

BIOLOGICAL PEST CONTROL MEASURES - COMMUNICATIONS AND EDUCATION STRATEGY

RECOMMENDATION

That the June 13, 2022, City Operations report CO01214, be received for information.

Report Purpose

Information only.

This report summarizes Administration's strategy to develop and implement education and biological pest control measures to manage Edmonton's mosquito population, beginning in 2022, with funds Council has reallocated from the aerial mosquito program (\$507,000).

Previous Council/Committee Action

At the April 4/5/6, 2022 City Council meeting, the following motions were passed:

That Administration develop education and biological pest control measures to manage Edmonton's mosquito population and that the funds previously approved to restore the aerial mosquito program to 2020 levels, (\$507,000 on an on-going basis starting in 2022 within Financial Strategies) be redirected to fund the implementation of the above program.

That Administration provide a report on the communications and education strategy and biological pest control measures alternative to the aerial spraying program, including a cost breakdown, prior to the 2022 mosquito season and return to Committee on a date to be determined by Agenda Review Committee.

Executive Summary

- The City of Edmonton has historically provided citywide mosquito control through scientifically-based ground and aerial biological control programs using products containing

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Bti, a biologically selective toxin derived from soil bacteria that specifically targets mosquito larvae.

- Administration has developed a plan to increase education, monitoring and research into biological control measure alternatives.
- Funding will be allocated towards personnel and monitoring-related costs, alternative biological control activities, and enhanced communication and educational efforts.
- Implementation began in spring 2022 and includes resource/personnel acquisition, education and communications tactics, and mosquito control and monitoring activities.
- A variety of biological controls and environmental implications will be considered as Administration seeks alternative mosquito control strategies that will be designed in a way to be equitable to all Edmontonians.

REPORT

Background

Maintaining healthy and vibrant open spaces is essential to achieving the strategic goals of ConnectEdmonton and is aligned with the City's Corporate Outcomes. Edmonton's network of parks, open spaces and natural areas support celebration, ecology and wellness and makes a quantifiable contribution to the long-term livability of the city. Insect pests, especially mosquitoes, are an important consideration in enabling residents and visitors to enjoy and benefit from Edmonton's green spaces.

Planned and delivered in accordance with the City of Edmonton's Integrated Pest Management (IPM) Policy, the City's Mosquito Abatement (control) Program has historically consisted of both aerial and ground-based treatments of temporary and semi-permanent water bodies for the control of mosquito larvae, using biologically selective products made from a naturally occurring soil bacteria called *Bacillus thuringiensis israelensis* (Bti). This strategy is part of an ecological approach to managing mosquito pests, that has minimal impact on other species, to maintain biodiversity, while also being safe for humans and effective in Edmonton's climate. Natural and naturalized areas (including stormwater facilities) also support habitat for native mosquito predators such as birds, bats and dragonflies.

City Council passed a motion at the April 4/5/6, 2022 meeting to redirect the \$507,000 annual funding to the development of education and (alternative) biological pest control measures to manage Edmonton's mosquito population, beginning in 2022.

Program Approach

Developing Biological and Natural Pest Control Measures

Administration must consider a number of factors in the development of alternative biological control measures for mosquitoes. "Biological control is a component of an integrated pest management strategy. It is defined as the reduction of pest populations by natural enemies and typically involves an active human role." (Cornell University, College of Agriculture and Life

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Sciences) This differs from natural controls, which are naturally occurring organisms and environmental factors that keep pest populations in check with no human input.

There are three broad types of biological controls, where human input is involved: conservation, classical and augmentation. An example of a classical biological control is the use of Bti products, which are made from naturally occurring soil bacteria toxic to mosquito larvae. Ensuring good habitat for native mosquito predators like bats is an example of a conservation biological control. Raising and releasing additional native bats to increase local populations is an example of an augmentation biological control. Any biological control requires careful consideration of ecological and biodiversity impacts since there are human interventions involved.

Details on the approach for development and delivery of alternative biological mosquito controls and monitoring programs are described in Attachment 1. A jurisdictional scan of mosquito control programs from other municipalities will be completed as part of the program development. Evaluation and reporting will be completed annually for all mosquito program activities, including control measures, monitoring, communication and education.

Communications and Education

An enhanced communications and education plan will be used to engage and inform residents on the work that is continuing to be undertaken by the City of Edmonton related to mosquito control, including proposed alternative biological pest control measures. Data collected from monitoring along with feedback from 311 inquiries will be used to inform public messaging. Planned communications and education activities are described in Attachment 1. Objectives include:

- Increase confidence that the City delivers a programmed approach to mosquito control that respects local ecology and biodiversity, including population monitoring, habitat management and selective ground/ditch treatments.
- Raise awareness and facilitate understanding of the benefits of biologically-derived technologies and biodiversity.
- Communicate other City efforts that already contribute to biological pest control, such as supporting mosquito predator habitats through urban forest canopy expansion initiatives and naturalizing stormwater facilities.
- Educate Edmontonians on what actions they can take to help reduce mosquito populations around their property.

Budget/Financial Implications

The reallocation of \$507,000 from the aerial mosquito program was approved on an on-going basis. The majority of the funding will go towards personnel and monitoring-related costs (approximately \$388,000), with the remainder going towards alternative biological control activities (approximately \$65,000) and enhanced communication and educational efforts (approximately \$45,000). Attachment 2 contains a breakdown of the \$507,000, outlining specific enhancements for the three expenditure categories. Program effectiveness and expenses will be

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tracked. At the end of 2022 season, an analysis of the program's effectiveness will be completed to determine if changes need to be made in the approach for 2023. While dependent on weather and conditions, it is anticipated that communications needs and activities will decrease, along with the associated budget to support these communications and education efforts, as awareness and understanding of the operational program grows.

COMMUNITY INSIGHT

Recent feedback from Edmontonians through 311 and public engagement conducted in 2018 during the development of the current IPM policy (Attachment 3) indicate that residents expect pest management as an important service to be provided by the City. As education and communications programs are developed, Administration will continue to seek feedback on existing programs and expectations going forward for mosquito control.

GBA+

The control of nuisance mosquitoes generally benefits all Edmontonians. Historically, the City has used a scientific approach to prescribe treatment locations and timing, through careful monitoring of populations and environmental conditions. This has ensured past program effectiveness and equity in outcomes by removing bias to particular regions, neighborhoods, or demographic populations.

To reach as many people and demographics as possible, communications will include different recommendations to address the various mosquito population and habitat conditions that residents may encounter. Administration may also provide additional or prioritized direct monitoring and control of "backyard" mosquito larval habitats in certain areas. Administration will undertake comprehensive GBA+ analysis while planning mosquito control and monitoring activities, and the communications and educational approaches.

ATTACHMENTS

1. Mosquito Control Program Approach
2. Cost Breakdown
3. 311 and Integrated Pest Management Survey Information