

**A  
RESPONSE PLAN  
TO  
ADDRESS WEST NILE VIRUS  
IN THE  
VILLAGE OF BELCARRA**

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prkservices**

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## TABLE OF CONTENTS

	Page
<b>1. INTRODUCTION.....</b>	<b>1</b>
<b>2. BACKGROUND.....</b>	<b>2</b>
<b>3. VILLAGE OF BELCARRA .....</b>	<b>3</b>
<b>4. PLANNING ISSUES.....</b>	<b>6</b>
<b>A. Mapping and Inventory.....</b>	<b>6</b>
<b>B. Surveillance.....</b>	<b>6</b>
<b>C. Integrated Management.....</b>	<b>6</b>
<b>D. Communications and Public Education.....</b>	<b>7</b>
<b>E. Data Management, Training and Technology.....</b>	<b>7</b>
<b>F. Plan Monitoring.....</b>	<b>8</b>
<b>5. RESPONSE PLAN ACTIONS.....</b>	<b>9</b>
<b>APPENDIX 1            REGIONAL POLICIES FOR A STANDARDIZED                              PREPAREDNESS AND MANAGEMENT APPROACH FOR                              WEST NILE VIRUS FOR HEALTH PURPOSES</b>	
<b>APPENDIX 2            MUNICIPAL MOSQUITO CONTROL GUIDELINES</b>	

## **1. INTRODUCTION**

As part of the Province of British Columbia's overall strategy to prepare for the arrival of the West Nile Virus as outlined in its *BC Arbovirus Response Plan*, the provincial government, through its Ministry of Health Services and its Health Authorities, has encouraged regional and municipal governments to develop a standardized preparedness and management approach for the virus for health purposes.

A fundamental component of that approach is the preparation of a response plan for public lands managed by the local government.

On February 9<sup>th</sup>, 2005, the Province announced further funding to assist local governments in implementing response plans.

## 2. BACKGROUND

In 2003, the Province of British Columbia announced a comprehensive provincial strategy to address the West Nile Virus. The Province, with leadership provided by the BC Centre for Disease Control, is currently at response level IIa indicating that arbovirus activity is evident in Alberta and expected to arrive in British Columbia in the near future.

In 2004, in an effort to support the Province in its strategy, the *Greater Vancouver Regional District*, through a Working Group of the Regional Engineers Advisory Committee, developed and approved a policy for a standardized approach for both the preparedness and management of mosquitoes for health purposes. The Working Group represents the Region's local governments, including Belcarra, as well as the Vancouver Coastal and Fraser Health Authorities. The Working Group has prepared further draft policies for treating surface waters and catch basins based on the approved policy.

In 2004, the Province of British Columbia provided financial assistance to regional and municipal governments to conduct various programs to prepare for the arrival of the West Nile Virus as local governments, due to its infrastructure and familiarity of location, was expected to help in the delivery of the provincial strategy. In 2005, further grant funding was allocated by the Province to continue local government implementation of the strategy.

The preparation of a response plan is the fundamental component of the provincial strategy at the local level. A response plan addresses the issues of:

- mapping and inventory
- surveillance
- integrated control management
- communications and public education
- data management, training and technology
- plan monitoring

In April, 2005, the Village of Belcarra contracted prk services to prepare this response plan for their lands. The delivery of the provincial strategy on other public lands, such as *Belcarra Regional Park* and Indian Arm-Say Nuth Khaw Yum Provincial Heritage Park, as well as private lands is the responsibility of the owner of those lands.

### 3. VILLAGE OF BELCARRA

The *Village of Belcarra* is a rural community of some 750 people lying on the insular, easterly shoreline of Indian Arm. Bordered by the *City of Port Moody* and the *Village of Anmore* and based on its natural resources and the desires of its residents, the Village's 1996 *Official Community Plan* lists four significant strategies to guide the Village's management and to contribute to the Greater Vancouver Regional District's *Liveable Region Strategic Plan*: protect the green zone, build a complete community, contribute to a compact metropolitan region and increase transportation choices. It is the stated goal of the Village to maintain a high quality, rural residential environment with as little disturbance as possible to a rich, natural setting. With a limited capacity to generate tax revenue and only 2 public works employees, the Village recognizes the need to establish partnerships to meet its objectives.

Recognizing the limited financial resources of the Village and the potential requirements of the Province to deliver a comprehensive West Nile Virus program, contact was made with other major landholders in the Village. The Regional District's *Belcarra Regional Park* dominates the Village. Crown Provincial land within the Village's boundary, established as a provincial park, is administered by the *Ministry of Water, Land and Air Protection* (BC Parks). In total, these two park areas, (Figure 1 and 2) comprise approximately 80 % of the lands within the Village boundaries.

The *Greater Vancouver Regional District* has a comprehensive program to implement its regional policy for mosquito control on their park lands. To date, they have surveyed and sampled the Regional Park and determined that the park's habitat presents a low risk. In 2005, the Regional District intends to map and sample catch basins in the park. Indian Arm/Say Nuth Kwah Yum Provincial Heritage Park occupies the northern portion of the Village. Currently, BC Parks does not have any plans to conduct programs addressed in the *Greater Vancouver Regional District* policy on the West Nile Virus although they are seeking funding to address parks that abut population centres.

Contact was also made with the *City of Port Coquitlam* who currently provides West Nile Virus response plan implementation services for neighbouring *City of Port Moody* and possibly, the **Village of Anmore**. The intent of the contact was to ensure that the Village's watershed protection concerns are recognized and addressed should integrated management practices for the control of West Nile Virus, such as larviciding and adulticiding, be ordered by the *Fraser Health Authority*.

Based on its geography of steep and moderate slopes and micro climate of cooler temperatures and coupled with the results of the 2004 sampling conducted in the Regional Park, there may be a tendency to consider that the Village is a low risk concern for West Nile Virus. Nevertheless, studies need to be completed on Village lands in order to determine the actual risk.

#### **4. RESPONSE PLANNING ISSUES**

The Greater Vancouver Regional District's *Regional Policy for a Standardized Preparedness and Management Approach for the West Nile Virus for Health Purposes* (Appendix 1) outlines the issues and tasks associated with the standardized approach. The policy was approved by the *Greater Vancouver Regional District Board* in March, 2004 with the caveat that the province would play a major technical and financial role in the delivery of the West Nile Virus program. In 2005, the Regional District developed and approved complimentary policies on surface waters and catch basins (Appendix 1).

Currently, the Regional District is drafting a bylaw to provide for the establishment of a mosquito control, administration and coordination service and encouraging its members, including the Village of Belcarra, to join the function.

##### **A. Mapping and Inventory**

The *Municipal Mosquito Control Guidelines* (Appendix 2) outline the standard for classifying mosquito breeding habitat. Recognizing that only a limited number of the estimated 50 mosquito species in British Columbia pose a threat to public health (Belton, 2004)<sup>1</sup>, mapping should be initially focused on their habitat-ditches, catch basins or pools with standing or semi-permanent water. Once these habitats are initially identified, assessed and classified as high, medium or low risk, other criteria such as land use (bee keeping, organic farms or care facilities), ecologically sensitive habitats, fisheries values and wells should be evaluated and hotspots (areas classified as high risk but with low sensitivity to management measures) identified.

The identified hotspots should then be inventoried for species presence. Monitoring of the hotspots should be a continuing program.

##### **B. Surveillance**

The *Fraser Health Authority*, in concert with the *BC Centre for Disease Control* and *Health Canada*, is responsible for surveillance activities such as lab testing of the targeted mosquito species for the presence of the West Nile Virus. Often though, the local community can assist the Health Authority by reporting dead birds (crows, ravens and jays) which can be an indicator of the presence of the West Nile Virus.

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<sup>1</sup> Belton, Peter (2004). British Columbia Mosquitoes as Vectors of West Nile Virus. Two or three species pose a threat while 5 other species may pose a moderate threat. See [www.sfu.ca/~belton](http://www.sfu.ca/~belton).

### **C. Integrated Management**

Management control of the targeted mosquito species and the associated hotspots includes source reduction, larval control and adult control.

Source reduction refers to the modification of hotspots to reduce their viability as mosquito breeding habitats. Activities such as cleaning ditches, reducing standing water sites through improved drainage and advising landowners on yard maintenance are common methods employed to reduce existing or potential habitat.

Larval control may become necessary where hotspots pose a greater risk due to their proximate location to humans. In the Province, larval control is managed by local government through the application of a provincially-approved bacterial agent. The application is authorized by the *Ministry of Health Services* under the *Pesticide Control Act* and is initiated on advice from the local Medical Health Officer. Currently, a Province-wide permit is in place allowing local governments to act as agents for the Province.

Adult control, where adulticide is applied to kill flying mosquitoes, may be ordered by the *Fraser Health Authority* where both source reduction and larviciding have not been successful and an epidemic is imminent and/or occurring in the Lower Mainland. Because associated environmental impacts are significant with adulticiding, implementation should only occur on orders from the *Fraser Health Authority*.

### **D. Communications and Public Education**

Communication between local governments, the Province, residents and landowners is the most significant and cost effective component of a response plan. Benefiting from almost a half a decade of experience from eastern North America, the Province and local government, with coordination from the Greater Vancouver Regional District, have initiated several communication and public education programs. These include:

- establishing a Working Group of the *Greater Vancouver Regional District* Regional Engineering Advisory Committee to address ongoing inter-municipal issues and share information on the West Nile Virus;
- coordinating the preparation of information on the West Nile Virus, source reduction by homeowners and personal protection from mosquitoes through distribution of brochures and internet linkages;
- facilitating the delivery of “mosquito schools” to ensure an understanding of the West Nile Virus by regional and municipal staff

## **E. Data Management, Training and Technology**

Implementation of the Response Plan will lead to data collection and recording associated with mapping and inventory, surveillance, integrated management controls and communications and public education.

The *Greater Vancouver Regional District*, through its West Nile Virus Working Group, is currently developing a protocol to standardize data management, including mapping, surveillance and types and extent of controls. These data will be used to establish trends and predict future management measures.

The *Fraser Health Authority* has recently initiated a research project targeted for the West Nile Virus risk assessment on private lands with the objective of recommending or directing appropriate mosquito control practices to private landowners.

## **F. Plan Monitoring**

As with any plan, this response plan should be monitored and evaluated once actions are implemented.



## 5. RESPONSE PLAN ACTIONS

Recognizing the existing resources of the *Village of Belcarra*, the response plan reflects the need for a significant, continued level of financial support from the Province and for partnering with other public institutions managing large areas of lands within the Village boundaries and bordering on the Village. In general, the following actions should be taken:

- Write to the Chair of the *Greater Vancouver Regional District* indicating the Village's desire to be included in the proposed regional function, currently being drafted, to establish a mosquito control, administration and coordination service;
- Meet with the *Greater Vancouver Regional District* in an effort to establish a protocol agreement to implement this response plan, particularly the mapping and inventory component and the integrated management component;
- Meet with the *City of Port Coquitlam* to establish a protocol agreement on their implementation, on behalf of the neighbouring *City of Port Moody* and perhaps the *Village of Anmore*, of integrated management controls to ensure Belcarra's watershed and drinking water issues are fully understood and addressed;
- Continue to meet with BC Parks and BC Hydro to determine the extent of their efforts to prepare and implement response plans on provincial park lands and transmission corridors within the Village boundaries.

Specifically, the following actions should be implemented by the *Village of Belcarra*:

### A. Mapping and Inventory

- Based on the Village's 2004 *Belcarra Aquifer Study*, the proposed protocol agreement with the *Greater Vancouver Regional District* and a review of the Village's natural areas, conduct an initial assessment<sup>2</sup> of potential mosquito breeding habitats for *Culex pipiens* and *Culex tarsalis* focusing on ditches, catch basins and sediment ponds in an effort to determine the extent of the risk;
- Based on the initial risk assessment, conduct more detailed studies<sup>3</sup> as required.

### B. Surveillance

- As part of overall communications, provide opportunities for Village staff and residents to observe and report on dead bird sightings.

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<sup>2</sup> assessment methods are reviewed in Appendix 2

<sup>3</sup> *ibid*

### **C. Integrated Management Controls**

- Implement source reduction on Village lands based on the initial risk assessment;
- As part of overall communications, provide opportunities for residents and land owners to implement source reduction;
- As part of the protocol agreement with the *Greater Vancouver Regional District*, prepare for larval and adult control measures under the *Pesticide Control Act* permit and implement on the advice/order of the *Fraser Health Authority*;
- Modify the Village's *Good Neighbour Bylaw No. 361, 2004* to include a reference to remove potential discarded material that could provide a potential habitat for mosquitoes.

### **D. Communications and Public Education**

- Through the Village's Environment Affairs and Emergency Preparedness Committees, conduct a community meeting with invited *Fraser Health Authority* guests to present information on the WNV including reporting dead birds, source reduction and personal protection;
- Establish a link on the Village's web site to the Greater Vancouver Regional District's and Fraser Health Authority's home page for Belcarra residents to find further information on the West Nile Virus.

### **E. Data Management, Training and Technology**

- Ensure that information on policy revisions and training opportunities from the Greater Vancouver Regional District's Working Group on the West Nile Virus is received by the Village in a timely manner;
- Provide data on mapping and inventory, surveillance and integrated control management to the Greater Vancouver Regional District Working Group for integration into the overall regional program;
- Ensure Village staff have the opportunity to participate in training sessions organized by the *Greater Vancouver Regional District* and/or the *Fraser Health Authority*;
- Ensure new developments in the Village consider potential habitat and incorporate design, particularly catch basins, to limit risk.

### **F. Plan Monitoring**

- In concert with the Fraser Health Authority, annually review the response plan;
- Support the GVRD in its effort to secure a long term, equitable funding commitment from the Province for the implementation of response plans.

**APPENDIX 1**

**Regional Policies**

**for a**

**Standardized Preparedness and Management Approach**

**for**

**West Nile Virus for Health Purposes:**

**Mosquito Surveillance, Education and Larval Control**

**Regional Policy for a Standardized Preparedness and Management Approach  
for West Nile Virus for Health Purposes:  
Mosquito Surveillance, Education and Larval Control**

**Scope**

In 2003, the Province of British Columbia announced a comprehensive provincial strategy to address West Nile Virus (WNV). The Province, with leadership provided by the BC Centre for Disease Control, is currently at response level IIa indicating that arbovirus activity is evident in Alberta. The Province expects WNV to arrive in British Columbia in 2004.

In an effort to support the Province in its strategy, the GVRD, through a Working Group of the Regional Engineers Advisory Committee, has developed a standardized approach for both the preparedness and management of mosquitoes for health purposes. The Working Group, representing 12 municipalities as well as the Vancouver Coastal and Fraser Health Authorities, and the University of British Columbia Plant Operations, has prepared the following table outlining the approach, the tasks involved, the jurisdictional responsibilities and the timing required.

This policy is based on the regional/local governments, as land owners, assuming responsibility for the management of mosquitoes on their lands. Mosquito management on private lands is the property owner's responsibility and will be managed by the Regional Health Authorities under the provision of the *Health Act*.

This policy represents the minimal standard for management of larval mosquitoes for health purposes on public land<sup>4</sup>. Adult control should be considered only when there is a significant human health risk and only implemented when ordered by a Regional Health Authority. Planning for adult mosquito control will be led by the Regional Health Authorities with the participation of their member municipalities and the GVRD.

This policy can only be effective with significant, continued financial support from the Province.

Task	Responsibility				Timing
	Municipal	GVRD	RHAs	Prov/Fed	
<b>A. Sustainable Response Planning</b>					
1. Each jurisdiction <sup>5</sup> should prepare a sustainable WNV response plan for their lands based on this policy.	lead <sup>6</sup>	lead	support <sup>7</sup>	lead	complete by July 2004
2. Each jurisdiction should regularly monitor and evaluate its response plan.	lead	lead	support	lead	ongoing

<sup>4</sup> 'Public land' means any lands owned by a municipality or the GVRD.

<sup>5</sup> 'Jurisdiction' means municipality, the GVRD, the Fraser and Vancouver Coastal Health Authorities, the Crown Provincial and the Crown Federal or their groupings.

<sup>6</sup> 'Lead' means to take responsibility for implementing the task described.

<sup>7</sup> 'Support' means to provide assistance or input to the lead jurisdiction responsible for implementing the task.

Task	Responsibility				Timing
	Municipal	GVRD	RHAs	Prov/Fed	
3. The Federal and Provincial governments should be encouraged to provide ongoing financial assistance to local governments in implementing WNV response plans.	support	lead	support	support	ongoing
<b>B. Mapping &amp; Inventory</b>					
1. Each jurisdiction, using <i>Municipal Mosquito Control Guidelines</i> (Ellis, 2001) as a standard, should map and classify mosquito breeding habitat on their lands in a GIS format, as “high, medium, low risk” as appropriate to the vector target, with notes describing the criteria such as natural features, human influences, fisheries values.	lead	lead	support	lead	complete in 2004
2. Mapping of habitat, hot spots, sensitive areas <sup>8</sup> , and monitoring & surveillance results by individual jurisdictions should be rolled up and made available to all jurisdictions to assist in providing a larger sub-regional or regional context.	support	lead	support	support	complete in 2004
3. Each jurisdiction should evaluate mosquito breeding habitat on their lands and identify hotspots (areas with high ratings for the target vector) and identify areas that are sensitive to management measures.	lead	lead	support	lead	complete by July 2004
4. Where applicable, each jurisdiction should evaluate catch basins for vector species on their lands.	lead	lead	support	lead	complete by July 2004
<b>C. Surveillance</b>					
1. The Regional Health Authorities are responsible for surveillance activities for detection of WNV in adult mosquitoes and sentinel and Corvid species and humans with assistance from each jurisdiction,	support	support	lead (jointly with PHSA and province)	lead (jointly with RHA); fed support	ongoing

<sup>8</sup> ‘Sensitive areas’ include environmentally sensitive locations (eg. wells, apiaries, registered organic farms, watercourses and fish habitat) and/or community areas (eg. schools, permitted adult and child care facilities, hospitals and seniors group homes.)

Task	Responsibility				Timing
	Municipal	GVRD	RHAs	Prov/Fed	
<b>D. Integrated Management for Larval Control</b>					
1. Each jurisdiction should make adequate preparations for larval control of vector mosquitoes.	lead	lead	order or recommend	lead	ongoing
2. On the order or recommendation of the Regional Health Authority, each jurisdiction should undertake a program of larval control at designated hotspots, including catch basins.	lead	lead	order or recommend	lead	ongoing
3. Each jurisdiction should, over time, consider modification of hot spots by physical or mechanical means to reduce their viability as mosquito breeding habitat (with caution to avoid disruption of sensitive habitats.)	lead	lead	support	lead	ongoing
4. The Regional Health Authorities should facilitate the use of the provincial pest control permit in managing hot spots including catch basins.	support	support	lead	support	complete in April 2004
5. The Regional Health Authorities should ensure that there are appropriate protocols in place to facilitate access for inspection, surveillance, monitoring and control of mosquitoes for health purposes, including private lands.	support	support	lead	support	complete in 2004
<b>E. Communications</b>					
1. The Regional Health Authorities/Province should prepare public messages on: <ul style="list-style-type: none"> <li>private land owners responsibilities general WNV information;</li> <li>strategies for provincial parks;</li> <li>surveillance results;</li> <li>treatment including personal protection, source reduction and adaptive management.</li> </ul>	support	support	lead (jointly with PHSA and Province)	lead (jointly with RHAs); fed support	complete in 2004

Task	Responsibility				Timing
	Municipal	GVRD	RHAs	Prov/Fed	
2. The GVRD should be requested to utilize its communication and education channels to assist the Regional Health Authorities to deliver the public messages across the Lower Mainland.	support	support and request the FVRD to participate	lead	support	complete in 2004
3. Each jurisdiction may supplement the general regional and provincial communication messages with messaging specific to their needs including, where applicable, private land owners.	support	support	lead	support	ongoing
4. The Mosquito Technical Work Group of REAC (including the Regional Health Authorities) should continue to act as a focus for information sharing and regional policy review.	support	lead	support	support	ongoing
<b>F. Data Management</b>					
1. All jurisdictions should standardize the collection of mosquito management data so that it is complete, current and useful for management and reporting purposes.	lead	lead	support	lead	complete in 2004
<b>G. Training &amp; Technology</b>					
1. Each jurisdiction should ensure that it is informed and trained on standards for data collection and recording.	support	support	support	province lead; fed support	ongoing
2. Each jurisdiction should support the development of a predictive model that will facilitate the efficient management of mosquitoes for WNV.	support	support	lead	support	complete by 2006

## **Regional Policy for a Standardized Preparedness and Management Approach for West Nile Virus for Health Purposes: Mosquito Surveillance, Education and Larval Control for Surface Waters on Public Lands**

### **Scope**

On March 26, 2004 the GVRD Board adopted a policy setting the minimal standard for management of larval mosquitoes in surface waters for health purposes on public lands. In continuation of the effort to support the Province in its strategy, the GVRD, through a Working Group of the Regional Engineers Advisory Committee, has developed an updated standardized approach for both the preparedness and management of larval mosquitoes in surface waters for health purposes on public lands.

The REAC WNV Mosquito Work Group, representing municipalities as well as the Vancouver Coastal and Fraser Health Authorities, the University of British Columbia Plant Operations, the Provincial government, some federal agencies and other jurisdictions, has prepared the following policy table outlining the approach, the tasks involved, the jurisdictional responsibilities and the timing required to control larval WNV-vector mosquitoes in surface waters.

This policy is based on the regional/local governments, as land owners, and other land-owning jurisdictions assuming responsibility for the management of mosquitoes on their lands. Mosquito management on private lands is the property owner's responsibility and will be managed by the Regional Health Authorities under the provision of the *Health Act*.

Owners of lands of other jurisdictions within the region have been requested to voluntarily adopt this policy. Within the context of West Nile Virus management it is imperative that every jurisdiction undertake a comprehensive pre-emptive larval control program. Flying mosquitoes know no boundaries and lands left unmanaged for them can contribute to additional regional populations in jurisdictions that are managing them.

Actions proposed in the policy will be undertaken within budget limits applied for the fiscal year. The Provincial Government should recognize the budget planning cycle of municipalities and jurisdictions for grant funding purposes.

### **Definitions:**

'Areas of environmental sensitivity' include environmentally sensitive locations (e.g. registered organic farms, watercourses, wetlands and fish-bearing waters.)

'Jurisdiction' means chartered companies, municipalities, the GVRD, the Fraser and Vancouver Coastal Health Authorities, school districts, the Crown Provincial, the Crown Federal or their groupings of associated agencies.

'Lead' means to take responsibility for implementing the task described.

'Public land' means any lands owned by a municipality, the GVRD or any other governmental jurisdiction or chartered company or agency.

'Support' means to provide assistance or input to the lead jurisdiction responsible for implementing the task.



## Acronyms

GVRD – Greater Vancouver Regional District  
 REAC – Regional Engineers Advisory Committee  
 RHA – Regional Health Authority  
 WNV – West Nile Virus

Task	Responsibility				Timing
	Municipal	GVRD	RHAs	Prov/Fed & Other Jurisdictions	
<b>A. Sustainable Response Planning</b>					
1. Each jurisdiction should prepare a sustainable WNV response plan for their surface waters based on this policy.	lead	lead	support others lead on own assets (e.g. health facilities)	lead	ongoing
2. Each jurisdiction should regularly monitor and evaluate its surface waters response plan.	lead	lead	support others lead on own assets (e.g. health facilities)	lead	ongoing
3. The Provincial governments should be encouraged to provide ongoing financial assistance to local governments in implementing sustainable surface water WNV response plans.	support	lead	support others	support others lead on own assets (e.g. crown-owned lands)	ongoing
4. Each jurisdiction should estimate its annual surface water WNV management costs (those changes over and above normal operations for accelerated maintenance or treatment) in a general framework to contribute to an annual regional roll-up.	lead	lead	support others lead on own assets (e.g. health facilities)	lead	complete by Nov 30 each year
<b>B. Mapping &amp; Inventory</b>					
1. Surface water WNV-vector mosquito habitat in the jurisdiction should be digitally mapped and incorporated into the jurisdiction's WNV database.	lead	lead	support others lead on own assets (e.g. health facilities)	lead	complete in 2005
2. WNV-vector mosquito related data should be made available to participating jurisdictions to assist in providing a larger sub-regional or regional context.	lead	lead	support others lead on own assets (e.g. health facilities)	lead	complete in 2005
3. Each jurisdiction should classify their identified surface water habitat according to the risk they pose for breeding WNV-vector mosquitoes.	lead	lead	support others lead on own assets (e.g. health facilities)	lead	July 2005
4. Each jurisdiction should compile locations of areas of environmental sensitivity, and monitoring & surveillance results	lead	lead	support others lead on own assets (e.g. health facilities)	lead	January 2006

Task	Responsibility				Timing
	Municipal	GVRD	RHAs	Prov/Fed & Other Jurisdictions	
by individual jurisdictions.					
<b>C. Surveillance</b>					
1. In sampled surface waters each jurisdiction should record attributes and the data be maintained in its WNV database.	lead	lead	support others lead on own assets (e.g. health facilities)	lead	Spring 2006
<b>D. Integrated Management for Larval Control</b>					
1. Each jurisdiction should make adequate preparations for larval control of vector mosquitoes.	lead	lead	order or recommend	lead	ongoing
2. If it is not feasible to clean and treat all identified areas of concern, each jurisdiction should determine its treatment regime for its mosquito vector surface water habitat as resources allow.	lead	lead	support others lead on own assets (e.g. health facilities)	lead	ongoing
3. Each jurisdiction should monitor and evaluate the results of surface water treatments, if any, as resources allow.	lead	lead	support others lead on own assets (e.g. health facilities)	lead	ongoing
4. The REAC WNV Mosquito Work Group should continue to investigate viable alternatives to the application of pesticide in surface waters for control of mosquitoes.	lead	lead	support others lead on own assets (e.g. health facilities)	lead	ongoing
5. Each jurisdiction should, over time, consider modification of potential vector mosquito habitat by physical or mechanical means to reduce their viability as mosquito breeding habitat (with caution to avoid disruption of sensitive habitats.)	lead	lead	support others lead on own assets (e.g. health facilities)	lead	ongoing
6. The Regional Health Authorities should ensure that there are appropriate protocols in place to facilitate access for inspection, surveillance, monitoring and control of mosquitoes for health purposes, including private lands.	support	support	lead	support	complete in 2005
<b>E. Communications</b>					
1. The Regional Health Authorities/Province should prepare public messages on: <ul style="list-style-type: none"> <li>private land owners responsibilities general WNV information;</li> <li>surveillance results;</li> <li>treatment including personal</li> </ul>	support	support	lead (jointly with PHSA and Province)	lead (jointly with RHAs); fed support	ongoing

Task	Responsibility				Timing
	Municipal	GVRD	RHAs	Prov/Fed & Other Jurisdictions	
protection, source reduction and adaptive management.					
2. The GVRD should utilize its communication and education channels to assist the Regional Health Authorities to deliver the public messages across the Lower Mainland.	support	lead	lead	support	ongoing
3. Each jurisdiction may supplement the general regional and provincial communication messages with messaging specific to their needs including, where applicable, private land owners.	support	support	lead	support	ongoing
4. Messages concerning WNV mosquito management in surface waters should be disseminated to the public in a timely and consistent manner coordinated with those relating to catch basins.	lead	lead	lead	lead	Spring 2005
5. The REAC WNV Mosquito Work Group should continue to act as a focus for information sharing and regional policy review on catch basin management for WNV management purposes.	support	lead	lead	support	ongoing
6. Each jurisdiction should share a summary of its experiences in surface water management for WNV prevention with other jurisdictions in the REAC WNV Mosquito Work Group to ensure that we are managing from a regional perspective.	lead	lead	lead	lead	November of each year
<b>F. Data Management</b>					
1. All jurisdictions should ensure that WNV data is collected or processed so that it can be made available in a common format compatible for regional use.	lead	lead	support others lead on own assets (e.g. health facilities)	lead	ongoing
<b>G. Training &amp; Technology</b>					
1. Each jurisdiction should ensure that appropriate personnel are trained in the basics of responding to public inquiries related to the WNV response plan of their jurisdiction.	lead	lead	support others lead on own assets (e.g. health facilities)	lead	ongoing
<b>H. Research</b>					
1. Each jurisdiction should support the development of a	support	lead	lead	support	future

Task	Responsibility				Timing
	Municipal	GVRD	RHAs	Prov/Fed & Other Jurisdictions	
predictive model that will facilitate the efficient management of mosquitoes for WNV.				(BC CDC to lead provincial agencies)	

Updated and approved by the GVRD Board on 01/04/2005

## **Regional Policy for a Standardized Preparedness and Management Approach for West Nile Virus for Health Purposes: Mosquito Surveillance, Education and Larval Control in Catch Basins on Public Lands**

### **Scope**

On March 26, 2004 the GVRD Board adopted a policy setting the minimal standard for management of larval mosquitoes in surface waters for health purposes on public lands. In continuation of the effort to support the Province in its strategy, the GVRD, through a Working Group of the Regional Engineers Advisory Committee, has developed a parallel standardized approach for both the preparedness and management of larval mosquitoes in catch basins for health purposes on public lands.

The REAC WNV Mosquito Work Group, representing municipalities as well as the Vancouver Coastal and Fraser Health Authorities, the University of British Columbia Plant Operations, the Provincial government, some federal agencies and other jurisdictions, has prepared the following policy table outlining the approach, the tasks involved, the jurisdictional responsibilities and the timing required to control larval WNV-vector mosquitoes in catch basins.

This policy is based on the regional/local governments, as land owners, and other land-owning jurisdictions assuming responsibility for the management of mosquitoes on their lands. Mosquito management on private lands is the property owner's responsibility and will be managed by the Regional Health Authorities under the provision of the *Health Act*.

Owners of lands of other jurisdictions within the region have been requested to voluntarily adopt this policy. Within the context of West Nile Virus management it is imperative that every jurisdiction undertake a comprehensive pre-emptive larval control program. Flying mosquitoes know no boundaries and lands left unmanaged for them can contribute to additional regional populations in jurisdictions that are managing them.

Actions proposed in the policy will be undertaken within budget limits applied for the fiscal year. The Provincial Government should recognize the budget planning cycle of municipalities and jurisdictions for grant funding purposes.

### **Definitions:**

'Areas of environmental sensitivity' include environmentally sensitive locations (e.g. registered organic farms, watercourses, wetlands and fish-bearing waters.)

'Catch basin' means a curb and gutter inlet, or lawn structure, that receives storm water. These often have an associated sump that can support breeding populations of WNV-vector species mosquitoes. In the context of West Nile Virus management this term can be used to describe any underground engineering structure that can support mosquito populations (such as manholes, inspection chambers etc.)

‘Jurisdiction’ means chartered companies, municipalities, the GVRD, the Fraser and Vancouver Coastal Health Authorities, school districts, the Crown Provincial, the Crown Federal or their groupings of associated agencies.

‘Lead’ means to take responsibility for implementing the task described.

‘Public land’ means any lands owned by a municipality, the GVRD or any other governmental jurisdiction or chartered company or agency.

‘Support’ means to provide assistance or input to the lead jurisdiction responsible for implementing the task.

### Acronyms

CB – Catch Basin

GVRD – Greater Vancouver Regional District

REAC – Regional Engineers Advisory Committee

RHA – Regional Health Authority

WNV – West Nile Virus

Task	Responsibility				Timing
	Municipal	GVRD	RHAs	Prov/Fed/ & Other Jurisdictions	
<b>A. Sustainable Response Planning</b>					
1. Each jurisdiction should prepare a sustainable WNV response plan for their catch basins based on this policy.	lead	lead	support others  lead on own assets (e.g. health facilities)	lead	Framework plan complete by March 2005  Operational plan complete mid-May 2005
2. Each jurisdiction should regularly monitor and evaluate its catch basin response plan.	lead	lead	support others  lead on own assets (e.g. health facilities)	lead	ongoing
3. The Provincial government should be encouraged to provide ongoing financial assistance to local governments in implementing sustainable catch basin WNV response plans.	support	lead	lead	support (jurisdictions)  lead (Province to provide \$)	ongoing For 2005 April 1  Subsequent years in September
4. Each jurisdiction should estimate its annual catch basin WNV management costs (those changes over and above normal operations for accelerated maintenance or treatment) in a general framework to contribute to an annual regional roll-up.	lead	lead	support others  lead on own assets (e.g. health facilities)	lead	Complete by Nov 30 each year
<b>B. Mapping &amp; Inventory</b>					
1. All catch basins in the jurisdiction should be digitally mapped and incorporated into the jurisdiction’s WNV	lead	lead	lead	lead	January 2006- December 2007 (latest)

Task	Responsibility				Timing
	Municipal	GVRD	RHAs	Prov/Fed/ & Other Jurisdictions	
database. It is desirable for standard applicable attributes for each catch basin to be recorded.					
2. A standard catch basin vocabulary should be adopted for this purpose.	support	lead	support	support	January 2005
3. Each jurisdiction should classify their catch basins according to the risk they pose for breeding WNV-vector mosquitoes.	lead	lead	support others  lead on own assets (e.g. health facilities)	lead	January 2006
4. Each jurisdiction should compile locations of all catch basins, catch basins of interest and concern, areas of environmental sensitivity, and monitoring & surveillance results by individual jurisdictions.	lead	lead	lead	lead	January 2006
5. Catch basin WNV-vector mosquito related data should be made available to participating jurisdictions to assist in providing a larger sub-regional or regional context.	lead	lead	lead	lead	January 2007
<b>C. Surveillance</b>					
1. In sampled catch basins each jurisdiction should record attributes and the data be maintained in its WNV database.	lead	lead	support others  lead on own assets (e.g. health facilities)	lead	Spring 2006
<b>D. Integrated Management for Larval Control</b>					
1. Each jurisdiction should determine its own catch basin treatment program for managing WNV-vector mosquitoes for health purposes.	lead	lead	lead	lead	March 2005
2. If it is not feasible to clean and treat all catch basins, each jurisdiction should determine its treatment regime for its catch basins as resources allow.	lead	lead	support others  lead on own assets (e.g. health facilities)	lead	ongoing
3. Each jurisdiction should monitor and evaluate the results of catch basin treatments, if any, as resources allow.	lead	lead	support others  lead on own assets (e.g. health facilities)	lead	ongoing

Task	Responsibility				Timing
	Municipal	GVRD	RHAs	Prov/Fed/ & Other Jurisdictions	
4. The REAC WNV Mosquito Work Group should continue to investigate viable alternatives to the application of pesticide in catch basins for control of mosquitoes.	lead	lead	support others  lead on own assets (e.g. health facilities)	lead	ongoing
<b>E. Communications</b>					
1. Messages concerning WNV mosquito management in catch basins should be disseminated to the public in a timely and consistent manner coordinated with those relating to surface water.	lead	lead	lead	lead	Spring 2005
2. The REAC WNV Mosquito Work Group should continue to act as a focus for information sharing and regional policy review on catch basin management for WNV management purposes.	support	lead	lead	support	ongoing
3. Each jurisdiction should share a summary of its experiences in catch basin management for WNV prevention with other jurisdictions in the REAC WNV Mosquito Work Group to ensure that we are managing from a regional perspective.	lead	lead	lead	lead	November of each year
<b>F. Data Management</b>					
1. Any WNV mosquito data collected or processed should be made available in a common format compatible for regional use.	lead	lead	lead	lead	Common data standard by Spring 2006
<b>G. Training &amp; Technology</b>					
1. Each jurisdiction should ensure that appropriate personnel are trained in the basics of responding to public inquiries related to the WNV response plan of their jurisdiction.	lead	lead	lead	lead	Spring 2005

Updated and approved by the GVRD Board on 01/04/2005

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## **APPENDIX 2**

### **MUNICIPAL MOSQUITO CONTROL GUIDELINES**

see [http://www.citymoosejaw.com/departments/parks/horticulture/pdf/municipal\\_mosquito\\_control\\_policy\\_2001.pdf](http://www.citymoosejaw.com/departments/parks/horticulture/pdf/municipal_mosquito_control_policy_2001.pdf)