

Portland Open Spaces

Integrated Pest Management Proposal 2016

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Guiding Principles

- City staff take a precautionary, incremental, and science-based approach to minimizing public exposure to pesticides on City Property.
- Pesticide use (organic or synthetic) on City property should be strongly regulated, with clear guidelines (such as this document) for staff managing public lands.
- City staff support continuing the “no-pesticide” policy on certain properties, eliminating pesticides use in certain areas, and reducing them in other areas, depending on the property classification.
- Certain areas within the Riverside Golf Course would be exempted, while pesticides could be eliminated or reduced in other areas of the golf course.
- City staff will continue to follow Integrated Pest Management principles, utilizing pesticides in limited areas as simply one tool to control pests, along with other effective measures such as maintaining turf and plant health by aeration, overseeding, irrigation, cutting height, etc...
- Follow the *Precautionary Principle* in reducing and regulating all pesticide use (organic and synthetic) whenever possible.
 - Definition of “Precautionary Principle”: *When human activities may lead to morally unacceptable harm that is scientifically plausible but uncertain, actions shall be taken to avoid or diminish that harm. (Source: UNESCO 2015, United Nations Educational, Scientific, and Cultural Organization)*
- The term “organic” or “non-synthetic” does not mean that products are tested and safe for the public. City staff will follow the science and guidelines from Environmental Protection Agency and Maine Board of Pesticide Control before using *any* product.
 - The International Agency for Research on Cancer (IARC) lists many naturally-occurring and organic substances that are *possibly* carcinogenic in humans: sodium nitrates, coffee, bracken fern, tobacco, aflatoxins in fungi, areca nuts, coal tar, betel quid, and wood dust are prominent examples (<http://monographs.iarc.fr/ENG/Classification>). The science tells us that the organic nature of a substance does not necessarily make it safe for humans, nor does the synthetic nature of a substance make it unsafe for humans.
- City staff will utilize the following science-based guidelines to minimize public exposure to all pesticides:
 - Follow Best Management Practices as developed by Maine Board of Pesticides Control (adopted 2/24/2012)
 - All pesticides (organic and synthetic) used on City property must be Environmental Protection Agency tested and listed.
 - Additional City Practices and Procedures as detailed in this document
- Only State Licensed Applicators may apply pesticides (organic or synthetic) on City property.

Action Plan Summary

- Continue following State of Maine Best Management Practices as defined by Maine Board of Pesticide Control.
- Continue practice of requiring that all City employees who apply pesticides carry Commercial Applicator Licenses and that they attend required continuing education classes.
- Reduce or eliminate total amount of pesticides (organic and synthetic) used on city properties according to plan below.
- Develop 2 test sites on City Athletic Fields where we can completely eliminate pesticide use on half of field and compare results to areas treated with pesticides. These tests would occur over a 3 year period. These test sites would allow the testing of various techniques and would allow us to gauge the public's willingness to live with a higher percentage of weeds, insect pests, and exposed earth on their playing fields. Details below.

Training and Certification

- Any City staff member who will apply any pesticide (organic or synthetic) shall maintain a State Applicator License.
 - The city currently employs
 - 2 Master Applicators (Golf Course Superintendent and City Arborist)
 - 4 Commercial Applicator Licensees (Athletic Field Maintenance Departments).
 - 8 Commercial Applicators in Parks and Cemeteries Division
- Staff shall continue to keep certifications current and attend continuing education sessions.
- In order to receive a Commercial Applicator License, individuals must go through extensive training in Best Management Practices, Integrated Pest Management.

City of Portland Pesticide Plan

Staff have categorized city open space properties into 4 categories. On some lower level properties such as playgrounds, right of ways, etc... (Levels 3 and 4), staff and the public can tolerate a higher level of weeds and insects and pesticide use will be eliminated entirely. On higher priority levels (Levels 1 and 2) such as high-use and varsity playing fields, synthetic pesticide use will continue according to State of Maine Board of Pesticide Control Best Management Practices.

- **Level 1**—Highest care areas, e.g., Hadlock Field, some varsity playing fields, high-use fields that get excessive wear and tear.
- **Level 2**—High care areas, e.g., practice fields or multipurpose fields. May include varsity fields or high visibility lawn areas depending on the school.
- **Level 3**—Moderate care areas, e.g., playgrounds, low-use areas, common areas. May include practice fields and some lawn areas depending on the school
- **Level 4**—Lowest care areas, e.g., most park lawn areas, natural areas, fence lines, property edges, slopes, utility areas, ditches or trails

Test Sites: All-Organic Playing Surfaces

In the calendar year 2016, two organic/synthetic test sites will be created, observed, and documented. These are Level 1 sites that otherwise would have continued to receive synthetic pesticides under this proposal.

We propose to treat and monitor these sites for 3 years to test results and collect feedback about the public's willingness to live with more pests, insect infestations, and exposed earth on public playing fields. It generally

takes two or three years for turf to decrease dependence on pesticides. Staff will monitor for this length of time to ensure that organic methods have a chance to work.

Because of differences between sites in soil composition, sunlight, drainage, and level of use, we propose to test organic and synthetic products side by side at the same site so that those variables are equalized. Organic products will be used on half of the field, and synthetic products will be used on the other half of the field. Extensive before and after documentation will occur, as well as a written plan documenting the test parameters and guidelines. All test sites will continue to receive Best Management Practices of high-mowing, mulching, aeration, topdressing with compost and sand, and overseeding. The findings will be recorded and put into a report form on an annual basis.

- Site 1: Quinn Field at Deering Oaks Park
- Site 2: Payson Softball Field B (not varsity field)

Low-Use Fields (Levels 3 and 4)

- Discontinue synthetic pesticide use
- Continue to follow BMPs for total turf health: high-mowing, mulching, aeration, topdressing, overseeding.

Because of lower use at these fields, the turf is able to rest and recover following use. Because of lower use, we can maintain higher grass height, which creates a healthier turf that can naturally outgrow pest species such as crabgrass and dandelions. Fields in this category include Breakwater Field, Payson Park Fields, Riverton Field Complex.

Hadlock Field, Varsity, and High-Use Athletic Fields (Levels 1 and 2)

- Continue to use pesticides following State of Maine Best Management Practices until 3-year report on Test Sites (detailed above) is complete.
- Continue to follow BMPs for total turf health: high-mowing, mulching, aeration, topdressing, overseeding.

For optimal turf health, facility managers try to limit use of grass fields to between 200-500 hours of activity per year. Because of Portland's energetic and recreation-minded population, and a limited number of fields, use of our athletic fields is extremely high--upwards of 1,000 hours per year--at certain fields such as Deering Oaks Fields, Dougherty Field Complex, and Deering High School Fields.

The turf on these fields sees continual use throughout the growing season with cleats, tackling, sliding, running, and other high-impact uses. Because of such high wear and tear on these fields, the turf takes a beating and needs continual irrigation, over-seeding, mulching, aeration, deep-tining, top dressing with compost, and the occasional use of pesticides and fertilizers. These practices encourage turf growth and health in an environment where grass will not naturally grow and thrive.

Pesticides are not just used for aesthetics, but to decrease weeds which compete with turf grasses for nutrients, water, and sunlight. They also eliminate pests such as grubs and other harmful insects which can literally turn a field into a dirt patch within a couple weeks. Pesticides prolong the life of high-use fields and reduce the need for complete field turf replacement every 5-7 years. Encouraging grass growth through use of pesticides also prevents exposing bare earth, which creates sediment runoff which is detrimental to water quality.

Weeds are problematic at Athletic Fields not just because they out-compete the natural grasses, but they create a bumpy and irregular playing surface for games such as soccer and baseball. For sports that are under increasing scrutiny to decrease injuries and concussions, providing a level and safe playing surface is a priority for the City and the organizations that run youth and adult sports leagues.

Another alternative exists to maintain high use fields without the use of synthetic pesticides. That is to simply replace the turf every 5-7 years when it becomes unusable due to high use, weeds, grubs, and other pests.

The City has 55 fields in the Level 1 and 2 categories. The estimated cost for one varsity level field replacement is \$167,700 to \$222,200, depending on the size of the field (see attachment for breakdown of cost). The extraordinarily high cost of field turf replacement every 5-7 years will be a significant burden on taxpayers and will likely have a chilling effect on many other improvements and backlogged maintenance to our public spaces since so much money and labor will be funneled into turf replacement.

Staff are very concerned that an immediate pesticide ban on Athletic Fields will cause an unknown amount of damage to the City's assets. We do not yet know what the outcome would be of such an action, and other communities that have placed similar bans on their properties are struggling to continue to maintain their assets.

Staff propose to instead develop Test Sites (detailed above) to develop Best Management Practices using organic products, observe results, and collect feedback from users and residents. By taking a reasoned approach, we can strike a balance between reducing overall pesticide use and maintaining our well-loved and heavily-used City assets.

Riverside Golf Course (Level 1)

- Cornell University and the State of New York are conducting a long-range study with the intent of developing practices to reduce pesticide use at Golf Courses. They are currently 9 years into the study and have made many findings on Best Management Practices that are being implemented at courses throughout the region. However, after 9 years of study, they have determined that it is not yet possible to maintain a playable surface without at least minimal use of synthetic pesticides as part of an Integrated Pest Management plan.
- Because there is no known organic product(s) that will maintain the high-quality turf required for a quality putting green, all putting greens will continue to be managed using Integrated Pest Management. This will include the use of synthetic pesticides.
- On areas other than putting greens, switch to a 3 year rotation in which we divide the course up into three 9-hole zones. Synthetic pesticides will only be applied to one of the 9-hole zones each year, leaving the other two zones synthetic pesticide-free for 2 years.
- Not only will this reduce our synthetic pesticide use from current levels, it will allow golfers with sensitivities to pesticides to choose to golf in an area that has not been treated in that current year.
- Neonicotinoids are known to have a negative impact on pollinator populations and therefore they shall not be used anywhere upon the facility. There is a product (Acelepryn) that works as well as any neonicotinoid.
- Continue to seek certification as a National Audubon Society Golf Course Sanctuary.
- As the Cornell--New York State study publishes findings, adapt their recommendations for use at Riverside Golf Course.
- Continue to follow Maine State BMPs for total turf health: high-mowing, mulching, aeration, topdressing, overseeding.
- Complete Integrated Pest Management Plan for Riverside Golf Course attached.
- FB Environmental has been contracted to provide third party monitoring and reporting of pesticide practices and complete National Audubon Society Sanctuary Golf Course certification.

- Staff will complete certification as a National Audubon Society Sanctuary Golf Course by July 2018. This certification requires reducing, but not eliminating, use of synthetic pesticides. The program consists of:
 - Environmental Planning
 - Wildlife and Habitat Management
 - Chemical Use Reduction and Safety
 - Water Conservation
 - Water Quality Management
 - Outreach and Education

The Vineyard Golf Club on Martha's Vineyard is currently the only golf course in the US known to have switched to strictly organic pesticides.

Their maintenance routine involves involves labor-intensive and expensive methods such as the following (source: http://www.nytimes.com/2010/08/17/sports/golf/17vineyard.html?_r=0):

- Staff manually remove dew from the grass each morning with a whip-like device to reduce fungal disease
- Staff fly in roundworms from Iowa on dry ice to combat grubs
- Staff wash the shoes of the members to keep unwanted seeds and soils from entering their facility.
- Staff have regularly torn out and replaced their turf, tees, and greens in order to maintain a playable surface using only organic pesticides.

Operating a luxury golf course with expensive maintenance costs such as these has made The Vineyard Golf Club only accessible to the ultra-wealthy: membership fees currently consist of a \$350,000 initiation fee followed by a \$12,000 annual membership fee.

The Riverside Golf Course prides itself on providing affordable golf to all Portland residents and visitors. Until better and more cost-effective organic methods are developed, providing an adequate playing surface is only feasible by utilizing an Integrated Pest Management plan (including pesticides on a limited basis).

Please see attached complete Integrated Pest Management Plan for Riverside Golf Course.

Playgrounds (Level 3)

- Continue current practice of no synthetic pesticide use.

In order to minimize children's exposure to pesticides, the public can accept a higher level of pests in their playgrounds and within a 25-foot buffer zone surrounding the playground. No synthetic pesticides will be applied in these areas, with a minimal number of exemptions for dangerous plants and stinging/biting insects (see "Exemptions" below).

Open Spaces (Level 4)

- Continue current practice of no synthetic pesticide use

The staff and the public can accept a higher level of pests in these areas including most park lawn areas, natural areas, fence lines, property edges, slopes, utility areas, ditches or trails. No synthetic pesticides will be applied in these areas, with a minimal number of exemptions for dangerous plants and stinging/biting insects (see "Exemptions" below).

Cemeteries (Level 3)

- Continue current practice of no synthetic pesticide use

The staff and the public can accept a higher level of pests in these areas that are often used as recreational areas. No synthetic pesticides will be applied in these areas, with a minimal number of exemptions for dangerous plants and stinging/biting insects (see “Exemptions” below).

City Trees (Adapted from 2009 Ontario Provincial ban on pesticides)

Since trees are important to protecting our climate, Commercially Licensed Applicators can use synthetic or organic pesticides with the written opinion of a tree care professional that states that the use of the pesticide is necessary to protect the health of the tree. Homeowners and licensed exterminators can also buy and use biopesticides and lower risk pesticides (e.g., *Btk* - a biopesticide sprayed over Ontario cities for Gypsy moth control) to care for trees without requiring an opinion from a tree care professional.

Trees & forests are important environmental assets for our community. Their long term health may require protection from invasive pests, like Dutch Elm Disease, Hemlock Wooley Adelgid, Emerald Ash Borer and Asian Longhorn Beetle. We also can experience outbreaks of insect pests like Browntail Moth that favor coastal climates and effect trees along with causing a risk to public health. In all cases we opt to use the best response possible with the lowest environmental impact. Two recent pest outbreaks in Portland include Hemlock Wooley Adelgid (HWA) & Winter Moth our response has included biological control using parasitic flies which feed exclusively on the target pest. Portland’s response to Dutch Elm Disease includes preventive fungicide treatments injected into the trunk vs spraying foliage. We urge residents to contact licensed Maine Arborist firms to evaluate and plan the proper approach to tree pests.

Exemptions (*applies to all properties within City limits*)

- Dangerous Plants: Poison Ivy, etc...
- Invasive Plants: Plants listed on the state list
http://www.maine.gov/dacf/mnap/features/invasive_plants/invsheets.htm of known invasive plants.
Includes Japanese knotweed, purple loosestrife, etc...
- Biting or stinging insects within 25 feet of human activity: Hornets, Wasps, etc...
- Swimming Pools
- Pet Supplies
- Disinfectants
- Rodent control
- Insect repellents
- Paints, stains and wood preservatives

Waivers (adapted from South Portland Ordinance)

In cases that threaten the public health and safety by creating a hazardous situation, individuals and/or companies may apply for a waiver from the provisions of this plan. These waivers would apply to situations not already addressed in this document.

The Integrated Pest Management Committee shall meet monthly and review and decide whether to issue waivers. The Committee shall be made up of:

- City Parks, Recreation, and Facilities Director or their designee
- City Stormwater Coordinator
- City Arborist (Master Applicator License)
- Private Landscaping Professional (must hold Maine Board of Pesticide Control Master Applicator License), appointed by the City Manager
- Citizen at Large, appointed by the City Council

A waiver application is a public record stating the proposed location(s), and timing of the use, substance(s), and amounts to be applied, the date(s) of application, and the reason for requesting use of a synthetic pesticide. The Integrated Pest Management Committee shall decide whether to issue a waiver, and for what duration. The Integrated Pest Management Committee must find all three of the following conditions exist in order to approve a waiver for the application of a prohibited pesticide:

1. That natural and organic methods have proven unsuccessful
2. The application of pesticides will not occur within 25 feet of a tributary, creek, stream, river, lake, or drainage ditch.
3. That the granting of the waiver will not result in material damage to other properties in the vicinity nor be detrimental to the public health, safety or welfare

Annual Financial Impact

The table below illustrates the annual cost of Integrated Pest Management methods (including organic, synthetic and biological controls) VS organic-only pesticides. Also includes labor required to apply the products. Does not include fertilizer costs.

	Integrated Pest Management <i>(Current practice includes use of organic, biological, and synthetic methods)</i>			Organic Pest Management <i>(Alternative practice would only consist of organic and biological methods)</i>		
	Labor	Materials	Notes	Labor	Materials	Notes
Athletic Fields	\$500	\$5,000	20 worker hours x \$25/hour. Integrated Pest Management promotes turf health by top-dressing with compost, high-mowing, mulching, aerating, and limited pesticide use.	\$1,500	\$18,750	Organic material is 25% more expensive per unit, and needs to be applied 3x instead of 1x. Increased labor for multiple applications.
Golf Course	\$3,718	\$24,000	145 worker hours x \$25.64/hour. Integrated Pest Management promotes turf health by top-dressing with compost, high-mowing, mulching, aerating, and limited pesticide use. Increased Cost of non-Neonicotinoids	\$11,154	\$90,000	Organic material is 25% more expensive per unit, and needs to be applied 3x instead of 1x. Increased labor for multiple applications. NOTE: multiple studies have shown that golf playing surfaces are not sustainable using only organic products, no matter the cost.
Tree Care and Horticulture	\$500	\$2,325	20 hours x 1 worker x \$25/hour. Dutch Elm Disease Injections, Horticultural Bed treatments. Biological treatments are often used instead of pesticides.	\$500	\$2,906	Material is 25% more expensive per unit. Labor stays the same for horticulture since workers are visiting the garden beds 3x weekly regardless.
Parks	\$0	\$0	No pesticides routinely applied in parks	\$0	\$0	
Playgrounds	\$0	\$0	No pesticides routinely applied in playgrounds	\$0	\$0	
Cemeteries	\$0	\$0	No pesticides routinely applied in cemeteries.	\$0	\$0	

Sub Totals	\$4,718	\$31,325		\$13,154	\$111,656	
Grand Total	\$35,043			\$124,810		

Benchmarking Current Synthetic Pesticide Use

Current use of Synthetic pesticides across all city properties. Below are amounts used for 2015 growing season (April—October). These are only applied at Golf Course, Level 1 and 2 Athletic Fields, and selectively on invasive species.

- Ballfields
 - 5 gallons of Roundup for infield prep, invasive species
 - 2,000 lbs of weed and feed (active ingredient 2, 4-D variety)
- Forestry
 - 2.5 gallons of Roundup for invasive species
- Golf Course
 - 98 gallons fungicides
 - 26 gallons herbicides
 - 27 gallons growth regulators
 - 12 gallons insecticides