**M E M O R A N D U M**

To: Mayor and Members of Council

From: Alice Lam, Director of Operations

Prepared by: David Plant, Sr. Manager, Parks, Horticulture and Forestry, Operations Department

Date: July 13, 2021

**Re: LDD (Lymantria Dispar Dispar) Control Options Update**

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## RECOMMENDATIONS

1. That the memorandum "LDD (Lymantria Dispar Dispar) Control Options Update" dated on July 13th, 2021 be received;
2. That staff recommends continuation of the public outreach initiative encouraging resident participation including instructional videos and documents, dedicated website updates and frequent updates on growth cycle to manage expectations on various social media platforms;
3. That staff recommends continuation of tracking through monitoring service requests, follow up patrols to understand defoliation results and information gathering to inform collaborative efforts with Region of York and municipal counterparts;
4. That staff recommends continuation of egg mass removal program beginning in October 2021 onward utilizing 6 additional seasonal staff at a cost of approximately $156,000.00 annually until the end of the infestation to be funded through the existing 2021 Parks part-time personnel budget; and,
5. That staff be authorized and directed to do all things necessary to give effect to this resolution.

## BACKGROUND

The City is receiving a large number of resident complaints about LDD (Lymantria dispar dispar) infestations on both public and private properties. At the General Committee meeting of June 14, 2021 staff was asked to provide updates with respect to control measures moving forward inclusive of a limited City pilot of spraying to occur immediately if timing allowed.

## OVERVIEW

The lifecycle of LDD includes four stages over the course of the year which are as follows.

1. Egg masses are deposited on the tree in August and remain in place until spring if not removed
2. Caterpillars emerge from the egg masses in April and eat the trees leaves until late June
3. The caterpillars enter the Pupa stage and transform into the moth stage in July
4. The female moths lay egg masses on the host trees to continue the cycle

The current LDD outbreak could be the second year of an expected 4 year infestation. We have estimated approximately 18,000 trees are at risk of defoliation. City staff are currently tracking hotspot locations in order to understand the defoliation results for 2021 and inform future control strategies. City staff has removed egg masses from over 6,000 trees earlier in the year to help control the infestation. LDD control is only as effective as the level of participation from public and private land owners. The City of Markham shares boundaries with 4 municipalities and LDD does not recognize municipal or parcel boundaries reinforcing the need for a collaborative approach with The Region of York and all lower tier municipalities.

## MARKHAM LDD MANAGEMENT OPTIONS

### Egg Mass Removal

**Environmental Impacts:** Non invasive removal of the egg masses beginning in August and continuing until April in which does not require specialized equipment making it an accessible option for the City and all residents. Removing the majority of the pest should greatly reduce damage on trees which are treated.

**Economic Impacts:** Applying egg mass removal on 18,000 City trees currently at risk with 6 additional seasonal staff members would be required and deployed for this task, the cost impacts would be approximately $156,000.00/year or $8.66 per tree to be funded from the existing 2021 Parks part-time personnel budget.

### Spraying

**Ground Spray Application (BTK - biological)**

**Environmental Impacts:** This method of control produces effective results using 2 well timed applications which are dependant upon weather and LDD activity at the time. The window for effective treatment is narrow starting in late April and continuing until early June while the caterpillars are still young. Untreated caterpillars from private trees or another municipality are highly likely to re-infest City trees following spraying due to low residual effects of BTK.

**Economic Impacts:** Spring 2021 estimates provided by the largest industry provider for spraying of up to 18,000 trees produced costs in the range of $55.00 to $150.00 per tree (for a single application) based on tree size. This translates to an estimated cost in the range of $1.98M to of $5.4M for 2 applications to 18,000 City trees. The estimated cost for an averaged size street tree would be approximately $160/per tree.

**Aerial Spray Application (BTK – biological)**

**Environmental Impacts:** This method provides effective control and is used primarily on woodlots with less likelihood of re-infestation as all surrounding trees are treated. This method is non selective and targets all objects in its path with a blanket application of material. Staff have contacted the licensed contractor for consultation regarding the City of Markham and use of aerial spraying in populated areas and are awaiting a proposal specific to the City of Markham.

**Economic Impacts:** The estimated costs for other municipalities has been approximately $980.00 per hectare which must be confirmed by the contractor along with their ability to apply in Markham. Staff are waiting to receive a full assessment of City property along with the available options and associated costs.

**Note:** Staff have been able to find 56 products registered for use with LDD in Canada by licensed exterminators. **Dragnet**, the product used recently by ORKIN at a resident's home, is a regulated pesticide with chemical drift related cautions advised due to detrimental effects pollinator species.

**Tree Banding (burlap or sticky tape)**

**Environmental Impacts:** Non invasive tree banding using burlap banding or sticky tape to trap and then physically remove the caterpillars beginning in early May and continuing until August which does not require specialized materials making it an accessible option for residents. Removing the caterpillars and properly disposing of them will reduce the degree of damage caused.

**Economic Impacts**: While this is a great option for residents this is not a sound option for the City as this requires daily resources to inspect and remove caterpillars. Based on the Town of Aurora's program this spring the cost per resident burlap kit handed out was approximately $3/kit not inclusive of staff hours to prepare or hand out. Burlap, tape and other materials are subject to availability and can be sourced through hardware stores and garden centers or online with costs reflective of the size and material type. Home Depot Canada has 1m x 3m burlap for about $7.00 and 60mm x 50m sheathing (sticky) tape for about $9.00.

**Do Nothing**

**Environmental Impacts:** There is potential for tree loss after repeated years of severe or total defoliation especially on trees which see greater stress factors such as street trees. With loss of leaf cover comes loss of social benefits in both private and public spaces due to temporary canopy loss.

**Economic Impacts:** The cost to replace a City tree under the current capital replacement program is approximately $500.00 per tree for a small caliper tree.

## STAFF RECOMMENDATIONS

1. Continued public outreach initiative encouraging resident participation including instructional videos and documents, dedicated website updates and frequent updates on growth cycle to manage expectations on various social media platforms;
2. Continued tracking through monitoring service requests, follow up patrols to understand defoliation results and information gathering to inform collaborative efforts with Region of York and municipal counterparts; and
3. Continued egg mass removal program beginning in October 2021 onward until the end of the egg mass cycle.