

**Select Committee on Pesticide Reduction (SCPR)
Report to the Northampton City Council
November 2019**

The Select Committee on Pesticide Reduction would like to thank the many community members who took the time to share their ideas and concerns about pesticide use on Northampton City property. We would also like to share our appreciation for the assistance of the Mayor's office along with the City department directors and staff who met with our committee to help us better understand the current use of pesticides on City property. We also thank the Northampton City Council for the resolution creating the SCPR and permitting us to engage in this important discussion.

We took our task seriously and we humbly submit this report.

Sincerely,
The Select Committee on Pesticide Reduction:
Adele Franks, Chair
Cynthia Suopis, Vice-Chair
Kathleen Simmons
Councilor Jim Nash
Councilor Alisa Klein

Select Committee on Pesticide Reduction Report - November 2019

Introduction

As stated in Mass General Law (Chapter 132B, the Pesticide Control Act), “pesticides contain toxic substances, many of which may have a detrimental effect on human health and the environment, and in particular, have developmental effects on children.” There is growing concern about pesticide exposure in the environment, and a linked desire to reduce the use of pesticides as much as possible both to protect both human health and the health of ecosystems and wildlife that depend on them.

In March 2019, the Northampton City Council passed “19.012 A Resolution Establishing a Select Committee on Pesticide Reduction” to establish a Select Committee on Pesticide Reduction (SCPR) tasked with reviewing the use of pesticides on City-owned property, and making practical and legislative recommendations for reducing pesticide use in Northampton municipal areas. Per its charter, SCPR was required to submit a report, including recommendations, to the City Council by November 10, 2019. Convened in July, 2019, the Select Committee was comprised of five members: SCPR Chair Adele Franks, a retired public health physician; Vice Chair Cynthia Suopis, a member of Northampton’s Board of Health and a health communications professor at the University of Massachusetts; Kate Simmons, an environmental chemist; and City Councilors Alisa Klein and James Nash, the co-sponsors of the resolution establishing the Select Committee.

In a period of just over four months, SCPR met 11 times with two of the meetings serving as public forums for community members to share their thoughts and concerns about the use of pesticides in Northampton’s public areas, and to express ideas for reducing pesticide use. The public forums were announced via a poster that was shared widely via social media (Facebook and Twitter), email invitations, and listservs throughout the City. Hard copy posters were hung in businesses and public locations in downtown Northampton and in Florence Center.

Ultimately, 27 individuals, including a number of invited experts, attended the sessions offering public comment. Approximately 20 additional individuals sent written comments to the Select Committee via email. Those comments are posted on the SCPR webpage on the City’s website (<https://www.northamptonma.gov/2007/Select-Committee-on-Pesticide-Reduction>). The SCPR carefully considered all public comments.

A synopsis of public comments and lists of attendees from the forums are in Appendix I. The vast majority of the 27 attendees’ comments were expressions of concern about the use of pesticides because of potential health effects on humans, pets, and the ecosystem. Five people spoke in favor of maintaining the availability of pesticides to control invasive plant species or preserving farmers’ “right to farm” under current City ordinance. Several people advocated helping farmers transition to organic farming

methods, while continuing to earn a living. The written comments SCPR received were similar in content.

Pesticides are chemical or biological agents. By design, they control or eradicate nuisance or harmful biological entities such as *undesirable* plants, insects, fungi, bacteria, rodents, and other animals. As mandated in the resolution establishing the SCPR, for purposes of SCPR's work, the term "pesticide" includes insecticides, herbicides, fungicides, rodenticides, acaricides, antimicrobials, larvicides, and other toxins designed to manage or regulate plant growth.

Because pesticides are designed to kill living organisms, humans and animals can be expected to be subject to some measure of harm with exposure, with greater harm expected with higher exposure, and greater degrees of harm anticipated in fetuses, children, and immune-compromised adults.

Scientific research on the health effects of pesticides is hampered by a number of factors. Corporations that profit from the sale of pesticides provide the bulk of funding for pesticide research; there is no requirement to study the active ingredients in the presence of other ingredients added to increase efficacy in practice; it is difficult to document amount and timing of human exposure outside of the research laboratory; pesticides can be expected to have different effects at different stages of fetal and child development, making exposure even more challenging to track; pesticides may persist in the environment for long periods making exposure difficult to measure; exposure may be cumulative; and pesticide metabolites may be more persistent or more toxic than the parent pesticide.

Because of these difficulties in quantifying pesticide exposure, studies can be expected to produce inconsistent findings. Therefore, it is not surprising that research has not produced a unified set of conclusions about the harm or safety of pesticides. However, many studies show negative effects of pesticides on adult health (Non-Hodgkin lymphoma, leukemia and multiple myeloma) as well as on child health (brain tumors, neuro-developmental abnormalities, and leukemia).

Agencies such as the International Agency on Research on Cancer have listed some pesticides (such as glyphosate) as probable carcinogens, prompting bans of glyphosate use in some jurisdictions. The fact that at least one jury has found that Roundup was a substantial factor in causing Non-Hodgkin lymphoma has strengthened public belief in the harm of pesticides. Because of legal precedent, municipalities that continue to use such pesticides may be more vulnerable to future lawsuits brought by individuals who believe they have been harmed by the pesticides.

Other organizations have raised serious concerns about the health risks of pesticides. The American Academy of Pediatrics issued statements urging efforts to protect children from exposure to pesticides (2012). The American Public Health Association has called on Congress to restructure regulations to protect public health in the absence of complete information about health effects of pesticides (2007). The endocrine disrupting effects of pesticides have led the Endocrine Society (2009), the American

Medical Association, the American Public Health Association (2010), and the World Health Organization (2012) to urge reducing the use of endocrine-disrupting substances, including some pesticides.

In public health, the Precautionary Principle is advised whenever a practice is seen to possibly cause harm to human health. In other words, when scientific certainty of harm is not fully established, but there is a reasonable expectation of harm to the environment or to human health, precautionary measures should be taken. The Precautionary Principle has four central components: taking preventive action in the face of uncertainty; shifting the burden of proof to the proponents of an activity; exploring a wide range of alternatives to possibly harmful actions; and increasing public participation in decision making. (Kriebel, D. et al. The Precautionary Principle in Environmental Science. *Environmental Health Perspectives*, 109(9) 871, September 2001). In the case of chemical pesticide use, the Precautionary Principle would require that scientists show without reasonable doubt that the products are safe; that in the absence of convincing safety data, people are protected from exposure; that non-toxic products are used instead whenever possible; and that public opinion be included in decision making.

Based on the above, the SCPR concludes that it is important for Northampton to consider eliminating pesticide use. If deemed absolutely necessary, any pesticide should be applied with utmost care in a manner that provides maximum protection of the public.

Limitations

This report is subject to the following limitations:

1. Only informal conversations with City departments were possible under the compressed time frame of the SCPR's charter. The SCPR did not have access to documentation to bolster a more comprehensive understanding of what was reported regarding the city's current use of pesticides.
2. Under state law, city councils do not have jurisdiction over private property. Therefore, pesticide practices and methods for reduction in use on private property were not explored. We note that several private properties in Northampton are used extensively for recreation, including Look Park, Childs Park, and the grounds of Smith College.
3. According to Northampton's City Solicitor, the City Council does not have jurisdiction over school policies and property. The Northampton School Committee, in collaboration with school principals, sets school policies including those affecting the maintenance of school property. Therefore, SCPR recommendations regarding use of pesticides on school grounds will require communication and collaboration with the School Committee.

4. Northampton's "Right to Farm" ordinance (Section 111-5 of the General Code: <https://ecode360.com/13265195>) explicitly allows farmers to use pesticides in farm operations. Therefore, SCPR recommendations regarding use of pesticides on City-owned farmland will require communication and collaboration with the Office of Planning and Sustainability/ the Agricultural Commission.
5. Committee members acknowledged limited expertise in state law and municipal policy and sought answers from knowledgeable individuals. Nonetheless, clear answers were not always possible to obtain within the limited time frame of the SCPR's charter.

Summary of Pesticide Use on Northampton Property

With the assistance of the Mayor's office, the Select Committee on Pesticide Reduction met with department administrators to learn about current pesticide practices in the City's buildings, grounds, parking lots, recreational athletic (playing) fields, multi-use trails, parks, cemeteries, farmland and conservation areas. As outlined by the City Council resolution creating this committee, we were especially attentive to pesticide use in areas where children might come in contact with pesticide chemicals. The SCPR appreciates the efforts already underway in City departments to reduce the use of pesticides in Northampton, and the good intentions of the department administrators who took time to talk with us. The following is a summary of our findings.

Department of Planning and Sustainability: *multi-use trails, City conservation land, and City-owned farmland*

The Office of Planning and Sustainability (OPS) oversees the management of multi-use trails and 2500 acres of conservation property including some City-owned farmland. OPS is aided in its oversight duties through the Conservation Commission and the Agricultural Commission. Herbicides such as Triclopyr and glyphosate products are used to control invasive plant growth along multi-use trails, conservation property, and farmland. Recently, OPS began experimenting with a program to use goats to address invasive plants.

On conservation properties, the City uses herbicides to protect habitat from invasive species, such as Japanese knotweed, bittersweet, silkgrass, and water chestnut. When herbicides are used in conservation settings they are often applied sparingly by hand with a brush or with a hooded spray applicator. All applications of herbicide on conservation property are subject to review by the Conservation Commission.

Due to their configuration, multi-use trails are especially susceptible to invasive plant growth. Invasive species often establish themselves along the edges of properties, and our multi-use trail system has many miles of borders. Herbicides are applied to targeted invasive plants along multi-use trails.

Currently there is only one City-owned farm parcel in which the farmer leasing the property is using herbicides. Located on Sylvester Road in a residential neighborhood, the property is used to grow feed corn. Management of this property and other City farmland is the purview of OPS with the Agricultural Commission serving in an advisory role.

Central Services Department: *City buildings and grounds, including school property*

The Central Services Department oversees the maintenance of City buildings and their grounds. Properties maintained include the City Hall complex, public safety and school department buildings and grounds, as well as school and municipal parking lots. Central Services uses pesticides to control insects, rodents, and unwanted plants.

Central Services contracts with Premier Pest Control to control ants and rodents inside buildings and around the exterior. Central Services staff reported that Premier uses many “green products” and uses traps to control rodents. Central Services staff cares for shrubs and lawns surrounding City buildings (including schools) where only lime is applied.

Central Services staff oversees maintenance of school buildings and grounds. The following information is included here, despite the fact that our City Council does not have jurisdiction over the schools according to our City Solicitor. Care of the main Northampton High School (NHS) athletic field is contracted out to TruGreen with the goal of maintaining a pristine playing surface that can stand up to wear and tear. As part of their turf maintenance program TruGreen applies synthetic fertilizers and pesticides. Targeted pests are crabgrass, dandelions, and grubs. Products such as Barricade and Escalade are applied to discourage weed growth. Application of these products typically occurs when school is not in session or students are on vacation, otherwise a notification is sent to parents (as required by state law).

School athletic fields other than the main NHS field are managed by Central Services staff in accordance with the schools’ outdoor Integrated Pest Management (IPM) plans designed by the schools, as mandated by state law.

If needed, StingX is used to address stinging insects (wasps, etc.).

Glyphosate products are used to control weeds in parking lots.

Department of Public Works: *City cemeteries, parks, and recreational athletic fields*

The Department of Public Works (DPW) oversees the care and maintenance of City cemeteries, parks, sidewalks, recreational athletic fields, wastewater treatment plants, sewers, stormwater systems and the levee system. Targeted pests and issues include

grubs, sewer rats, weeds on sidewalks, woody plant growth on the levees, and root intrusions into sewer pipes.

Over the last several years the DPW has endeavored to use as few chemicals as possible for turf management in city parks, cemeteries, and recreational athletic fields. Maintenance practices now include more frequent mowing, higher mowing height, and improved maintenance of mower blades. Grubs are controlled on recreational athletic fields by applying nematodes (a worm-like insect).

The Northampton sewer system requires ongoing maintenance to prevent tree root intrusion into the City's sewer pipes. Roots intruding into the pipes are cut mechanically using a roto-rooter machine and then the pipes are flushed with an herbicide, Razorooter. Rodenticides are used in manholes where sewer rats appear to be a problem.

To control vegetation that threatens the integrity of our levee system (and as required by the Army Corps of Engineers), DPW uses mechanical vegetation control every year. In addition, herbicide is applied every six years at locations where new plant growth is assessed to be a problem. A special licensed contractor conducts these herbicide applications. Glyphosate was applied this past summer (2019).

Health Department

The Health Department is charged with protecting the health and quality of life of residents and visitors. Mosquito-borne illnesses fall under the Health Department's purview. The Health Department contracts with a private contractor, Mosquito Squad, to distribute Bti (a larvicide) in catch basins and bodies of standing water (such as those in the Meadows) to reduce the number of potentially disease-carrying mosquitos. Bti is a bacterium naturally found in soil and is not considered a toxic synthetic chemical.

Pesticide Regulations in the Commonwealth

The Federal Government regulates pesticides through the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA). FIFRA gives the federal Environmental Protection Agency (EPA) the power to register pesticides and to regulate the use, storage and disposal of containers and manufacturing wastes. FIFRA allows states to have primary enforcement responsibility.

Massachusetts regulates pesticides under the authority of the Massachusetts Pesticide Control Act (MPCA, Chapter 132B of the Massachusetts General Laws). This law, enacted in 1978, places the power of pesticide regulation with the Massachusetts Department of Agricultural Resources. The regulations are Chapter 333 of the Code of Massachusetts Regulations (333 CMR). Pest Management within the Department of Agricultural Resources carries out these regulatory responsibilities.

Massachusetts law (Chapter 85 of the Acts of 2000), AN ACT PROTECTING CHILDREN AND FAMILIES FROM HARMFUL PESTICIDES, requires all school and child care facilities in the Commonwealth to inform parents and children when pesticides are being applied to school grounds (unless the application is done when school is not in session for at least 5 days), and to have an Integrated Pest Management (IPM) Plan filed according to a template provided by the Act. There appears to be little monitoring of compliance with the provisions of this law, leaving it to communities to assure that proper policies are being followed. School IPM plans can be found on the internet at <https://massnrc.org/ipm/schools-daycare/ipm-tools-resources/ipm-plan-maker/make-your-ipm-online/locate-school-plan.asp>

In Hampshire County, the nearby school districts of Amherst, Easthampton, Westhampton, Hatfield, Hadley, Southampton, Williamsburg, Pelham and Granby have publicly announced in their outdoor IPM plans filed with the State that no chemical pesticides are used on school grounds (For example, Amherst Regional High School's outdoor IPM plan states: "Amherst Regional High School does not use pesticides outdoors on school property including but not limited to treatments to school building exterior, playground equipment, waste receptacles, turf, landscape, trees & shrubs.") Chesterfield lists only an exempt pesticide for use on school grounds (cedarwood and cinnamon oil for ticks). However, Northampton schools have outdoor IPM plans available on the internet all of which (that were reviewed by the SCPR) include pesticides that have health concerns. See Appendix II for a description of the potential harms associated with listed products. See Appendix III for an example of a school IPM plan.

The IPM information sheets for each school, (available on the internet at <https://massnrc.org/ipm/schools-daycare/ipm-tools-resources/ipm-plan-maker/make-your-ipm-online/locate-school-plan.asp>), list many more chemical pesticides for use than those reported to SCPR in conversation with Central Services. The reason for this difference is that only those pesticides that have been used in the last year were discussed with SCPR, while other pesticides are listed in the IPM plans for potential use. (See Appendix III for a sample IPM plan for a Northampton public school).

See Appendix IV for a composite listing of chemicals listed for use or potential use by Northampton schools, Central Services, Department of Public Works, Department of Planning and Sustainability, and Health Department.

Cities and towns within the Commonwealth have addressed the issue of pesticide use in varying degrees. Local governments with policies that limit pesticide use, beyond the IPM requirement for schools, include (but are not limited to) Newburyport, Marblehead, Andover, and Chatham that have policies originated by the Board of Health, and Wellesley, Newton, and Eastham with policies originated by city/town council or a Natural Resource Commission. Three communities have enforcement and fines written

into their policies. The remaining regulations do not have enforcement outlined in the policy. The following table shows pertinent features of some municipal policies.

**Municipal Pesticide Policy Summary
November 5, 2019**

City/Town	Origin	Year	Notes	Enforcement
Marblehead	Board of Health	2005	Complete ban. Creates processes for exemptions and waivers, inventory of pesticides, and complaint process. Establishes an Advisory Committee	\$500.00 fine for an offense.
Wellesley	Natural Resource Commission	2002	Establishes an Advisory Committee	No enforcement mentioned.
Andover	Board of Health	2017	Appoints a Task Force, discourages use, calls for education, states goal to reduce use	No enforcement mentioned.
Newburyport	Ordinance	2019	Bans the use of Glyphosate only	BOH to regulate/enforce/\$500.00 fine
Eastham	Board of Select	2013	Prohibits use of EPA Toxicity Category I and II pesticides. Calls for reduced use of pesticides, identifies property, outlines turf and maintenance practices, and fertilizer application standards	No enforcement mentioned.
Newton	Committee established	2014	Representation from several departments	No enforcement mentioned.
Chatham	Board of Health	2014	2018 motion to BOH to eliminate Roundup.	BOH enforced fine \$50.00

The regulations reviewed from the above communities include a range of Outreach/Advisory/Task Force Committees to oversee the use and reduction of pesticides in the community. Some of these committees advise the regulating body, while others appear to have a stronger role in the enforcement and review of waivers and exemptions.

Features of some of the reviewed municipal policies include definitions of pesticides, references to best practices, standardization of practices among city/town departments, licensure, training, and protection of applicators. All of the policies have an exemption clause for pesticide use in special/emergency situations, although they vary on the means of approving an exemption. Most commonly, exemptions are granted through the Department or Board of Health of that jurisdiction.

SCPR Findings

Based on information gathered to date:

1. There is no apparent City-wide policy on pesticide use.
2. There appears to be no clearly identified process for requesting an exemption or waiver to use potentially harmful pesticides in the case of an emergency, nor instructions for how to inform the public of such a use.
3. There appears to be continuing use of pesticide for nonessential purposes. Examples include: application of pesticides on the high school athletic field for aesthetic considerations as opposed to the threat of harm to students from undesirable pests; the use of herbicides to eradicate nuisance weeds on school grounds; and the use of herbicides to eliminate nuisance weeds in City parking lots and sidewalks.

SCPR Recommendations

1. The Northampton City Council should appoint another Select Committee on Pesticide Reduction to explore how to carry out the following recommendations.
2. Over the next four years, the maintenance of all City-owned land on which children play (athletic/playing fields, playgrounds, and parks) should be transitioned to exclusively organic management. (An ordinance to this effect has been submitted to City Council). See Appendix V for a list of potential funding/training opportunities to make this transition.
3. Engage the City's school districts (the Northampton Public Schools and Smith Vocational and Agricultural High School) in a discussion about making a transition to exclusively organic management of their campuses.
4. Eliminate the use of toxic herbicides around municipal parking lots and sidewalks.
5. Explore with the Department of Health what is necessary to create a waiver/exemption process for pesticide use in public health emergency situations.
6. Initiate a City-wide education campaign for residents and business owners regarding the dangers of pesticide use and the nontoxic alternatives that can replace conventional pesticides in the management of private property.
7. Conduct conversations with private entities to encourage them to decrease or eliminate pesticide use where young people gather and play, including entities such as Smith College, Childs Park, and Look Park.

8. Explore with the Department of Planning and Sustainability/the Agricultural Commission how to help transition City-owned farmland to organic management, especially in residential neighborhoods.
9. Establish a permanent Pesticide Reduction Oversight Committee tasked with overseeing all of the above recommendations as well as tracking the City's use of pesticides (by all City departments) in an ongoing manner (See Appendix VI for recommendations regarding this committee's proposed responsibilities and composition).

Appendix I
Public Forums – October 16, 2019 and October 21, 2019
Recap of Public Comment

October 16, 2019 Forum

Attendees: Richard Jaescke, Anne-Louise Smallen, Ed Bourgeois, Jana Chicoine, Marty Dagoberto L. Driggs, Liz George, Karen Foster, Myla Kabat-Zinn, Ellen Carlilno, Susan Voss.

Richard Jaescke – Serves on Northampton’s Agriculture Committee. Their mission is to sustain and promote farming. We need to maintain the option to use a chemical no-till method on City-owned farmland. Farmer Parsons on Sylvester Road can’t afford to lose more farmland. Northampton has a right to farm bylaw. The Ag Commission wants Northampton farmers to be able to continue to use pesticides as needed to reduce the competition farmers are facing in the soybean and corn markets. They support organic farming and some people have come to Northampton to do it, but by and large they have failed. If farmers can survive and live using non-chemical methods, we should do it. But we should only do something that will allow them to survive as farmers.

Anne-Louise Smallen – worried about the use of glyphosate. Many towns in MA and around the world have already gone chemical-free. Would prefer manual eradication of invasives. We need to pass laws on this. Regulation can be the mother of invention.

Ed Bourgeois - works on global farming and food systems. Farmers are finding alternatives to chemicals. Need to work on soil health in farming as an alternative to glyphosate. We can use the UMass Extension service as a resource in transitioning to fewer chemicals and increasing the use of organic methods. There is an example of Gabe Brown, a farmer in North Dakota who is farming six thousand acres completely organically and he’s making more of a profit than neighboring farms that use chemical methods. There are ways to use cover crops between crop rows, and crimpers to keep the cover crop density. This avoids glyphosate and increases soil carbon.

Jana Chicoine – we should be able to put our minds together to get our farmers to stop poisoning our food supply. The City carries a liability for the health and wellbeing of its citizens, especially now that the City has received public testimony about how dangerous pesticides are. Myopic corporatism and profit-driven interests have taken over our vision and eroded our wellness and our lives; if we turn away from these things, we’re making our community more valuable and desirable. Also, we need to have the City put out a public statement to all residents about not using pesticides on private property.

Marty Dagoberto – Policy Director for Northeast Organic Farming Association (NOFA)/MA Chapter – we need to not play whack-a-mole by banning particular chemicals. A different pesticide will always be in the offing if we use this approach. What we need to do is shift the paradigm of how we do farming and manage lands to a pesticide-free system. It's important not to demonize farmers even when they resort to the use of chemicals. Rather, we need to support them to make the transition to chemical-free farming.

Liz George – concerned about dogs and their susceptibility to cancer because of pesticides. They, like small children, are closer to the ground. She provided a paper from Duke U. showing the increased risk of bladder cancer among certain breeds, after exposure to pesticides.

Karen Foster – We need to provide education to City residents for how to manage residential lawns without chemicals. As a City, we need to create and put in place systems to continue this work of pesticide reduction.

Mila Kabat-Zinn – Lived in Lexington for 35 years. They sprayed in the schools there and they did a study about it in the 1980s and switched to an Integrated Pest Management strategy. Do we need pristine fields to play on? NO! We need to change our habits and make this a healthier City and to look at risks vs. benefits of how we practice now. Also, would like the City to look into how the Smith Voc fields adjacent to the community gardens and “dog park” are managed. Are they using glyphosate? Can we influence a change to non-chemical management there? Can we urge them to provide education to their students on how to farm without pesticides?

Susan Voss – worried about schools using pesticides.

October 21, 2019 Forum

Attendees: Pat James, Marianne LaBarge, Penny Geis, Megha Arraj, Dale LaBonte, Larri Cochran, Marilyn O'Neil, Leonard Cohen, Judy Hyde, Bob Zimmerman, Bernadette Giblin, Tusi Gastonguay, Debbie Pastrich-Klemer, Kate Pastrich-Klemer, Ashley Schaeffer, Anne-Louise Smallen.

Bob Zimmermann – They are waging battle against invasives in the Broad Brook conservation areas around Fitzgerald Lake. The invasives grow extremely rapidly and start growing earlier in the Spring than native plants. Invasives are also abundant seed producers and not subject to natural predators to keep them under control. Natural bio-control agents take a long time to develop and some areas where there are large amounts of invasives are not amenable to hand-pulling. So, they must use herbicidal control. They use agents chosen for their specificity for type of plant or for their lack of persistence in the environment, as well as herbicides that can be applied in a very selective way. They use herbicides that are sprayed on a given individual plant with remarkable specificity and there is very little collateral damage to other plants in the

area. They have done manual removal of buckthorn and spotted knapweed. Glyphosate was used to get rid of phragmites in the marsh and those areas now are filled with cattails and other native plants. They applied it with low volume sprayers and the surfactant helps it stick to the plants. That way, the herbicide doesn't drift to other areas. In some case, stems were cut and plants injected with the herbicide. Once invasives blanket an area, it doesn't allow the growth of native species to provide nectar for bees, etc. In one area, after invasive phragmites was eliminated, 30 native plants came up. In considering pesticide reduction, we need to take the science around their use into account instead of just acting on a fear of chemicals.

Bernadette Giblin – Addressing cost of organic management, she pointed out that one study showed that there is payback after two years of organic management. Return on investment strategies show us that within two to three years of organic management of turf, you have a return. CT and NY have passed bans on using chemicals on school playing fields. Chemical companies use language that conveys that “we're engaged in a battle with the earth.” The language used around lawn care comes from battle language and it has been created by pesticide companies. Several school districts in Western MA are not using pesticides on school playing fields. Invasives are opportunistic when turf/soils are not healthy.

She was dismayed to learn that often, even after training in organic land care, staff often resort back to old habits and use conventional methods. For this reason she urges regulation must be in place to prevent that.

Len Cohen – is glyphosate a true carcinogen? It's a tiny molecule – derived from an amino-acid called glycine. It is a non-selective herbicide. It will kill not only destructive plants, but others too. Billions of pounds of glyphosate have been put on farms around the world over the last 40 years. It is known to last for about 30 years. It's classified as a “probable carcinogen.” The EPA then did a study that said it wasn't a carcinogen. Chemists get money from the chemical industry to publish their work that is favorable. We need independent researchers to do the studies. There's a lot of money in the chemical industry. There are weeds that are resistant to glyphosate, so we're already looking for other chemicals to apply. Glyphosate may not be a carcinogen, but it does seem to promote an already-carcinogenic event that has taken place. It is, potentially, a dangerous chemical. Dose determines whether a chemical is a remedy or a poison.

Pat James, Interim ED at Grow Food Northampton – we must be careful about the term “conventional.” Farming was historically non-chemical, but then started using chemicals. The use of the term conventional is problematic because it sounds like “conventional farming” is ok, but “conventionally” = chemically. When farming organically, if we heal and feed the soil, it'll take care of the soil, our food, and ultimately, the people. There is a study in which Harvard Yard was managed half chemically and half organically (carried out by the same person who managed the grounds of the Twin Towers after 9/11). Those areas managed organically have flourished and are beautiful. We have become so toxified by the broad spectrum use of chemicals. We need to give ourselves the patience that nature has to heal herself. If we take a more nuanced approach in

how we “manage” nature, we may understand how to use fewer chemicals. Chemicals should be used only in extreme situations.

Marianne LaBarge – would like a discussion with the residents on Sylvester Road by the farm plot managed by Mr. Parsons who is doing farming with chemicals and Roundup. Signage needs to be posted. We need everyone to be safe in this City. We need the Ag Commission and Wayne’s Department together to do community meetings and help Mr. Parsons to find ways to farm that keep people healthy. We need more transparency around his use of chemicals.

Penny Geis – this doesn’t have to be an all or nothing thing approach. Glyphosate can be applied carefully and it stays on the plant and the plants around its application will thrive. She monitored emerald ash borer beetles by the ball field at Jackson Street School – they were managed with chemicals in a manner that also killed beneficial wasps. We need training for all employees. Every custodian in our schools and municipal buildings needs training in how to avoid using and misusing pesticides.

The City should put up bat houses to control mosquitos. They do this in Europe and it has helped control mosquitos and mosquito-born diseases. Diatomaceous earth is effective against ants.

Mega Arraj – lives in apartment across from a big green lawn owned by Smith College. She was sick every year and realized there was a direct correlation between when she got sick and when they sprayed pesticides on that lawn. They were using 2,4-D (part of Agent Orange). She has had endocrine issues, sores in her mouth, vomiting and nausea as a result of the spraying. Smith also sprays Dicamba which is volatile – it travels up to half a mile and is shown to be an endocrine-disruptor. The EPA is in bed with the chemical industry. She saw 24-hour notice about the spraying of glyphosate on the dams in the Mill River. She wrote to Donna LaScaleia about it and Donna wrote back that glyphosate is safe to mammals. Donna also said that glyphosate doesn’t drift but goes into the soil. We should be abiding by the precautionary principle -- not use something unless we absolutely know it isn’t unsafe. Longer notification is necessary before any pesticide application is done in a public place.

Dale LaBonte – saw herbicide being applied in a parking lot in Northampton. The person applying it wasn’t wearing protective gear. He was using a nozzle-type applicator on cracks in pavement. The applier should have been wearing a sign that said he was applying herbicide. There should have been a warning that dogs and toddlers should be kept away. People and animals bring pesticides indoors on their shoes and clothing. There are studies that show that pesticides live longer indoors because the sun and rain, etc. don’t break them down in the same way as they might outdoors. Pesticide use in public areas is dangerous because of this. N’ton needs to be a leader in reducing pesticides.

Larri Cochran – she co-directs the all-volunteer Community Gardens committee with Betsey Wolfson. They are all-volunteer. They didn’t have the wherewithal to change the

rules at the gardens (with the City) to make it fully organic, so instead, they started education of the gardeners. They brought in people to teach about organics, IPM, and soil health. The gardens have 415 plots and 300 gardeners. Some have been around a long time and it's hard to change their ways. Some don't speak English and some are illiterate, so it has been hard to hand out materials that set rules. About 30 percent of the gardeners are using chemicals on their plots. The Japanese knotweed that is adjacent to the gardens is on a steep hill and it's already broached the back road. Initially, they decided to use glyphosate to eradicate it and applied for CPA funds to do it. But because of pushback, that plan has come to a standstill. They created an IPM decision tree to try and reach and explain their decision -- they want to keep the knotweed out of the garden and they would paint the chemical onto the leaves. They want to be able to use it in select situations. What they have now is a complicated geological situation -- it is very steep and they need to reserve the right to use glyphosate.

They, in collaboration with the Mayor and Rec Dept. sponsored a 'clean plant' sale this spring and invited the public.

Marilyn O'Neil -- it's not rocket science that chemicals are dangerous. Honey bees are coming back in France under organic practices.

Tusi Gastonguay -- she gardens organically on a one-acre plot. She has bittersweet and knotweed and pulls it manually and thinks we can get teams to do this in Northampton, too. Perhaps bicyclists could help keep the bike path free of invasives. The community gardens should not be using glyphosate on the knotweed. One handful of soil has a billion microorganisms in it and when chemicals are used, they are killed.

Debby Pastrich-Klemer and Kate Pastrich-Klemer -- they live in a house about 50 feet from where they want to use glyphosate in the community gardens. Downstream from the hill with the knotweed, there's a cistern of water. There are peepers there that will be affected by the application of glyphosate. Kate is an alternative healthcare practitioner that works on issues related to the gut biome. Glyphosate affects the gut biome and makes people sick. There is research to this effect. They do not want to walk their dog by there anymore.

In Europe the allowable limit for glyphosate is 0.7ppb, while in the U.S. it is 700ppb. She would help pull knotweed by hand.

Ashley Schafer -- lives adjacent to Parsons farm on Sylvester Road. They should not be able to use glyphosate on the farm plot there with residences right next to it. Signage when they are applying it is not enough.

Ann-Louise Smallen -- she rebuts the idea that glyphosate isn't carcinogenic. There are currently over nine thousand lawsuits against glyphosate. The argument that we can use a little bit and that it's safe is problematic. It's used as a desiccant on corn grown in the City and it's dangerous. The City needs to do public education about not using pesticides on private property, too. If we use organic methods to manage municipal lands, people will follow this lead on their private property.

Appendix II

Potential Harms Associated with Listed Pesticides

With reference to Appendix IV, many of the pesticides used, or listed for potential use, by departments in the City of Northampton, are of concern for a number of reasons. In a general sense, misuse and overuse of pesticides can damage soil microbiomes¹. Healthy soils reduce the need for fertilizers and pesticides and foster living organisms that support healthy plants.

There is one pesticide (Roundup or Lesco Prosecuter) used by a number of Northampton Departments that is classified as ‘Probably carcinogenic to humans’²; there are four pesticides (Quincept, Tripower, Escalade, and Acclaim) that are classified as ‘Possibly carcinogenic to humans’²; there is one pesticide (StingX) that contains an insecticide (permethrin) that has been classified as ‘known, likely, or probable human carcinogen by the U.S.E.P.A as of September 24, 2008’³.

There are three pesticides (Quincept, Escalade, and StingX) that are classified as having ‘a record of having biological activity in vitro leading to endocrine disruption’⁴. One pesticide (Roundup) has been found to be a ‘possible colony decliner’⁵ for honey bees, while six pesticides (Advion Ant/Roach Gel, StingX, Termidor, Tempo, Phantom, and Acclaim) are classified as ‘highly toxic’, and three pesticides (Quincept, Escalade, and Tripower) are classified as ‘moderately toxic’ to honey bees⁶.

¹National Pesticide Information Center, *Soil and Pesticides*
<<http://npic.orst.edu/envir/soil.html>>

²International Agency for Research on Cancer, IARC
<https://wiki.cancer.org.au/policy/IARC_classifications>

³Massachusetts Department of Agricultural Resources

⁴Advances in Chemical and Botanical Pesticides, R.P. Soundararajan, ed., Endocrine disrupting pesticides, Eva Matisova, Svetlana Hrouzková, July 25, 2012

⁵*Glyphosate perturbs the gut microbiota of honey bees*, E.V.S. Motta, K. Raymann, and N.A. Moran PNAS October 9, 2018 115 (41) 10305-10310

⁶NC Dept. of Agriculture and CS, Structural Pest Control and Pesticides Division from the: NC Agricultural Chemicals Manual (2016)

Appendix III

Example of an outdoor IPM Plan for Northampton High School

Northampton High School OUTDOOR INTEGRATED PEST MANAGEMENT (IPM) PLAN 380 Elm. St. Northampton, MA 01060

IPM Coordinator

Roland Lebeau

Primary Contact

Tony Kusnierz, 413-587-1305, tkusnierz@northampton-k12.us

Northampton High School employs Roland Lebeau an on-site certified and/or licensed pesticide applicator (certification/license #: 29919) who may be called on to manage all or some of the necessary OUTDOOR pest problems that may arise.

In addition, this School also has a contract with

- Guy L. George of Premier Pest Control, Inc. , 1-800-540-0241.

By signing the end of this outdoor IPM plan, the IPM coordinator, Roland Lebeau, of this School and the Pest Management Professionals described above acknowledge, and agree to the terms of this OUTDOOR integrated pest management plan.

A. INTRODUCTION

In compliance with the Act Protecting Children and Families from Harmful Pesticides the Northampton High School on 9/23/2019 4:46:00 AM has prepared the following outdoor IPM plan about pest control and pesticide use.

This plan describes the pest management practices for outdoor areas of Northampton

High School and clearly states its pesticide use policies.

A copy of the plan has been filed with the Massachusetts Department of Agricultural Resources (MDAR), and at least one printed copy must be kept on site and made available to the public upon request.

By centralizing all of the information about this facility's pest management practices the plan serves as a guide to direct this facility's IPM coordinator, Roland Lebeau

Objectives

The objectives of the integrated pest management program conducted at the Northampton High School are listed below.

- Reduce children's exposure to pesticides and pesticide residues whenever possible.
- Manage pests that may occur on facilities to prevent interference with the learning environment of the students.
- Provide the safest playing or athletic surfaces possible.

In light of these objectives, the Northampton High School has selected the following as its IPM policy statement.

B.POLICY STATEMENT

Structural and landscape pests can pose significant problems for people and property. Pesticides can pose risks to people, property, and the environment. It is therefore the policy of this school to incorporate Integrated Pest Management (IPM) procedures for control of structural and landscape pests. The objective of this program is to provide necessary pest control while minimizing pesticide use.

C. IPM COMMITTEE

The tasks set before an IPM committee are to:

- Develop an IPM plan. The IPM plan is in essence, a document that describes the organization and implementation of IPM on school grounds.
- Evaluate progress of the IPM program.
- Communicate about IPM - Facilitate communication within the school about IPM practices.
- Assist in development of contract specifications.

- Provide notification to parents about pesticide use.

The OUTDOOR committee members selected for the Northampton High School are listed below:

- 1) Roland Lebeau (Outdoor IPM Coordinator)
- 2) Roland Lebeau
- 3) Tony Kusnierz

D. COMMUNICATING IPM WITHIN THE FACILITY

Pest Management Personnel to Building Staff:

The Pest Management Professional communicates with the IPM coordinator of the facility. The IPM coordinator then passes this information onto an administrative assistant who decides how the information will be distributed throughout the facility.

Staff/Students communicate with their supervisors who then pass information onto the IPM coordinator.

E. EDUCATION AND TRAINING OF FACILITY OCCUPANTS & STAFF

All employees will receive training on IPM. Training will provide different methods and strategies for proper sanitation, health concerns and pest reporting procedures.

F. OUTDOOR MONITORING

The IPM plan will follow a Annually evaluation schedule. When pests are present, Northampton High School has chosen an **OUTDOOR monitoring schedule that consists of Semiweekly inspections**. When pests are absent the **OUTDOOR monitoring schedule will consist of Weekly inspections**.

The following technique will be used to monitor for pests: Reports from facility staff and students (pest reporting forms) would prompt the IPM coordinator to contact the facility's Pest Management Professional who would then conduct a facility audit.

G. COURSE OF ACTION TAKEN FOR OUTDOOR PESTS

Outdoor property includes the turf, landscaping, and the outdoor grounds such as building

exterior, playground equipment, etc.. Northampton High School has prepared maps of the outdoor facility and identified the following priority areas for maintenance:

Turf

The athletic fields are priority areas for maintenance.

Outdoor Grounds

The priority area for maintenance is the Athletic Fields.

The following pests have historically and/or currently been a problem at Northampton High School:

TURF PESTS	LANDSCAPING AND PLANT PESTS	OUTDOOR GROUNDS PESTS
<p>Insects/pests under the soil or root zone Grubs (Japanese Beetles, European Chafer, Asiatic Garden Beetles, Oriental Beetles, and other)</p> <p>Surface and/or thatch pests Chinch Bug</p> <p>Weeds Crabgrass Dandelions, plaintains, ground ivy, cinquefoil Prostrate spurge</p> <p>Other</p>		<p>Pests Stinging Insects</p> <p>Insects in playground area (if applicable) Yellow Jackets</p> <p>Other</p>

TURF MANAGEMENT PLAN

The following areas are priority areas for maintenance: The athletic fields are priority areas for maintenance.

Cultural Practices

Mowing:

Mower blades are sharpened once a week. Mowing height is three inches during the summer. The clippings are mulched.

Aeration:

Aeration is performed twice a year: spring and fall on the athletic fields.

Water Management:

Irrigation is performed every other day, for approx. fifteen minutes per zone, through 28 zones. No drought tolerant species.

Fertilization:

Fertilizer Apps are based on a soil test. Fertilizer used is Andersons Fertilizer with .028% Barricade Herbicide in the spring. Late June when school is out Lesco 24-5-11 with 2% Merrit and trupower 3, quincept is applied. August Lesco 25-0-8 with 20%scu, and quincept, dismiss is applied. In Oct. Lesco 7-1-3 Fert. with 62% solucal is put down.

Equipment Maintenance:

Application of fertilizer and weed control is Sub contracted out to our third party applicator.

Turfgrass diseases

Describe the monitoring technique you used for the pests above.

Provide information on how you diagnosed the pests above.

Provide details on the non-chemical control measures have you taken to manage the pests above.

Describe any alternative management or biological strategies being used or planned to be used, if any.

If you use fungicides, describe your rationale for using them for the pests above.

Insects/pests under the soil or root zone

Grubs (Japanese Beetles, European Chafer, Asiatic Garden Beetles, Oriental Beetles, and other)

Surface and/or thatch pests

Chinch Bug

Other Turf Pest Problems

Describe the monitoring technique you used for the pests above.

A patch is cut in the turf and a count is made to track problem.

Provide information on how you identified the species of pests above.

General knowledge and use of a magnifying glass to determine type of grub.

Provide details on the non-chemical control measures have you taken to manage the pests above.

Non-chemical controls include watering and cutting the grass high (3").

Describe any alternative management or biological strategies being used or planned to be used, if any.

none.

If you use insecticides, describe your rationale for using them for the pests above.

We use Talstar Professional Insecticide. For safety reasons, safe playing surface for students.

Pesticide

Product Name	Active Ingredient	EPA Registration Number	Target Pest	Rationale for use
Merit	Imidacloprid	432-1312	Chinch Bugs	Safety

- Insecticides are only applied by a certified and/or licensed applicator.
- Insecticides are used only when monitoring has shown that insects are present.
- Selective insecticides are used where possible instead of broad spectrum insecticides.
- Insecticides that are applied preventatively are used only in areas where insects occurred and were documented the previous year and can be expected to occur in current season.
- Insecticide Use is documented in the [STANDARD WRITTEN NOTIFICATION FORM](#).

Weeds

Crabgrass
Dandelions, plaintains, ground ivy, cinquefoil
Prostrate spurge

Describe the monitoring technique you used for the pests above.

Visual Inspection.

Provide information on how you identified the species of pests above.

General Knowledge.

Provide details on the non-chemical control measures have you taken to manage the pests above.

Physically pull.

Describe any alternative management or biological strategies being used or planned to be used, if any.

Mowing height and irrigation.

If you use herbicides, describe your rationale for using them for the pests above.

Safety of the students using the fields.

Pesticide Product Name	Active Ingredient	EPA Registration Number	Target Pest	Rationale for use
Quincept	Dimethylamine Salt	228531	Weeds, crabgrass	Safety
Dismiss	Sulfentrazone	279-3295	Nutsedge, Turfgrass Weeds	Safety
Escalade 2	Dimethylamine Salt	228-442	broadleaf weeds	Safety
Lesco	Glphosate	524-536-10404	Weeds	Safety
Prosecutor				
Barricade	Prodiaminet	9198-124	Weeds	Safety
Trupower 3	Triisopropanolamine Salt	228-551	broadleaf weed	Safety
Acclaim	Benzozazole	432-980	broadleaf weed	safety
Quinclorac	Quinclorac	228-592	crabgrass weed	safety
Vista Ultra	fluroxypr 1-methylheptyl ester	62719-308	broadleaf weeds	safety
Fertilzier with Barricade	Prodiamine	961-367	crabgrass	safety

- ' Herbicides are only applied by a certified and/or licensed applicator.
- ' Herbicides are applied as a spot treatment when appropriate.
- ' Selective insecticides are used where possible instead of broad spectrum insecticides.
- ' Herbicide Use is documented in the [STANDARD WRITTEN NOTIFICATION FORM](#).

OUTDOOR MANAGEMENT PLAN

The following areas are priority areas for maintenance: The priority area for maintenance is the Athletic Fields.

Cultural Practices

OUTDOOR GROUNDS GENERAL MANAGEMENT PRACTICES

Waste Disposal (trash containers and dumpsters):

There are onsite dumpster managed by a waste disposal company. They are used twice daily by staff.

Light Management:

None.

Excess Water Prevention:

None.

Noxious Weed Management:

Not a problem.

Playgrounds (if applicable):

Not a problem.

Nuisance weeds in pavement:

Pull by hand when needed and/or Lesco Prosecutor.

Storage Sheds (If applicable):

No outside sheds.

Insects observed in and around outdoor grounds of school property.

Stinging Insects

Pests

Stinging Insects

Insects in playground area (if applicable)

Yellow Jackets

Describe the monitoring technique you used for the pests above.

Grounds staff searches known problem areas when bees/wasps are in season.

Provide information on how you identified the species of the pests above.

General knowledge & experience is used to identify pest species. However, our pest management professionals are available for further ID.

Provide details on the non-chemical control measures you have taken to manage the pests above.

Nests are manually removed.

If you use insecticides, describe your rationale for using them for the pests above.

If the nest is too big or at a place where it can't be removed manually then insecticides may be used.

Pesticide

Product Name	Active Ingredient	EPA Registration Number	Target Pest	Rationale for use
Motherearth D	Diatomaceous earth	499-509	Ants/Wasps	Safety
25b exempt products	exempt	exempt	Bees and wasps	Safety

- Insecticides are only applied by a certified and/or licensed applicator.
- Insecticides are used only when monitoring has shown that insects are present.
- Insecticides that are applied preventatively are used only in areas where insects occurred and were documented the previous year and can be expected to occur in current season.

Weeds

Noxious weeds noticed on the school grounds

Describe the monitoring technique you used for the pests above.

Provide information on how you identified the species of the pests above.

Provide details on the non-chemical control measures have you taken to manage the pests above.

If you use herbicides, describe your rationale for using them for the pests above.

H. RECORD KEEPING

In the case of Northampton High School, OUTDOOR monitoring records will be maintained through: The use of forms which will be filled out by the person monitoring the facility

I. EVALUATING THE PROGRAM

The IPM plan will be evaluated on a Annually basis.

J. NOTIFICATION REQUIREMENTS & EXEMPTIONS

During the creation of this IPM plan, Tony Kusnierz has assigned committee member Roland Lebeau with the responsibility of assembling and issuing all the documents that accompany the standard written notification whenever pesticides are applied outdoors.

K. IN THE EVENT OF A HEALTH EMERGENCY

During the creation of this IPM plan, Tony Kusnierz has assigned committee member Roland Lebeau with the responsibility of applying for an emergency waiver.

L. LIST OF PESTICIDES TO BE USED OUTSIDE THE FACILITY

The following list includes all the pesticides that will be used outside Northampton High School. This list includes all herbicides, fungicides, and insecticides that will be used in the event that chemical is required.

Pesticide Product Name	Active Ingredient	EPA Registration Number	Target Pest	Rationale for use
Merit	Imidacloprid	432-1312	Chinch Bugs	Safety
Motherearth D	Diatomaceous earth	499-509	Ants/Wasps	Safety
25b exempt products	exempt	exempt	Bees and wasps	Safety
Quincept	Dimethylamine Salt	228531	Weeds, crabgrass	Safety

Dismiss	Sulfentrazone	279-3295	Nutsedge, Turfgrass Weeds	Safety
Escalade 2	Dimethylamine Salt	228-442	broadleaf weeds	Safety
Lesco	Glphosate	524-536-	Weeds	Safety
Prosecutor		10404		
Barricade	Prodiaminet	9198-124	Weeds	Safety
Trupower 3	Triisopropanolamine Salt	228-551	broadleaf weed	Safety
Acclaim	Benzozazole	432-980	broadleaf weed	safety
Quinclorac	Quinclorac	228-592	crabgrass weed	safety
Vista Ultra	fluroxypr 1- methylheptyl ester	62719-308	broadleaf weeds	safety
Fertilzier with Barricade	Prodiamine	961-367	crabgrass	safety

M. WELL WATER SYSTEM

The school does not have its own on site well water system.

I attest, to the best of my knowledge, that the above information is complete, accurate and true

IPM Coordinator Signature

____/____/____
Date

Administrator, Director, or Principal

____/____/____
Date

Outdoor IPM Plan originally submitted on: 3/30/2007 11:01:00 AM

Plan updated by Tony Kusnierz on: 9/23/2019 4:46:00 AM

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Appendix IV
Select Committee on Pesticide Reduction
Review of Pesticides in Use or Listed for Potential Use

Trade Name	Pesticide	IARC Rating ¹	Endocrine Activity Rating ²	EPA Toxicity Rating ³	Honeybee Toxicity ⁴	Half-Life	Biodegradability	Action	City of Northampton Department	Application
Roundup Lesco Prosecutor	Glyphosate 41%	Group 2A	Category 3	III-IV	Possible colony decliner ⁵	91 days _{H₂O} ⁶ 2-197 days _{soil} ⁶	Strongly adsorbs to soil ⁷	Herbicide	Planning & Sustainability	bike path; Japanese knot weed
	Polyethoxylated tallow amine 59%					2 weeks _{H₂O} ⁸ <7 days _{soil} ⁸	Adsorbs to soil, Low biodegradability ⁸	Surfactant Synergist	School (High School, JFK, Leeds, Jackson Street, Bridge Street, Ryan Road) Public Works	Outdoor: parking lots, weeds, poison ivy Mill River levee
Triclopyr	[(3,5,6-Trichloropyridin-2-yl)oxy]acetic acid			III	Relatively non-toxic	10 hours _{H₂O} ⁹ 46 days _{soil} ⁹	Readily biodegradable ¹⁰	Herbicide	Planning & Sustainability	
Advion Ant Gel Advion Roach Gel	Indoxacarb			III-IV	Highly toxic	3.2-4 days _{H₂O} ¹¹ 139 days _{soil} ¹¹	Persistent in soil ¹²	Insecticide	School (High School, JFK, Leeds, Jackson Street, Bridge Street, Ryan Road)	Indoor: ants, roaches
Barricade	Prodiamine		Category 3	III-IV	Low toxicity	No degradation _{H₂O} ¹³ 57 days _{soil} ¹³		Herbicide	School (High School)	Outdoor: turf
Quinclorac Vista Ultra	Fluroxypr			III	Relatively non-toxic	49 days _{soil} ¹⁴		Herbicide	School (High School)	Outdoor: turf
Quincept	2,4-D 13.24%	Group 2B	Category 2	I-III	Relatively non-toxic	15 days _{H₂O} ¹⁵ 10 days _{soil} ¹⁵		Herbicide	School (High School)	Outdoor: turf
	Quinclorac 8.25%			III	Relatively non-toxic					
	Dicamba			III	Moderately toxic	1-4 weeks _{soil} ¹⁶	Negligible ¹⁶			
	Polyethoxylated tallow amine 77.13%					2 weeks _{H₂O} ⁷ <7 days _{soil} ⁷	Adsorbs to soil, Low biodegradability ⁷			

Escalade	2,4-D 40%	Group 2B	Category 2	I-III	Relatively non-toxic	15 days _{H₂O} ¹⁵ 10 days _{soil} ¹⁵		Herbicide	School (High School)	Outdoor: turf
	Fluroxypyr 6%			III	Relatively non-toxic	49 days _{soil} ¹⁴				
	Dicamba 4%			III	Moderately toxic	1-4 weeks _{soil} ¹⁶	Negligible ¹⁶			
StingX	Permethrin 0.25%	Group 3	Category 2		Highly toxic	23-38days _{H₂O} ¹⁷ <4 weeks _{soil} ¹⁷	<4 weeks ¹⁷	Insecticide	School (JFK, Jackson Street, Ryan Road)	Outdoor: wasps
	Tetramethrin 0.10%			III-IV	Highly toxic		<1 day ¹⁸	Insecticide		
	Piperonyl Butoxide 0.50%	Group 3	Category 2	III	Relatively non-toxic	0.55-1.64 days _{H₂O} ¹⁹ 4.3 days _{soil} ¹⁹		Pyrethroid Synergist		
Razerooter	Diquat Dibromide			II	Relatively non-toxic	<48 hours _{H₂O} ²⁰	Strongly adsorbs to soil ²⁰	Herbicide	Public Works	tree roots in sewers
Contra Blox	Bromadiolone			III		392 days _{H₂O} ²¹	Negligible ²¹ Strongly adsorbs to soil ²²	Rodenticide	Public Works	rats in sewers
									School ((High School, JFK, Leeds, Jackson Street, Bridge Street, Ryan Road)	Indoor: rodents
Termidor	Fipronil		Category 3	II-IV	Highly toxic ²³	4-12hours _{H₂O} ²³ 125days _{soil} ²³	Highly persistent	Insecticide	School (JFK, Jackson Street)	Indoor: termites
Tempo	Cyfluthrin			I-II	Highly toxic	12 days _{H₂O} ²⁴ 34 days _{soil} ²⁴	Neither readily nor inherently biodegradable ²⁵	Insecticide	School (Jackson Street)	Indoor: carpenter ants
Phantom	Chlofenapyr			II-III	Highly toxic	0.8 years _{H₂O} ²⁶ 1 year _{soil} ²⁶	Binds strongly to soil particles; and degrades slowly in soil ²⁶	Acaricide	School (High School)	Indoor: centipedes
Summit	B.t.i. Briquets ²⁷	Group 3			Slightly toxic ²⁷		Contains readily biodegradable components ²⁷	Larvicide	Board of Health	catch basins, meadows, and standing waters
Corn Gluten Meal ²⁸								Herbicide	DPW	cemeteries
Motherearth D	Diatomaceous Earth							Insecticide	School (High School, Leeds)	Indoor: ants, wasps, pantry pests Outdoor: ants, wasps

TriPower	2-Methyl-4-Chlorophenoxyacetic Acid 40%	Group 2B		IV	Relatively non-toxic	10-14 days _{soil} ²⁹		Herbicide	School (High School)	Outdoor: turf
				III	Not toxic to bees ³⁰					
	(4-Chloro-2-methylphenoxy)propionic acid 7%			III	Moderately toxic	1-4 weeks _{soil} ¹⁰				
Dismiss	Sulfentrazone			III	Relatively non-toxic			Herbicide	School (High School)	Outdoor: turf
Acclaim	Fenoxaprop-p-ethyl	Group 2B			Highly toxic		Not rapidly biodegradable: Immobile in soils ³¹	Herbicide	School (High School)	Outdoor: turf
Altriset	Chlorantraniliprole			IV	Relatively non-toxic ³²	0.37 days _{H₂O} ³³ 651 days _{soil} ³³	Persistent and mobile ³²	Insecticide	School (Jackson Street)	Indoor: termites
Advance Termite	Diflubenzuron			III	Relatively non-toxic	2 days _{soil} ³⁴	Non-persistent and immobile ³⁴	Insecticide	School (Jackson Street)	Indoor: termites
EcoVia	Thyme oil			III				Insecticide	School	
	Silica gel			III						

¹International Agency for Research on Cancer, IARC <https://wiki.cancer.org.au/policy/IARC_classifications> (Group1: ; Group 1: "**Carcinogenic to humans**" There is enough evidence to conclude that it can cause cancer in humans., Group 2A: "**Probably carcinogenic to humans**" There is strong evidence that it can cause cancer in humans, but at present it is not conclusive., Group 2B: "**Possibly carcinogenic to humans**" There is some evidence that it can cause cancer in humans but at present it is far from conclusive., Group 3: "**Unclassifiable as to carcinogenicity in humans**" There is no evidence at present that it causes cancer in humans., Group 4: "**Probably not carcinogenic to humans**" There is strong evidence that it does not cause cancer in humans.

²Advances in Chemical and Botanical Pesticides, R.P. Soundararajan, ed., Endocrine disrupting pesticides, Eva Matisova, Svetlana Hrouzková, July 25, 2012 (Category 1: endocrinal effect recorded at least on one type of animal, Category 2: a record of biological activity in vitro leading to disruption, Category 3: not enough evidence or no evidence data to confirm/ disconfirm endocrinal effect of tested chemicals.)

³EPA Toxicity Category Rating 40 CFR 156.62 2009, Toxicity category I: Highly toxic and severely irritating, Toxicity category II: Moderately toxic and Moderately irritating, Toxicity category III: Slightly toxic and Slightly irritating, Toxicity category IV: Practically non-toxic and not an irritant.

⁴NC Dept. of Agriculture and CS, Structural Pest Control and Pesticides Division from the: NC Agricultural Chemicals Manual (2016)

⁵*Glyphosate perturbs the gut microbiota of honey bees*, E. V. S. Motta, K. Raymann, and N. A. Moran PNAS October 9, 2018 115 (41) 10305-10310

⁶National Pesticide Information Center, Oregon State University, Glyphosate General Fact Sheet <<http://npic.orst.edu/factsheets/glyphogen.html>>

⁷*Fate of glyphosate in soil and the possibility of leaching to ground and surface waters: a review*, Borggaard ,O.K., Gimsing, A.L., *Pest Manag Sci.* 2008 Apr;64(4):441-56.

⁸Environment and Climate Change Canada, Screening Assessment for the Challenge Amines, tallow alkyl, ethoxylated, phosphates, Chemical Abstracts Service Registry Number 68308-48-5, August 2009

⁹National Pesticide Information Center, Oregon State University, Triclopyr General Fact Sheet <<http://www.npic.orst.edu/factsheets/triclopyrgen.html>>

¹⁰United States Department of Agriculture, Triclopyr Herbicide Information Profile, November 1996

¹¹EPA Pesticide Fact Sheet Indoxacarb October/30/2000

¹²*Pesticides and You* Vol.32 No.2, Summer2012

¹³National Pesticide Information Center, Oregon State University, Prodiamine General Fact Sheet <<http://npic.orst.edu/HTTP/>>

¹⁴Journal of Environment Quality;41(6):1884-92, 2012 Nov-Dec

¹⁵National Pesticide Information Center, Oregon State University, 2,4-D, General Fact Sheet <<http://npic.orst.edu/ingred/24d.html>>

¹⁶Pesticide Information Profile, EXTNET, 9/1996 <<http://extoxnet.orst.edu/pips/dicamba.htm>>

¹⁷NIH U.S National Library of Medicine, Permethrin CASRN: 52645-53-1, 9/4/2014

¹⁸Thurston County Health Department, Olympia WA, Tetramethrin CAS# 7696-12-0, 12/10/2010

¹⁹National Pesticide Information Center, Oregon State University, Piperonyl Butoxide, General Fact Sheet <<http://npic.orst.edu/factsheets/pbogen.html>>

²⁰Pesticide Information Profile, EXTNET, 9/1993 <<http://pmp.cce.cornell.edu/profiles/extoxnet/dienochlor-glyphosate/diquat-ext.html>>

²¹National Pesticide Information Center, Oregon State University, Bromadiolone General Fact Sheet <<http://npic.orst.edu/factsheets/bromadgen.html>>

²²NIH U.S National Library of Medicine, Bromadiolone CASRN: 28772-56-7, 8/31/1990

²³National Pesticide Information Center, Oregon State University, Fipronil, <<http://npic.orst.edu/factsheets/fipronil.html>>

²⁴National Pesticide Information Center, Oregon State University, Cyfluthrin General Fact Sheet <<http://www.npic.orst.edu/factsheets/cyfluthringen.html>>

²⁵Evaluation Report, Cyfluthrin CAS-No. 68359-37-5 From Bayer Environmental Science, France, 2/2010

²⁶Fluoride Action Network Pesticide Project Chlorfenapyr CAS No. 122453-73-0 <<http://www.fluoridealert.org/wp-content/pesticides/chlorfenapyr-page.htm>>

²⁷*Bacillus thuringiensis* subspecies *israelensis* solids, spores and insecticidal toxins, Material Safety Data Sheet Summit® Mosquito Dunks®/ BTI Briquets 4/29/2015

²⁸Corn Gluten Meal Profile, Active Ingredient Eligible for Minimum Risk Pesticide Use, New York State Integrated Pest Management Program, Cornell University, Geneva NY
<<https://ecommons.cornell.edu/bitstream/handle/1813/56121/corn-gluten-meal-MRP-NYSIPM.pdf?sequence=1>>

²⁹Material Safety Data Sheet, Nufarm, TriPower Selective Herbicide, April 12, 2015

³⁰Pesticide Information Profile, EXTONET, 9/1995 <<http://extonet.orst.edu/pips/mecoprop.htm>>

³¹PPDD Pesticide Property Data Base University of Hertfordshire, England, October 15, 2019

³²EPA Pesticide Fact Sheet Chlorantraniliprole April 2008

³³New York State Department of Environmental Conservation, Division of Solid and Hazardous Materials, Bureau of Pesticides Management Pesticide Product Registration Section August 4, 2009

³⁴EPA Fact Sheet for Diflubenzuron August 1997

Appendix V

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

1. The National Coalition for Pesticide-Free Lawns (<https://www.beyondpesticides.org/programs/lawns-and-landscapes/overview>) offers an Organic Land Care Basic Training for Municipal Officials and Transitioning Landscapers. This three-part training explains the Simple Steps to begin an organic turf program and covers the basic concepts, methods, and materials needed to get started. The training is geared toward school or park and recreation officials, however landscapers interested in transitioning to organic methods 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 (<https://osborneorganics.com/about-chip-osborne-jr/>). He is accredited in organic land care 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. He 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. Training materials are available to watch three recorded hour-long sessions at \$40 for municipal officials, and \$90 for professional landscapers. (Training discs can be ordered from Beyond Pesticides' Online Store). More information is available by calling Beyond Pesticides at (202) 543-5450 or sending an email to info@beyondpesticides.org.
2. Toxics Use Reduction Institute (TURI) <https://www.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. TURI 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 (<https://www.beyondpesticides.org/>) in conjunction with Chip Osborne Organics, LLC (<https://osborneorganics.com/>) offers 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. Chip Osborne continues as a consultant for questions that arise. 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 (<https://www.stonyfield.com/playfree>) has a program to train municipal staff throughout the United States in organic management of turf and landscape. Stonyfield provides a donation to towns and cities already making progress with organic policy of \$5,000 to use towards the purchase of organic (OMRI-approved) inputs or landscaping equipment needed for organic management, as well as in-kind community support and technical services valued at \$10,000 - \$20,000. An application for the City of Northampton was sent in on September 8, 2019. October 23, 2019 - Chip Osborne will follow up directly with Stonyfield about Northampton's application to encourage them to work with Northampton once legislation has been passed mandating organic management of the places children play.
5. Non-toxic Neighborhoods (NTN) (<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 (SAFSF – <http://www.safsf.org/>) is a California-based philanthropic organization supporting grant-makers and mission-based investors interested in just and sustainable food and agriculture systems and the promotion of organic management. It is worth looking through all of SAFSF member foundations and investors to see if any provide grants to municipalities to convert to organic management of public properties.

Appendix VI

Proposed Northampton Pesticide Oversight Committee

The purposes of the proposed Northampton Pesticide Reduction Oversight Committee (the Committee) are to:

1. Review progress, at least every 6 months, in achieving interim and long-term goals in the transition to organic management of municipal athletic/playing fields, parks, and playgrounds as mandated by ordinance.
2. Assure that all exceptions to Northampton's Organic Management policies are approved by Department of Health, are subject to strict record-keeping procedures, and are announced to the public.
3. Ensure provision of educational opportunities to Northampton residents and business owners about organic management of private property.
4. Conduct ongoing conversations with private entities in the City regarding their possible transition to organic management, e.g. Smith College; Childs Park; and Look Park.
5. Assure that City departments are aware of grants available to help with pesticide training and transition of pesticide policies (See Appendix V).

The committee should be chaired by a citizen stakeholder. Recommended membership of the committee includes a representative from each of the following:

Northampton City Council

Health Department or Board of Health

Department of Public Works

Central Services Department

Department of Parks and Recreation

Department of Planning and Sustainability

The School Committee

The Board of Trustees of Smith Vocational and Agricultural High School

Up to three Northampton residents with expertise in organic land management or public health