

ENVIRONMENT COMMITTEE

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*HIS WORSHIP, THE MAYOR
AND COUNCILLORS*

SUBJECT: MOSQUITO CONTROL FOR PUBLIC LANDS (2007)

RECOMMENDATIONS:

1. THAT Council approve the mosquito control strategy for public lands in 2007 as noted in section 3 of this report.
2. THAT a copy of this report be forwarded to the Medical Health Officer, Fraser Health Region, Suite 400, 4946 Canada Way, Burnaby, B.C. V5G 4H7; and Parks, Recreation and Culture Commission for information.

REPORT

The Environment Committee, at its Open meeting held on 2007 April 10, received and adopted the *attached* report providing an update on various mosquito management activities undertaken in 2006 and seeking approval to continue an interim mosquito control strategy for Burnaby public lands in 2007. The Committee noted that the 2007 plan includes a comprehensive education, surveillance and treatment strategy which embraces integrated pest management principles to address the possible occurrence of West Nile Virus in Burnaby. The Committee further noted that staff are in the process of applying for a grant through the UBCM to assist in the implementation of this proposed work.

Respectfully submitted,

Councillor Dan Johnston
Chair

Councillor Pietro Calendino
Vice Chair

Councillor Lee Rankin
Member

COPY - CITY MANAGER
DIRECTOR ENGINEERING
DIR. PARKS, REC. & CULTURAL SERV.
DIRECTOR FINANCE

TO: CHAIRPERSON & MEMBERS
ENVIRONMENT COMMITTEE

DATE: 2007 April 03

FROM: DIRECTOR ENGINEERING

FILE: 33000-05

SUBJECT: MOSQUITO CONTROL STRATEGY FOR PUBLIC LANDS (2007)

PURPOSE: To provide the Committee with an update on various activities undertaken in 2006 relating to mosquito control in the event of a possible occurrence of West Nile virus in Burnaby and seek approval of the continuance of an interim mosquito control strategy for public lands in 2007.

RECOMMENDATION:

1. THAT the Committee recommend Council to:
 - a) approve the mosquito control strategy for public lands in 2007 as noted in Section 3 of this report; and
 - b) forward a copy of this report to the Medical Health Officer, Fraser Health Region, Suite 400, 4946 Canada Way, Burnaby, B.C., V5G 4H7; and Parks, Recreation and Cultural Commission for information.

REPORT

1.0 INTRODUCTION

Over the past four years, the City has undertaken a number of proactive initiatives on public lands as a part of Council approved interim mosquito control strategy in response to the possible occurrence of West Nile virus (WNV) in Burnaby.

The purpose of this report is to provide the Committee with an update on various activities undertaken in 2006 relating to the noted strategy and seek continuance of the interim mosquito control strategy for public lands in 2007.

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2.0 SUMMARY OF MOSQUITO CONTROL MANAGEMENT ACTIVITIES (2006)

As the Committee will recall, West Nile virus (WNV) is a mosquito-borne virus which is spread between mosquitoes and birds, but humans and birds can get WNV through the bite of an infected mosquito. Birds are reservoir hosts and most documented cases in birds are in the family of *Corvidae* or corvids (Crows, jays, nutcrackers, magpies, ravens). According to the BC Centre for Disease Control (BCCDC), most people who become infected will experience no symptoms at all. About 20% of those will develop mild flu-like symptoms lasting about a week or less. In rare cases (less than 1%) WNV can result in serious health effects such as meningitis (inflammation of the lining of the brain) or encephalitis (inflammation of the brain). There is no evidence of WNV spreading by direct person-to-person contact. There is no human vaccine for WNV at present.

In 2006, endemic WNV activity was noted in central and western Canada including Ontario, Quebec, Manitoba, Saskatchewan and Alberta, and in States bordering British Columbia (Montana, Idaho and Washington State). South of the 60th parallel, British Columbia remains the only area of western North America without evidence of infection in avian or human populations. According to BCCDC, 2006 was the first year where the viral activity levels diverged between Canada and the United States. While Canada reported fewer human cases this year compared with last (239 in 2005 vs. 127 in 2006), the US showed an increase of 37%.

Given the possible occurrence of WNV in the Lower Mainland, staff had undertaken the following actions in 2006:

a) Education and Awareness

As in previous years, education material regarding WNV was distributed to all civic facilities and posted on the City Web site. In addition, presentations were made to Engineering and Parks operations staff as well.

b) Surveillance of Dead Crows, Adult Mosquito Trapping and Reporting

In 2006, callers were asked to contact the Fraser Health Authority West Nile Virus Information Line (1-888-968-5463) regarding dead crow sightings and collection. Analysis of the dead crows was undertaken at B.C. Animal Health Centre located in Abbotsford.

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According to the BCCDC website, a total of 803 corvids were collected across the province and tested in 2006. Of these 104 were from Burnaby. There was no WNV detected in the tested samples.

During 2006, provincial mosquito surveillance focused on the identification and distribution of adult mosquitoes. From June 01 to October 28, 124 traps collected mosquitoes weekly from 148 registered permanent locations. Traps were run overnight and the catches were sent to BCCDC for identification and WNV testing. Beginning in 2006, only female *Culex* mosquitoes were tested for the virus in groups of 50 mosquitoes / pool. The remaining mosquitoes were identified but not tested. There was no WNV detected in the tested samples.

Complete results on corvid testing and identification and distribution of adult mosquitoes are available through BCCDC web site (www.bccdc.org).

c) Surveillance and Mapping of Mosquitoes Breeding Sites on Public Lands

In 2006, the City retained Morrow BioScience Limited to undertake surveillance of surface waters and catch basins in Burnaby.

As a part of the initial surveillance of potential surface water mosquito breeding sites, all of the previously identified sites in 2005 were re-visited. A total of 363 sites were subsequently selected for continued monitoring between the periods of June to September. Where appropriate, larval samples were collected and identified. The most predominant species found were *Culex pipiens* (primarily feeds on birds but will also feed on reptiles and mammals and only become nuisance to humans in late summer and fall) although *Culex tarsalis* (virus vector that bites both birds and humans) was also detected.

Bi-monthly surveys of mosquito larvae were also conducted at 302 catch basins located on public roads and parking lots within parks. The catch basin sample locations were chosen to span the whole City, while at the same time being distributed relatively evenly between road maintenance areas. Majority of the catch basins sampled were found to harbour mosquito larvae between mid June and late August. The peak larval numbers were noted in mid July. By late August, the numbers of catch basins containing larvae fell and by mid-September, mosquitoes were not detected in any catch basins. By far, the most abundant species detected was *Culex pipiens*.

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In addition, several adult mosquito traps were placed at various locations in Burnaby which complimented the six sites selected by the Fraser Health Authorities as a part of their broader adult mosquito trapping program.

d) Pre-emptive Larval Treatment of Limited Surface Water and Catch Basin Sites

Surveillance of the potential surface water mosquito breeding sites in the earlier phase of the work identified areas with above average abundance of WNV vector mosquito species. As such, the consultant recommended applying pre-emptive larval treatments to a total of approximately 0.1 hectares of surface water sites. In following with the Council approved Interim Mosquito Control Management Strategy (2006), staff evaluated consultant's recommendation and approved pre-emptive spot larval treatment (by hand) using Aquabac 200G (which contains *Bacillus thuringiensis israelensis*). Similarly, catch basins within eighteen of the forty five road maintenance areas had elevated numbers of WNV vector mosquito larvae requiring treatment using VectoLex (which contains *Bacillus sphaericus*).

All of the treatments were undertaken utilizing the Provincial Pesticide Permit for WNV. Appropriate public notification was provided in the local papers and appropriate senior agencies were notified about treatment locations, amounts and type.

3.0 MOSQUITO CONTROL MANAGEMENT STRATEGY FOR PUBLIC LANDS - 2007

In reviewing the previous years work, staff proposes the following mosquito control strategy for public lands within Burnaby for 2007.

PHASE	ACTIVITY	COMMENTS
Prevention	Public Education	Continue to provide information to the public regarding West Nile Virus as undertaken in 2006; Collaborate with the Fraser Health Authority in the delivery of the public message where appropriate.
	Staff Education	Continue distribution of information on West Nile Virus to staff. Undertake staff presentations as required.

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PHASE	ACTIVITY	COMMENTS
Surveillance	Identification and Mapping of West Nile virus vector mosquito breeding sites	Continue surveillance of WNV vector mosquito breeding sites in select surface waters located on public lands; Undertake surveillance of WNV vector mosquito breeding sites in select catch basins located on public roads and within parks; Continue placement of adult mosquito traps which complements Fraser Health adult mosquito trap locations; Continue mapping of the WNV vector mosquito breeding sites and related information.
	Bird (crow) collection and testing	Continuance by Fraser Health Authority as a lead. Results of dead crow analysis to be available through BCCDC web site (www.bccdc.org).
	Adult mosquito collection, identification	Continuance by Fraser Health Authority as lead. Samples submitted to the laboratory for genus identification and WNV testing by Fraser Health Authority. Results of analysis to be available through BCCDC web site (www.bccdc.org).
Treatment	Pre-emptive Larvicide Treatment of Surface Waters and Catch Basins	Undertake limited spot application of <i>Bacillus thuringiensis israelensis</i> and or <i>Bacillus sphaericus</i> where necessary only and as a part of IMMP; Continue discussion with Fraser Health Authority regarding WNV vector treatment thresholds in catch basins before initiating pre-emptive treatment.
	Broader Larvicide Treatment - Ditches / Ponds / Swales / Catch Basins on Public Lands	Undertake broader larvicide treatment only when ordered by the Medical Health Officer, Fraser Health Officer based on the evaluation of indicators - human cases, positive results in birds and or mosquitoes;

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PHASE	ACTIVITY	COMMENTS
	Adult Mosquito Treatment	Participate in the Adult Mosquito Control Local Advisory Committee established by the Fraser Health Authority. If adult mosquito treatment is to be required by the Fraser Health Authority for human health purposes, it is to be undertaken after due consultation with the City by the Fraser Health Authority.
Communication	Communication to Council and public in an event of WNV presence in the community and undertaking of broader treatment measures.	Continue to update the Local Government WNV Communication Strategy which seamlessly ties with the BC Centre for Disease Control (BCCDC) Communication Strategy.
Evaluation	Monitor and evaluate the effectiveness of measures taken.	Prepare a report in fall of 2007 identifying actions undertaken and recommendations for 2008. Provide a copy of the report to the Fraser Health Authority for their information.

On March 19, 2007, UBCM announced that under an agreement with the Ministry of Health, UBCM will again be administering a program to ensure proactive approach to mosquito control with the intent of reducing the risk of occurrence of WNV. A total of \$5.4 million is being made available from the Ministry of Health to local governments for this purpose.

This funding is to provide financial assistance to local governments for mosquito control, including mapping, source reduction, larviciding and contingency planning for emergency adulticiding, but not emergency application of adulticides. Should this become necessary, a contingency fund at the Ministry of Health Services has been identified for emergency adulticide application that will fully reimburse these costs.


Based on community risk level criteria, each local government is eligible for a base level funding plus per capita funding. The funding available to Burnaby is \$197,107. Staff is

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in a process of applying for the funding through UBCM to assist in the implementation of the above proposed work.

4.0 CONCLUSION

A number of initiatives have been undertaken by the City to effectively respond to the potential threat of West Nile virus. For 2007, building upon these initiatives staff are proposing a comprehensive education, surveillance and treatment strategy which embraces integrated pest management and adaptive management principles to address the possible occurrence of West Nile virus in Burnaby. Staff is in a process of applying for a recent grant through the UBCM to assist in the implementation of the proposed work.



W.C. Sinclair, P. Eng.
DIRECTOR ENGINEERING

DD:cg

Copied to: City Manager
Director Parks, Recreation and Cultural Services
Director Finance