



**City of Northampton**  
MASSACHUSETTS

**Select Committee on Pesticide Reduction of the Northampton City Council**  
**MEETING MINUTES for September 9, 2019**

**Present: Adele Franks, Cynthia Suopis, Kathleen Simmons, Councilor Alisa F. Klein, Councilor James Nash**

**Location: City Council Chambers, Puchalski Municipal Building, 212 Main St., Northampton, MA**

**1. The Meeting Convened at 10:00 AM.**

**2. Chair, Adele Franks announced that the meeting is being recorded.**

**3. There were no participants in Public comment.**

**4. Minutes from the August 22, 2019 Meeting were presented for approval.**

Adele Franks moved to approve.

Alisa Klein Second the motion to approve.

All in favor to approve minutes. No abstentions.

Minutes were approved.

**5. Interview with one city department**

Wayne Frieden represented Planning and Sustainability and addressed the questions provided by the committee in a document that will be made part of these minutes. To summarize, Mr. Feiden outlined the area of responsibility under the Planning and Sustainability Department citing the arrangements made between the City and local farmers via the Agriculture Preservation Restriction Act. Mr. Feiden's comments framed the department's focus on the environmental footprint with carbon sequestration as the ultimate goal. Mr. Feiden cycled through the practices and uses of pesticides and herbicides and responded to clarifying questions from the Select Committee. See attachment to these minutes.

**6. Report back from research and findings since last meeting.**

A. Alisa Klein was tasked with finding resources for Training and Grant Funding for the

City. She provided a list of organizations that provide free training and support to municipalities on Pesticide Reduction. Councilor Klein will send her written findings to each member of the committee and this document will be attached to the minutes.

B. Councilor Klein reminded the committee to check Wakelets for additional information that she is posting.

C. Councilor Klein contacted the Massachusetts Municipal Association to see if there is a database or any type of accounting on municipality progress on Pesticide Reduction and was told nothing exists.



## City of Northampton

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D. Cynthia Suopis said she will contact the Massachusetts Association of Boards of Health to see if they know of any databases of this nature.

### **8. Public forums- format and publicity. Public forums- invitations for testimony to public, experts, and interested parties**

A. The Committee was reminded that two Public Forums on Pesticide Reduction will be held on October 16 on the Second Floor Hearing Room and October 23 in the Council Chambers in the Puchalski Building.

B. A Tentative list of individuals and their affiliation or interest to be invited to comment at the Public Hearings are:

1. Rich Jaeske Agriculture
2. Bernadette Giblin-Turf Management
3. Bob Zimmerman-BroadBrook
4. Len Cohen—BroadBrook
5. Grow Food Northampton (Representative to be named)
6. Maggie Leonard—Landscape Design and Garden Care
7. Peggy McCleod--Pollinator Group
8. Laurie Sanders-Co-Director of Northampton Historical Society
9. Possible contact person from Mass Audubon.

Adele Franks will draft an invitation letter and send it to the committee for review.

C. Forum Publicity

1. Letter to Editor of the Gazette. Adele Franks will draft.
2. Social Media
3. Ask Mayor's Office to put Poster on Main Page of City
4. Alisa Klein will ask a graphic designer to design a poster.
5. Strategies for procuring funds for poster printing were discussed and we decided to pass the hat among committee members for this minor expenditure.
6. Free listing in Gazette, Valley Advocate, Republican-Cynthia Suopis will place announcements.
7. Attach Posters to key locations. Jim Nash will do this task.
8. Reach out to organizations to publicize the forums through their list serves and contacts. Some of these organizations are: Leeds Civic Association, Senior Center, Grow Food, Broadbrook, Lists of Gardeners and Councilors.
9. The Mayor will be asked to post the forums on Facebook and Twitter. Key City departments will be asked to publicize forums.



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### **9. Review of other municipalities' pesticide policies.**

Members were provided with copies of Pesticide Reduction policies in Andover and Malborough. The Toxic Action Group suggests the Malborough policy is one of the most comprehensive policies in the Commonwealth. The Select Committee will continue to review policies.

### **10. New business**

Adele Franks explored the idea of using Google Docs to track drafting and comments of the Select Committee's final report to the City Council. She will check with the City Solicitor to ensure this practice conforms to Open Meeting Law.

### **11. Adjourn**

Alisa Klein moved to adjourn the meeting.

Adele Franks Seconded the motion.

The motion was approved by all. No abstentions.

The meeting adjourned at 12: 11pm.

### **Attachments:**

1. Info from Wayne Feiden
2. Policies from Andover and Marblehead
3. List from Alisa Klein

## Resources for Organic and Pesticide-Free Management of Municipal Areas

1. The National Coalition for Pesticide-Free Lawns is pleased to announce our **Organic Land Care Basic Training for Municipal Officials and Transitioning Landscapers**. This three-part training explains the Simple Steps to beginning an organic turf program and will cover the basic concepts, methods, and materials you need to get started. The training is geared toward school or park and recreation officials, however landscapers interested in transitioning are encouraged to attend.

The Program is taught by Chip Osborne, a professional horticulturist with over 30 years experience and an expert on building and transitioning turf to organic care. He is accredited by the Northeast Organic Farming Association (NOFA) in organic land care, and has attended the University of Massachusetts Green School for turf management. He converted his retail greenhouse operation to an organic management plan, designed and constructed Marblehead's Living Lawn Demonstration site, and, as the elected Chairman of the Town of Marblehead, Recreation, Parks & Forestry Commission, is currently implementing an Organic Turf Management Plan for the town's public lands, including all athletic fields. Chip lectures nationwide on natural turf management, both to homeowners and municipalities, and has addressed the National Sports Turf Managers Association. Materials are available to listen and watch on three recorded hour-long sessions at only \$40 for municipal officials, and \$90 for professional landscapers. **Go to Beyond Pesticides' Online Store to order the training discs.** We will also be sponsoring a technical workgroup proceeding the training to assist attendees in transitioning their landscapes. If you need more information or have questions call Beyond Pesticides at (202) 543-5450 or email [info@beyondpesticides.org](mailto:info@beyondpesticides.org).

2. **Toxics Use Reduction Institute (TURI)** – [turi.org](http://turi.org) – Based at UMass Lowell, TURI has supported a variety of projects related to organic grass care, including municipalities transitioning acres of fields from pesticide use to organic. [Community Grants](#) are available for community organizations and municipal departments to create and promote healthier communities by implementing toxics use reduction projects and educating people about safer alternatives.
3. **Beyond Pesticides in conjunction with Chip Osborne Organics, LLC** – training for municipalities to convert at least two municipal sites to organic management

and how to expand beyond that. The community picks at least two pilot sites to transition to organic. They request soil samples and answers to a questionnaire on past management practices for the sites, and then conduct a training with municipal land managers. The process culminates in a land management plan delivered to the municipal landscapers to transition these pilot sites and Chip remains as a consultant for any questions that come up. Everything gets started once an action plan document is signed. Beyond Pesticides will schedule a call with landscapers/lawmakers/municipal officials and staff -- any stakeholders -- to explain the process. See document from Beyond Pesticides for more information.

4. **Stonyfield Organic** has a program to train municipalities throughout the United States. They had a grant application process for their latest round and may open up spots again. (I sent in an inquiry on September 8, 2019.)
5. Non-toxic Neighborhoods (<https://nontoxicneighborhoods.com>). The NTN team assists municipalities, school districts, and communities switch to proven and organic land management. We provide proven resources for engaging schools, community leaders toward ending the use of glyphosate and other harmful chemicals in landscape management.
6. Sustainable Agriculture and Food Systems Funders (SASFS) is a philanthropic support organization for grantmakers and mission-based investors that have an interest in just and sustainable food and agriculture systems and promotion of organic management. [Through them, Alisa will explore the private foundation world to see if there are grant opportunities for municipalities taking on organic management of green spaces, etc.]



# BEYOND PESTICIDES

701 E Street, SE ■ Washington DC 20003  
202-543-5450 phone ■ 202-543-4791 fax  
info@beyondpesticides.org ■ www.beyondpesticides.org

## Beyond Pesticides Organic Land Care Training Program

### Program Overview:

- The community chooses at least two pilot sites to transition to organic land care. We encourage the community to select high use/heavy traffic sites to showcase the program for the community.
- We ask land care officials to answer a questionnaire to help us understand current and past management practices.
- We work with land care officials to get soil samples from the pilot sites to test soil structure, chemistry, and most importantly, biology.
- Once we have the soil test results and a completed management practices questionnaire for each site, we set a date to come to the community to train land care officials.
- We conduct a training that consists of both classroom lecture and in-field discussion. We walk the pilot sites with land care officials and answer land management questions.
- After the training, we produce and deliver a detailed management plan to assist with the organic transition over the next several seasons. This management plan outlines product, cultural practices, and timing.
- We remain available to assist with implementation of the management plan throughout the pilot project as well as implementation of organic land care on lands beyond the pilot sites.

### Who we are:

[Beyond Pesticides](#) is a national, grassroots membership non-profit organization that works closely with local elected officials and Parks Departments throughout the country to protect public health and the environment by promoting alternative pest management strategies that reduce or eliminate reliance on toxic products. We run this training program with national organic turfgrass expert Chip Osborne of Osborne Organics.

Charles E. (“Chip”) Osborne Jr. is a nationally renowned organic turfgrass expert and a professional horticulturist with 40 years of experience in greenhouse production as the former owner and operator of Osborne Florist & Greenhouse in Marblehead, MA. As Founder and President of [Osborne Organics](#) (Marblehead, MA), Chip has over 15 years of experience in creating safe, sustainable and healthy athletic fields and landscapes, and 35 years of experience as a professional horticulturist. As a wholesale and retail nurseryman, he has first-hand experience with the pesticides routinely used in the landscape industry. Personal experience led him to believe there must be a safer way to grow plants. His personal investigation, study of conventional and organic soil science practices, and hands-on experimentation led him to become one of the country's leading experts on growing organic turf. Chip is a Beyond Pesticides board member and chairman of his town's (Marblehead, MA) Parks and Recreation Board where he oversees park budgets and operations.

### About the program:

To be clear, neither Beyond Pesticides nor Osborne Organics will ever bid on landscape contracts. We do not sell or supply fertilizers, pesticides, or landscaping equipment. We may recommend products

or equipment, but can work with the community to ensure these suggestions meet current budgetary outlays and provide alternative approaches if they do not. Instead, Beyond Pesticides is able to underwrite up to 100% of the cost for Osborne Organics to train land care officials in organic practices. This training is intended to provide local officials with the knowledge and skills necessary to move forward with an organic land management policy.

Beyond Pesticides and Osborne Organics support ongoing efforts to improve sustainability by providing land managers and local practitioners with the tools necessary to successfully implement natural pest and weed management practices. We encourage and prepare officials to transition towards a systems based approach to land care. *This includes a reorientation to soil management, the nurturing of beneficial organisms in the soil food web, and limited use of organic compatible products when necessary. This approach is not a simple product replacement program, where, for instance, the herbicide Roundup is swapped for horticultural vinegar or soaps, but a true systems change.*

### **Financial Arrangements:**

Beyond Pesticides will pay up to 100% of the program cost to Osborne Organics. The community may contribute to this cost; it is not required, but is appreciated. We provide this service to qualified communities because of our organization's mission to protect public health and the environment, starting at the local level. Given increasing public understanding of the dangers associated with lawn care pesticides, our organization strongly encourages localities to take advantage of the growing availability of alternative practices and products that do not subject people or local environment to these hazards. We would like to help your community become a leader in the state on this issue of growing importance, and look forward to working with you should you choose to move forward with this opportunity.

### **Moving Forward:**

Once the Organic Land Management Action Plan (attached) is signed, we ask the community to commit at least two pilot sites to the organic approach. We will then send a questionnaire that aims to understand, for each site, past pesticide and fertilizer use, other land management practices, current budget, and other available internal resources. We also will work with the community to take soil samples and send them off to the lab for analysis. Osborne Organics and Beyond Pesticides will then perform classroom training, a walk-through and site analysis. Based on the results of all that information, we will craft a detailed management plan to move the natural program forward. We will remain available by phone and email to see the project through and ensure its success. We will also remain available to assist with any issues the community encounters transferring the knowledge learned from the pilot sites to the management of all public lands.

Beyond Pesticides is currently working on pilot programs with a number of localities throughout the country. Programs are underway in Berkeley, CA; Irvine, CA; Richmond, CA; Maui, HI; Springfield, MA; Natick, MA; South Portland, ME; Yellow Springs, OH; Keene, NH; and Dover, NH.

See this recent video ([www.youtube.com/watch?v=oJZgy8MOMYU](http://www.youtube.com/watch?v=oJZgy8MOMYU)) from Irvine Unified School District Facilities Maintenance Manager Rick Morse regarding his experience with Beyond Pesticides' training program.

We are happy to discuss the program and any outstanding details or concerns by phone with any local government official in the community. Please email [dtoher@beyondpesticides.org](mailto:dtoher@beyondpesticides.org) to set up a meeting.

**Organic Land Management Action Plan**  
**[City of XXXX, XX]**

**Grantee:** [XXXX]

**Contact:** [XXXX]

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**Funding:**

**Cost of Project:** \$ 7,500

**City Contribution:** \$[XXX]

**Funds Requested from Beyond Pesticides:** \$[XXX]

To encourage communities to transition to organic land management, Beyond Pesticides will underwrite the cost of this training, if necessary. Beyond Pesticides asks that communities commit at least two public spaces to the action plan.

**Services to be funded:** 1-day (8 hour) training by Osborne Organics [or an equivalent service provider with knowledge and experience in organic turf and landscape management], comprehensive soil testing, site walkthrough, creation of organic land management plan for each site, and technical assistance throughout the transition period.

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**Expected Outcomes**

Trained staff and administrators – a 1-day training for administrators and staff focused on the concepts and techniques to convert traditional and IPM land management to organic. This training is the first step in implementation of a strategy to adopt organic land management practices by:

1. Enabling decision makers to understand the concepts, challenges, strategies, benefits and outcomes of going organic to equip them to set and implement a new City policy.
2. Preparing the staff and decision makers to participate in the development and implementation of a transition plan to be facilitated by Osborne Organics (or an equivalent service provider with knowledge and experience in organic turf and landscape management) to chemical-free management of public lands.

With the City's cooperation, the service provider will conduct the following activities related to turf management at each pilot site chosen by the City:

- Document existing conditions.
- Determine site expectations.
- Test soil and analyze nutrient, textural, and soil microbial life.
- Assess current and past management practices, both cultural and product.
- Review City-provided records of material and product use.
- Formulate an organic land management plan to transition each pilot site.
- Help develop contract specifications for related work that the City contracts out.
- Provide technical assistance throughout the duration of the project (1-3 years).
- Assist with any issues the City encounters transferring the knowledge learned from the pilot sites to the management of all public lands.

To initiate the action plan, a signature from a government official responsible for landscape management is required.

Signature: \_\_\_\_\_

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



## Natural Turf Management: An Overview

At some point discussion takes place regarding lawn and turf management programs in a variety of different situations. We understand that for many people there is a growing awareness about the chemical products used to maintain lawns and turf. Many also realize the impact of some of these products on the environment. They are aware that some chemicals, even at low dose exposures, may be harmful to public and children's health.

Included here is an explanation of the principles and protocols of natural turf management based on detailed soil test data, site assessments, and then recommendations for beginning a natural approach to turf management. I will talk a bit about how we do an RFP for these types of programs.

It is important first to document the existing physical condition of the turf areas and to establish a baseline soil analysis for chemistry, texture, and nutrient availability. A review is generally prepared with the idea that the property will be incorporated into a natural, organic management program, and all recommendations are made with that in mind. One important difference between an organic program and a conventional one is that our programs become much more site specific as opposed to a generalized approach to fertility and weed control. We are addressing what needs to be addressed in an appropriate way. Certainly, product for fertility management and building the soil biomass is important, and our approach is to address the needs of individual properties. That is not to say that we are going to have many different programs on multiple areas or playing fields, but rather that we are addressing any deficiencies or allowing for the inclusion of strategies that will help move a property through the transition process as quickly and efficiently as possible.

When we discuss different management levels, we are referring to the cultural intensity required to maintain an individual turf area to the degree that meets expectations. There is not just one organic program, but rather different programs with different levels of intensity that can be created to meet the needs of an individual site. Recommendations are made based on communicated expectations.

Cultural intensity is the amount of labor and material inputs required to meet those expectations. One fact is a given in either a conventional or natural turf management program; minimal product and labor inputs meet low expectations, while higher levels of inputs meet higher expectations. This is true in any type of program, conventional or natural. We design programs to address the soil and turfgrass that will meet the expectations for the site.



When a natural management program is put in place, there is a window of time referred to as the transition period. It is during this timeframe when new products are put in place and specific cultural practices are followed. During transition, the most important aspect is to focus on the soil, not just texture and chemistry, but the biomass as well. Addressing the living portion of the soil from the beginning makes the transition successful. The length of time for this process has a direct relationship to the intensity of conventional management practices that may be currently employed.

Conventional turf management programs are generally centered on a synthetic product approach that uses highly water-soluble fertilizers and pesticide control products to continually treat symptoms on an annual basis. It is important to acknowledge that in addition to having adverse effects on human health and the environment, pesticides by definition kill, repel, or mitigate a pest. They do not grow grass. Our approach will be to implement a strategy that proactively solves problems by creating a healthy soil and turfgrass system. Healthy, vigorously growing grass will out-compete most weed pressures, and a healthy soil biomass will assist in the prevention of many insect and disease issues.

We are following a Systems Approach to Natural Turf Management® that is designed to put a series of preventative steps in place that will solve problems. This approach forms the basis for our recommendations. This systems approach is based on three concepts. It involves 1) natural product where use is governed by soil testing or site considerations, 2) the acknowledgement that the soil biomass plays a critical role in fertility, and 3) specific and sound horticultural practices.

The goal of a Natural Turf Management program is to create turf that is both aesthetically pleasing and meets site objectives. At the same time, this turf will provide a surface that will be healthy and free from toxic chemicals. The products and program discussed will be designed to utilize materials and adopt cultural practices that will avoid any runoff or leaching of nutrients and control products into the water table.

Ours is a “feed-the-soil” approach that centers on natural, organic fertilization, soil amendments, microbial inoculants, compost teas, microbial food sources, and topdressing as needed with high quality finished compost. It is a program that supports the natural processes that nature has already in put in motion. These inputs, along with very specific cultural practices, that include mowing, aeration, irrigation, and over-seeding are the basis of the program.

It is our experience that this approach will build a soil environment rich in microbiology that will produce strong, healthy turf that will be able to withstand many of the stresses that affect turfgrass. The turf system will be better able to withstand pressures from use, insects, weeds, and disease, as well as drought and heat stress, as long as good cultural practices continue to be followed and products are chosen to enhance and



continually address the soil biology. While problems can arise in any turf system and may need to be dealt with, they should be easier to alleviate with a soil that is healthy and that has the proper microbiology in place.

As you can see, there is a lot that goes into a natural program, but it does not have to be overly complicated or costly. It is much more than just a product for product swap. When we see situations where an organic program has been simply the product swap, we usually see situations that have not resulted in satisfying higher levels of expectations. In a situation where a municipality or other entity subcontracts applications of product and cultural practices, it requires someone internally that possesses the knowledge about organic turf management to perform the initial soil testing and outline a program. That program then is incorporated into an RFP and goes out to bid. What cannot happen is letting an individual service provider come in and create a program that seems to make sense to them based on their product choice.

When we craft an RFP for an annual program, it becomes very specific. Detailed dates, products, rates, and cultural practices are included so that when service providers bid, it is apples to apples. If a service provider takes the soil tests, then they would interpret them and suggest a program. That leaves a very variable situation that might lead to multiple program approaches with very different costs being presented. It is a little trickier with a RFP for outsourced program implementation than it is when the work is being done in-house.

A little about Osborne Organics; we are neither service providers nor a product company. Osborne Organics has been part of the process of moving turf and landscapes from conventional management practices to a natural approach in a variety of situations and at different levels for the past twelve years. We have the technical expertise to apply the principles and practices of natural turf management in the field. It is an approach backed by sound science that responds to the need for a safer and healthier landscape from both the environmental and human health perspective.

Osborne Organics provides educational opportunities in the form of in-depth trainings to both landscape contractors and the municipal sector in natural turf methods. We have conducted programs in various regions of the country with the goal of assisting in growing the knowledge base in the field of natural turf management. These seminars are presented to large audiences or customized to small individual groups.

One of the unique capabilities of Osborne Organics is the ability to discuss the concept of healthy turf and landscapes with groups ranging from homeowners to politicians and municipal and private sector grounds staff to decision makers. With fifteen years experience in the arena of turf and sustainability from the environmental and public health perspective, we have amassed a body of knowledge that supports the mission of the company.

11 Laurel Street, Marblehead, MA 01945  
781-631-2468      co@osborneorganics.com



When turf and landscape management programs are designed to address the move from a conventional approach to a natural one, we work within the transition period to assess and address the needs of our clients. As a consultants, we create different levels of management whereby we determine the cultural intensity required to meet the needs of the soil and turfgrass and at the same time meet expectations of the client while working within budget constraints.

Boulder CO  
2011-2014



## Greenleaf Park

- Municipal neighborhood park
- Cool season grasses
- Before picture October 2010
- After picture August 2014
- Both pictures during active growing season
- Program began Spring 2011
- No pesticide or synthetic fertilizer used

## Greenleaf Park: Before

- Extreme compaction
- Bare spots
- Challenged turf
- Retained moisture-puddles from irrigation
- Poor turf density
- Scale of 1 to 10 = 2



First attempt at soil testing

Compaction



All thatch--unhealthy





Minimal turf density  
Unhealthy system



Weed pressures



Transition complete



30



Weeds replaced with grass  
Healthy system  
Expectations met

## Land Care Training: Initiating the Plan

### Organic Land Management Action Plan [City of XXXX, XX]

Grantee: [XXXX]  
Contact: [XXXX]

---

**Funding:**

Cost of Project: \$ 7,500

City Contribution: \$[XXXX]

Funds Requested from Beyond Pesticides: \$[XXX]

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Signature: \_\_\_\_\_ Date: \_\_\_\_\_

# Land Care Training: Soil Test

- Three components form a baseline:
  - Soil texture



- Soil Chemistry
  - pH
  - Nutrient makeup
  - Organic matter (OM) and cation exchange capacity (CEC)
- Soil Biomass
  - The foundation for the systems approach, we manage to the soil biology. Natural, organic fertilizer is broken down by microbial life into nutrients, while synthetic fertilizers high salt content undermines this system.

# Land Care Training: Documenting the Site

- What information we ask:
  - Site expectations (visual appeal, turf density, weed tolerance)
  - Description of the property (i.e. public park, amount of use, athletic field, or lawn area)
  - Current and past nutrition (what fertilizer products were used, at what rate, how often)
  - Current and past pesticide use
  - Cultural practices used on the site (aeration, overseeding, topdressing, etc)
  - Whether turf management program is in-house or outsourced
  - Staff resources available for management
  - Whether liquid applications are possible
  - Budget allocation for property management

# Land Care Training: Classroom and Site Walkthrough

- Once we have soil test data and additional information about the site, we schedule a date to conduct a training.
- Training consists of:
  - In classroom lecture
  - Site walkthrough

**Lawn Care Workshop**  
Natural Lawn and Landscape Management in Keene, NH

Tuesday  
**October 27<sup>th</sup>**  
8:00am - 4:00pm

**Keene Recreation Center**  
312 Washington Street  
Keene, NH 03431

Learn how you can have a beautiful lawn without toxic pesticides!  
Pesticides will host a workshop on organic turf management. The workshop will focus on a Systems Approach to Natural Turf Management, which integrates three concepts: an understanding of the soil and its biology, sound management techniques, and the use of natural, organic products. All attendees will have the chance to talk to experts and ask questions.  
Don't miss this opportunity to hear from the nation's expert on lawn and turf care!

**Workshop Features:**  
Dave Keene, President of Organic Origins, has over 15 years experience creating sustainable and healthy landscapes, and 15 years experience as a horticulturist.  
Dave Keene, Public Works Director at the City of Keene, will provide attendees with practical information on the development of organic parks and public works, which promotes environmental sustainability.  
This workshop is being held to support success in the implementation of organic parks and public works, which promotes environmental sustainability.

**RSVP to Laura Selmer, lselmer@c.keene.nh.us**

# Land Care Training: Management Plan

Incorporates:

- Soil test data
- Questionnaire responses
- Information received from training and site walkthrough

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A Cost Comparison of  
Conventional (Chemical) Turf Management  
and Natural (Organic) Turf Management  
for School Athletic Fields

A report prepared by  
Grassroots Environmental Education  
*A non-profit organization*

*Written by*  
Charles Osborne  
& Doug Wood

**March, 2010**

***UPDATE: Since 2010, technology has improved significantly. Today, cost parity is achieved more quickly in most cases, especially with the right equipment in place, e.g., the ability to apply liquid rather than granular fertilizer.***

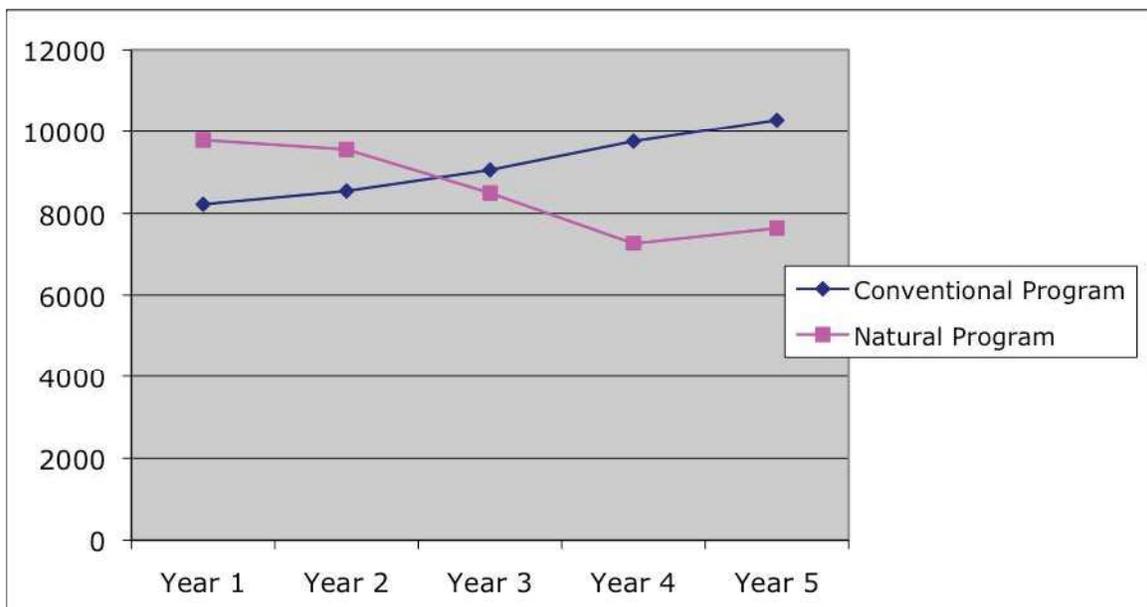
# A Cost Comparison of Conventional (Chemical) Turf Management and Natural (Organic) Turf Management for School Athletic Fields

## Introduction

The mounting scientific evidence linking exposure to pesticides with human health problems, especially in developing children, has increased the demand for non-chemical turf management solutions for schools. One obstacle commonly cited by chemical management proponents is the purported higher cost of a natural turf program.

This report compares the annual maintenance costs for a typical 65,000 square foot high school football field using both conventional and natural management techniques. Both programs are mid-level turf management programs, typical of those currently being used at many schools across New York State.<sup>1</sup>

The analysis of data demonstrates that once established, a natural turf management program can result in savings of greater than 25% compared to a conventional turf management program. (Fig. 1)



**Figure 1: A Comparison of Costs for Conventional and Natural Turf Programs Over A Five-Year Period**

<sup>1</sup> We recognize that some schools will spend considerably less for field maintenance than our example, and some will spend much more. The turf management programs chosen for this comparison are designed to yield similar aesthetic results.

## Background

Prior to 1950, all school playing fields were maintained organically. The widespread use of chemical pesticides to control weeds, insects and turf diseases on school playing fields began in the post-World War II era, when chemical companies sought to establish markets for their products in the agricultural, consumer and municipal sectors. By the mid-1990s, former New York State Attorney General Robert Abrams estimated that 87% of public schools in the state were using chemical pesticides on their fields.<sup>2</sup>

As awareness of the risks associated with pesticides has grown and demand for non-toxic solutions has increased, manufacturers and soil scientists have responded with a new generation of products and technologies that have changed the economics for natural turf management. Product innovation has resulted in more effective products, and advances in soil science have increased understanding of soil enhancement techniques. Virtually all major turf chemical manufacturers now offer an organic product line. Professional training and education have also increased, with most state extension services and professional organizations now offering training courses in natural turf maintenance.

## Sources of Data

The products, costs, application rates and other data for our analysis have been obtained from various sources, including the Sport Turf Managers Association<sup>3</sup>, Iowa State University<sup>4</sup>, bid specifications from a coalition of public schools on Long Island,<sup>5</sup> bids and proposals from conventional turf management companies, and documented costs for existing natural programs.

## Economic Assumptions

This analysis is based on the cost of operating in-house turf programs. Sub-contracted programs typically cost 30-35% more. Both programs include fertilization, seeding and aeration. All product costs are based on quantity institutional purchases, with a calculated 7% annual cost increase. Labor costs have been calculated based on a municipal employee @ \$40,000 including

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<sup>2</sup> *Pesticides in Schools: Reducing the Risks*, Robert Abrams, Attorney General of New York State, March 1993.

<sup>3</sup> "2009 Field Maintenance Costing Spreadsheet" published by the STMA. Available online at [www.stma.org/\\_files/\\_items/stma-mr-tab6-2946/docs/field%20maintenance%20costing%20spreadsheet.pdf](http://www.stma.org/_files/_items/stma-mr-tab6-2946/docs/field%20maintenance%20costing%20spreadsheet.pdf)

<sup>4</sup> "Generic Football Field Maintenance Program" by Dr. Dave Minner. Department of Horticulture, Iowa State University.

<sup>5</sup> "Invitation to Bid, Organic Lawn Care Field Maintenance and Supplies," Jericho Union Free School District, Jericho, NY on behalf of 31 school districts.

benefits, calculated at \$20 per hour. Indirect costs for pesticide applicator licenses, training, storage/security and DEC compliance costs have been estimated at \$500 per year. Fertilization for both programs has been calculated at the rate of 5 lbs of nitrogen (N) per 1000 SF. Grub and/or insect controls may or may not be necessary. Compost has been calculated at a cost of \$40 per yard. Seeding rate is calculated at 5 lbs/1000 SF. Cost of water is estimated at \$0.003212/gal.<sup>6 7</sup>

## **Irrigation**

Irrigation costs for turf maintenance are considerable, but are generally less for naturally maintained fields due to deep root growth and moisture retention by organic matter. Estimates of irrigation reduction for natural turf programs range from 33% to more than 50%. This analysis uses a conservative diminishing factor for irrigation reduction for the natural management program, starting with 100% in the first year as the field gets established down to 60% in the third year and beyond. Some school districts may experience greater savings.

## **Soil Biology**

One of the most critical factors in the analysis – and the one most difficult to assess - is the availability and viability of microbiology on fields that have been maintained using conventional chemical programs. The microbiology that is essential for a successful natural turf management program can be destroyed or severely compromised by years of chemical applications. In this analysis, we have assumed a moderate level of soil biology as a starting point; the compost topdressing in years 1-3 is part of the rehabilitation process required to restore the soil to its natural, biologically active state.

## **Reducing Fertilization Costs**

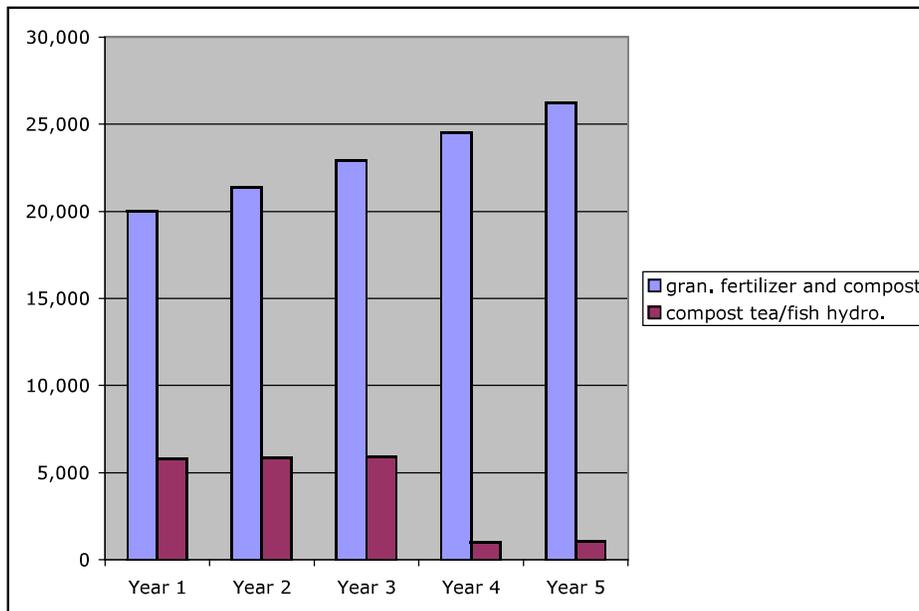
Once playing fields have been converted to a natural program and the percentage of organic matter (%OM) has reached the desired level (5.0-7.0), additional significant reductions in fertilization costs can be realized using compost tea and other nutrients (humic acid, fish hydrolysates) applied as topical spray, rather than using granular fertilizers.

The following chart shows the product cost benefits of switching to an organic nutrient spray program, and amortizing the \$10-12,000 capital cost for equipment over three years. (Fig. 2)

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<sup>6</sup> Water usage computed using STMA recommended irrigation rate of one inch/week for Junior High football field. Iowa State University recommends 1.75 inches per week for football fields.

<sup>7</sup> Price computed using NUS Consulting International Water Report for 2008 average US water cost per m<sup>3</sup> adjusted for inflation.



**Figure 2:** Cost comparison of granular fertilizer and compost compared to spraying compost tea and fish hydrolysates in Marblehead, MA.<sup>8</sup>

## Conclusion

This analysis demonstrates that the cost of a natural turf management program is incrementally higher in the first two years, but then decreases significantly as soil biology improves and water requirements diminish. Total expenditures over five years show a cost savings of more than 7% using natural turf management, and once established, annual cost savings of greater than 25% can be realized.

## About the authors:

**Charles Osborne** is a professional turf consultant, working with municipalities and school districts in the Northeast to help them develop effective natural turf management programs. A professional grower with more than thirty years of experience in greenhouse and turf management, Mr. Osborne is the Chairman of the Town of Marblehead Recreation, Parks, and Forestry Commission where he oversees the management of the Town's school and municipal fields.

**Doug Wood** is the Associate Director of Grassroots Environmental Education, an environmental health non-profit organization which developed the EPA award-winning program, "The Grassroots Healthy Lawn Program." He is also the director and producer of the professional video training series "Natural Turf Pro."

<sup>8</sup> To address concerns over the potential phosphorus content of compost tea (contained in the bodies of microbes) only high-quality vermicompost should be used for tea production. Animal manure teas, popular with farmers for generations, are not suitable for use on lawns or playing fields.

COMPARISON OF CONVENTIONAL (CHEMICAL) AND NATURAL (ORGANIC)  
TURF MANAGEMENT PROGRAMS: YEAR ONE

<b>CONVENTIONAL PROGRAM</b>		Year 1	Year 1	Year 1
		cost	cost	total
		prod	labor	
April	fert/pre-emergent	\$250	\$95	\$345
May	fertilizer	\$225	\$95	\$320
June	grub or insect	\$325	\$95	\$420
June	post-emergent	\$90	\$150	\$240
July	fertilizer	\$225	\$95	\$320
Sep	fertilizer	\$225	\$95	\$320
Nov	fertilizer	\$225	\$95	\$320
June	seed	\$700	\$150	\$850
Sep	seed	\$700	\$150	\$850
aerate	3 times	\$0	\$375	\$375
	irrigation	\$3,212	\$150	\$3,362
	indirect costs			\$500
	<b>Total Cost</b>			<b>\$8,222</b>
<b>NATURAL PROGRAM</b>				
		Year 1	Year 1	Year 1
		cost	cost	total
		prod	labor	
April	fertilizer	\$610	\$115	\$725
June	fertilizer	\$610	\$115	\$725
June	liquid humate	\$120	\$100	\$270
July	fish/compost tea	\$100	\$100	\$250
Sep	fertilizer	\$610	\$115	\$725
Jun	seed	\$700	\$150	\$850
Sep	seed	\$700	\$150	\$850
	aerate 3x	\$0	\$375	\$375
Jun	topdress	\$1,300	\$350	\$1,650
	irrigation	\$3,212	\$150	\$3,362
	<b>Total Cost</b>			<b>\$9,782</b>

COMPARISON OF CONVENTIONAL (CHEMICAL) AND NATURAL (ORGANIC)  
TURF MANAGEMENT PROGRAMS: YEAR TWO

<b>CONVENTIONAL PROGRAM</b>		Year 2	Year 2	Year 2
		cost	cost	total
		prod +7%	labor	
April	fert/pre-emergent	\$267	\$95	\$362
May	fertilizer	\$240	\$95	\$335
June	grub or insect	\$347	\$95	\$335
June	post-emergent	\$96	\$150	\$246
July	fertilizer	\$240	\$95	\$335
Sep	fertilizer	\$240	\$95	\$335
Nov	fertilizer	\$240	\$95	\$335
June	seed	\$750	\$150	\$900
Sep	seed	\$750	\$150	\$900
aerate	3 times	\$0	\$375	\$375
	irrigation	\$3,436	\$150	\$3,586
	indirect costs			\$500
	<b>Total Cost</b>			<b>\$8,544</b>
<b>NATURAL PROGRAM</b>				
		Year 2	Year 2	year 2
		cost	cost	total
		prod+7%	labor	
April	fertilizer	\$653	\$115	\$768
June	fertilizer	\$653	\$115	\$768
June	liquid humate	\$128	\$100	\$228
July	fish/compost tea	\$107	\$100	\$207
Sep	fertilizer	\$653	\$115	\$768
Jun	seed	\$750	\$150	\$900
Sep	seed	\$750	\$150	\$900
	aerate 3x	\$0	\$375	\$375
Jun	topdress	\$1,390	\$350	\$1,740
	irrigation	\$2,749	\$150	\$2,899
	<b>Total Cost</b>			<b>\$9,553</b>

COMPARISON OF CONVENTIONAL (CHEMICAL) AND NATURAL (ORGANIC)  
TURF MANAGEMENT PROGRAMS: YEAR THREE

CONVENTIONAL PROGRAM		Year 3	Year 3	Year 3
		cost	cost	total
		prod +7%	labor	
April	fert/pre-emergent	\$285	\$95	\$380
May	fertilizer	\$256	\$95	\$351
June	grub or insect	\$371	\$95	\$467
June	post-emergent	\$103	\$150	\$253
July	fertilizer	\$256	\$95	\$351
Sep	fertilizer	\$256	\$95	\$351
Nov	fertilizer	\$256	\$95	\$351
June	seed	\$775	\$150	\$925
Sep	seed	\$775	\$150	\$925
aerate	3 times	\$0	\$375	\$375
	irrigation	\$3,676	\$150	\$3,826
	indirect costs			\$500
	<b>Total Cost</b>			<b>\$9,055</b>
<b>NATURAL PROGRAM</b>				
		Year 3	Year 3	Year 3
		cost	cost	total
		prod +7%	labor	
April	fertilizer	\$699	\$115	\$814
June	fertilizer	\$0	\$0	\$0
June	liquid humate	\$137	\$100	\$237
July	fish/compost tea	\$114	\$100	\$214
Sep	fertilizer	\$699	\$115	\$814
Jun	seed	\$775	\$150	\$925
Sep	seed	\$775	\$150	\$925
	aerate 3x	\$0	\$375	\$375
Jun	topdress	\$1,487	\$350	\$1,837
	irrigation	\$2,206	\$150	\$2,356
	<b>Total Cost</b>			<b>\$8,497</b>

COMPARISON OF CONVENTIONAL (CHEMICAL) AND NATURAL (ORGANIC)  
TURF MANAGEMENT PROGRAMS: YEAR FOUR

CONVENTIONAL PROGRAM		Year 4	Year 4	Year 4
		cost	cost	total
		prod +7%	labor	
April	fert/pre-emergent	\$305	\$115	\$420
May	fertilizer	\$274	\$115	\$389
June	grub or insect	\$416	\$115	\$531
June	post-emer	\$110	\$170	\$280
July	fertilizer	\$274	\$115	\$389
Sep	fertilizer	\$274	\$115	\$389
Nov	fertilizer	\$274	\$115	\$389
June	seed	\$800	\$170	\$970
Sep	seed	\$800	\$170	\$970
aerate	3 times	\$0	\$425	\$425
	irrigation	\$3,933	\$170	\$4,103
	indirect costs			\$500
	<b>Total Cost</b>			<b>\$9,755</b>
<b>NATURAL PROGRAM</b>				
		Year 4	Year 4	Year 4
		cost	labor	total
		prod +7%		
April	fertilizer	\$0	\$0	\$0
June	fertilizer	\$0	\$0	\$0
June	liquid humate	\$150	\$120	\$270
July	fish/compost tea	\$500	\$720	\$1,220
Sep	fertilizer	\$748	\$135	\$883
Jun	seed	\$800	\$170	\$970
Sep	seed	\$800	\$170	\$970
	aerate 3x	\$0	\$425	\$425
Jun	topdress	\$0	\$0	\$0
	irrigation	\$2,360	\$170	\$2,530
	<b>Total Cost</b>			<b>\$7,268</b>

COMPARISON OF CONVENTIONAL (CHEMICAL) AND NATURAL (ORGANIC)  
TURF MANAGEMENT PROGRAMS: YEAR FIVE

<b>CONVENTIONAL PROGRAM</b>		Year 5	Year 5	Year 5
		Cost	cost	total
		prod + 7%	labor	
April	fert/pre-emergent	\$326	\$115	\$441
May	fertilizer	\$294	\$115	\$409
June	grub or insect	\$445	\$115	\$560
June	post-emergent	\$117	\$170	\$287
July	fertilizer	\$294	\$115	\$409
Sep	fertilizer	\$294	\$115	\$409
Nov	fertilizer	\$294	\$115	\$409
June	seed	\$856	\$170	\$1,026
Sep	seed	\$856	\$170	\$1,026
aerate	3 times	\$0	\$425	\$425
	irrigation	\$4,208	\$170	\$4,378
	indirect costs			\$500
	<b>Total Cost</b>			<b>\$10,279</b>
<b>NATURAL PROGRAM</b>				
		Year 5	Year 5	Year 5
		cost	labor	total
		prod + 7%		
April	fertilizer	\$0	\$0	\$0
June	fertilizer	\$0	\$0	\$0
June	liquid humate	\$160	\$120	\$280
July	fish/compost tea	\$535	\$720	\$1,255
Sep	fertilizer	\$800	\$135	\$935
Jun	seed	\$856	\$170	\$1,026
Sep	seed	\$856	\$170	\$1,026
	aerate 3x	\$0	\$425	\$425
Jun	topdress	\$0	\$0	\$0
	irrigation	\$2,525	\$170	\$2,695
	<b>Total Cost</b>			<b>\$7,642</b>



# BEYOND PESTICIDES

701 E Street, SE ■ Washington DC 20003  
202-543-5450 phone ■ 202-543-4791 fax  
info@beyondpesticides.org ■ www.beyondpesticides.org

## Questionnaire on Prior Turf Management Practices

In order to move forward with our natural land care pilot projects, we are requesting some background information on previous management practices. Compiling this information will give us the ability to advance the project and create specific programs that we feel will have the ability to work within an individual situation. Please provide an answer to the following questions and return your responses to Beyond Pesticides at [info@beyondpesticides.org](mailto:info@beyondpesticides.org):

1. A communicated expectation for each property or properties-visual appeal, turf density, playability or functionality of the system, and tolerance for weed pressures.
2. A description of the property use, ie: public park, either passive or heavily used, athletic field, or lawn area.
3. An understanding of both current and past nutrition (fertilizer programs) including products used, brand names, analysis, frequency of application, and rates. It is important to understand how fertility was delivered in the past and specifically the amount of nitrogen that has been delivered on an annual basis. This gives us information on how best to move nutritional programs from conventional to natural.
4. An understanding of control products (pesticides) used to mitigate insects, weeds, or disease including products used, brand names, active ingredients, and rates. This includes both pre and post emergence herbicides, insecticides for grub control or other insect problems, and any fungal disease issues.
5. Documentation of cultural practices: aeration, overseeding, and topdressing.
6. An accurate area of each property. This can be given in either square footage or acreage depending upon the size of the property.
7. Information on whether turf management programs are implemented in-house or outsourced. If management is outsourced is there and IFB or RFP created.
8. Information on internal (staff) labor resources able to be committed to management.
9. Are liquid applications a possibility?
10. Budget allocated to turfgrass management either by property or acreage.

# **TOWN OF MARBLEHEAD BOARD OF HEALTH**

## **ORGANIC PEST MANAGEMENT REGULATIONS**

**Adopted: December 7, 2005**

**Effective: December 22, 2005**

**Carl D. Goodman, Esq., Chairman  
David B. Becker, D.M.D., M.P.H.  
Helaine R. Hazlett**

**Wayne O. Attridge, Director of Public Health**

**TOWN OF MARBLEHEAD  
BOARD OF HEALTH**

# **ORGANIC PEST MANAGEMENT REGULATIONS**

## **SECTION I – FINDINGS & PURPOSE**

The Board of Health does hereby find that:

All pesticides are toxic to some degree and the commonplace, widespread use of pesticides is both a major environmental problem and a public health issue; and

All citizens, and in particular children, as well as other inhabitants of our natural environment, have a right to protection from exposure to hazardous chemicals and pesticides in particular; and

A balanced and healthy ecosystem is vital to the health of the town and its citizens; and as such is also in need of protection from exposure to hazardous chemicals and pesticides; and

When an activity raises threats of harm to the environment or human health, precautionary measures should be taken, even if some cause and effect relationships are not yet fully established; and

It is in the best interest of public health to eliminate the use of toxic pesticides on Town-owned land, ponds and waterways; to encourage the reduction and elimination of the use of toxic pesticides on private property; and to introduce and promote natural, organic cultural and management practices to prevent and, when necessary, control pest problems on Town-owned land.

Accordingly, the Board of Health finds and declares that the purposes of these Organic Pest Management Regulations are (1) to protect the public health by restricting the use of hazardous chemicals and pesticides on Town-owned land (2) to guarantee the right of the residents of the town of Marblehead the safe use of public land, (3) to encourage the reduction and elimination of the use of toxic pesticides on private property.

## **SECTION II – AUTHORITY**

These Organic Pest Management Regulations are promulgated under the authority granted to the Marblehead Board of Health under Massachusetts General Laws Chapter 111, Section 31 providing that Boards of Health may make reasonable health regulations and under the authority granted to the Marblehead Board of Health under Massachusetts General Laws Chapter 111, Section 122 to make regulations for the public health and safety relative nuisances and causes of sickness.

### SECTION III – DEFINITIONS

The following words and phrases, whenever used in these Organic Pest Management Regulations, shall be construed as defined in this section:

OPM shall mean Organic Pest Management.

Pests are and may be known as undesirable plants, insects, fungi, bacteria, and rodents, birds and other animals. Common examples in turf grass and the landscape can be, but are not limited to, crabgrass, knotweed, poison ivy, chinch bugs, grubs, and a variety of plant pathogens.

Pesticides are defined by the Massachusetts Department of Food and Agriculture Pesticide Bureau as “substances or mixtures of substances that prevent, destroy, repel, or mitigate pests, or defoliate, desiccate, or regulate plants.” Pesticides are poisonous substances that can have an adverse effect on the environment or impair human health. Herbicides, fungicides, insecticides, miticides, avicides and rodenticides are all considered pesticides. Pesticides that are classified as known, likely, or probable human carcinogens or probable endocrine disruptors, or those pesticides that meet the criteria for Toxicity Category I or Toxicity Category II, as defined by the United States Environmental Protection Act (EPA) in section 156.10 of Part 156 of Title 40 of the Code of Federal Regulations, are subject to these Regulations. A list of the pesticides in the EPA’s Toxicity Categories I and II will be periodically updated and maintained at the offices of the Town of Marblehead Board of Health.

Organic Pest Management is a problem-solving strategy that prioritizes a natural, organic approach to turf grass and landscape management without the use of toxic pesticides. It mandates the use of natural, organic cultural practices that promote healthy soil and plant life as a preventative measure against the onset of turf and landscape pest problems.

Essential OPM practices include, but are not limited to:

- regular soil testing;
- addition of approved soil amendments as necessitated by soil test results, following, but not limited to, the recommendations of NOFA/Mass (Northeast Organic Farmers’ Association/Mass) and/or the Organic Material Review Institute of Eugene, OR;
- selection of plantings using criteria of hardiness; suitability to native conditions; drought, disease and pest-resistance; and ease of maintenance;
- modification of outdoor management practices to comply with organic horticultural science, including scouting, monitoring, watering, mowing, pruning, proper spacing, and mulching;
- the use of physical controls, including hand-weeding and over-seeding;
- the use of biological controls, including the introduction of natural predators, and enhancement of the environment of a pest’s natural enemies;
- through observation, determining the most effective treatment time, based on pest biology and other variables, such as weather and local conditions; and

- eliminating pest habitats and conditions supportive of pest population increases.

#### SECTION IV – PROHIBITION

The use and application of toxic chemical pesticides, by Town of Marblehead employees and/or by private contractors, is prohibited on all Town-owned lands.

#### SECTION V – CONTROL OF POTENTIAL PEST PROBLEMS

Organic Pest Management practices, i.e. natural, organic turf and landscape cultural practices and maintenance, shall be the method of choice to understand, prevent, and control potential pest problems;

Control products used under the terms of this Regulation shall be those products on the approved list of NOFA/Mass. (Northeast Organic Farmers' Association/Mass.) and/or the Organic Materials Review Institute of Eugene, Oregon, or such other lists or products as may be approved by the Director or by the Board of Health from time to time;

#### SECTION VI – ADVISORY COMMITTEE

An OPM Advisory Committee shall be formed which shall advise the Board of Health as to all matters arising out of or in connection with these Regulations. Whenever practical, the Director and/or the Board of Health shall consult with the Advisory Committee prior to the granting of any waivers under Section VIII. The Advisory Committee shall have such additional responsibilities as may be granted to it by the Board of Health. The OPM Advisory Committee shall be composed of representatives of the general public, elected town officials, appointed town officials, and town employees as the Board of Health may determine from time to time. Membership on the OPM Advisory Committee shall be at the pleasure of the Board of Health.

#### SECTION VII – INVENTORY OF PESTICIDES

A registry of all pesticides currently stored in or on Town-owned premises shall be compiled by the Director of Public Health who shall have authority to order the disposal of any such products that the Director deems unnecessary to be stored within the Town, such disposal to be through the Town's Hazardous Wastes Collection program or otherwise.

#### SECTION VIII – EXEMPTIONS

All outdoor pest management activities taking place on Town of Marblehead-owned land shall be subject to these Regulations, except as follows:

1. Pesticides otherwise lawfully used for the purpose of maintaining a safe drinking water supply at drinking water treatment plants and at wastewater treatment plants and related collection, distribution, and treatment facilities.
2. Pesticides in contained baits or traps for the purpose of rodent control.
3. Pesticides classified by the United States Environmental Protection Agency as exempt materials under 40CRF 152.25, or those pesticides of a character not requiring FIFRA regulation.
4. The use of chemical controls as approved in advance and in writing by the Director of Public Health or by the Board of Health in the event of a public emergency as determined by the Director or by the Board of Health; provided, however, that such authority to grant a temporary waiver shall be limited to a period of thirty days. Any waiver in excess of thirty days as to any one emergency may be extended for an additional period not to exceed six months but only by a vote of the Board of Health. All waivers granted by the Director shall be reported to all members of the Board of Health no later than one business day following the issuance of the waiver. Notice of all such waivers shall be posted, in the manner provided for notice of public meetings, within two business days following the issuance of the waiver. Any waiver granting the use of pesticides on Town land shall require the use of Integrated Pest Management protocol and shall specify the use of a specific pesticide(s) determined to be the least toxic material for the specific application. The Board of Health shall determine if such a waiver is warranted based on the following criteria: a) the pest situation poses a threat to human or animal health and/or environmental quality; b) reasonable OPM efforts, if any, have been attempted; and c) viable alternatives consistent with this Regulation do not exist.

Any Town department or contractor granted a waiver hereunder shall comply with all applicable laws, rules and regulations of the Commonwealth of Massachusetts including, but not limited to those requiring notification to site users, abutters, and the proper method for storage, application, and posting.

#### SECTION IX: TRAINING AND EDUCATION

All Town of Marblehead personnel involved in the evaluation, approval, or implementation of organic turf and landscape maintenance and/or outdoor pest control should receive training and education in natural, organic cultural and technical methods.

#### SECTION X: COMPLAINTS

A. The Director of Public Health shall investigate complaints received about any practices or acts that may violate any provision of these Regulations.

B. If the Director finds that an investigation is not required because the alleged act or practice is not in violation of these Regulations, the Director shall notify

the complainant of such finding and the reasons upon which it is based. The Director shall provide a report to the Board of Health of all such complaints and findings.

C. If the Director finds that an investigation is warranted, the Director shall investigate and if the Director finds that there has been a violation of these Regulations, then the Director and/or Board of Health shall be authorized to take such action and institute such proceedings as are provided by law.

#### SECTION XI – VIOLATIONS AND PENALTIES

A. It shall be unlawful for any person to use or apply any toxic chemical pesticides on any town owned land except as specifically authorized in these Regulations.

B. Any person who violates any provision of these Organic Pest Management Regulations shall be subject to a fine of five hundred (\$500.00) dollars for a first offense and one thousand (\$1000.00) dollars for second and subsequent offenses.

C. Each application of a prohibited product shall be deemed to be a separate offense.

D. Citations for violations of these Organic Pest Management Regulations may be in such form as the Board of Health may determine.

E. In addition to the penalties provided for hereunder, the Board of Health shall have the authority to file a civil suit for damages to compensate the Town for all costs incurred as a result of violations of these regulations.

#### SECTION XII - OTHER APPLICABLE LAWS

These Organic Pest Management Regulations shall not be interpreted or construed to permit the application or use of pesticides or other hazardous materials where such use or application is restricted by other applicable health, environmental, safety or fire codes, regulations or statutes.

#### SECTION XIII – SEVERABILITY

If any provision, clause, sentence or paragraph of these Organic Pest Management Regulations or the application thereof to any person or circumstances shall be held invalid, such invalidity shall not affect the provisions of these Organic Pest Management Regulations that can be given effect without the invalid provision, clause, sentence, or paragraph, and to this end the provisions are declared to be severable.

SECTION XIV: EFFECTIVE DATE

These regulations shall be effective upon publication.

Adopted: December 7, 2005

By the Board of Health of the Town of Marblehead  
Carl D. Goodman, Esq., Chairman  
David B. Becker, D.M.D., M.P.H.  
Helaine R. Hazlett, Secretary  
Wayne O. Attridge, Director of Public Health

# Planning & Sustainability • City of Northampton

planning | resiliency | conservation | place-making | sustainable transportation | zoning | GIS | historic | CB architecture | agriculture and food

Wayne Feiden, FAICP, Director of Planning & Sustainability • Wfeiden@NorthamptonMA.gov • 413-587-1265

## City Council Select Committee on Pesticide Reduction Office of Planning & Sustainability Pesticide and Herbicide Practices September 9, 2019

### What pesticides and herbicides are used by your department and what is the yearly volume?

By whom	Category	Active Ingredients	Volume (year)
Planning & Sustainability	Herbicide	Glyphosate and Triclopyr	< 1 liter
Planning contractors and licensees	Herbicide	Mostly Glyphosate and Triclopyr	Unknown
Generally Public Works	Larvacide	Bacillus thuringiensis israelensis-Bti (natural soil bacteria, not chemical)	Unknown

### Where and how are they applied?

Planning & Sustainability uses herbicides to treat invasive plants in City greenways and bike paths edges, in very low volumes. We use this only for direct application, from painting the stems of cut Bittersweet to injecting the stalks of Japanese Knotweed to spraying plant leaves.

Contractors hired by Planning & Sustainability and our management partners use herbicides for invasive plant control in City greenways and bike paths use similar methods and low volumes.

Of the 150+/- species on the **Massachusetts Prohibited Plant** list, we target only those especially opportunistic species that pose specific threats. Black locust, for example, can expand over time into areas where shade reduces competition, limit ground vegetation, and has fragrant blossoms that are especially attractive to bees and can reduce pollination of other native trees. However, site conditions locally are generally not ideal for black locust and local spread is very limited, so we would do not using herbicide on locust (except where it is damaging the bicycle paths). Bittersweet, on the other hand, rapidly creates monocultures, spreads easily, and kills native mature trees.

Our farmer licensees use similar herbicides, in higher concentrations per acre, for weed control for non-organic farming. Given the cost of herbicides and the lack of aerial spraying, the total volume is less than national farm application averages.

We also grant permission to Public Works and other parties to spread BTI in wet spots for mosquito larval control. This is a naturally occurring soil bacterium, but we are including it because it is classified as a pesticide.



**To what extent is your department using alternatives to pesticides? What products and how?**  
 Planning & Sustainability has explored various options including, but not limited to the following:

<b>System</b>	<b>Focus</b>	<b>Effective</b>	<b>Cost-Effective</b>
Heavy machinery to pull roots	Multiflora rose	YES	NO
Controlled burns	Multiple invasives	YES, except for Multiflora rose	YES, in appropriate fields and only with volunteer expert
Goats and sheep	Japanese Knotweed- additional targets using current pilot	Unknown- in pilot	NO, but except for places where herbicides are not appropriate
Mechanical cutting	Bittersweet and Japanese Knotweed	Effective in long term only if herbicide is painted on the stump.	YES, only IF herbicide painted on stump.
Mechanical hand-pulling	Japanese Knotweed Water Chestnut Stilt Grass	YES, with limits (e.g., not good for Knotweed with deep roots or without utmost care to dispose of all plant material)	NO, except in very limited circumstances
Plowing farmland	Most plants	YES, moderate, but, compared to no-till, it creates increased soil erosion, depletion of carbon sequestration, and high use of diesel	YES
Flame-weeding	Some plants	Have not yet tested but plan to.	
Species specific predators	Purple Loosestrife (specific wasp)	Very limited effects (at least in wet area)	

### What factors influence your decision about whether or not to use a pesticide?

We focus on the total environmental footprint, of which pesticides are only one piece. For example, a recent treatment of stumps used 2.5 ounces of herbicide while a mechanical cutting to control stump respouts would uses over a gallon of gasoline for transport for the same effect, emitting far more CO2 and chemicals into the environment.

<b>Factors Considered</b>	<b>Issues</b>
Soil erosion and release of carbon from soil	Plowing farmland (instead of no-till) and other mechanical treatments can create soil erosion.
Fuel needs	Fuel for driving to sites, diesel for equipment, can have a great environmental and Greenhouse Gas emissions impact.
Staff or contractor time or cost	More time and cost means fewer sites being addressed, creating more environmental harm
Sensitive environmental or human receptors	Contact to water, sensitive environmental sites, and human contact should be minimized
No treatment option	Increases problems and environmental costs in the long (and sometime short) term. For example, lack of mosquito larvacide treatment can increase pressure for far more damaging pesticide spraying to kill adults and lack of treatment of invasives can lead to spread.
Maintaining local economy	Adding costs, e.g., to farming, can result in loss of local production and even more food imported from far away, always with higher transportation impacts and often much higher chemical use.
Impact on adjacent and future uses	In addition to the sensitive receptors (above) issues include whether aggressive treatment will protect adjacent and future uses (e.g., treating invasives at the edge of a field that will march into the field if untreated).

Town of Andover

## **Board of Health Policy on Pesticide Use**

Prepared by the Town of Andover  
Pesticide Reduction Task Force, July 2003  
Revised: August 21, 2017

The Pesticide Reduction Task Force is a group of residents, members of organizations, Town staff, educators, scientists and managers working together to raise awareness of, and educate the community about, the dangers of pesticides widely used on lawns and gardens, and to promote less toxic alternatives through the Integrated Pest Management (IPM) approach. The Task Force Commits itself to the goal of reduction of pesticide and synthetic fertilizer use in the Town of Andover through community outreach and education on both public and private property.

### **SECTION 1: STATEMENT OF INTENT**

The Town of Andover agrees with the U.S. Environmental Protection Agency (EPA) that “all pesticides are toxic to some degree..., and the commonplace, widespread use of pesticides is both a major environmental problem and a public health issue.”

The Town of Andover Board of Health recognizes that all citizens, (particularly children and those with compromised health), and other inhabitants of our natural environment, have the right to protection from the exposure to pesticides (as defined in Section 2).

The Town of Andover Board of Health recognizes that a balanced ecosystem and safe water supply are vital to the health of the town and its citizens; and as such are also in need of protection from exposure to pesticides.

The Town of Andover Board of Health seeks to support and maintain a model of responsible stewardship of environmental resources.

Furthermore, the Town of Andover Board of Health recognizes that it is in the best interest of public health to reduce pesticide use on private property; and to introduce and promote safer management practices to prevent and, when necessary, control pest

problems on Town-owned land, and instruct residents on similar options on private property through various educational channels.

## **SECTION 2: PESTS AND PESTICIDES DEFINED**

For the purpose of this policy, pests and pesticides are defined as follows: **Pests** are and may be known as undesirable plants, insects, fungi, bacteria, and rodents, birds and other animals. Common examples in regional turf grass and the landscape can be, but are not limited to, crabgrass, knotweed, poison ivy, chinch bugs, grubs, and a variety of plant pathogens.

**Pesticides** are defined by the Massachusetts Department of Agricultural Resources Pesticide Bureau as “substances or mixtures of substances that prevent, destroy, repel, or mitigate pests, or defoliate, desiccate, or regulate plants.<sup>2</sup> Pesticides are poisonous substances that can have an adverse effect on the environment or impair human health...”<sup>3</sup> Herbicides, fungicides, insecticides, miticides, avicides and rodenticides are all considered pesticides.

Pesticides classified as known, likely, or probable human carcinogens or probable endocrine disruptors, or those pesticides that meet the criteria for Toxicity Category I or Toxicity Category II, as defined by the United States Environmental Protection Act (EPA) in section 156.10 of part 156 of Title 40 of the code of Federal Regulations are all considered subject to this policy. A list of the pesticides in the EPA’s Toxicity Categories I and II will be periodically updated and maintained at the offices of the Town of Andover Board of Health.

## **SECTION 3: BOARD OF HEALTH STATEMENT ON PESTICIDES**

Whereas pesticides are by nature poisons and exposure, even at low levels, may cause serious adverse health effects; and

Whereas, due to a variety of physiologic and age—related factors, children are at increased risk of cancer, neuro-behavioral impairment and other health problems as a result of their exposure to pesticides; and

Whereas, many of the ingredients in pesticide products, alone and in combination, are not tested for their long-term toxic effects on the brain and nervous systems, the endocrine system, or the immune system; nor have they been tested with the unique vulnerability of children in mind; and

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<sup>2</sup>

<sup>3</sup>

Whereas, in addition to their intended effects, pesticides can also harm non-target organisms (such as humans, pets, beneficial insect, aquatic and other wildlife) and the environment; and

Whereas according to the U.S. Environmental Protection Agency (EPA) all pesticides are toxic to some degree, and the commonplace, widespread use of the pesticides is both a major environmental problem and a public health issue, <sup>4</sup> and represents a threat to our drinking water supply; and

Whereas the U.S. Environmental Protection Agency believes that most pesticides, despite having an EPA registration, have not been adequately tested to determine their effects on people or the environment; <sup>5</sup> and

Whereas, it is in the best interest of the community health for all residents to learn about the hazards of pesticides, and to adopt alternative techniques and approaches to all pest-related problems:

Now therefore, The Board of Health for the Town of Andover hereby commits itself to the goal of reduction of the pesticide use in the Town of Andover, both on public and private property.

#### **SECTION 4: STATEMENT OF ACTION**

Therefore, the Andover Board of Health will appoint a town wide Pesticide Use Reduction Task Force to implement and expand an ongoing public education and awareness campaign, that is easily comprehensible and accessible, to reduce pesticide use in Andover; and

Therefore, the Andover Board of Health will cosponsor and promote safer lawn care practices via public seminars, social media, Town Website, E-mail newsletters etc. to raise public awareness regarding the benefits of less toxic lawn care practices to the environment and to public health; and

Therefore, The Andover Board of Health will biennially review outreach strategies and modify them if necessary, as well as update the Town Website with a list of pesticide and lawn care alternatives that have been developed; and

Therefore, The Andover Board of Health will discourage the use of pesticides that are harmful to the environment and public health on both public and private property; and

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Therefore, the Town of Andover will continue to implement Integrated Pest Management (IPM) principles and practices which will apply to work done by contractors hired by the town as well as work done by town employees; and

Therefore, the public school administration and the town administration that maintain school playing fields shall annually review and update the Integrated Pest Management (IPM) plans required by the Children and Family Protection Act,; and additionally, all other organizations using any other municipal playing fields shall adhere to the same standards established in the school IPM plans.

Therefore, the Andover Board of Health will encourage collaboration among the various town departments (i.e. Conservation Commission, Municipal Maintenance, Recreation, etc.) and sports associations regarding implementation of a system of notification and signage when playing fields are treated; and

Therefore, the Andover Board of Health, in order to sustain an effective Pesticide Use Reduction Program, will seek funding for ongoing data collection and analysis of pesticide use and the impacts of pesticide use within the town; and

Therefore, the long-range objective of the Andover Board of Health is to reduce the exposure of children and adults to pesticides and pesticide breakdown products which are known or probable health hazards, to protect Andover's water supply, and to protect the environmental health of Andover's land resources.

## **SECTION 5: REFERENCES**

1. U.S. Environmental Protection Agency Office of Prevention, Pesticides and Toxic substances, "Healthy Lawn, Healthy Environment, June 1992.
2. Massachusetts Department of Agricultural Resources, Pesticide Bureau Regulations, 333 CMR:2.03, Sec. 4, 1996.
3. Massachusetts Department of Food and Agriculture, Pesticide Bureau, Regulation Home Page, [www.massdfa.org/pestreg.htm](http://www.massdfa.org/pestreg.htm), March 2000.
4. U.S. Environmental Protection Agency, "Healthy Lawn, Healthy Environment". Office of Prevention, Pesticides and Toxic Substances, June 1992.
5. U.S. Environmental Protection Agency, February 1993, "Lawn Care Pesticides White Paper", Appendix VIp.lxxiii

## **ADDENDUM 1:**

### **INTEGRATED PEST MANAGEMENT (DEFINED)**

Integrated Pest Management (IPM) is an ecologically-sound approach to suppressing and eliminating pest populations to keep them from causing health, economic, or aesthetic injury. IPM utilizes site-specific information about pest biology and behavior, environmental conditions, and the dynamics of human characteristics and activities in dealing with the prevention and control of pests that interfere with the purpose and use of a particular site.

The following steps outline the basic approach used in an IPM program.

- **Monitoring and scouting the turf or landscape in question;**
- **Accurate record-keeping documenting any potential pest problems;**
- **Evaluation of the site with regard to any injury caused by a pest in question and a determination made on which course of treatment to follow;**
- **Chosen treatment to be least damaging to the general environment and one that best preserves the natural ecosystem;**
- **Chosen treatment to be the most likely to produce long-term reductions in pest control requirements. The effective implementation must be operationally feasible, and must be cost effective in the short and long term.**
- **Chosen treatment must minimize negative impact to non-target organisms;**
- **Chosen treatment must be the least disruptive of natural controls available;**
- **Chosen treatment must be the least hazardous to human health.**
- **Fields should be posted with the date and type of pesticide application, and the Superintendent of Grounds notified of any such treatment.**

## **ADDENDUM 2:**

### **PESTICIDE REDUCTION TASK FORCE COMMITTEE MEMBERS, 2003**

Maria Bartlett  
Maureen Denison  
Amy Janovsky  
Joanne E. Martel  
Everett Penney  
Randy Pickersgill  
Joyce Ringleb  
Katie Tibbitts  
Lisa Treadwell  
Cynthia Vaughn  
Diana Walsh  
Roberta Whitney

### **2017 REVIEW TEAM**

Tom Carbone  
Shaila Abbott  
Karen Martin  
Paul Sanborn  
Marc Fournier  
Ed Ataide  
Kimberly Foss  
Robyn Januszewski  
Ellen Townson  
Betsy Land  
Amy Janovsky