

Appendix C  
Sample Urban Nutrient Management Plan

# Virginia Cooperative Extension

*A partnership of Virginia Tech and Virginia State University*



College of Agriculture  
and Life Sciences



School of Agriculture  
Virginia State University

## Prince William County Office

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**May 14, 2012**

## Stormwater Site Visit Report

**Site:** All Saints' Anglican Church **GPIN:** 8291-54-6654

**Contact:** Kerry Walters, Parish Executive

To whom it may concern,

It was requested by the staff at All Saints' Anglican Church that Virginia Cooperative Extension (VCE) Prince William conduct a stormwater site visit and assistance with landscape recommendations for the property listed above.

A site visit was conducted on March 30, 2012 by VCE Staff, Master Gardener Volunteers, Mr. Kerry Walters, and church representatives, Ron Van Houtan and John Jagielski. After the site visit, Master Gardener Volunteers returned to the property to take soil samples from the pre-approved areas listed in the report.

The attached report contains detailed Nutrient Management Plans (NMPs) based on these soil tests as well as recommendations from Extension staff based on concerns of the site representatives and discussion during the site visit. The five soil tests were paid for by Teresa Blecksmith, Master Gardener Volunteer and church member.

We appreciate your interest in managing these sites with a focus on sustainability and environmental responsibility.

By participating in this program, conducting a parking lot clean up with documentation, and returning a signed copy of this cover sheet within 90 days of the date on the report, you are eligible to receive a 20% rebate on your stormwater fees for 2012 in 2013 for the property(s) listed above.

Should you have any questions, please contact our office.

Thank you,

Paige Thacker  
Extension Agent, Horticulture

All Saints' Angligan Church intends to implement nutrient management plan and the practices recommended in the attached site visit report to the best of our ability.

Signed: \_\_\_\_\_ Date: \_\_\_\_\_

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## **Stormwater Site Visit Report – All Saints’ Anglican Church**

All Saints’ Anglican Church contacted Virginia Cooperative Extension for assistance with stormwater and landscape practices on their property. A site visit was done on March 30, 2012 with Extension staff and Master Gardener Volunteers Teresa Blecksmith and Don Peshka as well as church representatives Ron Van Houtan and John Jagielski and Kerry Walters, Parish Executive. Concerns expressed were in the areas of erosion control, turf and landscape maintenance and condition of existing plantings. Additionally, there are forested areas, a stormwater pond and areas that the church would like to develop a sports playing field, a community garden, and an outdoor amphitheater in the future. Staff from the church expressed interest in having a welcoming entrance to the church with landscape design mirrored on both sides of the entrance. Staff was open to suggestions regarding alternatives to turf for several areas as funds become available in the future. Recommendations in this report will include some of those suggestions.

### **General Comments**

Any changes in planting on the property should reference the planting requirements in the original site plan developed with Prince William County. In addition to the plants recommended in this report, you may refer to additional plant lists in the Buffer Areas, Landscaping & Tree Cover Requirements section of the Prince William county Design and Construction Standards Manual <http://www.pwcgov.org/government/dept/planning/Pages/DCSM.aspx>

All Saints’ Church is a newly built property on over 27 acres on Gideon Drive in Woodbridge. This property adjoins Hylton Chapel. The church began operating in this new building in the fall of 2011.

For all planting recommendations regular irrigation of 1” per week is necessary until plantings are established when rainfall is insufficient. Gator bags for trees can also be considered, but be checked at each filling to ensure that the bags are draining properly and to inspect for signs of pests under the bag. Gator bags are designed to deliver slow watering to the roots over 4-5 hours, rather than creating run-off. Planting areas should be amended according to the soil test recommendations noted in the nutrient management plans that accompany this report.

Care should be taken to ensure trees and shrubs planted are at the appropriate planting depth and mulched correctly. Mulch should not exceed 3 inches in depth and should be at least 1 inch from the trunk. Ideally, mulch should extend out to the dripline of the tree, or as far as is practical. Over mulching can lead to disease issues and severely affect the health of trees and shrubs. It is recommended that native plants to the Piedmont

Region of Virginia be used as much as possible, since these are well suited to native soils and climate. Natives also tend to be more drought tolerant after initial establishment. During establishment they require 1” of irrigation per week when rainfall is insufficient. Please refer to this publication for lists of suitable plants [http://www.dcr.virginia.gov/natural\\_heritage/documents/pied\\_nat\\_plants.pdf](http://www.dcr.virginia.gov/natural_heritage/documents/pied_nat_plants.pdf)

[www.ext.vt.edu](http://www.ext.vt.edu)

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Trees and turf grass are commonly planted together in landscapes. These two plants are incompatible and interfere with one another, above ground and below. Turf grass can severely retard tree growth in terms of competition for water, light and nutrients and “allelopathy”, which refers to one plant inhibiting the growth of another. Urban situations usually restrict trees' lateral root spread with foundations and pavements. Poor aeration

or drainage of clayey soils prevents root development in deeper soil layers. Reduction of fine tree roots by competing turfgrass compounds the problem. A tree with a poorly developed root system has a reduced ability to absorb moisture and nutrients from the soil. Most absorbing tree roots are in the upper few inches of soil and are quite shallow, and they spread well beyond the dripline when unrestricted. Roots will grow where the conditions are best for root growth; in most cases, that is near the soil surface. Oxygen, nutrients, and moisture are usually best near the surface, so the roots of trees, turf, and other plants share this space. Removing turf near trees and mulching to the dripline will help to correct this competition.

### **General Nutrient Management Recommendations**

Fertilizer rates vary by plant type. Some areas should be fertilized annually, some more often and some less often. Lime applications are used to balance the soil pH to a range suitable for plant growth and uptake of nutrients. Depending on the type of plants grown and the existing soil chemistry, lime may or may not be needed. Soil pH changes over time. It is recommended that soil be re-tested every three years. Re-testing will keep soil in a range where plants are best able to absorb necessary nutrients. Only 50 lbs of lime per 1,000 square feet can be absorbed at any one time. Where liming rates exceed this, the total amount of lime is broken into multiple applications. These applications should be made at least 30 days apart and longer if the weather has been dry. Lime can be applied anytime that the ground is not frozen.

Urban soils, in general, are generally low in organic matter. Organic matter helps drive nutrient cycling and promotes beneficial organisms in the soil. Additionally, it can help with water handling in times of both drought and deluge. Adding organic matter annually benefits all types of plants. Compost can be added any time of year either as a top dress application or by incorporating into soil at planting time. Turf is a high maintenance, high input crop. In the future, conversion of areas to non-turf plantings can be considered to lessen maintenance cost to the church and the environment.

**Nutrient Management Plan Recommendations** – Five soil samples were taken at the All Saints' Church property and the areas: Zones 1-4 and Zone C, are roughly demarcated on the chart and map below:

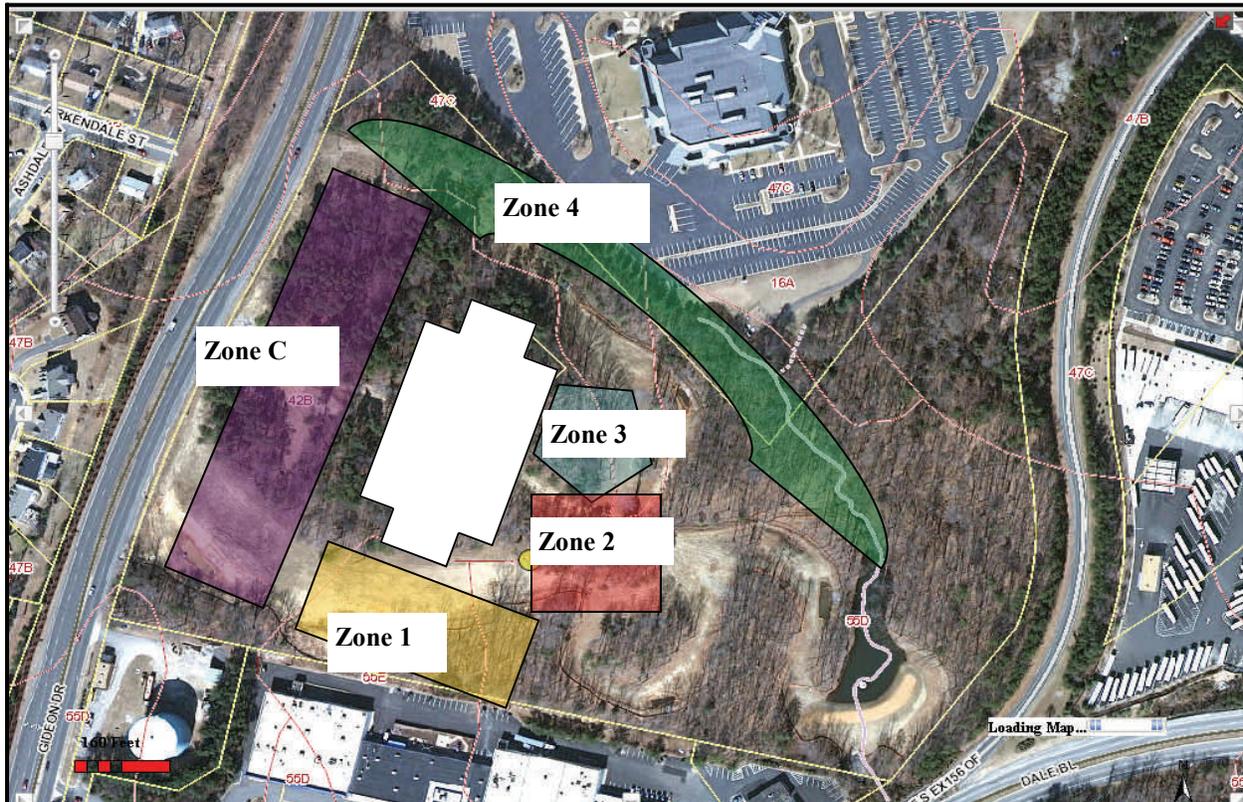
Sample	Area sq.	Color	Sampled for
<b>Zone 1</b>	13,521	Yellow	Cool season turf maintenance
<b>Zone 2</b>	196,484	Red	Cool season turf maintenance
<b>Zone 3</b>	13,920	blue	Cool season turf maintenance
<b>Zone 4</b>	1,850	green	Warm season grass establishment
<b>Zone C</b>	97,642	purple	Cool Season grass maintenance

## Zone 1

This area is located on the side of the church facing Ashdale Plaza and is 13,521 sq. feet. It is a sloped area with predominantly cool season turf with significant weed presence including winter and spring annuals, crown vetch, and plantains.

Cool season turf varieties are best fertilized in the fall. The recommended rate is for two applications of 1 lb of nitrogen at least 30 days apart during the window of September 1<sup>st</sup> through November 30<sup>th</sup>. Please see the attached Nutrient Management Plan that lists several readily available turf-type fertilizer formulas to choose from with specific amounts of product. If another formulation is used, it should be balanced to apply 1 lb of nitrogen for each of the fall applications. The plan also includes an optional light fertilizer application of ½ lb of nitrogen in early spring. This spring fertilization can provide some improved performance, but the drawback is an increased need for mowing and an increase of fungal diseases.

The pH for this area is 5.4 and requires 3 applications of lime with the first two applications of



676 lbs and a third application of 270 lbs for the third application – all thirty days apart. Soil can only absorb 50 lbs of lime per 1,000 square feet every 30 days. An excess of 50 lbs of lime per application will damage the turf and the surrounding watershed. Lime application is NOT to be considered annual maintenance. Retest soil in 3 years and only apply lime if test results indicate lime is needed. Top-dressing the area annually with ¼ inch of fine textured compost to enhance microbial activity and improve soil texture is recommended. This area would need approximately 10.5 yards of compost annually. This is typically applied with the 1<sup>st</sup> application

of fertilizer. Annual core aeration is also recommended. If there are drought conditions, please irrigate the area first before attempting to core aerate.

This landscape area has two holly trees that were donated to the church, but no other plantings. In the future, staff may consider converting the slope to ornamental grasses or ground-covers for ease of maintenance so that church members will not have to risk mowing. Grasses such as those shown in the chart below would be appropriate for this area.

<b>Botanical/common name</b>	<b>height</b>	<b>Environmental tolerances</b>	<b>Conditions</b>	<b>Associated problems/ comments</b>
Andropogon virginicus broomsedge	1-3'	DR, WS	full sun	Useful for meadow or natural setting
Andropogon gerardii big bluestem	2-6'	DR; erosion control,	full sun to partial shade	Useful for meadow or natural setting. Occasional mowing needed to keep this grass contained
Calamagrostis x acutiflora - feather reed grass	3-4'	Drought tolerant; tolerant varied soils/conditions	full sun	Smaller cultivar – 'Overdam'
Molinia litorialis Tall purple moor grass	2-3'	average to poor soil;	full sun	
Panicum virgatum 'Dallas Blue', 'Heavy Metal', 'Hanse Herms' 'Prairie Sky' 'Rehbraun'		average to poor soil;	full sun	
Phalaris arundinacea Ribbon Grass	2-3'	Moderately drought tolerant	full sun to partial shade	
Schizachyrium scoparium or Andropogon scoparius - little bluestem	1.5-4'	tolerates poor soil	full sun	Useful for meadow or natural setting
Achnatherum calamagrostis Silver Spike Grass	2-2.5'		needs well drained soil, full sun	
Arrhenatherum elatius	1-2'	DR	full sun to partial sun	needs to be cut back in summer
Calamagrostis x acutiflora 'Stricta' Feather Reed Grass	up to 5'	Tolerates average soil	full sun to partial sun	
Carex morrowii 'Aurea Variegata'	1- 1.5'	acidic, rich soil	full sun to partial shade	
Deschampsia caespitosa Tufted Hair Grass	1.5-2'		full sun to partial shade	
Festuca ovina Blue Fescue	.5-1'	well drained soil	full sun	
Imperata cylindrica Japanese blood grass	1-1.5'	well drained soil	partial shade	
Koeleria macrantha	1'	tolerates poor or well drained	full sun	
Pennisetum alopecuroides Fountain Grass	3-4'	fertile soil; adequate moisture needed	full sun	Hamln, "Little Bunny", small cvs.
Pennisetum villosum Feather top	1.5-2.5'	fertile soil; adequate moisture needed	full sun to partial shade	
Pennisetum japonicum	3-4'	Drought tolerant; tolerant of varied soils	full sun	
Themeda triandra japonica Japanese themeda	2-3'	Drought tolerant; tolerant of varied soils	full sun to partial shade	
Sorghastrum nutans 'Sioux Blue'	3-5'	tolerant of varied soils	full sun	blooms August with good winter color
Spodiopogon sibericus	3-4'	not drought tolerant	light shade	red/burgundy fall color
Saccharum ravennae Ravanna grass	.5-1.5'	best in well drained soils	full sun	bronze color in winter
Bouteloua gracilis Mosquito grass	1.5-2'	Drought tolerant; suitable for xeriscaping	full sun	blooms mid-late summer; early fall
		well-drained,		

Alternately, groundcovers such as *Hypericum calycinum*, *Hemerocallis spp.*, *Abelia x grandiflora 'Prostrata'*, *Gelsemium sempervirens*, *Juniperus communis*, *J. conferta*, *J. horizontalis*, *Oenothera speciosa*, or *Sedum spp.* could be considered.

## **Zone 2**

This 196,484 sq. foot area near the church building may eventually be used for an outdoor amphitheater. At the present, the plan is to maintain the cool season turf.

Cool season turf varieties are best fertilized in the fall. The recommended rate is for two applications of 1 lb of nitrogen at least 30 days apart during the window of September 1<sup>st</sup> through November 30<sup>th</sup>. Please see the attached Nutrient Management Plan that lists several readily available turf-type fertilizer formulas to choose from with specific amounts of product. If another formulation is used, it should be balanced to apply 1 lb of nitrogen for each of the fall applications.

The plan also includes an optional light fertilizer application of ½ lb of nitrogen in early spring. This spring fertilization can provide some improved performance, but the drawback is an increased need for mowing and an increase of fungal diseases. This area has a pH of 5.3 and requires 2 applications of lime of 9,824 lbs, thirty days apart. An excess of 50 lbs of lime per application will damage the turf and the surrounding watershed. Top-dressing the area annually with ¼ inch of fine textured compost to enhance microbial activity and improve soil texture is recommended. This area would require approximately 152 yards of compost. Annual core-type aeration is also recommended.

## **Zone 3**

This area is located in the back of the church and is 13,920. It is a fairly flat area that may be used in the future for a sports field.

There was significant weed presence including winter and spring annuals, crown vetch, and plantains. Cool season turf varieties are best fertilized in the fall. The area was soil sampled for cool season turf. Cool season turf varieties are best fertilized in the fall. The recommended rate is for two applications of 1 lb of nitrogen at least 30 days apart during the window of September 1<sup>st</sup> through November 30<sup>th</sup>. Please see the attached Nutrient Management Plan that lists several readily available turf-type fertilizer formulas to choose from with specific amounts of product. If another formulation is used, it should be balanced to apply 1 lb of nitrogen for each of the fall applications. The plan also includes an optional light fertilizer application of ½ lb of nitrogen in early spring. This spring fertilization can provide some improved performance, but the drawback is an increased need for mowing and an increase of fungal diseases. The pH for this area is 5.1 and this area requires 7 applications of lime of 696 lbs for applications 1 through 5 and a final application of 139 lbs. Applications should be spaced thirty days apart, and can be done anytime the ground is not frozen. Please see attached Nutrient Management Plan for Zone 2 for the quantity of bags of lime needed. An excess of 50 lbs of lime per 1000 square feet will damage the turf and the surrounding watershed. Lime application is NOT to be considered annual maintenance. Retest soil in 3 years and only apply lime if test results indicate lime is needed. Top-dressing the area annually with ¼ inch of fine textured compost to enhance microbial activity and improve soil texture is recommended.

This area would require approximately 10.8 yards of compost annually. This is typically applied with the 1<sup>st</sup> application of fertilizer. Annual core-type aeration is also recommended annually.

#### **Zone 4**

This 1,850 square foot area is parallel to a convex drainage area that seems to serve as a stormwater run off area for both All Saints and Hylton Chapel. This approximately 15-25% slope is characterized by Watt channery silt loam riparian zone and runs from a trail from the church to the stormwater pond. The Prince William County Soil Survey indicates that surface run off potential in these soils is rapid and the erosion hazard is "severe". The area surrounding this drainage area is typified by a mixture of mature hardwoods, understory shrubs and vines, invasive plants and cool season turf with some bare areas and a foot path with no vegetation. There are issues with trash accumulating in this area and overnight homeless visitors. Due to the sloping conditions and potential for erosion, it is recommended that native warm season grasses be considered for this area. The addition of permanent trash receptacles in this area may help with the litter problem.

This soil area was sampled for warm season turf, which is best fertilized in late spring through summer. The plan recommends 2 fertilizer applications of 1 lb of Nitrogen per 1000 square feet applied 30 days apart after spring green up, (typically one in late April and one in late May). Please see the attached Nutrient Management Plan that lists several readily available fertilizer formulas to choose from with specific amounts of product. These recommendations are based on a 1-2-1 formulation. If another formulation is used, the amounts will need to be adjusted. Please contact our office for assistance with recalculating. The plan also includes two optional fertilizer applications in June and July. These applications may increase performance, but will also increase the need for mowing.

This area has a pH of 5.6 and requires 4 applications of lime of 93 lbs for applications 1 through 3 and a final application of 74 lbs. Applications should be spaced thirty days apart, and can be done anytime the ground is not frozen. Soil can only absorb 50 lbs of lime per 1,000 square feet every 30 days. Please see attached Nutrient Management Plan for Zone C for the quantity of bags of lime needed. An excess of 50 lbs of lime per application will damage the turf and the surrounding watershed. Lime application is NOT to be considered annual maintenance. Retest soil in 3 years and only apply lime if test results indicate lime is needed. Top-dressing the area annually with ¼ inch of fine textured compost to enhance microbial activity and improve soil texture is recommended. This area would require approximately 1.4 yards of compost annually. This is typically applied with the 1<sup>st</sup> application of fertilizer. Annual core-type aeration is also recommended annually.

Native warm season grasses (nwsg) are historically native to Virginia and when managed properly can provide excellent wildlife habitat for birds and small mammals. Unlike cool season grasses which show active growth during spring and fall, nwsg grow during warmer months of the year. Native warm season grasses for Virginia include big bluestem, little blue stem, Indian grass, eastern gamagrass, and switchgrass and broomsedge. Nwsg communities can be developed by releasing existing native grasses and forbs (wildflowers and beneficial broadleaved plants) from competition with invasive exotics, or by planting nwsg and forbs into a prepared seedbed. Several excellent publications are available for more detailed information on planting and managing nwsg and are available from the Department of Game and Inland Fisheries. The turf in this area now could be maintained in easy to mow areas, but the slopes can be converted to nwsg for ease and safety during maintenance. Treating the area that will be converting to nwsg with herbicide at the proper time of year can release native grasses and forbs from cool-season grass (e.g. fescue) competition. Please note that a Certified Commercial Pesticide Applicator must do any herbicide or pesticide applications on this property. Fes-

cue is best controlled in the fall. Mow the area in late August or September in preparation for spraying herbicide. Allow cool season grasses (fescue) to grow 6-10 inches, and then spray with 2 quarts glyphosate preferably after a killing frost. Spraying at this time will not harm most native grasses and wildflowers since they are already dormant. Cool season grasses must still be green and growing when you spray. Spray on a warm sunny day for best results. Monitor the field for undesirable species (fescue, Johnson grass, sercia lespedeza) and spot spray infestations as soon as possible. Re-treat in spring if necessary. Read and carefully follow all herbicide label directions.

Planting native warm season grasses requires care and patience. There are several critical factors to be aware of to achieve a successful nwsg stand:

- Place at least an 80% product of "pure live seed" no deeper than ¼ inch from May 1 through June 30 in Virginia
- Some seed should be evident on the soil surface
- Ensure that enough vegetation is removed to get good seed/soil contact.
- Weeds that emerge soon after planting must be controlled to avoid competition with nwsg seedlings.
- Use high quality seed. Purchase seed with high germination rates and calculate the amount of pure live seed in the lot before planting.
- Be patient! It can take up to two years before a nwsg stand shows its full potential.
- To establish wildflower and forbs in this area at a later date disc (1 disc wide) scattered strips through the established nwsg, broadcast forb seed, then roll the seed. Partridge pea and black-eyed Susan are some varieties that can be added directly to the nwsg mix.
- Late summer (Sept-November) is the best time to mow these grasses to avoid interfering with nesting birds.

For more information or for seed mixture suppliers please see these publications

<http://www.dgif.virginia.gov/habitat/wild-in-the-woods/grow-a-native-grass-meadow.pdf>  
<http://www.portal.state.pa.us/portal/server.pt?open=514&objID=699845&mode=2>

## **Zone C**

This area, measuring 97,642 square feet is in the front of the church along Gideon Drive and incorporates the parking lot islands, church roadside sign area, and the trash/recycle bin area. This area has cool season turf at this time, but in the future garden beds for annuals and perennials will be incorporated.

Cool season turf varieties are best fertilized in the fall. The recommended rate is for two applications of 1 lb of nitrogen at least 30 days apart during the window of September 1<sup>st</sup> through November 30<sup>th</sup>. Please see the attached Nutrient Management Plan that lists several readily available turf-type fertilizer formulas to choose from with specific amounts of product. If another formulation is used, it should be balanced to apply 1 lb of nitrogen for each of the fall applications. The plan also includes an optional light fertilizer application of ½ lb of nitrogen in early spring. This spring fertilization can provide some improved performance, but the drawback is an increased need for mowing and an increase of fungal diseases. This area has a pH of 5.0 and requires 4 applications of lime of 4,882 lbs, thirty days apart and one final application of 976 lbs. Soil can only absorb 50 lbs of lime per 1,000 square feet every 30 days. An excess of 50 lbs of lime per application will damage the turf and the surrounding watershed.

Top-dressing the area annually with ¼ inch of fine textured compost to enhance microbial activity and improve soil texture is recommended. This area would need about 75.7 cubic yards of compost.

The road frontage is planted with uniform rows of a variety of trees including *Cornus serica* and *Cornus florida*, *Quercus*, *Liquidambar* and *Cercis canadensis*. Many of these trees have been planted too deeply and too close together. The *Cornus* have scale insects and cankers. It is recommended that the infested trees be removed and a third row of alternative trees be added behind the existing row to comply with the Design and Construction Standards Manual requirements for this property. Alternative small to medium sized trees may include: *Acer griseum*, *Carpinus caroliniana*, , *Chionanthus virginicus* *Lagerstroemia indica x fauriei*, , *Magnolia x soulangiana*, , *Magnolia virginiana*, , *Prunus virginiana*, , *Cladrastis kentuckea*. Please refer to this Virginia Tech Publication for suitable trees for hot sites, such as parking lots. [http://pubs.ext.vt.edu/430/430-024/430-024\\_pdf.pdf](http://pubs.ext.vt.edu/430/430-024/430-024_pdf.pdf)

It is also recommended that the trees be irrigated 1" per week if there is insufficient rainfall in that amount. Alternately, gator bags can be used. Gator bags are designed to deliver slow watering to the roots over 4-5 hours, rather than creating run-off. The trees along the property frontage should be joined into one mulched bed for lower maintenance. Please see General Recommendations for mulching/planting instructions. Tree stakes should all be removed in this area and in the parking lot islands.

Incorporating a variety of drifts of native perennials into the traffic islands and turf areas in the future would add beauty and sustainability to this front landscape. The circular island near the front door would benefit from the addition of drought tolerant annuals such as:

*Antirrhinum majus*  
*Catharanthus roseus*  
*Celosia cristata*  
*Cosmos bipinnatus*  
*Cosmos sulphureus*  
*Calendula officinalis*  
*Gomphrena globosa*  
*Melampodium paludosum*  
*Nicotiana alata*  
*Petunia x hybrida*  
*Salvia splendens*  
*Salvia farinacea*  
*Tagetes erecta*  
*Tagetes patula*  
*Viola x wittrockiana*  
*Zinnia elegans*  
*Zinnia linearis*  
*Zinnia Profusion series*  
*Zinnia Pinwheel Series*

Native perennials for full sun that would be appropriate for this site in the future as time and funds allow, include: *Achillea*, *Allium*, *Asclepias*, *Aster*, *Baptisia*, *Chrysogonum virginianum*, *Coreopsis*, *Eupatorium*, *Geranium*, *Helenium*, *Helianthus*, *Heliopsis*, *Liatis*, *Monarda*, *Oenothera*, *Penstemon*, *Phlox*, *Physostegia*, *Pycnanthemum*, *Rudbeckia*, *Sedum*, and *Solidago*.

A dumpster for recycling is also located in this area and could be trellised with native ornamental vines such as *Bignonia capreolata*, *Campsis radicans*, *Celastrus scandens*, *Clematis virginiana*, *Lonicera sempervirens*, *Parthenocissus quinquefolia*, or *Passiflora incarnata* could be considered to improve the appearance of this area.

The cemetery area is characterized by mature hardwoods and conifers, understory and invasives. Invasives can be hand removed or treated with glyphosate in the late fall when the hardwoods are dormant. Understory trees such as *Cercis canadensis*, *Lindera Benzoin*, *Hamamelis*, or *Cornus florida* or groundcovers could be added to cover bare ground so that the invasive plants do not re-vegetate this area.

The pesticide storage area should remain locked, with warnings posted about its contents. Chemicals stored should be protected from extremely hot or cold temperatures and moisture inside the building. Labels should be easy to read and containers kept closed. Original containers for mixtures should be used. Volatile products should be stored separately. An inventory of chemicals stored should be kept on the premises. Only certified pesticide applicators should be utilizing these chemicals on the property.

#### Recommendations for Impervious Areas

Stormwater that falls upon and/or runs across impervious surfaces like concrete and asphalt will pick up a variety of pollutants. Keeping hard surfaces free of leaves, grass clippings; trash and sediments will prevent them from being washed into ponds and streams. Parking areas should be regularly inspected for evidence of automotive fluids to ensure leaks and spills are contained and cleaned before these products are washed into the soil or waterways. Cat litter can be used to absorb most small leaks for easy clean up. Additionally, storm drains should be kept clear of debris to prevent localized flooding. It is important to train staff and volunteers in the proper storage, handling, use and clean up of potential pollutants such as fertilizer, pesticides, paints, gas, road salt, etc. Avoid cleaning paint brushes and containers in a parking lot, gutter, or storm drain. Minimize on-site storage by implementing "just enough product, purchased just in time". In the winter months, reduce the amount of road salt used on sidewalks and in parking lots, or use ice melt, sand, kitty litter, or ashes to prevent salt damage to plants and aquatic life. Snow should be cleared to the lower end of the pavement to reduce the need for ice melts during the thaw-freeze cycle.