trail system	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Transportation demand management measures. Examples include: county telework program; bus shelters; encourage teleworking in the private sector; alternative satellite work space program; incentives to participate in ride share/car pool programs; shuttle buses; transit incentives; transit use goals; park and ride facilities; alternative work scheduling programs (e.g., flex-time, compressed workweek, staggered work hours)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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### **Programs & Operations**

Has your jurisdiction adopted programs or operations to address the following? Check "yes" or "no" or "not applicable" for each of the following:

a. Employee education campaigns about internal efforts and programs as well as best practices to be implemented in the workplace and at home to reduce greenhouse gas emissions. Examples include: energy efficiency education; renewable energy education; fleets/vehicles/equipment education; land use education; transportation education; water conservation education	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Education of residents and businesses about county efforts and best practices to be implemented in homes and businesses to reduce greenhouse emissions. Examples include: energy efficiency education; renewable energy education; fleets/vehicles/equipment education; land use education; transportation education; water conservation education	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Education and outreach to schools about County efforts and best practices to be implemented to reduce greenhouse emissions. Examples include: energy efficiency education; renewable energy education; fleets/vehicles/equipment education; land use education; transportation education; water conservation education	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>



### **Cool County Solution Areas**

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### **Programs & Operations**

Has your jurisdiction adopted programs or operations to address the following? Check "yes" or "no" or "not applicable" for each of the following:

#### **Water Conservation Education Program**

- a. Employees, residents, businesses and schools education and communication campaign about county efforts and programs as well as regional best practices to be implemented in the workplace and at home to "use water wisely" by providing specific water conservation tips for home, office as well as indoor and outdoor. Some examples are shown below.

- GENERAL WATER CONSERVATION TIPS
  - Repair leaks promptly
  - Install water-saving devices
  - Plant water-conserving plants
  - Minimize lawn watering
- INDOOR CONSERVATION TIPS
  - Conserve water in the bathroom
  - Conserve water in the kitchen
- OUTDOOR CONSERVATION TIPS
  - Let grass grow taller as taller grass is more drought resistant
  - Plant in the fall or spring when watering requirements are less
  - Use pool covers to reduce evaporation
  - Use mulch around plants to conserve water
  - Repair leaky hose connections

☐
☐
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Water Conservation Planning			
<p>b. Develop and implement a local and/or regional water supply plan to build resilience to drought or other natural or anthropogenic influence that might otherwise create short or long-term water shortages. The water supply planning outcomes could include:</p> <ul style="list-style-type: none"> <li>▪ General public awareness</li> <li>▪ Local and/or regional water conservation plan</li> <li>▪ Water supply/resource information</li> <li>▪ Government/utility information</li> <li>▪ Wise water use tips</li> <li>▪ Drought monitoring</li> <li>▪ Drought awareness/education</li> <li>▪ Drought communication tools</li> <li>▪ Water use restrictions/enforcement</li> </ul>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>