

# Pesticide Practices

## Recommendation:

That the February 6, 2012, Community Services report 2012CSS005 be received for information.

## Report Summary

**This report provides additional information on pesticide use restrictions and measures employed to monitor success of reduction strategies in Edmonton.**

## Previous Council/Committee Action

At the November 9, 2011, City Council meeting, the following motion was passed:

That Administration provide a report to Community Services Committee outlining:

1. What the best practice measurement is for reducing the use of pesticides by municipalities.
2. How this best practice aligns with our department processes on annual pesticide use.
3. What potential exists to convert lower quality turf to community gardens or other uses.
4. What the annual parameters are for the maintenance of herbicide free sites including the treatment of noxious weeds.

## Report

- Restrictions on the sale and/or use of pesticides exist in most Canadian municipalities to eliminate their non-essential use. These restrictions have gone beyond the restriction of use to the removal of products from

the marketplace. Evaluation and monitoring of City of Edmonton integrated pest management programs stimulates more sustainable solutions for pest problems, including reducing and sometimes eliminating the need for pesticides. More specific best management practices that lead to reduced use of pesticides by a municipality are referenced in the following responses to the motion.

### Best Practice Measurements for Pesticide Reduction by Municipalities

- Recent communication with municipalities from other provinces across Canada showed no evidence of measurement systems as comprehensive as those used to understand pesticide use and impacts in Alberta's larger municipalities. Other provinces are using environmental pesticide monitoring to measure impacts of provincial pesticide restrictions in urban municipalities. However, data on citizen pesticide purchases does not appear to be collected anywhere else outside of Alberta. In Canada, the following best practice measures are used for reducing pesticide use by a municipality:
  - a) accurate accounting, analysis, and trending of municipal pesticide use by:
    - grouping data to identify heavier use requirements and targets for reduction
    - linking pesticide use to weather conditions to better understand impacts of environmental variables on pesticide usage
    - measuring changes in pesticide use with the

incorporation of alternative technologies, products, and biological controls into integrated pest management programs

- b) citizen surveys on pesticide use
- c) pesticide monitoring in local surface water systems
- d) annual pesticide sales/use monitoring within the municipality

### Alignment of Best Practice Measures with Department Processes of Annual Pesticide Use

- a) Over the past two decades monitoring of City operations' pesticide use demonstrates successful targeted reduction of herbicide applications on the City's large inventory of mowed turf. Overall analysis shows that herbicides continue to be the dominant type of pesticide used in the City operations. Though this may be viewed as disproportionate use for weed control, Edmonton's drier climate is unfavourable for other types of lawn pests, such as fungal diseases and turf insects that are common in cities like Toronto.  
  
City staff analysis of pesticide use shows that Edmonton's nuisance mosquito species share little in common with other pests that are impacted by a variety of natural enemies. Unless snow and summer rainfall amounts decline, any targeted use reduction of pesticides for mosquito control will translate to lower quality outdoor life experiences and increased citizen needs for personal insect repellents and other domestic pesticides.
- b) Good Growing Neighbours surveys on citizen pesticide use help to

assess the implementation of new pest management strategies. With recent increased weed growth, the survey suggests citizen interest in the program has increased as people search for information on weed control. Therefore, it is important to maintain up-to-date public information sources such as the Good Growing Neighbours campaign.

- c) Measurement of pesticides in Edmonton's storm water management system by City staff supplements provincial river water management programs. This helps to understand the link between river pesticide contamination and residential use of water soluble contaminants, such as lawn fertilizers and herbicides. In fact, it was instrumental in the development and implementation of Alberta's 2010 restriction on the sale and use of "Weed & Feed" products. City staff works closely with provincial authorities to help evaluate the impact of product restrictions, such as "Weed & Feed," and overall pesticide presence in the environment.
- d) Municipal pesticide sales and use monitoring has helped to support and develop the pest management culture in Edmonton. Evaluation of insecticide sales and use in Edmonton in the early 1990's showed intense use of the insecticide Cygon® (dimethoate). This product was used almost exclusively to control exotic birch leaf miner insects. Focused research by City staff led to the implementation of a biological control that eliminated this pest problem and the associated

treatment campaign. More recently, the province's latest annual sales and use measurements in Edmonton confirm a large increase in the use of alternative pesticide products for turf management in Edmonton.

### Potential to Convert Lower Quality Turf to Community Gardens or Other Uses

- Community gardens are established on the premise of providing a sustainable, locally grown, community-based gardening experience and with the available volunteer gardeners, an ability to manage as pesticide-free. The establishment of new gardens requires 1) the capacity of interested gardening groups to manage them, and 2) site selection criteria including healthy soil conditions and access to water. Considering this, the potential for converting lower quality turf to community gardens on a large scale presents challenges without additional investment.
- Another opportunity which supports *The Way We Green Environmental Strategic Plan* would be to increase the naturalization of mowed grassland areas. This would further pursue natural area connections and the doubling of Edmonton's urban forest canopy. It is, however, important to recognize that natural areas in an urban setting still require management from time to time. With further progress in low impact development, diverse landscapes could be kept intact with overall less use of pesticides.

### Annual Parameters for the Maintenance of Herbicide-free Sites Including the Treatment of Noxious Weeds

- City operations maintain two different types of herbicide-free sites, each with their own maintenance parameters - Council directed sites and petitioned sites (Attachment 1). While petitioned sites are maintained according to their service level, Council directed sites have an additional budget allocated and are maintained according to the highest parkland service level except for irrigation and herbicide use. Previous analysis showed that most of Edmonton's herbicide-free sites became weedier with only mechanical noxious weed control and other non-chemical plant health care measures. This demonstrates that, for the most part, even with the current additional effort and maintenance practices, desired turf quality was not able to be maintained. More research on non-chemical maintenance practices under local conditions is needed to confirm the feasibility of designating additional herbicide-free sites as an effective tool for pesticide reduction.

### **Policy**

- Integrated Pest Management Policy C501
- Environmental Policy C512

### **Corporate Outcomes**

Preserve and Sustain Edmonton's Environment

### **Attachments**

1. Current Practices for Herbicide-free and Regular Site Maintenance (Service Levels A2 and B1)

### **Others Reviewing this Report**

- R. G. Klassen, General Manager, Sustainable Development

**Current Practices for Herbicide-free and Regular Site Maintenance (Service Levels A2 and B1)**

<b>Attachment 1: Current Practices for Herbicide-free and Regular Site Maintenance (Service Levels A2 and B1)</b>											
	# of Sites (Ha)	*Service Level	Monitor & Prescribe Work	Mowing Cycles	Machine Trimming Cycles	Fertilizer Application	Aeration	Top Dressing	Over-seeding	Irrigation	Noxious Weed Control
<b>Herbicide-free Council Directed</b>	45 (159)	22 A2 23 B1	Twice a year	12-18	15	**AS prescribed	Twice a year	**AS prescribed	**AS prescribed	None	Mechanical only***
<b>Budgeted</b>	N/A	N/A	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes
<b>Herbicide-free Petitioned</b>	8 (19.1)	A2	Not scheduled	12	10	Once every 5 years	Once every 1.2 years	Once every 22 years	Once every 35 years	None	Mechanical only***
<b>Budgeted</b>	N/A	N/A	No	Yes	Yes	Limited	Yes	Limited	Limited	No	Yes
<b>Herbicide-free Petitioned</b>	14 (32.7)	B1	Not scheduled	10	5	Once every 8 years	Once every 2 years	Once every 40 years	Once every 61 years	None	Mechanical only***
<b>Budgeted</b>	N/A	N/A	No	Yes	Yes	Limited	Yes	Limited	Limited	No	Yes
<b>Regular Maintenance</b>	(1035)	A2	Not scheduled	12	10	Once every 5 years	Once every 1.2 years	Once every 22 years	Once every 35 years	None	Herbicides and/or mechanical
<b>Budgeted</b>	N/A	N/A	No	Yes	Yes	Limited	Yes	Limited	Limited	No	Yes
<b>Regular Maintenance</b>	(1781)	B1	Not scheduled	10	5	Once every 8 years	Once every 2 years	Once every 40 years	Once every 61 years	None	Herbicides and/or mechanical
<b>Budgeted</b>	N/A	N/A	No	Yes	Yes	Limited	Yes	Limited	Limited	No	Yes

\*A2 and B1 = High-use Sports Fields, School Grounds/Neighbourhood Parks with a weed control standard of 6 weeds/m<sup>2</sup>  
 \*\*Monitoring occurs during biannual visits (June and September), visually inspecting and documenting turf density, colour, vigor and weeds per square metre. Typically, a remedy is prescribed at the monitoring visit to correct turf quality deficiencies. For example, if the turf density is sparse and the weeds per square metre exceed the weed control standard for that turf class, a fertilizer application will be recommended. If there is evidence of soil compaction, an aeration treatment may also be recommended.  
 \*\*\*Includes mowing, machine trimming and hand digging of weeds.