



City of Cambridge

Calendar Item #2

IN CITY COUNCIL

June 3, 1996

VICE MAYOR BORN

- ORDERED: That Awaiting Report Number Twenty of May 20, 1996, regarding the status of pesticides and fertilizers in City parks and open spaces is referred to the Environmental Committee of the City Council; and be it further
- ORDERED: That the City Manager be and hereby is requested to confirm immediately to the City Council that use of pesticides and herbicides have not resumed.

In City Council June 3, 1996
Adopted by the affirmative vote of nine members.
Attest:- D. Margaret Drury, City Clerk.

A true copy;

A handwritten signature in cursive script that reads "D. Margaret Drury".

ATTEST:-

D. Margaret Drury
City Clerk

KVB

Ordered: That Awaitly Report Number Twenty of May 20, 1996, regarding the status of pesticides and fertilizers in City parks and open spaces is referred to the Environmental Committee of the City Council; and so it further

Ordered: That the City Manager ~~is~~ be + hereby is requested to confirm immediately to the City Council that ~~the~~ use of ps + ls has not resumed.



CITY OF CAMBRIDGE
COMMUNITY DEVELOPMENT DEPARTMENT

SUSAN B. SCHLESINGER,
Assistant City Manager for
Community Development

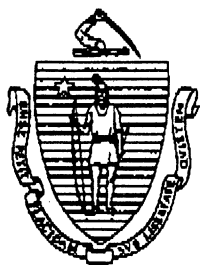
To: Robert W. Healy, City Manager

From: Liz Epstein, Community Development *cc*
Ralph Dunphy, DPW
Steve White, DPW

Date: May 15, 1996

Re: Response to Council Order # 4, dated 6/19/95

The attached report is to inform you of progress in our evaluation of the City's pesticide use regarding City Council Order #4 dated 6/19/95.



COMMONWEALTH OF MASSACHUSETTS
 EXECUTIVE OFFICE OF ENVIRONMENTAL AFFAIRS
 DEPARTMENT OF FOOD AND AGRICULTURE
 100 CAMBRIDGE ST., BOSTON, MA 02202 617-727-3000 FAX 727-7235

WILLIAM F. WELD
 Governor

ARGEO PAUL CELLUCCI
 Lt. Governor

May 9, 1996

Robert Healy
 City Manager
 City Hall
 Cambridge, MA 02149

Dear Mr. Healy:

I reviewed the draft pesticide policy put together by the Cambridge Department of Community Development.

In my opinion, the draft provides a good foundation to build upon. It contains two elements which are key to a sound municipal pesticide policy: 1) procedures for notifying city residents about when and where pesticide applications will be, or have been made. 2) Elements of an Integrated Pest Management (IPM) Program which ensures that pesticides are used only when needed, and that the method of control poses the lowest risk is used..

I would suggest that this draft policy be built upon with input from the public. I would also suggest that advice be sought from professionals and academics skilled in IPM, in order to further refine the City's pest control policy and program. This will help to ensure that city property is properly maintained using the healthiest and most effective means possible.

If I can be of any assistance, please do not hesitate to contact me at (617) 727-3020 x149.

I would add, by the way, that I am a Cambridge resident.

Sincerely,

Brad Mitchell
 Chief
 MADFA Pesticide Bureau

CC: Kathleen Brown

Post-it® Fax Note	7671	Date	# of pages
To	Kathleen Brown	From	Brad Mitchell
Co./Dept.		Co.	
Phone #		Phone #	
Fax #		Fax #	

TRUDY COXE
 Secretary

JONATHAN L. HEALY
 Commissioner

City of Cambridge

Report on Pesticide and Fertilizer Use by City Departments

Executive Summary

- ◆ A ban on applications of pesticides¹ by City departments has been in place since May 1995. A request for a report on the City's use of herbicides was submitted by the City Council in June 1995. This report provides additional detailed information about the City's present and future practices regarding pesticide use. This report has entailed: review of contract documents; contact with contractors; discussions with other cities and towns; numerous staff meetings; literature reviews; and discussions with the state Pesticide Board, University of Massachusetts (UMASS) soil and turf experts and herbicide/fertilizer manufacturers. As a result of this research, it is recommended that the City adopt the draft Pesticide and Fertilizer Policy found in Appendix B and initiate a pilot program of integrated pest management (IPM). IPM is a landscape management program designed to minimize, but most often not completely eliminate, pesticide use. IPM incorporates a variety of techniques to maintain healthy vegetation and prevent infestation by "pests" (weeds, insects, fungi) with pesticides used only as a last resort. Pests are tolerated until they reach a threshold and only then is a pesticide applied.
- ◆ The City's existing park specifications for contractors allow for maintenance of high quality parks and fields. City specifications, which in some areas are more strict than state regulations, should be strongly enforced to ensure that contractors and staff are following proper procedures.
- ◆ No restricted use pesticides are used on City parks or fields. All products used can be purchased by the general public in lawncare centers.
- ◆ All pesticides are applied by City staff or contractors licensed by the Massachusetts Pesticide Board.
- ◆ Soil tests are required each year to determine fertilizer and/or lime needs.
- ◆ Current maintenance practices entail use of:
 - A fertilizer containing a preemergent herbicide to control crabgrass in spring.
 - A fertilizer containing a broadleaf herbicide applied in July.
 - A fertilizer application in fall.

¹ 333 CMR 2.03(4)(ff) defines a "pesticide" as "a substance or mixture of substances intended for preventing, destroying, repelling, or mitigating any pest, and any substance or mixture of substances intended for use as a plant regulator, defoliant, or desiccant." A "pest" is defined as "an insect, rodent, nematode, fungus, wood, or any other form of terrestrial or aquatic plant or animal life or virus, bacterium, or other micro-organisms, except viruses, bacteria or other micro-organisms on or in living man or other living animal..." [333 CMR 2.03(4)(ee)]. According to the state definition even household disinfectants are classified as pesticides. The term pesticide as used in this report refers to the state definition of pesticide, which includes a wide range of substances used on a number of living organisms (including plants) not merely insecticides as is often mistakenly used.

City of Cambridge

Report on Pesticide and Fertilizer Use by City Departments

A non-selective herbicide, such as Roundup, as needed to remove weeds in brick pavers, sidewalks, etc. (usually used approximately two times per month from June to August).

- ◆ Insecticides are not used on a regular basis. They are used only in cases of substantial infestation, which must be documented by the UMASS Soil Testing Lab. An insecticide was last used to treat an infestation approximately seven years ago.
- ◆ Compared to other communities, Cambridge's use of fertilizers and pesticides does not appear to be excessive or inappropriate. See Appendix A, Pesticide Use in Other Massachusetts Communities.
- ◆ While it is prudent to minimize pesticide applications where other options for turf maintenance can be implemented, an all-out ban on their use does not appear to be feasible at this time.
- ◆ Copies of contractor's and City staff's pesticide licensing documentation will be kept on file at the Department of Public Works and made available to members of the public upon request.
- ◆ Applications of any herbicide in or adjacent to totlots will be minimized. Only highly controlled applications of a non-selective herbicide will be used in these areas as needed.
- ◆ The City will inform park users through improved signage at parks about scheduled applications of fertilizers or pesticides. Signage will include date and time of application as well as what will be applied. City staff and contractors will return to parks each day for 72 hours to ensure that signage is still visible, and signage will be removed after the 72-hour period.
- ◆ Applications will be scheduled for times when heavy use of parks and fields is not expected, such as earlier in the week to avoid organized athletic uses on weekends. In the past applications were done between the hours of 5:00 AM and 7:00 AM.
- ◆ Where feasible, treated areas will be roped off to prevent children from straying into recently treated areas.
- ◆ The City will initiate a two-year pilot program beginning in Summer 1996 to introduce an IPM program using primarily composted fertilizers, natural or more benign herbicides (if available) and mechanical weed removal. A select number of parks throughout the City will be included in the pilot program. This pilot program is intended to evaluate the feasibility of phasing out scheduled applications of herbicides and introducing the widespread use of IPM.
- ◆ As part of the pilot program contractors will be required to submit annual reports of what products were applied and where as well as logs of park conditions and management practices to gauge needs for second year of the program.
- ◆ More detailed training in alternative management techniques, including identifying particular turf diseases and weed infestations, is recommended for City park maintenance staff.

City of Cambridge

Report on Pesticide and Fertilizer Use by City Departments

Introduction

The use of pesticides^{1,2} on City-owned parks, totlots and playgrounds has been suspended since June 1995. After talking to City staff and neighboring communities, as well as consulting Material Safety Data Sheets, published materials, the National Pesticide Telecommunications Network and regulatory agencies, it is our opinion that current turf maintenance practices in the City meet applicable state pesticide regulations and thus do not endanger the public or workers.

However, to alleviate public concern regarding pesticide use, a more aggressive notification policy will be adopted and reductions in pesticide use will be implemented where feasible and appropriate (see Appendix B, City of Cambridge Pesticide and Fertilizer Policy). In addition, a group of test parks will be identified by DPW and CDD jointly where only composted fertilizers will be used and no herbicides will be applied. These parks will be managed without chemical fertilizers or pesticides to determine if alternative management methods are feasible and yield acceptable results for a two-year period.

It is significant to note that an insecticide has not been applied to a City park in approximately seven years (and that an insecticide is a class of pesticide). Department of Public Works (DPW) staff and contractors are quite prudent in their use of insecticides thereby minimizing their use to cases of substantial infestation. If an infestation is suspected by either a contractor or park inspector, a soil/turf sample is sent to the UMASS testing lab to determine if an insecticide is needed and, if so, what type should be applied.

Compared to neighboring and other towns, Cambridge's use of fertilizers and pesticides does not appear to be excessive or inappropriate. See Appendix A, Pesticide Use in Other Massachusetts Communities. Any communities contacted which have stopped herbicide use have done so due to public concern or cost, not through an evaluation of public health issues. In addition, several communities to which staff were referred as not using chemical herbicides, still actually use some and in many cases not much less than what Cambridge uses.

¹ 333 CMR 2.03(4)(ff) defines a "pesticide" as "a substance or mixture of substances intended for preventing, destroying, repelling, or mitigating any pest, and any substance or mixture of substances intended for use as a plant regulator, defoliant, or desiccant." A "pest" is defined as "an insect, rodent, nematode, fungus, wood, or any other form of terrestrial or aquatic plant or animal life or virus, bacterium, or other micro-organisms, except viruses, bacteria or other micro-organisms on or in living man or other living animal..." [333 CMR 2.03(4)(ee)]. According to the state definition even household disinfectants are classified as pesticides.

² The term pesticide as used in this report refers to the state definition of pesticide, which includes a wide range of substances used on a number of living organisms (including plants) not merely insecticides as is often mistakenly used.

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Report on Pesticide and Fertilizer Use by City Departments

Background

There are more than eighty passive recreation facilities in Cambridge in addition to more than 75 active recreational facilities. Many of the larger parks (excluding Danehy Park) are maintained through contracts between private lawncare companies and DPW. School grounds are maintained by the School Department, and Fresh Pond Reservation is maintained by the Cambridge Water Department. City staff and turf maintenance contractors are required to adhere to strict state requirements for both the use of lawn chemicals and the personnel who apply them. Any policies adapted by the City will be carried out by all City departments that maintain open space or landscaping.

In general, herbicides applied are those contained in the fertilizers used by DPW and its contractors and the non-selective herbicides³ for weeds in sidewalks, brick pavers, etc., although some contractors do a fertilizer application followed by a broadcast spraying of an herbicide. No restricted use pesticides are used by City staff or contractors.⁴

Pesticides are by design toxic; their primary function is to kill living organisms determined by humans to be "pests." Therefore no pesticide is completely benign, however there is significant debate regarding potential health effects to humans of these compounds. Prior to approval by the U.S. Environmental Protection Agency (EPA) and the state, pesticides must go through extensive testing to ensure that they do not pose any undue risk. It is important to note that the City does not use any "restricted use" pesticides as classified by the state Pesticide Board or the EPA.

While it is prudent to minimize pesticide applications where other options for turf maintenance can be implemented, an all-out ban on their use does not appear to be feasible at this time. However, in an effort to further investigate this approach and to alleviate public concerns about pesticide use, we recommend establishing a pilot program to introduce integrated pest management (IPM) in maintaining City parks and fields. IPM is a landscape management program designed to minimize, but most often not completely eliminate, pesticide use. IPM incorporates a variety of techniques to maintain healthy vegetation and prevent infestation by "pests" (weeds, insects, fungi) with pesticides used only as a last resort. Pests are tolerated until they reach a threshold and only then is a pesticide applied. The proposed pilot program for City parks will entail selection of several parks for an IPM program using primarily composted fertilizers, natural or more benign herbicides (if available) and mechanical weed removal. This pilot program is intended to evaluate the feasibility of phasing out scheduled applications of herbicides and introducing the widespread use of IPM.

³ The target species for non-selective herbicides is any vegetation to which the herbicide is applied. ROUNDUP is the most common brand name non-selective herbicide. Selective herbicides target specific plant types or classes of plants, such as crabgrass or clover.

⁴ Restricted use pesticides are strictly regulated by the state Pesticide Board and the U.S. Environmental Protection Agency for particular uses. Restricted use pesticides are primarily used for agriculture and only licensed applicators may apply them.

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Current Practices

The Department of Public Works (DPW) has been involved in a comprehensive fertilization and weed control program for the parks and the Cambridge Cemetery for a number of years. The current program allows for maintenance of high quality open space in a cost-effective and efficient manner. Lawncare companies contracting with DPW are required to comply with the Department's Plant Material Maintenance contract specifications, which detail the turf management activities to be carried out. The maintenance specifications call for:

- ◆ Fall and Spring fertilization;
- ◆ Fall lime application as determined by soil test in order to achieve a pH of 5.5 to 6.5;
- ◆ Spring and Fall aeration of active recreational areas;
- ◆ Spring and Fall top dressing of all athletic fields;
- ◆ Spring top dressing of passive areas; and
- ◆ Spring and Fall slice and seed of all recreational areas

The specifications also require soil testing to determine necessary fertilizer and/or lime applications. Most DPW contractors apply a granular urea fertilizer containing a pre-emergent herbicide⁵ for crabgrass control in Spring, if not applied in the granular form fertilizers are applied in the liquid form with a sprayer. DPW contract specifications require that the nitrogen portion of any fertilizer used be at a minimum 50% organic or urea-based. The granular form is preferred because it lasts longer than fertilizers applied in the liquid form. A second fertilizer application is done in July; the fertilizer used in July contains a broadleaf herbicide. A third fertilizer application (not containing any herbicides) is done in September.

While each contractor follows approximately the same maintenance program per the contract specifications, the exact brand of herbicide used by each is different. Appendix E details the maintenance schedules that DPW contractors implement for each park as well as the products each uses. While there is slight variation in maintenance activities, the DPW contract specifications serve as general guidelines for contractors to follow. Some maintenance practices vary significantly from contractor to contractor, for instance, Leahy Landscaping, Inc. applies ROUNDUP (or an equivalent non-selective herbicide) two times per month from April to June, while ELDCO applies it one time per month from June to August. These variations will be addressed through direct communication with contractors. The least number of applications necessary to maintain aesthetic quality will be required.

Fertilizer applications are usually done between the hours of 5:00 am and 7:00 am, when park use is quite low. Applications are also scheduled based on weather predictions, to avoid rainfall before or after applications as well as high winds during applications. Following fertilizer/herbicide applications, the fertilizer or herbicide is watered into the soil. All areas

⁵ A pre-emergent herbicide is an herbicide applied to prevent growth of a particular class of vegetation prior to its germinating.

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treated with herbicides or fertilizers are flagged by the contractors with oversight by park inspectors to insure proper notification. The state Pesticide Board recommends leaving flagging in place for seventy-two hours. Although there are no regulations requiring an applicator to return to the site to insure flags are still in place, City park inspectors usually check to make sure flagging is still posted a day or two later. Park inspectors will be instructed to return to parks following treatment each day for the recommended seventy-two hour period.

Spot applications of pesticides are done on an as-needed basis. When an infestation or fungus is discovered, contractors must get permission from DPW personnel before doing spot applications. In cases where an application is not needed immediately, the contractor is required to submit diseased or distressed samples to the UMASS Soil Testing Lab for recommendations, which makes a recommendation of a particular herbicide, fungicide or insecticide to handle the problem. The City's contract specifications also require that weeds be identified by the UMASS testing lab and that their recommendations for selective herbicides also be followed. This procedure will be strictly enforced by DPW staff and testing results will be made available to City staff and the public upon request. Applications of insecticides and fungicides are not currently and will not in the future be scheduled as part of regular maintenance, rather verification of disease or infestation must be made and an application scheduled.

Insecticides are not used unless an infestation, such as by grubs, is discovered either by a park inspector or the contractor. Insecticides have not been needed in a number of years. A grub infestation occurred approximately seven years ago at Rindge Field, and an insecticide was applied at that time.

Contract specifications also require applications of fertilizers, fungicides, insecticides and herbicides be done by an applicator licensed by the Massachusetts Pesticide Board "in a manner that will insure maximum effectiveness of the materials and minimum hazard to the general public, property and total ecological environment." This requirement is more stringent than the state regulations which only require applicators to work under the supervision of a licensed applicator who does not have to be on-site during the application. This will be verified with contractors by DPW staff with copies of applicators' licenses on file at DPW and available to the public upon request.

All current DPW contractors use chemical fertilizers as opposed to composted fertilizers, such as milorganite, which have not been used consistently. Composted fertilizers do not have the same amount of nutrients as inorganic fertilizers. The nitrogen, phosphorus, and potassium ratios in the fertilizers used by the City are significantly higher (for example 32-4-10) than in MWRA's Bay State Organic (3-2-0). This could require more applications of composted fertilizers than chemical fertilizers. Composted fertilizers will be introduced in the pilot IPM program to determine their effectiveness.

Odor is probably the most significant issue concerning the use of composted fertilizers, since it is intense and quite foul. Williams College, although implementing a very progressive turf

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management program, elected not to use milorganite solely because of the number of complaints received from students and faculty regarding odor. Similar experience has been identified in other neighboring communities. This would be especially important considering the density of housing and businesses near parks in the city. Therefore compost-based fertilizers will only be introduced in the pilot IPM program, but if they are found to be too odorous, their use will be discontinued.

At the beginning of the season, contractors are required take soil samples from each lawn or playing field to determine the amount of fertilizer and lime needed. These samples are to be sent to the UMASS Soil Testing Lab, which then makes recommendations for the proper type and amount of fertilizer (containing correct ratios of plant nutrients) and/or the amount of lime needed.

Key points from the contract specifications such as those mentioned above will be reviewed with each contractor by DPW staff to ensure proper compliance with City policy.

Recommendations

The general recommendation is for the City to minimize its pesticide applications and to work for elimination of their use, if found to be feasible. In order to accomplish this in a reasonable manner, a select number of parks will be maintained without the use of chemical pesticides or fertilizers in order to develop alternative cultivation techniques as well as to test the performance of organic fertilizers. Transition away from chemical fertilizers containing herbicides on parks and athletic fields would require significant management changes (including changes in contract specifications) and possibly retraining of contractors and/or limitation of future bids to contractors able to maintain parks and fields without chemicals. The best way to minimize the need for pesticides is through sound cultivation practices, such as proper irrigation, aeration, and use of alternative seed varieties. The pilot program is recommended to help staff and contractors develop and implement IPM techniques. All of the parks selected will have only passive recreation taking place, including in some cases totlots.

As it is recommended that the Spring 1996 fertilizer/crabgrass control application be done, the following measures are recommended for all parks except those to be included in the Pilot Program:

- ◆ Adoption of the Draft Pesticide Policy found as Appendix B and implementation of the recommendations pertaining to the Pilot Pest Control Program.

Recommendations pertaining to the Pilot Pest Control Program include:

- ◆ Mapping young crabgrass early each summer, to determine small areas for treatment with herbicides the next year. Scouting and mapping of weeds should also be done for

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broadleaves, emergent in mid-summer to minimize the need for a second herbicide application. Mapping must be done the year before since pre-emergent crabgrass herbicides are active on young plants growing in early Spring;

- ◆ Using a composted fertilizer, such as the Massachusetts Water Resources Authority's Bay State Organic, in place of chemical fertilizers, although this may pose difficulty in informing the public about the benefits of its use. The use of compost as a soil amendment should be investigated, especially if it can save fertilizer costs, since it is provided to communities in the MWRA service area free of charge. The use of these products is especially recommended to replace mid-summer fertilizer application since composted fertilizers will not burn turf in hot weather;
- ◆ Training for City staff and contractors to learn alternative landscaping techniques so the quality of pilot program parks does not deteriorate;
- ◆ Communication by City staff with other communities regarding the logistics of not using herbicides, since some communities have significantly decreased their usage over the years. For a discussion of park maintenance activities by various communities, see Appendix A;
- ◆ Implementation of a monitoring component of the pilot program including keeping of a log for each of the test parks and one or more meetings between contractors and City staff to discuss results and make adjustments to fertilization and weed control strategies; and
- ◆ Investigating the use of alternative products such as "Confront," a non-phenoxy herbicide considered to be less toxic and approved for use by Williams College's pesticide committee. Phenoxy herbicides include products such as 2,4-D. See Appendix A for explanation of Williams College's pesticide use. Two other products, Sustain and Ringer, are composted organic fertilizers that can be used to reduce the incidence of certain turf diseases. The use of these products as well as others, such as biocontrols, e.g., bacteria in a granular form (developed at Cornell University) that has been approved by EPA and is being tested in California, should be investigated for use.

Regulatory Background

The federal law regulating pesticides is the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA). FIFRA relegates authority to EPA, which registers pesticides and regulates their use, storage and disposal. Enforcement of FIFRA falls mainly to the states. It is important to note that FIFRA is the only federal environmental legislation that allows for consideration of economic factors in the approval process of new products. Most environmental regulations are based solely on risk-based analysis and do not weigh benefits associated with the substances. As a result it is not likely that a lawn care chemical would be seen to have benefits to society that

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would exceed unreasonable risk associated with their use (as could be the case with chemicals used for food production).

EPA is continually reevaluating pesticides based on current research and can cancel a registration if EPA believes its use poses too great a risk. FIFRA was amended in 1988 to require re-registration of 50,000 chemicals approved under the significantly less stringent regulations in effect prior to 1972. Within nine years (or by 1997) EPA has to re-register or cancel the registration for all of those chemicals. This may be affected by a recent proposal by EPA to alter its testing procedures for evaluating potential carcinogens and their potencies, however, it is unclear how pesticides may be affected.

In 1978 the Massachusetts Pesticide Control Act (MGL Chapter 132B) was enacted which gives pesticide regulation authority to the Department of Food and Agriculture (DFA). Massachusetts pesticide regulations (333 CMR 2.00) are carried out by DFA's Pesticide Board. The Board issues licenses for the application of pesticides in the state and registers all pesticides sold in the state. Members of the state Subcommittee of the Pesticide Board include the Commissioners of Food and Agriculture, Environmental Management, and Public Health.⁶ In some cases, Massachusetts regulations are stricter than federal regulations. Human exposure and groundwater contamination potential are the two most heavily weighed factors in the approval process. DFA produces the state Groundwater Protection List, which is a list of pesticides whose active ingredient is suspected of having a high probability of leaching into groundwater or a high toxicity. While it does not appear that Cambridge or its contractors use any herbicides whose active ingredient is on the state Groundwater Protection List, the list will be distributed to contractors to insure this. A copy of the state Groundwater Protection List can be found in Appendix D.

⁶ 333 CMR 2.02(3)(a).

Appendix A

Pesticide Use in Other Massachusetts Communities

Several communities thought to have minimized or eliminated pesticide use were contacted to determine their experiences in maintaining parks and fields without these products.

Brookline

The Town of Brookline stopped the broadcast application of herbicides on public parks and fields more than seven years ago, although some spot applications of herbicides are done on baseball diamonds one to two times per year (this is done with a backpack sprayer). According to Paul Willis, Director of the Brookline Parks and Forestry Department, there are definite drawbacks to not using herbicides, since now there are many more weeds making for a weaker turf. Seven years ago the Brookline Department of Parks and Recreation did an internal evaluation and determined to discontinue use of herbicides. No studies were undertaken, and no official report was written regarding this policy. It was merely a departmental decision by the Parks and Forestry Department. The Parks and Forestry Department consulted several turf professionals for advice on how to best manage turf without chemicals. Mr. Willis stated that the new management method has decreased turf quality somewhat, and the turf requires more fertilizer and grass seed as well as aeration.

Newton

The Green Decade Coalition/Newton's Committee for Alternatives to Pesticides has been working to persuade the City of Newton to discontinue the use of herbicides. Green Decade has been working to reduce pesticide use in Newton for a number of years. The City of Newton has used herbicides only on its athletic fields. The City does not have a need for a non-selective herbicide, such as Roundup, and they have used it in the past only on infield areas when necessary. Last year a pesticide application for Newton playing fields was scheduled for April, and Green Decade members urged the City of Newton to notify (before the application) the parents of school children who use the fields that an herbicide would be applied. The usual practice is to flag areas after spraying. With students on vacation, Green Decade members were afraid that, children would ignore or not notice the signs and use the fields anyway. Green Decade members said that in the future they would notify parents, if the City refused to do prior notification. City officials believed that this may invoke fear in some parents and possibly stir some sort of public outcry, so the application was delayed. Soon after, a meeting took place between Green Decade members, the Newton Health Commissioner, and Parks and Recreation staff.

Appendix A

While Newton's Health Commissioner stated that herbicide applications do not pose a health threat to children or adults, the City decided to go ahead with a policy of not using pesticides to alleviate public fears. Subsequent contact with the Health Commissioner's office revealed that no studies were undertaken and no official memorandum or decision was put forth by the Health Commissioner. Originally the Parks and Recreation Department proposed a test field be maintained for one year without herbicide applications to determine the feasibility of discontinuing herbicide use across the city. However, this was deemed unacceptable to Green Decade members, who insisted on total cessation of herbicide applications. The group sees the City's actions as setting a positive example for homeowners in Newton, who may then cease or limit their own use of lawn chemicals.

There was significant opposition to Newton's new policy from the Newton Youth Soccer League, which contributes a reported \$50,000 per year toward maintenance of the playing fields. There were complaints regarding the new and different management methods that will be required, such as keeping the grass longer. In addition, it is generally understood that the strength of the turf diminishes when weeds crowd out grasses. While not likely a large problem with passive parks, playing fields will likely be more difficult to manage and may be impossible to maintain to current standards.

In April 1996 Newton's Parks and Recreation Department came to an agreement with Green Decade whereby herbicide applications on athletic fields would be permitted this spring only. The agreement required Newton to initiate an integrated pest management (IPM) program following the spring application. The City's moratorium on pesticide applications put in place last year resulted in significant impacts to athletic fields. To improve turf conditions a preemergent herbicide application was needed, however due to weather conditions and scheduling problems, only one field was able to be treated with the preemergent herbicide. Newton's athletic fields are maintained by a single contractor familiar with IPM techniques, therefore no contractual changes will be required.

Other pesticide related issues in Newton entail Green Decade's efforts to ban spraying of a non-selective herbicide, e.g. ROUNDUP, by the Massachusetts Bay Transportation Authority (MBTA) along the Green Line. The MBTA applies an herbicide annually to clear vegetation along tracks for safety reasons. While the MBTA notifies cities and towns of such sprayings, members of Green Decade mailed notifications to each household along the Green Line corridor in Newton informing them of the scheduled application. This prompted more than fifty inquiries from the public and resulted in thirty-seven requests by residents not to spray. It is significantly more costly and difficult to remove vegetation by hand than to spray an herbicide, and some areas are not safely accessible by workers (herbicides are often applied from a car riding the track).

A public meeting was held in August 1995 to allow residents to voice their concerns and approximately thirty residents attended. Following the meeting, Aldermen Mansfield, Parker and Lipsitt submitted a resolution calling on the MBTA to cancel its 1995 herbicide application on the Riverside Branch of the Green Line. The resolution, which also called for the establishment

Appendix A

of a task force to assess and suggest alternative management methods to the MBTA, was adopted unanimously on August 14, 1995. An important consideration in the debate has been proper notification of abutters. The MBTA is only required to file a Yearly Operational Plan with the state Pesticide Board and notify the cities and towns affected through a notice in the Environmental Monitor; direct mailings to abutters are not required.

Wellesley

The Town of Wellesley has also been reevaluating its use of pesticides. The Wellesley Natural Resources Commission proposed a draft Pesticide Policy last year, but it was never accepted. In addition, a Pesticide Committee passed a registration by-law requiring commercial applicators to register with local Board of Health which would in turn check to make sure those applicators are licensed by the state. It was then proposed to provide local applicators with a readily visible decal for their trucks, so that neighbors would know that they were properly certified. However, a court ruling found that state Pesticide Board regulations supersede all local regulations, likely making the local by-law invalid. The Natural Resources Committee is looking to establish an agreement with the Wellesley Department of Public Works stating that what is in their draft pesticide policy is actually being carried out by DPW staff. It is believed that a key reason why the policy has not been adopted is that in recent years DPW has had staff cutbacks by almost one-third, making pesticides more attractive because they are a large labor saver. See Appendix C Wellesley Pesticide Policy.

Lexington

The Town of Lexington has thirteen multi-use fields and twenty-eight baseball diamonds in addition to passive parks and historic open space, a total of 175 acres of park and active recreational areas. Brian Gilbert of the Lexington Department of Public Works' Parks and Trees Division was contacted to discuss the town's use of lawn chemicals. Gilbert's management methods are quite limited primarily by a lack of sufficient financial resources and staffing.

Lexington's park management program entails a high level of maintenance only for "signature" parks in Lexington, such as the Battle Green, Buckman Park, Town Hall and Tower Park, and for important recreational resources, such as the football field and certain soccer fields. On the key recreational areas, a non-selective herbicide (such as "ROUNDUP") is used on infields once per year. In addition, a scheduled application of fertilizer and a pre-emergent herbicide for crabgrass are applied each spring. Fertilizer is also applied to key parks and recreational sites in summer and fall. The fertilizers used by Lexington are organic nitrogen fertilizers with 90% of nitrogen in a slow release (sulfur coated) form (e.g., Polyon or Pro-Lawn). Gilbert believes that the fall application may be enough for the turf, making a spring application unnecessary. Milorganite and Bay State Organic, two non-chemical fertilizers made from composted sewage sludge, are not used because of their offensive odor. Instead, Gilbert uses "Ringer" or "Sustain," of which urea (an organic form of nitrogen) comprises more than fifty percent. Although slightly more expensive than Milorganite or Bay State Organic, only certain parks are treated with fertilizers thereby keeping costs rather low overall.

Appendix A

On the continually maintained green spaces Gilbert allows "pests," such as weeds, to get to a certain threshold before contracting with an applicator for an additional herbicide treatment (in addition to the pre-emergent crabgrass application in spring, which is scheduled regularly). Dandelions were exceptionally bad in Summer 1995, requiring Gilbert to have key parks treated with an herbicide. According to Gilbert, spraying for dandelions will not likely be necessary for another three to five years. Insecticides are applied only when an infestation has been identified.

Other multi-use parks and fields are mowed only, and no fertilizers or pesticides are applied. Instead, the parks are essentially not maintained until a future time when they can be rebuilt (approximately every 10 years). One park is reconstructed each year and, following resurfacing of the turf, is maintained using fertilizers and herbicides for two or three years. After that time, focus shifts to another group of higher priority parks. While mowing will be continued and infields may be sprayed for weeds (using a "ROUNDUP" equivalent), extensive maintenance does not continue beyond the first two to three years following resurfacing. This technique saves money since the Town does not have the staff to maintain all of the parks to a high standard, necessitating their periodic reconstruction.

According to Gilbert, the minimally maintained fields become "dust bowls" after several years, because crabgrass and dandelions choke out healthy turf. To avoid weeds overrunning the turf, it should be reseeded each year (as is done in Brookline); however, Gilbert does not reseed until a park is rebuilt, years later in most cases, because of the expense. Thus turf conditions gradually decline, since weeds crowd out the turf grass, and no new grass is added to replace it. This coincides with the Town of Brookline's experience with increased seed costs when herbicide applications were discontinued. Gilbert and other turf management professionals argue that a dense turf consisting of a decent thatch layer¹ makes migration of pesticides minimal.

Because water is quite expensive in Lexington, irrigation of open space is limited. No fields have built-in irrigation systems. A rain cannon is used on signature parks (e.g., Battle Green) and parks/fields recently rebuilt. Last year less water was used than in previous years, and even with drought conditions for much of the summer, the turf "stayed pretty green," according to Gilbert. The irrigation practices in Lexington coincide with the minimal maintenance policy, if fields are not highly maintained, including aeration, reseeding, etc., there is little point in irrigating significantly. Certain infields are irrigated to maintain healthy turf on playing surfaces and to minimize fugitive dust from baseball fields.

A maintenance program, such as Lexington's, is not recommended for Cambridge, since the above program leads to park deterioration over the years until reconstruction takes place, possibly ten years later.

¹ Petrovich, A. Martin, et al. Picture Clues to Turfgrass Problems, Cornell Cooperative Extension, June 1985, defines thatch as "a layer of undecomposed or partially decomposed organic matter such as dead roots, stems and leaves situated just above the soil surface." Thatch can prevent water from percolating through the turf to the soil too quickly; turf with excessive thatch is prone to insect infestation and disease (e.g., fungi).

Appendix A

Williams College, Williamstown

Norman Quinn, Grounds and Projects Coordinator for Buildings and Grounds at Williams College, is responsible for maintenance of the grounds at the school. No pesticides have been applied on fields at Williams College for the last three years. The new approach to maintenance requires aeration two to four times per year as well as aggressive overseeding and fertilizing. While the new management program is more labor intensive and staffing in the Buildings and Grounds department has been reduced in recent years, existing staff have been able to absorb the additional duties. Although turf conditions do not meet previous standards, they generally have not declined significantly. Athletic fields, however, are extremely difficult to maintain without the use of herbicides. The only green space on which herbicides may be applied are athletic fields, and this, according to Quinn, is to decrease liability for the college over injuries resulting from a poorly maintained athletic field.

The college set a policy three to four years ago to have a pesticide-free campus, mainly due to student concerns. At that time a committee was formed consisting of faculty, students and administration to serve as the decision-making body regarding herbicide use on campus. The committee decided that no herbicides should be applied unless there is prior approval of the committee. A review is done every three years, at which time requests for herbicide applications on the grounds (other than athletic fields) may be made. It should be noted that the Williams College policy was based on student concern regarding herbicide use, no detailed analysis of potential exposures or risks was made.

"Confront" is a new selective broadleaf herbicide recently approved by EPA and the state Pesticide Board, which Quinn has received permission to use on athletic fields only. Confront is a "non-phenoxy" herbicide (2,4-D is a phenoxy herbicide), making it more acceptable to concerned faculty and students. The herbicide will be sold in a corn cob base.

Considering the increased cost of fertilizers (since more frequent applications must be done) and the savings in pesticide costs, Quinn estimates that costs are approximately the same. The fertilizer used is known as "Once," which is a slow-release nitrogen-based fertilizer consisting of more than 50% urea. Milorganite and other composted fertilizers were tried but were found to be too offensive due to odor. At that time Quinn actually received more complaints about the milorganite than when he used to do broadcast herbicide applications.

Appendix B

City of Cambridge Pesticide and Fertilizer Policy

In the interest of avoiding potential adverse health effects and environmental impacts, the City of Cambridge will adopt the following policy on the use of pesticides¹ and chemical fertilizers. City departments or their contractors will take steps to avoid or reduce the application of fertilizers or herbicides. It is in the City's interest to reduce any potential exposures as well as to minimize pesticide applications both for protection of public health, the health of City workers and contractors and the environment. Minimizing the use of lawn chemicals on City parks and athletic fields is an important goal, from economic and environmental perspectives. As a result, the City will take actions to eliminate any unnecessary uses of lawn chemicals, where feasible. Where applications are necessary, minimal amounts will be used under controlled circumstances.

- ◆ **City staff and contractors will take actions to reduce the potential exposure of the public to chemical fertilizers and pesticides.** The Department of Public Works (DPW), Water Department and other relevant City departments will instruct contractors to take all prudent and feasible steps to reduce exposure of individuals to lawn chemicals through appropriate scheduling and notification as well as proper application techniques.
- ◆ **City lawn maintenance contractors must strictly comply with all state Pesticide Board regulations,** especially those pertaining to notification, signage, etc.² Treated areas will be posted with signs and park supervisors/inspectors will visit the sites each day after treatment for 72 hours to ensure that flags are still posted and remove the flags at the end of the 72-hour period. Improved notification will be required including posting of signage prior to an application explaining what will be applied, when it will be applied, and who to contact with questions or concerns. Where feasible the City and its contractors will rope off the perimeter of treated areas for the recommended period after an application to avoid the accidental straying into the area of children.

¹ 333 CMR 2.03(4)(ff) defines a "pesticide" as "a substance or mixture of substances intended for preventing, destroying, repelling, or mitigating any pest, and any substance or mixture of substances intended for use as a plant regulator, defoliant, or desiccant." A "pest" is defined as "an insect, rodent, nematode, fungus, wood, or any other form of terrestrial or aquatic plant or animal life or virus, bacterium, or other micro-organisms, except viruses, bacteria or other micro-organisms on or in living man or other living animal..." [333 CMR 2.03(4)(ee)]. According to the state definition even household disinfectants are classified as pesticides.

² 333 CMR 10.03(31) states that contractors doing work on public property "shall provide the manager or superintendent of the contracting entity with the opportunity for pre-notification of each application."

- ◆ **Pesticide applications will be done only by licensed applicators as required by the City's current landscape maintenance specifications.** While state regulations³ only require that applications be done by "or under the immediate supervision of" licensed or certified applicators, the City will require that a certified applicator be on-site during each application.

- ◆ **Applications of fertilizers and pesticides will be done in a manner not to interfere with public use of parks or recreational areas,** emphasizing applications early in the week to avoid the heavy use of athletic fields on Saturdays and Sundays. In addition, alternative times, such as very early morning and night time will be implemented where feasible. Game and practice schedules for athletic leagues and school teams will be included in scheduling herbicide and fertilizer applications.

- ◆ **Pesticide applications will be minimized in totlots and playgrounds as much as possible.** The need for an application of a pesticide (including herbicides) in these areas is to be verified by the UMASS Soil Testing Lab in consultation with the City's Public Health Officer and the City Manager prior to any pesticide application.

- ◆ **Annual herbicide applications in tree and shrub beds will continue,** since herbicides are applied in the root zones which are then covered with mulch. Tree and shrub beds in totlot areas will be roped off following treatment to ensure children do not wander into the areas.

- ◆ **Soil samples will be evaluated before applying a fertilizer or herbicide** at the beginning of the season and before the July application to determine whether a fertilizer and/or herbicide is needed. This is an element of the park maintenance contract specifications, and it will be strictly enforced with contractors by requiring them to submit soil test results to DPW and Community Development Department staff. Contractors must send a copy of soil test results to DPW for verification.

- ◆ **The City and its contractors will encourage spot treating with herbicides when/where feasible to replace scheduled applications;**

³ 333 CMR 2.03(4)(oo) states that pesticide applications must be done "under the Direct Supervision of a Certified Applicator, unless otherwise prescribed by its labeling, a pesticide shall be considered to be applied under the direct supervision of a certified applicator if it is applied by a competent person acting under the instructions and control of a certified applicator who is available if and when needed, and who is responsible for the pesticide applications made by that person, even though such certified applicator is not physically present at the time and place the pesticide is applied."

- ◆ **All staff and contractors will be instructed to leave grass clippings in place or to use a mulching lawnmower** to reduce the amount of yard waste generated by the City, return some nutrients to the soil, and increase moisture holding capacity of turf. In addition, overseeding and reseeded will be done with more tolerant turf species, such as tall fescues, to potentially reduce the need for spring crabgrass control on turf.
- ◆ **The City and its contractors will continue to use only non-restricted use⁴ herbicides** in an effort to use the least toxic, yet effective, lawn chemicals available.
- ◆ **City contractors will be required to file a report annually with DPW listing all compounds used on the parks.** This is required by 333 CMR 10.03(31), which requires contractors to provide "information relative to the pesticides used in lawncare programs and measures of safety for humans and the environment from such pesticide applications."
- ◆ **The City will use pesticides in the lowest concentration feasible to control the pest,** such as when incorporated into a fertilizer, as is the current practice on most parks.
- ◆ **The City and its contractors will not use pesticides identified as groundwater contaminants by the Massachusetts Pesticide Board.**
- ◆ **The City will seek and encourage use of contractors offering cost-effective non-chemical services.** Practices that encourage minimal chemical applications will be specified.
- ◆ **City departments will review procedures and develop educational materials and written instructions for City employees to adapt pest control practices to this policy.**
- ◆ **City staff will monitor developments in pest control technology and management** and implement appropriate practices to reduce the use of pesticides at City facilities.

⁴ Non-restricted use pesticides are those whose use is not regulated by EPA. This class of herbicides could be classified as those that do not require a license to purchase and use. These are products that can be purchased by individuals in a lawncare store.

Appendix C

Provided by the Town of Wellesley

PESTICIDES AND PEST CONTROL *Reduction of Pesticide Use: Draft Policy*

DRAFT POLICY PROPOSED FOR JOINT ADOPTION BY THE BOARDS OF HEALTH, PUBLIC WORKS AND NATURAL RESOURCES

Based on the findings of the 1993 Pesticide Applications Study Committee, the undersigned boards hereby agree that:

1. In the interests of avoiding adverse health effects and environmental damage, unnecessary pesticide use should be eliminated and pesticide applications, when unavoidable, should be minimized.
2. When safe cost-effective non-chemical pest control methods are available—including biological controls, cultural practices, and physical controls—they will be used in place of chemical pesticides. When a particular pest problem requires the use of chemical pesticides, the least toxic state-approved material will be used in accordance with Integrated Pest Management (IPM)* principles.
3. Pesticides identified as groundwater contaminants by the U.S. Environmental Protection Agency and/or the Massachusetts Pesticide Bureau will not be used.
4. All pesticide applications made by or for the town will be performed by, or under the immediate supervision of, an applicator licensed or certified by the state Pesticide Board in accordance with state and federal regulations.
5. Turf areas treated with pesticides shall be posted with caution signs for a 24-hour period in accordance with state Pesticide Board regulations.
6. The Department of Public Works will review departmental procedures and develop educational materials and written instructions for town employees to adapt pest control practices to this policy.
7. The undersigned boards will favor companies offering cost-effective non-chemical services when contracting for private pest control services. When contracting for chemical applications, the least toxic chemical will be specified.
8. When registering commercial pesticide applicators, the Health Department will supply them with a copy of this policy and request voluntary compliance. A list of cooperating

* INTEGRATED PEST MANAGEMENT (IPM) is a systematic decision-making process used to determine if, when, and where pest suppression is necessary, and the type of treatment that is appropriate. Treatments are not made on a calendar basis. They are made only when monitoring of pest populations shows that unacceptable damage has occurred or will occur. Treatment methods are chosen and timed to be most effective, least disruptive to natural controls, and least toxic.

Draft Pesticide Reduction Policy (continued)

firms and individuals shall be published annually in a local newspaper and made available to interested residents and business establishments.

9. The Department of Public Works will develop a protocol for monitoring and testing the town water supply for lawncare chemicals in common use in Wellesley.
10. The undersigned boards will keep current with developments in pest control technology and management by encouraging staff to attend professional meetings and subscribe to appropriate publications.
11. The undersigned boards will disseminate information about pesticide hazards and non-chemical pest control alternatives. Demonstration projects, school programs, and distribution of literature will be encouraged.

SIGNED:

Board of Health

Natural Resources Commission

Board of Public Works

DATE:

Appendix D

Massachusetts Department of Food and Agriculture Pesticide Board Groundwater Protection List

The following active ingredients in pesticide products are considered by the state as potential groundwater contaminants:

Acifluorfen
Acetochlor
Alachlor
Aldicarb
Atrazine
Baygon
Bentazon
Bromacil
Carbofuran
Chlorthalonil
Cyanazine
Dacthal
Disulfoton
Diuron
Fenamiphos
Folpet
Fonofos
Lindane
MCPA
Metolchor
Metribuzin
Pentachlorophenol
Propazine
Simazine
Terbufos

**City of Cambridge
Park/Field Maintenance Program by Contractor**

Park/Field	Contractor	Products Used	Application Schedule
Bergin Playground Larch Road Playground Longfellow School Rindge Field	Gallup Landscape Company	LESCO Fertilizer (Urea) with Pendimethalin Turf Master Lawn, Tree and Shrub Food (10-6-4) Lebanon Chemical Corporation - fertilizer Trimec Classic Broadleaf Herbicide	Second week of May - LESCO Fertilizer (Urea) with Pendimethalin Second week of September - fertilizer and lime
Ahern Field (Kennedy School) Corcoran Field Gore Street Playground Hoyt Field Lindstrum Field Tobin School	Leahy Landscaping, Inc.	Preen ROUNDUP SRN-based fertilizer Lime	First week of April - Slow-release nitrogen (SRN) based fertilizer Second week of April - Preen, preemergent herbicide under mulch in tree and shrub beds First and third Monday from April through June - ROUNDUP, non-selective herbicide September - SRN fertilizer November - Lime application

Appendix E

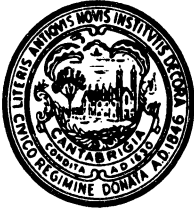
DRAFT

Park/Field	Contractor	Products Used	Application Schedule
<p>Charles Park Costa Lopez Playground</p>	<p>Leahy Landscaping, Inc.</p>	<p>Preen, herbicide for tree/shrub beds</p> <p>Rockland 25-3-5 Weed & Feed With Trimec, fertilizer containing 2,4-D, MCP, Dicamba</p> <p>SRN fertilizer</p> <p>Greenview Spring Crabicide Crabgrass Preventer</p> <p>Limestone</p> <p>Greenview Improved Winter Green - Fall Fertilizer (10-16-20)</p> <p>Greenview Green Power fertilizer (30-4-4)</p> <p>ROUNDUP, non-selective herbicide</p>	<p>First week of April:</p> <p>Weed & Feed w/Trimec</p> <p>Preen, preemergent herbicide under mulch in tree and shrub beds</p> <p>First and third Tuesday from April through June: ROUNDUP</p> <p>August: fertilizer and insecticide??</p> <p>Fall: SRN fertilizer and lime</p>

Appendix E

Park/Field	Contractor	Products Used	Application Schedule
Comeau Park Costa Park Dana Park Front Park King School Linear Park Russell Field	ELDCO	LESCO Pre-M 60 DG Herbicide LESCO Three-Way Herbicide LESCO Avail Non-Selective Herbicide The Andersons Professional Lawn Food (25-5-10)	Last two weeks of April: Spot applications of Pre-M 60 DG mixed with LESCO 3-Way First two weeks of May: Fertilizer application Last two weeks of August or first two weeks of September: Fertilizer application June, July, August: 2-3 applications of non-selective herbicide to shrub beds, sidewalks, brick pavers

The Cambridge Water Department is responsible for maintaining Glacken Field and Kingsley Park. The School Department is responsible for maintaining grounds at the various schools. The remaining parks are maintained by DPW staff following the same general park maintenance specifications used for contractors.



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CITY OF CAMBRIDGE
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EXECUTIVE DEPARTMENT
ROBERT W. HEALY
City Manager

RICHARD C. ROSSI
Deputy City Manager

May 20, 1996

To The Honorable, The City Council:

Please find attached a response to Awaiting Report Item No. 20, regarding the status of pesticides and fertilizers in City parks and open spaces, received from Liz Epstein, Deputy Director of Community Development, Public Works Commissioner Ralph Dunphy and Deputy Public Works Commissioner Steve White.

Very truly yours,

Robert W. Healy
City Manager

RWH/mec
attachments

Consent Agenda #10

cat. 2)
S-381(a)

Relative to Awaiting Report Item
Number 20, regarding the status
of pesticides and fertilizers in
City parks and open spaces.

7/29/96 Referred to
City Council. See
Committee Report #6

In City Council May 20, 1996

Charter right was
exercised by Vice
Mayor Born

6/3/96
Referred to Environment Comm.
+ request immediate confirmation
from CM that use of pesticides +
herbicides has not resumed.