




**CITY OF HAMILTON**  
**PUBLIC WORKS DEPARTMENT**  
**Environmental Services Division**

<b>TO:</b>	Chair and Members Public Works Committee
<b>COMMITTEE DATE:</b>	December 6, 2021
<b>SUBJECT/REPORT NO:</b>	<i>Lymantria dispar dispar</i> (LDD) Aerial Control Program (PW21069) (City Wide) (Outstanding Business Item)
<b>WARD(S) AFFECTED:</b>	City Wide
<b>PREPARED BY:</b>	Sam Scarlett (905) 546-2424 Ext. 3919
<b>SUBMITTED BY:</b>	Cynthia Graham Acting Director, Environmental Services Public Works Department
<b>SIGNATURE:</b>	

**RECOMMENDATION**

- (a) That the amending By-law, attached as Appendix "A" to Report PW21069, being a By-law to Amend By-law 08-070, respecting Gypsy Moth Infestation, which has been prepared in a form satisfactory to the City Solicitor, be enacted and effective immediately;
- (b) That, pursuant to By-law 08-070, respecting Gypsy Moth Infestation, staff be directed to implement a *Lymantria dispar dispar* (LDD) Aerial Control Program involving aerial application of the biological control agent *bacillus thuringiensis* 'kurstaki' (Btk);
- (c) That infested areas which exceed 2,500 egg masses per hectare, as identified in By-law 08-070 as the treatment threshold, be the areas to receive aerial application of the biological control agent *bacillus thuringiensis* 'kurstaki' (Btk);
- (d) That the direction provided to staff in Closed Session, as detailed in confidential Appendix "B" to Report PW21069, respecting *Lymantria dispar dispar* (LDD) Aerial Control Program, be approved;

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OUR Vision: To be the best place to raise a child and age successfully.

OUR Mission: To provide high quality cost conscious public services that contribute to a healthy, safe and prosperous community, in a sustainable manner.

OUR Culture: Collective Ownership, Steadfast Integrity, Courageous Change, Sensational Service, Engaged Empowered Employees.

- (e) That Appendix “B” to Report PW21069, respecting *Lymantria dispar dispar* (LDD) Aerial Control Program, remain confidential until after a contract has been executed with Zimmer Air Services Inc. or negotiations have ceased with no intent of executing a contract with Zimmer Air Services Inc.; and
- (f) That staff be directed to report back to Public Works Committee in Q1 of 2022 detailing the terms of the agreement with Zimmer Air Services Inc., the recommended aerial treatment areas and to seek approval to execute the contract.

## **EXECUTIVE SUMMARY**

Council directed staff through Report PW21-009, ratified at the June 23rd, 2021 Council meeting, to monitor *Lymantria dispar dispar* (LDD) egg mass counts, budget for and report back to Council on a potential treatment program for 2022.

In recent years, the common name for LDD, Gypsy Moth has been identified as being culturally insensitive. Instead, the City will use the Latin name of the pest, *Lymantria dispar dispar* or LDD for short. The new nomenclature will be used in all documentation and communications moving forward by the City of Hamilton. Staff have been working to educate the public about the transition over the past several months.

By-law 08-070 Respecting Gypsy Moth Infestation directs the General Manager of Public Works to deem any areas with LDD egg mass counts over 2,500 per hectare a public nuisance. This Bylaw also authorizes the General Manager of Public Works to implement an aerial spray program using biological control agent *bacillus thuringiensis* ‘*kurstaki*’ (Btk).

In 2021, LDD was observed in the City of Hamilton (City) at varying levels of infestation, which resulted in the defoliation of public and private trees; thus, negatively impacting the City’s tree canopy and causing a nuisance to residents. Significant and repeated defoliation of the many tree species who act as hosts and a food source for LDD will likely result in mortality.

The most effective method to control LDD on a large scale is the aerial application of Btk. Btk is an organic pesticide that controls LDD during the early stages of its larval form, prior to any significant defoliation to the host tree. To ensure effectiveness of Btk, its application must be completed during a narrow development window of the pest and the application is subject to environmental constraints, such as wind and rain.

There is only one qualified vendor identified who operates in Southern Ontario, Zimmer Air Service Inc., who meets Transport Canada’s Aviation Regulations for the specialized application of Btk over urban/ suburban areas at low altitude. Given the short supply of

qualified vendors and the proliferation of LDD throughout Ontario in 2021, staff are seeking approval to single source the services, enter into negotiations with the vendor and provide the treatment of up to an estimated 3,000 hectares over a 2-year program, in 2022 and 2023.

The results of the negotiation and planned treatment areas for 2022, based on field surveys completed in the fall of 2021, will be presented to Council in Q1 of 2022 for approval.

### **Alternatives for Consideration – See Page 7**

### **FINANCIAL – STAFFING – LEGAL IMPLICATIONS**

Financial: Refer to Appendix “B” of Report PW21069 for financial details.

Staffing: There are no staffing implications associated with the recommendation in this report.

Legal: The Procurement Section and Legal & Risk Management Services Division will be engaged in reviewing any contract.

Recommendation (e) of Report PW21069 enacts an update of By-law 08-070 Respecting Gypsy Moth Infestation in order to change all references to Gypsy Moth to *Lymantria dispar dispar* (LDD), found in Appendix “A” attached to Report PW21069. This update was prepared in conjunction with legal services staff.

### **HISTORICAL BACKGROUND**

LDD is an invasive species that is known to be a significant defoliator of primarily, but not limited to, hardwood tree species common in Southern Ontario. The pest was introduced accidentally to North America in 1869, and it was first discovered in Canada in 1969 on Wolfe Island, Ontario. Since that time, this pest has continued to move westward, and has impacted rural and urban forests throughout Southern Ontario, with notable impact to the City in 2007, 2017, and 2021.

LDD populations are known to exhibit three phases of infestation: innocuous (low density), release (transition/growth), and outbreak (high density population). Data suggests that the City is currently in the release phase. Portions of the City’s Urban Forest have been significantly defoliated two or three consecutive times in recent years, which can lead in some cases to tree mortality.

Btk is a soil-borne bacterium which has been used worldwide for over 30 years as a biological control agent. Health Canada's Pest Management Regulatory Agency

(PMRA) permit the application of Btk as a “restricted” product, and the Canadian General Standards Boards permits the use of Btk in Organic Productions Systems for crop production (CAN/CGSB-32.311-2020).

In accordance with the Ontario Pesticide Act, Ontario Regulation 63/09, a licensed exterminator is required to post signage that details the nature of the work being performed on site. Given the large-scale nature of the proposed aerial application of Btk, there is a mechanism within the Act whereby an applicant can perform an alternative notification of pesticide use. This mechanism was implemented for the 2018/2019 spray programs through a comprehensive communications strategy, which included: mail outs to impacted properties as well as social and print media outreach and information. Staff also maintained information about the program on the City webpage, which was updated regularly.

When Btk is applied to the leaves of host trees, immature (early instar) caterpillars voraciously feed on the Btk laden leaves. The Btk enters and disrupts the digestive systems of the caterpillar. This disruption causes the caterpillars to stop feeding and succumb to the effects of the pesticide with 24-48 hours. Btk has very low residual qualities in the natural environment. Sunlight and fungi deteriorate the bio-pesticide within 1-4 days. Because Btk requires an alkaline environment in the gut in order to be effective, it does not have any detrimental effects to humans, birds, or bees. Due to its low residue and the narrow spray window due to larval development requirement, the non-target moth and butterfly impact is low.

The City has implemented aerial control programs using Btk in 2008, 2018 and 2019. In 2017, egg mass surveys found that the infestation of this pest increased, and intervention was required, as per By-law 08-070 Respecting Gypsy Moth Infestation. Over 2018 and 2019, 2,550 hectares were treated aerially with Btk with a budget of \$2.5M. Follow up tree defoliation and egg mass surveys in 2018 and 2019 indicated the spray program was successful in significantly reducing LDD population in the treated areas. The 2018/2019 program was completed by Zimmer Air Services Inc.

LDD egg mass surveys must be completed when deciduous trees species drop their leaves in the fall. Egg mass surveys are undertaken as part of an Integrated Pest Management (IPM) program to monitor population changes over time. Staff have engaged a consultant to complete surveys throughout the City in the fall of 2021. This will provide staff with the data to determine recommended treatment areas for aerial application of Btk in 2022. Staff will continue to monitor LDD populations throughout the spring and summer of 2022 and 2023 as part of an ongoing IPM program.

In the absence of an IPM intervention, the City’s urban canopy may experience tree mortality from LDD defoliation over the next several years. Additionally, the LDD population will advance to the outbreak phase.

## **POLICY IMPLICATIONS AND LEGISLATED REQUIREMENTS**

By-law 08-070 is in place to address LDD infestations as a nuisance, with City staff being given authority to treat with Btk when egg mass quantities exceed 2,500 per hectare.

Transport Canada has only approved twin engine helicopters for use in the application of Btk over built-up areas, as per Canadian Aviation Regulations Standard 722 – Aerial Work. This type of work also requires the air operator to apply for a Special Flight Operations Certificate for aerial work. Staff have confirmed that the vendor Zimmer Air Services Inc., identified in Recommendations (b), (f), (g) and (h) of Report PW21069, is the sole vendor in Ontario that has this certification and equipment required to complete the work.

Recommendation (f) of Report PW21069 recommends that By-law 20-207, Procurement Policy 4.11, Policy #11 – Non-Competitive Procurement be implemented for the reasons stated in Report PW21069.

## **RELEVANT CONSULTATION**

The following internal groups were consulted and are supportive of the recommendations in Report PW21069:

Corporate Services Department, Financial Services and Taxation, Procurement Section;  
Corporate Services Department, Legal and Risk Management Division;  
Corporate Services Department, Financial Planning, Administration & Policy Division,  
Finance & Administration Section; and,  
City Manager's Office, Human Resources Division, Diversity and Inclusion.

Staff have consulted with the Canadian Aircraft Regulations and Ministry of the Environment, Conservation and Parks to establish the requirements for the implementation of the recommended program detailed in Report PW21069.

Staff have consulted with the Aerial Applicators Association of Canada finding that Zimmer Air Services Inc. are the only vendor to have received the appropriate licenses and approvals to date.

Staff have consulted with the following municipalities, Conservation Authorities and non-government organizations on their plans for the control of LDD. The City of Burlington and the Grand River Conservation Authority are planning to implement an aerial spray program in 2022. The City of Mississauga and the City of Toronto have been approved through single source procurement to enter into a contract with Zimmer Air Services Inc. for a 2022/2023 aerial spray program. Additionally, the Town of Oakville, Hamilton

Conservation Authority, Halton Conservation Authority, and Royal Botanical Gardens are developing their 2022 programs based on egg mass monitoring in late 2021 into Q1 of 2022.

## **ANALYSIS AND RATIONALE FOR RECOMMENDATION**

In the Spring of 2021, LDD activity was recorded by mapping addresses and the severity of the infestation. A considerable rise in resident calls to the Customer Contact Centre and Ward Councillor offices was found in Spring 2021 compared to the previous year. As a result, staff were directed by Council through Report PW21-009, ratified at the June 23rd, 2021 Council meeting, to monitor LDD egg mass counts, budget for and report back to Council on the potential for a treatment program for 2022.

Hamilton's tree canopy has widespread benefits to residents through improving air quality, reducing temperatures, filtering water, amongst many other environmental and social benefits. It also supports wildlife and is critical in maintaining biodiversity within the region.

To protect the existing tree canopy from LDD, By-law 08-070 Respecting Gypsy Moth Infestation directs the General Manager of Public Works to control the infestation with Btk. In order to treat LDD on a landscape scale, aerial applications of Btk are required between mid-May and mid-June, utilizing specialized helicopters by qualified and experienced applicators.

Since the aerial application of Btk is likely to be predominately over urban and suburban areas, Transport Canada Aviation Regulations require a twin-engine helicopter be used for this low altitude flight work. Canadian Aircraft Regulations also require air operators to submit an application to Transport Canada with a detailed workplan at least 21 working days prior to the initiation of the aerial application program. Upon approval, the air operator is granted Ministerial Authorization through a Special Flight Operations Certificate for Aerial Work. Due to the technical and highly specialized nature of this work, there is only one qualified vendor in Ontario/ Eastern Canada.

Zimmer Air Services Inc. has a demonstrated ability and experience completing programs of this scale and complexity. In 2008 and 2018, Zimmer Air Services Inc. was contracted by the City through single source procurement to complete aerial applications of Btk. In 2021, Zimmer Air Services Inc. completed an aerial spray program for the City of Mississauga, the City of Toronto, the City of Burlington, Royal Botanical Gardens, and Hamilton Conservation Authority.

Given that Zimmer Air Services Inc. is the only known qualified vendor for the aerial application of Btk over urban areas, combined with a high demand for their services throughout Ontario and a short window in which to spray, the recommendations of

Report PW21069 would allow staff to negotiate for their services for the 2022/2023 program. If the City is not able to negotiate a contract with Zimmer Air Services Inc. it is likely that other agencies and municipalities will occupy all available spray times, and an aerial application for LDD Moth will not be completed in Hamilton in 2022.

It is likely that potential severe infestations experienced in 2021 will occur again in 2022, which would be the second and third consecutive years (area dependent) which puts those trees at risk of death.

The purpose of proposed amendments to By-law 08-070 Respecting Gypsy Moth Infestation are for 2 reasons. Firstly, use of the name Gypsy Moth is culturally insensitive and is considered an ethnic slur. As part of the City's commitment to Culture and Diversity, one of the key Council Strategic Plan Priorities, this year we will replace the name Gypsy Moth and introduce the Latin name *Lymantria dispar dispar* (LDD) in our communications. Staff are changing the name of the pest in all existing By-laws, policies, procedures and public communication material.

Secondly, the By-Law amendment is to remove appendices which contains specific maps of treatment areas from the 2008 LDD Control Program.

## **ALTERNATIVES FOR CONSIDERATION**

That staff be directed to complete a Policy 5.3 Request for Tenders form, through the Procurement Section, to go out to the open market for the aerial application of Btk services. This alternative is not recommended, as staff do not anticipate that there are any other vendors that are qualified to perform these services.

Financial: There is a high likelihood that Zimmer Air Service Inc. would be the only qualified vendor; therefore, the financial impact would be the same as the recommended approach of the non-competitive procurement.

Staffing: There are no staffing implications associated with the recommendation in this report.

Legal: There are no legal implications associated with the recommendation in this report.

## **ALIGNMENT TO THE 2016 – 2025 STRATEGIC PLAN**

### **Healthy and Safe Communities**

Hamilton is a safe and supportive City where people are active, healthy, and have a high quality of life.

**Clean and Green**

Hamilton is environmentally sustainable with a healthy balance of natural and urban spaces.

**Built Environment and Infrastructure**

Hamilton is supported by state-of-the-art infrastructure, transportation options, buildings and public spaces that create a dynamic City.

**Our People and Performance**

Hamiltonians have a high level of trust and confidence in their City government.

**APPENDICES AND SCHEDULES ATTACHED**

Appendix “A” to Report PW21069 – Amending By-law Respecting Gypsy Moth  
Infestation By-law 08-070

Appendix “B” to Report PW21069 – Financial (confidential)