



MEMORANDUM

To: Mayor and Members of Council

From: Phoebe Fu, Director, Environmental Services

Prepared by: Rob Grech, Manager, Stormwater
Phoebe Fu, Director, Environmental Services

Date: September 29, 2020

Re: Swan Lake Geese Management Program – Addition of Strobe Lights

RECOMMENDATION:

Staff do not recommend that the strobe lights be installed based on other organization's experiences, low likelihood of success, potential risks associated with other wildlife in the park, and limited time usage (1.5 months).

BACKGROUND:

Swan Lake, located in Ward 5, has water quality issues that result in reduced water clarity and the presence of algae. Part of the water quality strategy includes a geese management program that was introduced by the City in 2016 to reduce nutrient loading by the geese in Swan Lake Park. In June of 2020, Staff presented water quality improvements options and Council asked that Staff to report back on geese management program.

The current geese management program involves egg oiling performed in the spring, and hazing, performed 16 days per month in Spring/Fall and 8 days per month in the summer. While the number of geese present at the park has been reduced in the spring and summer, high numbers of geese are present in the fall months, especially in the evening and overnight.

Staff reviewed the geese management strategy, spoke to experts at the TRCA, and program managers at other municipalities, and presented proposed program changes to Markham Sub-Committee on August 31, 2020 and General Committee on September 21, 2020. The following options were presented:

Option	Staff Recommendation
Habitat Modification	To be Considered by General Committee as part of Park Refresh Plan
Modifications of Existing Hazing Program to Fall Only (30 visits/month)	Recommended
Strobe Lights	Not Recommended
Relocation	Recommended
Culling	Not Recommended
Volunteer Program	Recommended

The cost of the staff recommended options are \$9,500 in 2020, to be funded through project #20250 (Water Quality Improvements and Geese Control), and an additional \$10,000 per year, to be included in the budget request for 2021.

To adopt the strobe lights for a trial period during the Fall of 2020 would cost \$8000 and need to be removed by November 2020 due to the return of the Swans.

DISCUSSION

Through the discussion at General Committee on September 21, 2020, Staff were asked to provide more information on strobe lights.

Should Council choose to proceed with the strobe lights, the cost of the installation is \$8,000. The lights can only be installed for a short 1.5 months (from mid October to late November). This one-time cost does not fully utilize the life cycle of the lights (2-3 years), and will have limited impact into the future. Further, due to the non-repeated nature of the pilot, it will be very difficult to quantify the effectiveness of the lights and justify the cost.

Advantages to Strobe Lights/Manufacturer's Claims

The strobe lights work by using a solar powered LED that flashes every two seconds, and is intended to disrupt the sleep patterns of geese within approximately a 100 yard radius of the light. They are installed by boat, and anchored to the bottom of the lake, and removed before lake freezes, with little maintenance required after installation. The strobe lights have a guaranteed life of 2 years, but may last 3-5 years depending on site conditions.

The manufacturer of the strobe lights claim that they disrupt the sleep patterns of geese and have a 97% success rate. They have also claimed that the lights would have no impact on other wildlife, including the swans that are expected to be present on the lake.

Should the manufacturer's claims be correct, the strobe lights would be very well suited to the problem at Swan Lake, because they are intended to disrupt the geese on the lake at night, which has been noted as one of the primary concerns with the current geese management program.

City Review of Manufacturer's Claims:

In order to review the effectiveness of the strobe lights, the City completed a literature review, spoke to experts at TRCA, and called other municipalities or proponents that have tried them in the past.

Literature Review

There is little amount of published research available on the effectiveness of strobe lights. One article, published by University of Nebraska in 2007, suggested that the use of strobe lights was ineffective in reducing geese presence on test sites.

TRCA

TRCA provided input on both the impact of the strobe lights on wildlife, as well as the effectiveness of the lights in deterring geese.

From an effectiveness point of view, TRCA had not received positive feedback from industry contacts on the use of strobe lights for geese control, and do not use them as part of their geese control programs in other areas.

With respect to impact on wildlife, TRCA has noted that there is a general lack of published information on the impact of these specific lights on wildlife, but believes that the following risks exist, based on the published information:

- Urban light installations may result in changes to bird movement, habitat selection and settlement, and migration patterns;
- The strobe lights can attract and disorient songbirds, causing direct or indirect mortality;
- Strobe lights may increase stress responses in fish, and may have impacts on the aquatic ecosystem; and,
- Artificial lighting has impacts on sea turtles, and so it may also have impacts on freshwater turtles (although TRCA was not aware of any specific published information).

Other Geese Control Programs

The City reviewed the effectiveness claim made by the manufacturer by speaking to other proponents of geese control programs across North America. In summary, the feedback suggested that the strobe lights did not work at all, or worked for a very short time period, until the geese adapted to their presence.

The following feedback was received on programs in other locations:

Location	Feedback
Powell River, BC	- Strobe lights installed, but were not successful and removed
Massillon, OH	- Had short term success with strobe lights, but all geese returned, and were seen sleeping near lights
Attleboro, MA	- Strobe lights not successful – program was switched to hazing with dogs
York University	- Installed prior to Pan Am Games – no impact on geese population
Lamoreux Park, Cornwall	- Strobe Lights not successful
Esquimalt Naval Base – Victoria, BC	- Strobe Lights worked upon installation, but geese have adapted and so success is mixed. Coverage may have been a problem.