

MANITOBA HEALTH, SENIORS AND LONG-TERM CARE

WEST NILE VIRUS PROGRAM

Planning Documents for Municipalities

II. Larviciding Package

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A: INTRODUCTION TO THE LARVICIDING PACKAGE

Eligible municipalities have been approved, up to a pre-determined amount, for provincial funding that will cover 75 per cent of eligible costs associated with larviciding activities to reduce the risk of human exposure to West Nile virus (WNV). Municipalities are expected to cover the remaining 25 percent of costs.

Typically, the period from about **mid-June to mid-August** is the most effective time for controlling *Culex tarsalis* larvae. The Program Coordinator will advise eligible municipalities by way of an e-mail when to commence and discontinue WNV-related larviciding activities. **Note that the larviciding program will end at the recommendation of the WNV Scientific Advisory Committee, but it will not extend beyond August 15.**

B: APPLICATION FOR IN-SEASON INCREASE IN COST-SHARED FUNDING

This application package should only be used by municipalities that are eligible to receive targeted cost-shared funds and encounter additional funding needs during the current season. Applications are only requested in-season, as current surveillance indicators (i.e. *Culex tarsalis* counts, trends, infection rates) and weather data will be used to guide any decision.

Each section of the application must be completed in order to be considered for cost-shared funding. This includes the **Application Form** (this page), **Detailed Rationale for Request** and **Estimated Total Larviciding Budget**.

Municipalities can consult the Program Coordinator as necessary to complete this application. Program Coordinator contact information can be found in the *Planning Documents for Municipalities Part I (WNV Program Information)*. Municipalities can email the completed application to Trevor.Carnelley@gov.mb.ca. In addition, the original application form, your detailed rationale, budget, and any other supporting documentation should be mailed directly to:

Manitoba Health, Seniors and Long-Term Care – WNV Program
4063 - 300 Carlton Street
Winnipeg, MB
R3B 3M9

NAME OF MUNICIPALITY: _____

CAO: _____

PHONE: _____

ADDRESS: _____

LEAD CONTACT PERSON (if different from above):

NAME: _____

PHONE: _____

AFTER HOURS CONTACT: _____

EMAIL: _____

FAX: _____

ESTIMATED (ADDITIONAL) TOTAL LARVICIDING BUDGET

(Based on X number of additional rounds, once every 7 to 10 days)

Estimated Budget

Personnel Cost Identify service provider and average cost per hour. If a blanket hourly rate is listed, please break it down and identify what the hourly wage includes (e.g. \$20/hr labour including benefits, \$30/hr equipment rental, \$5/hr gas, etc.)	
Insecticide Cost Identify type of insecticide and amount being purchased (note application rate for Bti is approximately 5 – 10 kg/ha (4.5 – 9 lbs/acre). <u>Costs should be per kilogram or per bag.</u>	
Purchase/ Rental of Equipment Identify type of equipment being purchased/ rented and associated (hourly/daily) costs.	
Other costs (<i>refer to Appendix D – Larviciding Package</i>). Identify other costs related to larviciding activities, such as gas (if not claimed as part of personnel cost), licenses, permits, supplies related to sampling and larviciding activities.	
Sub-Total	
Administration Costs (up to 15% of the total estimated budget)	
Total	
25% Municipal Share	
75% Provincial Share	

You will be advised if your application is approved by way of an acceptance letter. You can also contact the Program Coordinator who can advise you if your application is approved. If you have any questions regarding the status of your application, contact the Program Coordinator.

Date Submitted: _____

Prepared by (include title): _____

Signature of Preparer: _____

Name of Authorized Officer: _____

Signature of Authorized Officer: _____

FOR MANITOBA HEALTH, SENIORS AND LONG-TERM CARE USE

Date Received: _____

Date Reviewed: _____

Decision: _____

Comments: _____

C: COST-SHARED FUNDING CHECKLIST

- Read the *West Nile Virus Program: Planning Documents for Municipalities (all three packages – WNV Program Information, Larviciding and Adult Mosquito Control)*.
- Identify a WNV lead contact person(s), as well as a back-up contact and provide contact details to the Program Coordinator.
- Advise the Program Coordinator of your intent to larvicide in the current season via email by **the first Monday in June**.
- Discuss any (in-season) request for increased funding with the Program Coordinator.
- Receive authorization to enter private property to inspect for mosquito larvae and larvicide (if necessary).
- Review required laws related to pesticide use and ensure required permits and licenses are in place.
- Read the Larval Sampling and Larviciding Guideline section (page 8) and review the template for tracking these activities. If you have any sampling/ treatment questions, please consult the Program Coordinator.

D: LARVAL SAMPLING AND LARVICIDING GUIDELINES

***Culex tarsalis* Larval Habitat**

Culex tarsalis has a wide range of habitats that includes grassland and open woodland areas, usually with warmer water areas exposed to the sun. In the spring, small numbers of *Culex tarsalis* larvae can usually be found in shallow, semi-permanent ponds, irrigated areas and weedy roadside ditches. However, as populations build during the summer, larvae may also be found in temporary water bodies, including artificial containers, water-filled hoof prints near livestock watering sites, bird baths, used tires and foul water in corrals and around feedlots.

Monitoring for Mosquito Larvae

Testing or monitoring for the presence of mosquito larvae in standing water is a critical first step in any mosquito control program. Biological larvicides such as VectoBac® or Aquabac® will not work unless mosquito larvae at a certain stage of development are present. Testing for mosquito larvae is usually done with a dipper which has a handle about 3' long with a cup or dipper attached to the end. Commercially made dippers are available, but one can be made by using a 3' long dowel with a plastic container (500 g yogurt containers work well) attached to the end.

Performing a Dip

When searching for mosquito larvae it is important to avoid disturbing any larvae that may be on the water surface. If disturbed, mosquito larvae will quickly swim to the bottom of the water body or hide under vegetation or other debris.

- When approaching a water body, move slowly and carefully. Vibrations from footsteps, disturbing the vegetation or casting a shadow over the water can be enough to cause larvae to dive to the bottom;
- *Culex tarsalis* larvae are typically found on the surface of the water and usually next to vegetation or surface debris. In larger bodies of water, they are found along the edge, in shallower water with vegetation such as grasses and sedge plants present. *Culex tarsalis* larvae, like most mosquito larvae, are not typically found in the more open deeper water areas where there is excessive wind and wave action;
- Dipping should be concentrated in areas where there is vegetation or floating debris;
- If there is a strong wind, dipping should be done on the downwind side of the water body where the larvae and pupae may be concentrated; and
- Dipping for mosquito larvae is not effective if it is raining.

Dipping Techniques¹

1. Complete Submersion and Simple Scoop Method

- A “dip” is made by quickly scooping a dipperful of water. Mosquito larvae such as *Culex tarsalis* are frightened easily and will try to avoid the dipper if the dip is taken too slowly; therefore it is important that a dip be done quickly.

¹ C. O'Malley, *Wingbeats*, Winter 1995, p.24

- Quickly plunge the dipper below the surface of the water, and then bring back a “scoop-full” of water; avoid over-filling as the larvae may be lost in the overflow.
- This is the most common way of performing a dip.

2. *Partial Submersion and Flow-In Method*

- This method is used when you need to test for larvae at the edges of vegetation in shallow water.
- Push the dipper, tilted at approximately 45°, straight down into the mud and beside clumps of grasses or sedges. This causes the water around the vegetation to flow into the dipper, carrying the larvae with the flow. There is no need to move the dipper. Ensure to pull the dipper up before it is full.

3. *Scraping Method*

- Used to collect larvae that are hiding under floating or other vegetation, such as cattails.
- Dip from the water towards the vegetation and then use the dipper to scrape up against the base or underside of the vegetation to dislodge the larvae.
- This method can be more effective if the bottom of the dipper is screened.

Treating Larvae

Once mosquito larvae are detected in a water body, it can be treated with the biological control agent, *Bacillus thuringiensis israelensis* (*Bti*), sold as VectoBac® or Aquabac®². These products come in either a liquid or granular form. The liquid can be applied with conventional spray equipment and is suitable for open water bodies, such as roadside ditches in the spring. However, when there is thick vegetation present by late spring or summer, the granular form is preferred as it penetrates through the vegetation to the water surface. *Bti* granules can be applied by hand using a pail and a scoop or by small hand-held grass seed or fertilizer spreaders if the water body is small. If a water body is too large to be treated by hand, then a backpack blower can be used.

- *Bti* is most effective when the larvae are in the 2nd and 3rd instar (mosquito larvae moult through 1st to 4th instars before pupating) of their development. **It does not work on pupae.**
- Apply at rates recommended on the label. The application rate for all methods averages 5 – 10 kg/ha (approx. 4.5 – 9 lbs/ac.) or 0.5 to 1g/m², but can be up to 20 kg/ha (18 lbs/ac) for Aquabac. In the case of Aquabac, higher rates may be needed to achieve effective control in more polluted or colder water.
 - Note: There is a tendency by some operators to over-apply the granular product. It is a good idea to treat a number of large test strips (i.e. a section of roadside ditch) and then measure out how much product was used. The output can then be adjusted up or down to obtain the desired rate. A test strip that is eight feet wide by one mile long = one acre.
- Use in temporary pools in pastures and woodlots, irrigation or roadside ditches, natural marshes, catch basins and sewage lagoons.
- Use higher rates in deep, very cold water, and/or polluted water, and when late 3rd or 4th instar larvae predominate.

² Other products are registered in Manitoba for specialized uses, including *Bacillus sphaericus* (VectoLex®) for control of larvae in tires, catch basins or polluted water.

When to Treat

The following table gives an estimate of larval density and can be used as a guide for treating or not treating a water body³. The counts are based on 10 evenly spaced dips taken around the perimeter and close to the vegetation edge of the water body. At each “dip”, the mosquito larvae are counted and the total number collected in all 10 dips is used to determine larval density.

Density	Low	Medium	High
No. larvae in 10 dips	1 – 4	5 – 60	>60
Treatment required	No *	Yes	Yes

**Treating a site with low numbers depends on size. If small, then treat it. If the water body is large, then treatment is not cost-effective.*

Larval sampling of sites should be completed each week. **Typically, larval treatment at any given site using *Bti* will need to be undertaken on average every 7 to 10 days.**

³ Based on guidelines from the City of Winnipeg, Insect Control Branch

F: CHECKLIST FOR LARVICIDING

- ❑ Sample (i.e. “dip” for larvae) and confirm the presence of larvae prior to applying larvicide as well as after (i.e. 24 to 48 hours) applying larvicide to evaluate the effectiveness of the larvicide.
- ❑ Place a Public Larviciding Notice (See Appendix C for a sample notice) and/ or signs to inform the public as to where larviciding is being conducted.
- ❑ Keep an ongoing log of larval sampling and larviciding activities (see the ‘*Larval Sampling and Treatment Log*’ on page 11) and submit to MHSLTC along with the reconciliation documents by **the first Friday in October**.
- ❑ **Note:** *Larval Sampling and Treatment Logs* should be completed in all situations, not solely when product is applied. Data should be recorded when no larvae are found, when larvae are found but treatment is not required and even when visited sites are dry. In addition, larviciding logs should also be completed when evaluating the effectiveness of a prior treatment (i.e. 24 to 48 hours after). This data is important for both assessing program efficacy at the end of the season and as part of Environment and Climate Change’s evaluation of pesticide usage. **Claims will not be reimbursed without accompanying completed larval sampling and treatment logs.**

G: END OF SEASON RECONCILIATION FORM

	Approved Budget	Actual Costs																				
Larval Sampling and Treatment Log included?	<input type="checkbox"/> Yes	<input type="checkbox"/> No																				
<p style="text-align: center;"><u>Personnel Cost</u></p> <p>Identify service provider and average cost per hour. If a blanket hourly rate is listed please break it down and identify what the hourly wage includes (e.g. \$20/hr labour, \$30/hr equipment rental, \$5/hr gas, etc.)</p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 30%;"></th> <th style="width: 20%; text-align: center;">Title/Name</th> <th style="width: 15%; text-align: center;">No. of Hours</th> <th style="width: 10%; text-align: center;">X</th> <th style="width: 25%; text-align: center;">Rate/ Hr.</th> </tr> </thead> <tbody> <tr> <td>a)</td> <td>_____</td> <td>_____</td> <td></td> <td>_____</td> </tr> <tr> <td>b)</td> <td>_____</td> <td>_____</td> <td></td> <td>_____</td> </tr> <tr> <td>c)</td> <td>_____</td> <td>_____</td> <td></td> <td>_____</td> </tr> </tbody> </table>		Title/Name	No. of Hours	X	Rate/ Hr.	a)	_____	_____		_____	b)	_____	_____		_____	c)	_____	_____		_____		
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a)	_____	_____		_____																		
b)	_____	_____		_____																		
c)	_____	_____		_____																		
Supporting personnel documents included?	<input type="checkbox"/> Yes	<input type="checkbox"/> No																				
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b)	_____	_____	_____	_____																		
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Supporting equipment rental/ purchase invoice(s) included?	<input type="checkbox"/> Yes	<input type="checkbox"/> No																				
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b)	_____																					
c)	_____																					
Supporting invoice(s) & documents for 'other costs' included?	<input type="checkbox"/> Yes	<input type="checkbox"/> No																				
Administration costs (up to 15% of all costs listed above)																						
Approved Subtotal																						
25% Municipal Share																						
75% Provincial Share																						

EXAMPLE OF A COMPLETED END OF SEASON RECONCILIATION FORM

	Approved Budget	Actual Costs												
Larval Sampling and Treatment Log included?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No												
<p style="text-align: center;"><u>Personnel Cost</u></p> <p>Identify service provider and average cost per hour. If a blanket hourly rate is listed please break it down and identify what the hourly wage includes (e.g. \$20/hr labour, \$30/hr equipment rental, \$5/hr gas, etc.)</p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;">Title/Name</th> <th style="text-align: left;">No. of Hours</th> <th style="text-align: center;">X</th> <th style="text-align: left;">Rate/ Hr.</th> <th></th> </tr> </thead> <tbody> <tr> <td>John Smith</td> <td>50 hours</td> <td></td> <td>\$25.45</td> <td style="text-align: right;">\$1,272.50</td> </tr> </tbody> </table>	Title/Name	No. of Hours	X	Rate/ Hr.		John Smith	50 hours		\$25.45	\$1,272.50				
Title/Name	No. of Hours	X	Rate/ Hr.											
John Smith	50 hours		\$25.45	\$1,272.50										
Supporting personnel documents included?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No												
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<p style="text-align: center;"><u>Purchase/ Rental of Equipment</u></p> <p>Identify type of equipment being purchased/ rented and associated (hourly/ daily) costs. Mileage is not an eligible expense if the vehicle used is a rental.</p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;">Item</th> <th style="text-align: left;">Cost</th> <th></th> </tr> </thead> <tbody> <tr> <td>Truck Rental</td> <td>30 days x \$50.00/day</td> <td style="text-align: right;">\$1,500.00</td> </tr> <tr> <td>ATV</td> <td>30 days x \$30.00/day</td> <td style="text-align: right;">\$900.00</td> </tr> <tr> <td>Back pack Sprayer</td> <td>\$500.00</td> <td style="text-align: right;">\$500.00</td> </tr> </tbody> </table>	Item	Cost		Truck Rental	30 days x \$50.00/day	\$1,500.00	ATV	30 days x \$30.00/day	\$900.00	Back pack Sprayer	\$500.00	\$500.00		
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Advertising	\$500.00													
Permits	\$250.00													
Supporting invoice(s) & documents for 'other costs' included?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No												
Administration costs (up to 15% of all costs listed above)	15% of \$6065	\$909.75												
Total	\$10,000.00	\$6,974.75												
25% Municipal Share	\$2,500.00	\$1,743.69												
75% Provincial Share	\$7,500.00	\$5,231.06												

H: COST-SHARED FUNDING RECONCILIATION CHECKLIST

- All fields of reconciliation form are complete, including budgeted and actual amounts, and cost breakdowns are provided (i.e. labour, equipment rental, insecticide etc.).
- Larval Sampling and Treatment Logs* are complete and submitted along with reconciliation form. **CLAIMS WILL NOT BE REIMBURSED WITHOUT ACCOMPANYING COMPLETED LARVAL SAMPLING AND TREATMENT LOGS.**
- Submit along with the reconciliation form copies of **all** supporting documentation such as but not limited to, contracts for third party services, receipts, invoices, pay roll records, freight charges, fuel receipts, miscellaneous expenses (i.e. other costs), etc. that are claimable for the larviciding period to ensure prompt payment for eligible expenses. **CLAIMS WILL NOT BE REIMBURSED IN FULL WITHOUT ALL SUPPORTING DOCUMENTS.**
- Copies of all expense records related to the cost-shared larviciding program are kept on file. After the end of the season, municipalities may be subject to a random auditing process conducted by Manitoba Health, Seniors and Long-Term Care (MHS LTC).

APPENDIX A: FREQUENTLY ASKED QUESTIONS

What does a larviciding program involve?

A larviciding program involves the development and usage of maps detailing standing water to identify suitable sites for *Culex tarsalis* to lay their eggs. Municipalities are expected to sample (i.e. dip) the sites of standing water to confirm the presence of larvae before treating those sites and evaluate effectiveness by sampling after larviciding applications. For more information, please refer to the Larval Sampling and Larviciding Guideline Section of this package (page 8).

How does a municipality know whether to undertake larviciding?

As of the 2018/19 season only communities situated within a high or moderate risk zone, **and** with a large enough treatment area will be eligible to apply to participate in the WNV targeted cost-shared larviciding program. The decision ensured that funding was allocated both fairly and where it could be most effective at minimizing WNV risk.

Do I need to submit larval sampling and larviciding data to MHSBTC?

Yes. All larval sampling and larviciding must be logged and submitted to MHSBTC at the end of the season, along with reconciliation packages, to ensure prompt payment of the provincial share of the pre-approved amount. The logs support municipal reconciliation claims, fulfill provincial pesticide permit requirements (as outlined by Manitoba Environment and Climate Change) and provide data to MHSBTC for the purposes of broad program analysis.

Claims will not be reimbursed without accompanying completed larval sampling and treatment logs.

How do I use the Larviciding log?

A template of a *Larval Sampling and Treatment Log* is available on page 11 of this package. The Program Coordinator can help you complete the logs as required by MHSBTC.

Why do I have to indicate my intent to larvicide or apply for larviciding cost-shared funding now?

Eligible municipalities are encouraged to indicate their intent to larvicide or apply for cost-shared funding prior to the WNV season so that they are prepared to respond as soon as *Culex tarsalis* larvae are identified in southern Manitoba.

Can northern communities apply for cost-shared funding?

Shorter summers and habitats that are less conducive to *Culex tarsalis* development make the risk of WNV in the north extremely low, if present at all. It is therefore not considered necessary for communities within the Northern Health Region to undertake larviciding for WNV risk reduction.

Who can perform WNV-related larviciding within our municipality?

Personnel who are certified and licensed to apply pesticides can perform WNV-related larviciding in your municipality. This may be municipal staff, weed control personnel or a third-party service provider. Pesticide Certification and Licensing is a two-part process: Certification is through Assiniboine Community College (ACC), and Licensing is through Manitoba Agriculture. Manitoba Agriculture requires re-certification every five years and licenses must be renewed annually. Information on licensing can be obtained on their website at: <http://www.gov.mb.ca/agriculture/permits-and-licences/pesticide-and-manure/index.html> or by contacting Jacquie Cherewayko by phone 204 324-2804 or email jacquie.cherewayko@gov.mb.ca. For information on certification please consult ACC's 'Pesticide Certification Program website' at <https://assiniboine.net/programs/pesticide-certification>

All Pesticide Applicator/ Dispenser Certification candidates must pass a Pesticide Core certification exam and a category certification exam (customized specifically for mosquito control). For more information on the certification process, please contact the Assiniboine Community College, Coordinator Agriculture Extension by phone at 1-800-862-6307 ext. 6392 (toll free) or 1-204-725-8700 ext. 6392 or email pesticide@assiniboine.net.

NOTE: Allow for 6 to 8 weeks between completion of examinations and obtaining applicator licensing. Certification, obtained via successful completion of ACC's Pesticide Core and Pesticide Mosquito exams, takes approximately 3 weeks. Subsequent licensing from Manitoba Agriculture requires an additional 3 to 5 weeks. New or recertifying personnel should complete their certification exams by the end of April to ensure licensing is obtained by mid to late June.

NOTE: In addition to certification and licensing, communities wishing to participate within the program also require the appropriate pesticide application permits. For more information please contact Donna Garcia, Pesticide and Agriculture Program Specialist, Environmental Approvals Branch with Manitoba Environment and Climate Change at 204-945-7065 or donna.garcia@gov.mb.ca.

What costs are eligible for Provincial Cost-Shared Larviciding?

All cost-shared funding must be reviewed and approved by MHS LTC. Any questions regarding the eligibility of expenses should be directed to the Program Coordinator prior to purchase, to ensure approval and hence coverage as per the cost-share program. The following WNV related larviciding activities are eligible for cost-shared funding (unless stated otherwise receipts and/ or invoices are required for all eligible costs):

- Employee wages for time spent larviciding, including larval sampling prior to and after applications, between the WNV larviciding start and end dates (as defined and communicated to participants by MHS LTC);
- Costs associated with staff training, directly related to the cost-shared program, incurred prior to the program period. Please note that these costs must be included as part of your approved budget and that no additional funds will be made available for staff training outside of the program period. Training should be aimed at improving safety and efficiency. For additional information please consult the Program Coordinator;
- Cost of insecticides that have been used during the season;
 - MHS LTC will only pay for insecticides that have been used during the current season. Any purchased but unused product, if applied in subsequent season(s)

will still be eligible for reimbursement. **Note that on average product efficacy of Bti based insecticides begins to decline within 24 months of date of manufacture;**

- Rental of truck(s) or ATV(s) during the WNV larviciding season;
- Purchase of equipment such as backpack sprayers or handheld granular shakers;
- Fuel for vehicle(s) used during larviciding rounds (receipts are required for reimbursement). **If fuel is purchased as part of a monthly contract it is the responsibility of the cost-shared community to clearly identify fuel costs related to WNV cost-shared activities);**
- Costs incurred by a municipality to contract an independent third party to carry out larval sampling & larviciding operations (**any applicable administration fees must be included within the third-party contract**);
 - **Note that it is the responsibility of the contracting jurisdiction (i.e. city, town, village or municipality) to ensure that all appropriate invoices, records, documents and larval sampling & treatment logs are collected and submitted by the third party service provider. MHSBTC staff will not contact the contracting party to obtain any additional information required;**
- Pesticide permits, certification examinations, licensing, and insurance costs that are purchased specifically for the purpose of WNV-related mosquito control;
- Costs associated with mapping of mosquito larval development sites in the community to facilitate targeted larviciding operations; and
- Administration costs (**to a maximum of 15 per cent of total costs incurred**) – keeping in mind that cost-shared funding is expected to be revenue neutral.

What costs are NOT eligible for Provincial Cost-Shared Funded Larviciding?

The following are not eligible for cost-shared funding reimbursement:

- Insurance and liability coverage purchased/ required for other purposes;
- Pesticide permit and/or licensing costs that are purchased/required for other purposes;
- Rewrite costs associated with pesticide certification exam(s);
- The **purchase** of an ATV or any other vehicle;
- Maintenance for vehicles (i.e.: Trucks or ATVs) rented for WNV-related activities (it is expected that the rental fee will cover any maintenance);
- Mileage for vehicles for which a rental fee is already charged to MHSBTC (it is expected that the rental fee will cover any incurred mileage);
- Mileage for the use of personal vehicles;
- Cell phones and expenses related to same; i.e. phone cards;
- Any equipment or insecticide cost that was claimed in previous years or purchased from another municipality under the cost-shared program;
- Meals and accommodation expenses;
- Any larviciding costs incurred outside of the specified WNV larviciding start and end dates as defined by MHSBTC with the exception of costs associated with staff training, directly related to the cost-shared program, incurred prior to the program period. Please note that these costs must be included as part of your approved budget and that no additional funds will be made available for staff training outside of the program period. Training should be aimed at improving safety and efficiency. For additional information please consult the Program Coordinator; and
- **GST** (MHSBTC is GST exempt – please ensure to exclude this from any invoices).

What is Bti? How is it stored, and what is its shelf life?

Bacillus thuringiensis israelensis (*Bti*) sold commercially as Aquabac® and VectoBac® is a biological larvicide used to kill mosquitoes in the larval stage of their life-cycle. The active ingredients in *Bti* occur naturally in the environment and have minimal adverse effects to mammals, fish or other wildlife. *Bti* is applied either in granular or liquid form to standing water sites where larvae are present. *Bti* should be reapplied every 7 to 10 days, depending on the post larval sampling results. It should be stored in containers in a cool, dry place at temperatures between 0° to 25°C. *Bti* should be used within **24 months** of date of manufacture, as its effectiveness diminishes after this time period. Information on application rates is available from the supplier or on product labels.

Can municipalities use liquid Bti instead of granular Bti?

Liquid *Bti* works in the spring before much vegetation is growing in the water, but as cattails and grasses grow, liquid *Bti* gets “hung-up” in the vegetation. Granular products can be used throughout the season since they descend through the vegetation, reaching the water’s surface, which is required for activation of *Bti*.

Can municipalities use B.Sph. (Vectolex®), as well as Bti products such as Aquabac® or VectoBac®?

Bacillus sphaericus (Vectolex®) is another biological control product that is registered for use in Canada. It is intended for use in a variety of specific settings, some of which are not typical *Culex tarsalis* habitats. Therefore, the use of Vectolex® may not be approved under the cost-shared funding program except in situations where it is clearly targeting *Culex tarsalis* habitats (for further information, contact the Program Coordinator).

Where can I purchase larvicide products?

The Association of Manitoba Municipalities (AMM) Group Buying Program allows AMM members to purchase products and services at low prices through bulk buying. Additional information on this offer is available on the AMM website at: <http://www.amm.mb.ca/tradingcompany/>. Other pesticide suppliers in Manitoba may also carry *Bti* products.

Note: Jurisdictions using third party contractors are strongly encouraged to work in partnership with these contracted parties to purchase pesticides at the lowest rates possible. Reducing supply expenditures will allow for more resources to be devoted to larval surveillance and treatment during the season, thereby improving overall program efficacy.

Can municipalities larvicide on private property?

Ideally, a comprehensive mosquito control program would include access to private property for surveillance and response purposes. Focusing only on public properties may leave potentially large areas of untreated standing water and larval habitats. Municipalities may gain access to private property by receiving permission from the property owner. Alternatively, municipalities may develop a mosquito control by-law, which would include authorization for designated staff

to access private property for inspection purposes. In particular, communities may want to consider access to properties that are known to have standing water and potential larval habitats, (e.g. tire disposal collection and recycling sites).

What about costs incurred before the plan is approved?

Costs incurred outside the approved program period will not be eligible for reimbursement, with the exception of costs associated with staff training, directly related to the cost-shared program, incurred prior to the program period.

What if the costs incurred by the municipality during the larviciding season are more than the approved amount?

Costs exceeding the amount initially approved will not be supported by the provincial program. If during the season it becomes evident to the eligible municipality that the cost of larviciding may exceed the amount initially approved, the municipality must submit a supplementary application outlining the need for additional cost-shared funding. The supplementary application, along with current surveillance indicators (i.e. *Culex tarsalis* numbers, trends and infection rates) and weather data will be reviewed by the WNV program staff and the municipality will be informed of the decision. **It is important to note that requests for additional cost-share funding may not be approved.** The Program Coordinator should be contacted as soon as possible and advised of the situation.

Note: Jurisdictions using third party contractors are responsible to ensure that contracted parties do not exceed pre-approved amounts during the program period. Should the third party require additional funding during the program period it is the responsibility of the contracting jurisdiction to submit a supplementary application for increased cost-shared funding to the Program Coordinator. Any funds exceeding the approved amount which are not approved by MHSBTC will not be eligible for reimbursement.

When will the provincial share of the costs be paid?

The WNV End of Season Reconciliation form is to be completed and submitted to MHSBTC **no later than the first Friday in October** to receive reimbursement of 75 per cent of the actual total costs incurred. Please include all supporting documentation and completed larval sampling and larval treatment logs. Claims are reviewed by MHSBTC staff and processed as soon as possible thereafter. Cost-share larviciding participants will be contacted directly by the Program Coordinator if there are questions or additional documentation is required.

What supporting documents will be required by the Province for the costs to be paid?

Copies of the following documents (as applicable) will be required for reimbursement of 75% of all eligible and approved cost-shared funds:

- Invoices for insecticide **used** during the season;
- Invoices for fuel used for WNV cost-shared larviciding program;

- **Note that monthly fuel invoices will be accepted so long as it is clearly indicated which bills correspond to the WNV cost-shared larviciding program;**
 - Invoices for any vehicle or equipment rental (i.e. ATV or backpack sprayer);
 - Invoices for the purchase of eligible equipment (i.e. backpack sprayers, dippers, etc.);
 - Invoices and/ or copies of pesticide applicator licenses and pesticide use permits;
 - Invoices for any advertising claims. This only includes advertisements that notify the public about the proposed use of pesticides as part of the WNV cost-shared larviciding program;
 - Detailed payroll records for employees who worked for the WNV cost-shared larviciding program;
 - Invoices for any mapping to identify potential mosquito larval development sites within the community to better target larviciding efforts; and
 - Include any additional invoices for eligible expenses

All completed *Larval Sampling and Treatment Logs* must also be submitted along with the above invoices, to MHSBTC **no later than the first Friday in October.**

Cost-share larviciding participants will be contacted directly by the Program Coordinator if there are questions or additional documentation is required.

Note: Municipalities are required to submit an End of Season Reconciliation form even if no costs are incurred, for MHSBTC records.

After the end of the season, municipalities may be subject to a random auditing process conducted by MHSBTC.

When a third-party service provider (i.e. non-municipal staff) is hired who is responsible for submitting documents as part of the reconciliation claim?

It is the responsibility of the contracting jurisdiction (i.e. municipality, city, town or village) to ensure that all appropriate invoices, records, documents and larval sampling & treatment logs are collected and submitted by the third party service provider. The contracting jurisdiction will then ensure that all appropriate invoices, records and documents have been received and forward these along with the reconciliation form to MHSBTC for review.

Note: Upon review of the reconciliation claim, if additional documents are required or questions arise MHSBTC will only contact the contracting jurisdiction, who in turn will be responsible to contact the third-party provider.

APPENDIX B: FREQUENTLY ASKED QUESTIONS – Communities no longer eligible for cost-shared larviciding funding

Will there be changes to the WNV targeted cost-shared larviciding program for the current season?

No. The previously approved funding model and criteria are in effect this season.

Will MHSBTC consider requests for reinstating funding and/ or increasing proposed funding levels for communities?

MHSBTC will not consider reinstating funding for communities no longer eligible based on the revised funding model.

Will MHSBTC do anything else to protect the health of residents or visitors through control of mosquitoes that carry WNV?

MHSBTC continues to maintain an extensive adult mosquito surveillance network throughout southern Manitoba. Data collected from this network allows MHSBTC to assess the level of WNV activity on a weekly basis during the season. If surveillance detects increased WNV activity, MHSBTC has the ability to issue a Health Order and conduct adult mosquito control in the affected sentinel community. The aim of any Health Order is to lower *Culex tarsalis* populations and thus lower the risk of WNV transmission in the community of interest.

How can communities stay up to date regarding WNV activity and risk during the season?

MHSBTC continues to maintain an extensive adult mosquito surveillance network throughout southern Manitoba. Data collected from this network, along with other variables, allows MHSBTC to assess the level of WNV activity on a weekly basis during the season. MHSBTC will continue to communicate this risk publicly on the WNV website (www.gov.mb.ca/health/wnv), through social media, and media releases as required.

What can communities who are no longer eligible for cost-shared funding do to minimize the risk of WNV transmission?

Communities are encouraged to stay up to date with MHSBTC's WNV Activity Reports and relay risk messaging to their residents based on the surveillance data presented. In addition, communities can develop messaging encouraging their residents to adopt personal protection measures and source reduction. The Integrated Pest Management Guide provides more information and tools that can be adopted either at the individual or community level to lower mosquito populations and general WNV transmission risk.

This guide is available on the WNV website (www.gov.mb.ca/health/wnv) under the 'Information for Municipalities' section.

What can residents or visitors do to protect themselves against WNV?

Prevention is the first line of defence against WNV. Common personal protection measures include:

- Applying an appropriate insect repellent when outdoors as per label instructions.
- Wearing light coloured, loose-fitting clothing with long sleeves and pant legs while outdoors.
- Reducing the time spent outdoors between dusk and dawn when *Culex tarsalis* is most active.
- Ensuring doors and screens fit tightly and are free of holes, to restrict mosquito entry into dwellings.

In addition, individuals can also create less suitable habitats for mosquitoes and thereby lower their risk by:

- Cleaning and emptying water holding containers, such as bird baths, wading pools, children's toys, eavestroughs, tarp covers and plant trays on a regular basis.
- Ensuring that rain barrels are covered with a fine screen mesh, and that downspouts are tightly sealed to prevent leaking.
- Clearing your yard of any other debris (i.e. old tires, flower pots, buckets, etc.) that collects water that could create larval development sites.
- Keeping grass mowed and vegetation trimmed around high use areas (i.e. doorways, patios, etc.) to limit resting spots for adult mosquitoes.

APPENDIX C: SAMPLE LARVICIDING BUDGET

20## Estimated Total Larviciding Budget (based on an average of five rounds)

	Estimated Budget
<p><u>Personnel Cost</u> (Identify service provider and average cost per hour. If a blanket hourly rate is listed please break it down and identify what the hourly wage includes (e.g. \$20/hr labour, \$30/hr equipment rental, \$5/hr gas, etc.))</p> <p>1 staff: 96 hours @\$25.45 Assistant: 150 hours @ \$15.30</p>	<p>\$2,443.20 \$2,295.00</p>
<p><u>Insecticide Cost</u> (Identify type of insecticide and amount being purchased.)</p> <p>VectoBac 200G (905 kg @ \$6.65/kg)</p>	<p>\$6,018.25</p>
<p><u>Purchase/ Rental of Equipment</u> (Identify type of equipment being purchased/rented and associated costs.)</p> <p>We have a motorized backpack that was purchased last year and we will use our own truck and ATV – no rentals required.</p>	
<p><u>Other costs</u> (Identify other costs related to larviciding activities, such as gas, etc.)</p> <p>Miscellaneous supplies – gas, protective gear, signs Administration: 15%</p>	<p>\$1,050.00 \$1,770.97</p>
Total	\$13,577.42
25% Municipal Share	\$ 3,394.36
75% Provincial Share	\$10,183.06

APPENDIX D: SAMPLE PUBLIC NOTICE (LARVICIDING)

The following is a sample format, which may be used to provide notice to the community/ municipality regarding the intention to conduct West Nile virus (WNV)-related larviciding:

Important Mosquito Larviciding Control Public Notice

Notice is hereby given that _____ (municipality name) intends to conduct West Nile virus related larviciding in (insert year).

1. Control of mosquito larvae in stagnant water will involve the identification of standing water bodies within the boundaries of (community/ municipality name) and the surrounding area up to 3 km outside the municipality's boundaries.
2. Where mosquito larvae are identified one or more of the following products will be applied: Aquabac® and VectoBac® (*Bacillus thuringiensis* var. *israelensis* – Bti).

The projected dates of application will be from (insert start date) to August 15, (insert year) (unless otherwise indicated). The duration of the program may vary, depending upon weather conditions and insect population levels.

All pesticides used and procedures applied will be in accordance with federally approved label recommendations from the Pest Management Regulatory Agency, Health Canada and the recommendations set by Manitoba Environment and Climate Change.

If you have any questions regarding this mosquito larviciding program please contact the municipal office at _____ (location of municipal office and phone number) or by email at _____ (email address)_____.

Notice Issued By: _____
(CAO Name)

Municipality Name: _____

Date: _____

APPENDIX E: ELIGIBLE AND NON-ELIGIBLE EXPENSES

Eligible Costs:

- Employee wages for time spent larviciding, including larval sampling prior to and after application, between the WNV larviciding start and end dates (as defined by MHSBTC);
- Costs associated with staff training, directly related to the cost-shared program, incurred prior to the program period. Please note that these costs must be included as part of your approved budget and that no additional funds will be made available for staff training outside of the program period. Training should be aimed at improving safety and efficiency. For additional information please consult the Program Coordinator;
- Cost of insecticides that have been used during the season;
 - MHSBTC will only pay for insecticides that have been used during the current season. Any purchased but unused product, if applied in subsequent season(s) will still be eligible for reimbursement. Note that on average, product efficacy of *Bti*-based insecticides begins to decline within 24 months of date of manufacture;
- Rental of truck(s) or ATV(s) during the WNV larviciding season;
- Purchase of equipment such as backpack sprayers or handheld granular shakers;
- Fuel for vehicle(s) used during larviciding rounds (receipts are required for reimbursement. **If fuel is purchased as part of a monthly contract it is the responsibility of the cost-shared community to clearly identify fuel costs related to WNV cost-shared activities**);
- Costs incurred by a municipality to contract an independent third party to carry out larval sampling & larviciding operations (**any applicable administration fees must be included within the third-party contract**);
 - **Contracting jurisdictions (i.e. city, town, village or municipality) are responsible to ensure that all appropriate invoices, records, documents and larval sampling & treatment logs are collected and submitted by the third party service provider. MHSBTC staff will not contact the contracting party to obtain any additional information required.**
- Pesticide permits, licensing, and insurance costs that are purchased specifically for the purpose of WNV-related mosquito control;

- Advertising costs associated with notifying the public as to the proposed application of pesticides as part of the WNV cost-shared targeted larviciding program;
- Costs associated with mapping of mosquito larval development sites in the community to facilitate targeted larviciding operations; and
- Administration costs (**to a maximum of 15 per cent of total costs incurred**) – keeping in mind that cost-shared funding is expected to be revenue neutral.

Non-Eligible Costs:

- Any larviciding costs incurred outside of the specified WNV larviciding start and end dates as defined by MHSLTC;
- Purchases of snacks or meals;
- Accommodations;
- Expenses related to staff meetings etc.;
- **GST** (MHSLTC is GST exempt - please ensure to exclude this from any invoices);
- Insurance and liability coverage purchased/ required for other purposes;
- Pesticide permit and /or licensing costs that are purchased/ required for other purposes;
- Rewrite cost associated with pesticide certification exam(s);
- The **purchase** of an ATV or any other vehicle;
- Maintenance for vehicles (i.e. Trucks or ATVs) rented for WNV-related activities (it is expected that the rental fee will cover any maintenance);
- Mileage for vehicles for which a rental fee is already charged to MHSLTC (it is expected that the rental fee will cover any incurred mileage);
- Mileage for the use of personal vehicles;
- Cell phones and expenses related to same (i.e. phone cards);
- Any equipment or insecticide cost that was claimed in previous years or purchased from another municipality under the cost-shared program.

Note: Supporting documentation (e.g. invoices, receipts and larval sampling & treatment logs) is required for all eligible expenses claimed as part of the season end reconciliation. Cost-shared participants will only be reimbursed for eligible expenses for which supporting documentation has been provided. Contact the Program Coordinator for clarification or assistance in determining eligible expenses covered under the cost-shared agreement prior to any purchase.