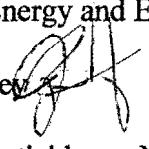


MEMORANDUM

September 15, 2015

Committee members should bring the packets from the March 16, March 30, and June 15 worksessions.

TO: Transportation, Infrastructure, Energy and Environment Committee

FROM: Josh Hamlin, Legislative Attorney 

SUBJECT: **Worksession 4: Bill 52-14, Pesticides – Notice Requirements – Non-Essential Pesticides – Prohibitions**

Bill 52-14, Pesticides – Notice Requirements – Non-Essential Pesticides – Prohibitions, sponsored by then Council Vice President Leventhal and Councilmembers Elrich, Riemer, Floreen, and Navarro was introduced on October 28. Public hearing on the Bill began on January 15, and was continued on February 12. The Transportation, Infrastructure, Energy and Environment (T&E) Committee has held worksessions on March 16, March 30 and June 15.

Bill 52-14 would:

- (1) require posting of notice for certain lawn applications of pesticide;
- (2) prohibit the use of certain pesticides on lawns;
- (3) prohibit the use of certain pesticides on certain County-owned property;
- (4) require the County to adopt an integrated pest management program for certain County-owned property; and
- (5) generally amend County law regarding pesticides.

Background

Bill 52-14

Bill 52-14 includes provisions related to the application of pesticides on County-owned and private property, and requires the County to adopt an Integrated Pest Management (IPM) plan. IPM is a method of pest control which minimizes the use of chemical pesticides by focusing on pest identification, monitoring and assessing pest numbers and damage, and using a combination of biological, cultural, physical/mechanical and, when necessary, chemical management tools.¹

¹ <http://www.epa.gov/opp00001/factsheets/ipm.htm>

Council President Leventhal has explained the purpose of this Bill in his October 22, 2014 memorandum to Councilmembers (See ©14-17).²

Bill 52-14 will:

- 1) Require the posting of notice when a property owner applies a pesticide to an area of lawn more than 100 square feet, consistent with the notice requirements for when a landscaping business treats a lawn with a pesticide;
- 2) Require the Executive to designate a list of “non-essential” pesticides including:
 - all pesticides classified as “Carcinogenic to Humans” or “Likely to Be Carcinogenic to Humans” by the U.S. EPA;
 - all pesticides classified by the U.S. EPA as “Restricted Use Products;”
 - all pesticides classified as “Class 9” pesticides by the Ontario, Canada, Ministry of the Environment;
 - all pesticides classified as “Category 1 Endocrine Disruptors” by the European Commission; and
 - any other pesticides which the Executive determines are not critical to pest management in the County.
- 3) Generally prohibit the application of non-essential pesticides to lawns, with exceptions for noxious weed and invasive species control, agriculture and gardens, and golf courses;
- 4) Require the Executive to conduct a public outreach and education campaign before and during the implementation of the Bill;
- 5) Generally prohibit the application of non-essential and neonicotinoid pesticides to County-owned property; and
- 6) Require the County to adopt an Integrated Pest Management plan.

Bill 52-14 has an expiration date of January 1, 2019.

Public Hearings and Correspondence

The Committee held public hearings on the Bill on January 15 and February 12, with 38 people testifying in January, and 30 speaking in February. In addition to the public hearing testimony, the Bill has been, and continues to be, the subject of a huge amount of written correspondence. The testimony and correspondence have coalesced around several recurring themes, which frame major issues for the Committee to examine as it considers the Bill. These themes include: (1) existing regulation of pesticides, particularly at the State and federal level is, or is not, sufficient; (2) chemical pesticides pose, or do not pose, serious threats to human health; (3) pesticides threaten, or do not threaten, the health of pollinators and the Chesapeake Bay watershed; and (4) it is, or is not, possible or feasible to maintain lawns and playing fields without the use of chemical pesticides.

² For additional background on this Committee’s recent consideration of pesticides and pesticide use in Montgomery County, see the packet for the September 9, 2013 discussion at: http://www6.montgomerycountymd.gov/content/council/pdf/agenda/cm/2013/130909/20130909_TE3.pdf. Video of the discussion is available, beginning at 22:10, at: http://montgomerycountymd.granicus.com/MediaPlayer.php?view_id=6&clip_id=5704.

As mentioned above, the Council has received a large amount of correspondence from constituents, as well as concerned individuals outside of the County. An analysis of correspondence received as of September 11 has indicated that approximately 1699 unique individual County residents have submitted correspondence in support of Bill 52-14, and 663 have submitted correspondence in opposition. In addition to individual correspondence, the Council has received a number of petitions related to Bill 52-14, with 3011 County residents signing petitions in support of the Bill and 157 in opposition.

March 16 Worksession

The T&E Committee held a worksession on Bill 52-14 on March 16. At that worksession, the Committee heard from regulators working at the County, State, and federal levels of government.³ Representatives of the County's Department of Environmental Protection (the Department), the Maryland Department of Agriculture (MDA), and the U.S. Environmental Protection Agency (EPA) described the roles of their respective agencies in the regulation of pesticides in the County. A second panel at the March 16 worksession consisted of physicians with expertise in environmental health and toxicology, and an environmental chemist specializing in environmental and human risk assessment, with a focus on pesticides. The physicians, Dr. Jerome Paulson and Dr. Lorne Garrettson, informed the Committee of their views of the human health risks, particularly to children, of exposure to chemical pesticides. The chemist, Dr. Stuart Cohen, asserted that the testing protocols used by the EPA are sufficient to determine that registered pesticides are generally safe when used as directed.

March 30 Worksession

In its March 30 worksession, the Committee heard from experts in environmental impacts of pesticides and turf management, as well as public- and private-sector landscaping professionals. Two faculty members at the University of Maryland, Dr. Dennis vanEngelsdorp, an Assistant Professor of Entomology and Dr. Mark Carroll, an Assistant Professor of Plant Science and Landscape Architecture, spoke about pesticides and pollinator health and attenuation of pesticides applied to turf, respectively. Dr. Carroll directed the Committee to the Maryland Fertilizer Law, and its implications for compost application. The Committee also heard from representatives of the County Parks Department and the Director of Grounds and Environmental Management at the Maryland Soccerplex, about their current turf management practices. Chip Osborne, an expert in natural turf management, described how turf can be maintained without the use of chemical pesticides. Finally, the Committee heard from four landscaping professionals working in the County, using both traditional and chemical pesticide-free methods, about their practices and results.

June 15 Worksession

On June 15, the Committee held its third worksession on Bill 52-14. The June 15 worksession was structured to address issues that had been raised in the two prior worksessions: (1) is the County preempted under State law from implementing a ban on the lawn application of

³ The packet for the March 16 worksession is at:

http://www.montgomerycountymd.gov/COUNCIL/Resources/Files/agenda/cm/2015/150316/20150316_TE1.pdf

certain pesticides?; (2) what are the implications of the State's fertilizer law to pesticide-free lawn care?; (3) what are the specific criteria which lead to a particular pesticide's designation as "non-essential?; and (4) how are other jurisdictions working to reduce or minimize pesticide use? The Committee discussed the question of preemption, considering two letters from Assistant Attorney General Kathryn M. Rowe to members of the General Assembly which concluded that "to the extent that the bill bars application of a non-essential pesticide to a lawn, subject to certain exceptions, it is likely to be found to be preempted." Council staff offered a contrary view, that a very strong argument against preemption could be made.⁴

Kelly Love, Urban Nutrient Management Specialist with the Maryland Department of Agriculture discussed the implications of the State fertilizer law as it pertains to the application of compost, a key component in pesticide-free lawn care. Zack Kline, of A.I.R. Lawn Care, and Chip Osborne joined the Committee again to describe how they practice turf management without non-essential pesticides while in compliance with the law, and Jody Fetzer of Montgomery Parks offered the Parks Department's perspective. Environmental Chemist Paul Chrostowski spoke to the Committee about the means by which pesticides subject to any use restriction could be identified, and recommended a selection process that linked any restriction to specific policy objectives. Finally, the Committee heard about approaches taken to reduce pesticide use in jurisdictions that are preempted from imposing restrictions on private property.

Issues/Items for Discussion

The Berliner proposal

In a memorandum dated June 16, 2015, Councilmember Berliner directed staff to draft a series of amendments that would not ban pesticide use on private property, but would "provide alternative means by which we can address the serious health concerns raised by pesticide exposure" (©26-28). In the memorandum, Councilmember Berliner cited a number of reasons why he believed that an alternative to a ban is advisable, including: the County's obligation to lead on the issue, through education and practice on County property; concern about the possibility of preemption; lack of "definitive" links to specific health risks; challenges in enforcing a ban; and uncertainty as to the costs and efficacy of organic lawn care in the County.

Councilmember Berliner circulated his proposal to Councilmembers on September 9, noting that it would "represent an aggressive and proactive stance towards significantly reducing pesticide use in the County (See memorandum and fact sheet at ©29-32). An "alternative" draft of Bill 52-14, reflecting the changes proposed by Councilmember Berliner, is at ©33-54.⁵ While the proposal does not include a prohibition on the application of pesticides on private property, it does include a number of measures aimed at reducing the use of pesticides on both public and private property. The Berliner proposal also retains some parts of Bill 52-14 as introduced with little or no change.

⁴ For a full discussion of the preemption question, see page 5 and © 26-52 of the packet for the June 15 worksession: http://www.montgomerycountymd.gov/COUNCIL/Resources/Files/agenda/cm/2015/150615/20150615_TE3.pdf

⁵ Beyond Pesticides has submitted a response to the Berliner proposal (©55-56). A notable provision in Beyond Pesticides response is a statement of the organization's commitment "to underwriting the cost of training both County staff and landscapers, commercial operators, and homeowners, and providing ongoing technical assistance in evaluating soil and making management decisions."

The Berliner proposal includes the existing Bill's provisions regarding the designation of certain pesticides as "non-essential pesticides."⁶ Bill 52-14's requirement that notice be posted for private lawn applications to areas of more than 100 square feet is also retained without change in the Berliner proposal (©42, lines 197-208). This requirement extends the existing notice requirements for commercial pesticide applications to those done by a property owner or resident, and is similar to "neighbor notification" laws in place in several other jurisdictions. The existing Bill's provisions related to an outreach and education campaign (©46-47, lines 319-336) and requiring the use of IPM on County property (©50-51, 409-431) are also retained.

The changes proposed by Councilmember Berliner are discussed below, generally in the order that they appear in the alternative version of Bill 52-14 that reflects the proposal.

Disclosure and notice

New Customers

The Berliner proposal would enhance existing required disclosures to new customers by custom applicators⁷ (©40, lines 134-137) to further the objective of increasing awareness of risks and alternatives to pesticide use. Current law requires a custom applicator to provide certain information to a new customer before applying a pesticide, including the trade and generic names of each pesticide that might be used, and specific customer safety precautions for each pesticide that might be used. The required information is provided in the form of a written notice prepared, kept current, and provided to the custom applicator by the Department. Under the Berliner proposal, the required notice would also include all potential health risks associated with the pesticide identified by the EPA and the World Health Organization.⁸

In addition to the enhanced health disclosure requirements, the Berliner proposal would require a custom applicator to provide certain information to a new customer about the existence of alternative pest control methods and the practice of Integrated Pest Management (IPM) (©41, lines 166-173). It would also require a custom applicator to obtain written acknowledgement from the customer of the receipt of the required disclosures and information and direction whether or not to use IPM practices (©41, lines 174-180).

The inclusion of additional information on identified health risks and alternatives would allow customers to make a more informed decision on whether to permit the application of certain pesticides to their lawns. The requirement that customers affirmatively acknowledge receipt of the information, and give direction regarding IPM, should increase the attention given to the information by customers. In combination, these new provisions could potentially lead to more customers opting for less- or non-toxic lawn care methods.

⁶ These provisions are the subject of a staff recommended amendment, however. See pages 11-13 of this memorandum.

⁷ "Custom applicator" is defined in § 33B-1 as "a person engaged in the business of applying pesticides."

⁸ The International Agency for Research on Cancer (IARC) is the part of the World Health Organization that coordinates and conducts both epidemiological and laboratory research into the causes of human cancer, including evaluating pesticides for carcinogenic risks to humans. <http://www.iarc.fr/index.php>

Chesapeake Public Strategies, on behalf of trade group Responsible Industry for a Sound Environment (RISE)⁹ and a coalition of approximately 40 County lawn care companies, has submitted a letter requesting certain changes to the Berliner proposal (©57-58), including a three-year phased implementation for the customer acknowledgement requirement. The primary rationale for the requested phase in is that existing communication channels between applicators and their customers are not adequate to accommodate the requirement, and the additional time and labor involved in following up with customers to obtain the acknowledgement would be unduly burdensome, particularly for small companies.

Safe Grow Montgomery, in its response to Councilmember Berliner's proposal (©59-62), points out that acknowledgement of risks by customers do not protect neighbors and passersby from potentially harmful effects of any pesticides applied to the customer's lawn. It should be noted, however, that existing law requires a custom applicator to place a Department-approved notice sign on the lawn immediately after treating a lawn with a pesticide, and Bill 52-14 would strengthen these notice provisions (©41-42, lines 183-196).

Children's facilities and playgrounds

The Berliner proposal would add definitions of "children's facility" (©35, lines 13-17) and "playground" (©37, lines 61-63), and would require more exhaustive notice *in advance* of the application of pesticides (©42-45, lines 209-280). A "children's facility" is a building or part of a building which, as part of its function, is regularly occupied by children under the age of 6 years . . . and "includes, but is not limited to, a child day care center, family day care home, nursery school, and kindergarten classroom." These notice requirements are modeled on the State law requirements for notice prior to the application of pesticides in schools and on school grounds (©63-69), and intended to offer greater protection to small children from health risks associated with pesticides.

The proposal would require notice signs that are required under current law *after* application by a custom applicator to be in place beginning 48 hours *before* a pesticide is applied through 48 hours after a pesticide is applied to a playground or the grounds of a children's facility. Also, where practicable, such as in a childcare center, nursery school, or kindergarten, where there is a defined group of enrolled children, 48-hour advance written notice very similar to that required prior to the application of a pesticide in public schools must be provided to potentially affected individuals. The proposal would also generally require this advance written notice prior to the application of a pesticide in a children's facility. In instances where individual notice is not practicable, written notice must be posted at all entrances to the children's facility.

In the event of a sudden need to mitigate or eliminate a pest which threatens the health or safety of a child or other person, the proposal would allow the application of a pesticide to a playground, the grounds of a children's facility, or in a children's facility without advance notice (©44-45, lines 243-280). In these instances, notice would have to be posted immediately after application for exterior applications, individual notice would have to be provided to potentially affected individuals within 24 hours after the application where practicable, and for interior applications where individual notice is not practicable, notice would have to be posted at all

⁹ <http://www.pestfacts.org/>

entrances to the facility. The required notices would have to identify: (1) the common name of the pesticide; (2) the location of the application; (3) the date and time of the application; and (3) the reason for the emergency application.

Countywide pesticide use reduction plan

Under the Berliner proposal, the application restrictions of Bill 52-14 as introduced would be replaced with a requirement that the Director of the Department (the “Director”) develop a countywide non-essential pesticide use reduction plan (©45-47, lines 281-336). In order to implement this plan, the Director would have to develop a baseline estimate of non-essential pesticide use in the County, which would be done using data submitted by licensed applicators to MDA and information gathered through the County’s education and outreach campaign. The plan would include a goal of reducing the non-agricultural use of non-essential pesticides in the County by 50% by 2018.

Stakeholders on both sides of the issue have pointed out the difficulty of formulating a reliable baseline estimate, when all information used would be voluntarily submitted. MDA conducts a voluntary pesticide usage survey to obtain information on what pesticides are being used around the State and to identify trends that are developing, but responding to the survey is voluntary.¹⁰ There have been legislative attempts in the General Assembly to make such reporting mandatory, with the 2013 attempt¹¹ being amended to create the Maryland Pesticide Reporting and Information Workgroup,¹² which was to provide its final report to the General Assembly in 2014.

In addition to the MDA data, the Director would use information collected from a survey of pesticide use by County residents and custom applicators as part of the outreach and education campaign conducted under the Bill (©47, line 336). Using MDA data and County survey information would almost certainly not produce a reliable estimate of actual pesticide use in the County, but the estimate could still be useful in tracking a change. However, to accurately reflect any change in use, the respondents would have to remain consistent over time. Because all information is provided voluntarily, there is no way to ensure this consistently. Also, the variance of pest infestations from year to year will present a challenge to tracking usage, as these often dictate the types and amounts of pesticides used.

Common ownership communities

The Berliner proposal includes two amendments aimed at giving residents of common ownership communities more control over their exposure to non-essential pesticides. First, it includes an opt-out provision for application of non-essential pesticides to individual units (©47-48, lines 341-347). The proposal would also require prior approval, by a majority of votes cast in person or by proxy, of the application of a non-essential pesticide to a common element, and would require a community association to post the notice currently required of custom applicators (©48, lines 348-368).

¹⁰ <http://news.maryland.gov/mda/press-release/2015/04/09/state-agriculture-department-encourages-participation-in-pesticide-use-survey-the-only-comprehensive-measure-of-pesticide-use-in-maryland/>

¹¹ http://mgaleg.maryland.gov/2013RS/chapters_noln/Ch_523_sb0675T.pdf

¹² http://mda.maryland.gov/about_mda/Pages/Pesticide-Information-and-Reporting-Workgroup.aspx

These provisions should be considered in view of the additional burden they may place on common ownership communities. The opt-out provision would impose an additional administrative burden on a common ownership community, but it is drafted to allow flexibility to the community in the way that unit owners are given the opportunity to decline the use of a non-essential pesticide, and the interest of a unit owner in deciding whether a potentially toxic substance is applied to the unit is significant. The approval of the application of a non-essential pesticide to a common element would likely be somewhat more burdensome, but the required vote could be taken at the annual meeting required by the Maryland Condominium Act and Maryland Homeowners Association Act.¹³ As proposed, the provisions give owners in these communities greater control without imposing unreasonable burdens on the communities.

County property

Councilmember Berliner has proposed a few amendments to Bill 52-14 with regard to the use of non-essential pesticides on County-owned property (©48-50, lines 370-408). The Berliner proposal would retain Bill 52-14's requirement that the Department adopt an IPM plan for County property, and a general prohibition on the use of non-essential pesticides and neonicotinoids on County owned property would remain, but would be limited to "lawns."¹⁴ This change would be consistent with the intent of the original Bill, and would avoid prohibiting the use of pesticides deemed non-essential for interior and other non-cosmetic pest control.

The proposal would also limit the prohibition to County employees and County contractors, to avoid entanglements with outside entities, such as common ownership communities that may have agreements to maintain certain county owned property, and protect individuals that may apply pesticide to County owned property under the mistaken assumption that the individual is the owner of the property. The proposal would incorporate the exceptions in Bill 52-14 as introduced (©49, lines 390-394), and would add an exception "for the maintenance of medians and islands in County rights-of-way" (©49, lines 395-396). Also, the proposal would exclude from the prohibition "County-owned property that the Parks Department operates or manages for the County. Such property would be governed by the provisions related to the use of pesticides in County parks, discussed below.

County parks

The Berliner proposal includes a number of provisions intended to decrease the use of non-essential pesticides and neonicotinoids in County parks. The provisions would require the Parks Department to take certain steps to achieve a stated policy to phase out the "use of the most hazardous pesticides and reduce overall pesticide use while preserving landscape assets, maintaining functionality of playing fields, and protecting the health and safety of the public and County employees" (©51, lines 433-438). The steps to be taken by the Parks department would include development and implementation of a "pesticide-free parks" program and pesticide usage

¹³ See Maryland Real Property Code § 11-109(c)(7)(iv) [Condominium Act] and § 11B-111(3)(iv) [Homeowners Association Act].

¹⁴ The Berliner proposal would amend the definition of "lawn" to exclude playing fields; this issue will be fully covered in the discussion of the proposal's provisions related to County parks.

protocols, and annual reporting to the County Executive and County Council on pesticide usage and the status of the pesticide-free parks program.

Pesticide-free parks

Under the Berliner proposal, the Parks Department would be required to implement a pesticide-free parks program, consisting of at least three specific requirements (©51-52, lines 439-451). First, certain parks must be maintained entirely without the use of non-essential pesticides or neonicotinoids. The program must also include a program for reducing the use of non-essential pesticides and neonicotinoids on playing fields, including a pilot program consisting of at least five playing fields maintained without the use of any non-essential pesticides or neonicotinoids. Under the program, all other playing fields must be maintained using an IPM program.¹⁵ Finally, the program would be required to include a public communication campaign to inform the public of the program's existence and progress. This part of the proposal is inspired by, and modeled on, the City of Seattle's pesticide reduction program.¹⁶ Seattle's program began in 2001 with 14 parks without the use of any pesticides, and is expanding to include eight more parks and about 25 more acres, for a total of 22 parks and about 50 acres.

The issue of playing fields was the topic of a great deal of discussion at the public hearings and worksessions. Residents and experts expressed doubt as to whether the County's highest quality playing fields could be adequately maintained without the use of non-essential pesticides, with specific concern for the "playability" of the fields at the highest levels of competition, and the potential safety hazards of playing on inadequately maintained fields. The Committee did hear from natural turf management expert Chip Osborne that adequate maintenance of the fields using organic methods is possible, and proponents of a prohibition of the use of non-essential pesticides contend that the pesticides themselves present the greater safety hazard (see ©70-82).

The additional expense associated with a transition to maintenance of playing fields without non-essential pesticides is also significant. The fiscal and economic impact statement for Bill 52-14, submitted in January, estimated the Parks Department's costs over six years of converting maintenance practices on playing fields to allowable practices under the Bill at \$12,804,070 (see ©21).¹⁷ The January statement contained little detail about the assumptions or methodology used in generating the estimates. The Office of Legislative Oversight (OLO) reviewed the fiscal impact statement and worked with the Parks Department to generate a more detailed discussion of the estimated costs (©84-98), and developed a revised estimate of annual operating cost increases, relying on a number of assumptions made by the Parks Department, of approximately \$2.2 million. In addition to the increased annual costs, OLO's analysis resulted in an additional one-time cost estimate, associated with the cost of installing irrigation systems on "elite" and "recreational" fields, of \$8.3 million.

Chip Osborne submitted a response to the estimates of Parks' additional costs associated with a prohibition on the use of non-essential pesticides in which he challenged several of the

¹⁵ A necessary component of this approach to regulating pesticide use on playing fields is the amendment of the definition of "lawn" to exclude playing fields (©36, lines 40-44).

¹⁶ <http://www.seattle.gov/environment/trees-and-green-space/pesticide-reduction>

¹⁷ The Maryland Soccerplex also submitted information on the costs of compliance with Bill 52-14, based on the costs of overseeding to reduce decline in field quality. See ©83.

assumptions on which the estimates are based (©99-100). Perhaps most significantly, he questioned the Parks Department's assertion that adding irrigation systems would be necessitated by a conversion to "chemical-free" maintenance, stating that "[i]t is inaccurate to use irrigation and water as an argument in the discussion on the need for pesticides." Mr. Osborne also challenged the assumption of increased labor costs due to the need for aeration and the assumptions regarding the frequency of field replacement. Mr. Osborne coauthored a cost comparison of conventional vs. natural turf management in 2010 that is based on a different set of assumptions, and results in a vastly different view of differences in the costs of the different methods (©101-110).

The challenge facing the Council in this instance is that there has not been a large scale transition to natural turf management in the Mid-Atlantic climate, which can confirm or disprove the validity of either set of assumptions. New York and Connecticut have implemented bans on the use of certain pesticides on playing fields, and the University of Connecticut has published best management practices for natural turf management.¹⁸ However, it is uncertain whether successful practices in those states would also be successful here.

Pesticide usage protocols

Under the Berliner proposal, the Parks Department would be required to develop pesticide usage protocols that would not permit the use of non-essential pesticides or neonicotinoids on parkland within 25 feet of streams in the County (©52, lines 456-457).¹⁹ These protocols would also not permit the application of non-essential pesticides or neonicotinoids to playgrounds in County parks (©52, lines 458-459), and would require, except in emergencies, that the Parks Department post advance notice of pesticide applications on its website (©52, lines 460-468). These protocols should have the effect of reducing non-essential pesticide use in County parks as well as providing additional transparency as to when and why such pesticides are used.

Exceptions

The Berliner proposal would allow the pesticide-free parks program and pesticide usage protocols to generally permit the use of non-essential pesticides and neonicotinoids for several specific purposes (©52-53, lines 469-482). These purposes include the control of noxious weeds and invasive species, the control of disease vectors and stinging insects or plants, the protection of tree health, playing field renovation, and where otherwise necessary to protect human health or prevent significant economic damage.

Annual reporting

The Parks Department would also have to submit an annual report to the County Executive and County Council on or before the date that its proposed annual operating budget must be submitted (©53, lines 483-495). This report would include detailed information on non-essential pesticide and neonicotinoid usage in County parks, and update the Executive and Council on the

¹⁸<http://www.extension.uconn.edu/documents/UConnTurfgrassBMPFINALreduced.pdf>

¹⁹ Notwithstanding the Berliner proposal's 25 foot buffer requirement to protect rivers, streams and creeks, Friends of Ten Mile Creek and Little Seneca Reservoir has submitted a letter to Councilmembers opposing the Berliner proposal (©111).

status of the pesticide-free parks program. The timing of the report would allow the County government and the Parks Department to engage in dialog about the state of pesticide use in County parks, and would allow the consideration of program improvements, and any associated costs, in the context of budget discussions.

Staff recommended amendments

How should any list of banned or otherwise restricted pesticides be compiled?

Current provisions provide that the Executive must establish by regulation a list of non-essential pesticides, which are then subject to the application prohibition in the Bill. The list would be comprised of: (1) all pesticides classified as “Carcinogenic to Humans” or “Likely to Be Carcinogenic to Humans” by the U.S. Environmental Protection Agency; (2) all pesticides classified by the U.S. Environmental Protection Agency as a “Restricted Use Product”; (3) all pesticides classified as a “Class 9” pesticide by the Ontario, Canada, Ministry of the Environment; (4) all pesticides classified as a “Category 1 Endocrine Disruptor” by the European Commission; and (5) any other pesticides which the Executive determines are not critical to pest management in the County.

At the June 15 worksession, environmental chemist Paul Chrostowski advised the Committee of the problems of relying on the Ontario and European Commission lists, and recommended the selection of pesticides to be restricted be more directly tied to the County’s public health and environmental objectives. Staff believes that a more targeted approach is appropriate, and was directed by Council President Leventhal to draft language implementing such an approach. The list could be directly aligned with the policy goals of reducing exposure to carcinogenic or otherwise toxic pesticides, by looking to research done by the EPA and IARC. Starting with a group of pesticides (“lawn care pesticides”) registered with the EPA and labelled pursuant to FIFRA for lawn, garden, and ornamental sites or areas,²⁰ several filters could be applied to generate a list that is tailored to achieve specific policy objectives.

The filters that would identify pesticides on the list could be EPA and IARC carcinogenicity classifications, EPA aquatic toxicity data, and EPA (and USGS, FDA, etc.) non-carcinogenic human toxicity data. Staff is proposing that all EPA restricted use pesticides, and any “lawn care pesticide” that is classified by EPA or IARC²¹ as anything other than not likely to be (or probably not) carcinogenic to humans be included on a list of non-essential pesticides. This would include those pesticides for which there is insufficient evidence to determine the likelihood of carcinogenicity, consistent with the precautionary principle. In addition to these pesticides, the non-essential pesticide list would include all pesticides which are in the top 25% most toxic of pesticides evaluated by the EPA or other federal authority for systemic non-carcinogenic human

²⁰ Both the Connecticut ban on the use of pesticides on athletic fields at public and private schools grades pre-K through 8, and the New Jersey bill which has been considered in recent years, use this categorization as the definition of the pesticides subject to use restrictions.

²¹ EPA’s classifications are: Group A Carcinogenic to humans; Groups B1 and B2 Likely to be carcinogenic to humans; Group C Suggestive evidence of carcinogenic potential; Group D Inadequate information to assess carcinogenic potential; and Group E Not likely to be carcinogenic to humans.

IARC’s classifications are: Group 1 Carcinogenic to humans; Group 2A Probably carcinogenic to humans; Group 2B Possibly carcinogenic to humans; Group 3 Not classifiable as to its carcinogenicity to humans; and Group 4 Probably not carcinogenic to humans.

toxicity, chronic fish toxicity, and chronic toxicity to aquatic invertebrates. A list generated in this way not be subject to determinations by foreign governments or institutions, but would directly reflect a desire to avoid or reduce unnecessary human exposure to, and release into the environment of, known or possible carcinogens and other highly toxic substances.

Staff recommendation: Add a definition of “lawn care pesticide” on ©3, after line 36, as follows:

Lawn care pesticide means a pesticide registered by the United States Environmental Protection Agency and labeled pursuant to the Federal Insecticide, Fungicide and Rodenticide Act for use in lawn, garden and ornamental sites or areas.

Amend ©5, lines 81-94 as follows:

(c) The Executive must include in the regulations adopted under this Section a list of non-essential pesticides. The list of non-essential pesticides must be based on an evaluation of all lawn care pesticides and must include:

(1) [[all pesticides]] each pesticide classified [[as “Carcinogenic to Humans” or “Likely to Be Carcinogenic to Humans”]] by the U.S. Environmental Protection Agency as:

(A) “carcinogenic to humans” (Group A);

(B) “likely to be carcinogenic to humans” (Groups B1 and B2);

(C) “suggestive evidence of carcinogenic potential” (Group C);

or

(D) inadequate information to assess carcinogenic potential” (Group D);

(2) [[all pesticides]] each pesticide classified by the U.S. Environmental Protection Agency as a “Restricted Use Product”;

(3) [[all pesticides classified as a “Class 9” pesticide by the Ontario, Canada, Ministry of the Environment]] each pesticide classified by the International Agency for Research on Cancer as:

- (A) “carcinogenic to humans” (Group 1);
 - (B) “probably carcinogenic to humans” (Group 2A);
 - (C) “possibly carcinogenic to humans” (Group 2B); or
 - (D) “not classifiable as to its carcinogenicity to humans” (Group 3);
- (4) [[all pesticides classified as a “Category 1 Endocrine Disruptor” by the European Commission]] each pesticide in the top quartile of toxicity for pesticides evaluated by the U.S. Environmental Protection Agency or other federal government authority for systemic non-carcinogenic human toxicity; and
- (5) [[any other pesticides which the Executive determines are not critical to pest management in the County]] each pesticide in the top quartile of toxicity for pesticides evaluated by the U.S. Environmental Protection Agency for:
- (A) chronic toxicity to fish; and
 - (B) chronic toxicity to aquatic invertebrates.

Definitions

At the January 15 public hearing, and in subsequent correspondence, questions were raised regarding the definition of “lawn” in the Bill as it is critical to the scope of any prohibition on non-essential pesticide application. Staff has identified two clarifying amendments that would improve the Bill. First, staff recommends adding a definition of a “garden,” which is excluded from the definition of “lawn,” but which is currently undefined.

Staff recommendation: add a definition of “Garden” on ©2 after line 17, as follows:

Garden means an area of land used to cultivate food crops, flowers, or other ornamental plants.

Questions were raised at the public hearing as to whether trees and shrubs were included in the definition of “lawn” in the Bill. It is staff’s understanding that it is not the intent of the lead sponsor to restrict the application of non-essential pesticides to trees or shrubs.

Staff recommendation: amend the definition of “Lawn” on ©3, lines 35-36 as follows:

Lawn does not include a:

- (1) garden; or
- (2) tree or shrub.

Technical correction - notice provisions

In two places in the Bill, where notice is required to be posted *after* a custom application of a pesticide, the future tense – “will be applied” – is used when the past tense should be used.

Staff recommendation: amend ©7, line 150 as follows:

or along the perimeter of the area where pesticides [[will be]] have been applied.

Amend ©8, line 164 as follows:

perimeter of the area where pesticides [[will be]] have been applied.

Adoption of County IPM program by regulation

Bill 52-14 currently requires the adoption of an IPM program for County property by method (2) regulation (©11, lines 243-245). The Bill then spells out nine specific requirements for the program (©11, lines 246-262). Given that the Bill includes these requirements, staff believes that the requirement that the program be adopted by regulation is unnecessary and inefficient, and recommends deletion of the regulation requirement.

Staff recommendation: amend ©11, lines 243-245 as follows:

(a) Adoption of program. The Department must adopt[, by a method (2) regulation,] an integrated pest management program for property owned by the County.

This packet contains:

Bill 52-14
Legislative Request Report
Council Vice President Leventhal Memo
Fiscal and Economic Impact statement
Berliner memo to Hamlin, June 16, 2015
Berliner memo, September 9, 2015
Alternative Bill with Berliner amendments

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Bill No. 52-14
Concerning: Pesticides – Notice
Requirements – Non-essential
Pesticides – Prohibitions
Revised: October 22, 2014
Draft No. 9
Introduced: October 28, 2014
Expires: April 28, 2016
Enacted: _____
Executive: _____
Effective: _____
Sunset Date: January 1, 2019
Ch. _____, Laws of Mont. Co. _____

COUNTY COUNCIL FOR MONTGOMERY COUNTY, MARYLAND

By: Council Vice President Leventhal and Councilmembers Elrich, Riemer, Floreen, and Navarro

AN ACT to:

- (1) require posting of notice for certain lawn applications of pesticide;
- (2) prohibit the use of certain pesticides on lawns;
- (3) prohibit the use of certain pesticides on certain County-owned property
- (4) require the County to adopt an integrated pest management program for certain County-owned property; and
- (5) generally amend County law regarding pesticides.

By amending

Montgomery County Code
Chapter 33B, Pesticides
Sections 33B-1, 33B-2, 33B-3, 33B-4, 33B-5, 33B-6, and 33B-7

By adding

Montgomery County Code
Chapter 33B, Pesticides
Articles 2, 3, 4, and 5
Sections 33B-8, 33B-9, 33B-10, 33B-11, 33B-12, and 33B-13

Boldface	<i>Heading or defined term.</i>
<u>Underlining</u>	<i>Added to existing law by original bill.</i>
[Single boldface brackets]	<i>Deleted from existing law by original bill.</i>
<u>Double underlining</u>	<i>Added by amendment.</i>
[[Double boldface brackets]]	<i>Deleted from existing law or the bill by amendment.</i>
* * *	<i>Existing law unaffected by bill.</i>

The County Council for Montgomery County, Maryland approves the following Act:

Sec. 1. Sections 33B-1, 33B-2, 33B4, 33B-5, 33B-6 and 33B-7 are amended, and Sections 33B-8, 33B-9, 33B-10, 33B-11, 33B-12, and 33B-13 are added as follows:

ARTICLE 1. General Provisions

33B-1. Definitions.

In this [chapter] Chapter:

Agriculture means the business, science, and art of cultivating and managing the soil, composting, growing, harvesting, and selling sod, crops and livestock, and the products of forestry, horticulture and hydroponics; breeding, raising, or managing livestock, including horses, poultry, fish, game and fur-bearing animals, dairying, beekeeping and similar activities, and equestrian events and activities.

Custom applicator means a person engaged in the business of applying pesticides.

Department means the Department of Environmental Protection.

Director means Director of the Department of Environmental Protection[,] or the Director's designee.

Integrated pest management means a process for managing pests that:

- (1) uses monitoring to determine pest injury levels;
- (2) combines biological, cultural, mechanical, physical, and chemical tools and other management practices to control pests in a safe, cost effective, and environmentally sound manner that contributes to the protection of public health and sustainability;
- (3) uses knowledge about pests, such as infestations, thresholds, life histories, environmental requirements, and natural control of pests; and

- (4) uses non-chemical pest-control methods and the careful use of least-toxic chemical methods when non-chemical methods have been exhausted or are not feasible.

Larvicide means a pesticide designed to kill larval pests.

Lawn means an area of land, except agricultural land, that is:

- (1) [Mostly] mostly covered by grass, other similar herbaceous plants, shrubs, or trees; and
- (2) [Kept] kept trim by mowing or cutting.

Lawn includes an athletic playing field other than a golf course. *Lawn* does not include a garden.

Neonicotinoid means a class of neuro-active pesticides chemically related to nicotine. *Neonicotinoid* includes acetamiprid, clothianidin, dinotefuran, imidacloprid, nitenpyram, nithiazine, thiacloprid, and thiamethoxam.

Non-essential pesticide means a pesticide designated as a non-essential pesticide under Section 33B-4.

Pest means an insect, snail, slug, rodent, nematode, fungus, weed, or other form of plant or animal life or microorganism (except a microorganism on or in a living human or animal) that is normally considered to be a pest or defined as a pest by applicable state regulations.

Pesticide means a substance or mixture of substances intended or used to:

- (1) prevent, destroy, repel, or mitigate any pest;
- (2) be used as a plant regulator, defoliant, or desiccant; or
- (3) be used as a spray adjuvant, such as a wetting agent or adhesive.

However, *pesticide* does not include an antimicrobial agent, such as a disinfectant, sanitizer, or deodorizer, used for cleaning that is not considered a pesticide under any federal or state law or regulation.

Private lawn application means the application of a pesticide to a lawn on property owned by or leased to the person applying the pesticide. Private lawn application does not include:

- (1) applying a pesticide for the purpose of engaging in agriculture;
- (2) applying a pesticide around or near the foundation of a building for purpose of indoor pest control;
- (3) applying a pesticide to a golf course or turf farm.

Vector means an animal, insect, or microorganism that carries and transmits an infectious pathogen into another organism.

[33B-4.] 33B-2. Signs with retail purchase of pesticide.

A person who sells at retail a pesticide or material that contains a pesticide must make available to a person who buys the pesticide or material that contains a pesticide:

- (a) [Notice] notice signs and supporting information that are approved by the [department] Department; and
- (b) [The] the product label or other information that the federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) [, 7 U.S.C. 136 et seq.,] requires for sale of the pesticide.

The Department must enforce this Section and must annually inspect each person who sells at retail a pesticide or material that contains a pesticide.

[33B-5] 33B-3. Storage and handling of pesticides.

* * *

[33B-6] 33B-4. Regulations.

- (a) The [County] Executive must adopt regulations to carry out this Chapter under method (2).

(b) The Executive must include in the regulations adopted under this [section] Section the minimum size or quantity of pesticide subject to [section 33B-4] Section 33B-2.

(c) The Executive must include in the regulations adopted under this Section a list of non-essential pesticides. The list of non-essential pesticides must include:

(1) all pesticides classified as “Carcinogenic to Humans” or “Likely to Be Carcinogenic to Humans” by the U.S. Environmental Protection Agency;

(2) all pesticides classified by the U.S. Environmental Protection Agency as a “Restricted Use Product”;

(3) all pesticides classified as a “Class 9” pesticide by the Ontario, Canada, Ministry of the Environment;

(4) all pesticides classified as a “Category 1 Endocrine Disruptor” by the European Commission; and

(5) any other pesticides which the Executive determines are not critical to pest management in the County.

(d) The Executive must include in the regulations adopted under this Section a list of invasive species that may be detrimental to the environment in the County.

(e) The Executive must review and update the lists of non-essential pesticides and invasive species designated under subsections (c) and (d) by July 1 of each year.

[33B-7] 33B-5. Penalty for violating chapter.

(a) Any violation of this Chapter is a class C violation.

(b) Each day a violation continues is a separate offense.

ARTICLE 2. Notice Requirements.

[33B-2] 33B-6. Notice about pesticides to customer.

(a) In this [section] Section:

(1) Customer means a person who makes a contract with a custom applicator to have the custom applicator apply a pesticide to a lawn.

(2) New customer includes a customer who renews a contract with a custom applicator.

(b) A custom applicator must give to a new customer:

(1) [Before] before application, a list of:

[a.](A) [The] the trade name of each pesticide that might be used;

[b.](B) [The] the generic name of each pesticide that might be used; and

[c.](C) [Specific] specific customer safety precautions for each pesticide that might be used; and

(2) [After] after application, a list of:

[a.](A) [The] the trade name of each pesticide actually used; and

[b.](B) [The] the generic name of each pesticide actually used; and

(3) [A] a written notice about pesticides prepared by the [department] Department under subsection (c) [of this section].

(c) The [department] Department must prepare, keep current, and provide to a custom applicator a written notice about pesticides for the custom applicator to give to a customer under subsection (b) [of this section].

(d) The notice prepared by the [department] Department under subsection (c) [of this section] must include:

- (1) [Government] government agency phone numbers to call to:
 - [a.](A) [Make] make a consumer complaint;
 - [b.](B) [Receive] receive technical information on pesticides; and
 - [c.](C) [Get] get assistance in the case of a medical emergency;
- (2) [A] a list of general safety precautions a customer should take when a lawn is treated with a pesticide;
- (3) [A] a statement that a custom applicator must:
 - [a.](A) [Be] be licensed by the Maryland Department of Agriculture; and
 - [b.](B) [Follow] follow safety precautions; and
- (4) [A] a statement that the customer has the right to require the custom applicator to notify the customer before each treatment of the lawn of the customer with a pesticide.

[33B-3] 33B-7. Posting signs after application by custom applicator.

- (a) Immediately after a custom applicator treats a lawn with a pesticide, the custom applicator must [post a sign on the lawn] place markers within or along the perimeter of the area where pesticides will be applied.
- (b) A [sign posted] marker required under this [section] Section must:
 - (1) [Be] be clearly visible [from the principal place of access to] to persons immediately outside the perimeter of the property;
 - (2) [Be] be a size, form, and color approved by the [department] Department;
 - (3) [Be] be made of material approved by the [department] Department; [and]

(4) [Have] have wording with content and dimensions approved by the [department] Department[.]; and

(5) be in place on the day that the pesticide is applied.

33B-8. Posting signs after application by property owner or tenant.

(a) A person who performs a private lawn application treating an area more than 100 square feet must place markers within or along the perimeter of the area where pesticides will be applied.

(b) A marker required under this Section must:

(1) be clearly visible to persons immediately outside the perimeter of the property;

(2) be a size, form, and color approved by the Department;

(3) be made of material approved by the Department; and

(4) have wording with content and dimensions approved by the Department; and

(5) be in place on the day that the pesticide is applied.

ARTICLE 3. Application restrictions.

33B-9. Prohibited application.

A person must not apply a non-essential pesticide to a lawn.

33B-10. Exceptions and Exemptions.

(a) A person may apply a non-esssential pesticide for the following purposes:

(1) for the control of weeds as defined in Chapter 58, Weeds;

(2) for the control of invasive species listed in a regulation adopted under Subsection 33B-4(d);

(3) for pest control while engaged in agriculture; and

(4) for the maintenance of a golf course.

(b) A person may apply to the Director for an exemption from the prohibition of Section 33B-9 for a non-essential pesticide. The Director may grant an exemption to apply a non-essential pesticide on property where application is prohibited under Section 33B-9 if the applicant shows that:

- (1) effective alternatives are unavailable;
- (2) granting an exemption will not violate State or federal law; and
- (3) use of the non-essential pesticide is necessary to protect human health or prevent significant economic damage.

(c) A person may apply to the Director for an emergency exemption from the prohibition in Section 33B-9 if a pest outbreak poses an imminent threat to public health or if significant economic damage would result from the inability to use a pesticide prohibited by Section 33B-9. The Director may impose specific conditions for the granting of emergency exemptions.

33B-11. Outreach and Education Campaign.

The Executive must implement a public outreach and education campaign before and during implementation of the provisions of this Article. This campaign should include:

- (a) informational mailers to County households;
- (b) distribution of information through County internet and web-based resources;
- (c) radio and television public service announcements;
- (d) news releases and news events;
- (e) information translated into Spanish, French, Chinese, Korean, Vietnamese, and other languages, as needed;

- (f) extensive use of County Cable Montgomery and other Public, Educational, and Government channels funded by the County; and
- (g) posters and brochures made available at County events, on Ride-On buses and through Regional Service Centers, libraries, recreation facilities, senior centers, public schools, Montgomery College, health care providers, hospitals, clinics, and other venues.

ARTICLE 4. County Property

33B-12. Prohibition on County-owned property.

- (a) Prohibition. Except as provided in subsection (b), a person must not apply to any property owned by the County:
- (1) a non-essential pesticide; or
 - (2) a nionicotinoid.
- (b) Exceptions.
- (1) A person may use any larvicide or rodenticide on property owned by the County as a public health measure to reduce the spread of disease vectors under recommendations and guidance provided by the Centers for Disease Control and Prevention, the United States Environmental Protection Agency, or the State Department of Agriculture. Any rodenticide used must be in a tamper-proof product, unless the rodenticide is designed and registered for a specific environment inaccessible to humans and pets.
 - (2) A person may use a non-essential pesticide or neonicotinoid for the purposes set forth in Subsection 33B-10(a).
 - (3) A person may use a non-essential pesticide or neonicotinoid on property owned by the County if the Director determines, after consulting the Directors of General Services and Health and Human Services, that the use of pesticide is necessary to protect

human health or prevent imminent and significant economic damage, and that no reasonable alternative is available. If a pesticide is used under this paragraph, the Director must, within 30 days after using the pesticide, report to the Council on the reasons for the use of the pesticide.

33B-13. Integrated pest management.

(a) *Adoption of program.* The Department must adopt, by a method (2) regulation, an integrated pest management program for property owned by the County.

(b) *Requirements.* Any program adopted under subsection (a) must require:

- (1) monitoring the turf or landscape;
- (2) accurate record-keeping documenting any potential pest problem;
- (3) evaluating the site for any injury caused by a pest and determining the appropriate treatment;
- (4) using a treatment that is the least damaging to the general environment and best preserves the natural ecosystem;
- (5) using a treatment that will be the most likely to produce long-term reductions in pest control requirements and is operationally feasible and cost effective in the short and long term;
- (6) using a treatment that minimizes negative impacts to non-target organisms;
- (7) using a treatment that is the least disruptive of natural controls;
- (8) using a treatment that is the least hazardous to human health; and
- (9) exhausting the list of all non-chemical and organic treatments available for the targeted pest before using any synthetic chemical treatments.

(c) The Department must provide training in integrated pest management for each employee who is responsible for pest management.

Sec. 2. Initial Lists of Non-Essential Pesticides and Invasive Species. The Executive must submit the lists of non-essential pesticides and invasive species required by Subsections 33B-4(c) and (d) to the Council for approval by October 1, 2015.

Sec. 3. Effective Date. The prohibitions on use of non-essential pesticides contained in Section 33B-9 and the prohibitions on use of non-essential pesticides and neonicotinoids contained in Section 33B-12 take effect on January 1, 2016.

Sec. 4. Expiration. This Act and any regulation adopted under it expires on January 1, 2019.

Approved:

George Leventhal, President, County Council

Date

Approved:

Isiah Leggett, County Executive

Date

This is a correct copy of Council action.

Linda M. Lauer, Clerk of the Council

Date

LEGISLATIVE REQUEST REPORT

Bill 52-14

Pesticides – Notice Requirements – Non-Essential Pesticides - Prohibitions

DESCRIPTION:	This Bill would require posting of notice for certain lawn applications of pesticide, prohibit the use of certain pesticides on lawns, prohibit the use of certain pesticides on certain County-owned property and require the County to adopt an integrated pest management program for certain County-owned property.
PROBLEM:	Long term use of and exposure to certain chemical pesticides has been linked to several health problems, including birth defects, cancer, neurological problems, immune system problems, and male infertility.
GOALS AND OBJECTIVES:	To protect the health of families, especially children, from the unnecessary risks associated with the use of certain pesticides that have been linked to a wide-range of diseases.
COORDINATION:	Department of Environmental Protection
FISCAL IMPACT:	To be requested.
ECONOMIC IMPACT:	To be requested.
EVALUATION:	To be requested.
EXPERIENCE ELSEWHERE:	To be researched.
SOURCE OF INFORMATION:	Josh Hamlin, Legislative Attorney
APPLICATION WITHIN MUNICIPALITIES:	To be researched.
PENALTIES:	Class C violation



MONTGOMERY COUNTY COUNCIL
ROCKVILLE, MARYLAND

GEORGE LEVENTHAL
COUNCILMEMBER
AT-LARGE

MEMORANDUM

October 22, 2014

TO: Councilmembers

FROM: George Leventhal, Council Vice President

A handwritten signature in cursive script that reads "George Leventhal".

SUBJECT: Pesticide Legislation

This coming Tuesday, October 28, I will be introducing legislation aimed at protecting the health of families – and especially children - from the unnecessary risks associated with the use of certain cosmetic pesticides that have been linked to a wide-range of diseases, and which provide no health benefits.

As you know, for the better part of the last year, I have been working towards introducing legislation on this matter. Since the September 2013 meeting of the T&E committee, I have met with countless stakeholders, on both sides of the issue, to learn more about how pesticides are being applied in the county, what other governments are doing to ensure that the public's health is being protected, and what the latest research tells us about their risks. The legislation that I am introducing on Tuesday incorporates feedback I received from proponents and opponents on the previous draft of the bill, which I shared with your offices back in May. The result is a bill that balances the rights of homeowners to maintain a beautiful lawn with the rights of residents who prefer to not be exposed to chemicals that have known health effects; I view this bill as a starting point in our discussion which can be tweaked along the way.

I want to preface my concerns by affirming the value of pesticides when they are used to protect public health, the environment, our food or our water supply, but when pesticides are used solely to improve the appearance of landscapes, they can cause more harm than good. In my view, cosmetic pesticides present a substantial threat to the health of today's children. The American Academy of Pediatrics states that children face the greatest risk from the chemicals they contain, and that epidemiologic evidence demonstrates associations between early life exposure to pesticides and pediatric cancers, decreased cognitive function and behavioral problems such as ADHD.¹ Certain toxic chemicals can cause permanent brain damage in children even at low levels of exposure that would have little to no adverse effect in an adult.² A child doesn't even

¹ *Pediatrics*, Pesticide Exposure in Children, Volume 130, No. 6, 1757 – 1763, December, 2012

² Dr. Phillippe Grandjean, MD, Dr. Phillip Landrigan, MD, *The Lancet Neurology*, Neurobehavioral Effects of

Developmental Toxicity, Volume 13, Issue 3, 330-338, March 2014
STELLA B. WERNER OFFICE BUILDING • 100 MARYLAND AVENUE, 6TH FLOOR, ROCKVILLE, MARYLAND 20850
240/777-7811 OR 240/777-7900, TTY 240/777-7914, FAX 240/777-7989
WWW.MONTGOMERYCOUNTYMD.GOV/COUNCIL

have to be directly exposed to a pesticide to suffer negative health outcomes. During pregnancy, chemicals in women can cross the placenta and result in higher fetal exposure than the mother has been exposed to. Prenatal exposure to certain chemicals has been documented to increase the risk of cancer in childhood.³ Virtually every pregnant woman in the United States is exposed to multiple chemicals during a sensitive period of fetal development that have been linked to adverse reproductive and developmental outcomes.⁴

Adults are also at risk of developing serious health problems due to pesticide exposure. Researchers at the National Institutes of Health have linked pesticide use to a wide range of diseases and conditions. Exposure to certain pesticides has been linked to Parkinson's disease, diabetes, leukemia, lymphoma, lupus, rheumatoid arthritis, dementia, reproductive dysfunction, Alzheimer's disease, and variety of cancers including breast, colon, prostate and lung cancer.⁵

In addition to the adverse health effects to humans, pesticides can also affect animals, both pets and wildlife, and our waterways. A recent study by the United States Geological Survey has found that 90% of urban area waterways now have pesticide levels high enough to harm aquatic life, and moreover, the USGS said the harm to aquatic life was likely understated in their report.⁶ Terrestrial wildlife is also being harmed by the use of certain pesticides. The most concerning example involves honeybees, which pollinate nearly one-third of the food we eat, and a particular class of pesticides called neonicotinoids. Neonicotinoids have been repeatedly and strongly linked with the collapse of honey bee colonies. In just the last year, Maryland lost nearly 50 percent of its honeybee population, an increase over previous years, which averaged about a one-third loss annually.⁷

Before I describe what this bill does, let me describe what this bill does not do. This bill does not ban the use of all pesticides; it would, however, restrict the use of certain toxic chemicals that are most dangerous to human health. This bill does not prohibit the use of any pesticide for gardens. And this bill would not prohibit the use of any pesticide for agricultural use. What this bill does do is seek to limit children's exposure to harmful pesticides in places where children are most likely to be exposed to them. That being said, the major provisions of the bill are:

- 1) Require the posting of notice when a property owner applies a pesticide to an area of lawn more than 100 square feet, consistent with the notice requirements for when a landscaping business treats a lawn with a pesticides;
- 2) Require the Executive to designate a list of "non-essential" pesticides including:
 - all pesticides classified as "Carcinogenic to Humans" or "Likely to Be Carcinogenic to Humans" by the U.S. EPA;
 - all pesticides classified by the U.S. EPA as "Restricted Use Products;"

³ American College of Obstetricians & Gynecologists. Committee Opinion No. 575. American College of Obstetricians and Gynecologists. 931-5. October 2013

⁴ *Environmental Health Perspectives*. Environmental Chemicals in Pregnant Women in the United States: NHANES 2003-2004. Tracey J. Woodruff, Ami R. Zota, Jackie M. Schwartz, Volume 119, No. 6, 878-885. June 2011

⁵ Jan Ehrman. *NIH Record*, Pesticide Use Linked to Lupus, Rheumatoid Arthritis. http://nihrecord.nih.gov/newsletters/2011/03_18_2011/story4.htm (accessed August 3, 2014)

⁶ *U.S. Geological Survey*, An Overview Comparing Results from Two Decades of Monitoring for Pesticides in the Nation's Streams and Rivers, 1992-2001 and 2002-2011, Wesley W. Stone, Robert J. Gilliom, Jeffrey D. Martin, <http://pubs.usgs.gov/sir/2014/5154/pdf/sir2014-5154.pdf> (accessed October 20, 2014)

⁷ Tim Wheeler. Mysterious bee die-off continues, extends beyond winter, *Baltimore Sun*, http://articles.baltimoresun.com/2014-05-15/features/bal-mysterious-bee-dieoff-continues-nearly-half-maryland-hives-lost-20140515_1_bee-informed-partnership-honey-bee-beekeepers (accessed October 20, 2014)

- all pesticides classified as “Class 9” pesticides by the Ontario, Canada, Ministry of the Environment; and
 - all pesticides classified as “Category 1 Endocrine Disruptors” by the European Commission
- 3) Generally prohibit the application of non-essential pesticides to lawns, with exceptions for noxious weed and invasive species control, agriculture and gardens, and golf courses;
 - 4) Require the Executive to conduct a public outreach and education campaign before and during the implementation of the Bill;
 - 5) Generally prohibit the application of a non-essential or neonicotinoid pesticide to County-owned property; and
 - 6) Require the County to adopt an Integrated Pest Management program.
 - 7) Sunset the act and any regulation adopted under it on January 1, 2019

The pesticide industry will respond to this legislation by saying “the science isn’t there” and that “all pesticides are extensively tested and approved as safe by the EPA,” but while both statements sound believable, they belie the truth. In response to the charge that the science isn’t there to legislate, the absence of incontrovertible evidence does not justify inaction. As evidenced by this memo, the number of studies from respected institutions of science linking pesticides to a variety of cancers, neurodevelopmental disorders and diseases is abundant and persuasive. Furthermore, due to the inestimable number of chemical combinations possible from the thousands of products on the market and the complex interactions with the human body, the research that opponents to this legislation will demand will never be possible within the ethical confines of research. The real danger lies not in being exposed to one chemical, but a mixture of chemicals. The EPA risk assessment fails to look at the synergistic effects of multiple chemicals, even though studies show that exposure to multiple chemicals that act on the same adverse outcome can have a greater effect than exposure to an individual chemical.⁸

And to the charge that a pesticide must be safe if it has been approved by the EPA, the Government Accountability Office (GAO) has found that many pesticides are currently being approved for consumer use by the EPA without receipt and review of data that the manufacturer is required to provide on the safety of the chemicals.⁹ Alarming, in some cases the manufacturer was given two years to submit studies on the effects of a pesticide, and ten years later no studies had been received or reviewed by the EPA.¹⁰ What’s more, the EPA itself publishes an entire manual – *Recognition and Management of Pesticide Poisonings* - for healthcare professionals that acknowledges the toxic nature and effects of many pesticides. As an educated populace, we like to think that we have a high bar for pesticide safety in this country, but sadly, when a pesticide has been approved by the EPA, it connotes little about its safety.

Lawn care does not have to be poisonous to people, pets, wildlife, or our waterways. It is simply false to say that you can’t have a lush, green lawn - free of weeds - without the use of toxic pesticides. Through proper management of the soil, along with the use of natural, organic alternatives to synthetic pesticides, a high quality landscape can be achieved. And under my

⁸ National Research Council. Committee on Improving Risk Analysis Approaches Used by the U.S. EPA. Science and Decisions: Advancing Risk Assessment. Washington, DC: National Academies Press; 2008

⁹ United States Government Accountability Office. Pesticides – EPA Should Take Steps to Improve its Oversight of Conditional Registrations, <http://www.gao.gov/assets/660/656825.pdf> (accessed October 20, 2014)

¹⁰ United States Government Accountability Office. Pesticides – EPA Should Take Steps to Improve its Oversight of Conditional Registrations, <http://www.gao.gov/assets/660/656825.pdf> (accessed October 20, 2014)

legislation, residents will still be free to hire any lawn care professional to treat their lawn or to manage their own lawn care.

Much like the public debate that occurred in the 1950's before cigarettes were found to be cancer-causing, I believe we are approaching a similar turning point in the discourse on pesticides as the public is made more aware of the known health effects. In a poll taken earlier this year, more than three-quarters of Marylanders expressed concern about the risk that pesticides pose to them or their families, and when respondents learned of the adverse health effects that pesticides are linked to, 90% of Marylanders expressed concern.¹¹

America lags behind by the rest of the developed world in recognizing the serious risks that certain pesticides pose to health and life. The GAO's report confirms that the regulatory approach taken by the EPA is broken and failing the public. In the face of mounting scientific evidence, and in the absence of action on the federal level, I find it impossible not to act now to protect the health of our children. In Montgomery County, we regularly take a precautionary approach to public health and environmental issues, such as with the forthcoming legislation on e-cigarettes and the Council's action on Ten Mile Creek. Our approach to pesticides should be no different.

I have attached all of the studies that I have cited in this memo for your reference, but I hope you will take time to review research beyond what I have provided. If, after reviewing the research, you feel compelled to act as I do, I would welcome your co-sponsorship on this bill.

This issue is among the most technically complex which the Council has ever faced. Therefore, it is critical that we approach this in a thoughtful manner and that we consult with a variety of experts who are knowledgeable in the field so we can make a well-informed decision regarding this important public health issue.

¹¹ *OpinionWorks*, Maryland Voter Survey on Pesticides <http://www.mdpestnet.org/wp-content/uploads/2014/02/Pesticide-Poll-Memo-2-10-14.pdf> (Accessed on October 20, 2014)



ROCKVILLE, MARYLAND

MEMORANDUM

January 26, 2015

TO: George Leventhal, President, County Council

FROM: Jennifer A. Hughes, Director, Office of Management and Budget
Joseph F. Beach, Director, Department of Finance

SUBJECT: FEIS for Bill 52-14, Pesticides -Notice Requirements -Non-Essential Pesticides Prohibitions

Please find attached the fiscal and economic impact statements for the above-referenced legislation.

JAH:fz

cc: Bonnie Kirkland, Assistant Chief Administrative Officer
Lisa Austin, Offices of the County Executive
Joy Nurni, Special Assistant to the County Executive
Patrick Lacefield, Director, Public Information Office
Fariba Kassiri, Acting Director, Department of Environmental Protection
Joseph F. Beach, Director, Department of Finance
David Platt, Department of Finance
Matt Schaeffer, Office of Management and Budget
Alex Espinosa, Office of Management and Budget
Felicia Zhang, Office of Management and Budget
Naeem Mia, Office of Management and Budget

Fiscal Impact Statement

Bill 52-14: Pesticides – Notice Requirements – Non-Essential Pesticides -- Prohibitions

1. Legislative Summary.

The bill would update county law with regard to pesticides application in the following manner:

- (1) require posting of notice for certain lawn applications of pesticide;
- (2) prohibit the use of certain pesticides on lawns;
- (3) prohibit the use of certain pesticides on certain County-owned property;
- (4) require the County to adopt an integrated pest management program for certain County-owned property;
- (5) generally amend County law regarding pesticides; and
- (6) require the creation of a media campaign to inform residents and businesses of the change in county law related to non-essential pesticides.

2. An estimate of changes in County revenues and expenditures regardless of whether the revenues or expenditures are assumed in the recommended or approved budget. Includes source of information, assumptions, and methodologies used.

County revenues are not expected to be impacted by Bill 52-14. The Maryland-National Capital Park and Planning Commission (M-NCPPC) did report that there is a potential for lost revenues if playing fields are not able to be adequately maintained – this revenue has traditionally come in in the form of field rental from athletic leagues.

County departments and agencies performed a fiscal impact analysis of the major provisions and conclude the following:

- Section 33B-4 requires the county to develop a list of non-essential pesticides and invasive species which would be detrimental to the environment. The Department of Environmental Protection (DEP) does not envision a fiscal impact as a result of these tasks given that many jurisdictions have taken the similar action with regards to non-essential pesticides and significant documentation exists related to successful implementation of this type of prohibition. If classification becomes difficult, a consultant may need to be brought in to assist with this task.
- Section 33B-13 requires the County Executive to create an Integrated Pest Management (IPM) program. The Department of General Services (DGS) reported no fiscal impact and is currently operating under an IPM and the Executive branch would utilize this plan across county departments under Bill 52-14.
- Enforcement of Bill 52-14 is not clarified in great detail within the legislation. Similar to other prohibition legislation, executive staff recommends a complaint-driven enforcement model to control costs of implementation. It is likely that complaint-driven enforcement would have a minimal fiscal impact on county departments while estimates for a proactive enforcement effort include a dedicated inspector with estimated personnel costs of \$75,000 and vehicle costs of approximately \$40,000 for a total of \$115,000 per inspector.
- Bill 52-14 would also require county departments and agencies to convert to approved landscaping practices outside of the list of banned non-essential pesticides

in the cases wherein prohibited pesticides are being used.

Montgomery County Public Schools (MCPS) reported that it is likely that pesticides prohibited under Bill 52-14 are being used currently and that a conversion cost estimate would be available after an agreed list of prohibited pesticides is established.

Based on estimates of conversion costs for M-NCPPC fields, the costs of maintaining similar fields within MCPS are expected to be significant.

Montgomery College reported no fiscal impacts as a result of Bill 52-14.

To maintain the quality of fields at the current level, M-NCPPC reported the following conversion costs associated with the move to allowable treatment methods on fields:

Athletic Fields:

- 40 athletic fields can be organically treated at the following cost:
\$648,048 in supplies and labor costs;
\$327,062 to provide a top dressing;
\$100,000 for the purchase of two aerators;
for a total first year cost of \$1,075,110.
Additional costs in subsequent years also include:
Sod replacement every two years at a cost of \$20,440 per field or \$817,600 and additional grading every four years at a total of \$10,000 per field or \$400,000.
- Five Bermuda playing fields cannot be organically treated and would need to be replaced with treatable sod for \$102,200 per field or a total cost of \$511,000.
- *Optional* replacement costs for a synthetic turf option are \$1,400,000 per field with \$3,700 in annual maintenance or a total capital cost of \$56,000,000 and a \$148,000 annual maintenance cost for all forty fields.

Regional Fields:

- 35 regional fields will need irrigation installed to maintain organic maintenance standards at the following cost:
\$3,500,000 in capital costs for system installations;
\$231,000 in annual water costs;
\$350,000 in annual maintenance costs;
for a first year cost of \$4,081,000.

Local Fields:

- 300 local fields would require manual or mechanical weed elimination at a total annual cost of \$229,860.

In total, implementation costs to bring M-NCPPC fields into compliance (absent a total conversion to synthetic turf) would be:

Total first year costs to M-NCPPC would be \$5,896,970.

Recurring annual costs for M-NCPPC would be \$810,860.

Sod Replacement costs every two years would be \$817,600.

Additional grading costs every four years for M-NCPPC would be \$400,000.

3. Revenue and expenditure estimates covering at least the next 6 fiscal years.

Total conversion costs to allowable landscaping practices for the county would include an undetermined amount for MCPS to replace current pesticides in inventory and a six year

total of \$12,804,070 for M-NCPPC as a part of converting maintenance practices on current fields to allowable practices under Bill 52-14.

M-NCPPC's six-year estimate of \$12,804,070 in conversion costs consists of:
\$5,896,970 in first year costs
\$4,054,300 in subsequent annual expenses [\$810,860 X 5 years]
\$2,452,800 in sod replacement costs on athletic fields [\$817,600 X 3 applications]
\$400,000 in additional grading costs

If it is determined that a proactive enforcement effort is needed to enforce the bill, a dedicated inspector would be required at a personnel cost of \$75,000 and a vehicle cost would of \$40,000, for a total of \$115,000 for the first year and a six year total of \$490,000. The County Executive recommends a complaint-driven enforcement program.

Bill 52-14 also requires the County Executive to establish an awareness campaign related to the prohibitions noted in the bill. Costs related to the media campaign will depend on the scope and size of the media campaign. The County Executive recommends an education and outreach program of minimal cost to the county.

- 4. An actuarial analysis through the entire amortization period for each bill that would affect retiree pension or group insurance costs.**

Not Applicable.

- 5. An estimate of expenditures related to County's information technology (IT) systems, including Enterprise Resource Planning (ERP) systems.**

Not Applicable.

- 6. Later actions that may affect future revenue and expenditures if the bill authorizes future spending.**

Not Applicable.

- 7. An estimate of the staff time needed to implement the bill.**

The impact of implementation of Bill 52-14 on staff time will depend on the extent of the enforcement required for the provisions in the bill. Inspections on lawns, commercial sales establishments for signage, and other general enforcement actions will have an impact on various county departments similar to other countywide ban legislation.

If Bill 52-14 requires an enforcement inspector, approximate personnel costs of an inspector would be \$75,000 and a vehicle would be \$40,000 for a total of \$115,000 per inspector.

If enforcement of Bill 52-14 is complaint-driven, there would be an impact to current inspection operations by increasing the extent of some existing inspection protocols but would result in minimal fiscal impact to the county.

8. An explanation of how the addition of new staff responsibilities would affect other duties.

Depending on the enforcement model of Bill 52-14, the bill would impact the total number of inspection hours required. An inspector carrying out an inspection in a retailer for health code and other violations, for example, could be required to add on additional inspections for checks of signage and other sales requirements of pesticides to their normal inspection process.

9. An estimate of costs when an additional appropriation is needed.

There are three potential areas of cost related to Bill 52-14:

1) Conversion costs related to replacing old pesticides or converting contracts to include compliant pesticide application- County departments reported no fiscal impacts considering DGS already operates an IPM. MCPS reported that there would be costs associated with converting to approved pesticides from pesticides currently in use and that the extent of these conversion costs will not be known until a final list of banned pesticides has been established by DEP.

M-NCPPC estimates their conversion costs to allowable landscaping practices (excluding a conversion to artificial turf) to be \$12,804,070 over the next six years. See item 3 for additional information on M-NCPPC's estimated conversion costs.

2) Costs associated with a media campaign-Bill 52-14 requires that the County Executive establish a media campaign to publicize the ban on certain non-essential pesticides. Costs related to this media campaign will vary depending on the scope and size of the campaign; and

3) Costs associated with enforcement of Bill 52-14-If dedicated enforcement personnel are needed to enforce the provisions of Bill 52-14, approximate personnel costs of an inspector would be \$75,000 and a vehicle would be \$40,000 for a total of \$115,000 per inspector.

10. A description of any variable that could affect revenue and cost estimates.

See Item 9 above.

11. Ranges of revenue or expenditures that are uncertain or difficult to project.

M-NCPPC reports that loss of revenue is likely to occur if the spraying of certain non-essential pesticides prohibited in Bill 52-14 is eliminated as a part of the current playing field maintenance program. M-NCPPC reports that other jurisdictions have seen a loss of revenue from athletic tournaments leagues choose to take outside of the county.

12. If a bill is likely to have no fiscal impact, why that is the case.

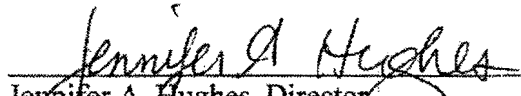
Not Applicable.

13. Other fiscal impacts or comments.

Both M-NCPPC and the Department of Recreation (REC) are also concerned about how this prohibition will impact recreational and sport fields throughout the county. There are multiple jurisdictional studies suggesting a prohibition of this type on sport fields leads to degradation of the playing field and may lead to injury.

14. The following contributed to and concurred with this analysis:

Stan Edwards, Department of Environmental Protection
James Song, Montgomery County Public Schools
David Vismara, Maryland-National Capital Park and Planning Commission
Beryl Feinberg, Department of General Services
Matt Schaeffer, Office of Management and Budget


Jennifer A. Hughes, Director
Office of Management and Budget

1/26/15
Date

Economic Impact Statement
Bill 52-14, Pesticides – Notice Requirements - Non-Essential Prohibitions

Background:

This legislation would require the posting of a notice when a property owner applies a pesticide to an area of lawn more than 100 square feet. Bill 52-14 requires the County Executive to designate a list of “non-essential” pesticides that include the following:

- All pesticides classified as “Carcinogenic to Humans” or “Likely to Be Carcinogenic to Humans” by the United States Environmental Protection Agency (USEPA);
- All pesticides classified by USEPA as “Restricted Use Products”;
- All pesticides classified as “Class 9” by the Ministry of the Environment and Climate Change, Government of Ontario, Canada
- All pesticides classified as “Category 1 Endocrine Disrupters” by the European Commission; and
- Other pesticides which the County Executive determines are not critical to pest management in the County.

The Bill would prohibit the application of non-essential pesticides to lawns, with exceptions for noxious weed and invasive species control, agriculture and gardens, and golf courses. The Bill would also require the County Executive to conduct a public outreach and education campaign during the implementation of Bill 52-14, and would prohibit the application of non-essential and neonicotinoid pesticides to County-owned property.

1. The sources of information, assumptions, and methodologies used.

Department of Environmental Protection (DEP)
SafeLawns.org
Diffen.org
The Fertilizer Institute (TFI)
Grassroots Environmental Education

2. A description of any variable that could affect the economic impact estimates.

The variable that could affect the economic impact estimates is the cost differential between organic pesticides and chemical pesticides. However, according to SafeLawns.org, the cost differential is comparing apples to oranges since one product provides a short-term solution while the other product aims to provide a long-term solution. Organic products “function by building up life in the soil (soil biology) and their payoff is long-term and lasting” while synthetic products, which are instantaneous, are applied frequently and in greater amounts. Therefore, SafeLawns.org indicates that the users of organic products will spend less money on lawn care over a two-year period than users of chemical or synthetic pesticides.

Economic Impact Statement
Bill 52-14, Pesticides – Notice Requirements - Non-Essential Prohibitions

According to Diffen.org, organic pesticides are much more expensive than synthetic or chemical pesticides because synthetic or chemical pesticides have more concentrated levels of nutrients per weight of product than organic pesticides. The user of organic pesticides needs several pounds of organic pesticide that would provide the same nutrient levels as synthetic or chemical pesticide. That differential in the amounts would result in a higher cost of organic pesticide.

Therefore, there is a conflict between the information provided by SafeLawns.org and Diffen.org regarding the cost differential between organic and synthetic/chemical pesticides. SafeLawns.org suggests there is less application of organic to synthetic/chemical pesticide while according to Diffen.org, one needs a higher quantity of organic pesticide to synthetic/chemical pesticide to achieve the same nutrient level.

3. The Bill's positive or negative effect, if any on employment, spending, saving, investment, incomes, and property values in the County.

Because of the differences of opinions in terms of the amount of application of organic versus synthetic/chemical pesticide as stated in paragraph #2, it is uncertain whether Bill 52-14 would have economic impact on employment, spending, saving, investment, incomes, and property values in the County. Because of the specific climate and soil type endemic to Montgomery County, more consultation with the experts and research are needed to determine the economic effect on the County.

4. If a Bill is likely to have no economic impact, why is that the case?

It is uncertain if Bill 52-14 has an economic impact.

5. The following contributed to or concurred with this analysis: David Platt and Rob Hagedoorn, Finance, and Stan Edwards, Department of Environmental Protection.



Joseph F. Beach, Director
Department of Finance

1/23/15
Date

June 16, 2015

MEMORANDUM

TO: Josh Hamlin, Legislative Attorney

FROM: Councilmember Roger Berliner, Chair, T&E Committee

CC: Councilmembers

SUBJECT: Amendments to Bill 52-14, Pesticides – Notice Requirements – Non-essential Pesticides – Prohibitions

Thank you for your work thus far to organize our three worksessions on the health, environmental, regulatory, and legal issues concerning pesticides. I believe these worksessions have successfully set the stage for a more informed deliberation of the legislation itself. Accordingly, and consistent with my earlier pledges on timing, I have advised the Council President that we will take up the bill itself in Committee at our first scheduled meeting after our summer recess on September 21.

In the interim, I request that you prepare a series of amendments to the legislation for my committee colleagues' consideration at our next worksession. These amendments will provide alternative means by which we can address the serious health concerns raised by pesticide exposure. My goal remains to produce legislation that is the strongest in the nation, a goal that I believe can and should be achieved without becoming the first major jurisdiction in the United States to ban the use of pesticides on private property.

There are a number of reasons why I have come to believe that banning pesticide use on private property, as called for in Bill 52-14, is unwise at this moment in time:

- (1) In my view, the most important issue confronting the Council is how we bring about significant changes in behavior on an issue our County has not previously seriously addressed or enforced. Prior to adopting the first ban of any large jurisdiction in the country, I believe it is our responsibility to increase awareness as to the potential health risks. If our public is made aware of the potential dangers, I believe it will significantly increase voluntary behavioral changes that lead to very substantial reductions in pesticide use;
- (2) Just as we have done in other environmental initiatives, it is a prudent course of action to first set a baseline level of pesticide use and a reduction goal prior to imposing a ban. However, if we fail to reach our goal, then it would be reasonable to consider additional measures to curb the use of pesticides;
- (3) Our public is highly divided on this issue, perhaps more so than on any issue that has come before our Council in my nine years. As elected officials, I believe it is our obligation to responsibly lead our community to healthier outcomes by educating,

building broad support to the extent possible, and demonstrating on county property the efficacy of alternative approaches before imposing absolute restrictions on private use;

- (4) The conclusion from the Attorney General's Office that banning pesticide use on private property is likely to be preempted under state law, while certainly not dispositive, casts serious doubt over the legality of a measure that is deeply divisive and far-reaching;
- (5) The nation's leading experts at the National Cancer Institute have told us that the state of the science with respect to the health risks is not "definitive." While I personally believe that the state of the science is sufficient to warrant a much more proactive approach to pesticides, I believe it falls short of justifying a private property ban at this moment in time;
- (6) It has been generally acknowledged that the proposed ban would be difficult, if not impossible, to enforce. To adopt such a restrictive, divisive approach that is so difficult to enforce seems unwise to me; and
- (7) While there are examples of situations where organic approaches to lawn care have been successful, there are still significant questions regarding the cost and effectiveness of organic lawn care for the average Montgomery County homeowner.

Any one of these reasons could justify not proceeding with a ban at this moment. However, the combination of all of these factors should give us considerable pause.

I also believe that this legislation ought to generally exempt our higher-quality, competition-level playing fields in the county. Our leading local public and private turf experts have expressed concerns that, because of factors unique to our Mid-Atlantic climate, they require pesticides to ensure quality playing surfaces and to minimize player injury resulting from uneven surfaces.

Given these issues, I ask that you draft as amendments the following provisions that would place Montgomery County at the forefront of efforts to reduce the use of pesticides:

- Ban the use of pesticides on county non-park land;
- Require our Parks Department to follow Seattle's model and create a list that will grow over time of non-playing-field park areas that are designated as pesticide free; require the Parks Department to pilot an organic playing field; require the adoption of protocols that limit the use of pesticides in parkland to the maximum extent possible and create pesticide-free buffer areas near streams; and to require reporting requirements that make explicit the circumstances under which pesticides are used;
- When a lawn care company proposes the use of pesticides on private property, require residents to sign a document that identifies the reported health risks associated with

pesticides, acknowledges that organic alternatives exist, and directs (or not) a lawn care provider to adhere to least-toxic Integrated Pest Management practices that call for a minimum use of pesticides;

- Require that condo associations or homeowners associations hold an affirmative vote *of the membership* in order to adopt a pesticide regime for the maintenance of common elements;
- Require the Montgomery County Department Environmental Protection to develop a baseline pesticide application level based on most recent Maryland Department of Agriculture data, set a goal of reducing non-agricultural pesticide use 50% by 2020, require the County Executive to propose additional measures should the county not meet the reduction target; and require that the Department not only enforce existing regulations, but conduct a vigorous public education campaign on pesticide use; and
- Require affected individuals be notified in advance of pesticide application in properties where children are frequently present, such as playgrounds and daycare facilities.

As I hope these amendments make clear, I believe that there are serious and justifiable concerns about the use of pesticides in our community. We should take strong measures that will significantly limit the county's use of pesticides, and at the same time, ensure that homeowners and members of home owner associations are in a position to make healthier choices. If these measures fail to significantly reduce pesticide use in our county, and science continues to strongly suggest associations with bad health outcomes, then it would be proper to consider even more aggressive action.

Thank you in advance for this language. Please do not hesitate to contact me if you have questions about how to proceed.



MONTGOMERY COUNTY COUNCIL
ROCKVILLE, MARYLAND


ROGER BERLINER
COUNCILMEMBER
DISTRICT 1

CHAIRMAN
TRANSPORTATION, INFRASTRUCTURE
ENERGY & ENVIRONMENT COMMITTEE

MEMORANDUM

September 9, 2015

TO: Councilmembers

FROM: Councilmember Roger Berliner, Chair, T&E Committee 

SUBJECT: Proposed Amendments to Pesticide Legislation (52-14)

On June 16, I asked legislative attorney Josh Hamlin to draft potential amendments to Bill 52-14. Since these amendments, in their entirety, offer a substitute, or alternative approach, they are attached to this memo in bill form.

These amendments represent an aggressive and proactive stance towards significantly reducing pesticide use in the county, but do so in a responsible and phased way. *Taken together, if the Council were to adopt this substitute, it would represent the strongest pesticide legislation passed by any large jurisdiction in the nation.*

As you probably appreciate, the Office of the Attorney General has concluded that making it unlawful for a county resident to apply pesticides to their own lawns, as proposed by Bill 52-14 as introduced, is likely to be invalidated by a court. The state of the science is that there are strong "associations" between pesticides and human health risks, and the National Cancer Institute has advised our Council that scientists have not arrived at definitive causal links. And many of our residents feel that banning the application of pesticides on their private property is a bridge too far given that (1) EPA has found them to be safe if applied properly; (2) stores will continue to be able to sell them; (3) the organic alternatives are more expensive and relatively new in this area; and (4) the law would be difficult, if not impossible to enforce.

However, as the supporters of Bill 52-14 have made clear, many in our community have serious concerns about the impact of pesticide use on the health of children and other vulnerable populations. I share those concerns. When the International Agency for the Research on Cancer (IARC) concludes that the major ingredient in Round-up is "probably carcinogenic to humans," as it did earlier this year, it is something to take seriously. The question before the Council is not whether we should take action, but how? After careful consideration, I have concluded that a phased approach that combines (a) a steep reduction target of 50%, (b) county leadership, (c) bans on park playgrounds and tot lots, (d) increased awareness of risks and alternatives, and (e) greater control for residents living in HOAs and common

ownership communities is the most responsible path forward. Attached is a Fact Sheet that more fully describes this phased approach.

I believe we should take these steps before consideration of additional lawful measures. As one of our colleagues confided to me, Bill 52-14 as introduced is akin to going from 0-60 mph in mere seconds. Our residents have not been educated as to the risks associated with pesticide use, and our current county regime is both extremely limited in scope and enforcement. If we move too quickly to ban products used by thousands of residents on their homes and by our parks people to keep our playing fields in acceptable shape, we run the risk of a significant citizen rebellion, an expensive and uphill legal fight, and millions in additional costs to maintain our playing fields -- if they can be maintained at all.

I thank you in advance for your consideration of my amendments to Bill 52-14 and do let me know if you have any questions or suggestions for how we can most responsibly serve our public in the effort to significantly reduce the exposure of our residents to pesticides.

Enclosures: Fact Sheet and Amendments to Bill 52-14



Berliner Alternative to Pesticides Bill (52-14)

*A Responsible Approach to Pesticide Reduction that would, if adopted,
be the Strongest Anti-Pesticide Measure in the Nation*

Demonstrates County Leadership on Pesticide Reduction

- **County Property Lawn Ban** - Bans the use of pesticides on lawns on county property.
 - **Pesticide Reduction Strategy** - Requires the Department of Environmental Protection to set a countywide 50% reduction goal for non-agricultural use of pesticides within 3 years. If that standard is not met, directs the Department to develop strategies to more aggressively reduce pesticide use in our community.
-

Protects Children and Environmental Areas

- **County Park Playgrounds** - Bans the application of pesticides on all 282 county park playgrounds.
 - **Private Playgrounds and Daycares** - Requires private playgrounds and daycare facilities to provide 48 hour notice to affected individuals, advancing the type of notice requirements already placed on Montgomery County Public Schools.
 - **Pesticides in Stream Valleys** - Bans, in most circumstances, the use of pesticides within 25 feet of our streams.
 - **Pesticide-free Park Program** - Requires the Parks Department to create a growing list of parks and park areas managed without pesticides. With this program, Parks estimates it will be able to go pesticide free on over 1600 acres of parkland across the county, including one pesticide-free local park.
 - **Playing Fields** - Requires the Parks Department to designate 5 playing fields for an organic pilot, and for the remaining fields, to use Integrated Pest Management, which calls for the use of the least amount of pesticides possible.
 - **Improved Parks Notice Requirements** - Requires Parks Department to provide notice of its pesticide applications on its website at least 48 hours before application.
-

Increases Awareness of Risks and Choice for Residents

- **Pesticide Risk Disclosure and IPM Selection** - When homeowners contract for lawn service, requires lawn care companies to inform customers of the health risks associated with pesticides to be used, and requires residents to acknowledge those risks, to acknowledge that alternatives are available, and to direct, or not, their service to employ "Integrated Pest Management" in their use of pesticides.
- **Choice for Common Ownership Communities** - In place of a ban, requires condo associations and HOAs to create a process for owners to vote on the application of pesticides to common elements, and allows individuals to decline to have pesticides applied to their unit. Over 300,000 Montgomery County residents live in Common Ownership Communities.

Bill No. 52-14
Concerning: Pesticides – Notice
Requirements – Non-essential
Pesticides – Prohibitions
Revised: October 22, 2014
Draft No. 9
Introduced: October 28, 2014
Expires: April 28, 2016
Enacted: _____
Executive: _____
Effective: _____
Sunset Date: January 1, 2019
Ch. _____, Laws of Mont. Co. _____

COUNTY COUNCIL FOR MONTGOMERY COUNTY, MARYLAND

By: Council Vice President Leventhal and Councilmembers Elrich, Riemer, Floreen, and Navarro

AN ACT to:

- (1) require posting of notice for certain lawn applications of pesticide;
- (2) prohibit the use of certain pesticides on lawns;
- (3) prohibit the use of certain pesticides on certain County-owned property
- (4) require the County to adopt an integrated pest management program for certain County-owned property; and
- (5) generally amend County law regarding pesticides.

By amending

Montgomery County Code
Chapter 33B, Pesticides
Sections 33B-1, 33B-2, 33B-3, 33B-4, 33B-5, 33B-6, and 33B-7

By adding

Montgomery County Code
Chapter 33B, Pesticides
Articles 2, 3, 4, and 5
Sections 33B-8, 33B-9, 33B-10, 33B-11, 33B-12, and 33B-13

Boldface	<i>Heading or defined term.</i>
<u>Underlining</u>	<i>Added to existing law by original bill.</i>
[Single boldface brackets]	<i>Deleted from existing law by original bill.</i>
<u>Double underlining</u>	<i>Added by amendment.</i>
[[Double boldface brackets]]	<i>Deleted from existing law or the bill by amendment.</i>
* * *	<i>Existing law unaffected by bill.</i>

The County Council for Montgomery County, Maryland approves the following Act:

Bill No. 52-14
 Concerning: Pesticides – Notice
Requirements – Non-essential
Pesticides – Prohibitions
 Revised: October 22, 2014
 Draft No. _____
 Introduced: October 28, 2014
 Expires: April 28, 2016
 Enacted: _____
 Executive: _____
 Effective: _____
 Sunset Date: January 1, 2019
 Ch. _____, Laws of Mont. Co. _____

COUNTY COUNCIL FOR MONTGOMERY COUNTY, MARYLAND

By: Council Vice President Leventhal and Councilmembers Elrich, Riemer, Floreen, and Navarro

AN ACT to:

- (1) require posting of notice for certain ~~[[lawn]]~~ applications of pesticide;
- (2) ~~[[prohibit the use of certain pesticides on lawns]]~~ require a Countywide pesticide use reduction plan;
- (3) require common ownership communities to take certain steps before the application of certain pesticides
- (4) prohibit the use of certain pesticides on certain County-owned property
- ~~[[(4)]]~~ (5) require the County to adopt an integrated pest management program for certain County-owned property; [[and]]
- ~~[[(5)]]~~ (6) require the Parks Department to take certain steps to reduce the use of certain pesticides; and
- (7) generally amend County law regarding pesticides.

By amending

Montgomery County Code
 Chapter 33B, Pesticides
 Sections 33B-1, 33B-2, 33B-3, 33B-4, 33B-5, 33B-6, and 33B-7

By adding

Montgomery County Code
 Chapter 33B, Pesticides
 Articles 2, 3, 4, and 5
 Sections 33B-8, 33B-9, 33B-10, 33B-11, 33B-12, 33B-13, 33B-14, 33B-15 and 33B-16

Boldface	<i>Heading or defined term.</i>
<u>Underlining</u>	<i>Added to existing law by original bill.</i>
[Single boldface brackets]	<i>Deleted from existing law by original bill.</i>
<u>Double underlining</u>	<i>Added by amendment.</i>
[[Double boldface brackets]]	<i>Deleted from existing law or the bill by amendment.</i>
* * *	<i>Existing law unaffected by bill.</i>

The County Council for Montgomery County, Maryland approves the following Act:

1 **Sec. 1. Sections 33B-1, 33B-2, 33B4, 33B-5, 33B-6 and 33B-7 are**
 2 **amended, and Sections 33B-8, 33B-9, 33B-10, 33B-11, 33B-12, 33B-13, 33B-14,**
 3 **33B-15 and 33B-16 are added as follows:**

4 **ARTICLE 1. General Provisions**

5 **33B-1. Definitions.**

6 In this [chapter] Chapter:

7 Agriculture means the business, science, and art of cultivating and managing
 8 the soil, composting, growing, harvesting, and selling sod, crops and livestock,
 9 and the products of forestry, horticulture and hydroponics; breeding, raising, or
 10 managing livestock, including horses, poultry, fish, game and fur-bearing
 11 animals, dairying, beekeeping and similar activities, and equestrian events and
 12 activities.

13 Children's facility means a building or part of a building which, as part of its
 14 function, is regularly occupied by children under the age of 6 years and is
 15 required to obtain a certificate of occupancy as a condition of performing that
 16 function. Children's facility includes, but is not limited to, a child day care
 17 center, family day care home, nursery school, and kindergarten classroom.

18 *Custom applicator* means a person engaged in the business of applying
 19 pesticides.

20 *Department* means the Department of Environmental Protection.

21 *Director* means Director of the Department of Environmental Protection[,] or
 22 the Director's designee.

23 Integrated pest management means a process for managing pests that:

- 24 (1) uses monitoring to determine pest injury levels;
- 25 (2) combines biological, cultural, mechanical, physical, and chemical
 26 tools and other management practices to control pests in a safe,

cost effective, and environmentally sound manner that contributes to the protection of public health and sustainability;

(3) uses knowledge about pests, such as infestations, thresholds, life histories, environmental requirements, and natural control of pests; and

(4) uses non-chemical pest-control methods and the careful use of least-toxic chemical methods when non-chemical methods have been exhausted or are not feasible.

Larvicide means a pesticide designed to kill larval pests.

Lawn means an area of land, except agricultural land, that is:

(1) [Mostly] mostly covered by grass, other similar herbaceous plants, shrubs, or trees; and

(2) [Kept] kept trim by mowing or cutting.

[[Lawn includes an athletic playing field other than a golf course.]] Lawn does not include a:

(1) playing field;

(2) golf course; or

(3) garden.

Neonicotinoid means a class of neuro-active pesticides chemically related to nicotine. Neonicotinoid includes acetamiprid, clothianidin, dinotefuran, imidacloprid, nitenpyram, nithiazine, thiacloprid, and thiamethoxam.

Non-essential pesticide means a pesticide designated as a non-essential pesticide under Section 33B-4.

Pest means an insect, snail, slug, rodent, nematode, fungus, weed, or other form of plant or animal life or microorganism (except a microorganism on or in a living human or animal) that is normally considered to be a pest or defined as a pest by applicable state regulations.

Pesticide means a substance or mixture of substances intended or used to:

- (1) prevent, destroy, repel, or mitigate any pest;
- (2) be used as a plant regulator, defoliant, or desiccant; or
- (3) be used as a spray adjuvant, such as a wetting agent or adhesive.

However, *pesticide* does not include an antimicrobial agent, such as a disinfectant, sanitizer, or deodorizer, used for cleaning that is not considered a pesticide under any federal or state law or regulation.

Playground means an outdoor children's play area that is on the premises of a children's facility, school, apartment building or complex, common ownership community, or park.

Private lawn application means the application of a pesticide to a lawn on property owned by or leased to the person applying the pesticide. *Private lawn application* does not include:

- (1) applying a pesticide for the purpose of engaging in agriculture;
- (2) applying a pesticide around or near the foundation of a building for purpose of indoor pest control;
- (3) applying a pesticide to a golf course or turf farm.

Vector or disease vector means an animal, insect, or microorganism that carries and transmits an infectious pathogen into another organism.

Waterbody means waters located within the County that are:

- (1) subject to the ebb and flow of the tide; or
- (2) free flowing, unconfined, and above-ground rivers, streams or creeks.

[33B-4.] 33B-2. Signs with retail purchase of pesticide.

A person who sells at retail a pesticide or material that contains a pesticide must make available to a person who buys the pesticide or material that contains a pesticide:

(a) [Notice] notice signs and supporting information that are approved by the [department] Department; and

(b) [The] the product label or other information that the federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) [, 7 U.S.C. 136 et seq.,] requires for sale of the pesticide.

The Department must enforce this Section and must annually inspect each person who sells at retail a pesticide or material that contains a pesticide.

[33B-5] 33B-3. Storage and handling of pesticides.

* * *

[33B-6] 33B-4. Regulations.

(a) The [County] Executive must adopt regulations to carry out this Chapter under method (2).

(b) The Executive must include in the regulations adopted under this [section] Section the minimum size or quantity of pesticide subject to [section 33B-4] Section 33B-2.

(c) The Executive must include in the regulations adopted under this Section a list of non-essential pesticides. The list of non-essential pesticides must include:

- (1) all pesticides classified as “Carcinogenic to Humans” or “Likely to Be Carcinogenic to Humans” by the U.S. Environmental Protection Agency;
- (2) all pesticides classified by the U.S. Environmental Protection Agency as a “Restricted Use Product”;
- (3) all pesticides classified as a “Class 9” pesticide by the Ontario, Canada, Ministry of the Environment;
- (4) all pesticides classified as a “Category 1 Endocrine Disruptor” by the European Commission; and

(5) any other pesticides which the Executive determines are not critical to pest management in the County.

(d) The Executive must include in the regulations adopted under this Section a list of invasive species that may be detrimental to the environment in the County.

(e) The Executive must review and update the lists of non-essential pesticides and invasive species designated under subsections (c) and (d) by July 1 of each year.

[33B-7] 33B-5. Penalty for violating chapter.

(a) Any violation of this Chapter is a class C violation.

(b) Each day a violation continues is a separate offense.

ARTICLE 2. Notice Requirements.

[33B-2] 33B-6. Notice about pesticides to customer; acknowledgement and direction by customer.

(a) In this [section] Section:

(1) Customer means a person who makes a contract with a custom applicator to have the custom applicator apply a pesticide to a lawn.

(2) New customer includes a customer who renews a contract with a custom applicator.

(b) A custom applicator must give to a new customer:

(1) [Before] before application, a list of:

[a.](A) [The] the trade name of each pesticide that might be used;

[b.](B) [The] the generic name of each pesticide that might be used; and

[c.](C) [Specific] specific customer safety precautions,
including all potential health risks identified by the United
States Environmental Protection Agency and the World
Health Organization for each pesticide that might be used;
 and

(2) [After] after application, a list of:

[a.](A) [The] the trade name of each pesticide actually used;
 and

[b.](B) [The] the generic name of each pesticide actually
 used; and

(3) [A] a written notice about pesticides prepared by the [department]
Department under subsection (c) [of this section].

(c) The [department] Department must prepare, keep current, and provide
 to a custom applicator a written notice about pesticides for the custom
 applicator to give to a customer under subsection (b) [of this section].

(d) The notice prepared by the [department] Department under subsection
 (c) [of this section] must include:

(1) [Government] government agency phone numbers to call to:

[a.](A) [Make] make a consumer complaint;

[b.](B) [Receive] receive technical information on
 pesticides; and

[c.](C) [Get] get assistance in the case of a medical
 emergency;

(2) [A] a list of general safety precautions a customer should take
 when a lawn is treated with a pesticide;

(3) [A] a statement that a custom applicator must:

[a.](A) [Be] be licensed by the Maryland Department of
Agriculture; and

[b.](B) [Follow] follow safety precautions; and

(4) [A] a statement that the customer has the right to require the
custom applicator to notify the customer before each treatment of
the lawn of the customer with a pesticide.

(e) Before applying a pesticide to a lawn, a custom applicator must:

(1) inform a new customer of:

(A) the existence of other means of pest control without the use
of non-essential pesticides; and

(B) the practice of integrated pest management (IPM),
including a description of the process of IPM that is
consistent with that of the U.S. Environmental Protection
Agency; and

(2) obtain from a new customer, in writing or other electronic format
approved by the Director :

(A) acknowledgement that the customer received the
information required under this subsection and subsection
(b); and

(B) direction from the customer as to whether or not to use
IPM practices.

(f) A custom applicator must retain a acknowledgement from a new
customer obtained under subsection (e) for at least one year.

[33B-3] 33B-7. Posting signs after application by custom applicator.

(a) Immediately after a custom applicator treats a lawn with a pesticide, the
custom applicator must [post a sign on the lawn] place markers within
or along the perimeter of the area where pesticides will be applied.

- (b) A [sign posted] marker required under this [section] Section must:
- (1) [Be] be clearly visible [from the principal place of access to] to persons immediately outside the perimeter of the property;
 - (2) [Be] be a size, form, and color approved by the [department] Department;
 - (3) [Be] be made of material approved by the [department] Department; [and]
 - (4) [Have] have wording with content and dimensions approved by the [department] Department]; and
 - (5) be in place on the day that the pesticide is applied.

33B-8. Posting signs after application by property owner or tenant.

- (a) A person who performs a private lawn application treating an area more than 100 square feet must place markers within or along the perimeter of the area where pesticides will be applied.
- (b) A marker required under this Section must:
 - (1) be clearly visible to persons immediately outside the perimeter of the property;
 - (2) be a size, form, and color approved by the Department;
 - (3) be made of material approved by the Department; and
 - (4) have wording with content and dimensions approved by the Department; and
 - (5) be in place on the day that the pesticide is applied.

33B-9. Notice before and after application to playground or children's facility.

- (a) Before applying a pesticide to a playground or the grounds of a children's facility, a person must:
 - (1) place markers within or along the perimeter of the area where pesticides will be applied; and

(2) when practicable, distribute written notice to potentially affected individuals.

(b) Before applying a pesticide in a children's facility, a person must either:

(1) provide written notice directly to potentially affected individuals;
or

(2) if providing individual notice is not practicable, post written notice at all entrances to the children's facility.

(c) A marker required under this Section must:

(1) be clearly visible to persons immediately outside the perimeter of the property;

(2) be a size, form, and color approved by the Department;

(3) be made of material approved by the Department; and

(4) have wording with content and dimensions approved by the Department; and

(5) be in place for the period beginning 48 hours before the pesticide is applied through 48 hours after the pesticide is applied.

(d) Written notice under this section must:

(1) be provided at least 48 hours before the pesticide is applied; and

(2) have wording with content approved by the Department, including:

(A) the common name of the pesticide;

(B) the location of the application;

(C) the planned date and time of the application; and

(D) the following language:

"The Office of Pesticide Programs of the United States Environmental Protection Agency has stated that 'where possible, persons who potentially are more sensitive, such as pregnant

women and infants (less than two years old) should avoid any unnecessary pesticide exposure.”

(e) (1) A pesticide may be applied to a playground, on the grounds of a children’s facility, or in a children’s facility, without prior notification required under this Section only if an emergency exists.

(2) For the purposes of this Section, “emergency” means a sudden need to mitigate or eliminate a pest which threatens the health or safety of a child or other person.

(3) After an emergency application of a pesticide to a playground or the grounds of a children’s facility, the person applying the pesticide must:

(A) immediately place markers within or along the perimeter of the area where pesticides have been applied; and

(B) when practicable, distribute written notice to potentially affected individuals within 24 hours after application of the pesticide.

(4) Within 24 hours after an emergency application of a pesticide in a children’s facility, the person applying the pesticide must

(A) provide written notice to each potentially affected individual that a pesticide was applied for emergency pest control; or

(B) if providing individual notice is not practicable, post written notice at all entrances to the children’s facility.

(5) A marker required under this subsection must:

(A) be clearly visible to persons immediately outside the perimeter of the property;

(B) be a size, form, and color approved by the Department;

(C) be made of material approved by the Department; and

(D) include:

(i) the common name of the pesticide;

(ii) the location of the application;

(iii) the date and time of the application; and

(iv) the reason for the emergency application.

(6) Written notice under this subsection must have wording with content approved by the Department, including:

(A) the common name of the pesticide;

(B) the location of the application;

(C) the date and time of the application; and

(D) the reason for the emergency application.

ARTICLE 3. [[Application restrictions.]] Non-essential pesticide use reduction.

[[33B-9.]] 33B-10. [[Prohibited application.]] Countywide use reduction plan.

[[A person must not apply a non-essential pesticide to a lawn.]]

(a) The Director must develop a baseline estimate of non-essential pesticide application in the County using:

(1) data obtained from the Maryland Department of Agriculture related to pesticide application; and

(2) information gathered through the outreach campaign under Section 33B-11.

(b) The Director must develop a non-essential pesticide use reduction plan, with a goal of reducing, by 2018, the use in the County of non-essential pesticides other than in agriculture by at least 50% from the baseline established under subsection (a).

- (c) If the reduction goal is not achieved, the Director must implement additional measures to further reduce the use of non-essential pesticides.

[[33B-10. Exceptions and exemptions.

- (a) A person may apply a non-essential pesticide for the following purposes:

- (1) for the control of weeds as defined in Chapter 58, Weeds;
- (2) for the control of invasive species listed in a regulation adopted under Subsection 33B-4(d);
- (3) for pest control while engaged in agriculture; and
- (4) for the maintenance of a golf course.

- (b) A person may apply to the Director for an exemption from the prohibition of Section 33B-9 for a non-essential pesticide. The Director may grant an exemption to apply a non-essential pesticide on property where application is prohibited under Section 33B-9 if the applicant shows that:

- (1) effective alternatives are unavailable;
- (2) granting an exemption will not violate State or federal law; and
- (3) use of the non-essential pesticide is necessary to protect human health or prevent significant economic damage.

- (c) A person may apply to the Director for an emergency exemption from the prohibition in Section 33B-9 if a pest outbreak poses an imminent threat to public health or if significant economic damage would result from the inability to use a pesticide prohibited by Section 33B-9. The Director may impose specific conditions for the granting of emergency exemptions.]]

33B-11. Outreach and education campaign.

The Executive must implement a public outreach and education campaign before and during implementation of the provisions of this Article. This campaign should include:

- (a) informational mailers to County households;
- (b) distribution of information through County internet and web-based resources;
- (c) radio and television public service announcements;
- (d) news releases and news events;
- (e) information translated into Spanish, French, Chinese, Korean, Vietnamese, and other languages, as needed;
- (f) extensive use of County Cable Montgomery and other Public, Educational, and Government channels funded by the County; [[and]]
- (g) posters and brochures made available at County events, on Ride-On buses and through Regional Service Centers, libraries, recreation facilities, senior centers, public schools, Montgomery College, health care providers, hospitals, clinics, and other venues; and
- (h) a survey of pesticide use by County residents and custom applicators.

ARTICLE 4. Common Ownership Communities.

33B-11. Definitions.

In this article the terms association document, common element, community association, owner, and unit have the meanings attributed to them in Section 10B-8.

33B-12. Application of pesticide to individual units.

- (a) Beginning July 1, 2016, each year, a community association must provide owners an opportunity to decline to have non-essential pesticides applied to the owner's unit.

(b) If a unit owner declines to have non-essential pesticide applied, the community association or its agent must not apply non-essential pesticide to the unit.

33B-13. Application of pesticide to common elements.

(a) Beginning July 1, 2016, each year, the owners in a common ownership community must approve, by a majority of votes cast, in person or by proxy, the application of a non-essential pesticide to a common element during the following year.

(b) A community association may apply to the Director for an emergency exemption from the prohibition or restrictions under this Section if a pest outbreak poses an imminent threat to public health or if significant economic damage would result from the inability to use a non-essential pesticide. The Director may impose specific conditions on each emergency exemption.

(c) A community association must post notice of each pesticide application to the common elements. The notice required under this subsection must consist of signs that:

- (1) are clearly visible to persons immediately outside the perimeter of the property;
- (2) are in place on the day that the pesticide is applied;
- (3) are of a size, form, and color approved by the Department;
- (3) are made of material approved by the Department; and
- (4) have wording with content and dimensions approved by the Department.

ARTICLE [[4.]] 5. County Property and Parks

[[33B-12]]33B-14. Prohibition on County-owned property.

(a) Prohibition. Except as provided in subsection (b), a [[person]] County employee or County contractor must not apply to any lawn on property owned by the County:

(1) a non-essential pesticide; or

(2) a neonicotinoid.

(b) Exceptions.

(1) A [[person]] County employee or County contractor may use any larvicide or rodenticide on a lawn on property owned by the County as a public health measure to reduce the spread of disease vectors under recommendations and guidance provided by the Centers for Disease Control and Prevention, the United States Environmental Protection Agency, or the State Department of Agriculture. Any rodenticide used must be in a tamper-proof product, unless the rodenticide is designed and registered for a specific environment inaccessible to humans and pets.

(2) A [[person]] County employee or County contractor may use a non-essential pesticide or neonicotinoid on a lawn on property owned by the County for the following purposes [[set forth in Subsection 33B-10(a).]]:

(A) for the control of weeds as defined in Chapter 58, Weeds;

(B) for the control of invasive species listed in a regulation adopted under Subsection 33B-4(d);

(C) for pest control while engaged in agriculture;

(D) for the maintenance of a golf course; and

(E) for the maintenance of medians and islands in County rights-of-way.

(3) A ~~[[person]]~~ County employee or County contractor may use a non-essential pesticide or neonicotinoid on a lawn on property owned by the County if the Director determines, after consulting the Directors of General Services and Health and Human Services, that the use of pesticide is necessary to protect human health or prevent imminent and significant economic damage, and that no reasonable alternative is available. If a pesticide is used under this paragraph, the Director must, within 30 days after using the pesticide, report to the Council on the reasons for the use of the pesticide.

(4) This Section does not apply to County-owned property that the Parks Department operates or manages for the County.

~~[[33B-13]]33B-15. Integrated pest management on County property.~~

(a) Adoption of program. The Department must adopt, by a method (2) regulation, an integrated pest management program for all property owned by the County.

(b) Requirements. Any program adopted under subsection (a) must require:

- (1) monitoring the turf or landscape;
- (2) accurate record-keeping documenting any potential pest problem;
- (3) evaluating the site for any injury caused by a pest and determining the appropriate treatment;
- (4) using a treatment that is the least damaging to the general environment and best preserves the natural ecosystem;
- (5) using a treatment that will be the most likely to produce long-term reductions in pest control requirements and is operationally feasible and cost effective in the short and long term;

(6) using a treatment that minimizes negative impacts to non-target organisms;

(7) using a treatment that is the least disruptive of natural controls;

(8) using a treatment that is the least hazardous to human health; and

(9) exhausting the list of all non-chemical and organic treatments available for the targeted pest before using any synthetic chemical treatments.

(c) The Department must provide training in integrated pest management for each employee who is responsible for pest management.

33B-16. County parks.

(a) Policy. It is the policy of Montgomery County to promote environmentally sensitive landscape pest management in its parks by phasing out the use of the most hazardous pesticides and reducing overall pesticide use while preserving landscape assets, maintaining functionality of playing fields, and protecting the health and safety of the public and County employees.

(b) Pesticide-free parks. The Parks Department must implement a pesticide-free parks program that, at a minimum, consists of:

(1) the maintenance of certain parks without the use of non-essential pesticides or neonicotinoids;

(2) a program for reducing the use of non-essential pesticides and neonicotinoids on playing fields that includes:

(A) a pilot program consisting of at least five playing fields maintained without the use of non-essential pesticides or neonicotinoids; and

(B) maintenance of all other playing fields using an integrated pest management program; and

(3) a public communication campaign to inform the public of the existence and progress of the pesticide-free parks program.

(c) Pesticide usage protocols. The Parks Department must develop usage protocols which limit the use of non-essential pesticides and neonicotinoids to maximum extent possible and, subject to the exceptions in subsection (d):

(1) do not permit the use of non-essential pesticides or neonicotinoids within 25 feet of a waterbody; and

(2) do not permit the application of non-essential pesticides or neonicotinoids to playgrounds in County parks; and

(3) except where immediate application is necessary to protect human health or prevent significant economic damage, include the posting of notice of each planned application of non-essential pesticide or neonicotinoid on the appropriate Parks Department website, at least 48 hours before application, that includes:

(A) the common name of the pesticide;

(B) the location of the application;

(C) the planned date and time of the application; and

(D) the reason for the use of the pesticide.

(d) Exceptions. The pesticide-free parks program and pesticide usage protocols may generally permit the application of a non-essential pesticide or neonicotinoid for the following purposes:

(1) for the control of weeds as defined in Chapter 58, Weeds;

(2) for the control of invasive species listed in a regulation adopted under Subsection 33B-4(d);

(3) for the control of disease vectors;

(4) for the control of stinging insects or plants;

(5) for the control of organisms that threaten the health of trees or shrubs;

(6) for the removal of weeds as part of the renovation of a playing field; and

(7) where otherwise necessary to protect human health or prevent significant economic damage.

(e) Reporting requirement. The Parks Department must submit a report to County Executive and County Council on or before January 15 of each year that:

(1) details non-essential pesticide and neonicotinoid usage in County parks during the preceding year, including:

(A) the common name of each non-essential pesticide and neonicotinoid used;

(B) the location of each application;

(C) the date and time of each application; and

(D) the reason for each use of non-essential pesticide and neonicotinoid; and

(2) describes the status of the pesticide-free parks program implemented under this Section.

Sec. 2. Initial Lists of Non-Essential Pesticides and Invasive Species. The Executive must submit the lists of non-essential pesticides and invasive species required by Subsections 33B-4(c) and (d) to the Council for approval by [[January]] March 1, 2016

Sec. 3. Effective Date. The [[prohibitions on]] requirements for the use of non-essential pesticides in common ownership communities contained in [[Section 33B-9]] Sections 33B-12 and 33B-13, and the prohibitions and requirements related

503 to the ~~[[on]]~~ use of non-essential pesticides and neonicotinoids contained in
 504 ~~[[Section]]~~ Sections 33B-14 and 33B-16 take effect on ~~[[January]]~~ July 1, 2016.

505 **[[Sec. 4. Expiration.** This Act and any regulation adopted under it expires
 506 on January 1, 2019.]]

507 *Approved:*

508

George Leventhal, President, County Council

Date

509 *Approved:*

510

Isiah Leggett, County Executive

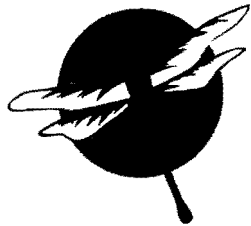
Date

511 *This is a correct copy of Council action.*

512

Linda M. Lauer, Clerk of the Council

Date



BEYOND PESTICIDES

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

Councilmember Berliner's County Playground and Pilot Playing Field Proposal Montgomery County, MD Council September 9, 2015

The amendments proposed to 52-14 by Councilmember Roger Berliner, Chair of the T&E Committee, strip out the central portions of the bill intended to move Montgomery County land, including public and private property, to non-toxic sustainable management practices. Mr. Berliner's proposed amendments:

- (i) eliminate the phase-out of toxic pesticides on private land within the county, except for property 25-feet from a waterbody (by eliminating original Section 33B-9, Prohibited application);
- (ii) eliminate the phase-out of toxic pesticides on playing fields that children use throughout the county by redefining lawn to exclude playing fields

The Amendments Reduce the Scope and Intent of the Bill

The amendments reduce the scope of the bill to phasing out toxic pesticides on playgrounds and five pilot playing field sites and reorient the approach to a posting and notice bill with an undefined 50% reduction goal in hazardous pesticide use over three years. If the reduction goal is not met, the county is required to implement "additional measures," which are not defined. Another provision allows homeowner associations by majority vote to treat common spaces with hazardous pesticides. Ironically, a provision requires that written notice be given to exposed individuals (which presumably will cover most of the population) with specific language that indicates that EPA states "where possible persons who potentially are more sensitive, such as pregnant women and infants (less than two years old) should avoid any unnecessary pesticide exposure." Central to 52-14 is the sponsors' understanding that exposure in a community where toxic pesticides are used is virtually impossible to avoid.

The Amendments Do Not Address the Hazards of Pesticides.

The reality of pesticide hazards has provided the impetus for communities across the country and Montgomery County residents to start to eliminate the use of toxic pesticides rather than to simply notify and warn people that they are at risk, without realistic options to avoid exposure. The actual risk of hazard, based on scientific studies, goes beyond the warning stated in the Berliner amendments and extends to children throughout their developmental phases of teenage years. Pesticides are especially problematic for children with asthma and respiratory problems, as well as those with learning disabilities and attentional deficit hyperactivity disorders. In the community more broadly, the Berliner amendments undermine the intent of 52-14 to stop the widespread use of lawn and playing field pesticides that are known to cause

cancer, nervous system disorders, reproductive dysfunction, and immune system problems, and the exposure that occurs through drift, volatilization, run-off, and direct contact with the turf. Notification and reduction do not move the county off the pesticide treadmill of land management practices that are not needed to produce a beautiful and functional lawn and landscape.

The Amendments Ignore the Efficacy of Non-Toxic Organic Practices.

The underlying premise of the amendments, beyond the basic disregard for public health and environmental effects of pesticide use, is that pesticides are necessary to maintain a playing field or a lawn. If they were not thought to be necessary than why would a community want its residents to be exposed to glyphosate (Roundup), which the World Health Organization has classified as carcinogenic to humans (based on laboratory animal studies), or neonicotinoids and other environmental toxicants that indiscriminately kill bees, birds, and butterflies, among other beneficial organisms?

The County Council has created a stellar hearing record on the viability of organic management systems in building soil health through the elimination of petroleum-based synthetic fertilizers, increasing the biological life in the soil to enrich nutrient cycling through natural means, and ultimately growing healthier and more resilient plants, including turf. The opposition to phasing out toxic pesticides is coming from practitioners who are not trained or experienced in organic management systems and their horticultural benefits to managing diseases, insects, and weeds, while achieving long-term cost savings.

Training on Organic Land Management Practices

Rather than undermine the purpose and intent of the 52-14 to phase out toxic pesticides in the community, a positive approach would adopt the original legislation and train county staff and other practitioners in the county in organic land management. To do this, Beyond Pesticides is committed to underwriting the cost of training both county staff and landscapers, commercial operators, and homeowners, and provide ongoing technical assistance in evaluating soil to make management decisions. This training and technical assistance will teach the skills necessary to replace toxic chemicals with a systems approach to implementing 52-14. The systems approach will enhance soil health and incorporate organic compatible management practices and products that meet the community's expectations with resilient turf.

September 14, 2015

The Honorable Roger Berliner
Chair
Montgomery County Council
Transportation, Energy, Environment
and Infrastructure Committee
100 Maryland Avenue
Rockville, MD 20850

Dear Mr. Berliner,

I am writing on behalf of the membership of RISE as well as a coalition of approximately 40 Montgomery County lawn care companies, serving thousands of County households. We would like to provide comments on certain portions of your proposed amendments to Council Bill 52-14, Pesticides – Notice Requirements – “Non-essential” Pesticides – Prohibition.

While we continue to oppose restrictions on the proper use of federal and state regulated pesticides, we would like to bring to your attention practical issues related to your amended proposal.

We believe that our comments and suggestions will not impact the stated goals of the revised bill. Rather, they speak to how these goals may actually be achieved given the logistic realities involved.

1. CLARIFY DEFINITION OF LAWN

Section 33B-1: As discussed in prior Committee hearings and worksessions, the definition of lawn is creating some confusion regarding its application to trees. The Committee had discussed clarifying this language.

- In his highly regarded book on lawn care and gardening, James Beard employs a definition of lawn that would be a suitable amendment to 52-14: “*Ground that is covered with fine textured grass and is kept closely mowed.*”

Recommendation: Delete paragraphs (1) & (2) under the definition of *lawn* and insert “*Ground that is covered with fine textured grass and is kept closely mowed.*”

2. REVISE LIST OF “NON-ESSENTIAL” PESTICIDES

Section 33B-4(c)(3), (4), (5): In its most recent worksession, the Committee discussed the need to reconsider how the list of “non-essential” pesticides is to be developed.

- We agree that lists formed by governments other than the U.S. government are ill advised. Montgomery County would be forced to revise the list of “non-essentials” each time another country made a change, which would not necessarily reflect the County’s priorities.
- Additionally, other countries do not have the same weather conditions, pests and other threats to plants and human health that we have in Montgomery County.
- The County Department of Environmental Protection has stated to the Committee that it does not have the expertise to compile a list of “non-essential” pesticides.

Recommendation: Delete paragraphs 33B-4(c)(3), (4), and (5).

3. ADDRESS WRITTEN REQUIREMENT LOGISTICS

Article 2, 33B-6(e)(2): While we are agreeable to obtaining written confirmation from customers as provided in this section, a majority of Montgomery County lawn care companies will face great challenges doing so.

- Many customers only interact with their lawn care providers by phone and do not sign contracts, which presents great difficulty in gaining a hard copy of a confirmation.
- While enabling the use of digital confirmation (such as email) would address this issue, it only does so for those customers who have provided or possess email addresses. This constitutes less than 50% of our customer base.
- The Maryland Department of Agriculture already requires all companies to provide certain information in writing to customers each year. These are delivered to customers via door-hangers or U.S. Mail. This is a one-time annual delivery, with no opportunity to gain a customer signature at the same time as most residents are not at home, thus necessitating at least one additional visit and incurring additional labor costs.
- Most customers are not at home when lawn care companies service their lawns so there is virtually no face-to face interaction, which makes it impossible to gain a written confirmation at that time. Once again, this will require at least one additional return visit and will at least double the labor costs associated with that customer, a particular burden for small businesses.

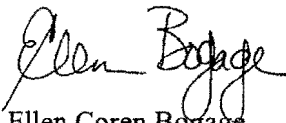
Recommendation:

- Allow customers to provide a digital acknowledgement
- Provide for at least a three-year phased in implementation of this section to enable lawn care companies to develop a comprehensive list of email addresses for newly signed-up and renewing customers. This phase in will also give smaller companies an opportunity to work with customers who don't use email to establish a process that is not unduly cumbersome.

We would like to bring to your attention one additional issue. Montgomery County may face a challenge compiling statistically valid data for a baseline that targets "non-essential" pesticide use. The Maryland Department of Agriculture does possess some data but it is only provided to MDA on a voluntary basis, and thus is not complete or comprehensive.

Thank you for considering our comments.

Sincerely,



Ellen Coren Bogage
President & CEO

cc: The Honorable Nancy Floreen
The Honorable Tom Hucker
Josh Hamlin
Drew Morrison
Karen Reardon

September 11, 2015

Bill: Non-Essential Lawn Pesticide Bill 52-14

To: Montgomery County Council, T & E Committee

Prepared by Safe Grow Montgomery

Contact: Ling Tan. email: LingTan.sgm@gmail.com, 240-244-6855

**Safe Grow Montgomery's Response to Councilmember Berliner's September 9, 2015
Memorandum of Proposed Amendments to Non-Essential Lawn Pesticide Bill 52-14**

Safe Grow Montgomery respectfully calls your attention to discrepancies, consequences and problems presented in Councilmember Berliner's Memo, Fact Sheet and Amendments to Bill 52-14 (following generally the order of points in the Memo & Fact Sheet):

1. The Sept. 9 Memo states the alternative approach is aggressive and proactive towards significantly reducing pesticide use in the county, but it strips almost all the protection from exposure afforded by bill 52-14. *(See Exhibit A - pie charts comparing protection from exposure on categories of places where exposure occurs)*
2. Berliner's description of his amendments if adopted "as the strongest pesticide legislation passed by any large jurisdiction in the nation" is misleading because it exaggerates the effect of the proposed measures, and because the pesticide industry has lobbied for preemption laws that prohibit action by local government in all but seven states. This comparison is like bragging about winning a race when the others' hands and feet were tied.
3. Berliner's Sept. 9 Memo incorrectly states the Office of the AG concluded Bill 52-14 likely would be invalidated by a court because of preemption. **The Office of the AG did not offer an official opinion, finding or conclusion on Bill 52-14.** Indeed, the April 1 letter by Asst. AG Kathryn Rowe concedes the matter is not clear. When Councilmember Berliner asked the AG's office to officially weigh in on his proposed amendments, Adam Snyder (by letter, June 5) declined in deference to the County Attorney. **Council Attorney Josh Hamlin provided detailed memorandum of law (June 11) relying upon Maryland case law and precedent.**
4. A 50% pesticide reduction goal (Article 3. sec. 33B-10) does not demonstrate leadership that reduces toxic pesticide exposure, which is what the public wants and what doctors advise. If the goal were simply to reduce the amount of pesticides running into our drinking source water, then an overall reduction goal would be appropriate. But the intent of Bill 52-14 is to reduce exposure to the average resident on a typical day from March through November. **Without restrictions on non-essential pesticide use on private property, where people have the most day-to-day contact, repeated cumulative toxic exposure will continue.**
5. The county-wide use reduction plan (Article 3. sec. 33B-10) is premised on unreliable data, beginning with a "baseline *estimate*" of non-essential pesticide use based on survey and MD Dept. of Agriculture data which cannot provide an accurate

picture of lawn pesticide use since it is based on voluntary reporting. Further, it will be expensive to meet a 50% goal with education, especially without non-essential pesticide use restrictions, and in competition with the industry's multi-million dollar efforts to the contrary. The Council acknowledged during a Bill 52-14 hearing that the current point-of-sale pesticide education campaign was ineffective. **Indeed, a review of the impact of laws and public education on non-essential residential pesticide use found education without a law yielded only 10-24% use reduction, versus 50-90% use reduction when education supported a law.**¹

6. Children at Private Playgrounds and Daycares will not be protected from exposure by 48-hour advance (and post) notice of lawn pesticide application (Article 2. sec. 33B-9). Notice only protects from exposure when action is taken pursuant to notice. Are daycare facilities going to keep children inside and off the contaminated lawns for days? Are parents going to stay home from work with their children when lawn pesticides are applied at daycare? **Non-essential pesticide use should be banned at daycares and private playgrounds.** Pesticides would be permitted for noxious weeds that could be dangerous to children.
7. The Pesticide-free Park Program (Article 5. sec. 33B-16 (b)) leaves too much discretion to the Parks Dept. Two pesticide-free parks would satisfy the directive to implement a pesticide-free parks program that maintains "certain parks" without the use of non-essential pesticides and neonics. (this refers to all the acres of grass that don't comprise playgrounds or playing fields) **All parks should be free of non-essential use of pesticides, with pesticides only permitted for invasives and noxious weeds.**
8. **An Organic Pilot Program consisting of five playing fields (Article 5. sec. 33B-16(b)(2)) does not protect enough of our children who use over 300 county playing fields.** The Parks Department's lack of experience with organic playing field management (and consequential reluctance and unsubstantiated cost assumptions) should not justify leaving most children on pesticide-contaminated fields, but should warrant the eventual mandatory transition of most playing fields from non-essential pesticides to organic management, according to established practices per organic playing field experts (which free consultation & training has been offered to Mo. Co. by Beyond Pesticides, according to Council President staff)
9. 48-Hour advance notice of park pesticide applications on Parks Dept. website (Article 5. sec. 33B-16(c)(3)) will not prevent exposure at parks for the majority of people. Unless the parks are closed during and after non-essential use of lawn pesticides, people will be exposed. **Non-essential use of lawn pesticides should be banned at parks (permitting use for invasives, noxious weeds).**

¹ Kassirer, J. et al. *The Impact of By-Laws and Public Education Programs on Reducing the Cosmetic/Non-essential, Residential Use of Pesticides: A Best Practices Review*. Canadian Centre for Pollution Prevention, Cullbridge Marketing and Communications. Mar 2014. <http://www.cullbridge.com/Projects/Pesticides.htm>

10. Awareness of Risks and County education efforts would be THWARTED by assigning to lawn pesticide applicators the responsibility of disclosing health risks, which that group DENIES, along with the existence of alternative methods, the feasibility of which that group DENIES. **In addition, the pesticide applicators would have to get from clients a signed acknowledgement of the risks (effectively a waiver of liability).** The provisions in Article 2. sec. 33B-6 are UNTENABLE - akin to letting the fox guard the henhouse, and giving him a liability waiver.
11. The Risk Disclosure provision also requires the pesticide applicator to ask the client whether to use Integrated Pest Management (IPM). (Article 2. sec. 33B-6(e)) The industry relies on IPM (as described, using least toxic methods when possible) because it sounds reasonable and sells services. But this County-mandated script will STIFLE transitions to pesticide-free lawns because IPM (as practiced, the use of chemicals when it fits a subjective assessment of feasibility and cost preference) is incompatible with pesticide-free lawn care. This method of lawn care necessitates protecting soil organisms from toxic pesticides, and relies on cultural practices of high-mowing, aeration and over-seeding. Soil organisms are killed by blanket applications of non-essential lawn pesticides recommended and used as a matter of course by pesticide applicators.
12. Regardless of the effectiveness or prudence of tasking pesticide applicators with disclosing risks and obtaining acknowledgements, these provisions place additional duties on licensed applicators, who are subject to a comprehensive state regulatory scheme under the Maryland Pesticide Applicator Law. Therefore, this provision would be vulnerable to a finding of implied preemption.
13. **Acknowledgement of risks by clients of licensed applicators FAILS to protect everyone else** -- the clients' neighbors or passersby, and patrons or residents when the client is a property management company or an HOA or Common Ownership Community (COC).
14. The Common Ownership Communities (COC) provision (Article 4) places an ANNUAL and BIGGER burden on the residents who want to avoid exposure from lawn pesticides on common areas. **This measure keeps the status quo of putting the onus of education and persuasion on the victim of unwanted and unavoidable pesticide exposure.** Indeed, it increases the job of the victim by making it annual, and by inviting a heavy-handed and high-budget industry presence into this yearly debate, greatly reducing chances of voting down non-essential pesticide use. Moreover, an annual vote thwarts a transition to pesticide-free lawns because that cannot be completed in one year. Finally, even in COCs where residents have pushed for organic common lawns, the residents still suffer exposure from non-essential use of lawn pesticides along sidewalks, private lawns, and adjoining neighborhoods.

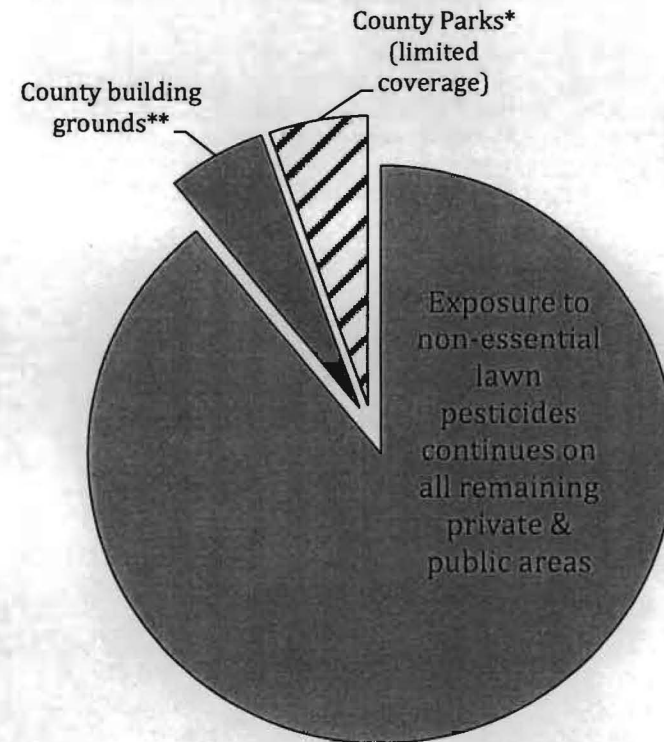
Exhibit A: Protection from Exposure to Non-Essential Use of Toxic Lawn Pesticides under Bill 52-14 versus Proposed Amendments by CM Berliner

(Charts represent categories of places where exposure occurs, not acreage)

Bill 52-14 protects health by stopping non-essential lawn pesticide use where we are exposed



CM Berliner's amendments limits exposure to non-essential lawn pesticide use in only 2 categories



* Article 5 sec. 33 B-16 tasks the Parks Depart. with implementing a program to manage "certain parks" without pesticides (at Parks' discretion); a pesticide-free "pilot program" of five playing fields (out of over 300); and developing usage protocols to prohibit non-essential use of pesticides or neonicotinoids on playgrounds.

** Article 5 sec. 33B-14 would prohibit application of non-essential pesticide or neonicotinoids to lawns on county-owned property except rights-of-way, medians and islands, and property operated or managed by Parks Dept.

West's Annotated Code of Maryland Agriculture Title 5. Pesticide and Pest Control (Refs & Annos) Subtitle 2. Pesticide Applicator's Law
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MD Code, Agriculture, § 5-208.1

§ 5-208.1. Pesticide application in schools

Currentness

(a)(1) In this section the following words have the meanings indicated.

(2) "Contact person" means an individual knowledgeable about integrated pest management and designated by a county board to act under subsection (e) of this section.

(3) "County board" has the meaning stated in § 1-101 of the Education Article.

(4) "Crack and crevice treatment" means the application of small amounts of a pesticide in a building into openings such as those commonly found at expansion joints, between levels of construction, and between equipment and floors.

(5) "Emergency" means a sudden need to mitigate or eliminate a pest which threatens the health or safety of a student or staff member.

(6) "Integrated pest management" means a managed pest control program in which methods are integrated and used to keep pests from causing economic, health related, or aesthetic injury through the utilization of site or pest inspections, pest population monitoring, evaluating the need for control, and the use of one or more pest control methods including sanitation, structural repair, nonchemical methods, and, when nontoxic options are unreasonable or have been exhausted, pesticides in order to:

(i) Minimize the use of pesticides; and

(ii) Minimize the risk to human health and the environment associated with pesticide applications.

(7) "Pesticide" does not include:

(i) An antimicrobial agent, such as a disinfectant, sanitizer, or deodorizer, used for cleaning purposes; or

(ii) Any bait station.

- (8) "School" means a public school in the public elementary and secondary system of the State.
- (9)(i) "Space spraying" means application of a pesticide by discharge into the air throughout an area.
- (ii) "Space spraying" does not include crack and crevice treatment.
- (10)(i) "Staff member" means an employee of a school system.
- (ii) "Staff member" includes administrators, teachers, and other support personnel.
- (iii) "Staff member" does not include:
1. A registered employee or applicator certified by the Department; or
 2. A person assisting in the application of a pesticide.
- (11) "Universal notification" means written notice by a school to all parents, guardians, and staff members.
- (b) This section applies to pesticide application in a school building or on school grounds.
- (c)(1) The Department shall develop uniform standards and criteria for implementing integrated pest management systems in schools.
- (2) The Department shall develop uniform standards and criteria for implementing integrated pest management for school grounds by March 15, 2001.
- (d)(1) A county board shall develop and implement in its schools an integrated pest management system approved by the Secretary.
- (2) On or before the beginning of the 2001 school year, a county board shall develop and implement an integrated pest management system for school grounds approved by the Secretary.
- (e)(1) A county board shall designate a contact person.
- (2) The contact person shall:
- (i) Act as a contact for inquiries about the integrated pest management system; and

(ii) Maintain material safety data sheets and labels for all pesticides which may be used in the school district of the county board.

(f)(1) At the beginning of each school year, a school shall include notice of the school's integrated pest management system in the school calendar or other universal notification.

(2) The notice shall include:

(i) A statement that explains the school's integrated pest management system and lists any pesticide or bait station that may be used in a school building or on school grounds as part of the integrated pest management system;

(ii) The name, address, and telephone number of the contact person;

(iii) A statement that the contact person maintains the product label or material safety data sheet of each pesticide or bait station that may be used by the school in buildings and on school grounds, that the label or data sheet is available for review by a parent, guardian, staff member, or student attending the school, and that the contact person is available to parents, guardians, and staff members for information and comment; and

(iv) Instructions for including a parent, guardian, or staff member on a pesticide notification list under subsection (g) of this section.

(g)(1) At the start of each school year, a school shall develop a pesticide notification list containing each staff member, and parent or guardian of a student attending the school, who requests in writing prior notification of a pesticide application made in the school building or on school grounds during the school year.

(2) The school shall keep the pesticide notification list current and shall add additional names on written request by a staff member, or by the parent or guardian of a student attending the school.

(3) The school shall make the pesticide notification list available to the Department on request.

(h) After the start of each school year, a school shall provide the written information required under subsection (f)(2) of this section to a newly employed staff member or the parent or guardian of a student newly enrolled during the school year.

(i)(1) Except as provided in paragraph (3) of this subsection, at least 24 hours before a pesticide is applied in a school building or on school grounds, the school shall provide to each parent, guardian, and staff member on the pesticide notification list the:

(i) Common name of the pesticide;

(ii) Location of the application;

(iii) Planned date and time of application; and

(iv) United States Environmental Protection Agency warning that pregnant women should reduce or eliminate exposure to all pesticides.

(2) The school may provide prior notification, required under paragraph (1) of this subsection, by:

(i) Written notice sent home with the student or provided to the staff member;

(ii) Telephone call;

(iii) Direct contact; or

(iv) Written notice mailed at least 3 days prior to the application.

(3) In the case of a pesticide application at an elementary school, at least 24 hours before the pesticide is applied in a school building or on school grounds, the school shall provide to each parent or guardian, and staff member:

(i) The common name of the pesticide;

(ii) The location of the application;

(iii) The planned date and time of application;

(iv) The following language:

“The office of pesticide programs of the United States Environmental Protection Agency has stated:

‘Where possible, persons who potentially are more sensitive, such as pregnant women and infants (less than two years old), should avoid any unnecessary pesticide exposure.’ ”; and

(v) A brief description of potential adverse effects based upon the material safety data sheet of the pesticides to be applied.

(4) Each school system shall develop an appropriate means of in-school notification to students and staff members before a pesticide is applied in a school building or on school grounds of a middle school or high school.

(5)(i) For application on school grounds, the notice of planned date and time of application required under this subsection may specify that weather conditions or other extenuating circumstances may cause the actual date of application to be postponed to a later date or dates.

(ii) If the actual date of application is more than 14 days later than the planned date provided in the notice, notice of the application required under this subsection shall be reissued.

(j)(1) Subject to subsection (k) of this section, a school that intends to use space spraying in a school building shall provide written notice at least 1 week beforehand by universal notification.

(2) The notice shall be on a separate paper sheet at least 8 ½ inches by 11 inches in size and shall contain:

(i) A common name of the pesticide to be used;

(ii) A location of the space spraying;

(iii) A planned date and time of space spraying;

(iv) The following language:

“The office of pesticide programs of the United States Environmental Protection Agency has stated:

‘Where possible, persons who potentially are more sensitive, such as pregnant women and infants (less than two years old), should avoid any unnecessary pesticide exposure.’ ”;

(v) If the pesticide is not addressed in the notice sent at the beginning of the school year, a brief description of the pesticide to be applied;

(vi) A brief description of potential adverse effects based upon the material safety data sheet of the pesticides to be applied; and

(vii) The name and telephone number of the county designated contact person.

(k)(1) A pesticide may be applied in a school building or on school grounds without prior notification only if an emergency pest situation exists.

(2) Except as provided in paragraph (5) of this subsection, within 24 hours after an emergency pesticide application in a school building or on school grounds, or on the next school day, the school shall notify each parent, guardian, and staff member on the pesticide notification list that a pesticide was applied for emergency pest control.

(3) The notification required under paragraph (2) of this subsection shall include the:

- (i) Common name of the pesticide applied;
- (ii) Approximate location of the application;
- (iii) Date of application; and
- (iv) Reason for the emergency application.

(4) Notification under this subsection may be made by:

- (i) Telephone call;
- (ii) Direct contact; or
- (iii) Written notice sent home with the student or provided to the staff member.

(5) In the case of an emergency pesticide application at an elementary school, within 24 hours after an emergency pesticide application in a school building or on school grounds, or on the next school day, the school shall provide to each parent, guardian, and staff member:

- (i) The common name of the pesticide;
- (ii) The location of the application;
- (iii) The date and time of application;
- (iv) The following language:

“The office of pesticide programs of the United States Environmental Protection Agency has stated:

‘Where possible, persons who potentially are more sensitive, such as pregnant women and infants (less than two years old), should avoid any unnecessary pesticide exposure.’ ”; and

- (v) A brief description of potential adverse effects based upon the material safety data sheet of the pesticides applied.

§ 5-208.1. Pesticide application in schools, MD AGRIC § 5-208.1

(l) Each school system shall develop appropriate means of in-school notification before a bait station is used in a school building. The means may include a sign posted on the door of the room in which the bait station is placed.

Credits

Acts 1998, c. 461, § 1, eff. July 1, 1998; Acts 1999, c. 322, § 1, eff. July 1, 2000; Acts 2000, c. 61, § 1, eff. April 25, 2000.

MD Code, Agriculture, § 5-208.1, MD AGRIC § 5-208.1

Current through September 1, 2015 legislation of the 2015 Regular Session of the General Assembly

End of Document

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March 16th, 2015

Committee: Montgomery County Council
Bill: County Bill 52-14 for Healthy Lawns
Submitted by: Robyn C Gilden, RN, PhD
4165 Louisville Rd.
Finksburg, MD 21048
(h) 410-552-1264
rgilden@son.umaryland.edu

Position: Support

Montgomery County Council Members:

I live in Carroll County, a mother of two elementary school age children, and an environmental health nurse researcher who studies health effects of pesticide exposure on children's health. I **strongly support County Bill 52-14 for Healthy Lawns**. This bill would protect our most vulnerable populations, and future voters, at child care centers, schools, and on other recreational fields by limiting lawn care pesticide application to emergency situations only as needed to eliminate an immediate threat to human health.

My research has focused on pesticide exposure and the potential human health effects, particularly on children and those not yet born. The usual biological targets of pesticides are the pests' nervous or reproductive system, although they may affect other organisms, including humans. Human populations are exposed to pesticides at home, work, and in the community through consumption of food and water, ambient air, and contact with soils or surfaces. These exposures are leading to increased body burdens of potentially harmful chemicals, according to the Centers for Disease Control and Prevention (CDC) 4th National Report on Human Exposure to Environmental Chemicals (2009). The CDC reported that levels of certain herbicides, and organochlorine, organophosphate, pyrethroid, carbamate, and other pesticides were detected at higher levels in human blood in the 2003–2004 NHANES than in the prior two surveys.

Animal and human data demonstrate that pesticide exposures have acute and chronic health effects in many systems, including neurologic and neurodevelopmental, reproductive and endocrine, and immune. They also may play a role in cancer development (See references). Most of the toxicological data related to health effects from exposure, however, are based on studies focusing on one chemical via one route. There has been little exploration taking into consideration the many possible combinations of chemicals, routes of exposures, and exposed individuals that actually occur in real life (Ray & Fry, 2006), such as those exposures that may occur on athletic fields.

In my dissertation study, I surveyed athletic fields in Central MD to assess use of pesticides, among other field maintenance practices. The sample included fields from public and private K-12 schools and public park and recreation locations (Gilden, et al., 2012). The results showed 65% of the fields had pesticides applied and of those, 56% were herbicides. This study was a first step in assessing another area of potential pesticide exposure for children, including the factors that were related to pesticide use. Findings from this study suggest the need for education and policy changes to protect users of the fields and for further research into exposures to pesticides on athletic fields. Prior policies, like ones passed in Ontario; Quebec; Greenwich, CT; Marblehead, MA; Takoma Park, MD (see references), have all shown to be successful at reducing exposures to harmful pesticides that are not necessary.

In Maryland, the 1999 and 2001 General Assemblies passed laws mandating IPM programs in schools and on grounds, respectively. Although the intent of the law was adequate to protect children from exposure to pesticides in school and on school grounds, the regulations developed by MD Department of Agriculture (MDA) were confusing and conflicted with the law (MD Pesticide Network, 2004). Language such as "as warranted" and "as necessary" and "when justified" led to schools not complying with the law due to inadequate guidelines. Of the Central Maryland counties assessed in this study, only Anne Arundel County Schools were in compliance in 2004. The guidelines published by MDA also do not specifically address athletic fields, although some of the resources on their website links include athletic field maintenance. **County Bill 52-14** would fill this gap. I ***strongly urge this council to give a favorable report on County Bill 52-14.***

Thank you for the opportunity to provide support for this bill.

Sincerely,
Robyn Gilden, PhD, RN
Research Work Group Member
Alliance of Nurses for Healthy Environments
rgilden@son.umaryland.edu

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POPULATIONS AT RISK ACROSS THE LIFESPAN: POPULATION STUDIES

Potential Health Effects Related to Pesticide Use on Athletic Fields

Robyn Gilden, Ph.D.,¹ Erika Friedmann, Ph.D.,² Barbara Sattler, Dr.P.H., R.N., F.A.A.N.,^{1,3}
Katherine Squibb, Ph.D.,⁴ and Kathleen McPhaul, Ph.D., M.P.H., B.S.N., R.N.¹

¹Family and Community Health, University of Maryland School of Nursing, Baltimore, Maryland; ²Organizational Systems and Adult Health, University of Maryland School of Nursing, Baltimore, Maryland; ³Environmental Health Education Center, University of Maryland School of Nursing, Baltimore, Maryland; and ⁴University of Maryland School of Medicine, Baltimore, Maryland

Correspondence to:

Robyn Gilden, Family and Community Health, University of Maryland School of Nursing, 655 W. Lombard St, Rm 665A Baltimore, MD 21201.
E-mail: rgilden@son.umaryland.edu

ABSTRACT *Objectives:* Children come in contact with athletic fields on a daily basis. How these fields are maintained may have an impact on children's potential exposure to pesticides and associated health effects. *Design and Sample:* This is a cross-sectional, descriptive study that utilized a survey to assess playing field maintenance practices regarding the use of pesticides. Athletic fields ($N = 101$) in Maryland were stratified by population density and randomly selected. *Measures:* A survey was administered to field managers ($n = 33$) to assess maintenance practices, including the use of pesticides. Analysis included descriptive statistics and generalized estimating equations. *Results:* Managers of 66 fields (65.3%) reported applying pesticides, mainly herbicides (57.4%). Managers of urban and suburban fields were less likely to apply pesticides than managers of rural fields. Combined cultivation practice was also a significant predictor of increased pesticide use. *Conclusions:* The use of pesticides on athletic fields presents many possible health hazards. Results indicate that there is a significant risk of exposure to pesticide for children engaged in sports activities. Given that children are also often concurrently exposed to pesticides as food residues and from home pest management, we need to examine opportunities to reduce their exposures. Both policy and practice questions are raised.

Key words: athletic fields, exposure, nursing, pesticide, public safety.

Many children, teens, and adults come in contact with athletic fields almost on a daily basis; even multiple times a day if they are in school and also participate in recreational sports. Maintenance of these fields, including pesticide application, could have a major impact on the likelihood of exposure to hazardous chemicals and subsequent health effects. This study represents an initial attempt to characterize pesticide exposure to children who come in contact with athletic fields.

Background

The US Environmental Protection Agency (2008) (EPA) defines a pesticide as “any substance

intended for preventing, destroying, repelling, or mitigating any pest,” including insect, plant, fungus, rodent, or bacteria. Pesticides include insecticides, herbicides, fungicides, rodenticides, and biocides and are ubiquitous in our environment. The usual biological targets of pesticides are the pests' nervous or reproductive system, although they may affect other organisms, including humans.

Human populations are exposed to pesticides at home, work, and in the community through consumption of food and water, ambient air, and contact with soils or surfaces. These exposures are leading to increased body burdens of potentially harmful chemicals, according to the Centers for

Disease Control and Prevention (2009) (CDC) *National Report on Human Exposure to Environmental Chemicals*. The CDC reported that levels of certain herbicides and organochlorine, organophosphate, pyrethroid, carbamate, and other pesticides were detected at higher levels in human blood in the 2003–2004 NHANES than in the prior two surveys (1999–2000, 2001–2001). The human health effects associated with the detected levels of pesticides are the subject of much research.

Animal and human data demonstrate that pesticide exposures have acute and chronic health effects in many systems, including neurologic and neurodevelopmental (Beseler et al., 2006; Eskenazi et al., 2007; Handal, Lozoff, Breilh, & Harlow, 2007; Kofman, Berger, Massarwa, Friedman, & Jaffar, 2006; Lee et al., 2007; Ribas-Fito et al., 2007; Rohlman et al., 2007; Rothlein et al., 2006), reproductive and endocrine (Damgaard et al., 2006; Meeker, Barr & Hauser, 2006; Saldana et al., 2007), and immune (Colosio, Birindelli, Corsini, Galli, & Maroni, 2005; Weselak, Arbuckle, Wigle, & Krewski, 2007). They also may play a role in cancer development (Clark & Snedeker, 2005; Dharmani & Jaga, 2005; McNally & Parker, 2006; Menegaux et al., 2006; Zahm & Ward, 1998). Most of the toxicological data related to health effects from exposure, however, are based on studies focusing on one chemical via one route. There has been little exploration taking into consideration the many possible combinations of chemicals, routes of exposures, and exposed individuals that actually occur in real life (Ray & Fry, 2006), such as those exposures that may occur on athletic fields.

Recognizing that pesticides can affect the health of the general population, certain subpopulations warrant special attention. There are critical periods of human development, such as conception, pregnancy and puberty, when exposures to pesticides can result in increased risk for negative health outcomes (Weselak et al., 2007). Vulnerable populations, including children and the fetus and embryo, are likely to be the most sensitive to environmental exposures. Children are the primary users of athletic fields, whereas their mothers, most of whom are of child bearing age or may be pregnant, are likely to be spectators.

Exposure to pesticides on athletic fields has not been previously assessed. Although many studies have assessed the use of pesticides in workplaces

(Barr et al., 2006; Rohlman, Bodner, Arcury, Quandt, & McCauley, 2006; Rothlein et al., 2006; Ward et al., 2006), homes (Butte & Heinzow, 2002; Coronado, Vigoren, Thompson, Griffith, & Faustman, 2006; Curl et al., 2002), schools/day cares (Morgan et al., 2005; Tulve et al., 2006), and in food (Lu, Barr, Pearson, Bartell, & Bravo, 2006), no previous studies have examined pesticide use on athletic fields.

Research questions

It remains unknown how many different types of pesticides are being used, in what quantities, on what type of fields, and how often and by whom they are applied. Although a large portion of daily cumulative exposure to pesticides is assumed to come from food and the home environment, exposure on athletic fields is a potentially important route. Depending on the child's activities, contact with the field could occur during physical education time at school and after school during practice and games. Exposure would be increased if the child plays more than one sport. Athletic fields also constitute part of the workplace for field maintenance workers, teachers, and day care providers who come in contact with fields on a regular basis. Therefore, the goal of this study was to describe current practices and to assess any differences in pesticide use on athletic fields among fields located in rural, suburban, and urban areas; related to the type of field and other related field characteristics; and related to maintenance practices.

Population density (rural, suburban, urban) is thought to impact pesticide use as a proxy for budget or acceptability of pesticides. Field conditions, such as proximity to farmland, water and residential areas; lighted fields; whether the field was in poor, fair, good, excellent condition; and total number of sports played might impact the need for use of pesticides on the fields. Maintenance practices, including main problem needing chemical application, soil testing, aeration, and overseeding could be related to the need for/use of pesticides (Puhalla, Krans, & Goatley, 2010).

Methods

Design and sample

This cross-sectional descriptive study investigated athletic field maintenance practices, including use

of pesticides. Power analysis was conducted based on Tabachnick & Fidell's (2001, p. 117) equation with six predictors in a medium effect size multiple regression, $\alpha = .05$, and power = .80, yielding a sample size of 110 fields. A medium effect size was assumed without prior data for guidance. Presuming some non-response, a 30% oversample resulted in selecting 143 fields for surveys to yield the desired sample of 110. Based on lower than anticipated response rates, additional fields were sampled. Surveys were distributed for 185 fields.

An exhaustive list of 915 fields in the Central Maryland region (Anne Arundel, Baltimore, Carroll, Harford, and Howard Counties and Baltimore City) constituted the sampling frame and was developed by reviewing Internet maps and calling a list of schools and public parks in the six-jurisdiction area. It included fields associated with public and private K-12 schools, colleges and universities, local government, recreation councils, and State Parks. These fields were selected as they were most likely to be frequented by children up to age 18. The sampling unit was an individual field, reported on by the responsible field manager. The list of fields was stratified by three levels of population density: rural, suburban, and urban fields. Population density was defined according to the National Center for Education Statistics (2011) definition based on proximity of an address to an urbanized area. Two samples of 143 were randomly drawn using SPSS from the overall sampling frame of 915. The density distributions of the two samples were approximately equal. The sample with more variability was used for the full study and the other was used for the pilot study. Reporters for individual fields were the field maintenance personnel for the selected fields.

The process of recruitment included first identifying the field maintenance personnel associated with each field. Field maintenance personnel were contacted by phone and/or e-mail to explain the study and obtain their consent to participate. The survey was administered over the phone or via email, based on participant preference, to assess information about athletic fields and maintenance practices, including the use of pesticides. Prior to data collection, approval for the study was sought and obtained from the University of Maryland Institutional Review Board (IRB).

Measures

As no instrument existed that specifically addressed the assessment of pesticide use on athletic fields, a measurement tool was created via review of existing tools related to pesticides and adding new questions related to athletic fields and their maintenance practices. The instrument was validated via external content review and then piloted with nine fields from all six jurisdictions. Parks, public schools, and colleges were represented. For both the pilot and full study, data were collected via researcher-administered phone interview or self-report email survey (Cook, 2011; East, Jackson, O'Brien, & Peters, 2008).

The pilot study was meant to test items and method of administration. Based on feedback from the pilot participants, several survey items were changed to improve clarity and flow. An average of 2 weeks was allowed for return of emailed surveys with weekly follow-up calls and/or emails until completed.

Pesticide use, as the main dependent variable, was assessed by a 60-item survey including: history of field use and frequency of chemical application, the names of the chemicals applied (fertilizers and pesticides), type of pest addressed, and frequency and type of field care (irrigation, soil testing, mowing, composting, thatch removal). Most responses were dichotomous or nominal level measurements, although there were several ordinal and two interval ratio level questions. A composite variable, combined cultivation practices, was created. It was coded yes if soil testing, aeration, and over-seeding were all conducted and no if some or none of these practices were used.

Analytic strategy

Data were analyzed using SPSS 17.0 (PASW Statistics GradPack; SPSS, Inc., 2009, Chicago, IL, USA). Frequencies and descriptive statistics were performed to assess errors in data entry and to assess missing data. One key variable, what is the general condition of the field, had greater than 5% missing data ($n = 13$, 12.9%). A dummy coded variable was created where 1 = missing, 0 = not missing and put in as the outcome variable with individual predictors and all were non-significant in predicting missingness, therefore satisfying the requirement of missing completely at random (MCAR).

Generalized Estimating Equations (GEE) were used to address the research questions with fields nested within field managers as there were many cases of one field manager reporting on multiple fields. Pesticide use was a dichotomous outcome. An independent working correlation matrix was used. (Norusis, 2008).

Results

Sample demographics

Surveys from 101 fields were returned and constituted the final sample. No responses were received for 84 (45%) fields managed by 42 field maintenance personnel. This left 101 fields in the final sample.

Survey data were provided by 33 field managers reporting on 101 athletic fields in the targeted study area. Field managers reported on 1–19 fields each (media $n = 1$). Sixty percent of fields were suburban, 23.8% were rural, and 15.8% were urban density. The highest percentage were public schools (56.4%) followed by public/park fields (29.7%). Of the participating schools, the highest percentage were elementary (39.4%) followed by high schools (30.3%), consisting of both public and private. The highest percentage of fields were in good condition (44.6%), although 38.6% were fair or poor. All 101 fields were used for organized sports and 69.3% were used informally. As expected, all fields were used in the spring with only 34.7% used in the winter (See Table 1).

The characteristics of the fields for which responses were not received were compared with those for which responses were received. Likelihood of receiving responses differed significantly according to population density. Those in rural areas were more likely to complete the survey (25% non-responders) compared with urban (48% non-responders) and suburban (50% non-responders, $X^2(2) = 6.52, p < .05$). Responses also differed significantly according to jurisdiction. Responders from two counties were less likely to complete the survey (73.7% and 67.3%, respectively, for non-responders) whereas those from three counties (10.5% 13.6%, and 4.3%, respectively, for non-responders) were more likely to complete the survey ($X^2(5) = 56.80, p < .01$). Managers of college/universities fields (62.5% responders) and public

TABLE 1. *Description of Fields*

	Total ($n = 101$)	
	<i>n</i>	%
Density		
Rural	24	23.8
Suburban	61	60.4
Urban	16	15.8
Category		
Public school	57	56.4
Private school	9	8.9
College/university	5	5.0
Public field	30	29.7
Condition		
Poor	21	20.8
Fair	18	17.8
Good	45	44.6
Excellent	4	4.0
Missing	13	12.9
Low lying		
No	92	91.1
Yes	9	8.9
Proximity to farmland		
No	72	71.3
Yes	29	28.7
Lighted field		
No	75	74.3
Yes	26	27.7
Total number of sports played		
1–9	47	52.2
10–24	43	47.8
Educational level of person responsible for maintenance		
High school or equivalent	26	25.7
Technical degree	7	6.9
Some college	21	20.8
Associates degree	29	28.7
Bachelor's degree	10	9.9
Master's degree and above	5	5.0
Don't know	3	3.0
Percent done in-house		
<50%	8	7.9
≥50%	91	90.1
Missing	2	2.0
Perception of adequate resources		
No	82	81.1
Yes	15	14.9
Missing	4	4.0
School level		
Elementary	26	39.4
K-8	5	7.6
Middle	9	13.6
High	20	30.3
K-12	5	7.6
Other	1	1.5

fields (62.5% responders) were more likely to complete the survey whereas private schools were less likely to respond (29.0% responders, $X^2(5) = 12.87$, $p < .05$). Response rates also differed according to school level. High schools were more likely to participate than the other levels ($X^2(5) = 11.48$, $p < .05$).

Description of maintenance practices and pesticide use

The primary reasons for chemical application were soil nutrients (63.4%) and weeds (58.4%). The most common maintenance practices included aerating and over-seeding. About half the fields had soil testing conducted and were irrigated. Synthetic fertilizer was applied to 41.6% and pesticides were applied to 65% of the fields. The most common pesticides applied were herbicides (See Table 2).

Variables not associated with pesticide use included the category (school or park) and condition of the fields, if the field was low-lying or in close proximity to farmland, if the field had sta-

dium lights, the education level of the field manager, percent of maintenance done in-house, and perception of adequate resources (including labor, supplies, and monetary) (See Tables 3).

Density and pesticide use

Rural fields ($n = 24$) were more likely than suburban ($n = 61$, $p < .01$) or urban fields ($n = 16$, $p < .01$) to have pesticides applied. Urban fields were 77 times less likely to have pesticides applied than rural fields and suburban fields were almost five times less likely to have pesticides applied than rural fields. This indicates a substantial difference in pesticide use based on population density as rural fields were significantly more likely to have pesticides applied (See Table 3).

Maintenance practices and pesticide use

Combined cultivation practices (soil testing, aeration, overseeding) ($n = 53$) was a significant predictor of increased pesticide use ($p = .04$). Managers of fields using combined cultivation

TABLE 2. Field Maintenance Practices and Chemical Use

	Total ($n = 101$)	
	<i>n</i>	%
Reason for chemical application		
Disease	23	22.8
Insects	17	16.8
Weeds	59	58.4
pH	37	36.6
Soil nutrients	64	63.4
Maintenance practices ^a		
Soil testing	54	53.5
Aeration	94	93.1
Over-seeding	91	90.1
Irrigation	53	52.5
Thatch management	22	21.8
Compost used as topdress	20	19.8
Fertilizer ^a		
Natural	9	8.9
Synthetic	42	41.6
Pesticides		
No	35	34.7
Yes	66	65.3
Type ^a		
Disease	6	5.9
Insecticides	33	32.7
Herbicides	58	57.4

^aOnly the yes response is presented.

TABLE 3. Generalized Estimating Equations Analysis of Contributions of Individual Predictors to Use of Pesticides on Athletic Fields With Fields Nested within Field Managers ($n = 101$ Fields)

Variable	<i>B</i>	OR (95% CI)
Population density (rural is reference)		
Suburban	-1.61	.20 (.06-.72)*
Urban	-4.34	.01 (.00-.419)**
Combined cultivation practices		
Yes	2.22	9.17 (1.06-76.92)*
Condition of field (poor/fair is reference)		
Good/excellent	1.23	3.35 (.43-27.78)
Category of school (not school for 18 yo or less is reference)		
School for 18 yo or less	.36	1.43 (.21-9.90)
Low lying field		
Yes	-.44	.66 (.07-5.68)
Proximity to farmland		
Yes	1.55	4.71 (.71-31.25)
Lighted field		
Yes	-.44	.64 (.19-2.22)
Total number of sports played (0-9 is reference)		
10-24	1.52	4.57 (.77-27.13)
Educational level (<college is reference)		
College	1.36	3.79 (.54-27.75)
% Done in-house (<50% is reference)		
≥50%	.76	2.14 (.30-15.39)
Adequate resources		
No	.07	1.08 (.24-4.81)

* $p < .05$ (two-tailed); ** $p < .01$ (two-tailed).

practices were 9.17 times as likely as fields not receiving such practices to have pesticides applied. This is possibly an indication that the better monitoring and pesticide use both were related to a larger budget for, or more attention to, field maintenance (See Table 3).

The total number of sports played and proximity to farmland approached significance ($p = .095$ and $.109$, respectively). As the number of sports played on the field increased and the closer to farmland the field was, the likelihood of applying pesticides increased.

A follow-up analysis was to enter combined cultivation practices and population density into one model to see if prediction of pesticide use improved. Population density predicted pesticide use (rural compared to urban and suburban $p < .01$) and, although not significant by itself ($p = .06$), combined cultivation practices improved prediction of pesticide use beyond the model that included only population density ($X^2(1) = 12.583$, $p < .01$) (See Table 4).

Discussion

This study is the first to characterize and quantify the potential for pesticide exposure from application of pesticides to athletic fields. Specifically, this study furthers understanding of the factors associated with pesticide application on athletic fields.

This study found that pesticides were applied to 65% of fields; herbicides were applied to 57%

of those fields. The most commonly named herbicide was Roundup (glyphosate). Roundup is a general use postemergent herbicide used mainly for eliminating weeds in cracks on paved surfaces and around fences and structures so that personnel do not have to use weed-eaters. Although acute exposure to Roundup causes irritation of skin, mucous membranes, and respiratory system, chronic exposure is associated with errors in DNA transcription and higher rates of hyperactivity and attention deficit disorder. (Bolognesi et al., 2009; Marc et al., 2005, Garry et al., 2002). DNA is the basic building block of everything in the cell and interference with transcription could alter cellular structure and function and lead to dysfunction, disease, or death.

Given what is known about pesticides and their associated health risks, particularly for pregnant women and children combined with the results of this study, there is support for invoking the precautionary principle (ANA, 2003) regarding pesticide use on children's playing fields. The precautionary principle states "that if it is within one's power, there is an ethical imperative to prevent rather than merely treat disease, even in the face of scientific uncertainty." (p. 1)

In this study, population density and certain cultivation practices (soil testing, aeration, and over-seeding) predicted pesticide application. In rural areas pesticides were more likely to be applied. This could be related to the agricultural nature of rural areas and comfort with pesticide use. Also use of cultivation practices may have been related to budget available for both the maintenance of the fields and for chemical purchase.

There are several policy implications related to pesticide use on athletic fields. One such policy is to require an Integrated Pest Management (IPM) plan for all athletic fields. As defined by Beyond Pesticides, IPM "utilizes pest prevention and management strategies that exclude pests from school facilities through habitat modification, entry way closures, structural repairs, sanitation practices, natural organic management of playing fields and landscapes, other non-chemical, mechanical and biological methods, and the use of least-toxic pesticides only as a last resort" (Owens, 2009). An IPM program also includes a notification component, even if no pesticides are

TABLE 4. *Generalized Estimating Equations Analysis of the Contribution of Both Combined Cultivation Practices and Population Density to Pesticide Use with Fields Nested within Field Managers (n = 101 Fields)*

Variable	B	OR (95% CI)	X^2 for Change QICC
Population density (rural is reference)			
Urban	-4.01	.018 (.00-.17)**	12.58 [$X^2(1)$ = 12.58]**
Suburban	-1.89	.152 (.05-.51)**	
Combined cultivation practices			
Yes	2.01	7.463 (.92-62.50)	

** $p < .01$ (two-tailed).

QICC, corrected quasi likelihood under independence model criterion.

used. (See Box 1 for an outline of steps for an outdoor IPM program).

Box 1 Steps for an outdoor IPM program (US EPA, 2009)

Detection and monitoring

- Develop background on local pests
- Gather background data on the site
- Develop pest tolerance levels
- Evaluate pest management practices

Management options

- Reduce stressful conditions to prevent infestations
 - Maintain healthy soil
 - Plant appropriate grass species
 - Reduce soil compaction
 - Raise mower height
 - Careful irrigation
 - Keep thatch to a minimum
 - Fertilize with restraint
 - Direct pest suppression
 - Physical
 - Biological
 - Chemical (using lowest toxicity option first)
-

In 2009, 35 states including Maryland had IPM policies for schools (Owens, 2009), but they were not uniform in their content or enforcement. Some only covered the building and not the grounds. These existing policies need to be enforced and extended to private and non-school-based playing and athletic fields. In MD, for example, there is no mention of athletic fields in the School IPM regulations from the MD Department of Agriculture.

Such changes in pesticide use policy have the potential to improve health of workers, athletes, and observers, thereby reducing health care costs and missed work and school days. Example of a national policy is School IPM 2015 (2009), which is a strategic plan to implement IPM programs in all school districts nationally by 2015. This policy has yet to be adopted.

Two potential models for non-school playing fields could be the Ontario (Canada) ban on "cosmetic" pesticides (Ministry of the Environment, 2009) or the Quebec (Canada) ban on lawn maintenance pesticides (Pesticide Management Code, 2003). Cosmetic pesticides are landscape chemicals used solely to improve appearance. Several US cities also have a policy that bans pesticide use on government properties like public parks and fields. Greenwich, CT (Blake, 2008) and Marblehead, MA (Goodman et al., 2005) are examples that can be used as models.

In addition to policy changes, changes in education and practice can increase the use of IPM and decrease pesticide use. An IPM education and training program for field managers could be implemented with follow-up evaluation to see if behavior change has occurred. School nurses can be vital in educating the stakeholders about IPM and advocating for its use in schools; public health nurses could do the same for non-school fields.

The purpose of this study was to begin to understand the extent to which pesticides are used by assessing athletic field maintenance practices. Data were collected via phone interview or via email from 33 field managers reporting on 101 fields. The strengths of this study include a data collection tool that was administered over the phone or via email to meet the time constraints and convenience for the field managers. For the most part the responders were open to sharing information.

Some of the limitations were consistent with other descriptive studies. By nature of descriptive design and the small sample size, it is not possible to generalize findings beyond Central Maryland or to meet the assumptions necessary to establish causality. The significant differences between responders and non-responders in density, jurisdiction, category of field, and school level of school fields limits generalizability. Also the study was slightly underpowered as is evident from the wide confident intervals. Results that approached significance may prove statistically significant in a larger sample.

Future research

Further research using this exposure assessment method can assist in documenting levels of pesticides children are exposed to and in creating policies regarding IPM and the amount of time to wait before using the fields. In this study, population density and combined cultivation practices were significant predictors of increased pesticide use. As a next step, the study area could be expanded beyond Central Maryland to see if the results remain the same. Another extension of this study would be to estimate actual exposures on the playing fields by assessing time spent on the field and using personal monitoring, such as air monitoring and urine samples.

Implications for Nursing

Education. Nurses play a combined role in education and advocacy, both for individuals and for communities. Findings from this study can be used by school nurses and others to educate local government officials, field maintenance personnel and the general public on health effects related to pesticides and non-toxic management of lawns and playing fields. School nurses and public health nurses, can develop presentations and educational materials like flyers, brochures, and bulletin boards for schools, PTA's, field maintenance personnel and others.

Practice. As individuals, nurses can implement IPM programs in their homes and yards. Professionally, school nurses and public health nurses can investigate if there are environmental teams at the schools or in the community and if they are addressing the issue of pesticide use on athletic fields. Nurses could join or help form them and encourage working toward implementing IPM programs on playing fields and throughout the community. Also, as noted by Rudant and colleagues (Rudant et al., 2007), anticipatory guidance regarding avoiding hazardous pesticides, safer chemicals, and integrated pest management (IPM) are important for nurse midwives, obstetricians, pediatric nurse practitioners, and pediatricians.

Policy. There are a number of levels at which policies might be developed about pesticide use on playing fields – at the institutional, local government or federal level. School nurses, public health nurses, and nurses in citizen roles (coaches, parents) can advocate for policies through a variety of avenues. These include letters to the editor, press conferences, testimony at the state and federal level, and via state and national nursing organizations to pass resolutions (American Public Health Association, American Nurses Association, and State Nursing Associations).

This study was a first step in assessing another area of potential pesticide exposure for children related to athletic field maintenance practices, including the factors that were related to pesticide use. Findings from this study suggest the need for education and policy changes to protect users of the fields and for further research into exposures to pesticides on athletic fields.

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Maryland Soccerplex cost estimates

		Seed (lb.)	Price of Overseeding		
			1 Week	8 Weeks	16 Weeks
Perennial Ryegrass	10 Cool Season Full Fields	5400	\$10,368	\$82,944	\$165,888
	10 Cool Season Fields - Centers Only	2700	\$5,184	\$41,472	\$81,944
	17 Full Fields	9180	\$17,626	\$141,005	\$282,176
	17 Fields - Centers Only	4590	\$8,813	\$70,504	\$141,008
Kentucky Bluegrass	10 Cool Season Full Fields	5400	\$23,490	\$187,920	\$375,840
	10 Cool Season Fields - Centers Only	2700	\$11,745	\$93,860	\$182,920
	17 Full Fields	9180	\$39,933	\$319,464	\$638,928
	17 Fields - Centers Only	4590	\$19,967	\$159,736	\$319,472

Perennial Ryegrass Price: \$1.92/lb.

Kentucky Bluegrass Price: \$4.35/lb.

Current SoccerPlex Seed Budget: \$30,000

**Uconn recommendation for overseeding to
reduce decline in field quality due to
Pesticide ban: Overseed weekly at 6lb. Of
seed per 1,000 square feet.**



Bill 52-14, Pesticides – Notice Requirements – Non-Essential Pesticides – Prohibitions

Summary of Executive's Fiscal Impact Statement

In January 2015, the Executive submitted a fiscal and economic impact statement for Bill 52-14. The Executive's fiscal impact statement focused on estimated costs to the Parks Department resulting from the discontinuation of pesticide use in athletic field maintenance.¹

The Executive's fiscal impact statement estimated that the pesticide ban would increase Parks Department operating costs by about \$1.8 million per year. In addition, the Executive projected that the Parks Department would incur initial one-time costs of about \$1.9 million to implement Bill 52-14.

The statement included minimal information about the assumptions and methodologies used to determine the cost estimates. The original fiscal impact statement also omitted estimated costs relating to the two most pesticide-dependent fields managed by the Parks Department, the elite baseball diamonds at Shirley Povich Field and Blair High School. In light of these omissions, Council Central Staff asked OLO to review the estimated cost to the Parks Department resulting from implementation of Bill 52-14.

Revised Methodology

To develop more refined estimates of the fiscal impact of Bill 52-14, OLO asked the Parks Department to compile data on current labor and materials cost for various athletic field maintenance activities, including seeding, fertilizing, weeding, and watering. The cost of these activities vary by type of field ranging from revenue-generating elite playing fields to local park playing fields. Maintenance costs and activities also vary between baseball/softball diamonds and rectangular (e.g. soccer) fields. For the purpose of this analysis, OLO and the Parks Department identified five categories of athletic fields:

- Elite diamonds;
- Elite rectangles (Bermuda Grass);
- Recreational Park Diamonds (Fescue Grass);
- Local Park Diamonds; and
- Local Park Rectangles.

OLO further asked the Parks Department to develop a series of assumptions regarding how a ban on pesticide use would affect park maintenance activities for each field type. The Parks Department then assigned on-going annual and one-time operating costs for field maintenance under a pesticide ban. Based on the operating practice and cost assumptions generated by the Parks Department, OLO then developed a methodology to estimate a revised fiscal impact of a pesticide ban on park athletic field maintenance. (Detailed Parks Department operating assumptions and cost estimates are attached to this analysis, see © A-L.)

¹ The Executive's fiscal impact statement also estimated costs to enforce a pesticide ban as well as costs to launch a public information campaign to notify the public the proposed law change.

Revised Fiscal Impact Analysis

The fiscal impact of a pesticide ban on parks operating costs is highly dependent on the assumed changes in athletic field maintenance practices resulting from the ban. OLO had no relevant source for best practices as no large public park system in the Mid-Atlantic region has multiple years of experience in maintaining fields under a pesticide ban. As such, this fiscal analysis below is based upon operating practices to implement a pesticide ban as suggested by the Parks Department. The Parks Department identified two categories of costs resulting from implementation of a pesticide ban – (a) annual operating cost increases; and (b) one-time costs.

Annual Operating Cost Increases: Under a pesticide ban, the Parks Department would modify athletic field maintenance practices. In lieu of applying pesticides, the Parks Department would employ alternative techniques including frequent re-sodding and irrigation to maintain field quality. The table below shows pesticide-free field maintenance would increase operating costs by an estimated \$2.2 million per year under practices proposed by the Parks Department.

Annual Athletic Field Costs Increases Resulting from Pesticide Ban

Field Type	Annual Cost Increase	Major Assumptions
Elite Diamonds	\$242,000	Assumes complete re-sodding every 2 years.
Elite Rectangles	\$138,000 - \$204,000	Higher cost assumes retention of Bermuda grass; lower cost assumes conversion to fescue grass.
Recreational Park Diamonds	\$805,000	Assumes complete re-sodding every 3 years.
Local Park Diamonds	\$651,000	Assumes need to renovate 30 (rather than current 8 to 10) fields per year to maintain safe playing conditions.
Local Park Rectangles	\$372,000	Assumes complete re-sodding of 3 to 5 fields per year.
TOTAL	\$2,208,000 - \$2,274,000	

One-Time Costs: The Parks Department asserts that fields that undergo routine re-sodding would require on-site irrigation systems to establish and maintain healthy grass. The Parks Department identified up to 37 athletic fields that could require installation of an irrigation system. The Department estimates the one-time cost to install an irrigation system at \$105,000 per field with an additional \$48,000 to \$150,000 one-time cost per field to cover WSSC system development charges. Assuming an average WSSC charge of \$99,000, installation of irrigation in all 37 fields would cost about \$7.5 million in one-time costs. In addition, the Parks Department cost assumptions include a one-time \$100,000 purchase of two new aerators to help maintain field quality.

The table on the following page summarizes the annual operating and one-time fiscal impact resulting from the pesticide ban based on Parks Department operating assumptions and cost estimates.

OLO Staff Contacts: Aron Trombka and Stephanie Bryant

ATHLETIC FIELD MAINTENANCE FISCAL IMPACT ASSOCIATED WITH IMPLEMENTATION OF BILL 52-14

Elite Diamonds: 2 fields

Annual Operating Cost Increase: \$121,000/field x 2 fields = \$242,000

Major Cost Driver: 72% of the cost increase associated with the pesticide ban is attributable to the assumed need to re-sod each field every other year.

Elite Rectangles (Bermuda Grass): 6 fields

Option 1: Retain Rectangles as Bermuda Grass fields

Annual Operating Cost Increase: \$34,000/field x 6 fields = \$204,000

One-Time Cost: Installation of irrigation system at cost of \$105,000 / field +
 WSSC System Development Charge at \$99,000 / field = \$204,000 / field

Option 2: Convert Rectangles to Fescue Grass fields

Annual Operating Cost Increase: \$23,000/field x 6 fields = \$138,000

One-Time Costs: Conversion of fields to fescue grass at cost of \$51,000 / field +
 Installation of irrigation system at cost of \$105,000 / field +
 WSSC System Development Charge at \$99,000 / field = \$255,000 / field

Major Cost Drivers: 94% of the Option 1 operating cost increase is attributable to the assumed need to renovate each field through re-sodding every third year. (For Option 2, see fescue grass major cost drivers below.) Over a 20 year amortization period, the one-time costs equal about \$10,000 per field per year.

Recreational Park Diamonds (Fescue Grass): 35 fields

Annual Operating Cost Increase: \$23,000/field x 35 fields = \$805,000

One-Time Cost: Installation of irrigation system at cost of \$105,000 / field +
 WSSC System Development Charge at \$96,000 / field = \$201,000 / field

Major Cost Drivers: 88% of the cost increase associated with the pesticide ban is attributable to the assumed need to renovate each field through re-sodding every third year. Over a 20 year amortization period, the one-time costs equal about \$10,000 per field per year.

Local Park Diamonds: 146 fields

(current practice: 8-10 renovated per year; assumed under pesticide ban: 30 renovated per year)

Annual Operating Cost Increase: \$31,000/field renovation x 21 fields = \$651,000

Major Cost Driver: All of the increased costs result from the assumed need to renovate 30 fields per year to maintain safe playing conditions.

Local Park Rectangles: 101 fields (3-5 renovated per year)

Annual Operating Cost Increase: \$93,000/field renovation x 4 fields = \$372,000

Major Cost Driver: Nearly all of the increased costs associated with the pesticide ban results from the assumption that field renovations would require re-sodding rather than re-seeding.

Elite Athletic Field Data Summary

- There are 2 elite diamonds in the system at Blair High School (maintained by Martin Luther King, Jr. Management Area) and Cabin John's Shirley Povich Field.
- There are 6 elite bermuda rectangles in the system at South Germantown (2), Ridge Road (2), Martin Luther King, Jr. (1) and Redland Local Park (1).
- Of the elite 8, only 2 are not irrigated. They are the bermuda fields at Martin Luther King and Redland Local Park.
- One of the biggest contributing factors that lead to cost ranges for labor and materials in the data is the weather. During periods of hot, wet weather disease pressure increases and with that substantial turf loss will occur. During dry weather the success of the additional seed applications necessary when using no pesticides will be marginal at best. The seeds will germinate and then the seedlings will die due to lack of moisture. The failure of the new seedlings will require more seed applications to occur in an effort to replace the new seedlings that have germinated and then failed to survive. Insect pressure is another unknown that can cause significant turf loss. This will also cause extra seed applications to replace the dead turf. Grubs feed on the roots of the turf grass which causes the turf to be loose and unsafe due to the roots being severed by the feeding action. Another variable is damage on the fields from special events or unauthorized use during closures during the winter or when the fields are too wet for play. Such damage can cost from a few hundred dollars to thousands of dollars per occurrence.

Chart Reflects Current Costs and Pesticide Ban Costs of Elite Diamond Athletic Fields

- Fertilizer prices can fluctuate as they are based on the weather and fuel costs
- Irrigation increases based on more seeding and sodding throughout the year. Instead of one irrigation daily, there will be multiple irrigations per day to establish the turf. Also hand watering will increase
- Aeration-labor and materials increase as there is more frequent seeding and aeration is used in conjunction with seeding so more applications of seeding requires more aeration. If disrupting the field more often to aerate, use smaller tines which wear quicker and will need to be replaced more often
- Topdress turf: increase applications of topdressing to coincide with additional seed applications.
- Infield mix is additional material needed to keep the playing surface level and even.
- Seeding amount is based on disease issues and insects and is used where there are areas to be patched and reseeded. Current seeding is two times. With no pesticides, would need 5 seedings per year which is three additional over current.
- Sod-Year 1 requires the replacement of the infield along with areas where there are wear spots and disease in outfield. The labor rate is park staff and the range is based on weather, insects and diseases and how much of the field needs to be replaced. Year two is replacement of the entire field and it is contract labor which is variable in price.
- General diamond maintenance includes dragging the skinned area, lining with chalk and paint, repairing the mound and home plate areas, adding Turface to dirt areas after a rain event, leveling the dirt, hand watering, mowing, edging the turf, adjusting irrigation heads, transportation of materials.

Elite Athletic Field Current Costs Example: Shirley Povich Field used by Georgetown University and Big Train League

	Current Costs		Pesticide Ban Costs	
	labor	materials	labor	materials
Pesticides	900- 1500	5000 - 9000	no pesticides	no pesticides
Fertilizer	300	1200 -2500	\$ 300.00	2500
Irrigation	600	9000 - 12,000	\$ 900.00	20,000
Aeration	1500 - 2400	800 - 1000	\$ 3,000.00	\$2,250
Topdress Turf	1200	4000-6000	\$ 5,000.00	12000.00
Infield mix	1400	1500 - 2000	\$ 1,400.00	1500 - 2000
Sodding	20,000 - 30,000	4200 - 11,500	year 1 \$35,000 Year 2 \$150,000	15,000 40,000
Seeding	500	2000 - 3000	\$ 1,000.00	7000
Growth Tarp replacement		10,000		
General Diamond Maintenance*	8000 - 14,000	83,000	19,000 - 25,000	85,000 - 90,000

*Includes dragging the skinned area, lining with chalk and paint, repairing the mound and home plate areas, adding Turface to dirt areas after a rain event, leveling the dirt, hand watering, mowing, edging the turf, and adjusting irrigation heads, transportation of materials

Year 2 loss of revenue ~\$11,400 with field closure

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Recreational Park Field Data

Rectangle Bermudagrass Fields

Due to the heavy use of rectangle fields in Montgomery Parks we are expanding installation of Bermudagrass fields. This is a more durable turfgrass, has fewer disease and insect problems compared to fescue and tolerates our transition zone climate. Bermudagrass is preferred by many sports users because of its density and ability to tolerate mowing to a short height—this gives a faster, more level playing surface with predictable ball bounce and good footing. Comparatively, fescue turfgrass has a tendency to clump so the playing surface is not as uniformly dense; also, ball bounce can be less predictable on fescue fields.

Special pesticides are used on these fields since they are typically overseeded with annual grass in late fall to provide color and durability for continued team play as the warm-season Bermudagrass turf goes into winter dormancy. The overseeded annual grass is sprayed out in late spring with a product that will not harm Bermudagrass; these special herbicide products also kill various weeds that have germinated during winter and early spring.

Refer to the table *Bermudagrass Rectangle Martin Luther King Soccer Field #3*
Note that the labor cost is small for pesticide application (approximately 2 hours per season) but the products are expensive.

Under a pesticide ban, we would have 3 options:

- 1) Replace a Bermudagrass field with a synthetic field (\$1.2 million)
- 2) Hire a contractor to strip, level, etc. and convert the field to fescue sod (\$51,440)
- 3) Attempt to work with the Bermudagrass by increasing fertilization and more sand top-dressing, installing irrigation (\$111,600) then contracting for renovation every 3rd year (\$37,500 using sod instead of sprigging). Installation of new Bermudagrass fields is \$130,000.

Warm-season Bermudagrass sod must be installed in the heat of the summer so a field would need to be closed 30 days in order to strip, install and establish new sod. We would lose 2 weeks of revenue in August. Currently fields are closed August 15-31, but we would need to close the field early for renovation beginning Aug 1.

Montgomery Parks currently has 6 rectangle Bermudagrass fields; but currently no diamonds. They are Redland (1), South Germantown (2), Ridge Road (2), and MLK (1). Irrigation is already installed at four of the six fields. Only, MLK and Redland would need the addition of irrigation.

Bermudagrass Rectangle Martin Luther King Soccer Field #3
Based on FY13 and FY14 labor and material costs

TASK	Current Costs			Cost with Pesticide Ban		Notes
	labor	materials		labor	materials	
Fertilizer	\$ 280	\$ 166		\$ 315	\$ 1,700	special slow release fertilizer
Pesticides	\$ 70	\$ 1,105				
Mechanical Weed Rem.						
Temporary water wheel & meter	\$ 210	\$ 2,800				
Irrigation system & annual water				\$ 105,000	\$ 6,600	water cost is annual
						labor would reduce to maintenance and repair
Sprigging	\$ 5,000	\$ 6,000				
Center partial sod renovation				\$2,100	\$18,800	done by contractor
Field renovation with sod				\$ 5,000	\$ 32,500	done by contractor
Top dressing sand	\$ 560	\$ 7,200		\$ 700	\$ 9,600	
Aeration	\$ 2,520			\$ 2,520		
Conversion options if we cannot continue to maintain Bermudagrass fields under ban						Synthetic field \$1.2 million
						Contract installation of Fescue sod: \$51,440
TOTAL Costs	\$ 8,640	\$ 17,271		\$ 115,635	\$ 69,200	

labor @\$35 per hour

①

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Recreational Park Fescue Field Data Summary

35 Recreational Park Diamonds: Damascus 4, Fairland 2, South Germantown 5, Martin Luther King 2, Olney Manor 5, Ridge Road 3, Ovid Hazen Wells 3, Cabin John 5, Wheaton 6

Current Cost Data for Recreational Park Diamonds

- Data reflects one management area in the county but is approximately the same in other management areas
- Fields are a mix of baseball and softball and vary in size from .6 to 2.3 acres
- Fertilizer: 3 applications- in early spring, late spring and fall
- Pesticides: Applied 3 times per field at a labor rate of 2 hours for each application. Total is 6 hours per field per season labor. Pesticides are used currently when weeds grow in the skinned infield as staff do not have additional time to hand remove the weeds. Application locations include warning track, benches, infield spot spraying for weeds.
- Seed and sod: It is \$31,000 for an infield only renovation with sod. This happens approximately every 6-8 years. When weeds pop up in the outfield areas, they are sprayed out and seeded as needed to maintain the field without bare spots throughout the season. We currently over-seed the outfield and aprons 2 times per year.
- Aeration- approximately 9 labor hours per season and 2 times per year for a total of 18 hours. Maintenance Standards call for aeration 3 times per year.
- Soil Sample-required every 3 years by nutrient management laws \$500 each time.
- Install pitcher's mound (on baseball fields only)-mounds wear down and need to be re-packed. This is done daily.
- Dirt infield mix is to top dress the field, fill low spots and repair eroded areas. It is a mix of silt/clay/sand.
- Standing Diamond Maintenance includes painting the field, dragging, chalk, Turface or water adsorbing material to the skinned area. Field marking paint applied once per week. Turface applied approximately 20 times per season.

Cost Data for Recreational Park Diamonds with Pesticide Ban

- Weeds grow in the skinned areas even though staff are meeting the daily dragging maintenance standard. Without pesticides, we estimate it would take 3 additional hours per field weekly for 32 weeks to remove weeds mechanically via scuffle hoe, propane torch, hand weeding and weed bar. Weeds are removed as they interrupt the play on the field and can take over the turf stand. The data chart reflects labor for mechanical weed removal methods. Labor increase is also reflected as 40 hours per field from 6 hours with pesticides. Materials: approximately \$80 in propane per season per field; \$450 for weed bar.
- Seed: seeding would need to double in labor and materials to increase the density of the turf during the season to outcompete the weeds.

(E)

- For rectangles and diamonds, broadleaf and annual weed management is considered essential for successful establishment of new turf grass via seeding during field renovation. Sod would have to be installed for any repair to turf grass. Spot turf replacement would increase under the ban. Cost varies based on weed issues, size of the issues and replacement amount of sod. We expect to have to do a spot field renovation in year 1 where the aprons and infield would be replaced by our staff at a cost of \$5,400 in labor and \$1,080 in materials. Year 2 spot turf replacement would be the same as year one. In year 3, we expect total infield replacement as weed competition will become too great and will start out-competing the turf. Material and labor cost is \$31,000 and would cover infield replacement, base paths and areas where the infield and outfield meet. This third year scenario with total infield replacement would close the field for one month from August 1-31 resulting in a loss of 2 weeks of play and revenue.
- Irrigation on a fescue field is necessary for establishing the seed and the sod. If a worn spot or a weedy spot develops during the summer when it is the driest, the grass is recuperating at slower rate and damaged areas develop that need to be repaired. Cost to install irrigation on one field is \$105,000. This figure is based on recent Capital projects. Water cost per field per year is approximately \$6,600.00. With the installation of an irrigation system, WSSC charges System Development Charges which vary based on the size of the line and number of fields.
- With addition of irrigation, there is the risk of fungal growth on the field. If it can't be treated, could have total replacement of field resulting in loss of play for the season due to budget constraints and bare spots on the field rendering it unsafe for play.
- Fertilizer material is increased to the max quantity of \$1,700 under the ban. Change to slow release so application labor would decrease to 2.8 hours per application and there would be 2 applications per year instead of 3.

(F)

Recreational Park Fescue Diamond Data

Based on FY13 and FY14 labor and material costs

TASK	Current Costs			Cost with Pesticide Ban		Add'l years
	labor	materials		labor	materials	
Fertilizer	\$ 300.00	\$ 925.00		\$ 600.00	\$ 1,700.00	
Pesticides	\$ 210.00	\$ 140.00				
Mechanical Weed Rem.				\$ 1,400.00	\$ 530.00	
Seed	\$ 315.00	\$ 891.00		\$ 630.00	\$ 1,782.00	
Sod	\$ 5,400.00	\$ 1,068.00		\$ 5,400.00	\$ 1,000.00	
Sod year 2						\$ 6,400.00
Sod year 3						\$ 31,000.00
Aeration	\$ 298.00			\$ 298.00		
soil sample	\$ 70.00	\$ 33.00		\$ 70.00	\$ 33.00	
standing diamond maint.	\$ 8,120.00			\$ 8,120.00		
Field Paint		\$ 1,575.00			\$ 1,575.00	
dragging		\$ -				
chalk		\$ 240.00			\$ 240.00	
Turf		\$ 1,171.00			\$ 1,171.00	
Install pitchers mound	\$ 1,260.00	\$ 957.00		\$ 1,260.00	\$ 957.00	
dirt infield mix	\$ 525.00	\$ 550.00		\$ 525.00	\$ 550.00	
Irrigation				\$ 900.00	\$ 13,400.00	\$105,000*
Water					\$ 6,600.00	
TOTAL Costs	\$ 16,498.00	\$ 7,550.00		\$ 19,203.00	\$ 29,538.00	
	labor @\$35 per hour					

year 1 addition

*install irrigation at \$105K per field; WSSC System Development Charges (SDC) vary based on line size. Cost varies per field \$48K to \$150K based on line size and number of fields; annual water \$6,600

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Local Park Field Data

Rectangle Fescue Fields

For rectangle fields in local parks in both the Northern and Southern Area, the majority of areas do not use pesticides as part of the maintenance program. For the most part, pesticides, when used in areas associated with rectangle fields, are for reasons other than turf management practices although treatment with a pre-emergent should be used if we had the resources to do so. Pesticides, if used at all are used to reduce string trimming time and/or mowing time to improve efficiencies in operations such as around the goal posts and player's benches. We have an aeration, fertilization and over-seeding program for these fields but many areas cannot meet the standard due to other tasks and priorities. The reason for this lack of field maintenance beyond mowing and lining is funding and resources to maintain these fields at a higher level. Also, there is no control of play time and access to the fields so the fields are used constantly, whether they are permitted or not. The constant use of these fields renders maintenance practices ineffective such as seeding, fertilization and aerating because turf maintenance practices need the field to have a rest period to reestablish a healthy stand of turf.

Aeration, fertilization and over-seeding vary by management area and is typically done not at all to two times per year. Twice a year is the optimal maintenance frequency and some areas are able to meet the standard for one or all of these maintenance tasks and some do not meet it at all. When aeration is performed on a 2 acre rectangle, it is typically 3-4 hours per field, two times per year.

Major renovations are available for a limited number of fields per year and utilize pesticides for success under the current methods. If pesticides are banned for renovations of local park rectangles, sod, which is a very expensive alternative will need to be used and would have to be temporarily irrigated to become established as weather conditions vary. Current renovations by a contractor includes an herbicide to kill existing vegetation, minor grading and amendments to fill low spots, seeding, top dressing, fertilizing and aeration at a cost of \$35,000 (based on 2014 actuals). Renovations are not done on a regular cycle and only 8-10 local park rectangle fields are renovated on an annual basis due to the costs and the ability of the manager to take the fields out of play. Pesticides are also used during renovations to prevent broadleaf and weedy grasses from out-competing the newly seeded fescue.

With a pesticide ban, major renovations would have to be done with sod instead of seed by a contractor. This work would include removal of existing vegetation, minor grading and

amendments to fill low spots, aeration and installation of sod. For a field renovation by sod, the entire field is renovated when there are more weeds than turf on the majority of field and there are bare spots. A field renovated with sod will need temporary irrigation to be successful. The cost would be substantially higher to renovate with sod at \$120,000 per field for a contractor to complete. An additional \$8,000 would be required for this type of renovation to set up temporary irrigation on the field. Total cost per field is \$128,000.

Diamond Fescue Fields

For diamond fields in local parks in both the Northern and Southern Area, the majority of areas do use pesticides as part of the maintenance program.

Pesticides are used in the majority of the areas approximately once per month to manage weeds in the skinned infields, around players benches, on the warning tracks and along fences that are not outfitted with mow strips. Without pesticide use in these areas, labor associated with the maintenance of these fields will increase significantly and play has the potential to be hazardous to users because of the inconsistent playing surface available. Aeration, fertilization and over-seeding are done between none and twice a year currently but again, this varies by management area based on tasks and priorities. When done, aeration is performed twice a year for 3-4 hours per field. Maintenance standards require fertilization, over-seeding and aeration to be done twice per year as the optimal maintenance frequency. Some areas are able to meet these standards and some are able to meet a portion or none of these standards. Most areas are meeting the maintenance standard for dragging and lining fields. For most areas, topdressing, seeding and sodding are not done as part of the regular diamond maintenance program in local parks. These fields do not have irrigation. Renovation is done to 10-12 fields per year. With an inventory of 146 fields competing for renovation, this cycle is equivalent to a field renovation every 15 years.

Current practice is to use pesticides to manage weeds that grow in the infield along with a weekly dragging program which disturbs the weed seed from germinating. Under a pesticide ban, time to mechanically pull the weeds is estimated to take 3 hours per field weekly by hand pulling and burning. Also, we will have to continually cut sod out and replace it with sod instead of seed to eliminate weeds that disrupt play. Fescue sod renovation for a diamond infield only would need to happen every 5 years by a contractor at \$31,000 labor and materials to maintain our fields as playable. With an increase in the renovation cycle, we would need funds to renovate 30 fields per year instead of the 10-12 we currently renovate. Temporary irrigation would also need to be set up at over \$3,000 per field that has an infield only renovation. As mentioned, sod would have to be installed

for any repair to turf grass or renovation. If the entire field would need to be renovated with sod, the labor and materials could be upwards of \$100,000, similar to the rectangle cost to repair the entire field with sod. At this time, due to limitations under the ban of reseeding small areas that need fixed with pesticides in our toolkit, it is yet to be determined as to how often entire field renovations would need to take place under a pesticide ban.

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Local Park Fescue Rectangle Costs

Based on FY13 and FY14 labor and material costs

There are 8 recreational park fescue rectangles that are included in the local park data as they are maintained & permitted as local park fields

TASK	Current Costs of Maintenance & Contract Renovation by Seed*				Pesticide Ban for Maintenance & Contract Renovation by Sod Installation**			
	labor		materials		labor		materials	
	low	high	low	high	low	high	low	high
Fertilizer	\$ -	\$ 280	\$ -	\$ 575	\$ -	\$ 280	\$ -	\$ 575
Pesticides	\$ -	\$ 220	\$ -	\$ 36	\$ -	\$ 220	\$ -	\$ 36
Mechanical Weed Removal	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Aeration	\$ -	\$ 490	\$ -	\$ 800	\$ -	\$ 490	\$ -	\$ 800
Seeding	\$ -	\$ 156	\$ -	\$ 1,280	\$ -	\$ 156	\$ -	\$ 1,280
Topdressing								
Leveling / Grading								
Standing Rectangle maintenance	\$ 450	\$ 5,700	\$ -	\$ 810	\$ 450	\$ 5,700	\$ -	\$ 810
Field renovation by contractor with seed	\$35,000*							
Field renovation with sod by contractor: whole field is renovated when there are more weeds than turf on the majority of field					\$120,000**			
Required temporary irrigation for sod renovation					\$ 1,000	\$ 4,500	\$3,000	
TOTAL Costs (not inc. renovation)	\$ 450	\$ 6,846	\$ -	\$ 3,501	\$450	\$6,846	\$ -	3,501
	labor @\$35 per hour							

** currently, we prioritize fields for renovation based on turf coverage, amount of play and wear of turf. We have the ability to renovate 8-10 Local Park Athletic Field rectangles by a contractor each year with the use of herbicides. Herbicide use to reduce weed competition is considered essential when renovating fields by seeding.

***Without the use of pesticides, fields would have to be renovated with the use of sod by a contractor. The contractor would provide the following services: removal of existing turf, minor grading, minor amendments (sand and leafgro), aeration and re-sodding. Park staff would have to provide the labor for hauling turf that was removed for the renovation to take place.

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Local Park Fescue Diamond Costs
Based on FY13 and FY14 labor and material costs

TASK	Current Costs				Cost with Pesticide Ban			
	labor		materials		labor		materials	
	low	high	low	high				
Fertilizer	\$ -	\$ 173	\$ -	\$ 500	\$ 346	\$ 1,000		
Pesticides	\$ -	\$ 220	\$ -	\$ 36	\$ -			
Mechanical Weed Removal	\$ -	\$ -	\$ -	\$ -	\$ 1,400	\$ 530		
Aeration	\$ -	\$ 220	\$ -	\$ 800	\$ 220	\$ 800		
Seeding	\$ -	\$ 156	\$ -	\$ 210	\$ 260	\$ 350.00		
Topdressing								
Leveling / Grading								
Infield only Renovation with Sod		\$31,000 labor and materials every 15 years				**\$31,000 labor and materials every 5 years		
Field renovation with seed								
Temporary irrigation for sod					\$ 210	\$ 2,800		
Total Field Renovation with Sod							*\$100,000 cycle of full field renovation TBD	
TOTAL Costs	\$ -	\$ 769	\$ -	\$ 1,546	\$ 2,436	\$ 5,480		

*The change with the ban is going to be labor intensive to keep weeds out of the skinned infields and the turf. Typically we use pesticides to quickly eradicate weeds in the turf. Labor and materials increase for park staff with the ban for general maintenance. Under the ban, we will have to continually cut weed infested sod out and replace it with sod to eliminate weeds. Once the weeds take over too much of the field, we will have to do a whole field re-sod which is estimated at over \$100K per field.

** 8 to 10 Local Park Athletic Field diamonds are renovated by contractors each year with sod. Practice would remain the same for the standard infield renovation with the ban except fields would be renovated every 5 years as compared to current funding of every 15 years. Therefore, an additional 20 fields would need to be funded for infield only renovation with sod.

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Statement of
Chip Osborne
President, Osborne Organics

**Response to
Montgomery County Department of Parks' Fiscal Impact Document
September 10, 2015**

Charles E. ("Chip") Osborne Jr. is a nationally renowned organic turf grass expert and a professional horticulturist with 35 years of experience in greenhouse production as the former owner and operator of Osborne Florist & Greenhouse in Marblehead, MA. As Founder and President of Osborne Organics (Marblehead, MA), Chip has over 20 years of experience in creating safe, sustainable and healthy athletic fields and landscapes.. As a wholesale and retail nurseryman, he has firsthand experience with the pesticides routinely used in the landscape industry. Personal experience led him to believe there must be a safer way to grow plants. His personal investigation, study of conventional and organic soil science practices, and hands-on experimentation led him to become one of the country's leading experts on growing organic turf.

Department of Parks Mistakenly Attributes Higher Costs to Chemical-Free Fields for Irrigation

The bulk of the argument made by the Montgomery County Department of Parks centers around the fact that staff feel the fields cannot be maintained without pesticides. The assumptions that are being made on replacement costs and irrigation are the driving factors in the large numbers being presented as increased management costs without pesticides. There are inconsistencies throughout with these numbers. In other words, in some of the charts, an application, treatment, or cultural practice that is the same in the comparison fields has a higher cost associated with the chemical-free field. Many of these costs would be the same with or without chemicals.

Most fields that are managed to high expectations are generally irrigated. Irrigation, aeration, and overseeding are all done to some degree of intensity on both chemically maintained fields and naturally maintained fields. The degree of intensity is based on the expectation for the field. It is inaccurate to use irrigation and water as an argument in the discussion on the need for pesticides. If a waterwheel can be used on a chemically managed field, it could certainly be used on an organic one. Because a field is chemical-free does not necessarily indicate that it needs \$100,000 irrigation system. That being said, Bermuda grass in the mid-Atlantic region does need water in the summer. The

question is whether or not the cost cited by Parks is unique to chemical-free and a legitimate point of argument.

Cultural Practices Are Responsible Horticultural Practices for Any Turf System

Aeration is a cultural practice that should be done on any turf system that receives significant use and wear and tear, particularly an athletic field. Fields that are managed without the use of pesticides do not need to be aerated any more frequently than those treated with chemicals. This is another area that has nothing to do with the type of product or management program that is in place. In fact, it has been found that the absence of chemicals in management actually fosters biological life that keeps soils looser rather than tighter, with more capacity to retain water. Budgeting increased labor to aerate a chemical-free field is an argument that is not based in fact.

No Basis for Assuming Higher Field Replacement with Organic

I am not sure what the Parks Department is considering for an organic program. Those details are not presented. It is highly unlikely that athletic fields that are not treated with pesticides, but get a sound, comprehensive, organic program, would need to be replaced at the frequency that is outlined by Parks. There would have to be a serious lapse in management for a field to fall into disrepair that quickly.

Parks' Underlying Assumption that Organic Does Not Work Creates False Costs

It is difficult to refute the points put forward by the Department, given the underlying premise that natural management cannot work. It is this assumption that leads to the conclusion that an organic field would have to be replaced every other year. I cannot argue with the actual replacement costs, which may be accurate based on wholesale cost of materials and the prevailing wage in Maryland. The point is not whether the estimate on the field replacement cost is accurate, but whether or not the replacement is actually going to be needed more frequently than otherwise would be expected for chemical treated fields.

Skinned Surfaces Are Adequately Maintained by Grooming Seedlings

For the non-grass areas, generally referred to as skinned surfaces, manual disruption of the surface is generally sufficient to maintain a weed-free surface. The Department of Parks currently sprays a nonselective material to kill the weeds and then weekly grooms the surfaces manually with a piece of equipment. If protocols change and the herbicide is eliminated, that application time would be transferred to grooming time. Every weed begins its life as a seedling. If that seedling is disrupted early in its germination phase, there will be no forthcoming weed development. The use of nonselective herbicides for skinned surface management has become very commonplace because it is a crutch that many have come to depend upon. It is the protocol of choice in a chemical management framework. It is possible to keep skin surfaces weed-free using just traditional grooming techniques.

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

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

Written by
Charles Osborne
& Doug Wood

March, 2010

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

Introduction

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

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

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

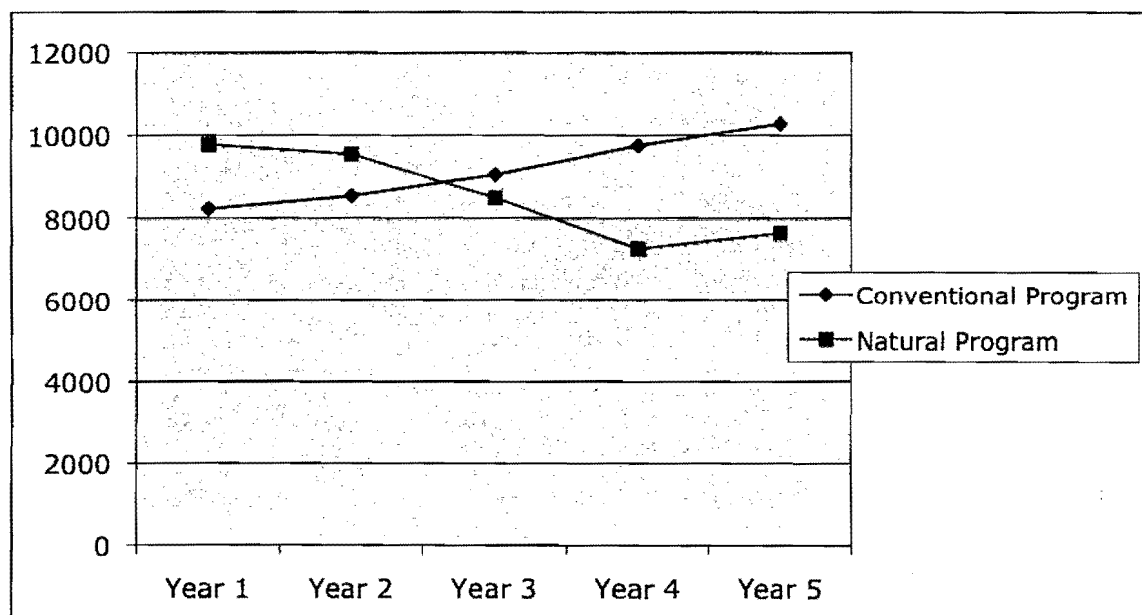


Figure 1: A Comparison of Costs for Conventional and Natural Turf Programs Over A Five-Year Period

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

Background

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

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

Sources of Data

The products, costs, application rates and other data for our analysis have been obtained from various sources, including the Sport Turf Managers Association³, Iowa State University⁴, bid specifications from a coalition of public schools on Long Island,⁵ bids and proposals from conventional turf management companies, and documented costs for existing natural programs.

Economic Assumptions

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

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

³ "2009 Field Maintenance Costing Spreadsheet" published by the STMA. Available online at www.stma.org/_files/_items/stma-mr-tab6-2946/docs/field%20maintenance%20costing%20spreadsheet.pdf

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

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

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

Irrigation

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

Soil Biology

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

Reducing Fertilization Costs

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

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

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

⁷ Price computed using NUS Consulting International Water Report for 2008 average US water cost per m3 adjusted for inflation.

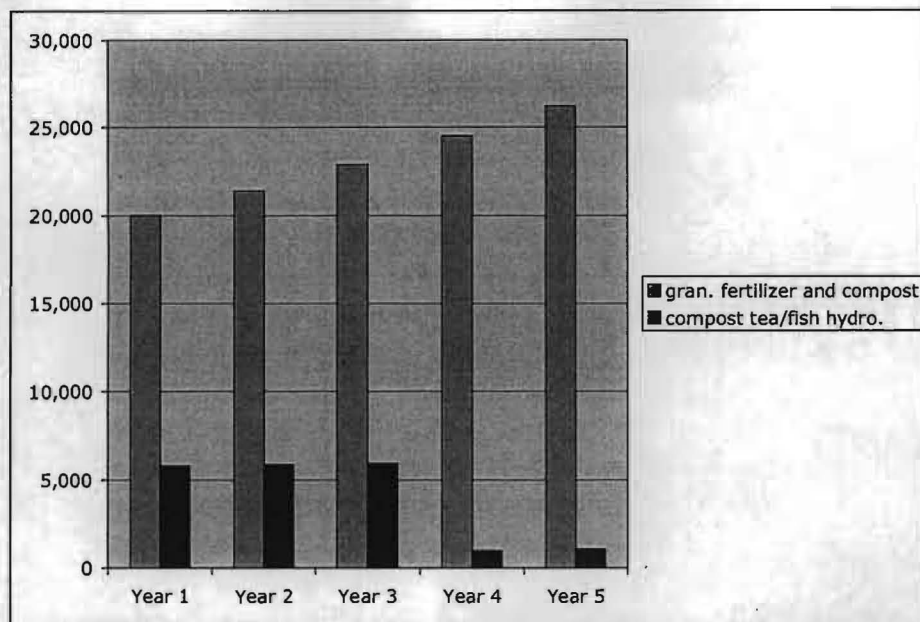


Figure 2: Cost comparison of granular fertilizer and compost compared to spraying compost tea and fish hydrolysates in Marblehead, MA.⁸

Conclusion

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

About the authors:

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

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

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

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

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

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

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

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

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

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

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

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

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

Friends of Ten Mile Creek and Little Seneca Reservoir

*Protecting a clean water resource for the
Washington D.C. region*

September 10, 2015

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The Honorable George Leventhal, President
Montgomery County Council
100 Maryland Avenue
Rockville, MD 20850

Dear Council President Leventhal and Councilmembers,

The Friends of Ten Mile Creek and Little Seneca Reservoir strongly support the Healthy Lawns Bill 52-14 as originally proposed. We stand with our partners at Safe Grow Montgomery, numerous environmental, civic, and health organizations, and thousands of Montgomery County residents in asking you to reject the recently proposed amendments that will seriously weaken the bill's key provisions.

As an organization dedicated to protecting Ten Mile Creek and our region's back-up water supply in Little Seneca Reservoir, we are deeply concerned about the ecological and human health threats posed by toxic lawn pesticides. Many of the pesticides that would be prohibited under Bill 52-14 have serious negative effects on human health and wildlife and recently studies by the USGS and others have demonstrated that these pesticides are finding their way to our nation's waterways in amounts high enough to harm aquatic life.

Councilmember Berliner's proposed amendments would seriously weaken legislation before you by allowing parks, businesses, private residents and Homeowner Associations to continue using toxic lawn pesticides. That is a huge portion of our County. Not only would citizens continue to be exposed to hazardous pesticides where they work, live and play, but runoff from all those areas would continue to impact our streams.

As Council President Leventhal noted in his October 22, 2014 memo introducing the Healthy Lawns Bill:

"In Montgomery County, we regularly take a precautionary approach to public health and environmental issues; such as with the forthcoming legislation on e-cigarettes and the Council's action on Ten Mile Creek. Our approach to pesticides should be no different."

We whole-heartedly agree and urge the Council to pass a strong Bill 52-14 and to reject the recently proposed amendments that would weaken this important legislation.

Respectfully,

Tenley Elizabeth Wurglitz, President
Friends of Ten Mile Creek and Little Seneca Reservoir

Advisory Committee

Diane Cameron

Jean Findlay

Neal Fitzpatrick

Mike Gravitz

Hamza Khan

Montgomery Countryside Alliance Staff

Caroline Taylor,
Executive Director

Kristina Bostick,
*Senior Conservation
Associate*


Ellen Letourneau
*Outreach & Volunteer
Coordinator*



MEMORANDUM

September 16, 2015

TO: Transportation, Infrastructure, Energy and Environment Committee

FROM: Josh Hamlin, Legislative Attorney 

SUBJECT: **Worksession 4 Addendum:** Bill 52-14, Pesticides – Notice Requirements – Non-Essential Pesticides – Prohibitions

Additional Materials for Committee Consideration

Council staff received the following additional materials after the Committee packet went to print:

1. A letter to Councilmember Berliner from Michael F. Riley, Director, Montgomery County Department of Parks, expressing support for the Berliner proposal, and proposing certain efforts to achieve the goal of pesticide reduction (©1-5). Specifically, Mr. Riley proposes the following:

- (a) The following areas in parks to be maintained without pesticides:
 - (1) Community gardens
 - (2) Playgrounds
 - (3) “General lawn areas”
 - (4) Child care centers
 - (5) One local park as a pilot program
- (b) A three-year pilot program involving five playing fields in local parks maintained under a “pesticide-free, organic turf care program.
- (c) Maintenance of the following facilities or programs under an Integrated Pest Management (IPM) program:
 - (1) Athletic fields other than the pilot program fields
 - (2) Public gardens
 - (3) Event centers
 - (4) Non-lawn landscaped areas
 - (5) Infrastructure
 - (6) Non-native invasive plant management
 - (7) Arboriculture
 - (8) Agriculture other than community gardens
 - (9) Stormwater management facility maintenance

- (d) Semi-annual reporting to the Council on all of the above initiatives.
- (e) If the above initiatives are required, the Department of Parks will seek additional operating resources to cover additional costs of implementation.

2. A revised Office of Legislative Oversight (OLO) Fiscal Impact Statement Review. The revised version corrects an error in the calculation of the costs associated with maintaining local park rectangular fields under a pesticide ban, changing the assumed need for annual renovation from 3-5 fields per year to 8-10 fields per year. As with the previous version, the cost estimates are based on alternative field maintenance practices suggested by the Parks Department.

This packet contains:

Letter from Michael F. Riley, September 15, 2015
Revised OLO FIS Review

Circle #

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MONTGOMERY COUNTY DEPARTMENT OF PARKS
THE MARYLAND-NATIONAL CAPITAL PARK AND PLANNING COMMISSION

September 15, 2015

The Honorable Roger Berliner
Chair
Transportation, Infrastructure, Energy
and Environment Committee
Montgomery County Council
100 Maryland Avenue, 5th Floor
Rockville, MD 20850

Dear Councilmember Berliner:

In your June 16, 2015 memorandum to the Montgomery County Council proposing amendments to Bill 52-14 related to pesticide usage and with the revised Bill dated September 18th, you recommend specific requirements for land and facilities managed by the Department of Parks. I have carefully considered those recommendations in the response provided in this letter.

The mission statement of the Department of Parks speaks to a balance between the provision of safe and enjoyable recreation activities that encourage healthy lifestyles and the protection of natural resources. In that light, while I certainly support all efforts to limit the use of pesticides in our County to the maximum extent practical, any unilateral ban of pesticides in the parks would severely compromise our ability to successfully implement several aspects of our mission. The amendments recommended in your memo related to parks suggest a framework to reduce pesticide usage and to create and grow a list of designated pesticide free areas in the parks. I support this approach.

The Department of Parks has long been a leader in the mid- Atlantic region in the practice of Integrated Pest Management (IPM) and using alternatives to pesticides. As an example, we have documented an 84% reduction in pesticide usage at our Brookside Gardens greenhouse over the last 10 years. We currently use many innovative pest management methods resulting in significantly less reliance on

pesticides. Weed control alternatives in use include propane flammers, mechanical weed scrapers, and release of beneficial insects, volunteer weed pullers, and alternative sprays. Disease control alternatives in use include oil, sanitation, micro nutrient applications, biological hyper-parasites and environmental manipulation. Insect control alternatives in use include release of predators and parasitoids, oil, microbial based insecticides, mineral soil amendments, sanitation, washing, and natural products such as Neem. In addition, pesticides are also an important component of this integrated, balanced program to sustain balanced, healthy ecological systems and protect our assets and facilities.

I propose the following efforts in the parks to achieve the goal of pesticide reduction:

1) Declare the following areas in parks pesticide free:

- a) **Community Gardens.** Our eleven popular community gardens are already pesticide free. This popular program will grow and all existing and future community gardens will be pesticide free.
- b) **Playgrounds.** The significant majority of our 282 playgrounds include a safety surface comprised of wood chips or wood fiber mulch. It is not uncommon for aggressive weeds or annual grasses to rapidly take root in the surface which compromises the safety function of the surface. We have used glyphosate to control weed growth within and around playgrounds. Instead, we will use mechanical methods, hand weeding, more frequent maintenance of the surface, and over the long term transition to safety surfaces that do not support the growth of weeds or grasses.
- c) **General Lawn Areas.** We maintain and mow approximately 1600 acres of lawn area in the parks that is not associated with an athletic field. Some of this lawn space is considered "community open space" where park visitors can gather, relax or recreate in a variety of ways. These areas will be maintained without the use of pesticides.
- d) **Child Care Centers.** There are currently three child care providers who lease park activity buildings. These buildings and grounds will be maintained pesticide free.
- e) **One Pilot Local Park.** We would select one local park that is representative of the majority of local parks in terms of size and amenities and go pesticide free. We will monitor the results and report back to the Council on a regular basis to determine whether to continue the pilot or before considering addition of other parks.

2) Conduct a local park athletic field pilot.

There are 293 total athletic fields in the parks, maintained at three different maintenance standards; elite, regional/recreational, and local. The breakdown is 8 elite fields, 45 regional / recreational fields, and 240 local fields. The elite fields are maintained at the highest standard and include the Shirley Povich Field in Cabin John Regional Park, the stadium baseball field at Blair High School, and six Bermuda grass rectangular fields within regional or recreational parks. The regional / recreational fields include cool-season grass diamonds and rectangular fields in regional or recreational parks that are for use by permit only.

Over 80% of park athletic fields are in community (local) parks which may be booked by permit for games or practices, but otherwise are available for walk-on use. Current use of pesticides on the local fields is fairly limited and sporadic. The primary use of pesticides on the diamond fields is for weed control in non-turf areas (infields, dugouts). Pesticides may also be used for weed control or disease management in turf areas. Many local park rectangular fields are already pesticide free. However, we are not currently meeting several maintenance standards for the local fields due to budgetary limitations and there is widespread consensus that the turf cover on most of the local fields is not meeting player expectations during much of the playing season (March 15 – November 30). It is not uncommon to find rutted and rocky bare soil in the center of our local park soccer fields or weed growth in diamond infields during the peak of the season, which increases risk of injury. Maintenance standards that are not being met for most local fields due to budget limitations include overseeding, fertilization, aeration, weed control, and treatment for insects or turfgrass diseases.

In order to move toward both the goals of pesticide reduction and improved playing surface, we propose a pilot project involving five local park athletic fields. Five local park fields would be maintained under a pesticide-free, organic turf care program. Specifications and maintenance standards for the program would be publically vetted and qualified vendors would be competitively selected to maintain the fields. The particular fields would be selected to maximize comparative analysis of the results of the maintenance program. The results would be reported to the Council on a semi-annual basis. This would be a three year pilot.

In addition, a project is already underway to test herbicide alternatives on local park rectangular fields. This study is a multi-year collaboration between Montgomery Parks and the University of

Maryland. Two rectangle fields located at Timberlawn Local Park at 10800 Gloxinia Drive, Bethesda, MD 20852 have been divided into blocks that receive one of three different treatments:

- 1) Pesticide free – Weeds are allowed to grow naturally. More frequent over-seeding and aeration is used to crowd weeds.
- 2) Integrated Pest Management (IPM) - Combines multiple strategies to reduce weeds. Herbicides that reduce broadleaf weeds and prevent annual weed seed germination are applied.
- 3) Natural herbicides – Liquid corn gluten is applied early in the season to suppress weed seed germination. Fiesta, an iron-based herbicide is applied during the growing season to reduce broadleaf weeds.

3) Continue to manage the following facilities or programs under the principles of Integrated Pest Management (IPM) with an emphasis on pesticide reduction whenever practical:

- a) **Athletic fields** (except pilot project)
- b) **Public gardens** – Brookside and McCrillis
- c) **Event centers** - Rockwood, Woodlawn and Seneca Lodge
- d) **Non-lawn landscaped areas** – planting beds
- e) **Infrastructure** – weed control in hard surfaces, courts, pavements
- f) **Non-native Invasive plant management**
- g) **Arboriculture** – care of trees
- h) **Agriculture** (except community gardens)
- i) **Storm water management facility maintenance**

4) Reporting

Parks would report on all these initiatives to the Council on a semi-annual basis. The report would include pesticide use, alternatives implemented throughout parks, update on athletic field pilots, and any emerging pest and disease problems.

5) Operating Budget Impact

Implementation of these pesticide reduction measures, particularly keeping our 282 playgrounds weed free and the athletic field pilot will have costs. If the Council approves a bill that requires the

Councilmember Roger Berliner
September 15, 2015
Page 5

measures noted above, the Department of Parks will request additional operating resources to implement the measures.

Thank you for considering these recommendations in the Council's further deliberations on Bill 52-14. In particular, I ask that all athletic fields are exempted from the legislation while we carefully consider options to improve the quality of our fields while exploring options to reduce pesticide use.

Sincerely,

A handwritten signature in black ink, appearing to be 'MR' or similar initials, written in a cursive style.

Michael F. Riley
Director

cc: Casey Anderson, Chair, Montgomery County Planning Board, M-NCPPC
John Nissel, Deputy Director of Operations, Montgomery County Department of Parks
David Vismara, Chief, Horticultural, Forestry, and Environmental Education Division, MCP



Bill 52-14, Pesticides – Notice Requirements – Non-Essential Pesticides – Prohibitions

Summary of Executive's Fiscal Impact Statement

In January 2015, the Executive submitted a fiscal and economic impact statement for Bill 52-14. The Executive's fiscal impact statement focused on estimated costs to the Parks Department resulting from the discontinuation of pesticide use in athletic field maintenance.¹

The Executive's fiscal impact statement estimated that the pesticide ban would increase Parks Department operating costs by about \$1.8 million per year. In addition, the Executive projected that the Parks Department would incur initial one-time costs of about \$1.9 million to implement Bill 52-14.

The statement included minimal information about the assumptions and methodologies used to determine the cost estimates. The original fiscal impact statement also omitted estimated costs relating to the two most pesticide-dependent fields managed by the Parks Department, the elite baseball diamonds at Shirley Povich Field and Blair High School. In light of these omissions, Council Central Staff asked OLO to review the estimated cost to the Parks Department resulting from implementation of Bill 52-14.

Revised Methodology

To develop more refined estimates of the fiscal impact of Bill 52-14, OLO asked the Parks Department to compile data on current labor and materials cost for various athletic field maintenance activities, including seeding, fertilizing, weeding, and watering. The cost of these activities vary by type of field ranging from revenue-generating elite playing fields to local park playing fields. Maintenance costs and activities also vary between baseball/softball diamonds and rectangular (e.g. soccer) fields. For the purpose of this analysis, OLO and the Parks Department identified five categories of athletic fields:

- Elite diamonds;
- Elite rectangles (Bermuda Grass);
- Recreational Park Diamonds (Fescue Grass);
- Local Park Diamonds; and
- Local Park Rectangles.

OLO further asked the Parks Department to develop a series of assumptions regarding how a ban on pesticide use would affect park maintenance activities for each field type. The Parks Department then assigned on-going annual and one-time operating costs for field maintenance under a pesticide ban. Based on the operating practice and cost assumptions generated by the Parks Department, OLO then developed a methodology to estimate a revised fiscal impact of a pesticide ban on park athletic field maintenance. (Detailed Parks Department operating assumptions and cost estimates are attached to this analysis, see © A-L.)

¹ The Executive's fiscal impact statement also estimated costs to enforce a pesticide ban as well as costs to launch a public information campaign to notify the public the proposed law change.

Bill 52-14, Pesticides – Notice Requirements – Non-Essential Pesticides – Prohibitions

Revised Fiscal Impact Analysis

The fiscal impact of a pesticide ban on parks operating costs is highly dependent on the assumed changes in athletic field maintenance practices resulting from the ban. OLO had no relevant source for best practices as no large public park system in the Mid-Atlantic region has multiple years of experience in maintaining fields under a pesticide ban. As such, this fiscal analysis below is based upon operating practices to implement a pesticide ban as suggested by the Parks Department. The Parks Department identified two categories of costs resulting from implementation of a pesticide ban – (a) annual operating cost increases; and (b) one-time costs.

Annual Operating Cost Increases: Under a pesticide ban, the Parks Department would modify athletic field maintenance practices. In lieu of applying pesticides, the Parks Department would employ alternative techniques including frequent re-sodding and irrigation to maintain field quality. The table below shows pesticide-free field maintenance would increase operating costs by an estimated \$2.7 million per year under practices proposed by the Parks Department.

Annual Athletic Field Costs Increases Resulting from Pesticide Ban

Field Type	Annual Cost Increase	Major Assumptions
Elite Diamonds	\$242,000	Assumes complete re-sodding every 2 years.
Elite Rectangles	\$138,000 - \$204,000	Higher cost assumes retention of Bermuda grass; lower cost assumes conversion to fescue grass.
Recreational Park Diamonds	\$805,000	Assumes complete re-sodding every 3 years.
Local Park Diamonds	\$651,000	Assumes need to renovate 30 (rather than current 8 to 10) fields per year to maintain safe playing conditions.
Local Park Rectangles	\$837,000	Assumes complete re-sodding of 8 to 10 fields per year.
TOTAL	\$2,673,000 - \$2,739,000	

One-Time Costs: The Parks Department asserts that fields that undergo routine re-sodding would require on-site irrigation systems to establish and maintain healthy grass. The Parks Department identified up to 37 athletic fields that could require installation of an irrigation system. The Department estimates the one-time cost to install an irrigation system at \$105,000 per field with an additional \$48,000 to \$150,000 one-time cost per field to cover WSSC system development charges. Assuming an average WSSC charge of \$99,000, installation of irrigation in all 37 fields would cost about \$7.5 million in one-time costs. In addition, the Parks Department cost assumptions include a one-time \$100,000 purchase of two new aerators to help maintain field quality.

The table on the following page summarizes the annual operating and one-time fiscal impact resulting from the pesticide ban based on Parks Department operating assumptions and cost estimates.

OLO Staff Contacts: Aron Trombka and Stephanie Bryant

ATHLETIC FIELD MAINTENANCE FISCAL IMPACT ASSOCIATED WITH IMPLEMENTATION OF BILL 52-14

Elite Diamonds: 2 fields

Annual Operating Cost Increase: \$121,000/field x 2 fields = \$242,000

Major Cost Driver: 72% of the cost increase associated with the pesticide ban is attributable to the assumed need to re-sod each field every other year.

Elite Rectangles (Bermuda Grass): 6 fields

Option 1: Retain Rectangles as Bermuda Grass fields

Annual Operating Cost Increase: \$34,000/field x 6 fields = \$204,000

One-Time Cost: Installation of irrigation system at cost of \$105,000 / field +
WSSC System Development Charge at \$99,000 / field = \$204,000 / field

Option 2: Convert Rectangles to Fescue Grass fields

Annual Operating Cost Increase: \$23,000/field x 6 fields = \$138,000

One-Time Costs: Conversion of fields to fescue grass at cost of \$51,000 / field +
Installation of irrigation system at cost of \$105,000 / field +
WSSC System Development Charge at \$99,000 / field = \$255,000 / field

Major Cost Drivers: 94% of the Option 1 operating cost increase is attributable to the assumed need to renovate each field through re-sodding every third year. (For Option 2, see fescue grass major cost drivers below.) Over a 20 year amortization period, the one-time costs equal about \$10,000 per field per year.

Recreational Park Diamonds (Fescue Grass): 35 fields

Annual Operating Cost Increase: \$23,000/field x 35 fields = \$805,000

One-Time Cost: Installation of irrigation system at cost of \$105,000 / field +
WSSC System Development Charge at \$96,000 / field = \$201,000 / field

Major Cost Drivers: 88% of the cost increase associated with the pesticide ban is attributable to the assumed need to renovate each field through re-sodding every third year. Over a 20 year amortization period, the one-time costs equal about \$10,000 per field per year.

Local Park Diamonds: 146 fields

(current practice: 8-10 renovated per year; assumed under pesticide ban: 30 renovated per year)

Annual Operating Cost Increase: \$31,000/field renovation x 21 fields = \$651,000

Major Cost Driver: All of the increased costs result from the assumed need to renovate 30 fields per year to maintain safe playing conditions.

Local Park Rectangles: 101 fields (8-10 renovated per year)

Annual Operating Cost Increase: \$93,000/field renovation x 9 fields = \$837,000

Major Cost Driver: Nearly all of the increased costs associated with the pesticide ban results from the assumption that field renovations would require re-sodding rather than re-seeding.

Elite Athletic Field Data Summary

- There are 2 elite diamonds in the system at Blair High School (maintained by Martin Luther King, Jr. Management Area) and Cabin John's Shirley Povich Field.
- There are 6 elite bermuda rectangles in the system at South Germantown (2), Ridge Road (2), Martin Luther King, Jr. (1) and Redland Local Park (1).
- Of the elite 8, only 2 are not irrigated. They are the bermuda fields at Martin Luther King and Redland Local Park.
- One of the biggest contributing factors that lead to cost ranges for labor and materials in the data is the weather. During periods of hot, wet weather disease pressure increases and with that substantial turf loss will occur. During dry weather the success of the additional seed applications necessary when using no pesticides will be marginal at best. The seeds will germinate and then the seedlings will die due to lack of moisture. The failure of the new seedlings will require more seed applications to occur in an effort to replace the new seedlings that have germinated and then failed to survive. Insect pressure is another unknown that can cause significant turf loss. This will also cause extra seed applications to replace the dead turf. Grubs feed on the roots of the turf grass which causes the turf to be loose and unsafe due to the roots being severed by the feeding action. Another variable is damage on the fields from special events or unauthorized use during closures during the winter or when the fields are too wet for play. Such damage can cost from a few hundred dollars to thousands of dollars per occurrence.

Chart Reflects Current Costs and Pesticide Ban Costs of Elite Diamond Athletic Fields

- Fertilizer prices can fluctuate as they are based on the weather and fuel costs
- Irrigation increases based on more seeding and sodding throughout the year. Instead of one irrigation daily, there will be multiple irrigations per day to establish the turf. Also hand watering will increase
- Aeration-labor and materials increase as there is more frequent seeding and aeration is used in conjunction with seeding so more applications of seeding requires more aeration. If disrupting the field more often to aerate, use smaller tines which wear quicker and will need to be replaced more often
- Topdress turf: increase applications of topdressing to coincide with additional seed applications.
- Infield mix is additional material needed to keep the playing surface level and even.
- Seeding amount is based on disease issues and insects and is used where there are areas to be patched and reseeded. Current seeding is two times. With no pesticides, would need 5 seedings per year which is three additional over current.
- Sod-Year 1 requires the replacement of the infield along with areas where there are wear spots and disease in outfield. The labor rate is park staff and the range is based on weather, insects and diseases and how much of the field needs to be replaced. Year two is replacement of the entire field and it is contract labor which is variable in price.
- General diamond maintenance includes dragging the skinned area, lining with chalk and paint, repairing the mound and home plate areas, adding Turface to dirt areas after a rain event, leveling the dirt, hand watering, mowing, edging the turf, adjusting irrigation heads, transportation of materials.

(A)

(9)

Elite Athletic Field Current Costs Example: Shirley Povich Field used by Georgetown University and Big Train League

	Current Costs		Pesticide Ban Costs	
	labor	materials	labor	materials
Pesticides	900- 1500	5000 - 9000	no pesticides	no pesticides
Fertilizer	300	1200 -2500	\$ 300.00	2500
Irrigation	600	9000 - 12,000	\$ 900.00	20,000
Aeration	1500 - 2400	800 - 1000	\$ 3,000.00	\$2,250
Topdress Turf	1200	4000-6000	\$ 5,000.00	12000.00
Infield mix	1400	1500 - 2000	\$ 1,400.00	1500 - 2000
Sodding	20,000 - 30,000	4200 - 11,500	year 1 \$35,000 Year 2 \$150,000	15,000 40,000
Seeding	500	2000 - 3000	\$ 1,000.00	7000
Growth Tarp replacement		10,000		
General Diamond Maintenance*	8000 - 14,000	83,000	19,000 - 25,000	85,000 - 90,000

*Includes dragging the skinned area, lining with chalk and paint, repairing the mound and home plate areas, adding Turface to dirt areas after a rain event, leveling the dirt, hand watering, mowing, edging the turf, and adjusting irrigation heads, transportation of materials

Year 2 loss of revenue ~\$11,400 with field closure

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Recreational Park Field Data

Rectangle Bermudagrass Fields

Due to the heavy use of rectangle fields in Montgomery Parks we are expanding installation of Bermudagrass fields. This is a more durable turfgrass, has fewer disease and insect problems compared to fescue and tolerates our transition zone climate. Bermudagrass is preferred by many sports users because of its density and ability to tolerate mowing to a short height—this gives a faster, more level playing surface with predictable ball bounce and good footing. Comparatively, fescue turfgrass has a tendency to clump so the playing surface is not as uniformly dense; also, ball bounce can be less predictable on fescue fields.

Special pesticides are used on these fields since they are typically overseeded with annual grass in late fall to provide color and durability for continued team play as the warm-season Bermudagrass turf goes into winter dormancy. The overseeded annual grass is sprayed out in late spring with a product that will not harm Bermudagrass; these special herbicide products also kill various weeds that have germinated during winter and early spring.

Refer to the table *Bermudagrass Rectangle Martin Luther King Soccer Field #3*
Note that the labor cost is small for pesticide application (approximately 2 hours per season) but the products are expensive.

Under a pesticide ban, we would have 3 options:

- 1) Replace a Bermudagrass field with a synthetic field (\$1.2 million)
- 2) Hire a contractor to strip, level, etc. and convert the field to fescue sod (\$51,440)
- 3) Attempt to work with the Bermudagrass by increasing fertilization and more sand top-dressing, installing irrigation (\$111,600) then contracting for renovation every 3rd year (\$37,500 using sod instead of sprigging). Installation of new Bermudagrass fields is \$130,000.

Warm-season Bermudagrass sod must be installed in the heat of the summer so a field would need to be closed 30 days in order to strip, install and establish new sod. We would lose 2 weeks of revenue in August. Currently fields are closed August 15-31, but we would need to close the field early for renovation beginning Aug 1.

Montgomery Parks currently has 6 rectangle Bermudagrass fields; but currently no diamonds. They are Redland (1), South Germantown (2), Ridge Road (2), and MLK (1). Irrigation is already installed at four of the six fields. Only, MLK and Redland would need the addition of irrigation.

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Bermudagrass Rectangle Martin Luther King Soccer Field #3
Based on FY13 and FY14 labor and material costs

TASK	Current Costs			Cost with Pesticide Ban		Notes
	labor	materials		labor	materials	
Fertilizer	\$ 280	\$ 166		\$ 315	\$ 1,700	special slow release fertilizer
Pesticides	\$ 70	\$ 1,105				
Mechanical Weed Rem.						
Temporary water wheel & meter	\$ 210	\$ 2,800				
Irrigation system & annual water				\$ 105,000	\$ 6,600	water cost is annual
						labor would reduce to maintenance and repair
Sprigging	\$ 5,000	\$ 6,000				
Center partial sod renovation				\$2,100	\$18,800	done by contractor
Field renovation with sod				\$ 5,000	\$ 32,500	done by contractor
Top dressing sand	\$ 560	\$ 7,200		\$ 700	\$ 9,600	
Aeration	\$ 2,520			\$ 2,520		
Conversion options if we cannot continue to maintain Bermudagrass fields under ban						Synthetic field \$1.2 million
						Contract installation of Fescue sod: \$51,440
TOTAL Costs	\$ 8,640	\$ 17,271		\$ 115,635	\$ 69,200	

labor @\$35 per hour

D

Recreational Park Fescue Field Data Summary

35 Recreational Park Diamonds: Damascus 4, Fairland 2, South Germantown 5, Martin Luther King 2, Olney Manor 5, Ridge Road 3, Ovid Hazen Wells 3, Cabin John 5, Wheaton 6

Current Cost Data for Recreational Park Diamonds

- Data reflects one management area in the county but is approximately the same in other management areas
- Fields are a mix of baseball and softball and vary in size from .6 to 2.3 acres
- Fertilizer: 3 applications- In early spring, late spring and fall
- Pesticides: Applied 3 times per field at a labor rate of 2 hours for each application. Total is 6 hours per field per season labor. Pesticides are used currently when weeds grow in the skinned infield as staff do not have additional time to hand remove the weeds. Application locations include warning track, benches, infield spot spraying for weeds.
- Seed and sod: It is \$31,000 for an infield only renovation with sod. This happens approximately every 6-8 years. When weeds pop up in the outfield areas, they are sprayed out and seeded as needed to maintain the field without bare spots throughout the season. We currently over-seed the outfield and aprons 2 times per year.
- Aeration- approximately 9 labor hours per season and 2 times per year for a total of 18 hours. Maintenance Standards call for aeration 3 times per year.
- Soil Sample-required every 3 years by nutrient management laws \$500 each time.
- Install pitcher's mound (on baseball fields only)-mounds wear down and need to be re-packed. This is done daily.
- Dirt infield mix is to top dress the field, fill low spots and repair eroded areas. It is a mix of silt/clay/sand.
- Standing Diamond Maintenance includes painting the field, dragging, chalk, Turface or water adsorbing material to the skinned area. Field marking paint applied once per week. Turface applied approximately 20 times per season.

Cost Data for Recreational Park Diamonds with Pesticide Ban

- Weeds grow in the skinned areas even though staff are meeting the daily dragging maintenance standard. Without pesticides, we estimate it would take 3 additional hours per field weekly for 32 weeks to remove weeds mechanically via scuffle hoe, propane torch, hand weeding and weed bar. Weeds are removed as they interrupt the play on the field and can take over the turf stand. The data chart reflects labor for mechanical weed removal methods. Labor increase is also reflected as 40 hours per field from 6 hours with pesticides. Materials: approximately \$80 in propane per season per field; \$450 for weed bar.
- Seed: seeding would need to double in labor and materials to increase the density of the turf during the season to outcompete the weeds.

(E)

- For rectangles and diamonds, broadleaf and annual weed management is considered essential for successful establishment of new turf grass via seeding during field renovation. Sod would have to be installed for any repair to turf grass. Spot turf replacement would increase under the ban. Cost varies based on weed issues, size of the issues and replacement amount of sod. We expect to have to do a spot field renovation in year 1 where the aprons and infield would be replaced by our staff at a cost of \$5,400 in labor and \$1,080 in materials. Year 2 spot turf replacement would be the same as year one. In year 3, we expect total infield replacement as weed competition will become too great and will start out-competing the turf. Material and labor cost is \$31,000 and would cover infield replacement, base paths and areas where the infield and outfield meet. This third year scenario with total infield replacement would close the field for one month from August 1-31 resulting in a loss of 2 weeks of play and revenue.
- Irrigation on a fescue field is necessary for establishing the seed and the sod. If a worn spot or a weedy spot develops during the summer when it is the driest, the grass is recuperating at slower rate and damaged areas develop that need to be repaired. Cost to install irrigation on one field is \$105,000. This figure is based on recent Capital projects. Water cost per field per year is approximately \$6,600.00. With the installation of an irrigation system, WSSC charges System Development Charges which vary based on the size of the line and number of fields.
- With addition of irrigation, there is the risk of fungal growth on the field. If it can't be treated, could have total replacement of field resulting in loss of play for the season due to budget constraints and bare spots on the field rendering it unsafe for play.
- Fertilizer material is increased to the max quantity of \$1,700 under the ban. Change to slow release so application labor would decrease to 2.8 hours per application and there would be 2 applications per year instead of 3.

(F)

(14)

Recreational Park Fescue Diamond Data

Based on FY13 and FY14 labor and material costs

TASK	Current Costs			Cost with Pesticide Ban		Add'l years
	labor	materials		labor	materials	
Fertilizer	\$ 300.00	\$ 925.00		\$ 600.00	\$ 1,700.00	
Pesticides	\$ 210.00	\$ 140.00				
Mechanical Weed Rem.				\$ 1,400.00	\$ 530.00	
Seed	\$ 315.00	\$ 891.00		\$ 630.00	\$ 1,782.00	
Sod	\$ 5,400.00	\$ 1,068.00		\$ 5,400.00	\$ 1,000.00	
Sod year 2						\$ 6,400.00
Sod year 3						\$ 31,000.00
Aeration	\$ 298.00			\$ 298.00		
soil sample	\$ 70.00	\$ 33.00		\$ 70.00	\$ 33.00	
standing diamond maint.	\$ 8,120.00			\$ 8,120.00		
Field Paint		\$ 1,575.00			\$ 1,575.00	
dragging		\$ -				
chalk		\$ 240.00			\$ 240.00	
Turf		\$ 1,171.00			\$ 1,171.00	
Install pitchers mound	\$ 1,260.00	\$ 957.00		\$ 1,260.00	\$ 957.00	
dirt infield mix	\$ 525.00	\$ 550.00		\$ 525.00	\$ 550.00	
Irrigation				\$ 900.00	\$ 13,400.00	\$105,000*
Water					\$ 6,600.00	
TOTAL Costs	\$ 16,498.00	\$ 7,550.00		\$ 19,203.00	\$ 29,538.00	
	labor @\$35 per hour					

year 1 addition

*install irrigation at \$105K per field; WSSC System Development Charges (SDC) vary based on line size. Cost varies per field \$48K to \$150K based on line size and number of fields; annual water \$6,600

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Local Park Field Data

Rectangle Fescue Fields

For rectangle fields in local parks in both the Northern and Southern Area, the majority of areas do not use pesticides as part of the maintenance program. For the most part, pesticides, when used in areas associated with rectangle fields, are for reasons other than turf management practices although treatment with a pre-emergent should be used if we had the resources to do so. Pesticides, if used at all are used to reduce string trimming time and/or mowing time to improve efficiencies in operations such as around the goal posts and player's benches. We have an aeration, fertilization and over-seeding program for these fields but many areas cannot meet the standard due to other tasks and priorities. The reason for this lack of field maintenance beyond mowing and lining is funding and resources to maintain these fields at a higher level. Also, there is no control of play time and access to the fields so the fields are used constantly, whether they are permitted or not. The constant use of these fields renders maintenance practices ineffective such as seeding, fertilization and aerating because turf maintenance practices need the field to have a rest period to reestablish a healthy stand of turf.

Aeration, fertilization and over-seeding vary by management area and is typically done not at all to two times per year. Twice a year is the optimal maintenance frequency and some areas are able to meet the standard for one or all of these maintenance tasks and some do not meet it at all. When aeration is performed on a 2 acre rectangle, it is typically 3-4 hours per field, two times per year.

Major renovations are available for a limited number of fields per year and utilize pesticides for success under the current methods. If pesticides are banned for renovations of local park rectangles, sod, which is a very expensive alternative will need to be used and would have to be temporarily irrigated to become established as weather conditions vary. Current renovations by a contractor includes an herbicide to kill existing vegetation, minor grading and amendments to fill low spots, seeding, top dressing, fertilizing and aeration at a cost of \$35,000 (based on 2014 actuals). Renovations are not done on a regular cycle and only 8-10 local park rectangle fields are renovated on an annual basis due to the costs and the ability of the manager to take the fields out of play. Pesticides are also used during renovations to prevent broadleaf and weedy grasses from out-competing the newly seeded fescue.

With a pesticide ban, major renovations would have to be done with sod instead of seed by a contractor. This work would include removal of existing vegetation, minor grading and

amendments to fill low spots, aeration and installation of sod. For a field renovation by sod, the entire field is renovated when there are more weeds than turf on the majority of field and there are bare spots. A field renovated with sod will need temporary irrigation to be successful. The cost would be substantially higher to renovate with sod at \$120,000 per field for a contractor to complete. An additional \$8,000 would be required for this type of renovation to set up temporary irrigation on the field. Total cost per field is \$128,000.

Diamond Fescue Fields

For diamond fields in local parks in both the Northern and Southern Area, the majority of areas do use pesticides as part of the maintenance program.

Pesticides are used in the majority of the areas approximately once per month to manage weeds in the skinned infields, around players benches, on the warning tracks and along fences that are not outfitted with mow strips. Without pesticide use in these areas, labor associated with the maintenance of these fields will increase significantly and play has the potential to be hazardous to users because of the inconsistent playing surface available. Aeration, fertilization and over-seeding are done between none and twice a year currently but again, this varies by management area based on tasks and priorities. When done, aeration is performed twice a year for 3-4 hours per field. Maintenance standards require fertilization, over-seeding and aeration to be done twice per year as the optimal maintenance frequency. Some areas are able to meet these standards and some are able to meet a portion or none of these standards. Most areas are meeting the maintenance standard for dragging and lining fields. For most areas, topdressing, seeding and sodding are not done as part of the regular diamond maintenance program in local parks. These fields do not have irrigation. Renovation is done to 10-12 fields per year. With an inventory of 146 fields competing for renovation, this cycle is equivalent to a field renovation every 15 years.

Current practice is to use pesticides to manage weeds that grow in the infield along with a weekly dragging program which disturbs the weed seed from germinating. Under a pesticide ban, time to mechanically pull the weeds is estimated to take 3 hours per field weekly by hand pulling and burning. Also, we will have to continually cut sod out and replace it with sod instead of seed to eliminate weeds that disrupt play. Fescue sod renovation for a diamond infield only would need to happen every 5 years by a contractor at \$31,000 labor and materials to maintain our fields as playable. With an increase in the renovation cycle, we would need funds to renovate 30 fields per year instead of the 10-12 we currently renovate. Temporary irrigation would also need to be set up at over \$3,000 per field that has an infield only renovation. As mentioned, sod would have to be installed

for any repair to turf grass or renovation. If the entire field would need to be renovated with sod, the labor and materials could be upwards of \$100,000, similar to the rectangle cost to repair the entire field with sod. At this time, due to limitations under the ban of reseeding small areas that need fixed with pesticides in our toolkit, it is yet to be determined as to how often entire field renovations would need to take place under a pesticide ban.

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Local Park Fescue Rectangle Costs

Based on FY13 and FY14 labor and material costs

There are 8 recreational park fescue rectangles that are included in the local park data as they are maintained & permitted as local park fields

TASK	Current Costs of Maintenance & Contract Renovation by Seed*				Pesticide Ban for Maintenance & Contract Renovation by Sod installation**			
	labor		materials		labor		materials	
	low	high	low	high	low	high	low	high
Fertilizer	\$ -	\$ 280	\$ -	\$ 575	\$ -	\$ 280	\$ -	\$ 575
Pesticides	\$ -	\$ 220	\$ -	\$ 36	\$ -	\$ 220	\$ -	\$ 36
Mechanical Weed Removal	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Aeration	\$ -	\$ 490	\$ -	\$ 800	\$ -	\$ 490	\$ -	\$ 800
Seeding	\$ -	\$ 156	\$ -	\$ 1,280	\$ -	\$ 156	\$ -	\$ 1,280
Topdressing								
Leveling / Grading								
Standing Rectangle maintenance	\$ 450	\$ 5,700	\$ -	\$ 810	\$ 450	\$ 5,700	\$ -	\$ 810
Field renovation by contractor with seed	\$35,000*							
Field renovation with sod by contractor: whole field is renovated when there are more weeds than turf on the majority of field					\$120,000**			
Required temporary irrigation for sod renovation					\$ 1,000	\$ 4,500	\$ 3,000	
TOTAL Costs (not inc. renovation)	\$ 450	\$ 6,846	\$ -	\$ 3,501	\$ 450	\$ 6,846	\$ -	\$ 3,501
	labor @\$35 per hour							

** currently, we prioritize fields for renovation based on turf coverage, amount of play and wear of turf. We have the ability to renovate 8-10 Local Park Athletic Field rectangles by a contractor each year with the use of herbicides. Herbicide use to reduce weed competition is considered essential when renovating fields by seeding.

***Without the use of pesticides, fields would have to be renovated with the use of sod by a contractor. The contractor would provide the following services: removal of existing turf, minor grading, minor amendments (sand and leafgro), aeration and re-sodding. Park staff would have to provide the labor for hauling turf that was removed for the renovation to take place.

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Local Park Fescue Diamond Costs

Based on FY13 and FY14 labor and material costs

TASK	Current Costs				Cost with Pesticide Ban			
	labor		materials		labor		materials	
	low	high	low	high				
Fertilizer	\$ -	\$ 173	\$ -	\$ 500	\$ 346	\$ 1,000		
Pesticides	\$ -	\$ 220	\$ -	\$ 36	\$ -			
Mechanical Weed Removal	\$ -	\$ -	\$ -	\$ -	\$ 1,400	\$ 530		
Aeration	\$ -	\$ 220	\$ -	\$ 800	\$ 220	\$ 800		
Seeding	\$ -	\$ 156	\$ -	\$ 210	\$ 260	\$ 350.00		
Topdressing								
Leveling / Grading								
Infield only Renovation with Sod		\$31,000 labor and materials every 15 years				**\$31,000 labor and materials every 5 years		
Field renovation with seed								
Temporary irrigation for sod					\$ 210	\$ 2,800		
Total Field Renovation with Sod							*\$100,000 cycle of full field renovation TBD	
TOTAL Costs	\$ -	\$ 769	\$ -	\$ 1,546	\$ 2,436	\$ 5,480		

*The change with the ban is going to be labor intensive to keep weeds out of the skinned infields and the turf. Typically we use pesticides to quickly eradicate weeds in the turf. Labor and materials increase for park staff with the ban for general maintenance. Under the ban, we will have to continually cut weed infested sod out and replace it with sod to eliminate weeds. Once the weeds take over too much of the field, we will have to do a whole field re-sod which is estimated at over \$100K per field.

** 8 to 10 Local Park Athletic Field diamonds are renovated by contractors each year with sod. Practice would remain the same for the standard infield renovation with the ban except fields would be renovated every 5 years as compared to current funding of every 15 years. Therefore, an additional 20 fields would need to be funded for infield only renovation with sod.

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