



**Report by Mike McGrath
to the Board of Trustees of the
Society Hill at Lawrenceville Condominium Association
January 2009**

Note: The report on the following pages was commissioned by the Board of Trustees for its guidance, as part of a commitment to pursue the best possible management of the Association's highly-regarded landscape, and is shared here by the Board for interested parties to view.

The recommendations are being implemented. Specific methods, materials, and timing may vary somewhat over time, based on the application of the thoughtful recommendations contained in the report. Indeed, reflecting as the report suggests, not so much a fixed commitment to particular methods, but a broader understanding of the cycles of nature, and "an ethic of constant improvement."

Further information is available at <http://www.SHLtoday.org>.



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Society Hill at Lawrenceville
Recommendations for organic grounds care
Final Report from consultant Mike McGrath;
January 2009

INTRODUCTION

This is the final written report generated as a result of my consultancy with the Board of Trustees of the Society Hill at Lawrenceville Condominium Association. (You may also wish to read my earlier interim reports, containing my initial impressions and preliminary recommendations.)

In addition to several on-site visits, I have had extensive email and phone communication with representatives of the Condo Association and the landscaper, and I have reviewed and evaluated the locally available inputs: Compost, organic fertilizers and other landscaping and lawn care materials. As provided in the initial contract, I will be available for phone advice and continued consultation through the Spring feeding of 2010. And I anticipate making an additional site visit in March of 2009 in conjunction with a public appearance for “Sustainable Lawrence”.

My approach has been to bring the experience and knowledge I have gathered in my 20 years as a researcher, gardener, journalist and ‘organic expert’ to assist the Trustees in furthering their efforts to achieve a successful, chemical-free landscape maintenance program for the Association’s impressive grounds. Several pre-existing factors help insure the success of such a program:

- The Trustees had already commenced a series of steps to reduce chemical use on the grounds, including use of alternative fertilizers, a test of Corn Gluten Meal (CGM) to prevent crabgrass and other Spring-germinating weeds, and employment of a landscape contractor willing and eager to work with natural materials. The trustees clearly expressed to me that they were more interested in a well-grounded long-term strategy that provides for cost-effective sustainable grounds care, rather than simply replacing individual chemical products with currently popular natural ones.
- The Contractor already employed, Joe DiGiovanni of Devries Landscaping, had already helped to move things forward in many positive directions before my involvement, and has displayed a great willingness to implement alternatives to traditional heavy-handed chemical landscaping and lawn care methods. In addition, there is agreement by all parties that long-term sustainability requires that adjustments be made in as affordable and productive a manner as possible.
- The availability of *very* high-quality yard waste compost literally just a few miles away at the Lawrence Township Ecological Facility makes such a transition not only possible but insures the highest probability of success. As we will soon

discuss, compost is the perfect alternative to wood mulch and chemical fertilizers, and it would be hard to imagine a closer supply or one of higher quality.

- In addition to their assistance and participation in my consultation, Jim Alexander and Marc Tolo of Society Hill also attended a full-day seminar on organic landscape management organized by the highly regarded organic group, NOFA-NJ this past summer. This presentation greatly strengthened their understanding of the issues involved and provided objective, outside agreement with the overall strategies I am proposing. Jim and Marc assure me that the residents have been kept fully advised of these developments via the Association's newsletter and web site.
- Rather than waiting for a final report to be written and then a new contract drawn up, the landscape contractor displayed admirable flexibility by adjusting his practices 'on the fly' to work with my initial suggestions in the fall of 2008 while simultaneously working with the Association to devise a new two year contract. This new contract embraces Society Hill's commitment to chemical-free landscaping while keeping any cost increases within the levels expected by inflation. It has always been my philosophy that a healthful and highly effective landscaping service should not cost any more than its toxic counterpart. "It's not more expensive; it's just better."

Although we're calling this a 'final report', there is never finality in nature or learning. Thus, you should expect that there will be ongoing problems and creative solutions; on-site learning and mid-term adjustments. My philosophy in these matters is to create "a culture of constant improvement" and I urge you to always be looking for and open to the next step in making an exceptional program even better.

The attitude I have seen displayed by all involved assures me that you have what it takes to implement a successful organic strategy that may well be considered pioneering in a condominium setting such as Society Hill. I would not be surprised if awards, wildlife certifications and other formal recognitions of your efforts were forthcoming.

THE REPORT

Society Hill at Lawrenceville is a community in a unique naturalistic setting. Rounded corners, an abundance of trees, underground utilities, and adjacency of open parkland all combine to create a sylvan feel, despite the 'built-up' nature of central New Jersey. Chemical-and-toxin-free landscaping and lawn care are highly appropriate in a setting such as this, which can—and should—serve as a wonderful habitat for birds, amphibians and pollinators, not to mention the healthiest possible environment for its residents.

In addition to being dangerous, modern chemical fertilizers and pesticides are completely unnecessary; a waste of money in addition to the dangers they present. Plants have never needed chemical inputs, and existed happily for untold millennia before the introduction

of these heavily marketed toxins in the last century. The unnaturally fast and excessive growth caused by chemical fertilizers actually makes plants *more* attractive to pest and disease attack, while reducing the inherent natural ability of those plants to defend themselves. Chemical insecticides kill far more beneficial insects than bad; and herbicides are often harsher to wanted plants than unwanted ones. In addition, many herbicides and insecticides work via hormonal disruption, making them especially unwise choices in this era of increased hormonally-related cancers.

In short, there is nothing to lose and everything to gain in caring for landscapes naturally. The ‘secret’ to doing so successfully is less in the choice of inputs than a simple understanding of the natural rhythms and cycles of the plants in question and the willingness to work with these ancient schedules, as opposed to attempting to impose our will and demands on the plants.

What follows is, therefore, a kind of ‘Natural Blueprint’; a guide to working in general with the needs of the basic landscape plants of Society Hill. It is *not* meant to be a didactic program. Issues of weather and seasonality must be respected, as must changes in availability of inputs, labor and materials. But by following these basic outlines, the plants should thrive, money should be saved, and—perhaps most importantly—the health of pets, people and wildlife will not be compromised.

LAWN CARE

All lawn grasses used in America can be divided into two types of turf: ‘Warm season’ and ‘cool season’. The lawns at Society Hill are all comprised of cool-season grasses. These grasses, originally native to the cooler portions of Europe and Asia, can survive cold winters, but are stressed during the hottest weeks of summer. They are much better choices aesthetically than zoysia, the only warm-season grass that can survive a NJ winter, as zoysia lawns turn tan for their approximate six months of winter dormancy.

Cool season grasses must be cut high: A minimum of three inches for grasses in sun; three and a half for grasses in shade—and that’s measured *AFTER* the grass is cut. In other words, no turf at Society Hill should ever measure less than three inches of green. This type of cut will help the individual blades retain moisture, thus helping the turf to better handle the heat stress of summer. High cut grass also grows more slowly above ground, as there is less need to replace its top growth. This reduces its food needs and allows for more time between cuttings.

If desired, ‘frequent’ cutting (just ‘taking a little off the top’) is fine, as long as the height requirement is respected and the concurrent soil compaction caused by the extra use of heavy equipment is compensated for by a program of frequent aeration.

Cool season grass can only be sown successfully in the ‘fall’; a window of time whose ideal for your portion of New Jersey is roughly August 15 through the end of September. No grass seed should be sown in the Spring or Summer; it is a waste of time and money.

If warm weather is predicted and conditions have made it necessary, seed could be sown into October, but this is not ideal, as the leaf fall that will soon begin makes late sowing problematic.

Feed the turf no more than twice a year. The ideal for mid-Atlantic cool-season lawns is a big meal as they get ready to ‘go to bed’ in the fall, and a lighter ‘breakfast’ when they ‘wake up’ in the Spring. Clippings should always be returned to the soil, preferably through the use of true mulching mowers. Returning the Nitrogen rich clippings to the soil (grass clippings are 10% Nitrogen by weight) reduces a lawn’s food needs by as much as half. There should never be any summer feeding other than the returned clippings.

For the fall feeding:

The first choice would be compost from the Lawrenceville site; approximately an inch worked into the turf. This is an amazing, locally-available, endlessly-renewable resource that provides all the food any plant requires, including (and maybe especially) turf grass. I realize that there’s going to be a considerable learning curve in figuring out how best to spread this stuff, but I would rather see the resources of the Society Hill landscaping budget going into perfecting this technique than spreading bagged product. The compost will enrich the soil, reduce soil compaction, and help the lawns make it through hot weather better.

Worm castings are the best locally available bagged product; they are a fabulous natural fertilizer and soil conditioner. Bagged poultry manure and other natural high-nitrogen fertilizers have their place, and can certainly be used in addition to the castings—especially as we learn how to apply the compost efficiently. I’ll take a look at the actual products that are available locally in bulk and approve a few in an addendum or as requested over the next year.

But I have to stress that the ideal situation—indeed the goal of a project such as this—is to move over time to an *all* compost feeding in the Fall. The time required to spread the compost will be greatly reduced with experience, and I personally would rather see the facility pay for labor to spread this *perfect* local resource than bagged product.

Also in the Fall: Any reseeding or over-seeding should be accomplished between August 15 and September 30.

Core aeration should also be performed on a rotating basis. That is, some areas one year, other areas the next, etc. on a schedule that ideally aerates the entire property (or at least its most visible areas) over a four year stretch, budget permitting. The more feeding that’s done with compost, the less aeration will be needed after the first round is completed.

Spring feeding:

The ideal choice here is an Iowa State University licensed Corn Gluten Meal product (“CGM”) labeled as a pre-emergent herbicide. Used properly, CGM prevents dormant weed seeds (i.e., crabgrass) from sprouting while providing an excellent nitrogen feeding. Yes, it really *is* an organic weed and feed.

But corn gluten is expensive, and this is one of the biggest decisions you must make as a team. I urge *homeowners* who are obsessed with their lawns to apply it in the Spring to prevent their using toxic chemical weed and feed instead. But with a property your size it should be considered an option as opposed to a requirement.

If the price is right—that is, if it's not much more expensive to apply CGM than another natural fertilizer or to spread more compost—then it is clearly the choice for Spring. (But it must all be put down by the time the local forsythia is fully in bloom to prevent crabgrass.) If there is a CGM price spike or if unforeseen events eat into the yearly budget, compost or a less expensive natural material may be substituted.

Note: A mild summer the previous year would mean less crabgrass to worry about the following Spring, as this notorious annual weed tends to set the most seed in the most bare ground in especially hot summers.

There is also a range of recommended application rates with CGM—from 10 pounds per thousand square feet of turf to 20. Let budgets and weather be the deciders here. If the price is right and/or the previous summer was especially harsh, 20 would be ideal. If the previous summer was mild, keep it at ten and put the difference into another project.

The limited feeding option:

Yes, turf grass is a 'hungry' plant. But when the clippings aren't removed, it receives nutrients at every cutting—again, half of all the food it needs on average. And so, if the budget is tight, other issues abound, and compost has been applied in the fall, the Spring feeding could be lessened in quantity, limited to highly visible areas, or skipped altogether some years. Dr. Nick Christians, the Iowa State University turfgrass professor who perfected CGM, has told me on many occasions that lawns that are cut high with the clippings returned and that are growing in compost-rich soils can get by with much less food and look fine.

And, as I file this report, several groups dedicated to the protection of the Chesapeake Bay are launching a 'no Spring feeding of lawns' campaign. American lawns are clearly overfed, and this should be kept in mind when allocating limited resources.

Notes on the turf:

Society Hill has—to put it mildly—an *abundance* of trees. Enormously beneficial in many ways, they still cast a lot of shade and their extensive root systems compete with the grass for moisture and nutrients. This means that only tough, shade-loving grasses like the fescues will do well in most of your areas. Fescues are nicely drought tolerant, slower-growing than other turf grasses, can handle shade, and get by with fewer nutrients, *BUT* they are clumping grasses whose outward growth is slow and circular, like that of the large ornamental grasses.

Highly aggressive "running" grasses that thrive in full sun, like Kentucky bluegrass, can spread to fill in bare spots, but the shade-loving clumping grasses can't. They need to be overseeded every couple of years to keep them looking full. This is not a defect; it's just the way they are. Remember that there are no grasses native to your area, and so you must accept the 'pluses' and 'minuses' of the imported grasses we use.

Regular overseeding *must* be an integral part of your long-term plan. This can be accomplished at the same time as feeding. Spread the compost, sow the seed, and rake it

in. No straw or other covering. Irrigate if you can. If the irrigation system has been shut down permanently, pay close attention to weather forecasts try and work the rains.

Summer: A hot, dry summer will stress the turf. Not just *your* turf, but all cool-season turf. The possibility of a hot, dry summer makes a high cut of vital importance; the more bio-mass the lawn has, the more water reserves it can hold. If record high temperatures have been predicted, skip a cutting or two to prevent moisture loss through the cut tips of the grass blades.

In addition, the more bio-mass up top, the deeper the root system will be, also improving the turf's drought resistance. A high cut lawn is simply healthier and will stay green longer.

Again: Your lawns should *never* be fed in summer; food only adds to the stress of summer heat.

In heavily shaded areas where grass has always struggled and replacement fails repeatedly, thought should be given to use of an alternative ground cover, such as pachysandra instead. As noted previously, grass is not native to New Jersey, and while an organically managed turf is highly effective at water management and oxygen creation, it is not the only possible choice.

Should you water?

That's up to you and what you decide to do with your aging irrigation system. A deep soaking ending at dawn once or twice a week during the height of summer will keep the turf greener, but short, frequent waterings do more harm than good (they encourage weak, shortened root growth) and are a total waste of money.

Allowing the lawn to go dormant—you may see patches that look dead—is the most sensible procedure. It allows the lawn to send its moisture—and life—down deep into the root zone. In all but the most severe cases, the green color will return quickly when temps cool down a bit. (In the most severe cases, *everyone's* lawns will be blasted, not just yours, and those that have been chemically fed and cut short during the drought will look the worst.)

During the initial period of my consultancy and reflecting my initial suggestions, the Board of Trustees took action early on to review the irrigation system. For most of the summer of 2008, the system was kept turned off in what proved to be a successful experiment. Adjustments and minor repairs were made to those portions of the system serving the most visible areas, so that the system could be available for use in the event of serious need. In the fall, the system was turned on for several weeks in the areas that were reseeded to foster speedy germination of the seed. (This 'irrigation after seeding' may be the most valuable service your system has to offer.)

While there is no absolute answer, following a similar course of action for the immediate future seems to be the most reasonable and responsible. It would reduce water consumption and encourage stronger root growth, while still preserving the system's ability to respond in the event of a prolonged heat spell or to support the germination of new seed.

I am told that as a result of the 2008 'experiment', money was saved in direct costs *and* that ancillary savings were enabled through winter-time water meter removals, for a total savings of several thousand dollars. I recommend that the Board consider the

water budget as part of the overall landscape budget, allowing savings in this area to be available for other landscape maintenance requirements as the new strategy evolves.

Trees and mulch:

The ‘volcano mound’ wood mulch must go. It is killing the trees by covering their bark, inviting damage from rot, insects and small herbivores and causing root girdling at the surface—damage that is *clearly* visible on many of the trees I inspected. Yes, ‘everyone’ has taken to mounding mulch up against trees, and ‘everyone’ is wrong.

It must be an absolute priority to gently hoe away any mulch actually touching or covering the bark of a tree as quickly as time and budgets allow. The existing wood mulch does not have to be *removed*, just pulled back from the bark until there is a clear area absent of mulch directly around the trees. Then a one-inch layer of mulch may extend out from there as far as necessary to protect the trees from mower damage and/or to use up the existing mulch.

“Mulch” in general is a good idea in a landscape such as yours. Injury from mowers and trimmers can weaken trees (not nearly as much as mounds of mulch touching their bark, but it is still to be avoided). It is the *type* of mulch that has been used, and more importantly, the ‘decorative mulching by mounding’ that is the problem at Society Hill.

(Contrary to what the mulch marketers would have you believe, “mulch” does not mean or imply the use of wood chips or shredded bark. The word ‘mulch’ refers to any substance that covers the surface of the soil to prevent weeds and retain moisture. Wood mulches have been heavily marketed in the last decade only as landfills have refused to accept this form of waste. They were never wise in a horticultural sense.)

And so, as the old mulch deteriorates, it should be replaced with a mulch of Lawrenceville compost, one inch deep, beginning a few inches away from the trunk. This will prevent weed growth, provide a nice visible dark area around the trees, and have the added benefit of gently feeding those trees, thus strengthening them against disease, pest and climate pressures.

At the risk of repetition, let me repeat:

NO MULCH SHOULD EVER TOUCH THE TRUNK OF A TREE!

Shrubs and mulch:

Rhododendrons, azaleas and other acid-loving plants should receive a one-inch mulch of milled peat moss covered with an inch of compost every few years. Regular shrubs will do fine with an *occasional* mulch of compost to keep weed competition down and provide a gentle feeding.

Note: ‘pine straw mulch’ (the spent needles that fall to the forest floor naturally as part of the multi-year shedding process of many evergreens) is to be left in place. The needles provide a very naturalistic look and make a superb mulch.

New trees and shrubs:

There is always going to be plant loss due to age, disease, poor initial planting or incorrect use of mulch. At this point in time, removal without replacement is often going to be your best option. The canopy at Society Hill is very crowded and some thinning will actually improve the overall look and the health of the remaining plants. In cases

where new plantings are desired, the varieties should be chosen by the landscaper, in consultation with the landscaping committee of Society Hill, working from a list of plants recommended by your local Extension Office.

Pruning of Trees:

Trees in need of pruning should be pruned in the dead of winter, while they are dormant. Damaged or diseased limbs are the exception—they can and should be removed as soon as possible after the problem is noticed. Trees are never to be ‘topped’ (that is, to have their growing tips removed); and branches should always be fully removed as opposed to shortened. Pruning cuts are to be left to heal naturally; no wound covering is necessary.

Bradford pear trees are fast-growing and inexpensive to raise. Thus they have been overused in landscaping, despite their extreme fragility in winter and tendency to drop branches and split. I am told that your Bradfords have had their canopies periodically thinned to reduce their ice and wind exposure, that this process has reduced their inherent problems and needs to be continued.

No new Bradford pears should be installed.

Limbing of evergreen trees:

Evergreen trees in crowded situations will often begin to have branches go brown from the bottom of the tree up, from lack of sun hitting those lower areas. I generally recommend the ‘limbing’ of such trees up to a height of six or seven foot off the ground. Removal of the browned-out areas dramatically improves the look of the limbed tree, allows more airflow to the other plants in the area, is good for the grass and allows people to walk under the trees.

However, in many cases at Society Hill, this looks like it may also remove wanted privacy screening. In such cases, less dramatic limbing plus the installation of good strong understory plants (like azaleas) would be a better option.

Pruning of shrubs:

Spring bloomers like forsythia, rhododendrons and azaleas benefit greatly from a light trimming after their blooms have faded, to remove seedpods before they can fully form. If the plants have overgrown their space, this ‘after flowering’ period is also the time to reduce their size. Under no circumstances should any shrub (or tree) be cut back by more than 1/3. If a shrub has grown so large it is deemed necessary to reduce its size by half, this should be performed over several seasons.

Summer bloomers (and non-bloomers) can be pruned, if necessary, over the winter or in early Spring.

With the exception of removal of dead or diseased limbs, no plant should be pruned in the Summer, late Summer, or Fall.

Permitted products:

Fertilizers:

Always: Yard waste compost, licensed corn gluten meal products, worm castings.

Maybe: Packaged organic fertilizers; McGrath will review on a case-by-case basis or provide a list from the products currently locally available in bulk.

Never: Chemical fertilizers; products containing sewage sludge, bio-solids or other potentially contaminated municipal or industrial waste.

Pesticides:

Always: Horticultural oils for tree bark pests; soap sprays for short-term use against visible pest insects; neem products for prevention and/or control of Japanese beetle and similar pests; Bt (the BTK strain for caterpillar control; BTI for mosquito, biting gnat and blackfly control); milky spore powder for control of lawn grubs (but only applied in the Fall; Spring applications are useless); sticky traps.

Maybe: In the event of an outbreak of ticks, “Tick Tubes” could be placed around the perimeter of the property. These simple cardboard tubes contain cotton balls soaked in permethrin, a synthetic version of the botanical insecticide pyrethrum. The mice that carry the ticks (yes, much more so than deer) take the cotton balls back to their nests to use as bedding, and the permethrin then kills the ticks on all the mice as they come and go. It is *not* organic, but it is the ‘least toxic’ method of tick control currently available. It is also *highly* effective, as most disease-carrying ticks *must* go through a portion of their life cycle attached to a mouse and mice find the cotton balls very attractive bedding material. If this option is carried out, instructional material concerning the tubes should be distributed to homeowners in advance of their placement around the property.

Never: Chemical fungicides, insecticides or herbicides.

Weeds: The elephant in the room.

There are essentially two types of weeds, those in lawns and those not in lawns. Lawn weeds are best controlled by proper lawn care: a high cut, proper feeding and fall overseeding. But in certain situations, such as a blindingly hot summer, weeds may overtake even a well-cared for lawn. In such cases, it may be advisable to tear up and replant extremely weedy areas in the fall. In such cases, CGM applications will also be necessary in the Spring.

There are appropriate uses of organic spot treatment for weeds, such as borax or vinegar solutions, and while I am not opposed to their use, I am at this moment advising against 'spot treatment' with these materials on your grounds, with a few exceptions. Until the compost and aeration can improve the structure of the soil, for instance, dandelions may appear in some areas, as it is their ‘job’ to break up and loosen compacted soil. The best course of action is a dedicated worker using a flame-weeding device to torch the flowers and/or puffballs. This will prevent the seeds that would otherwise give birth to the following year’s crop. The (biennial) mother plant will die and return much needed calcium to the soil. As the lawn and the soil beneath it improves, fewer dandelions (and other long tap-rooted weeds) will appear.

If an area is more weed than lawn, tear it up and replant it in the fall. If weeds continue to be a problem there, replant the area with an appropriate groundcover.

For weeds in mulch and near trees, my first choice is mechanical removal; a sharp hoe can do wonders and a good hoe-man can clean up large areas very efficiently. Again, it is almost always wiser to pay for labor rather than products. Other options include flame, herbicidal soap sprays, borax solutions and vinegar or clove oil based products. Vinegar and clove require eye protection, but so does just about every other landscape task.

Future Thoughts

As noted above, Society Hill has a very heavy tree cover, which greatly impacts the potential quality of the turf. Broadly stated, the property does not need any more trees at this time, although some limited replacement may be appropriate to maintain key appearances. Planting additional trees simply to provide shade requested by individual unit owners may not be in the best interest of the overall property, as it would greatly raise the amount of time and inputs necessary to also keep turf alive and looking decent under that tree. If a shade tree *is* installed in a small lawn by request, the lawn should be replaced with pachysandra or other appropriate groundcover.

For the next several years, I recommend that expenditures on new trees and shrubs be kept to a minimum in favor of supporting aeration, reseeding, compost applications and general turf buildup. Once the soil has been strengthened and ongoing organic turf management efforts pay off with healthier, better appearing grass, more resources can be allocated to new trees and shrubs.

One final note: It would be great if the large volume of leaves that are currently picked up and carted off the Society Hill grounds each fall could be shredded and composted on site, rather than hauled many miles away by truck for the use and benefit of others. If not onsite, let's at least try and insure that they go to the Lawrenceville composting site nearby. Either way, the resulting compost will be spread on the facility's lawns, thus 'closing the circle' nicely, preventing fuel waste and furthering your facility's already admirable commitment to recycling.

Thanks for the opportunity to work with you on the continuing evolution of your fine property. You have a unique setting and I have greatly enjoyed my visits there.

Mike McGrath
January 12, 2009