



HOWARD COUNTY

LANDSCAPE

MANUAL

Adopted January 4, 1993
Amended March 2, 1998



HOWARD COUNTY

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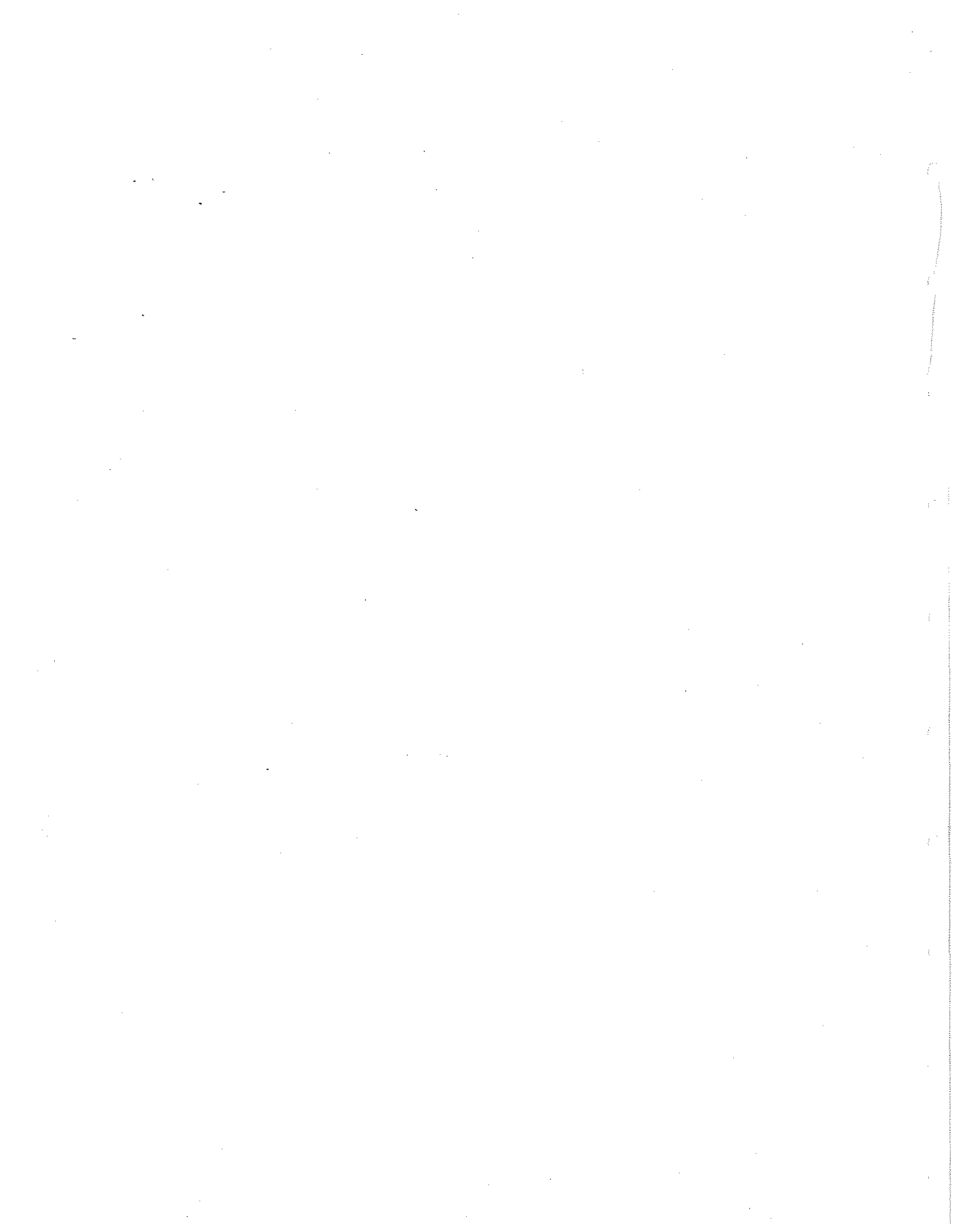


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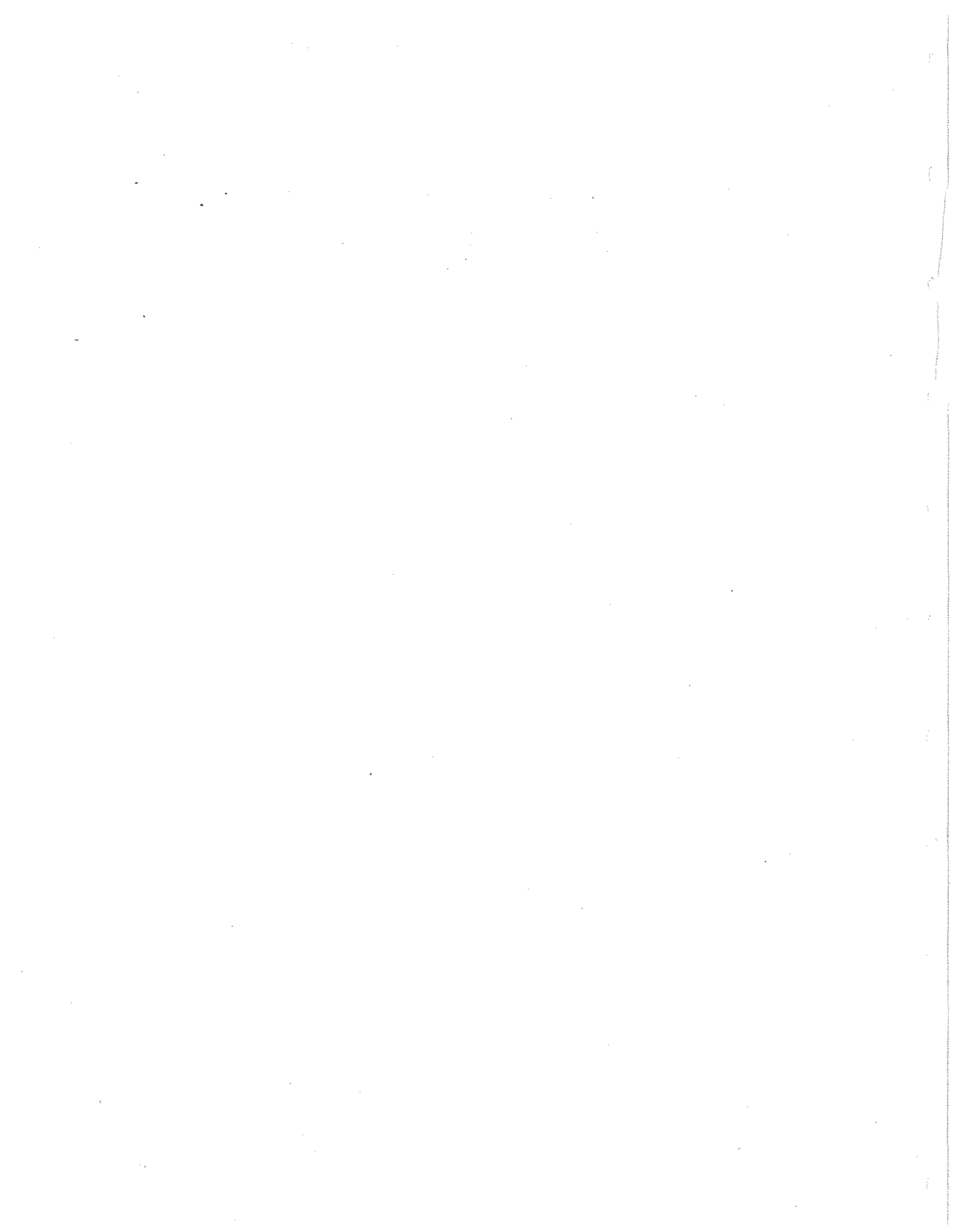
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**LANDSCAPE
MANUAL**

CHAPTER I

INTRODUCTION

PURPOSE

The Howard County Planning, Zoning, and Subdivision and Land Development Regulations and this Landscape Manual establish the requirements for landscaping of all new developments within the County. The purposes of these requirements are:

- To protect, preserve and enhance the appearance and value of neighborhoods, and provide a safe environment.
- To buffer potentially incompatible land uses from one another and to screen undesirable views.
- To prevent the unnecessary removal of vegetation during the land development process.
- To provide parking lots with landscaped areas that facilitate movement of traffic, break up large areas of impervious surfaces, provide shade, and buffer and to screen parking lots from adjacent properties and roadways.
- To promote energy conservation through the cooling and wind buffering effects of trees.
- To contribute to the processes of air purification, oxygen regeneration, water absorption, and abatement of noise, glare and heat.
- To protect the health, safety and general welfare of the general public.

The Howard County Landscape Manual is the technical manual used to establish minimum standards of performance for preparing landscape plans. The manual and amendments to it are prepared by the Department of Planning and Zoning and adopted by resolution of the County Council.

FOREST CONSERVATION AND TREE PRESERVATION

This manual and the landscape ordinance are companion pieces to the ordinances establishing the Howard County forest conservation program. The two ordinances are meant to work together. Under certain circumstances, the fulfillment of the requirements

of one program may also fulfill the requirements of the other program. Preservation of existing forests may be credited for up to 100% of specific requirements in the landscape ordinance. *Chapter III* provides further criteria for obtaining this credit.

Existing trees which do not meet the definition of a forest for the purpose of the forest conservation program may also fulfill landscaping requirements. Subdivision and site development plans should make all reasonable attempts to preserve specimen trees, small groves, hedgerows or other existing tree stands. Relocation of existing trees within the site is also encouraged.

Preserving existing trees and forests, and installing and maintaining ornamental landscaping has been proven to have a positive effect on property values.

CHAPTER II

GENERAL INFORMATION

APPLICABILITY AND EXEMPTIONS

Landscaping requirements are established in the Subdivision and Land Development Regulations, the Zoning Regulations, the Howard County Forest Conservation Manual and the Howard County Landscape Manual. The basic landscaping requirements are established in Section 16.124 of the Howard County Subdivision and Land Development Regulations. The text of the landscape ordinance is found in *Appendix A*.

A landscape plan must accompany all final plans or site development plans, with the following exemptions:

- A subdivision that has been granted preliminary plan approval prior to the effective date of the 1993 edition of the Subdivision and Land Development Regulations. This exception does not apply to site development plans for build-out of exempt non-residential subdivisions.
- Any parcel not requiring subdivision, yet requiring a site development plan, that has site development plan approval prior to the effective date of the Regulations.
- Resubdivisions that create no new lots, parcel divisions and plat corrections.

Partial exemptions to the landscape requirements apply to expansion of existing uses under certain criteria:

- Resubdivisions involving an existing dwelling(s) are required to provide landscaping for only the new buildable lots.
- Expansion of an existing parking lot or loading area that increases the area or number of spaces by 50% or more shall be required to provide landscaping for the entire parking lot or loading area in accordance with these regulations. Expansions of less than 50% shall be required to provide landscaping for the additional development only.
- Expansion to existing development that increases the number of residential units, or the square footage of a non-residential building by 50% or more shall be required to provide landscaping for the entire site in accordance with these regulations. Expansion of less than 50% shall be required to provide landscaping for the additional development only.

As administrator of the subdivision and site development plan review process, the Department of Planning and Zoning will be responsible for the review and approval of landscape plans. When compliance with this Manual is not possible, and there is no feasible proposal for alternative compliance, then the applicant may apply for an appropriate waiver from the Subdivision and Land Development Regulations.

INSTALLATION, SURETY AND CERTIFICATION

Installation

Plant installation must conform to the minimum standards cited in the latest edition of "Landscape Specification Guidelines" published by the Landscape Contractors Association.

Surety for Landscape Installation

Bonding or posting of other surety for required landscaping is mandatory. The bonding for required landscaping may be added to the Developer's Agreement for road and storm drain improvements or the Developer's Agreement for the site development plan.

If no bond or developer's agreement is required for a project that requires a landscape plan, the grading permit agreement and surety shall be modified to incorporate surety for the landscaping requirements.

Release of surety will not be granted until all landscaping shown on the approved final plan or site development plan has been completed in accordance with the approved landscape plan. Surety for landscaping shall be based on the total number of required new trees (shade, ornamental and evergreen) or comparable elements shown on the landscape plan. The unit prices to be used for establishing surety requirements shall be approved by the County Council. In the interim, until the Council has approved such unit prices, the value of each landscape tree, for the purpose of the Developer's Agreement cost estimate, shall be one hundred dollars (\$100.00). The value of each street tree for the purpose of the Developers Agreement cost estimate shall be two hundred dollars (\$200.00). No surety is required for existing landscaping that is credited towards landscaping requirements. The cost estimate for fencing provided to meet the landscaping requirements shall be Ten Dollars (\$10.00) per linear foot and the value of walls shall be Twenty Dollars (\$20.00) per linear foot.

Certification

To obtain a release of surety, a professional qualified to prepare a landscaping plan must submit written certification to the Department of Planning and Zoning that healthy plant materials were properly installed in accordance with the approved landscaped plan and

that a 1 year guarantee has been executed. *Appendix E* includes a sample certification. A copy of the guarantee must be included with the certification.

If the original landscape plan preparer is not able to provide the required certification, another qualified professional may be approved by the Department of Planning and Zoning to submit the required certification.

MAINTENANCE

The developer is responsible for maintenance of the landscaping during construction and is responsible for obtaining a 1 year guarantee that ensures the survival or replacement of all required plant materials for 1 year from the date on the landscape certification.

At the end of the maintenance period, it is the developer's responsibility to transfer formally the long term responsibility for the required landscaping to the owner, tenant, homeowners association, or other agent responsible for long term maintenance of the development. Maintenance responsibilities include, but are not limited to, pruning, fertilizing, watering, mowing, weeding, and other such activities necessary to the health and survival of the landscaping. The required plantings should be maintained in good growing condition and, whenever necessary, replaced with new plant materials to ensure continued compliance with landscape regulations.

In addition to planting, berms or other landforms, fences and walls installed as part of the landscape requirements should be permanently maintained in good condition and, whenever necessary, repaired or replaced.

To ensure public safety, plant material should not be allowed to encroach on rights-of-way and easements and impede motorists' vision of vehicular traffic. See *Chapter V* for a discussion of planting in sight triangles and for guidelines on maintaining appropriate sight lines.



CHAPTER III

LANDSCAPE PLANS

PREPARATION OF PLANS

All landscape plans must be prepared and sealed by a landscape architect registered in the State of Maryland, or by any other registered or licensed professional who is authorized by the State to prepare landscape plans.

The Department of Planning and Zoning may approve the preparation of a landscape plan by an experienced landscape designer under the following circumstances:

- Landscape planting plans for small commercial sites and small residential developments.
- Landscape plans prepared as an exhibit to a waiver petition that requests a waiver to the requirement to submit a site development plan.

A qualified landscape designer should meet one or more of the following criteria:

- Have a degree or certificate from a recognized program in horticulture, landscape design or a related field, and have two years experience preparing planting plans and landscape construction drawings.
- Have five years experience in preparing planting plans and landscape construction drawings.

SCHEMATIC LANDSCAPE PROGRAM

It is important to take landscaping requirements into consideration in the earliest stages of plan preparation. Landscaping requirements must be identified schematically on the preliminary plan or preliminary equivalent sketch plan. At this phase of the development process, a forest delineation plan is also required and forest conservation requirements and priorities are determined. Required landscape edges and the type of landscape planting for each edge should be identified. Preservation of existing vegetation, planting or other alternative solutions should be identified and tabulated in a series of landscapes notes or charts. The general landscaping requirements for projects should be included on the preliminary plan or preliminary equivalent sketch plan.

The preliminary plan or preliminary equivalent sketch plan must identify whether the developer or builder will be responsible for installation of specific elements of the overall landscape plan. In addition, whether the landscaping will be shown on the final plan or site development plan must also be specified. The information provided on a preliminary plan or preliminary equivalent sketch plan will be considered the schematic landscape program for the property. The schematic landscape program is not unconditionally binding and may be revised during later stages in the planning process to respond to development plan revisions or to unique site or program elements.

SUBMITTAL REQUIREMENTS

The landscape plan shall be part of a final plan or site development plan submission. In general, landscaping requirements that shall be part of each type of plan are as follows:

- *Final plan*

- Street trees

- Perimeter landscaped edges, if the responsibility of the developer

- Stormwater management areas

- Parking lot landscaping for single family attached projects

- *Site Development Plans*

- Perimeter landscaped edges, if the responsibility of the builder

- Parking and loading area perimeter edges

- Parking lot internal planting

- Stormwater management areas

- Internal planting for mobile homes, single family attached units and apartments

Original final plans and original site development plans shall include original landscape plans as part of the original plan submissions and shall include required signature blocks. The landscape plan may be shown on a separate sheet or superimposed on another sheet within the set of original plans. If the landscaping is shown on a separate sheet and is limited to on-site requirements, the only agency signature block that will be required is the Department of Planning and Zoning. Separate planting plan sheets that include street trees and on-site landscaping must include Department of Public Works and Department of Planning and Zoning signature blocks. Landscaping that is required for a final plan shall be shown on the road and storm drain construction drawings. Planting required for minor subdivisions shall be shown on a supplemental sheet that shall be submitted with the final plat.

The submittal package must include the following information:

- Existing base information required for the final plan or site development plan;
- Proposed grading, structures, parking and loading areas, pedestrian areas, roads, driveways and access areas, easements, utilities, storm drains and stormwater management areas, signs, lighting, etc;
- Location, general type and quality of existing vegetation and specimen trees;
- The location and type of all existing freestanding trees on the property over 6 inches in caliper and all small tree groups or hedgerows that do not meet the definition of a forest;
- Existing vegetation to be saved; existing forest areas to be saved in accordance with the forest conservation plan shall be identified;
- Sedimentation and erosion control plan identifying methods and details for protection of exiting vegetation during construction;
- Location and identification by symbol (graphic, letter and/or number) of all proposed plants;
- Plant list to include botanical and common name, quantity, spacing and size at time of planting of all proposed plant materials and other landscaping elements;
- Location and description of other landscape improvements, such as earth berms, walls, fences, screens, street furniture, lights and courts or paved areas;
- Planting installation details;
- Schedules showing required and proposed quantities of landscape elements. *Schedules A, B, C and D* are based on the landscape types and planting requirements described in *Chapter IV*; and
- Certification and signature of the owner and signature of the plan preparer.

**SCHEDULE A
PERIMETER LANDSCAPE EDGE**

| Category | Adjacent to Roadways | Adjacent to Perimeter Properties |
|--|----------------------|----------------------------------|
| Landscape Type | | |
| Linear Feet of Roadway Frontage/Perimeter | | |
| Credit for Existing Vegetation (Yes, No, Linear Feet) (Describe below if needed) | | |
| Credit for Wall, Fence or Berm (Yes, No, Linear Feet) (Describe below if needed) | | |
| Number of Plants Required Shade Trees Evergreen Trees Shrubs | | |
| Number of Plants Provided Shade Trees Evergreen Trees Other Trees (2:1 substitution) Shrubs (10:1 substitution) (Describe plant substitution credits below if needed) | | |

Comments _____

Note: Complex projects may require expansion of the schedule to accommodate multiple land uses on-site or on adjacent properties.

**SCHEDULE B
PARKING LOT INTERNAL LANDSCAPING**

| | |
|---|--|
| Number of Parking Spaces | |
| Number of Trees Required | |
| Number of Trees Provided Shade Trees Other Trees (2:1 substitution) | |

**SCHEDULE C
RESIDENTIAL DEVELOPMENT INTERNAL LANDSCAPING**

| | |
|---|--|
| Number of Dwelling Units | |
| Number of Trees Required (1:DU SFA; 1:3 DU APTS) | |
| Number of Trees Provided Shade Trees Other Trees (2:1 substitution) | |

**SCHEDULE D
STORMWATER MANAGEMENT AREA LANDSCAPING**

| | |
|--|--|
| Linear Feet of Perimeter | |
| Number of Trees Required Shade Trees Evergreen Trees | |
| Credit for Existing Vegetation (No, Yes and %) | |
| Credit for Other Landscaping (No, Yes and %) | |
| Number of Trees Provided Shade Trees Evergreen Trees Other Trees (2:1 substitution) | |

PLANT SUBSTITUTIONS

Minor plant substitutions may be made to an approved planting plan at time of installation within the following limits:

- The number, size and location of plants is not changed.
- The general type of plant remains the same (large shade tree, evergreen tree, deciduous tree) and the substitute plant is included in the recommended plant list in *Appendix C*.

When equal substitutions are made, no prior approval is needed from the Department of Planning and Zoning; however, a revised plant list must be submitted with the Certification of Installation.

If changes in the general type of plant material are to be made or if a change in an optional treatment is proposed, written authorization must be requested from the Department of Planning and Zoning. In such a case, the Department may require the landscape plan be revised utilizing the "red-line revision process".

CHAPTER IV

LANDSCAPE REQUIREMENTS

GENERAL LANDSCAPE REQUIREMENTS

Section 16.124 of the Subdivision and Land Development Regulations requires landscaping in the following situations:

- Perimeter planting between adjacent land uses;
- Perimeter planting along public roads;
- Internal and perimeter planting of parking lots;
- Perimeter planting of loading areas;
- Internal planting for residential developments of mobile homes, single family attached units and apartments; and
- Perimeter planting of stormwater management facilities.
- Street trees along new internal roads and existing County roads.

The primary requirements for landscaping stipulate the quantity of plant materials that shall be provided to meet the requirements of the regulations. However, optional landscape treatments may be substituted in full or in part for the required planting. Optional treatments include preservation of existing forests and trees, use of berms or other land forms, and the installation of fences and walls.

The major focus of the regulations is on perimeter landscaping. This type of landscaping, required around the perimeter of a new development, is based on the type of land use proposed and the compatibility of the proposed land use with adjacent land uses. *Table 7* identifies the range of perimeter landscape treatments, from buffer to screen, by letter designation. Buffering is the use of landscape materials to lessen the visual impact of a use, or to visually or physically separate uses, while not necessarily shielding a structure or use from view. Screening is the use of landscape materials to substantially shield a structure or use from view.

The planting requirements for each landscape type call for planting a specific minimum number of shade trees, evergreen trees and/or shrubs. Plant material requirements are based on linear feet of property line. Calculations of required plant quantities are to be rounded to the nearest whole number.

TABLE 1
PERIMETER LANDSCAPE TYPES - BASED ON ADJACENT LAND USE

| Landscape Edge Type | Landscape Character | Shade Trees/ Linear Feet | Evergreen Trees/ Linear Feet | Shrubs/ Linear Feet |
|---------------------|--|-----------------------------|---------------------------------|------------------------|
| A | Light Buffer | 1:60 | 0 | 0 |
| B | Moderate Buffer | 1:50 | 1:40 | 0 |
| C | Heavy Buffer | 1:40 | 1:20 | 0 |
| D | Screen | 1:60 | 1:10 | 0 |
| E | Buffer - Parking Adjacent to Roadway | 1:40 | 0 | 1:4 |

When the property line is crossed by a right-of-way, use-in-common access area or non-residential driveway, the width of these areas shall not be computed as part of the total linear footage of the required edge. No more than 15% of the required strip shall be covered with an impervious surface for pedestrian circulation or use.

All landscape types (perimeter and internal) require planting of shade or canopy trees. In many categories evergreen trees are also required. Shrub planting is required only for buffering of parking from adjacent roadways. Except as otherwise noted in this manual, the following plant substitutions may be allowed in lieu of the requirements listed in Table 1, provided the substitutions meet the intent of the regulations:

- 2 small deciduous trees may be substituted for 1 shade tree
- 2 evergreen trees may be substituted for 1 shade tree
- 10 shrubs may be substituted for 1 shade tree or evergreen tree

Examples of landscape edge calculations and illustrations of planting schemes that fulfill the requirements of the regulations are provided throughout this chapter.

DESIGN GUIDELINES

Plant materials should be chosen and located to achieve the desired landscape character of the edge type. The landscaped edge treatment may be formal or informal; naturalistic

or architectural depending on the character desired by the project designer. Guidelines for spacing of plants to achieve an effective screen or buffer is as follows:

- Planting requirements listed in *Table 1* are not spacing requirements; they are the means to calculate the quantities required.
- Plant materials may be clustered in groups or planted in rows.
- To create an effective dense screen, evergreen trees should be 10-15 feet on center. Trees should be clustered in locations that are the most effective in screening undesirable views.
- Shade trees create a light buffer, open at ground level but with canopies that may eventually touch, if clustered at a spacing of 25 feet on center.
- Clusters of flowering trees are generally an effective buffer when planted 15-20 feet on center.

The sizes of plants to achieve an acceptable screen or buffer are noted in *Appendix D* and as follows:

- Shade trees should be a minimum of 2½" caliper unless otherwise noted in *Appendix D*.
- Small deciduous trees should be in the size range listed in *Appendix D* and must be at least 8-10 feet tall.
- Evergreen trees must be 6-8 feet tall, except for less commonly available or more expensive species as noted in *Appendix D*.
- Shrub planting in a Type E landscape buffer for a parking lot adjacent to a right-of-way must be a minimum of 24-30 inches tall at installation.
- Shrub planting to supplement a land use perimeter buffer must be a minimum of 24-30 inches tall for evergreen materials and 30-36 inches tall for deciduous materials unless otherwise noted in *Appendix D*.

Required planting in any landscaped edge may be transferred to another landscaped edge or to another area elsewhere within the project boundary, if such transfer meets the intent of the regulations as approved by the Department of Planning and Zoning.

FOREST CONSERVATION AND LANDSCAPE REQUIREMENTS

Reforestation and afforestation may not be credited towards landscaping requirements unless such plantings meet both the 2 to 2 1/2" caliper size, location criteria and surety requirements for landscaping described in this manual.

The forest conservation program allows that certain forms of landscaping (planting of canopy trees, understory trees, shrubs and groundcover other than grass) may be used to meet the reforestation or afforestation requirements of the forest conservation plan upon approval of the Department of Planning and Zoning. Although such landscaping may be credited for 100% of the landscape ordinance obligations, the amount of the landscaped area to be credited for forest conservation obligations is limited to no more than 20% of those requirements. Landscaping for forest conservation program credit must be done in conformance with the standards for such landscaping cited in the Howard County Forest Conservation Manual. Forest conservation program landscaping must be included in the required construction and post-construction protection and management agreements of the Forest Conservation plan and must be in open space or in areas protected by binding, long term protective agreements under the same terms that apply to other reforestation or afforestation areas as described in Section 16.1204(d).

TREE PRESERVATION AND LANDSCAPE REQUIREMENTS

Existing trees which do not meet the definition of a forest for the purpose of the forest conservation program may be used to fulfill landscaping requirements if such trees are in a healthy growing condition and if the trees are of an appropriate size and type.

Subdivision and site development plans should make all feasible attempts to accommodate existing trees. Relocation of existing trees within the site is also encouraged and all available measures should be taken to ensure the life and good health of the tree.

In determining which trees shall be preserved during the development process, consideration shall be given to preserving those which exhibit the following characteristics:

- Are significant specimen trees of 6 inch caliper or larger;
- Are part of small groves or clusters of trees or hedgerows that do not qualify as a forest stand (10,000 square foot minimum);
- Can tolerate environmental changes or stresses that may be caused by development (ie: increased sunlight, heat, wind and alteration of water regime);

- Have strong branching and rooting patterns, are in a healthy, vigorous growing condition, are disease and insect resistant; and
- Are located in required buffer areas.

The area below the dripline of an existing tree to be saved should remain undisturbed either by cutting or filling in the development process. No impervious material should be placed under the dripline and a tree protection fence will be required to be installed around the trees at the limit of disturbance. Specific guidelines for tree protection during the construction process can be found in the Forest Conservation Manual. Tree protection symbols, notes and details must be shown on the sediment and erosion control plan.

Should any tree designated for preservation, for which landscaping credit is given, die prior to release of bonds, the owner will be required to replace the tree with the equivalent species or with a tree which will obtain the same height, spread and growth characteristics. The replacement tree must be a minimum of 3 inches in caliper and installed as required in the Landscape Manual.

PERIMETER LANDSCAPED EDGES

Perimeter landscaped edges are required along the outside boundary of a property. The regulations do not require landscaped edges, buffering, or screening between internal lots or parcels within the same development. For cluster subdivisions in the Rural Conservation and Rural Residential districts, the perimeter landscaped edge shall be located at the perimeter of the cluster subdivision, not at the perimeter of the entire parcel. It is not intended that the preservation parcel be buffered or screened from adjacent properties.

Landscaped edges for buffering or screening and their required treatment are based on land use. The type and character of a required buffer or screen is determined by the degree of compatibility between the site uses and adjacent land uses. For example, two fairly compatible residential land uses would only need a light buffer whereas a commercial use adjacent to a residential community should be more heavily screened.

Where possible, the landscaped edge should be planted within the required setbacks established by the County Zoning Regulations. In any event, a landscape edge of at least 20 feet wide in width is required, except in districts where zoning setbacks permit parking or principal structures in closer proximity to property lines. In such instances, the Department of Planning and Zoning may approve a narrower landscaped edge, a fence, hedge or wall, or relocation of landscaping elsewhere on site. Buildings, parking, loading areas, stormwater management facilities, utility easements, storm drainage channels, play areas, drive aisles, parking spaces and similar uses may not be located in landscaped edges. Necessary pedestrian circulation, utility easements and access driveways may cross the landscape edges perpendicularly. Upon approval of the Department of Planning and Zoning and the Department

of Public Works, necessary utility or other easements may overlap with up to 25% of the required edge, provided that the required landscaping may be placed in the reduced area.

The landscape edges required along public and private roads, based on land use, are shown in *Table 2*. The landscape edges required between adjacent properties, based on land use and zoning, are shown in *Table 3*. Required planting for the landscaped edge types identified in *Tables 2 and 3* can be found in *Table 1*.

Figure 1 illustrates the method of calculating landscape obligations for various residential landscaped edges. Sample calculations for perimeter landscaped edges for non-residential properties as shown in *Figure 2*. *Figure 3* and *Figure 4* depict examples of various landscape treatments that comply with the requirements for landscape edge types A, B, C, D and E.

**TABLE 2
LANDSCAPED EDGES ADJACENT TO ROADWAYS**

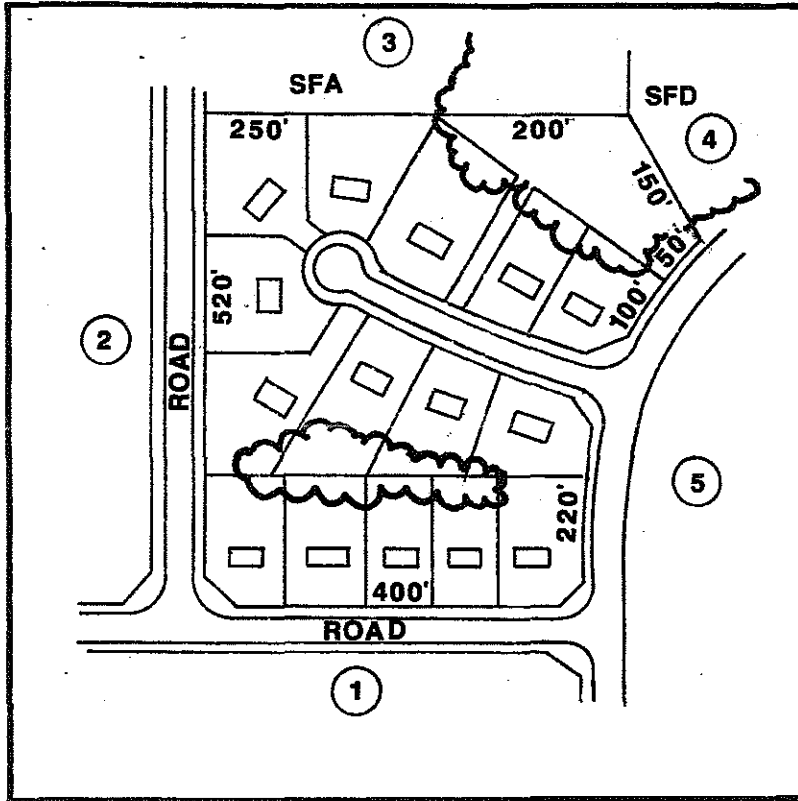
| Land Use* | Orientation of Structure or Use to Roadway | Landscape Edge Type |
|---------------------------------------|--|---------------------|
| Single Family Detached | Front Side/Rear | None B |
| Single Family Attached & Mobile Homes | Front Side/Rear | None C |
| Apartments | All Sides | B |
| Non-Residential | Front/Side Rear Rear - If Loading | B C D |
| Parking | NA | E |

**TABLE 3
LANDSCAPE EDGES ADJACENT TO PERIMETER PROPERTIES**

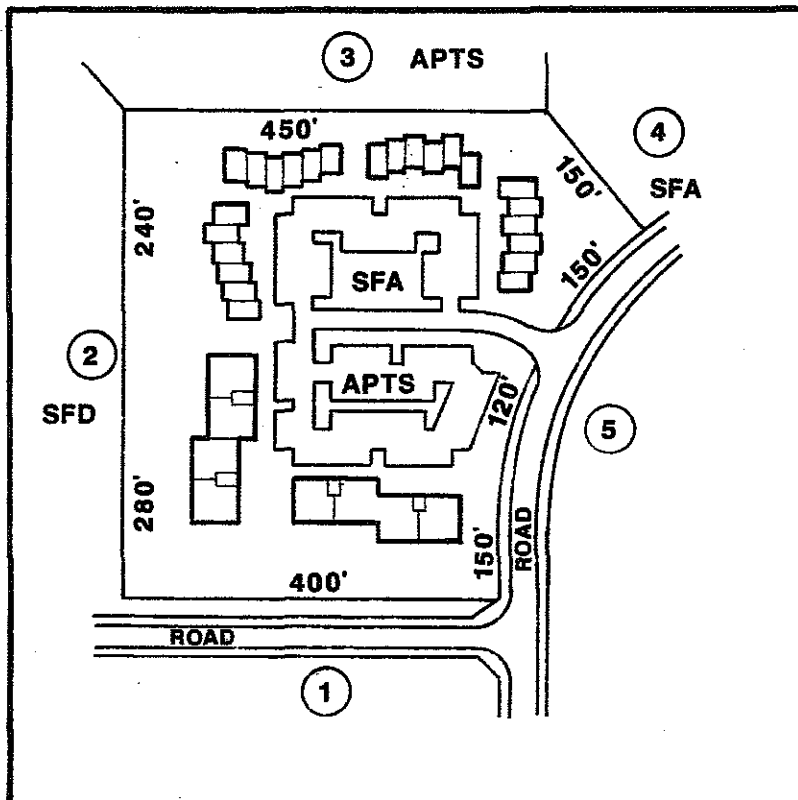
| Land Use* | Adjacent Land Use* | Landscape Type |
|---|--------------------|----------------|
| Single Family Detached | All Uses | A |
| Single Family Attached, Mobile Homes & Apartments | SFD | C |
| | SFA & Mobile Homes | B |
| | All Other Uses | A |
| Non-Residential | Residential | C |
| | All Other Uses | A |
| Loading | Residential | D |
| | All Other Uses | C |

* Residential open space and unbuilt areas of a non-residential development are considered to have the same land-use as the principal use.

**FIGURE 1
RESIDENTIAL PERIMETER LANDSCAPED EDGE CALCULATIONS**

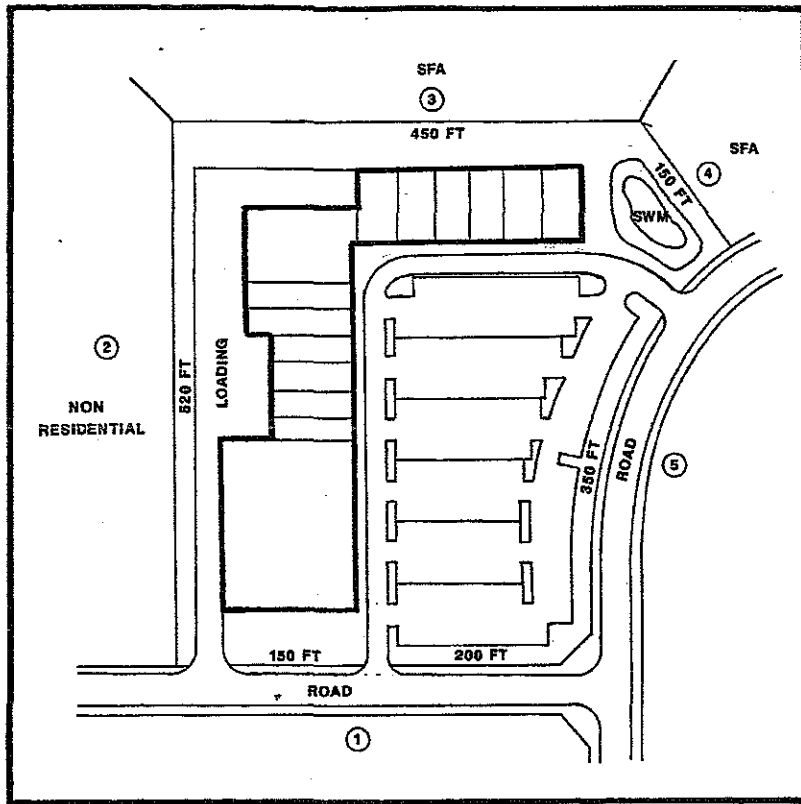


| <u>PERIMETER</u> | <u>EDGE TYPE</u> |
|---|------------------|
| Perimeter 1 SFD Front to Road - 400LF | NA |
| Perimeter 2 SFD Side/Rear to Road - 520LF 1 Shade Tree/50 LF 10 1 Evergreen Tree/40 LF 13 | B |
| Perimeter 3 SFD to SFA - 250LF 1 Shade Tree/60 LF 4 | A |
| SFD to SFA - 200LF Existing Trees to Remain | A |
| Perimeter 4 SFD to SFD - 150LF Existing Trees to Remain | A |
| Perimeter 5 SFD to Road - 50LF Existing Trees to Remain SFD Side to Road - 320 LF 1 Shade Tree/50 LF 6 1 Evergreen Tree/40 LF 8 | A B |
| TOTAL PLANTING OBLIGATION | |
| Shade Trees | 20 |
| Evergreen Trees | 21 |



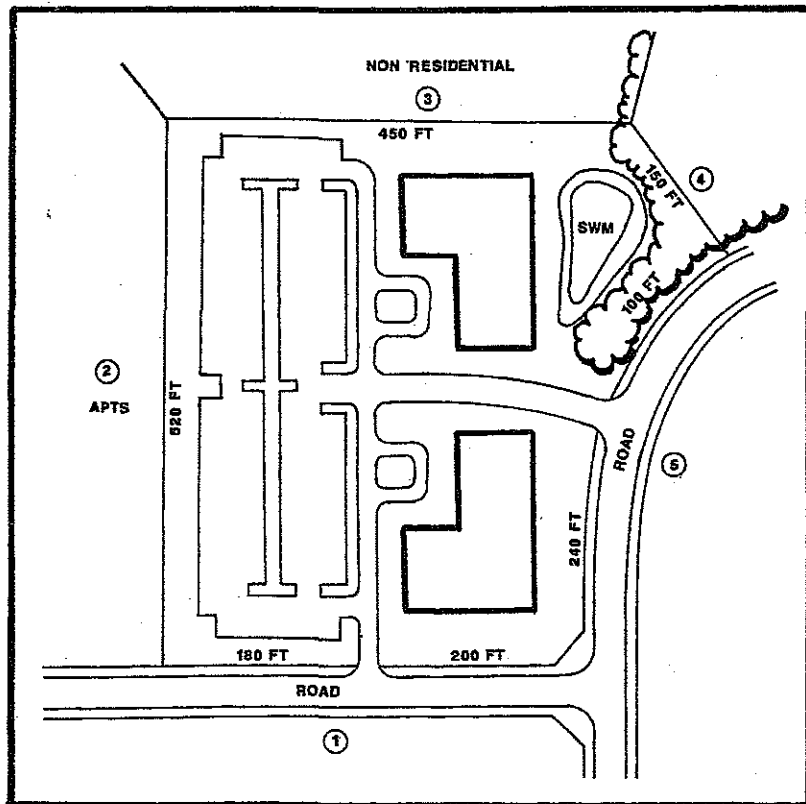
| | |
|--|--------|
| Perimeter 1 APTS to Road - 400LF 1 Shade Tree/50 LF 8 1 Evergreen Tree/40 LF 10 | B |
| Perimeter 2 APTS and SFA to SFD - 520LF 1 Shade Tree/40 LF 13 1 Evergreen Tree/20 LF 26 | C |
| Perimeter 3 SFA to APTS - 450LF 1 Shade Tree/60 LF 8 | A |
| Perimeter 4 SFA to SFA - 150LF Existing Trees to Remain | B |
| Perimeter 5 SFA Rear to Road - 150LF Existing Trees to Remain Parking to Road - 120LF 1 Shade Tree/40 LF 3 1 Shrub/4 LF 30 | C E |
| APTS to Road - 150LF 1 Shade Tree/50 LF 3 1 Evergreen Tree/40 LF 4 | B |
| TOTAL PLANTING OBLIGATION | |
| Shade Trees | 35 |
| Evergreen Trees | 40 |
| Shrubs | 30 |

**FIGURE 2
NON-RESIDENTIAL LANDSCAPED EDGES**



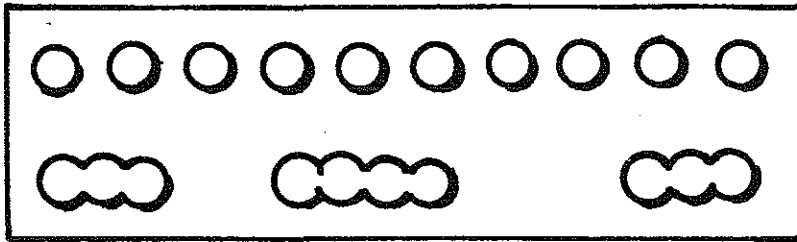
| PERIMETER | EDGE TYPE |
|----------------------------------|-----------|
| Perimeter 1 | |
| Parking to Road - 200LF | E |
| 1 Shade Tree/40 LF | 5 |
| 1 Shrub/4 LF | 50 |
| Non-Res. Side to Road - 150LF | B |
| 1 Shade Tree/50 LF | 3 |
| 1 Evergreen Tree/40 LF | 4 |
| Perimeter 2 | |
| Loading to Non-Res. - 520LF | C |
| 1 Shade Tree/40 LF | 13 |
| 1 Evergreen Tree/20 LF | 26 |
| Perimeter 3 | |
| Non-Res.&Loading to Res.-450LF | D |
| 1 Shade Tree/60 LF | 8 |
| 1 Evergreen Tree/10 LF | 45 |
| Perimeter 4 | |
| Non-Res. to Res. - 150LF | C* |
| 1 Shade Tree/40 LF | 4 |
| 1 Evergreen Tree/20 LF | 8 |
| Perimeter 5 | |
| Non-Res. to Road - 70 LF | B* |
| 1 Shade Tree/50 LF | 1 |
| 1 Evergreen Tree/40 LF | 2 |
| Parking to Road - 350LF | E |
| 1 Shade Tree/40 LF | 9 |
| 1 Shrub/4 LF | 88 |
| TOTAL PLANTING OBLIGATION | |
| Shade Trees | 43 |
| Evergreen Trees | 85 |
| Shrubs | 138 |

(*Non-Res. buffer exceeds SWM buffer, therefore stricter requirement applies)



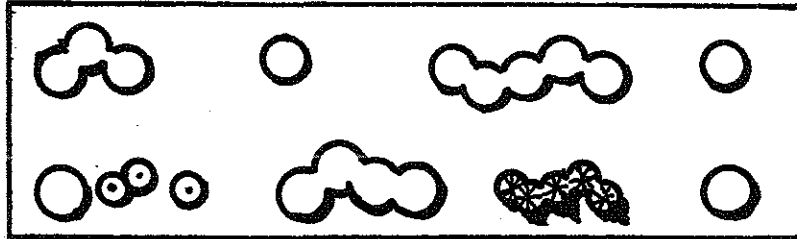
| | |
|----------------------------------|----|
| Perimeter 1 | |
| Non-Res. to Road - 200LF | B |
| 1 Shade Tree/50 LF | 4 |
| 1 Evergreen Tree/40 LF | 5 |
| Parking to Road - 180LF | E |
| 1 Shade Tree/40 LF | 5 |
| 1 Shrub/4 LF | 45 |
| Perimeter 2 | |
| Non-Res. to Res. - 520LF | C |
| 1 Shade Tree/40 LF | 13 |
| 1 Evergreen Tree/20 LF | 26 |
| Perimeter 3 | |
| Non-Res. to Non-Res. - 450LF | C |
| 1 Shade Tree/40 LF | 11 |
| 1 Evergreen Tree/20 LF | 23 |
| Perimeter 4 | |
| Non-Res. to Non-Res. - 150LF | A |
| Existing Trees to Remain | |
| Perimeter 5 | |
| Non-Res. to Road - 180LF | B |
| Existing Trees to Remain | |
| Non-Res. to Road - 240LF | B |
| 1 Shade Tree/50 LF | 5 |
| 1 Evergreen Tree/40 LF | 6 |
| TOTAL PLANTING OBLIGATION | |
| Shade Trees | 38 |
| Evergreen Trees | 60 |
| Shrubs | 45 |

FIGURE 3
EXAMPLES OF LANDSCAPED EDGE TYPES

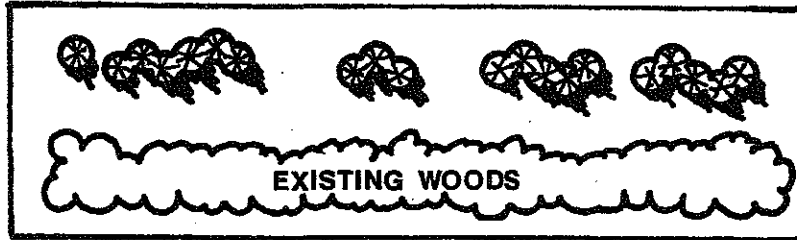


TYPE A BUFFER - 600 Linear Feet
1 Shade Tree/60 Linear Feet 10

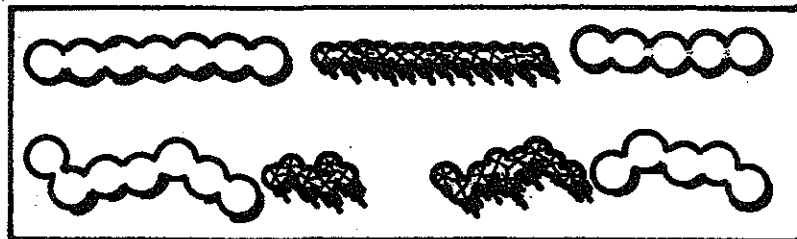
- A. 10 Shade Trees
- B. 10 Shade Trees



- A. 10 Shade Trees
- B. 6 Shade Trees
8 Other Trees (2/1 Shade Tree = 4)
5 Evergreen Trees
3 Small Deciduous Trees

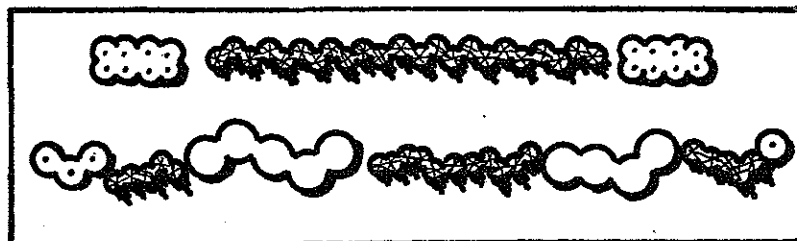


- A. 20 Evergreen Trees
(2/1 Shade Tree = 10)
- B. 0 New Trees Provided
Existing Woods Preserved

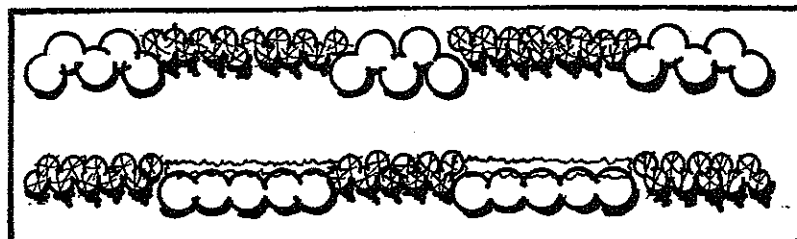


TYPE B BUFFER - 600 Linear Feet
1 Shade Tree/50 Linear Feet 12
1 Evergreen Tree/40 Linear Feet 15

- A. 12 Shade Trees
15 Evergreen Trees
- B. 12 Shade Trees
15 Evergreen Trees



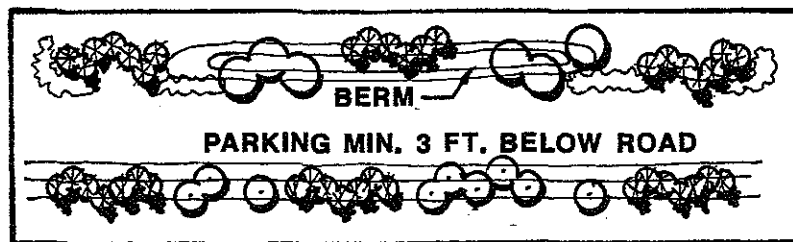
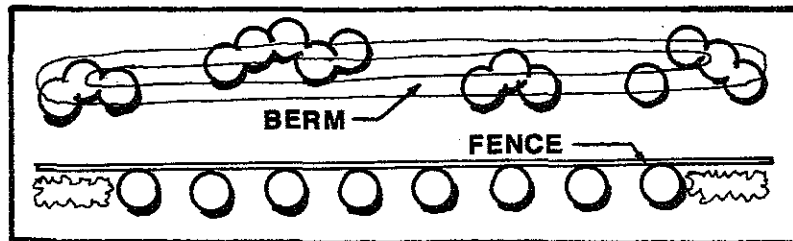
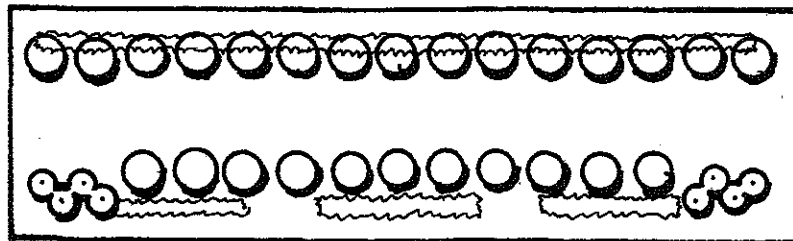
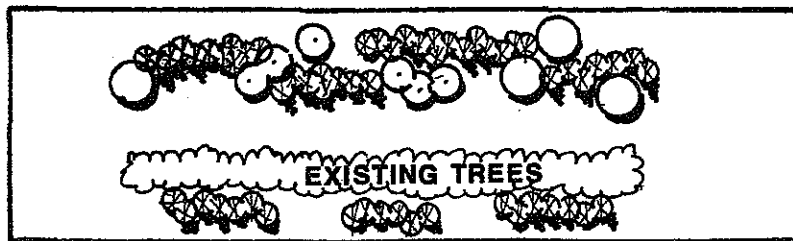
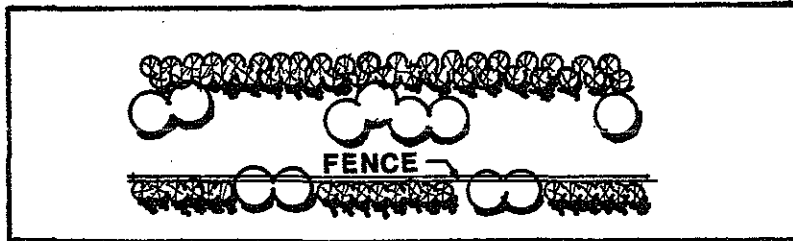
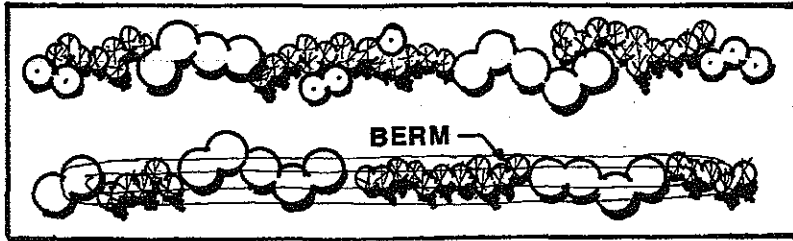
- A. 7 Shade Trees
10 Other Trees (2/1 Shade Tree = 5)
4 Small Deciduous Trees
6 Evergreen Trees
15 Evergreen Trees
- B. 24 Other Trees (2/1 Shade Tree = 12)
16 Small Deciduous Trees
8 Evergreen Trees
15 Evergreen Trees



TYPE C BUFFER - 600 Linear Feet
1 Shade Tree/40 Linear Feet 15
1 Evergreen Tree/20 Linear Feet 30

- A. 15 Shade Trees
30 Evergreen Trees
- B. 10 Shade Trees
50 Shrubs (10/1 Shade Tree = 5)
30 Evergreen Trees

**FIGURE 4
EXAMPLES OF LANDSCAPED EDGE TYPES**



TYPE C BUFFER - 600 Linear Feet

- A. 9 Shade Trees
12 Other Trees (2/1 Shade Tree = 6)
8 Small Deciduous Trees
4 Evergreen Trees
15 Evergreen Trees
- B. Berm - 30% Credit for Required Trees
11 Shade Trees (70% of 15)
21 Evergreen Trees (70% of 30)

TYPE D BUFFER - 400 Linear Feet

- 1 Shade Tree/60 Linear Feet 7
- 1 Evergreen Tree/10 Linear Feet 40
- A. 7 Shade Trees
40 Evergreen Trees
- B. Solid Wall or Fence-50% Credit
4 Shade Trees (50% of 7)
20 Evergreen Trees (50% of 40)

- A. 4 Shade Trees
6 Flowering Trees
(2/1 Shade Tree = 3)
40 Evergreen Trees
- B. Existing Trees to Remain
No Shade Trees Required
50% Credit for Required Evergreen
Trees
20 Evergreen Trees Provided

TYPE E BUFFER - 600 Linear Feet

- 1 Shade Tree/40 Linear Feet 15
- 1 Shrub/4 Linear Feet 150
- A. 15 Shade Trees
150 Shrubs
- B. 11 Shade Trees
8 Small Deciduous Trees
(2/1 Shade Tree = 4)
150 Shrubs

- A. Berm - No Shrubs Required
15 Shade Trees
- B. Solid Wall or Fence
11 Shade Trees Required (1/60LF)
0 Shrubs Required
8 Shade Trees Provided
30 Shrubs (10/1 Shade Tree = 3)

- A. 6 Shade Trees
18 Evergreen Trees
(2/1 Shade Tree = 9)
63 Shrubs
350 Linear Feet Berm - No Shrubs
250 Linear Feet Shrubs 1/4LF
- B. 30 Other Trees (2/1 Shade Tree = 15)
9 Small Deciduous Trees
21 Evergreen Trees

Optional Treatments

A variety of landscape treatments other than the planting stipulated in *Table 1* may satisfy landscaping requirements. Optional treatments that may satisfy the landscape requirements include:

- *Preserving Existing Vegetation*

Up to 100% of the planting requirement may be met by preserving existing vegetation. A minimum buffer width of 20 feet of existing vegetation must be preserved in single family detached developments and business districts; 25 feet in single family attached, or apartments developments; and 30 feet in all other non-residential districts. For preservation areas of lesser widths, a tree preservation plan showing the location of trees within the preserved area must be provided. In any case, the Department of Planning and Zoning may require the applicant to provide supplemental planting if existing vegetation cannot provide adequate screening or buffering.

- *Providing a Berm or Grade Change*

A berm that is a minimum of 3 feet high, or a change in grade that causes a parking lot to be located lower than the adjacent roadway by 3 feet or more, may be substituted for shrub planting in a Type E landscape buffer. Berms may be substituted for evergreen trees or shrubs in meeting other perimeter landscaping requirements. In general, berms that buffer new development from an adjacent roadway should be a minimum of 3 feet high if the front or side of the structure(s) abut the roadway, and a minimum of 6 feet high if the rear of the structure or a loading area abuts the roadway. Berms between similar uses (i.e. residential to residential or non-residential to non-residential) should be a minimum of 3 feet high. Non-residential uses adjacent to residential properties should provide berms that are a minimum of 6 feet high to obtain a credit towards provision of required plant materials. In no instances will berms be substituted for required shade tree plantings.

- *Erecting a Fence, Hedge or Wall*

Landscaped edges may be reduced to a width of 10 feet if a masonry wall, hedge, or solid fence is provided. Walls, hedges and fences may be credited towards meeting 100% of the required landscape planting; however the Department of Planning and Zoning may require at least 1 tree per 60 linear feet of wall or one shrub or vine per 10 linear feet of wall or fences if the fence or wall does not have architectural articulation. Where walls or fences abut a public or private road right-of-way, the planting should be on the street side of the wall.

A masonry wall or solid fence at least 5 feet high must be provided between adjacent land uses or where rears of residential buildings or loading areas abut roadways. A wall or fence at least 3-1/2 feet high is needed where parking lots abut roadways or where the fronts or sides of buildings abut roadways. In the latter case a solid or semi-transparent fence or wall may be approved.

Requirements and Guidelines for Parking Lots and Loading Areas

The requirements for buffering of parking areas are intended to reduce the visual impact of automobiles and large expanses of paving from adjacent roadways and from abutting properties.

For parking lots adjacent to roadways, a Type E landscaped buffer is required. This combination of low shrubs and canopy trees generally provides for some visual penetration of a site while partially screening cars parked immediately adjacent to the roadway. The goal of creating a buffer at the edge of a roadway that is a minimum buffer of 3 feet high can be accomplished with shrubs, a change in grade, a berm, a fence or a wall.

In most commercial areas, the desire to identify buildings from the roadway requires that eye level sight lines be preserved. Thus, the use of evergreen trees or small deciduous trees with low canopies may not be desirable. However, when commercial parking lots abut residential land uses, required planting should be clustered in the areas where it is most needed to buffer or screen objectionable views. In such instances, it may be appropriate to substitute evergreen trees, small deciduous trees or shrubs for the required perimeter shade trees.

In residential areas, the preservation of existing vegetation as a buffer between parking areas and roadways or other perimeter land uses is strongly recommended. Substitution of evergreen trees or small deciduous trees for required shade trees may be appropriate to buffer residential communities from surrounding roadways. When residential parking lots abut other residential properties, clustering of evergreen trees or use of dense mixed plantings between the parking areas and the property perimeter is recommended.

Loading and service areas include dumpster and compactor areas as well as truck loading facilities such as dock areas, drive-in loading bays and at grade service entrances to structures. For all loading and service areas adjacent to roadways or residential properties, a landscaped edge with a Type D screen shall be provided between the loading or service area and any public or private road, residential structure or lot. For loading area adjacent to perimeter boundaries other than those specified above, a Type C landscaped edge shall be provided. As mentioned previously, landscaping of perimeter boundaries is not required for adjacent parcels within the same property.

Perimeter landscaping of parking lots and loading areas for special exception uses may exceed those specified in the landscaping regulation if required by the decision and order issued by the Board of Appeals.

PARKING LOT INTERNAL LANDSCAPING

All parking lots must provide permanently landscaped areas consisting of planted islands, peninsulas, or medians within the interior of the lot. Landscaped areas should divide lots into groups of parking spaces to relieve the monotony of large expanses of paving and contribute to efficient and safe circulation of traffic in the parking areas.

Expansion of an existing parking lot or loading area that increases the area or number of spaces by 50% or more shall be required to provide landscaping for the entire parking lot or loading area in accordance with these regulations. Expansions of less than 50% shall be required to provide landscaping for the additional development only.

Required screening along the perimeter of any parking lot cannot be credited as part of the interior landscaping requirements. Moreover, where a parking lot abuts buildings on the site, plantings adjacent to those buildings shall not be considered as part of the interior landscaping requirements.

Landscaped islands shall be minimum of 12 feet in width (face of curb to face of curb) and completely curbed or otherwise protected. The minimum size of an internal landscaped area shall be 200 square feet. Walkways will be permitted within the landscaped island, but cannot be counted as part of the minimum width or minimum size.

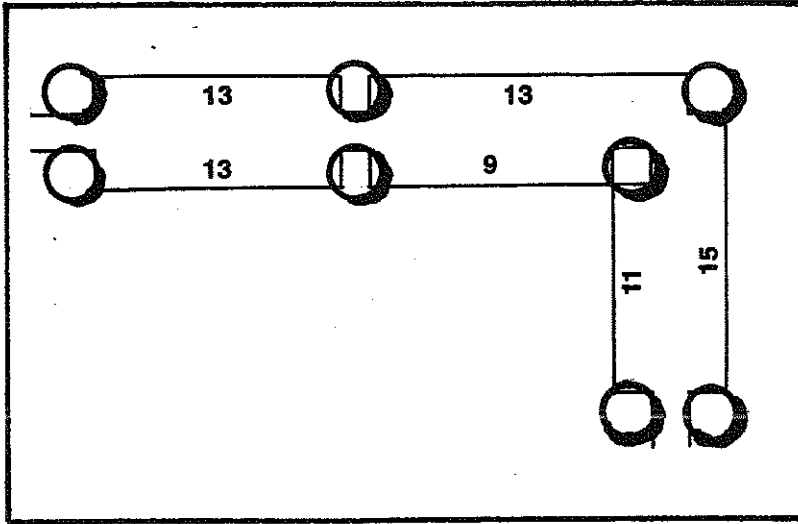
The primary trees to be used in parking lots shall be large shade trees. Small deciduous trees or evergreen trees may be used if it can be demonstrated that they will not inhibit visibility and safe circulation of pedestrians and vehicles. When allowed, small deciduous trees and evergreen trees must be substituted for shade trees at a 2:1 ratio.

Internal parking lot landscaping shall be shown on the site development plan.

Residential Parking Lots

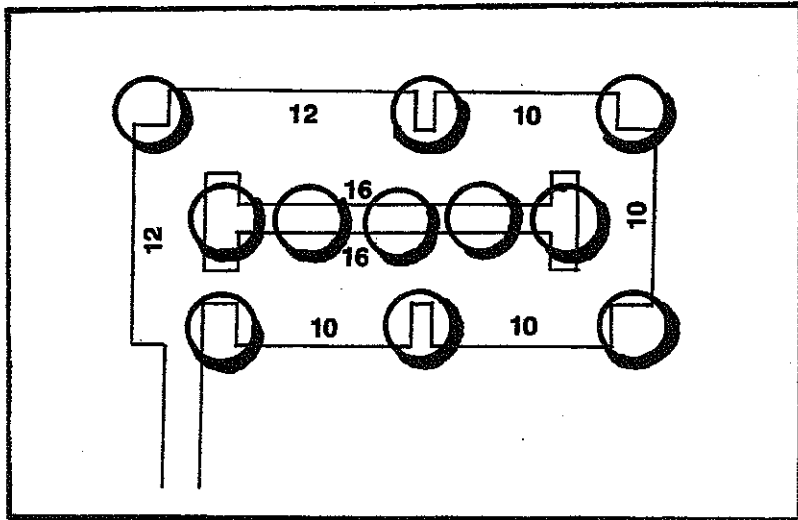
Parking lots for single family attached and apartment dwelling units shall have 1 landscaped island per 10 parking spaces and 1 shade tree per 10 parking spaces. This requirement does not necessarily mean that an island with a shade tree must occur every 10 spaces; the requirement is a means of calculating planting requirements. Grouping of parking spaces should generally not exceed 12 in a row for residential land uses. Landscaped areas in residential parking lots may be internal islands and peninsulas, perimeter corner green areas formed where two rows of parking spaces abut or peninsula areas formed where parking areas and access roads or entrance driveways abut. Trees provided to meet internal planting requirements may be located in internal landscaped areas, perimeter corner areas or entrance area peninsulas. *Figure 5* shows how to compute requirements for internal islands and trees for residential parking lots and depicts parking lot planting plans that satisfy the regulations.

**FIGURE 5
RESIDENTIAL PARKING LOT INTERNAL PLANTING**



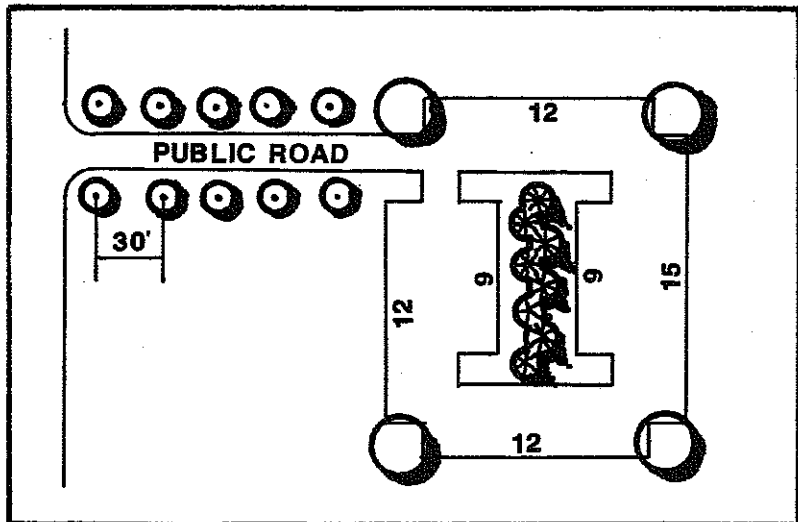
EXAMPLE 1

| | |
|--------------------------|----|
| Number of Parking Spaces | 74 |
| Islands Required | 8 |
| 1/9 Spaces | |
| Islands Provided | 8 |
| Shade Trees Required | 8 |
| 1/9 Spaces | |
| Shade Trees Provided | 8 |



EXAMPLE 2

| | |
|--------------------------|----|
| Number of Parking Spaces | 96 |
| Islands Required | 11 |
| 1/9 Spaces | |
| Islands Provided | 20 |
| 200 Sq. Ft./Island | |
| Shade Trees Required | 11 |
| 1/9 Spaces | |
| Shade Trees Provided | 11 |



EXAMPLE 3

| | |
|---------------------------------|----|
| Number of Parking Spaces | 69 |
| Islands Required | 8 |
| 1/9 Spaces | |
| Islands Provided | 28 |
| 200 Sq. Ft./Island | |
| Shade Trees Required | 8 |
| 1/9 Spaces | |
| Trees Provided | |
| Shade Trees (50% required) | 4 |
| Evergreen Trees (2/1 Shade = 4) | 8 |

PUBLIC ROAD

| | |
|------------------------------|----|
| No Parking Spaces Along Road | |
| Street Trees Required | |
| Small Deciduous Trees | 10 |
| 30 Feet Apart | |

As described in *Chapter V, Street Trees*, internal parking lot landscaping provided in single family attached developments will satisfy the street tree obligations for internal public rights-of-way. In such cases, plantings within the public right-of-way need not be shown on the road construction drawings, but must be included on the site development plan.

Non-Residential Parking Lots

Parking lots for office, industrial, retail, institutional and related commercial use shall have 1 landscaped island per 20 parking spaces and 1 shade tree per 20 parking spaces. This requirement is a means of calculating planting obligations. Grouping of parking spaces should generally not exceed 24 in a row for commercial and institutional lands uses but may be permitted at up to 30 in a row for large regional shopping centers and malls. In large parking lots, the creation of large islands that permit the planting of groups or rows of trees is encouraged.

Landscaped areas may be internal islands and peninsulas. For non-residential parking lots, perimeter green areas formed where two rows of parking spaces abut or where parking areas and access roads or driveways abut may not be counted as internal islands. Trees provided to meet internal planting requirements must be located in internal landscaped areas. *Figure 6* shows how to compute requirements for internal islands and trees for non-residential parking lots. It also depicts parking lot planting plans that satisfy the intent of the regulations.

RESIDENTIAL DEVELOPMENT INTERNAL LANDSCAPING

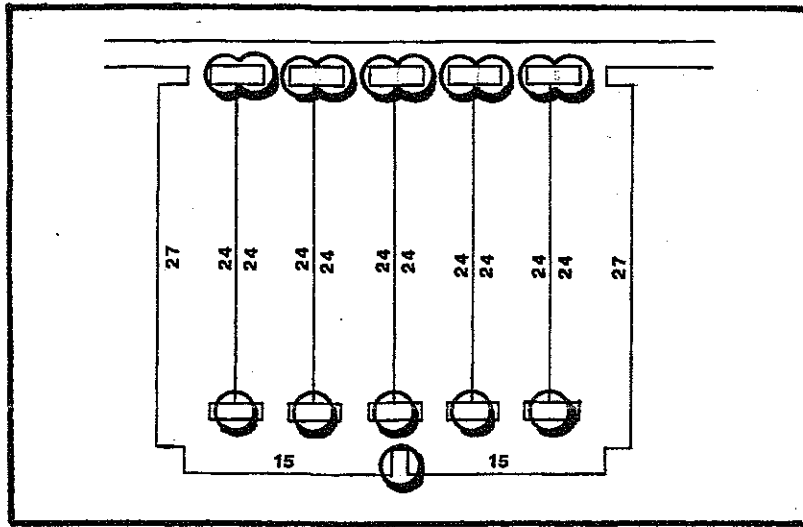
Internal landscaping is required within all new single family attached, mobile home, and apartment developments. Expansion to existing development that increases the number of single family attached units or apartments by 50% or more shall be required to provide landscaping for the entire site in accordance with these regulations. Expansion of less than 50% of the number of existing units shall be required to provide landscaping for the additional development only.

Single Family Attached

The following requirements apply for single family attached projects in any district or for mobile home projects:

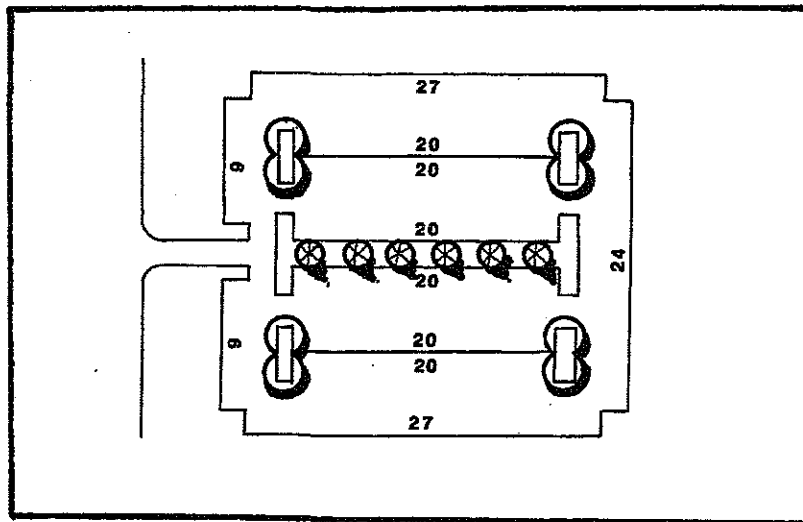
- 1 shade tree per unit.
- Small deciduous or evergreen trees may be substituted for shade trees at a 2:1 ratio up to a maximum of 50% of the required shade trees.
- Trees may be placed on residential lots, in open space lots or at other on-site locations that meet the intent of the regulations.
- Landscape planting requirements shall be shown on the site development plan.
- A minimum 15 foot wide landscaped area shall be provided between common parking areas and any adjacent residential structure.

**FIGURE 6
NON-RESIDENTIAL PARKING LOT INTERNAL LANDSCAPING**



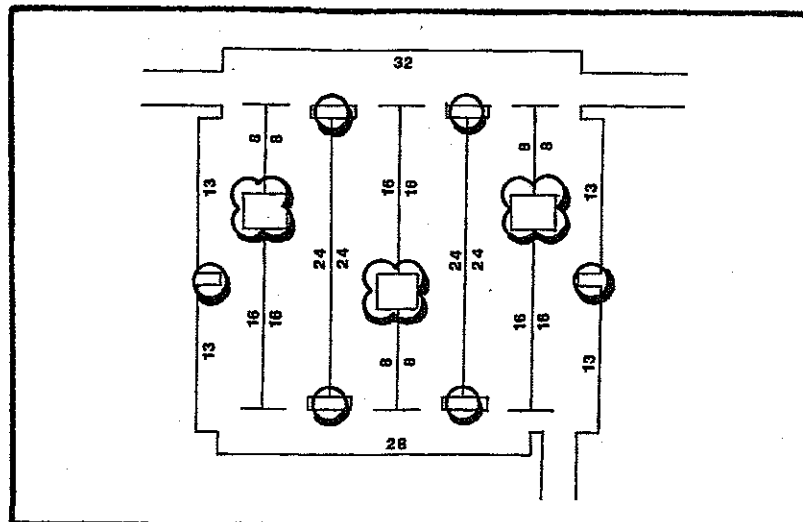
EXAMPLE 1

| | |
|---------------------------|-----|
| Number of Parking Spaces | 324 |
| Internal Islands Required | 16 |
| 1/20 Spaces | |
| Internal Islands Provided | 21 |
| Shade Trees Required | 16 |
| 1/20 Spaces | |
| Shade Trees Provided | 16 |



EXAMPLE 2

| | |
|---------------------------------|-----|
| Number of Parking Spaces | 216 |
| Internal Islands Required | 11 |
| 1/20 Spaces | |
| Internal Islands Provided | 28 |
| 200 Sq. Ft./Island | |
| Shade Trees Required | 11 |
| 1/20 Spaces | |
| Trees Provided | |
| Shade Trees | 8 |
| Evergreen Trees (2/1 Shade = 3) | 6 |



EXAMPLE 3

| | |
|---------------------------|-----|
| Number of Parking Spaces | 352 |
| Internal Islands Required | 18 |
| 1/20 Spaces | |
| Internal Islands Provided | 29 |
| 200 Sq. Ft./Island | |
| Shade Trees Required | 18 |
| 1/20 Spaces | |
| Shade Trees Provided | 18 |

Apartments

The following requirements apply for apartments projects in any district:

- A minimum of 1 shade tree per 3 units shall be provided.
- Small deciduous trees or evergreen trees may be substituted at a 2:1 ratio for up to 50% of the required shade trees.
- A minimum 15 foot wide landscaped area shall be provided between common parking areas and any adjacent residential structure.

Figure 7 exhibits calculations for and internal landscaping of a residential development with townhomes and apartment units.

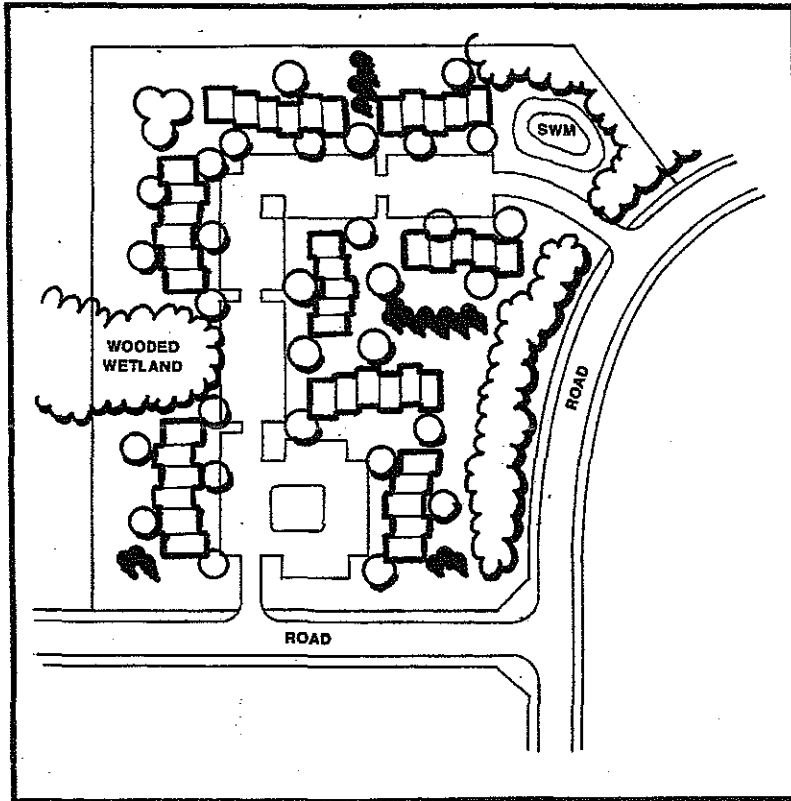
STORMWATER MANAGEMENT AREA LANDSCAPING

Landscaping of new or expanded stormwater management areas is required in all zoning districts excluding M-1 and M-2 parcels where stormwater management areas are not adjacent to residential zoning or a public road.

For stormwater management facilities that have an internal location within the development, a landscaped edge shall be provided between the stormwater management area (wet, dry or extended detention) and any adjacent structure or lot. Perimeter length is calculated along the lot or easement boundary. The landscaped edge shall contain a Type B buffer. For stormwater management facilities adjacent to roadways or perimeter properties, a Type B buffer is required unless a Type C buffer is required in Tables 2 or 3.

Planting within the landscaped edge may not encroach on maintenance access to the facility as required by the Department of Public Works. Planting will not be allowed on any stormwater management facility dam/berm or in any other location that could threaten the structural integrity of the facility. This restriction does not supersede perimeter landscaping requirements. Stormwater management facilities must be located to avoid conflict with perimeter plantings. If this conflict cannot be avoided, the required stormwater management perimeter planting shall be relocated elsewhere on site as approved by the Department of Planning and Zoning. *Figure 8* illustrates the method of calculating landscape obligations for internal stormwater management areas and identifies the general location of the landscaped edge. An example of a stormwater management area planting that fulfills the requirements of the regulations is shown in *Figure 9*. Depending on the type of stormwater management facility, landscaping within the facility may be substituted for perimeter landscaping if the Department of Planning and Zoning determines this provides a more attractive design and steep slopes do not necessitate a physical buffer along the perimeter.

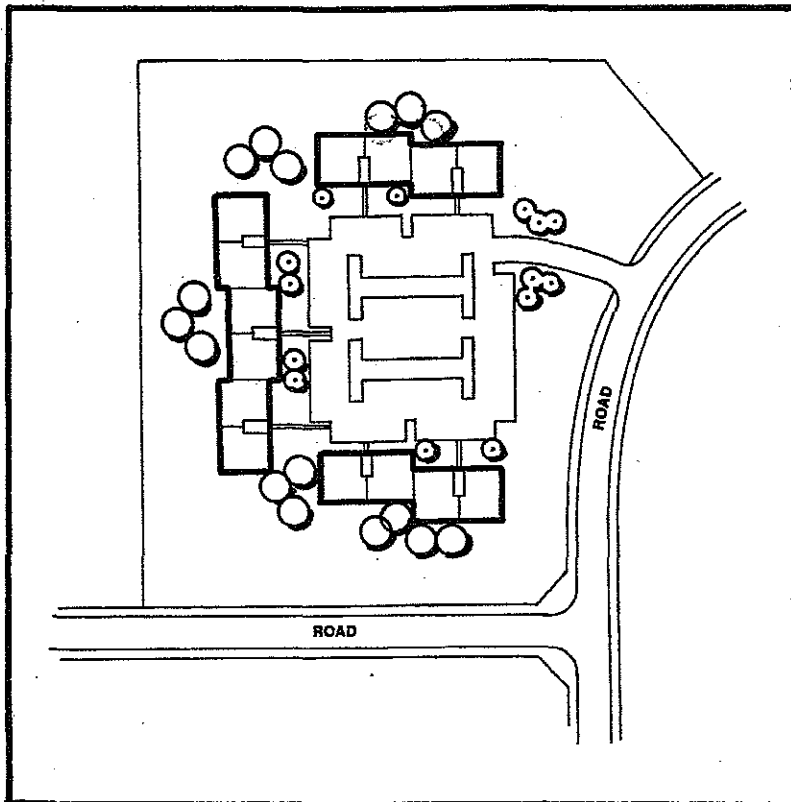
**FIGURE 7
RESIDENTIAL INTERNAL LANDSCAPING**



SINGLE FAMILY ATTACHED

| | |
|------------------------|----|
| Number of Units | 44 |
| Shade Trees Required | 44 |
| 1/3 Units | |
| Trees Provided | |
| Shade Trees | 33 |
| Evergreen Trees | 22 |
| (1/2 Shade Trees = 11) | |

Internal Landscaping Provided
 In 15' Wide Landscaped Area
 Between Parking and Building
 Between Buildings
 In Rear Yards
 Screening Rear Yards

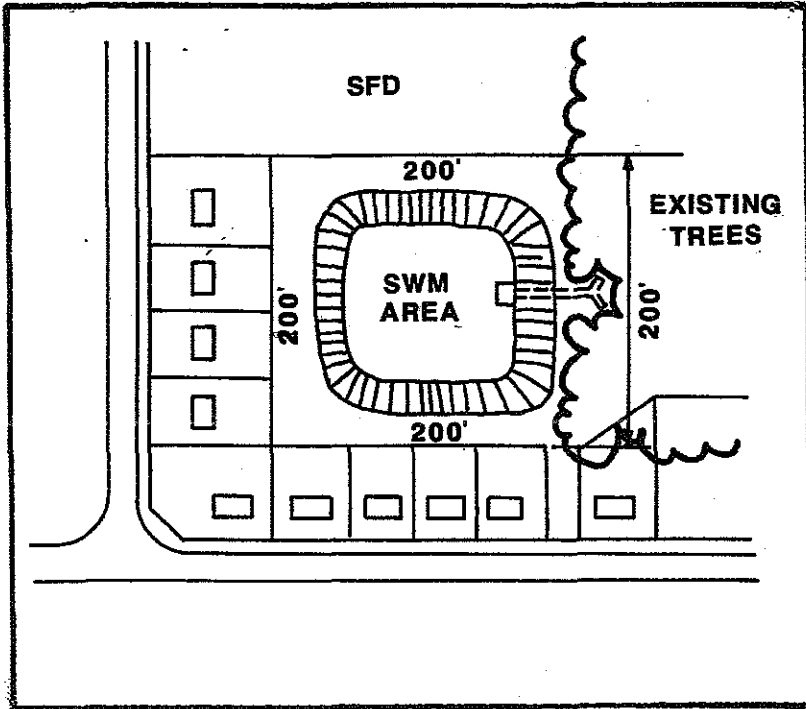


APARTMENTS

| | |
|-----------------------|----|
| Number of Units | 70 |
| Shade Trees Required | 23 |
| 1/3 Units | |
| Trees Provided | |
| Shade Trees | 16 |
| Small Deciduous Trees | 14 |
| (1/2 Shade Trees = 7) | |

Internal Landscaping Provided
 Along Entrance Road
 In 15' Wide Landscaped Area
 Between Parking and Building
 Between Buildings
 Behind Buildings

**FIGURE 8
STORMWATER MANAGEMENT AREA PERIMETER CALCULATIONS**



**PERIMETER LANDSCAPING
REQUIRED**

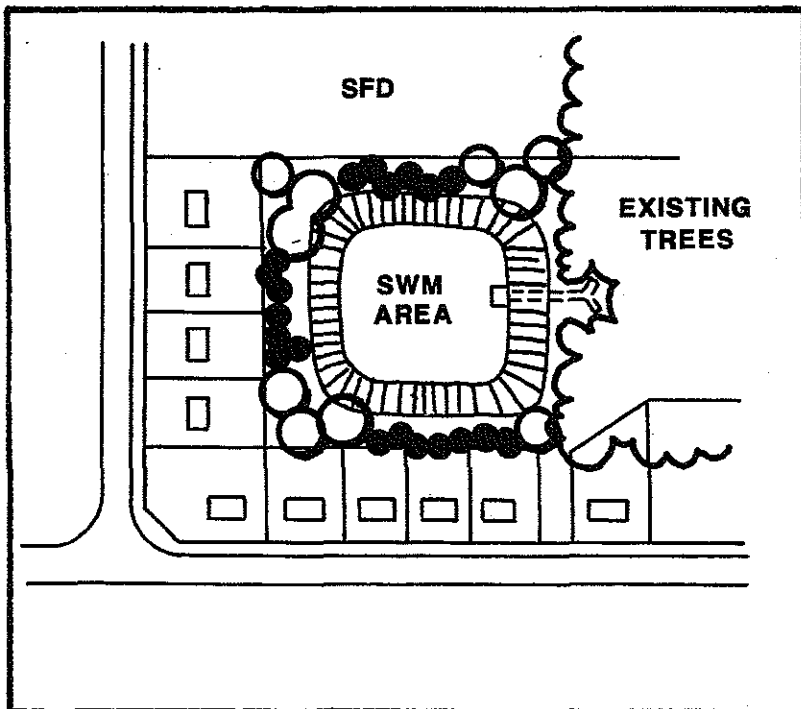
| | |
|------------------|--------|
| Perimeter Length | 800LF* |
| Existing Woods | 200LF |
| Buffer Length | 600LF |
| Buffer Type | B |

Trees Required

| | |
|------------------|----|
| 1 Shade/50LF | 12 |
| 1 Evergreen/40LF | 15 |

(* SWM perimeter area includes required 20 foot setback area)

**FIGURE 9
STORMWATER MANAGEMENT AREA LANDSCAPING**



**PERIMETER LANDSCAPING
PROVIDED**

| | |
|----------------------|----|
| Shade Trees | 10 |
| Evergreen Trees | 4 |
| (2/1 Shade Tree = 2) | |
| Evergreen Trees | 15 |

Small deciduous trees or evergreen trees may be substituted for shade trees at a 2:1 ratio for a maximum of 50% of the required shade trees. Shrubs may be substituted for shade trees at a ratio of 10:1 for a maximum of 25% of the required shade trees.

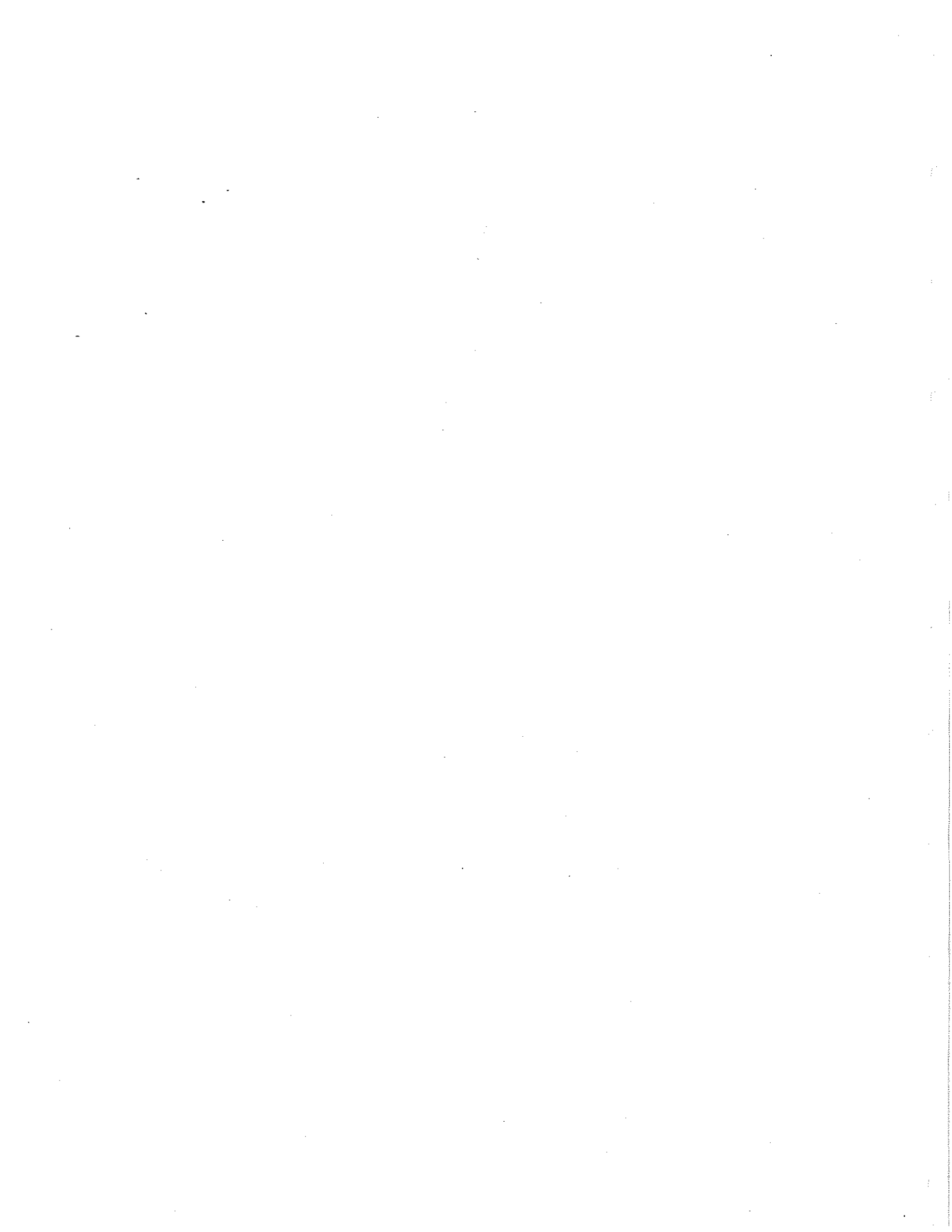
Existing vegetation to remain or perimeter planting provided to meet other landscaping requirements may be credited towards fulfilling up to 100% of the requirement for landscaping of stormwater management areas.

It is recommended that planting around stormwater management areas be native vegetation. Plants that are associated with stream, pond or wetland habitat provide an attractive character for such facilities but should be used only if suited to site conditions. But, in any case, the plant material selected should be appropriate to the specific environmental conditions created. Plant materials may be selected to provide screening of potentially objectionable views (from residential properties), to provide barriers to potentially undesirable relationships (to pedestrian circulation) or to enhance an amenity feature. In the first case, evergreen trees may be preferred; in the second case, dense shrubbery might be provided; in the latter case, plants with ornamental characteristics would be preferred.

Planting within stormwater management basins is also recommended. Properly done, such planting can reduce maintenance, enhance wildlife habitat values, encourage the creation of wetland environments and improve the appearance of such facilities. The County's Stormwater Management Committee suggests the following:

- Dams and spillway planting be limited to grass, crown vetch or similar materials;
- Bottoms be planted with emergent wetland vegetation if sufficient hydrology is expected (unless specifically approved by all relevant agencies, such planting will not be credited towards wetland mitigation);
- The sides be planted with crown vetch or similar groundcover if slopes are too steep to mow; and
- Upper slopes be planted with shrubs, groundcover and/or perennials as long as access is maintained and leaves will not clog outfall pipes.

While such planting is not required, it should be considered. Planting of basins, if authorized by the Department of Planning and Zoning and the Department of Public Works, may be approved to meet the obligations for stormwater management area landscaping by utilizing the alternative compliance provisions of the regulations described in *Chapter V*.



CHAPTER V

STREET TREES

STREET TREES AND OTHER LANDSCAPING REQUIREMENTS

Street trees are required by the Subdivision and Land Development Regulations. Street tree requirements must be met in addition to the requirements for perimeter and internal landscaping required in Section 16.124. Street tree obligations and other landscape obligations must always be computed separately.

Street trees should preferably be located in the road right-of-way either adjacent to the road pavement or within a landscaped median. However, if utilities cannot be configured to provide sufficient space for street tree planting within the right-of-way, the Department of Planning and Zoning may approve location in a street tree maintenance easement adjacent to the right-of-way. Trees required to satisfy perimeter landscaping requirements may be planted within the public right-of-way if approved by the Department of Planning and Zoning and the Department of Public Works. Street trees planted adjacent to the right-of-way may be clustered with existing trees or proposed perimeter landscaping to provide a more effective buffer or screen to satisfy the intent of the ordinance. This option must also be approved by the Department of Public Works and the Department of Planning and Zoning.

In single family attached or apartment developments where internal roads are designed as part of the parking lots, internal parking lot landscaping provided in accordance with the requirements of Section 16.124 and *Chapter IV* of the Landscape Manual shall satisfy street tree obligations. Internal parking lot landscaping will be allowed to fulfill street tree requirements only for those segments of the roadway that are lined with parking spaces perpendicular to the roadway (see *Figure 5, Example 3*).

GENERAL REQUIREMENTS

Roadway alignments should seek to preserve existing forests, stands of mature trees and specimen trees on all development sites. Furthermore, the preservation of vegetation adjacent public rights-of-way is encouraged. The Forest Conservation Manual, arborists and tree specialists, and/or texts listed in *Appendix F, Bibliography*, should be consulted for methods of tree preservation. Credit for up to 100% of the street tree planting requirement may be granted for preservation of existing trees immediately adjacent to the right-of-way.

Street trees of at least 2-1/2 inch caliper must be provided for public and private rights-of-way in all districts. Spacing for required street trees shall be as follows:

- Small trees shall be planted a maximum of 30 feet apart.

- Medium or large trees shall be planted a maximum of 40 feet apart.

If the number of street trees provided in a subdivision or development meets the intent of the minimum spacing requirements (i.e., approximately 1 tree per 30 or 1 tree per 40 feet), the Department of Public Works and the Department of Planning and Zoning may approve clustering of street trees. Clustering of street trees could result in the location of trees within the right of way and in street tree maintenance easements adjacent to the right-of-way. Spacing of trees in clusters could result in the spacing of small trees at 15-20 feet apart and the spacing of medium or large trees at 25-30 feet apart. In such cases, gaps between clusters could be double the minimum spacing required above. *Figure 10* depicts formal, regular layout of street trees and informal clustering of street trees.

For recommended tree species that are acceptable for adaptability and survivability in Howard County, see *Appendix B*. Alternates to these species may be proposed by a registered landscape architect or professional horticulturalist subject to approval by the Department of Public Works and the Department of Planning and Zoning.

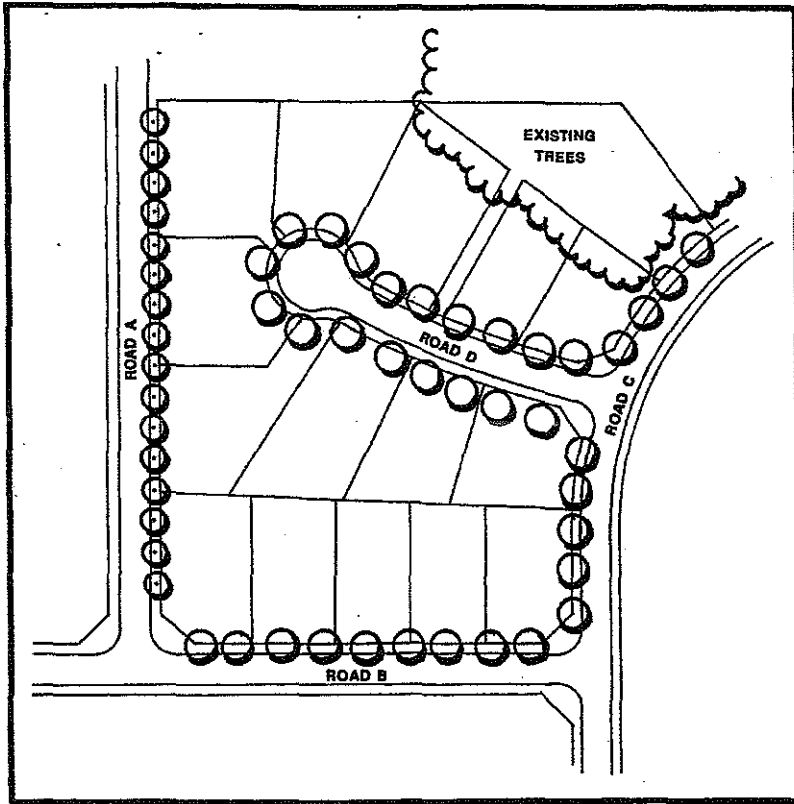
All street trees and plant materials installed in a public right-of-way must conform to the "AAN STANDARDS FOR NURSERY STOCK", latest edition, and be installed in accordance with Department of Public Works standards and specifications.

STREET TREE LOCATION REQUIREMENTS

Figure 11 illustrates alternatives for layout of street trees. The following standards shall govern the placement of street trees in public rights-of-way:

- When the distance between the curb and sidewalk is 6 feet or greater, trees shall be located within the right-of-way and shall be centered between the curb and the sidewalk.
- When the distance between the curb and the sidewalk is less than 6 feet, and where trees are planted closer than 3 feet to the sidewalk, a biologic root inhibitor barrier or physical container barrier shall be required.
- When the distance between the curb and the sidewalk is less than 6 feet, trees may be planted 3 feet from the sidewalk in the direction away from the road. A 10 foot wide tree maintenance easement shall be required if the right-of-way is limited.
- Trees shall be planted 6 feet behind the curb when there are no sidewalks.
- Trees shall be placed a minimum of 30 feet from all signs and intersections when planted between sidewalk and curb, and be located with consideration of underground utilities and structures. Street trees may not be planted within 5 feet of a drain inlet structure, 5 feet of an open space access strip, or 10 feet of a driveway.

**FIGURE 10
STREET TREE PLANTING**



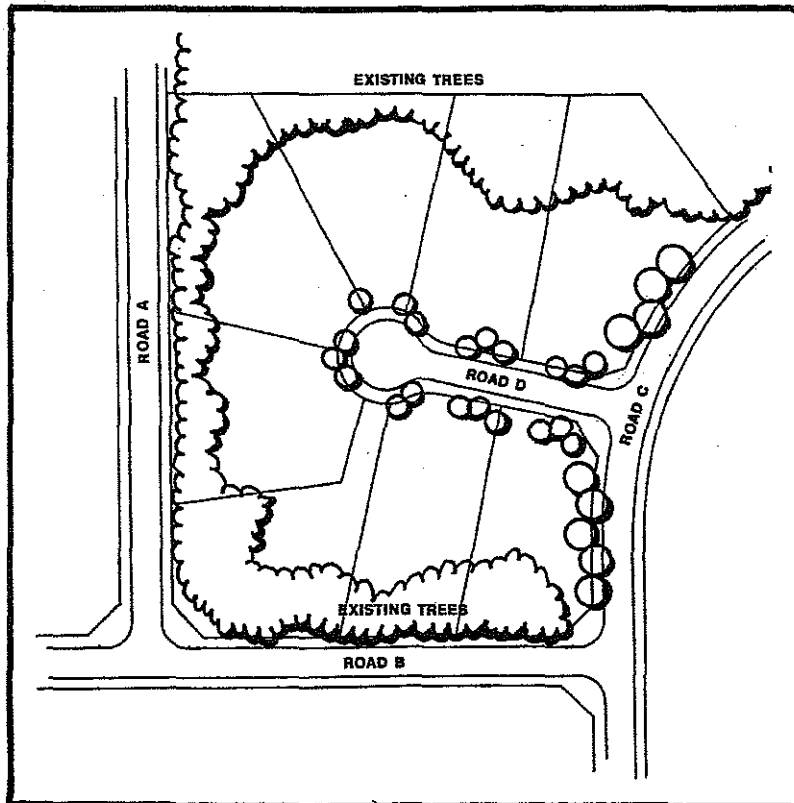
FORMAL STREETScape

Road A
No Sidewalks
Small Deciduous Trees (Cherry)
30 Feet Apart
In Right-of-Way

Road B
No Sidewalks
Large Street Trees (Maple)
40 Feet Apart
In Right-of-Way

Road C
Sidewalks
Large Street Trees (Oaks)
40 Feet Apart
In 6 Foot Wide Planting Strip
In Right-of-Way

Road D
Sidewalks
Large Street Trees (Ash)
40 Feet Apart
In 10 Foot Wide Street Tree
Maintenance Easement



INFORMAL STREETScape

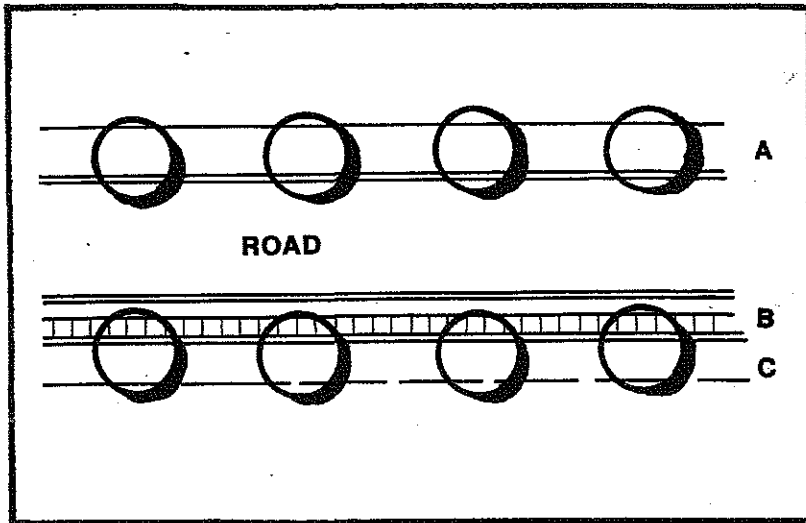
May be appropriate in Rural Areas

Roads A and B
Existing Trees to Remain

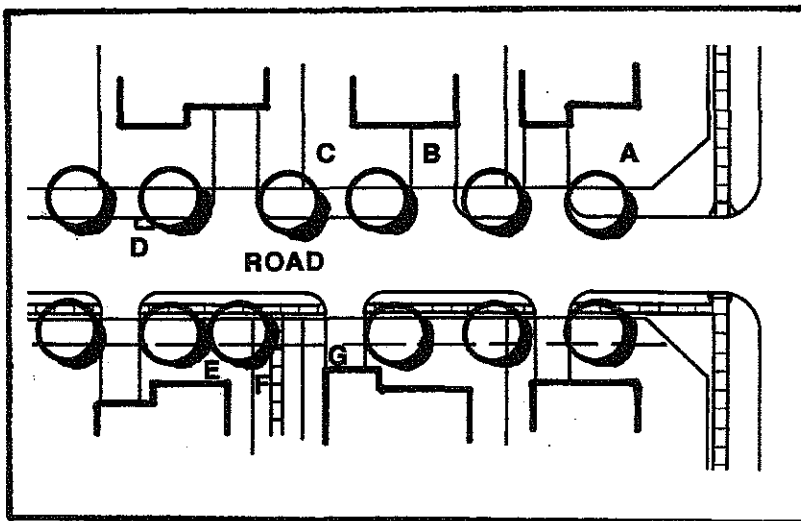
Road C
No Sidewalk
370 Linear Feet of Right-of-Way
9 Street Trees Required
40 Feet Apart
9 Trees Provided (London Planetree)
Clustered 25 Feet on Center
In Right-of-Way and Easement

Road D
No Sidewalks
600 Linear Feet of Right-of-Way
20 Street Trees Required
30 Feet Apart
20 Trees Provided (Crabapple)
Clustered at 20 Feet on Center
In 10 Foot Wide Street Tree
Maintenance Easement

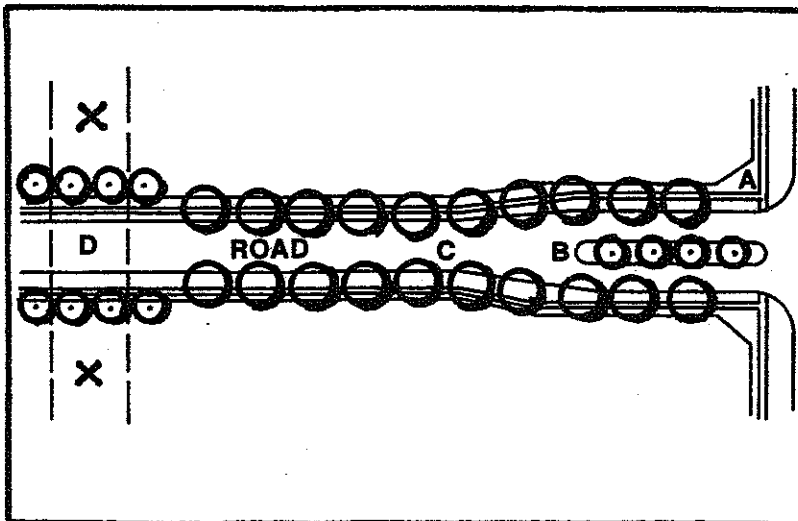
**FIGURE 11
STREET TREE LOCATION CRITERIA**



- A. No Sidewalk in Right-of-Way
Street Trees 40 Feet Apart
In Right-of-Way
Minimum 6 Feet from Curb
- B. Sidewalk in Right-of-Way
Less than 6 Feet from Curb to
Sidewalk
Street Trees Permitted Only with Root
Barrier or Container
- C. Street Trees 40 Feet Apart
In 10 Foot Wide Street Tree
Easement
Minimum 3 Feet from Sidewalk



- A. Street Trees Minimum 30 Feet from
Right-of-Way Intersection
Minimum 10 Feet from Driveway
- B. Street Trees 45 Feet Apart Due to
Driveway Location
- C. Street Trees 35 Feet Apart Due to
Driveway Location
- D. Street Tree 5 Feet from Drain Inlet
- E. Street Trees 30 Feet Apart Due to
Driveway and Open Space
- F. Street Trees 5 Feet from Open Space
Access Strip
- G. Street Trees 60 Feet Apart Due to
Driveway and Open Space



- A. Sidewalk in Right-of-Way
- B. Small Trees in Median Strip
20 Feet from Nose of Median
- C. Street Trees 40 Feet Apart
In Right-of-Way
- D. Small Trees Beneath Power Lines
Trees 30 Feet Apart
In 10 Foot Wide Street Tree
Maintenance Easement

TREE SELECTION CRITERIA

The following criteria must be addressed when selecting street trees for a particular location:

- Trees must fit the space limitations when mature. The species, ultimate size of the tree and the canopy desired should be appropriate to the size of the right-of-way and the road classification (i.e., local, collector or arterial road).
- Trees must survive the environmental stresses of the proposed location. The recommended street tree list includes trees selected for appropriate branching habits, tolerance of local environmental conditions such as soil and rainfall, and have relatively low susceptibility to pests and disease.
- Medium and large trees are preferred as street trees. Small trees are desirable as they provide variety in the streetscape.
- Small trees are not permitted in situations where they inhibit sight distance, conflict with pedestrian circulation or create maintenance problems. Small trees will be permitted under the following conditions and in the following locations:
 - Within street rights-of-way when:
 - no sidewalk is required;
 - the distance between the curb and the sidewalk is 8 feet or greater;
 - or
 - the tree may be pruned to 8 foot clear trunk without destroying the shape of the crown of the tree.
 - In street tree easements adjacent to the right-of way.
 - In median strips of divided highways, provided that trees are located a minimum of 20 feet from the nose of the median island and will not interfere with travel lanes.
- Small trees must be selected for planting under power lines.
- No needle evergreen trees will be permitted in a public right-of way. No thorn bearing trees or trees with rigid, sharply pointed leaves (such as holly trees) will be permitted adjacent to sidewalks.

- Every effort shall be made to diversify species and cultivars of species of trees planted on different streets or between blocks on very long streets. This practice provides for long term survival of the landscape, should one species suffer a blight.
- Street trees should be selected so that the County's roadway network exhibits a variety of species with differing colors, textures and forms.

SIGHT TRIANGLES

When a driveway or private roadway intersects a public right-of-way or when the site abuts the intersection of two or more public rights-of-way, all landscaping within the sight triangle areas shall provide unobstructed across-visibility.

Nothing at an elevation greater than the top of curb plus two (2) feet shall be allowed in any sight triangle area except single trunk trees whose lower branches are pruned to a height of seven (7) feet.

CHAPTER VI

ALTERNATIVE COMPLIANCE

ALTERNATIVE COMPLIANCE

Site conditions or a specific set of project design criteria may justify approval of an alternative method of compliance with the landscaping standards by the Department of Planning and Zoning.

Examples of conditions which justify alternative compliance include situations where:

- Topography, soil, vegetation or other site conditions that make full compliance impossible or impractical; or when improved environmental quality would result from the alternative compliance.
- Space limitations, unusually shaped lots, and existing conditions on adjacent properties may justify alternative compliance for in-fill sites, and for improvements or redevelopment of sites in older communities.
- Expansion or change of use on an existing site requires a larger buffer or screen than is feasible due to the lack of available space.
- Safety considerations make alternative compliance necessary.

The proposed alternative compliance landscaping must be equal to or better than normal compliance in terms of quantity, quality, effectiveness, durability, and ability to fulfill the intent of the regulations and the manual.

A request for alternative compliance shall be submitted to the Department of Planning and Zoning at the time the plan is submitted. Requests for alternative compliance shall be accompanied by sufficient written or graphic explanation and justification to allow appropriate evaluation and decision.

Alternative compliance shall be limited to the specific project under consideration and shall not establish precedents for acceptance in other cases.

NEW TOWN ALTERNATIVE COMPLIANCE

Alternative compliance approval will be granted to any landscape plan prepared for a property zoned New Town that meets the "Guidelines for Residential Planting" or the

"Guidelines for Commercial-Industrial Development" prepared by The Rouse Company for Columbia, Maryland. A letter from Howard Research and Development (HRD) stating that the plan has been prepared in accordance with their guidelines must be submitted with the plan application. The Department of Planning and Zoning has determined that New Town guidelines are equal to or exceed the requirements of Section 16.124 and the Landscape Manual. Surety for New Town planting may be based on the approved alternative compliance landscape plan or on a computation of the number of trees required to fulfill the landscape obligations stipulated in *Chapter IV* of this Manual.



APPENDICES

APPENDIX A
LANDSCAPE ORDINANCE

Section 16.124. Landscaping.

(a) *In General:*

- (1) *Intent:* The requirements for landscaping and screening are intended to:
 - (i) Enhance the physical appearance of County development.
 - (ii) Buffer potentially incompatible land uses.
 - (iii) Screen undesirable views.
 - (iv) Improve the environmental performance of new development by reducing stormwater runoff, air pollution, glare, and noise.
 - (v) Promote energy conservation.
 - (vi) Prevent damage to and unnecessary removal of vegetation.
 - (vii) Conserve the value of property and neighborhoods.

- (2) *Standards; Landscape Manual:*
 - (i) *Standards:* Landscaping shall be provided in accordance with the requirements of this Subtitle, the zoning regulations, the Howard County Forest Conservation Manual and the Howard County Landscape Manual.
 - (ii) *Landscape Manual:* The Howard County Landscape Manual is the technical manual used to establish performance standards and guidelines for preparing landscape plans. The manual is prepared by the Department of Planning and Zoning and adopted by resolution of the County Council. The manual shall address, but is not limited to the amount of landscaping materials required, suitable landscaping materials, and alternative means of compliance.

- (3) *Landscape Plan Submissions:* A design to fulfill landscaping requirements shall be presented in a landscape plan which shall include sufficient information for the County to determine whether the proposed landscape

improvements are in conformance with the requirements of this section and the manual.

- (i) The preliminary or preliminary equivalent sketch plan submissions shall identify schematically the following:
 - a. required landscape edges and the type of landscape planting for each edge; and
 - b. intended method of fulfilling obligations (i.e., retention of existing vegetation, planting or other alternative solutions).
 - (ii) Final plan submissions (except for resubdivision and correction plats which do not increase the number of units) shall include the final landscape plan in the road construction drawings or for minor subdivisions, the supplemental information sheets. Plans shall specify:
 - a. whether the developer and/or builder will be responsible for installation of specific elements of the overall landscape plan; and
 - b. which landscaping will be provided as part of the final plan.
 - (iii) Site development plans shall include a landscape plan unless landscaping requirements were met during subdivision.
- (4) *Preparation of landscape plans:* All landscape plans shall be prepared and sealed by a registered landscape architect or other qualified professional as defined in the landscape manual.

(b) *Types of Landscape Planting Requirements:*

(1) *General:*

- (i) The type and amount of landscaping required shall be based on the compatibility of the proposed land use with adjacent land uses, including public and private rights-of-way, parking lots, loading areas and residential or nonresidential properties.
- (ii) Landscaping requirements shall be met by providing planting as specified in the landscape manual. Optional landscape treatments as defined in the landscape manual may be substituted in full or in part for the required planting. Optional treatments include preservation of

existing forests and trees, use of berms or other land forms, and provision of fences and walls.

(2) Perimeter Landscape Edges:

- (i) Landscape edges, pursuant to the requirements of the landscape manual, shall be provided in all districts adjacent to public roads and to abutting properties. Required landscaping shall be shown on the final plan or on the site development plan as specified in the landscape manual.
- (ii) Expansion of existing development that increases the developed area by less than 50 percent shall provide perimeter landscaping for only the additional development. Expansion of development by 50 percent or more shall provide perimeter landscaping for the entire development.

(3) Parking Lot and Loading Area Landscaping:

- (i) Landscaping within new parking lots is required in accordance with the landscape manual. Landscaped areas shall divide the parking spaces to relieve the monotony of large expanses of paving and contribute to efficient circulation of traffic. Loading areas shall be screened from adjacent roads and properties.
- (ii) Expansions of existing parking lots or loading areas that increase the number of spaces by less than 50% shall provide landscaping for the additional development only. Expansion of parking or loading areas by 50 percent or more shall provide landscaping for the entire parking and loading area.
- (iii) Parking lot and loading area landscaping shall be shown on the site development plan.

(4) Single-family Attached and Apartment Developments:

- (i) Internal landscaping within new single-family attached and apartment projects is required in accordance with the Landscape Manual.
- (ii) Expansion to existing development that increases the number of units by less than 50% shall provide landscaping for the additional development only. Expansion of units by 50 percent or more shall provide internal landscaping for the entire development.

(5) **Stormwater Management Facilities:** Landscaping of stormwater management facilities is required in all zoning districts, excluding M-1 and M-2 parcels that are not adjacent to residential zoning, in accordance with the Landscape Manual.

(c) **Alternative Compliance:** The Department of Planning and Zoning may approve an alternative to the landscaping requirements of this Title and the landscaping manual upon determining that the proposal meets the intent of this Subtitle and meets or exceeds the standard requirements. Alternative plans may be approved when unusual topographic constraints, sight restrictions, siting requirements, preservation of existing stands of trees, preservation of specimen trees or when similar conditions prevent strict compliance with the landscape standards.

(d) **Reforestation and Afforestation:**

- (1) Certain forms of landscaping may be used to meet the reforestation or afforestation requirements of the forest conservation plan upon approval of the Department of Planning and Zoning.
- (2) The amount of the landscaped area to be credited for forest conservation obligations shall be in accordance with Title 16, Subtitle 12 of the Howard County Code and the standards for landscaping substitutions cited in the Howard County Forest Conservation Manual.
- (3) Landscaping used to fulfill forest conservation requirements shall be included in the required construction and post-construction protection and management agreements and shall be in open space, or in areas protected by binding, long-term protective agreements under the same terms that apply to other reforestation or afforestation areas as described in Subtitle 12 of this Title.

(e) **Street Trees and Right-of-Way Plantings:**

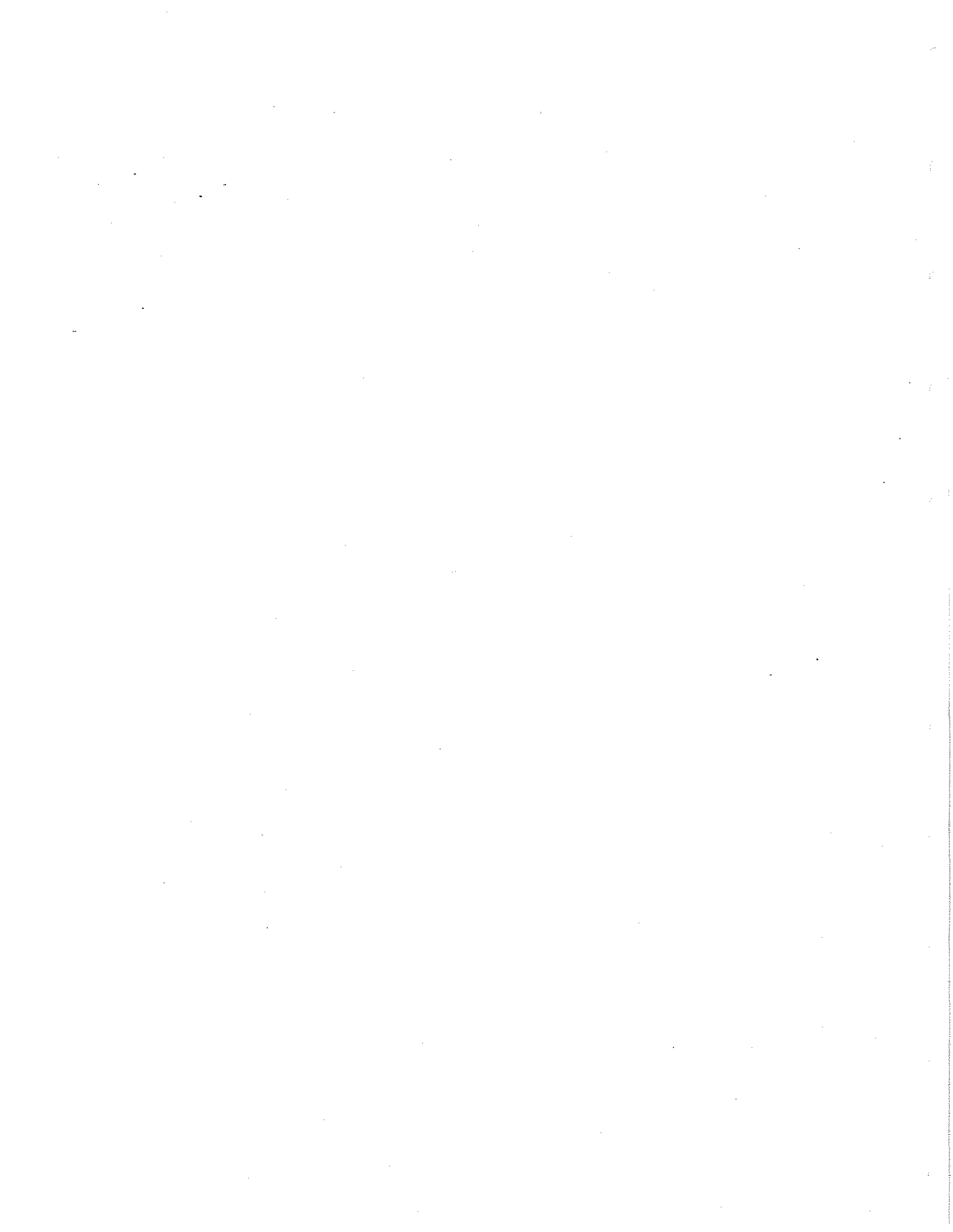
- (1) Street trees with a minimum of at least 2.5-inch caliper shall be required in all districts. Street tree plantings shall be provided on new internal roads and on existing County roads involving road improvements as described in the Landscape Manual. Existing trees to be preserved in or adjacent to the right-of-way may be approved and may be granted up to 100% credit towards meeting this requirement.
- (2) Street trees shall not be counted towards reforestation or afforestation requirements of the forest conservation program. Street trees shall not be counted towards the landscape requirements of subsection (b) above.
- (3) Street trees requirements shall be shown on the final plan.

(f) ***Landscape Installation and Certification:***

- (1) Required landscaping shall be included in the developer's agreement for the subdivision or development; additional surety is required. Alternately, a separate developer's agreement for landscaping, with surety, may be executed.
- (2) All landscaping shown on the approved final plan or site development plan shall be completed in accordance with the approved landscape plan before a release of surety. Prior to such release, the plan preparer shall submit written certification to the Department of Planning and Zoning that healthy plant materials were properly installed in accordance with the approved landscape plan and that a 1-year guarantee has been executed.
- (3) When there is no developer's agreement required for a subdivision or site development requiring a landscape plan, the grading permit agreement and surety shall be modified to incorporate landscaping requirements.

(g) ***Maintenance:***

- (1) The owner, tenant, and their respective agents, if any, shall jointly and severally be responsible for the maintenance of the required landscaping. All required plantings shall be maintained in good growing condition and, whenever necessary, replaced with new plant materials to ensure continued compliance with applicable regulations.
- (2) No plant material shall be allowed to encroach on road rights-of-way so that sight distance is impeded.
- (3) Required berms, fences and walls shall be permanently maintained in good condition and, whenever necessary, repaired or replaced.



APPENDIX B

RECOMMENDED STREET TREE LIST

Small Trees - Plant a maximum of 30 feet apart

| | |
|--|------------------------------|
| Acer campestre | Hedge Maple |
| Acer griseum | Paperbark Maple |
| Crataegus crusgalli 'inermis' | Thornless Cockspur Hawthorn |
| Crataegus phaenopyrum | Washington Hawthorne* |
| Crataegus viridis 'Winter King' | Winter King Hawthorne* |
| Crataegus laevigata 'Crimson Cloud' | Crimson Cloud Hawthorn* |
| Malus baccata 'Jackii' | Jackii Crabapple |
| Malus baccata 'Columnaris' | Columnar Siberian Crabapple |
| Malus floribunda 'Harvest Gold' | Flowering Crabapple |
| Malus x 'Snowdrift' | Snowdrift Crabapple |
| Malus x zumi 'Calocarpa' | Redbud Crabapple |
| Prunus cerasifera atropurpurea 'Thundercloud' | Thundercloud Purpleleaf Plum |
| Prunus serrulata 'Kwanzan' | Kwanzan Cherry |
| Prunus yedoensis | Yoshino Cherry |
| Styrax japonica | Japanese Snowbell |

Medium Trees - Plant a maximum of 40 feet apart

| | |
|--------------------------------------|--|
| Cercidiphyllum japonica | Katsura Tree |
| Cladrastis lutea | Yellowwood |
| Prunus sargentii | Sargent Cherry |
| Pyrus calleryana 'Aristocrat' | Aristocrat pear |
| Pyrus calleryana 'Chanticleer' | Chanticleer Pear |
| Pyrus calleryana 'Cleveland Select' | Cleveland Select Pear |
| Pyrus calleryana 'Fauriei' | Fauriei Pear |
| Pyrus calleryana 'Redspire' | Redspire Pear |
| Pyrus calleryana 'Rancho' | Rancho Pear |
| Sophora japonica 'Regent' | Regent Japanese Pagoda Tree |
| Sophora japonica 'Princeton Upright' | Princeton Upright Japanese Pagoda Tree |

Large Trees - Plant a maximum of 40 feet apart**

| | |
|----------------------------------|------------------------------|
| Acer rubrum 'Armstrong' | Armstrong Columnar Red Maple |
| Acer rubrum 'Autumn Flame' | Autumn Flame Red Maple |
| Acer rubrum 'Bowhall' | Bowhall Red Maple |
| Acer rubrum 'October Glory' | October Glory Red Maple |
| Acer rubrum 'Red Sunset' | Red Sunset Red Maple |
| Aesculus hippocastanum 'Baumann' | Baumann Horsechestnut |

| | |
|---|--|
| Acer saccharum 'Green Mountain' | Green Mountain Sugar Maple** |
| Fraxinus americana 'Autumn Purple' | Autumn Purple White Ash |
| Fraxinus americana 'Rosehill' | Rosehill White Ash |
| Fraxinus pennsylvanica 'Patmore' | Patmore Green Ash |
| Fraxinus pennsylvanica 'Marshall's Seedless' | Marshall's Seedless Green Ash |
| Ginkgo biloba 'Autumn Gold' | Autumn Gold Ginkgo (male only) |
| Ginkgo biloba 'Princeton Sentry' | Princeton Sentry Ginkgo (male only) |
| Gleditsia triacanthos inermis 'Imperial' | Imperial Thornless Honeylocust |
| Gleditsia triacanthos inermis | Shademaster Thornless Honeylocust 'Shademaster' |
| Platanus x acerifolia 'Bloodgood' | Bloodgood London Plane |
| Platanus x acerifolia 'Columbia' | Columbia London Plane |
| Quercus acutissima | Sawtooth Oak |
| Quercus coccinea | Scarlet Oak |
| Quercus phellos | Willow Oak** |
| Quercus rubra | Northern Red Oak |
| Quercus robur 'Fastigiata' | Columnar English Oak |
| Tilia americana 'Redmond' | Redmond American Linden |
| Tilia cordata 'Chancellor' | Chancellor Littleleaf Linden |
| Tilia cordata 'Greenspire' | Greenspire Littleleaf Linden |
| Zelkova serrata 'Village Green' | Village Green Japanese Zelkova |
| Ulmus parvifolia | Chinese Elm |

* Trees with thorns are permitted in median strips only.

** Large trees permitted in areas with a minimum of 8 feet between curb and sidewalk.

Note:

Do not mix different cultivars of Malus genus or Pyrus species as they cross-pollinate.

APPENDIX C

RECOMMENDED PLANT LISTS

| <u>BOTANICAL/COMMON NAME</u> | <u>SIZE</u> | <u>COMMENTS</u> |
|---|------------------|-----------------|
| DECIDUOUS TREES, LARGE TO MEDIUM, SHADE OR CANOPY | | |
| Acer platanoides 'Emerald Queen'/ Emerald Queen Norway Maple | 2-1/2" - 3" cal. | a. |
| Acer rubrum 'October Glory'/ October Glory Red Maple | 2-1/2" - 3" cal. | |
| Acer rubrum 'Red Sunset'/ Red Sunset Red Maple | 2-1/2" - 3" cal. | |
| Acer saccharum 'Green Mountain'/ Green Mountain Sugar Maple | 2-1/2" - 3" cal. | a. |
| Betula nigra 'Heritage'/ Heritage Clump Birch | 10' - 12' ht. | a. |
| Cercidiphyllum japonicum/ Katsuratree | 2-1/2" - 3" cal. | |
| Fagus grandifolia/American Beech | 2-1/2" - 3" cal. | a. |
| Fagus sylvatica/European Beech | 2-1/2" - 3" cal. | |
| Fraxinus americana 'Autumn Purple'/ Autumn Purple White Ash | 2-1/2" - 3" cal. | |
| Fraxinus pennsylvanica 'Marshall's Seedless'/Marshall's Seedless Green Ash | 2-1/2" - 3" cal. | |
| Gleditsia triacanthos inermis 'Imperial'/ Imperial Thornless Honeylocust | 2-1/2" - 3" cal. | a. |
| Liquidambar styraciflua/American Sweetgum | 2-1/2" - 3" cal. | a. |
| Platanus x acerifolia 'Bloodgood'/ Bloodgood London Plane | 2-1/2" - 3" cal. | a. |
| Prunus sargentii/Sargent Cherry | 2-1/2" - 3" cal. | |
| Quercus acutissima/Sawtooth Oak | 2-1/2" - 3" cal. | a. |
| Quercus coccinea/Scarlet Oak | 2-1/2" - 3" cal. | |
| Quercus phellos/Willow Oak | 2-1/2" - 3" cal. | |
| Quercus rubra/Red Oak | 2-1/2" - 3" cal. | |
| Quercus robur 'Fastigiata'/Columnar English Oak | 2-1/2" - 3" cal. | |
| Salix babylonica/Weeping Willow | 1-1/2" - 2" cal. | |
| Salix niobe/Niobe Weeping Willow | 1-1/2" - 2" cal. | |
| Sophora japonica/Japanese Pagoda Tree | 2-1/2" - 3" cal. | |
| Tilia cordata 'Greenspire'/Greenspire Littleleaf Linden | 2-1/2" - 3" cal. | |

| <u>BOTANICAL/COMMON NAME</u> | <u>SIZE</u> | <u>COMMENTS</u> |
|--|------------------|-----------------|
| Tilia tomentosa/Silver Linden | 2-1/2" - 3" cal. | |
| Zelkova serrata 'Village Green'/Village Green Japanese Zelkova | 2-1/2" - 3" cal. | |

DECIDUOUS TREES, SMALL TO MEDIUM, ORNAMENTAL OR UNDERSTORY

| | |
|--|------------------|
| Acer griseum/Paperbark Maple | 1-1/2" - 2" cal. |
| Amelanchier canadensis/ Shadblow Serviceberry | 8' - 10' ht. |
| Carpinus caroliniana/American Hornbeam | 1-1/2" - 2" cal. |
| Crataegus phaenopyrum/Washington Hawthorne | 1-1/2" - 2" cal. |
| Crataegus viridis 'Winter King'/ Winter King Hawthorne | 1-1/2" - 2" cal. |
| Crataegus Laevigata 'Crimson Cloud'/ Crimson Cloud Hawthorn | 1-1/2" - 2" cal. |
| Cornus florida/White Flowering Dogwood | 8' - 10' ht. |
| Cornus florida "rubra"/ Red Flowering Dogwood | 8' - 10' ht. |
| Cornus kousa/Kousa Dogwood | 8' - 10' ht. |
| Magnolia stellata/Star Magnolia | 6' - 8' ht. |
| Magnolia x soulangiana/Saucer Magnolia | 6' - 8' ht. |
| Prunus cerasifera atropupurea 'Thundercloud'/Thundercloud Purpleleaf Plum | 1-1/2" - 2" cal. |
| Prunus serrulata 'Kwanzan'/Kwanzan Cherry | 1-1/2" - 2" cal. |
| Prunus subhirtella 'Pendula Pink Cloud'/ Pink Cloud Weeping Higan Cherry | 1-1/2" - 2" cal. |
| Prunus Yedoensis/Yoshino Cherry | 1-1/2" - 2" cal. |

EVERGREEN TREES

| | |
|--|-------------|
| Cedrus deodora/Deodar Cedar | 6' - 8' ht. |
| Cupressocyparis leylandi/ Leyland Cypress | 5' - 6' ht. |
| Ilex opaca/American Holly | 5' - 6' ht. |
| Ilex opaca/American Holly | 5' - 6' ht. |
| Picea abies/Norway Spruce | 6' - 8' ht. |
| Picea omorika/Serbian Spruce | 6' - 8' ht. |
| Pinus nigra/Austrian Pine | 6' - 8' ht. |
| Pinus strobus/Eastern White Pine | 6' - 8' ht. |
| Pinus thunbergiana/ Japanese Black Pine | 6' - 8' ht. |

| <u>BOTANICAL/COMMON NAME</u> | <u>SIZE</u> | <u>COMMENTS</u> |
|------------------------------|-------------|-----------------|
|------------------------------|-------------|-----------------|

SHRUBS, BROADLEAF EVERGREEN

| | | |
|--|-----------------|--|
| Abelia x grandiflora/Glossy Abelia | 2-1/2" - 3" ht. | |
| Azalea 'Blaaw's Pink'/ Blaaw's Pink Azalea | 18" - 24" sp. | |
| Azalea 'Delaware Valley White'/ Delaware Valley White Azalea | 18" - 24" sp. | |
| Azalea 'Gumpo Pink'/ Gumpo Pink Azalea | 18" - 24" sp. | |
| Azalea 'Gumpo White'/ Gumpo White Azalea | 18" - 24" sp. | |
| Azalea 'Hershey Red'/ Hershey Red Azalea | 18" - 24" sp. | |
| Azalea 'Hino Crimson'/Hino Crimson Azalea | 18" - 24" sp. | |
| Azalea poukhanensis/Korean Azalea | 18" - 24" sp. | |
| Berberis thunbergii atropurpurea 'Crimson Pygmy'/Crimson Pygmy Barberry | 18" - 24" sp. | |
| Euonymus kiautschovicus 'Manhattan'/ Manhattan Euonymus | 2-1/2' - 3' ht. | |
| Euonymus kiautschovicus 'Siebodiana'/ Siebold Euonymus | 2-1/2' - 3' ht. | |
| Ilex cornuta/Chinese Holly | 2-1/2' - 3' ht. | |
| Ilex x cornuta 'Burfordii'/Burford Holly | 2-1/2' - 3' ht. | |
| Ilex crenata 'Green Lustre'/Green Lustre Holly | 2-1/2' - 3' ht. | |
| Ilex x crenata 'Compacta'/Compact Japanese Holly | 2-1/2' - 3' ht. | |
| Ilex crenata 'Steeds Upright'/Steed's Upright Holly | 2-1/2' - 3' ht. | |
| Ilex glabra 'Compacta'/Compact Inkberry | 2-1/2' - 3' ht. | |
| Ilex crenata 'Helleri'/Helleri Holly | 18" - 24" ht. | |
| Ilex x Meserveae 'Blue Prince'/ Blue Prince Holly | 3-1/2' - 4' ht. | |
| Ilex x Meserveae 'Blue Princess'/ Blue Princess Holly | 3-1/2' - 4' ht. | |
| Ilex attenuata 'Fosterii'/Foster Holly | 5' - 6' ht. | |
| Ilex 'Nellie R. Stevens'/Nellie Stevens Holly | 5' - 6' ht. | |
| Kalmia latifolia/Mountain Laurel | 2-1/2' - 3' ht. | |
| Leucothoe axillaris/Coast Leucothoe | 18" - 24" sp. | |
| Mahonia aquifolium/Oregon Grapeholly | 2-1/2' - 3' ht. | |
| Mahonia bealei/Leatherleaf Mahonia | 18" - 24" ht. | |

| <u>BOTANICAL/COMMON NAME</u> | <u>SIZE</u> | <u>COMMENTS</u> |
|---|-----------------|-----------------|
| Pieris japonica/ Japanese Andromeda | 2' - 2-1/2' ht. | |
| Pyracantha coccinea 'Lowboy'/ Lowboy Firethorn | 18" - 24" sp. | |
| Pyracantha coccinea 'Lalandei'/Lalandei Scarlet Firethorn | 2-1/2" - 3" ht. | |
| Prunus laurocerasus 'Schipkaensis'/ Skip Cherrylaurel | 2-1/2' - 3' ht. | |
| Prunus laurocerasus 'Otto Lutyken'/ Otto Lutyken Cherrylaurel | 2' - 2-1/2' ht. | |
| Photinia x fraserii/Frasers Photinia | 3' - 3-1/2' ht. | |
| Rhododendron catawbiense album/ White Catawba Rhododendron | 2' - 2-1/2' ht. | |
| Rhododendron catawbiense 'Roseum Elegans'/ Roseum Elegans Catawba Rhododendron | 2' - 2-1/2' ht. | |
| Rhododendron 'P.J.M.'/P.J.M. Rhododendron | 2' - 2-1/2' ht. | |
| Skimmia japonica/Japanese Skimmia | 18" - 24" sp. | |
| Viburnum rhytidophyllum/Leatherleaf Viburnum | 2-1/2' - 3' ht. | |

SHRUBS, DECIDUOUS AND SEMI-EVERGREEN

| | | |
|---|-----------------|--|
| Azalea 'Exbury'/Exbury Azalea (red, pink, yellow, orange, white) | 18" - 24" sp. | |
| Chaenomeles speciosa 'Texas Scarlet'/ Flowering Quince | 18" - 24" sp. | |
| Cornus stolonifera/Red-Osier Dogwood | 2-1/2' - 3' ht. | |
| Clethra alnifolia/Summersweet Clethra | 2-1/2' - 3' ht. | |
| Cotoneaster salicifolius 'Repens'/ Willowleaf Cotoneaster | 18" - 24" sp. | |
| Cotoneaster dammerii 'Coral Beauty'/ Coral Beauty Cotoneaster | 18" - 24" sp. | |
| Euonymus alatus 'Compacta'/ Dwarf Winged Euonymus | 2' - 2-1/2' ht. | |
| Forsythia intermedia 'Spectabilis'/ Showy Border Forsythia | 2' - 2-1/2' ht. | |
| Forsythia suspensa var. 'sieboldii'/ Siebold Weeping Forsythia | 2-1/2' - 3' ht. | |
| Ilex verticillata/Winterberry | 3' - 4' ht. | |
| Myrica pennsylvanica/Northern Bayberry | 2' - 2-1/2' | |
| Nandina domestica/Heavenly Bamboo | 2' - 2-1/2' ht. | |
| Nandina domestica 'Harbour Dwarf'/ Harbour Dwarf Nandina | 18" - 24" | |
| Viburnum carlesii/Korean Spice Viburnum | 2-1/2' - 3' ht. | |

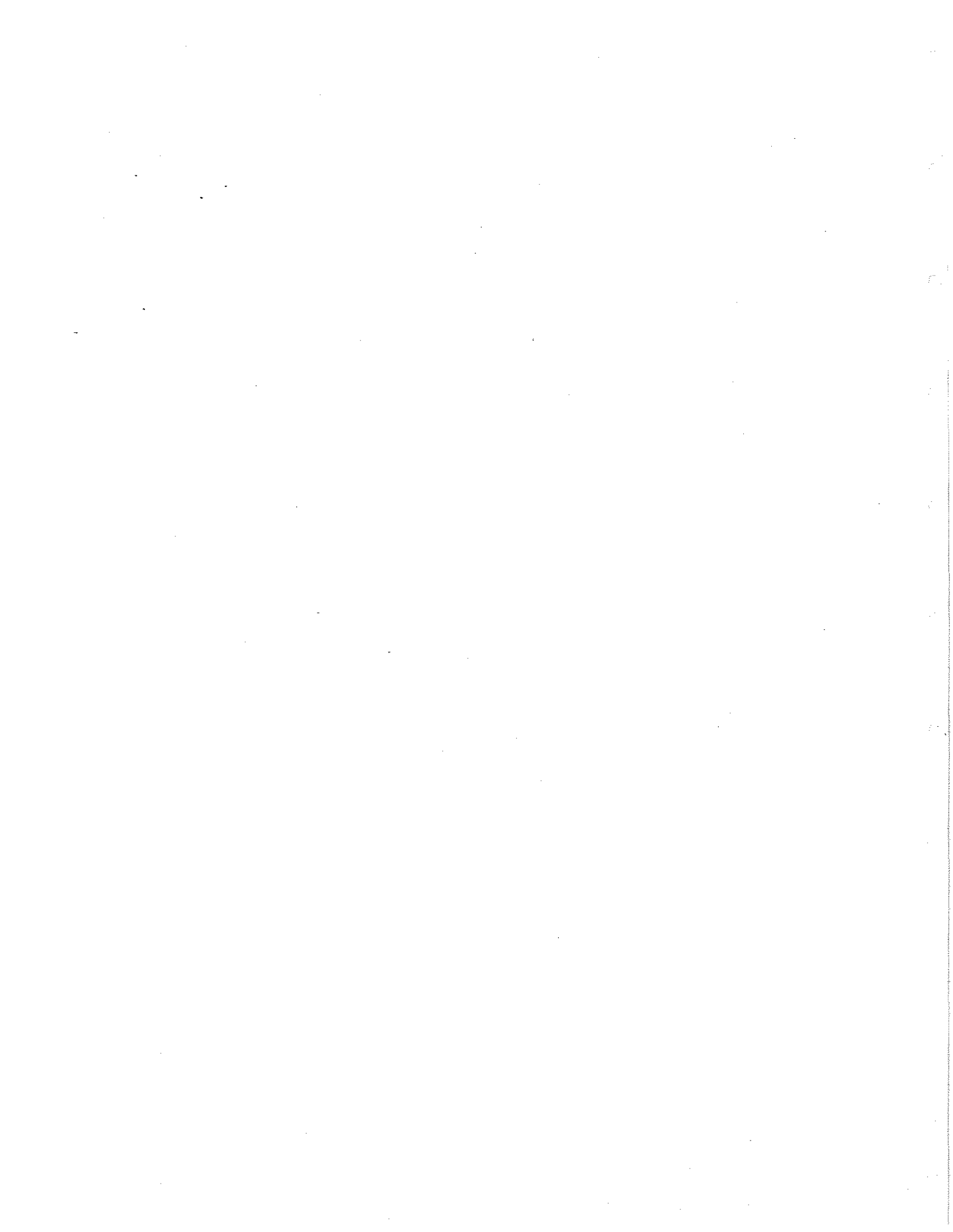
| <u>BOTANICAL/COMMON NAME</u> | <u>SIZE</u> | <u>COMMENTS</u> |
|--|-----------------|-----------------|
| Viburnum dentatum/Arrowwood Viburnum | 2-1/2' - 3' ht. | |
| Virburnum x Juddi/Judd Virburnum | 2-1/2' - 3' ht. | |
| Virburnum plicatum 'Mariessi/ Marie's Doublefile Viburnum | 2-1/2' - 3' ht. | |
| Virburnum prunifolium/Blackhaw Virburnum | 2-1/2' - 3' ht. | |

SHRUBS, NEEDLE EVERGREEN

| | |
|--|-----------------|
| Juniperus chinensis 'Pfitzeriana Compacta/Compact Pfitzer Juniper | 2' - 2-1/2' ht. |
| Juniperus chinensis 'Sargentii/ Sargent Juniper | 18" - 24" sp. |
| Juniperus chinensis "Sea Green"/ Sea Green Juniper | 18" - 24" sp. |
| Juniperus horizontalis 'plumosa/ Andorra Juniper | 18" - 24" sp. |
| Juniperus horizontalis ' Prince of Wales'/Prince of Wales Juniper | 18" - 24" sp. |
| Taxus baccata 'Repandens'/Spreading English Yew | 18" - 24" sp. |
| Taxus cuspidata 'Nana'/Dwarf Japanese Yew | 18" - 24" sp. |
| Taxus media 'Hicksii'/Hicks Yew | 2-1/2' - 3' ht. |
| Taxus media 'Densifomis/ Densifomis Yew | 2-1/2' - 3' ht. |

COMMENTS

- a. Per the recommendations of the Department of Public Works, planting of these species will not be permitted in or adjacent to stormwater management facilities. These plants have excessive leaf debris from large leaves or dense foliage that have historically posed maintenance problems.



APPENDIX D

CERTIFICATION OF LANDSCAPE INSTALLATION

PROJECT NAME: _____
FILE NUMBER: _____
NAME OF PLAN PREPARER: _____

INSPECTED BY: _____

SITE LOCATION: _____

1. EXISTING LANDSCAPING CREDITED TOWARDS REQUIREMENTS HAS BEEN RETAINED AS SHOWN ON THE APPROVED PLANS. EXPLAIN ANY DEVIATIONS.

2. LANDSCAPE PLANTING INCLUDED IN DEVELOPERS AGREEMENT:

| | <u>REQUIRED</u> | <u>PROVIDED</u> |
|-----------------------|-----------------|-----------------|
| SHADE TREES | _____ | _____ |
| EVERGREEN TREES | _____ | _____ |
| SMALL DECIDUOUS TREES | _____ | _____ |
| OTHER _____ | _____ | _____ |

3. ATTACH AS-BUILT PLANT LIST AND APPROVED PLANT LIST. EXPLAIN ANY PLANT SUBSTITUTIONS OR ANY RELOCATIONS.

4. ATTACH A COPY OF THE EXECUTED 1-YEAR GUARANTEE.

5. IF THE ORIGINAL LANDSCAPE PLAN PREPARER DOES NOT PROVIDE CERTIFICATION, ATTACH A STATEMENT OF QUALIFICATIONS FOR THE CERTIFYING PROFESSIONAL. THE CERTIFYING PROFESSIONAL MAY NOT BE EMPLOYED BY THE INSTALLING CONTRACTOR.

Signature, Qualified Professional

APPENDIX E

GLOSSARY

Afforestation - the establishment of new forest on an area presently without forest cover, by planting in accord with the practices specified in the forest conservation manual.

Berm - an earthen mound designed to buffer adjacent uses, screen undesirable views, reduce noise, etc.

Buffer - the use of landscape materials to lessen the visual impact of a use, or to visually or physically separate uses, while not necessarily shielding a structure or use from view.

Caliper - tree diameter measured above the root collar in accordance with American Association of Nurserymen standards.

Deciduous - a plant with foliage that is shed annually.

Department - the Howard County Department of Planning and Zoning.

Development - the establishment of a principal use of a site; a change in a principal use of a site; or the improvement or alteration of a site by the construction, enlargement, or relocation of a structure; the provision of stormwater management or roads; the grading of existing topography; the clearing or grubbing of existing vegetation; or any other non-agricultural activity that results in a change in existing site conditions.

Evergreen - a plant with foliage that persists and remains green year-round.

Forest - a biological community dominated by trees and other woody plants covering an area of 10,000 square feet or greater. Forest includes:

- 1) Areas with a tree cover ratio 100 trees per acre with at least 50% of these trees being at least 2 inches in diameter at a height of 4.5 feet above ground; or
- 2) Areas meeting the criteria above that have been cut but not cleared.

Forest does not include orchards, tree nurseries, christmas tree farms or other types of forest crops.

Forest Conservation - the retention of existing forest or the creation of new forest at the levels set by Subtitle 16.1200.

Forest Conservation Plan - a plan which shows the impacts of a proposed development on existing forest resources. A forest conservation plan includes existing forest areas to be removed or retained; the location, extent and specifications for any reforestation or afforestation required; and legal measures to protect forest resources after completion of development.

Forest Conservation Program - a local Howard County program developed under the authority of the State Forest Conservation Act and is consistent with the intent, requirements and standards of the Act, Natural Resources Article, 5-1601 et seq., Annotated Code of Maryland.

Forest Stand Delineation - the evaluation of existing forests and other vegetation on a site proposed for development.

Landscaped Edge - the area around the perimeter of a development reserved for buffer or screen plantings that is 20 feet wide unless a lesser zoning setback is allowed.

Limit of Disturbance - the boundary of permitted changes to existing site conditions due to clearing and grading, as well as other activities associated with site development such as parking of vehicles and equipment, storage of materials, and disposal of construction debris.

Maintenance Agreement - a legally binding agreement to ensure the survivability of all sites afforested, reforested or landscaped.

Permanent Tree Protection Devices - structural measures, such as retaining walls or aeration devices, that are designed to protect the tree and its root systems throughout its lifetime.

Reforestation - the establishment, in accordance with the forest conservation manual, of new forest cover to replace forest resources lost because of development activities.

Roadway - a public road or public right-of-way; also, a private road within an access easement or right-of-way.

Screen - the use of landscape materials to substantially shield a structure or use from view.

Shade Tree - a deciduous (or rarely, an evergreen) tree planted primarily for its high crown of foliage or overhead canopy.

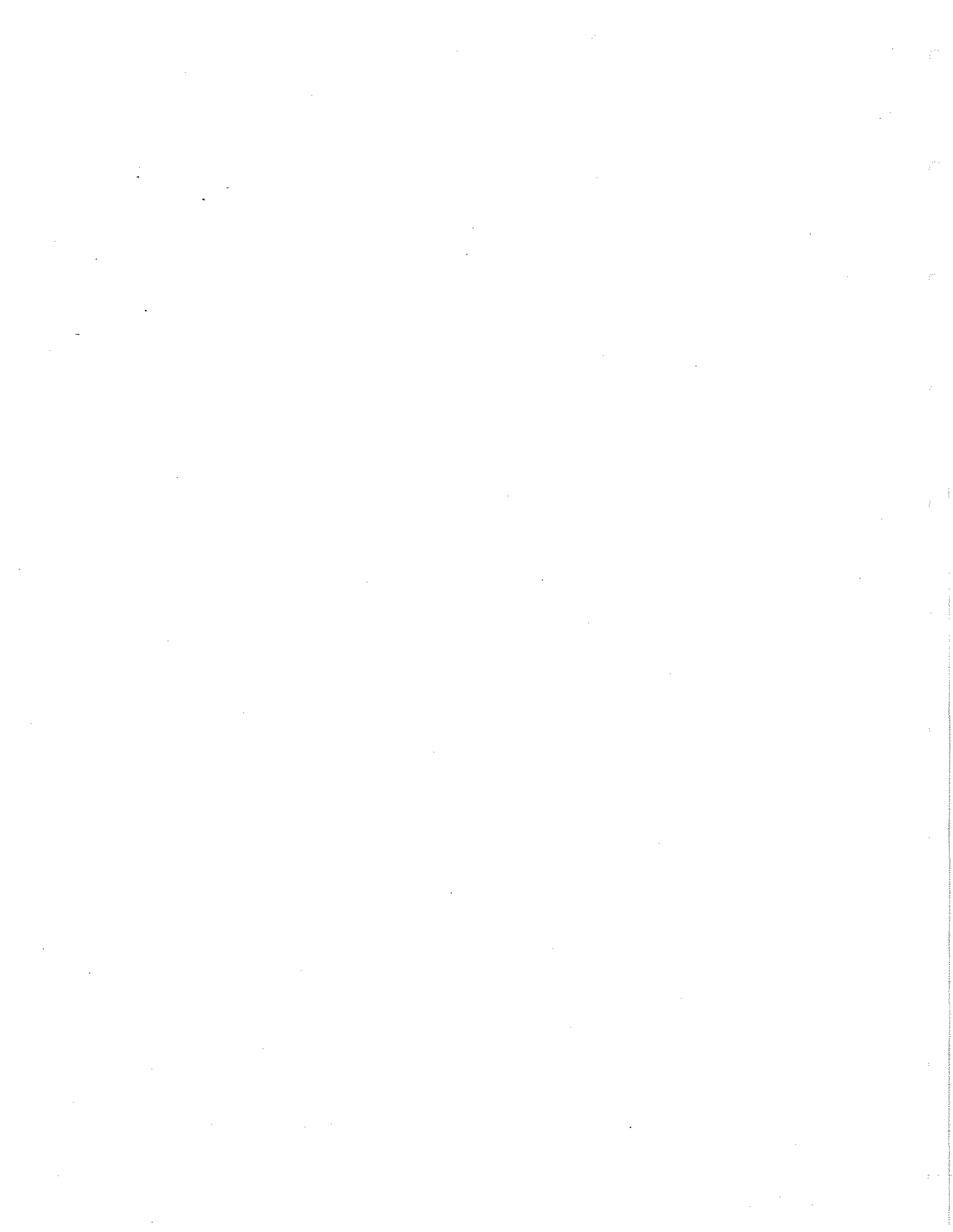
Shrub - a woody plant, smaller than a tree, which consists of a number of small stems from the ground or small branches near the ground. May be deciduous or evergreen.

Small Deciduous Tree - a deciduous tree planted primarily for its ornamental value, or for screening. May be any size at maturity, but will tend to be smaller than a shade tree.

Specimen Tree - a particularly impressive or unusual example of a species due to its size, shape, age, or any other trait that epitomizes the character of the species.

Street Tree - a tree planted within a public right-of-way or within a street tree maintenance easement adjacent to a roadway, in order to provide shade over the street or sidewalk and to give the street a sense of spatial definition. A large street tree at maturity reaches a height of at least 70 feet. A medium sized street tree generally does not exceed a height of 40 feet.

Tree - a large, branched, woody plant having one or several self-supporting stems or trunks that reach a height of at least 20 feet at maturity.



APPENDIX F

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