GUIDANCE

10% RULE
RESIDENTIAL SINGLE LOT - SINGLE-FAMILY
DEVELOPMENT AND REDEVELOPMENT
GUIDELINES

Less than 250 Square Foot Disturbance

Recommend to the applicant that they plant trees and/or shrubs insofar as possible. Use discretion based on specifics of site and type of project. No offset mitigation or banking mitigation is recommended.

250 Square Foot to 5000 Square Foot Disturbance

1. As per the applicant's guide on the 10% rule, no math or worksheet is required. The staff will choose a Best Management Practice (BMP) appropriately suited for the site based on best judgment.

2. If the applicant is unable to utilize the recommended BMP due to site constraints, they should be required to do tree and shrub plantings (use only native species from the list supplied in Buffer policy paper), at the following levels:

   Inside the Buffer Exemption Area and Buffer: Three trees per 100 square foot new impervious surface minimum.

   Outside the Buffer: One tree per 100 square foot new impervious surface minimum.

3. If the applicant is unable to employ number two, they should be required to use mitigation banking. Mitigation rates range from $.02/sq.ft. to $2.50/sq.ft. Current quotes from nurseries for trees and planting, times (x) a multiplier of 3 is also used. All mitigation fees shall be deposited in a municipal savings account dedicated solely for stormwater retrofit projects.

4. Employ bonding and guarantee of survivability procedures; all applicants should provide a narrative as required in applicant's guide to the 10% rule; recommend nursery grown container or balled and burlap four foot minimum height trees.

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DRAFT

10% RULE

RESIDENTIAL SINGLE LOT - SINGLE-FAMILY DEVELOPMENT & REDEVELOPMENT GUIDELINES

LESS THAN 250 SQ. FT. DISTURBANCE

Recommend to the applicant that they plant trees and/or shrubs insofar as possible. Use discretion based on specifics of site and type of project. No offset mitigation or banking mitigation is recommended.

250 SQ. FT. TO 5,000 SQ. FT. DISTURBANCE

1. As per the applicant's guide on the 10% rule no math or worksheet is required. The staff will chose a Best Management Practice (BMP) appropriately suited for the site based on best judgement.

2. If the applicant is unable to employ the recommended BMP due to site constraints they will then be required to use mitigation banking. The mitigation rate will be _____. All mitigation fees shall be deposited in a municipal savings account dedicated solely for stormwater retrofit projects.

3. If the applicant is unable to utilize option number two they shall be required to do tree and shrub plantings at the following levels:

Inside the Buffer:	Three trees per 100 Sq. Ft. new impervious surface minimum
Outside the Buffer:	One tree per 100 Sq. Ft. new impervious surface minimum. Use only native species from the list supplied in Buffer policy paper).

NOTES: 1. Employ bonding procedures. 2. All applicant's must provide a narrative as required in applicant's guide to the 10% rule.

TIPS ON CALCULATING YOUR TREE PLANTING REQUIREMENTS IN THE CRITICAL AREA

One of the goals of the Critical Area program is to provide for the beneficial use of forests and forest cover, while protecting water quality and wildlife habitat. In order to achieve this goal, the Critical Area Program tries to maintain no net loss in the overall amount of forest in the Critical Area. There are principally three ways through which this is accomplished: afforestation, reforestation and mitigation for variances and violations.

REFORESTATION

In the LDA (Limited Development Area) and RCA (Resource Conservation Area) where clearing of existing vegetation is to occur, replacement shall be at no less than a one to one basis. The procedure for calculating the number of trees which must be replaced is similar to afforestation, except that the amount of clearing triggers the application of additional planting. In order to calculate the amount of trees you will need to plant you must use the following formula.

1. Measure the area in square feet (or if in acres, convert to square feet) of tree cover existing on the lot.

This number should be the total amount of woods, shrub, scrub, type vegetation on your lot.

2. Measure the amount of vegetation to be cleared (in square feet).

3. To find the amount of additional planting, if required, divide the number in "2" by the number in "1."

This number represents the percentage of the forest cover that you wish to clear. If the number in "3" is .20 or less, then you may take the number from "2" and proceed to "5" if the number in "3" is between .20 and .30; or greater than .30 then go to "4."

4. If the number in "3" is between .20 and .30, then multiply the number from "2" by 1.5, and proceed to "5."

   Or if the number in "3" is greater than .30, then multiply the number from "2" by 3, and proceed to "5."

5. Choose the size of planting you would like: trees, shrub or seedlings. These sizes are assigned a different per square foot value. They may be mixed and matched. **"Trees"** mean nursery trees which are balled and burlapped or in 15 gallon or greater size containers which are six (6) feet tall. these trees each receive a credit of 100 square feet toward the requirement. **"Shrubs"** mean three gallon size nursery shrubs. These shrubs each receive a credit of 50 square feet toward the requirement. **"Seedlings"** mean two year old or older whips which can be obtained in the spring from the state or from a private nursery at a nominal fee. These seedling each receive a credit of 70 square feet toward the requirement.

6. The number in "2" is divided by the credit assigned to the size tree you selected (100 or 70) if less than .20 in "3". If the

STATE OF MARYLAND

To: Darlene

From: Marylou Date 3/16/95

- [x] For Your Information
- [ ] Discuss With Me
- [ ] For Signature
- [ ] Please Handle
- [ ] As Requested
- [ ] Reply Directly, Copy to Me
- [ ] For Comment / Recommendations
- [ ] Prepare Reply For Signature of _____
- [ ] Reply Directly
- [ ] See Me _____
- [ ] High Priority
- [ ] By (date)_____
- [ ] For Your Concurrence
- [ ] Investigate / Prepare Report
- [ ] Circulate
- [ ] Follow-up
- [ ] Per Our Conversation
- [ ] You Keep
- [ ] Note and Return All
- [ ] For Additional Information
- [ ] _____

☐ **WHILE YOU WERE OUT**

M _____ Time: _____ A.M. P.M.

of _____ Phone: _____

- [ ] Telephoned
- [ ] Urgent
- [ ] Please call
- [ ] Will call again
- [ ] Wants to see you / appt.
- [ ] Came by to see you
- [ ] Returned your call

Notes: We can discuss the use of the different Sq. Ft. requirements and decide how the town would like to use this info.

SMF-15

Availability of Seedlings For Planting

During the winter months (Dec.-Feb.) orders for seedlings are accepted by the MD Forest, Park and Wildlife Service's Forest Tree Nursery. Contact the Bay Watershed Forester for information on availability of specific species and quantities available. The seedlings from the state nursery are available at cost of production.

Seedlings do not have to be purchased through the state's nursery, and can be obtained through local and regional private nurseries.

Planting Dates

Seedlings should be planted in the spring after all chance of freezing has pasted, and the high temperatures of summer commence. This will generally occur in Cecil County between mid-March and early May. Fall plantings are not encouraged due to the higher incidence of failure. If a fall planting is planned it should occur after the trees are completely dormant and before the ground freezes.

Spacing for Tree and Shrub Seedlings

Spacing adjacent to a stream will occur on a 6 ft. by 6 ft. basis. Other planting should be spaced to allow available equipment to move between the rows to control competing vegetation. Spacing the seedlings more then 10 ft. apart is not acceptable, since this will cause the planting to be delayed in it's intended establishment as a closed canopy woodland.

Controlling Competing Vegetation

It is important to control competing vegetation until the tree seedlings are tall enough to begin shading the adjacent vegetation. Control of competing vegetation can be accomplished by chemical means(approved herbicides) or mechanically, by mowing. In either case it is important to protect the seedlings themselves from damage while control of the competing vegetation is taking place (ie. use only herbicides approved for use on the specific species of trees being planted and use only in accordance with the labeled instructions; if control is through mowing be sure not to nick the seedlings with the machine). In general it can be expected to take 2 to 3 years of control to establish a pine planting, and approximately 5 years to establish a hardwood planting.

COMMON SPECIES AND USES

Common name	Mature Height (Feet)	Possible Uses
Alder	15-25	○○
Ash, green	30-50	●●○
Baldcypress	100-120	●○●
Crabapple	25-35	◉
Dogwood, flowering	40	◉○●
Dogwood, red-stemmed	7	○●○
Honeysuckle, bush	12-15	◉
Lespedeza, bicolor	12	◉
Locust, black	40-60	●◉
Maple, sugar	60-80	○●
Oak, northern red	60-80	◉○○●
Oak, pin	70-80	●○○●
Oak, sawtooth	35-45	○○●
Oak, white	80-100	●○○●
Olive, autumn	12-18	○●
Pine, black	20-40	○●○
Pine, eastern white	80-100	●○●○
Pine, loblolly	90-110	●●○
Spruce, blue	70-90	○○
Spruce, Norway	60-80	○◉
Walnut, black	70-90	●◉
Willow, streamco	8-10	○○
Yellow-poplar	120	●○

USE CODES

- ◉ **Wildlife:** food, cover, winter cover, breeding areas.
- ● **Forest Products:** lumber, veneer, pulp, firewood, posts.
- ◉ **Urban plantings:** ornamentals, windbreaks, sound barriers.
- ● **Conservation:** erosion control, reclamation, forest buffers.
- ○ **Streambank stabilization.**

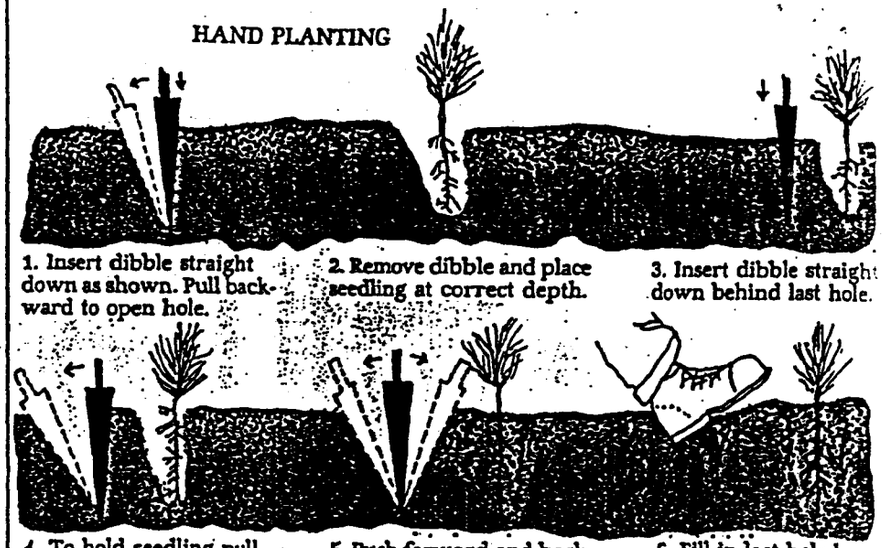
Spacings for Tree and Shrub Seedlings

FEET	SEEDLINGS PER ACRE
2×2	10,890
3×3	4,840
6×6	1,210
6×8	908
8×8	681
10×10	436
12×12	302

Consult your project forester for proper spacing of the species you select.

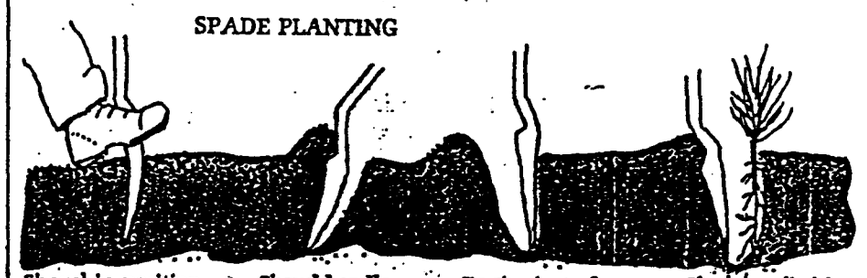
DIBBLE or PLANTING BAR

HAND PLANTING



1. Insert dibble straight down as shown. Pull backward to open hole.
2. Remove dibble and place seedling at correct depth.
3. Insert dibble straight down behind last hole.
4. To hold seedling pull dibble backward closing bottom of slit.
5. Push forward and backward packing soil firmly against root.
6. Fill in last hole by firming with heel.

SPADE PLANTING

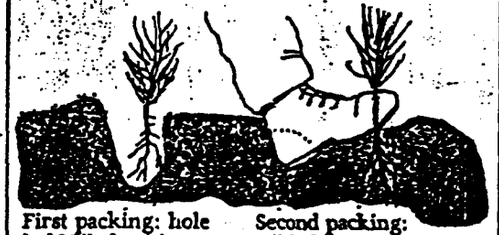


Shovel in position for starting planting hole, blade reversed, perpendicular.

Shovel handle pushed forward, bottom of hole opened up and dirt pulled back and out of hole.

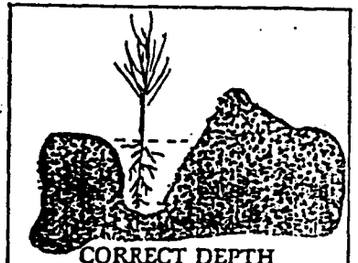
Beginning of second cut to straighten half of hole.

Shovel pulled back making clean hole. Tree placed in hole, roots in normal position.



First packing: hole half-filled with soil; tree in proper positioning; heel used in tamping.

Second packing: fill hole; cover packed surface with mulch or loose soil.



CORRECT DEPTH

At same depth or ½" deeper than seedling grew in nursery.

This publication was funded by the Maryland Department of the Environment and the US Environmental Protection Agency as part of the Susquehanna Watershed Project.

Generic Reforestation Plan
For
Minor Woodland Disturbance During Home Construction

Robert J. Northrop
Watershed Forester
MD Dept. of Natural Resources
Forest, Park and Wildl. Service
130 McKinneytown Rd.
North East, MD 21901
301-287-2918

All reforestation deemed necessary by the Cecil County Critical Areas program due to minor and incidental disturbance to woodlands shall follow these guidelines.

Planting Site Location

1. If a stream exists on the property, and it is not buffered or lined with trees, then the reforestation will occur adjacent to the stream's bank.

2. If no unbuffered stream exists on the property, and woodland is present, then the reforestation will occur adjacent to the woodland, thereby expanding the existing forestland.

3. If neither an unbuffered stream nor a woodland exists on the property, or if the reforestation is to occur because of the need to establish the minimum 15% forest cover on completely unforested lands, the planting will be as a block.

4. If the landowner is not satisfied with the alternatives presented above they may contact the Bay Watershed Forester to help in the development of a custom planting plan.

Tree Species To Be Used

Only naturally occuring forest tree species, native to this region are to be used for reforestation within this program. A list of suitable trees is included with this letter. The trees are listed according to the types (wet, moist, dry) of soil-site conditions that they are best suited to.

C = 1.08 if pre-development I >=20%
A = area of the development site (acres).
8.16 = includes regional constants and unit conversion factors.

Step 4: Calculate the Pollutant Removal Requirement (RR)

$RR = L_{post} - (0.9)(L_{pre})$
= ( ) - (0.9)( )
= _____ lbs P

Step 5: Identify Feasible Urban BMP

Select BMP Options using the screening tools and pollutant removal rates listed in the Applicant's Guide ***Tables 5.0, 5.1, 5.2, and 5.4*** Calculate the load removed for each option.

BMP Type	(* Removal Efficiency) x (Fraction of Drainage Area Served)	x	(L post)	=	Load Removed
_____	_____ x _____	x	_____	=	_____ lbs
_____	_____ x _____	x	_____	=	_____ lbs
_____	_____ x _____	x	_____	=	_____ lbs
_____	_____ x _____	x	_____	=	_____ lbs

If the Load Removed is equal to or greater than the pollutant removal requirement (RR) calculated in Step 4, then the on-site BMP option complies with the 10% Rule. *(See Table 5.3, page 16)* for submittal requirements for each BMP option.

*** Use decimal for efficiency rating. (*Example:* Use 0.50 for a 50% removal efficiency rating.)**

Step 2: Calculate the Pre-Development Load (L pre)

A. Redevelopment

L_{pre} = (Rv)(C)(A)8.16
R_v = 0.05 + 0.009(I_{pre})
L_{pre} = ( )( )( )8.16
= _____ lbs P/year

where:
R_v = runoff coefficient, which expresses the fraction of rainfall which is converted into runoff.
I_{pre} = site imperviousness (i.e., I=75 if site is 75% impervious)
C = flow-weighted mean concentration of the pollutant in urban runoff (mg/1).
C = 0.26 if pre-development I <20%
C = 1.08 if pre-development I >=20%
A = area of the development site (acres in the Critical Area).
8.16 = includes regional constants and unit conversion factors.

OR

B. New Development

L_{pre} = 0.5 lbs/year * A
= (0.5)( )
= _____ lbs P/year

Step 3: Calculate the Post-Development Load (L Post)

A. New Development and Redevelopment:

L_{post} = (Rv)(C)(A)8.16
R_v = 0.05 + 0.009(I_{post})
= 0.05 + 0.009(_____) =_____

L_{post} = ( )( )( )8.16
= _____ lbs P/year

where:
R_v = runoff coefficient, which expresses the fraction of rainfall which is converted into runoff.
I_{post} = site imperviousness (i.e., I=75 if site is 75% impervious)
C = flow-weighted mean concentration of the pollutant in urban runoff (mg/1).
C = 0.26 if pre-development I <20%

Worksheet A: Standard Application Process

Calculating Pollutant Removal Requirements *

Step 1: Project Description

A. Calculate Percent Imperviousness

1) Site Acreage =_____ acres
2) Site Imperviousness, existing and proposed, *(See Table 1.0 for details)*

	(a) Existing (acres)	(b) Post-Development (acres)
rooftop		
roads		
sidewalks		
parking lots		
pools/ponds		
decks		
other		
Impervious Surface Area		

Imperviousness (I)
Existing Impervious Surface Area/Site Area = (Step 2a)/(Step 1)= _____
Post-Development Impervious Surface Area/Site Area = (Step 2b)/(Step 1)= _____

B. Define Development Category (circle)

1) Redevelopment: Existing imperviousness greater than 15% I *(Go to Step 2A)*
2) New development: Existing imperviousness less than 15% I *(Go to Step 2B)*
3) Single Lot Residential: Single lot being developed or improved; single family residential; and more than 250 square feet being disturbed. *(Go to Page 27- Single Lot Residential sheet for remaining steps).*

* NOTE: All acreage used in this worksheet refer to areas within the IDA of the critical area only.

10% DEVELOPMENT AND REDEVELOPMENT GUIDELINES

- All projects less then 250 square feet are exempt. However, it is recommended that the applicant plant trees and/or shrubs insofar as possible using the one (1) per 100 square foot ratio.

- All other projects except single lot residential must complete the required worksheet(s). This applies to subdivisions, site plans, and all commercial and industrial development over 250 square feet.

- Single lot residential projects (building permit applications) should follow the procedure outlined in the Applicant's Guide p. 27, this includes the narrative. These measures are geared to slowing down the runoff generated by the development. The best management practices selected by the applicant should be noted on the building permit, and verification of their installation should be obtained before the occupancy permit is issued.

  - If the applicant is unable to employ a recommended BMP because of site constraints, they should be required to do tree and shrub plantings at the following levels:

    - Inside the Buffer: Three (3) trees per 100 square feet of new impervious surface. Use only native species.

    - Outside the Buffer: One (1) tree per 100 square feet of new impervious surface created. Use only native species.

DRAFT

10% RULE

RESIDENTIAL SINGLE LOT - SINGLE-FAMILY DEVELOPMENT & REDEVELOPMENT GUIDELINES

LESS THAN 250 SQ. FT. DISTURBANCE

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250 SQ. FT. TO 5,000 SQ. FT. DISTURBANCE

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TIPS ON CALCULATING YOUR TREE PLANTING REQUIREMENTS IN THE CRITICAL AREA CONTINUED

number calculated in "3" was greater than .20, divide the number calculated in "4" by the credit assigned to the size tree you selected.

This number is the total number of trees or seedlings you are required to plant. We recommend that if you are planting trees that you plant them 20 feet apart and if you are planting seedlings you plant them 10 feet apart.

TIPS ON CALCULATING YOUR TREE PLANTING REQUIREMENTS IN THE CRITICAL AREA

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2. Measure the amount of vegetation to be cleared (in square feet).

3. To find the amount of additional planting, if required, divide the number in "2" by the number in "1."

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4. If the number in "3" is between .20 and .30, then multiply the number from "2" by 1.5, and proceed to "5."

   Or if the number in "3" is greater than .30, then multiply the number from "2" by 3, and proceed to "5."

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6. The number in "2" is divided by the credit assigned to the size tree you selected (100 or 70) if less than .20 in "3". If the

TIPS ON CALCULATING YOUR TREE PLANTING REQUIREMENTS IN THE CRITICAL AREA CONTINUED

number calculated in "3" was greater than .20, divide the number calculated in "4" by the credit assigned to the size tree you selected.

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SELECTED NATIVE TREES AND SHRUBS
FOR PLANTING IN THE CRITICAL AREA

SHRUBS

RED CHOKEBERRY
Aronia arbutifolia
Height: 6'-10', Spread: 3'-5'
Upright multistemmed shrub, somewhat open and rounded. Adaptable to many soil types . Full sun to half shade. Used in border and mass plantings. Fruit eaten by songbirds.

SWEET PEPPERBUSH
Clethra alnifolia
Height: 3'-8', Spread: 4'-6'
Oval, round topped, erect, dense leafy shrub. Transplant into moist, organic soils. Full sun or shade. Excellent for summer flower, shrub border. Good plant for wet areas and heavy shade. Limited wildlife value.

SILKY DOGWOOD
Cornus ammomum
Height: 7'-9', Spread: 10'
Loose, broad spreading, rounded multistemmed shrub. Spreads freely. Adaptable to a wide range of soil conditions. Does well in moist soil. Effective bank cover to hold soils. Cuttings are easily established in early spring. Established readily, and are a valuable wildlife food. High wildlife value for fruit and browse. Used by a wide variety of mammals and songbirds, including cardinals, grosbeaks, robins, thrush, vireos and cedar waxwing.

INKBERRY
Ilex glabra
Height: 6'-8', Spread: 8'-10'
Upright multibranched, rounded shrub. Prefers moist, acid soils. Excellent for hedges, mass plantings. Berries used by a wide variety of wildlife.

WINTERBERRY
Ilex verticillata
Height: 6'-10', Spread: same
Oval, rounded, deciduous shrub holly. Tends to form multistemmed clumps. Does well in light and heavy soils. Prefers moist, organic soils. Excellent for mass plantings and shrub borders. Red fruit is beautiful in winter. A male plant is necessary for fertilization. Used extensively by many songbirds, particularly thrushes, mockingbirds, robins, bluebirds, and thrashers.

DRAFT

VIRGINIA SWEETSPIRE
Itea virginica
Height: 3'-5', Spread: 6'-8'
Erect shrub with clustered branches. Prefers moist, fertile soils. Full sun or shade. Suited for wet areas. Excellent fall color. Fruit capsules are used by some songbirds.

MOUNTAIN LAUREL
Kalmia latifolia
Height: 7'-15', Spread: same
Large, robust shrub, becomes open with age. Requires moist, well drained soils in full sun or shade. Use in mass in shady borders. Mammals eat foliage and twigs. Utilized extensively by mammals and birds for winter shelter.

SWEETBAY MAGNOLIA
Magnolia virginiana
Multistemmed, open shrub. Likes wet, acid soils. Tolerates shade. Wildlife value is low. Seeds are eaten by some mammals and birds. Foliage is used by several birds for nest building.

WAX MYRTLE
Myrica cerifera
Height: 5'-12', Spread: same
Evergreen, upright, rounded, dense shrub. Adaptable to many soil conditions, including poor and wet soils. Full sun to 1/2 shade. Excellent for mass borders. Combines well with broadleaf evergreens. Berry wax is used for candles. Fruit is eaten by a variety of birds in small quantities including tree swallows and yellow-rumped warblers.

ROSEBAY RHODODENDRON
Rhododendron maximum
Height: 4'-10, Spread: same
Small, rounded evergreen shrub. Plant in moist, well drained soils. Prefers partial shade. Used in shrub borders, groupings, massings and foundations. Limited wildlife value except as browse for deer and winter cover for songbirds.

NATIVE AZALEAS
Prefer sunnier locations than rhododendrons and are usually smaller in size. Azaleas are also limited in wildlife value but are beautiful in landscaped situations.

SWAMP AZALEAS
Rhododendron viscosum
Prefers wet conditions.

HIGHBUSH BLUEBERRY
Vaccinium corymbosum
Height: 6'-12', Spread: 8'-12'
Upright, multistemmed shrub with spreading branches. Requires

moist, well-drained soils. Full sun or light shade. Blends well into shrub borders. Used heavily by scarlet tanager, bluebirds, thrushes and other songbirds.

ARROWWOOD VIBURNUM
Viburnum dentatum
Height: 6'8', Spread: 6'-15'
Multistemmed, dense, rounded shrub. Adaptable to most soil conditions, but prefers well drained. Suckers freely. Good in hedges and mass plantings. Used by brown thrasher, cedar waxwing, squirrels and deer.

NANNYBERRY
Viburnum lentago
Height: 15'-18', Spread: 6'10'
Shrub or small tree with open habit. Adapts to a wide range of soil conditions. Sun or partial shade. Use as naturalized plant in shrub borders, as background or screen plant. See Arrowwood Viburnum for wildlife value.

BLACKHAW VIBURNUM
Viburnum prunifolium
Height: 12'-15, Spread: 8'-12'
Round-headed tree or multistemmed shrub. Adaptable to many soil types. Sun or shade. Good for massing, shrub border or groupings. See Arrowwood Viburnum for wildlife value.

SMALL TREES

SHADBUSH OR SERVICEBERRY
Amelanchier canadensis
Height: 6'-20', Spread: 10'
Erect stems, often clumped. Blends well on the edge of woodland or shrub border. Important berry producer during the early summer months. Fruit eaten by bluebirds, cardinals, and tanagers. Foliage is used by browsers.

EASTERN REDBUD
Cercis canadensis
Height: 20'-30', Spread: 25'-30'
Small tree with rounded crown, pink to purplish flowers in April. Likes moist, well drained soils. Full sun to light shade. Good in shrub border. Limited wildlife value.

WHITE FRINGETREE
Chionanthus virginicus
Height: 12'-20', Spread: same
Open habit, often wider than high. Prefers moist, fertile soils and full sun. Good in groups, borders or near large buildings. Limited wildlife value.

FLOWERING DOGWOOD
Cornus florida
Height: 20', Spread: 15'-20'
Small tree with flat topped crown. Place in well drained soil. Full sun to partial shade. Has character in all four seasons. Good in a woodland group setting. Fruit is an important food source for songbirds including grosbeak, cardinals, robins and cedar waxwings.

LARGE DECIDUOUS TREES

RED MAPLE
Acer rubrum
Height: 40'-60', Spread: same
Habit is pyramidal in youth and rounded with age. Tolerant of moist soils, but prefers slightly acid, moist conditions. Naturally occurs in wet areas. Excellent fall color. Buds, flowers and leaves provide food for many birds and mammals. Chipmunks and squirrels eat seeds and some songbirds use stalks for nest building.

RIVER BIRCH
Betula nigra
Height: 40'-70', Spread: 40'-60'
Pyramidal in youth and rounded with age. Often grown multistemmed. Best adapted to moist soils. Used in areas that are alternately wet and dry. Catkins are used by songbirds. Foliage is used by browsers.

SHAGBARK HICKORY
Carya ovata
Height: 60'-80'+, Spread: 40'-60'
Straight trunk with an oblong crown. Bark breaks up in thin plates. Difficult to transplant, start as seedling. Because its exfoliating bark and nuts make it a "dirty" tree, best reserved for woodland border. Leaves are used by browsers. Nuts are also consumed by deer, turkey, foxes, wood ducks, and squirrels.

COMMON HACKBERRY
Celtis occidentalis
Height: 40'-60', Spread same
In youth weakly pyramidal; in old age the crown is a broad top of ascending,arching branches. Medium to fast growth. Prefers rich, moist soils, but grows in dry, heavy or sandy, rocky soils; withstands acid or alkaline conditions; moderately wet or very dry areas; tolerates wind; full sun; withstands urban conditions. Fruit is fleshy, orange to dark purple, ripening in September to October. Leaves are yellow to yellow-green in fall. Useful tree for adverse growing conditions. Fruit is popular with winter birds, especially the cedar waxwing and mockingbird.

AMERICAN BEECH
Fagus grandifolia
Height: 50'-70'+, Spread: same
Often has short trunk with wide spreading crown. Likes moist, well drained soils. Does best in full sun, but tolerates shade. Beechnuts are eaten by birds and mammals and are important food for chipmunks and squirrels.

WHITE ASH
Fraxinus americana
Height: 50'-80', Spread: same
Pyramidal in youth and later developing an open rounded crown. Grows best on deep, well drained soils and full sun. Moderate importance to wildlife. Seeds eaten by wood duck, finches, and cardinals.

GREEN ASH
Fraxinus pennsylvanica
Height: 50'-60', Spread: 25'-30'
Pyramidal in youth, developing upright, spreading habit at maturity. Grows quickly in full sun and in a wide range of soils conditions. Naturally found on moist bottomlands. See White Ash for wildlife users.

BLACK WALNUT
Juglans nigra
Height: 50'-75', Spread: same
Well formed trunk with oval crown. Prefers rich, moist soils. Often found on bottomlands. Difficult to transplant. Should be started as seedling. Produces toxins which are poisonous to many plants giving it an advantage in open field situations but creating problems for gardeners. Nuts are eaten by woodpeckers, foxes, and squirrels.

AMERICAN SWEETGUM
Liquidambar styraciflua
Height: 60'-75'+, Spread: 2/3 height
Pyramidal in youth, rounded crown at maturity. Likes deep, moist, acid soils. Occurs naturally on bottomlands. Gumballs can be a problem in lawn settings. Goldfinches and purple finches eat winged seeds.

TULIP POPLAR
Liriodendron tulipifera
Height: 70'-90', Spread: 30'-50'
Long, straight trunk with a narrow canopy. Fast grower. Plant in full sun and a well drained loam. Use in large areas. Wood somewhat weak. Moderate wildlife importance. The purple finch and cardinal are principal users.

BLACK GUM
Nyssa sylvatica
Height: 30'-50', Spread: 20'-30'
Pyramidal in youth and irregularly crowned at maturity. Prefers moist, well drained, acid soils. Full sun or semi-shade. Deep taproot. Fall fruit is relished by many songbirds. Users include wood ducks, robins, woodpeckers, thrashers, flickers, and mockingbirds.

WHITE OAK
Quercus alba
Height: 100', Spread; 50'-80'
Pyramidal in youth, becoming broad and rounded with wide spreading branches. Transplant as small tree. Prefers moist, well drained soils. Difficult to obtain from nurseries. Sometimes available as seedling. Worthwhile tree for large areas. Oasis, in general, are of major importance to wildlife. Acorns are at the top of the food preference list for wood ducks, pheasants, grackles, jays, nuthatches, thrushes, woodpeckers, rabbits, foxes, squirrels and deer.

PIN OAK
Quercus palustris
Height: 60'-70', Spread: 25'-40'
Strongly pyramidal with ascending branches. One of the faster growing oaks. Full sun. Tolerates wet soils but is adaptable to many soils types. Most widely used oak for landscaping. See white oak for wildlife uses.

RED OAK
Quercus rubra
Height: 60'-75', Spread: 40'-50'
Often larger in the wild. Habit is round-topped and symmetrical. Full sun. Prefers loamy, well drained soils. Fast growing tree. See white oak for wildlife uses.

WILLOW OAK
Quercus phellos
Height: 50'-100', Spread 30'-70'
Fast growing oak with willow-like foliage. Full sun or semi-shade. Easily grown in wet soils. See white oak for uses.

EVERGREEN TREES

AMERICAN HOLLY
Ilex opaca
Height: 15'-30', Spread: 18'-25'
Dense, pyramidal in youth, opening up with age. Plant in moist, well drained soil. Full sun or partial shade. Use one male for every three females. Many cultivars. Used extensively by many

songbirds including thrushes, mockingbirds, catbirds, bluebirds and thrashers. Foliage provides cover for songbirds and mammals.

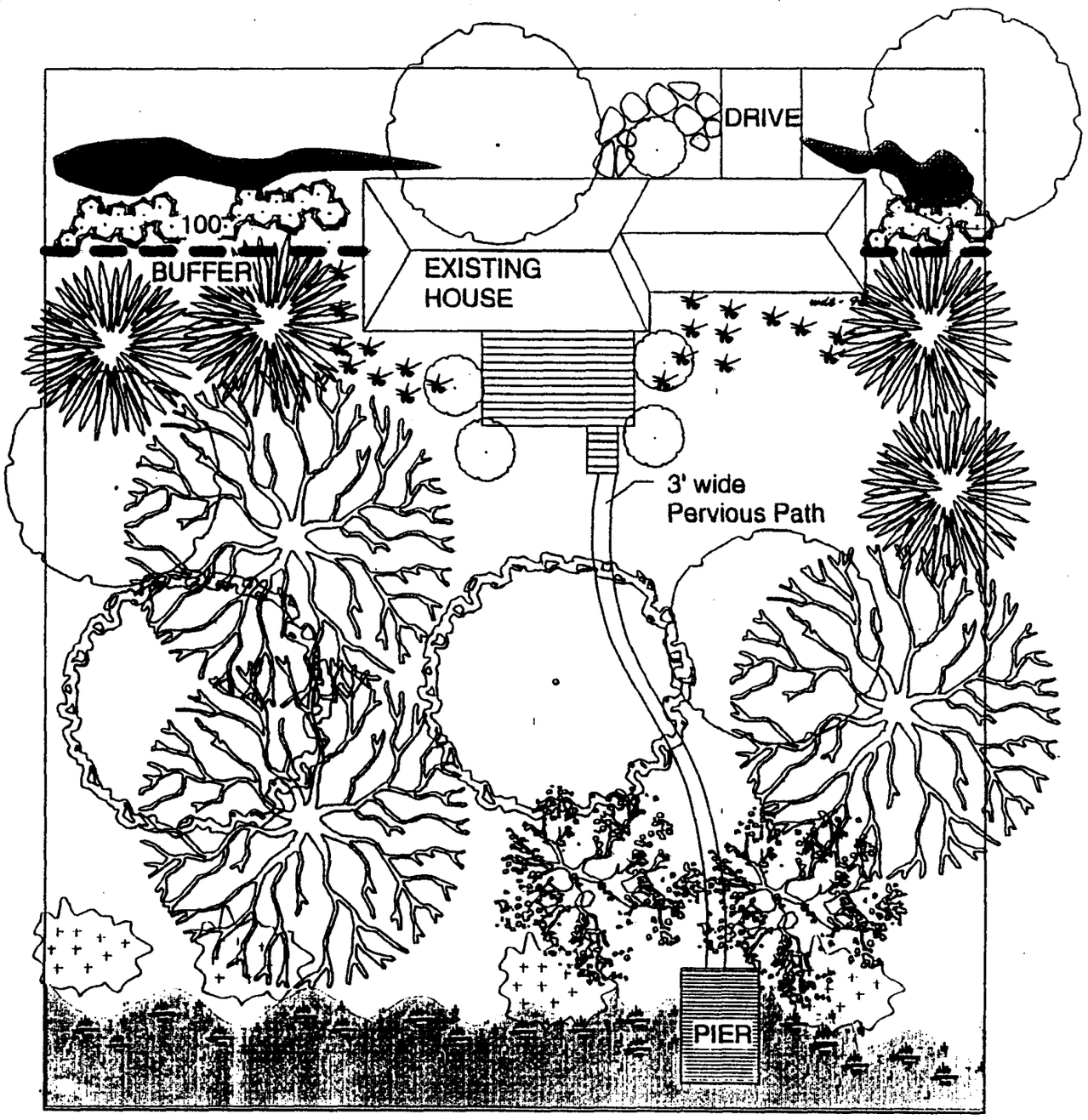
LOBLOLLY PINE
Pinus taeda
Height: 80'-100', Spread: 20'-30'
Grows well in a variety of soils and conditions from poorly drained depressions to well drained slopes. Fast growing. Abundant seeds eaten by squirrels, chipmunks, bobwhite, quail, and other wildlife.

EASTERN REDCEDAR
Juniperus virginiana
Height: 40'-50', Spread: 8'-20'
Densely pyramidal when young and slightly pendulous in old age. Medium rate of growth. Tolerant of adverse conditions. Prefers deep, moist soils. Will tolerate shade only in youth. Handsome reddish brown bark. Produces small cones. Useful for windbreaks, shelter belts, and hedgerows. Twigs and foliage are eaten by browsers. Seeds are eaten most extensively by cedar waxwings. Evergreen foliage provides nesting and roosting cover for sparrows, robins, mockingbirds, juncos, and warblers.

EASTERN HEMLOCK
Tsuga canadensis
Height: 40'-70', Spread: 25'-35'
Pyramidal in youth, becoming more pendulous with age. Limited range in Critical Area. Likes moist, well-drained soils. Plant in sheltered area. Tolerates shade. Relatively fast growing. Excellent for screens and hedges. Provides excellent cover for deer and songbirds. Nesting site for several warblers. Seeds are eaten by juncos and chickadees.

EASTERN WHITE PINE
Pinus strobus
Height: 50'-80', Spread: 20'-40'
Pyramidal in youth, crown at maturity has several horizontal and ascending branches. Fast grower. Grows best on fertile, well-drained soils, but is very adaptable. Provides valuable cover and nesting sites for songbirds and mammals. Needles are used as nesting material. Seeds are eaten by quail, chickadees, grosbeaks, nuthatches and woodpeckers.

CONCEPTUAL BUFFER PLANTING PLAN



8/93

SCALE : 1" = 20'

SHRUB EDGE

WILDFLOWER / GRASS MEADOW

SHRUBS (Wax Myrtle, Winterberry)

FLOWERING PLANTS

AQUATIC VEGETATION

DECIDUOUS CANOPY TREES
(Oaks = So. Red - Willow - White)

EVERGREEN TREES
(Red - Cedar, American Holly)

DECIDUOUS UNDERSTORY TREES
(Red Maple, Beech)

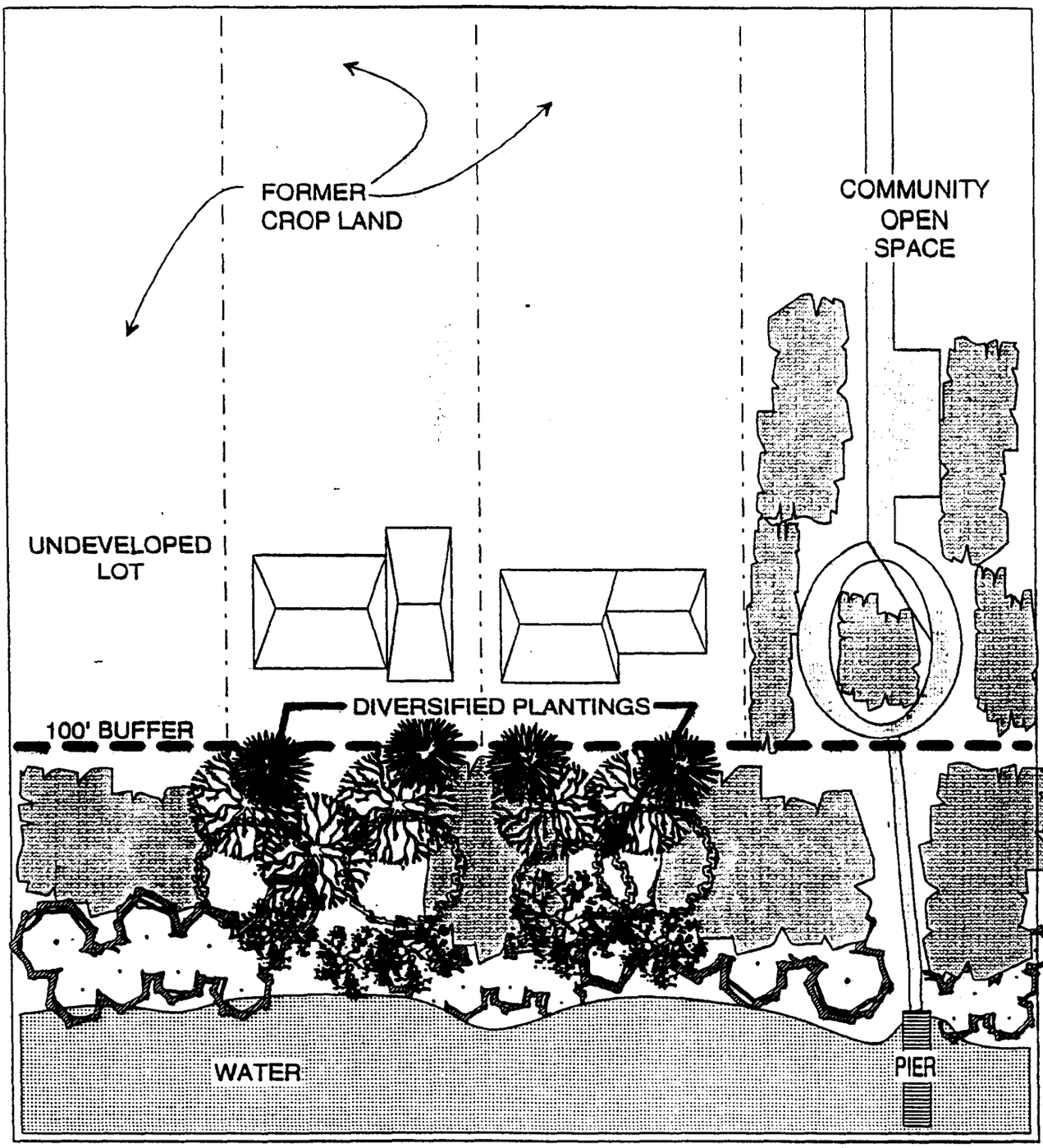
WATER TOLERANT TREES
(Black Gum, Ash)

EXISTING TREES / SHRUBS

Graphics by Greenways and Resource Planning

Note: Refer to Native Plant List for species selection

CONCEPTUAL PLAN FOR WOODED BUFFER IN AGRICULTURAL AREAS



8/93 NO SCALE

Note: Refer to Native Plant List for species selection

EXISTING SHORELINE VEGETATION (DO NOT DISTURB)

NATURAL REGENERATION AREA

DECIDUOUS CANOPY TREES

EVERGREEN TREES

DECIDUOUS UNDERSTORY TREES

WATER TOLERANT TREES

Graphics by Greenways and Resource Planning

NATIVE PLANTS RECOMMENDED FOR ENVIRONMENTAL EDUCATION AREA

SPECIES	VALUES
SHRUBS	
*Chokeberry, Aronia arbutifolia	spring flowers, fall red berries
Spicebush, Lindera benzoin	very early tiny flowers, red berries Oct., interesting fragrance to twigs
*Blackkaw, Viburnum prunifolium	May flowers, excellent fall color, fall blue berries
Arrowwood, V. recognitum	May flowers, late fall color, blue berries
*Highbush cranberry, V. trilobum	May flowers, fall color, bright red berries into winter
Witherod, V. nudum	May flowers, large lustrous leaves, large sprays of blue berries with red stems in Sept.
*Winterberry, Ilex verticillata	bright red berries from Sept. to mid winter, not eaten by birds until winter. I. decidua may be better adapted to site, but more difficult to obtain. We should get plants from a northern population, i.e. Tuckahoe.
*Inkberry, Ilex glabra	shining evergreen leaves, black berries thru winter
*Waxmyrtle, Myrica cerifera	well-adapted, fast growing, evergreen, waxy berries into winter, salt tolerant
Elder, Sambucus canadensis	May-June flowers, summer berries
Swamp rose, Rosa palustris	large pink flowers, summer; red hips fall and winter
Silky Dogwood, Cornus amomum	insignificant flowers, thick twiggy growth, blue and white fall berries
*Shining sumac, Rhus copalina	shiny compound leaves, bright red fall color, clumps of persistent berries
Staghorn sumac, R. typhina	same, but larger, not as red
Smooth sumac, R. glabra	same
Strawberrybush, Euonymus americanus	green twigs, strange red and orange fruits in early Oct.
Witchhazel, Hamamelis virginiana	November yellow flowers on bare twigs, well adapted to site, needs full sun to look well, little wildlife value

SMALL TREES

*Hornbeam (ironwood, bluebeach) Carpinus carolinianus	graceful form, fine textured twigs, fluted gray bark, dry fall seeds
*Shadbush, Amelanchier arborea	beautiful early spring flowers, june berries, EDIBLE, graceful shape, twirled gray bark
Shadbush, A. canadensis	same, but clumpy large shrub, to very small tree
*Fringetree, Chionanthus virgianus	beautiful white flowers, wonderful fragrance, blue sept. berries
*Pawpaw, Asimina triloba	strange spring flowers, huge leaves, yellow fall color, edible fruits mid Sept.
Sweetbay, Magnolia virginiana	almost evergreen waxy foliage, large white fragrant flowers in May, red berries on strange pods in sept.

MEDIUM TO LARGE EVERGREEN TREES

Loblolly pine, Pinus taeda	Picturesque branching when in open
Atlantic white cedar, Chamaecyparis thyoides	thick dark green foliage, dry cones open in winter, can grow in shallow fresh water
Red cedar, Juniperus virgiana.	under-appreciated, thick green foliage, huge quantity of tiny fall and (open-formed, female only) winter blue berries, lovely form, roosting place of many winter birds, including doves, cardinals, white-throated sparrows
Eastern hemlock, Tsuga canadensis	graceful form and foliage, wind screen, fall ripening cones, may have problem with wind, worth a try
American holly, Ilex opaca	beautiful shining leaves, red berries not eaten until mid winter

LARGE DECIDUOUS TREES

River Birch, Betula nigra	fine twig pattern, peeling reddish bark, well-adapted, dry fall fruits
Sweet gum, Liquidambar styraciflua	well-adapted, fast growing, red and yellow fall color, dry winter seeds
Black gum, Nyssa sylvatica	picturesque form, shining foliage (in sun) bright red fall color, fall berries
Red maple, Acer rubrum	well-adapted, red march bloom, sometimes good fall color, SURFACE ROOTS CHOKE OUT OTHER TREES, DO NOT OVERPLANT

Persimmon, Diospyros virginiana	well-adapted, large fall and winter fruits for mammals
Beech, Fagus grandifolia	graceful form, gray bark, excellent fall small nuts for seed eating birds, edible, difficult to transplant especially in large sizes, but worth a try
White oak, Quercus alba	familiar, light scaly bark, large branches, fall acorns for mammals, large birds, hard to transplant in large sizes
Basket oak, Q. michauxii	same, large leaves late to fall, huge acorns, may be hard to find (children could plant acorns?)
Willow oak, Q. phellos	small leaves vary texture of plantings, well-adapted, small acorns
Black oak, Q. velutina	large shining leaves, becomes large tree
Southern red oak, Q. falcata	well-adapted, smaller two-color (top shiny green, bottom lighter with reddish cast) varies color and texture, open spreading crown with large limbs
Pin oak, Q. palustris	adapted to heavy, wet soils, easy to find and to transplant, smaller branches than other oaks can make good contrast, do not overplant

Northern red oak, Q. rubra, is not recommended because of disease problems

NOTES:

All the above are adapted to heavy soils (beech is pushing this, it does better in lighter soils, but should still be tried, possibly as planted beechnuts),many to wet soils and wetland edges, all have both ornamental and wildlife value. All, except possibly basket oak, should be available commercially (some of the wetland shrubs only from Environmental Concern). The plantings should have varied types, sizes and seasons of flowering and fruiting. As much as practical, all plants should be derived from populations on the mid-Atlantic coastal plain. The starred (*) shrubs are especially recommended for combining adaption to site, wildlife value, and ornamental qualities. All the trees except red maple are highly recommended.

Q **What is the difference between tidal and nontidal wetlands?**

A Tidal wetlands are those associated with tidal water bodies such as the Bay, its tributaries, and tidal marshes. Nontidal wetlands include swamps, marshes, bogs and some areas that would not generally appear to be wetlands to the untrained eye. There are specific regulations that apply to nontidal wetlands in the Critical Area.

Q **Who can I contact if I need more information?**

A More information regarding the Critical Area can be obtained from County's Planning and zoning office at the following number. Or, for answers to specific questions contact the following:

Subdivisions	Planning and Zoning
Septic and Well	Environmental Health
Soil/Sediment and Erosion control	Soil conservation
Stormwater Management and Grading	Highway Dept.
Forestry	Bay Watershed Forester

UNCOMMON ANSWERS TO COMMONLY ASKED QUESTIONS ABOUT THE

CRITICAL AREA PROTECTION PROGRAM

Q **What is Critical Area?**

A In 1984, the Maryland General Assembly resolved to reverse the deterioration of the Bay's environment by enacting a law entitled the Chesapeake Bay Protection Act that required the 16 counties and 44 municipalities surrounding the bay to create, adopt, and implement a land and environmental resource management program, based on State mandated criteria, designed to mitigate the damaging impact of water pollution and loss of natural habitat, while also accommodating the County's anticipated future growth. The Law recognized that the land immediately surrounding the Bay and its tributaries has the greatest potential to affect its water quality and wildlife habitat and thus designated all land within 1000 feet of the tidal waters edge or from the land- ward edge of adjacent tidal wetlands, tidal waters, and the lands under them as the "Critical Area."

Q **Who and What does the Critical Area Law affect?**

A The law affects all those who own property within the 1,000 foot Critical Area. All development or use of land located within the Critical Area is affected in some way. Just because land is in the Critical Area, however, does not mean it can't be developed and used.

Q **What is the Chesapeake Bay Critical Area Commission and how does it affect me?**

A The Chesapeake Bay Critical Area Commission, a 26-member committee of State and local government officials and private citizens, was created by the 1984 Chesapeake Bay Protection Act to design the Critical Area Criteria, review and approve local jurisdiction Critical Area Programs, review amendments to those programs, and review variances, site, or subdivision approvals, granted by the local jurisdiction, for projects located within their Critical Area. The Commission has the legal standing to note a judicial appeal from approvals granted by the board of Appeals.

Q **How do I know whether or not my property is in the Critical Area?**

A Maps delineating the Critical Area were formally approved as part of the County Critical Area ordinance and are available in the County Planning and Zoning Office. When in doubt, always check the maps.

Q **What is the difference between the County Zoning Ordinances and the Critical Area regulations?**

A For administrative purposes, the Critical Area is classified into Resource Conservation Areas (RCA), Limited Development Areas (LDA) and Intensely Developed Areas (IDA) according to land uses as of December 1, 1985. The regulations associated with each are in addition to those for the County's zoning districts. In the case of conflict, the more restrictive provision applies.

Q **Do I need to obtain the approval of the Chesapeake Bay Critical Area Commission to build or develop in the Critical Area?**

A You don't. Building or developing in the Critical Area requires special design considerations. In terms of the permitting process, however, you should proceed as you normally would for building anywhere in the County. This entails submitting your site plan, building permit application, subdivision plan or application for special exception or variance to the County Planning and Zoning Office. The planning staff will determine the scope of your application and request further information as necessary. Please remember, check with the Planning Office before undertaking any development activity within the Critical Area.

impervious surfaces associated with that parcel are limited to twenty-five percent (25%) of the parcel or lot. If your lot is one acre or less in size and is part of a subdivision approved after December 1, 1985, then impervious surfaces of the lot may not exceed twenty-five percent (25%) of the lot. The total of the impervious surfaces, however, may not exceed fifteen percent (15%) over the entire subdivision.

If I buy a lot in the Critical Area, may I build a house on it?

Yes, as long as it is zoned residential and meets other County Critical Area and Zoning requirements.

If my home is in the Critical Area will I be able to make a simple addition such as a swimming pool, tennis court, deck, or garage?

Yes, provided it is not in the 100 foot buffer, meets other development requirements (such as impervious surface limitations) and a building permit is issued by County.

If my lawn is in the buffer, can I mow it:

Yes.

Can my property be reclassified from RCA to LDA or IDA?

Yes, through a process known as Growth Allocation.

How do I obtain Growth Allocation?

You must make application for Growth Allocation through the Planning and Zoning Office to the County Planning commission. Award of Growth Allocation by the County Commissioners is subject to the approval of the Chesapeake Bay Critical Area Commission.

Can I take measures to stabilize my shoreline?

Yes, depending on the annual rate of erosion at that specific shoreline. In areas of significant erosion , of two (2) feet or more annually, the structural measure (e.g., stone revetment or timber bulkheading) that best provides for the conservation of plant and wildlife habitat is encouraged. Nonstructural measures (e.g., vegetative stabilization) should be used where they can effectively and practically prevent or reduce shoreline erosion, especially where it is occurring at a rate of less than two (2) feet annually. Non-structural measures are preferred, and are much less expensive.

Can I give a building lot to my son or daughter if my property is in the Critical Area?

Yes, if your property is greater than seven (7) acres and less than 60 acres in size and is located within a Resource Conservation Area. Conditions of approval for intrafamily transfers require that a covenant running with the land that states the subdivision was for the purpose of creating a bona fide intrafamily transfer be incorporated into the deed. a parcel that is seven (7) acres or more and less than twelve (12) acres in size may be subdivided into two (2) lots. A parcel that is more than twelve (12) acres but less than sixty (60) acres in size may be subdivided into three (3) lots. the lots may be created at any time and no greater subdivisions of such parcels may be allowed. County willpermit the subsequent conveyance of lots to persons other than the immediate family if the lot was created as part of a bona fide intrafamily transfer and not with the intent of subdividing for commercial sale. A change of circumstances must have occurred since the original transfer which warrants an exception.

My lot was of record before County's Critical Area Ordinance was adopted. Am I affected?

Possibly. Visit the County Planning and Zoning Office to discuss the specific situation

Q **Are there provisions for variances or special exceptions in the Critical Area?**

A Yes, but you must demonstrate unwaranted hardship and prove no negative impact ot water quality, and plant, fish, or wildlife habitat before relief in the form of a variance can be granted.

Q **Once I obtain a permit, variance, or special exception from County to build in the Critical Area may I proceed?**

A You should wait thirty (30) days. If, in the opinion of the Critical Area Commission staff, your approval was granted despite the absence of unwarranted hardship and the occurrence of impact to natural resources, the Commission has the legal standing to note a judicial appeal from the decision of the County within thirty (30) days.

Q **What are Buffers and how do they differ from the rest of the Critical Area:**

A A crucial part of habitat protection and water quality impromement is the establishment of a naturaly vegetated, forested buffer between human disturbances and sensitive land and water resources. A forested buffer acts as a filter for the removal or reduction of sediment, nutrients, and toxic substances which enter adjacent waterways inland run-off. A buffer also minimizes the adverse impact of human activities on habitat within the Critical Area.
The Critical Area Law requires the establishment of a minimum 100 foot buffer of natural vegetation landward from the Mean High Water Line of tidal waters or the edge of tidal wetlands and tributary streams. Unless you can demonstrate unwarranted hardship and prove no negative impact to water quality, and plant, fish, or wildlife habitat, no disturbance of this Buffer will be permitted by County.

Q **Exactly what can I and what can't I do within the Critical Area Buffer?**

A The minimum 100 foot buffer may only be disturbed for certain activities such as water dependent structures, access to the shoreline and shore erosion control measures. Agricultural activities are permitted within the Buffer under certain guidelines. The cutting or clearing of trees, except those that are diseased or damaged, is not allowed unless you have an approved Buffer Management Plan prepared by a professional forester. No development (e.g., swimming pools, tennis courts, structures, septic fields) or other land disturbances are permitted in this Buffer. The Buffer should be maintained in a natural vegetation (e.g., forested) and must be expanded to include djacent sensitive resources (i.e., steep slopes, hydric or erodible soils.).

Q **Can I remove trees from my property if it is in the Critical Area?**

A It depends. No trees may be removed from the Tidewater Buffer unless they are dead or diseased. Trees may be cleared for a construction site, or for forestry operations. there are limits, however. The county does require planting plans for new subdivisions. As always, ask the County's Planning and Zoning Office. Outside the Tidewater Buffer cutting trees for personal use is permitted, provided you do not impair water quality or existing habitat and that those trees cut are replaced on an equal basis.

Q **What is "impervious surface" and what are the impervious surface requirements in the Critical Area?**

A An impervious surface is one composed of any material that significantly impedes or prevents natural infiltration of water into the soil. Impervious surfaces include, but are not limited to, roofs, buildings, paved streets and parking areas, and any concrete, asphalt, or compacted gravel surface. Generally, the requirements for sites in Limited Development Areas or Resource Conservation Areas are that no more than fifteen percent (15%) of the total land area of any parcel may be developed with impervious surfaces. There are exceptions. If your parcel is one-half acre, or less, in size and was in residential use, or zoned for residential purposes on or before December 1, 1985, then