

# TORONTO STAFF REPORT

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June 16, 2003

To: Board of Health

From: Dr. Sheela V. Basrur, Medical Officer of Health

Subject: Program Update and Budget Implications for an Enhanced West Nile Virus (WNV) Prevention and Control in 2003

Purpose:

This report provides an update on the activities already underway for the control of West Nile virus (WNV) in Toronto and outlines additional resources required to enhance the WNV program to adhere to new provincial regulations. The report also responds to motions from City Council regarding WNV prevention and control. A full description of enhanced mosquito control activities and comments on adulticiding are contained in a separate report on this agenda.

Financial Implications and Impact Statement:

City Council approved one time funding for the 2003 West Nile Virus Program of \$1,576,000 (gross) / \$788,000 (net) and 14.55 positions within the Toronto Public Health (TPH) Operating Budget.

The total cost of operating the expanded program for 2003 as described in this report is \$4,069,355 (gross) / \$2,034,677 (net), which is an increase of \$2,493,355 (gross) / \$1,246,677 (net) and 20.83 positions over the approved budget. This includes the cost of the enhanced mosquito control activities identified in the June 2003 Board of Health report entitled, "Enhanced Mosquito Control Activities to Prevent and Control West Nile Virus".

The requested increase includes two components: \$2,023,355 (gross) / \$1,011,678 (net) for activities that will be required to implement Ontario Regulation 199/03 (Attachment B) dated May 31, 2003 and to meet additional demands for Toronto Public Health service from the public.

Additional contingency funds of \$470,000 (gross) / \$235,000 (net) would be set aside for use if a health emergency arises that includes the need to larvacide surface bodies of water and to control adult mosquitoes (adulticide). No unallocated funding is available within the City to implement the enhanced WNV program.

The Ministry of Health and Long Term Care (MOHLTC) has confirmed that it will provide 50:50 cost sharing of additional local program needs for 2003. In addition, the MOHLTC will reimburse health units for 100% of the cost of larvicide and adulticide products and will pay the costs of having pesticide applicators on retainer to ensure rapid response if adult mosquito control is required.

The Chief Financial Officer and Treasurer has reviewed this report and concurs with the financial impact statement.

Recommendations:

It is recommended that:

- (1) the Board of Health approve in principle the requested increase of \$2,493,353 (gross) / \$1,246,677 (net) to the 2003 approved TPH operating budget for enhanced WNV prevention and control;
- (2) this request be referred to the Board of Health Budget Sub-committee for review and a report thereon to the July 10<sup>th</sup>, 2003 meeting of the Policy & Finance Committee for consideration;
- (3) the Board of Health direct the Medical Officer of Health to undertake forthwith any actions necessary to give effect to the mandatory requirements of Ontario Regulation 199/03;
- (4) the Board of Health forward this report for information and appropriate action to the Economic Development and Parks Committee and the Works Committee; and
- (5) the appropriate City Officials be authorized and directed to take the necessary action to give effect thereto.

Background:

Through the 2003 operating budget process, City Council approved a one-time budget of \$1,576,000 (gross) and \$788,000 (net) for the West Nile Virus (WNV) Program. The approved program was based on Health Canada's National WNV Guidelines. These Guidelines provide a framework for a stepwise public health response based on risk assessments within each local jurisdiction to minimize both human disease and adverse effects on the environment.

In 2002, the City received one-time 100% provincial funding of \$764,000, which was the first year in which Toronto experienced local transmission of WNV affecting humans.

At a subsequent meeting on May 21-23, 2003, City Council considered several motions by City Councillors to enhance the WNV program including: monthly updates to City Council; the extension of service to the WNV hotline; a response mechanism to educate the public in communities where cases of WNV exist; control of mosquito larvae in ditches and culverts;

extension of the larvicide program to all City catch basins and to catch basins on private property; and public education on products that are available to address mosquitoes in catch basins and eavestroughs on private property. These were referred to the Medical Officer of Health for consideration (see Attachment F).

The Medical Officer of Health was also requested to report back to the Board of Health on a protocol for adult mosquito control, which is contained in a separate report on this agenda.

Comments:

Since Council approval of the WNV operating budget in March 2003, a number of developments have made it necessary for TPH to request additional funding for this program (see Attachment A for 2003 approved and proposed enhanced budget).

In April 2003, the MOHLTC released the document, "West Nile Virus Preparedness and Prevention Plan of Ontario", and in May 2003 Ontario Regulation 199/03, Control of West Nile Virus was enacted under the Health Protection and Promotion Act (Attachment B). The Medical Officer of Health is now required to undertake more intensive surveillance and mosquito control measures than were contemplated in the original program approved by the Board of Health and City Council through the 2003 operating budget process.

The new Regulation reduces the discretion that can be exercised at the local level regarding implementation of mosquito control measures. Consequently, TPH must have plans for enhanced larviciding activities in storm water catch basins, enhanced mosquito surveillance, and additional public communication. Contingency plans must also be in place to larvicide man-made bodies of surface water and to conduct area spraying for the control of adult mosquitoes. Given the limits on centralized support by the Province for such activities as mosquito surveillance and WNV testing, TPH must expand its own WNV prevention activities to ensure compliance with the new Regulation.

In May 2003, the Province also released a revised human case definition for WNV (Attachment C) that will significantly increase the workload for Communicable Disease Control staff. There are three main categories of infection by severity: WNV Asymptomatic Infection, WNV Fever, and WNV Neurological Manifestations. The latter two categories have four levels of laboratory confirmation: suspect, possible, probable, and confirmed. All symptomatic cases are now reportable under Ontario Regulation 103/03 (Attachment D), which was enacted under the Health Protection and Promotion Act in April 2003.

All potential human cases must be interviewed in depth and a five-page questionnaire completed and sent by fax to the MOHLTC. This is in addition to regular electronic reporting of disease statistics. The new case definition is a complex one with 10 categories that will require a substantial degree of public health follow-up with physicians, hospitals and public health laboratories to ensure accurate case classification. It will also require timely and efficient data analysis and information management in order to maintain and report reliable statistics to the Province and the general public.

The incidence and time trends involving human cases will be a critical measure in performing the risk assessment required by the Province and will be a central consideration in the selection and timing of mosquito control measures. To date, there have been no reports of human WNV cases in Toronto or Canada in 2003.

The recent SARS outbreaks and the attendant media coverage have generated a heightened level of public concern about infectious diseases, which in turn has resulted in an unprecedented number of enquiries and complaints about potential health hazards related to standing water and dead bird sightings. For instance, TPH received and responded to 1,571 standing water complaints and enquiries in May 2003 as compared with 397 calls in all of 2002. Similarly, in May 2003, Toronto Animal Services received and responded to 1,022 calls relating to dead bird sightings as compared with 1,411 dead bird calls over the entire WNV season in 2002. These service pressures have resulted in delayed responses and cost over-runs as a result of the overtime work required to keep pace with public demand for service. This heavy demand for service cannot be met within existing resources without having a negative impact on other programs such as Health Hazard investigations, Food Safety inspections and Animal Services as well as the drain on program staff that has already occurred through the SARS outbreak.

Given the uncertainties that still exist about future disease incidence and the effectiveness of preventive measures in reducing human health risk, TPH must have contingency plans to deal with a major outbreak of human illness and/or increased viral activity in Toronto that may arise during the 2003 season. Of particular concern is the potential for a public health emergency related to human WNV transmission that may warrant additional mosquito control measures such as the larviciding of surface waters and/or the use of adulticides.

Many other sections of the original plan including data management, communications, community outreach, surveillance and standing water inspections, must also be strengthened. These additional requirements will have a considerable impact on the resources required for the 2003 program. The various components of the enhanced 2003 program are outlined in Attachment E.

#### Conclusion:

This report requests a mid-year operating budget adjustment to meet the requirements and workload pressures arising from new regulatory and program activities that have been recently mandated by the Province of Ontario to reduce the risk of widespread WNV disease transmission in 2003.

TPH has experienced an unprecedented surge in requests for information and on-site investigation of potential health hazards this year; the call volumes relating to standing water on private property and dead bird sightings that were received in May 2003 have already exceeded the total number received in all of 2002. In addition, the SARS outbreak has drawn upon resources from all programs within TPH and has reduced operational flexibility and the timeliness of responses to service demands.

To comply with Regulation 199/03 and to respond to Torontonians' concerns about WNV, TPH must adjust and expand the approved 2003 WNV plan. This report proposes significant enhancements to complaint response as well as mosquito and bird surveillance, public communication and data management to ensure that mosquito control decisions are based on the best available information.

It is difficult at this point to predict the extent of viral activity and the level of intervention required to control the spread of WNV in Toronto in 2003. TPH must have sufficient funding to respond to the potential for a rapidly changing situation as the season progresses. Therefore, funds for the contingency plans identified in this report should be earmarked for use if a health emergency arises. These include the larviciding of man-made surface bodies of water (\$350,000 gross / \$175,000 net) and adulticiding (\$120,000 gross / \$60,000 net). These controls should only be exercised to the extent that they are likely to be effective in reducing human risk while also minimizing adverse effects on the environment. Education, source reduction and public education will continue to be the mainstay of WNV prevention and control.

WNV is a disease that may present an ongoing public health risk for years to come. The SARS experience has demonstrated that an effective WNV prevention and control program must be adequately resourced in order to manage public concern about risks from infectious diseases. In order to reduce the risks to human health that are associated with WNV, it is essential that the program and budget be significantly enhanced and that adequate funding be provided in following years. This report outlines these enhanced activities and corresponding resource implications for 2003. Future financial pressures will be submitted to the Board of Health and City Council for consideration through the 2004 Operating Budget process.

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List of Attachments:

Attachment A - West Nile Virus (WNV) 2003 Approved and Proposed Enhanced Budget

Attachment B - Ontario Regulation 199/03

Attachment C - West Nile Virus Human Case Definition

Attachment D - Ontario Regulation 103/03

Attachment E - Enhanced 2003 WNV program

Attachment F - Response to Council Motions

Attachment G - Correspondence to Ontario Ministry of the Environment regarding  
recommended Conditions for Permits to Apply Larvicides on Private Properties

Attachment A

<b>WEST NILE VIRUS (WNV)</b>			
<b>2003 APPROVED AND PROPOSED ENHANCED BUDGET</b>			
	<b>2003</b>	<b>2003</b>	<b>2003</b>
	<b>Approved</b>	<b>Enhanced</b>	<b>Total</b>
<b>Expenditures</b>	<b>Budget(1)</b>	<b>Budget(2)</b>	<b>Budget</b>
Salaries & Benefits	\$ 862,268	\$ 1,488,383	\$ 2,350,651
Materials & Supplies	\$ 16,600	\$ 51,280	\$ 67,880
Equipment	\$ 500	\$ 39,782	\$ 40,282
Services and Rents(3)	\$ 491,632	\$ 905,910	\$ 1,397,542
Interdepartmental Charges(4)	\$ 205,000	\$ 8,000	\$ 213,000
<b>Total Expenditures</b>	<b>\$ 1,576,000</b>	<b>\$ 2,493,355</b>	<b>\$ 4,069,355</b>
<b>Revenues(5)</b>	<b>\$ 788,000</b>	<b>\$ 1,246,677</b>	<b>\$ 2,034,677</b>
<b>Net Expenditures</b>	<b>\$ 788,000</b>	<b>\$ 1,246,677</b>	<b>\$ 2,034,677</b>

Notes

1	Council-Approved 2003 Operating Budget. Comprised 14.55 approved positions.		
2	Proposed Budget for the WNV Enhanced Program based on an estimated 20.83 approved positions.		
3	Includes \$470 thousand in contingency costs which may only be required if a WNV outbreak occurs.		
4	Includes \$200 thousand for WES- Communications Strategy.		
5	The Ministry of Health and Long-Term Care has committed to a 50% cost-sharing of the Program.		
	Larvicide and adulticide products, if required, will be funded 100% by the MOHLTC and will not form part of TPH's budget.		

Attachment B

Health Protection and Promotion Act  
Loi sur la protection et la promotion de la santé  
ONTARIO REGULATION 199/03

CONTROL OF WEST NILE VIRUS

This Regulation is made in English only.

Determination if action required

**1.** A medical officer of health shall make a determination, based upon a local risk assessment in accordance with the document published by the Ministry of Health and Long-Term Care entitled West Nile Virus Preparedness and Prevention Plan for Ontario , whether action is required by a municipality to decrease the risk of West Nile Virus to persons either inside or outside the health unit served by the medical officer of health. O. Reg. 199/03, s. 1.

Notice to municipality

- 2.** (1) Where the medical officer of health has determined that action is required, he or she may give notice to the municipality of the required action. O. Reg. 199/03, s. 2 (1).
- (2) In determining required actions under subsection (1), the medical officer of health shall have regard to,
- (a) the document mentioned in section 1; and
  - (b) the generally accepted practices in the field of public health with regard to decreasing the risk of West Nile virus to persons. O. Reg. 199/03, s. 2 (2).

Must comply

**3.** A municipality shall comply with any requirements set out in the notice. O. Reg. 199/03, s. 3.

What may be required

- 4.** Action required under this Regulation may include, without being limited to,
- (a) requirements respecting source reduction measures;
  - (b) requirements respecting surveillance;
  - (c) requirements respecting public awareness campaigns about personal protection;
  - (d) requirements respecting the control measures for larviciding and adulticiding set out in Table; and
  - (e) requirements respecting the time within which the action shall be taken. O. Reg. 199/03, s. 4.

Attachment C  
West Nile Virus Case Definitions Explained

Level of Laboratory Certainty	Level of Severity of Illness		Infection (unclear whether reportable)
	Neurological Syndromes	Fever	
Confirmed	Have symptoms of encephalitis with laboratory evidence which after the first 5 confirmed cases in a jurisdiction is an IgM ELISA test and for the first 5 cases is PRNT after initial testing with IgM ELISA	Have symptoms of WNV fever such as rash, myalgias and arthralgias without encephalitis with laboratory evidence which after the first 5 confirmed cases in a jurisdiction is an IgM ELISA test and for the first 5 positive cases is PRNT after initial testing with IgM ELISA	No symptoms of WNV but laboratory evidence confirming the presence of WNV infection sometime in the past
Probable	Have symptoms of encephalitis, are one of the first 5 cases testing positive in a jurisdiction this season and awaiting confirmation by PRNT.	Have symptoms of WNV fever such as rash, myalgias and arthralgias without encephalitis, one of the first 5 cases to test positive using IgM ELISA in a jurisdiction and awaiting confirmation by PRNT	No symptoms of WNV and one of the first positive cases in a jurisdiction using IgM ELISA awaiting confirmation with PRNT
Possible	Have symptoms of encephalitis with laboratory evidence that is equivocal for WNV such as a low HI titre or intermediate IgM ELISA	Have symptoms of WNV fever such as rash, myalgias and arthralgias without encephalitis with laboratory evidence that is equivocal for WNV such as low HI titre or intermediate IgM ELISA	Not Applicable
Suspect	Have symptoms of encephalitis with no laboratory evidence for WNV	Have symptoms of WNV fever such as rash, myalgias and arthralgias without laboratory evidence for WNV	Not Applicable

Attachment D

**ONTARIO REGULATION 103/03**  
made under the  
**HEALTH PROTECTION AND PROMOTION ACT**

Made: March 26, 2003

Filed: March 27, 2003

Printed in *The Ontario Gazette*: April 12, 2003

Amending O. Reg. 338/96

(Exemption - Subsection 39 (1) of the Act)

Note: Ontario Regulation 338/96 has previously been amended. Those amendments are listed in the Table of Regulations published in *The Ontario Gazette* dated January 18, 2003.

**1. Section 1 of Ontario Regulation 338/96 is revoked and the following substituted:**

1. Subsection 39 (1) of the Act does not apply to disclosure by a physician, the Chief Medical Officer of Health or a medical officer of health to the Canadian Blood Services if,

(a) there are reasonable grounds to believe that the person who is the subject of the disclosure has received a blood transfusion or a blood product from the Canadian Blood Services or has donated blood to the Canadian Blood Services; and

(b) the application, order, certificate or report concerns,

(i) Acquired Immune Deficiency Syndrome (AIDS),

(ii) Human Immunodeficiency Virus (HIV), the agent of AIDS,

(iii) Hepatitis C,

(iv) Transmissible Spongiform Encephalopathy, including,

(A) Creutzfeldt-Jakob Disease, all types,

(B) Gerstmann-Sträussler-Scheinker Syndrome,

(C) Fatal Familial Insomnia, and

(D) Kuru, or

(v) West Nile Virus Illness, including,

(A) West Nile Virus Fever, or

(B) West Nile Virus Neurological Manifestations.

2. This Regulation comes into force on May 1, 2003.

Attachment E

Enhanced 2003 WNV Program

Education and Outreach:

(a) Communications

The Interdepartmental Communications WNV Working Group, that includes representatives from Corporate Communications, Parks and Recreation and Works and Emergency Services has developed a communications plan for 2003. An ad campaign will begin running the third week of June based on the approved \$200,000 advertising budget. The campaign includes two themes: reducing risk and fear by keeping everyone informed; and highlighting what the City is doing and what residents can do to reduce the risk. The City's communication plan builds on the broad media campaign undertaken by the Provincial government.

The City's first application of larvicide in catch basins is expected to occur towards the end of June, pending the results of larval surveillance and depending on weather conditions. Newspaper ads and media releases will appear in advance of this application as part of the notification requirements under the provincial Pesticides Act.

The working group is finalizing an information package that addresses the requirements and issues of each department within an overall corporate and public health context. This document will be available to all city staff on the Intranet. TPH continues to work closely with neighbouring municipalities in the application of provincial guidelines and directives.

The TPH web site has been updated to include the most recent information available. Updates of the site will continue as the season progresses. City Councillors will also receive regular updates with information to share with their constituents.

TPH has worked with other City departments and divisions including Corporate Services, Parks and Recreation, Water and Wastewater Services, to address health and safety concerns regarding WNV and the use of mosquito repellents. Work is also underway to develop policies regarding the use of these products among children and youth that participate in city programs such as daycare and summer camps.

(b) WNV Information Line

Through the Telehealth information line, the Province provides a 24-hour service to residents of Ontario on health information relating to WNV. At the local level, the Toronto Health Connection line (416-338-7600) is a central number for the public to obtain information on a range of TPH services. It is also used for the WNV information line to receive and respond to WNV enquiries, reports of dead birds, and health hazard complaints related to standing water.

The WNV Information Line received a total of 6,011 calls in May 2003, at a time when the height of the SARS outbreaks had overwhelmed the system. Additional lines are now in place to

cope with future surges in demand for service. Three WNV Call Centre Clerks currently staff the lines between 08h00 and 16h30 from Monday to Friday during normal demand periods. At other times callers are provided with relevant recorded WNV information and can leave a message that will be retrieved on the next business day.

The line is staffed 7 days a week from 08h30 to 19h00 to receive dead bird sightings. During periods of heavy call volumes, WNV field operators are re-assigned to assist. Additional capacity is also planned to include outreach to health care providers and institutions to facilitate the dissemination of the most up to date information and the timely reporting of human WNV cases. To ensure an adequate level of response to the anticipated volume of WNV enquiries, staffing for the information line must be increased by 2.5 clerks for the remainder of the season at a cost of \$41,884.

(c) Community Outreach

To date, TPH staff have delivered 10 presentations on WNV to community groups and meetings with local councillors' constituents reaching over 1,000 people. Fifteen public information booths and information sessions have been scheduled to begin May 31, 2003. These are being promoted through newspaper ads, the TPH website and media advisories. TPH will continue to respond to both councillor and community requests for information sessions as operationally feasible.

The new WNV Regulation (Reg.199/03) may require Toronto Public Health to upgrade and extend community outreach programs. Currently a working group within Toronto Public Health is developing neighbourhood outreach programs to disseminate a range of public health messages including information about WNV. Planned education and outreach activities will extend to schools, child care centres and summer camp programs. Teachers, child care providers, camp counsellors, parents and children will receive fact sheets, a graphic standing water guide and healthy summer living resources with key contact information. Sun safety education/training sessions planned for all Parks and Recreation outdoor camp staff will be expanded to include WNV information on personal protection. The physical activity training resource, "Outdoors -- The Ultimate Playground" for the community-based summer camp and Parks and Recreation staff, will also be expanded to include WNV information. Orientation and training sessions at community gardens will also be expanded to include both sun safety and WNV messages.

(d) Vulnerable Populations

TPH is working with staff from the Shelter, Housing and Support Division to address the needs of people who are homeless and under-housed. Information on WNV personal protection will be presented at the June meeting of the Alternative Housing Subcommittee, whose membership includes around 500 service providers. An information session for staff of shelters, drop-ins, community centres and outreach agencies will also be held in late June. Appropriate outreach and education strategies to reach people who are homeless and under-housed will be developed with input from the front line workers.

The “train-the-trainer” model will be used to expand the scope of our education and outreach initiatives. Training sessions will be organized with staff from community health centres, shelters, drop-in centres and ethno-specific community agencies. Information sessions will be provided to existing networks and forums. For example, two sessions have been organized with the Canadian Hard of Hearing Association and more sessions are being planned to reach those who are hearing-impaired. Similar efforts will be made to reach the various diverse ethnoracial communities of Toronto. Mailing lists already established for the applicable groups and associations will be used to send information to these sectors of Toronto’s population.

(e) Estimated Costs for Enhanced Education and Outreach

The currently allocated budget supports advertising up until August 1<sup>st</sup>, by which time the two planned applications of larviciding will be completed. It does not provide for additional media intervention in August, September, or October should an additional application of larviciding be necessary, or if human cases occur requiring enhanced educational outreach, or if the Medical Officer of Health determines that there is a need for adult mosquito control.

To have the capacity to provide enhanced public education and mosquito control in the the event of an escalation in perceived risk or a true public health emergency, additional communications funding will be required as follows:

- (i) \$200,000 for targeted distribution of up to date information to residents affected by outbreaks of human disease.
- (ii) \$31,021 for a Communications Co-coordinator/Health Promotion Consultant to assist with community outreach initiatives and to undertake public relations and WNV communication functions.
- (iii) \$35,000 for advertisements in the major ethnic newspapers in Toronto

Toronto Public Health will develop the appropriate resources with translations into 8 to 10 languages, which can be used across in a number of settings:

- (i) fact sheets for schools, child care settings and summer camps
- (ii) summer healthy living resources incorporating health protective messages about WNV, sun safety, physical activity, smog and extreme heat
- (iii) material for door-to-door blitzes in “hot spots”

These activities will require funding of \$137,456 for 4 months to cover \$50,000 in printing and production costs, one public health inspector, four public health nurses and administrative support.

## Surveillance:

New provincial regulations reduce the discretion that can be exercised by Public Health regarding risk assessment and risk reduction measures. Consequently the local Medical Officer of Health is now effectively under provincial direction to develop plans for enhanced catch basin larviciding activities, enhanced mosquito surveillance, contingency arrangements for the application of larvicide to artificial bodies of surface water, and area spraying to control adult mosquitoes. Given the limits on centralized support by the Province for such activities as mosquito surveillance and WNV testing, TPH must expand its own WNV prevention activities to ensure compliance with the regulations.

Surveillance activities in the original 2003 WNV program were based on the availability of provincially funded laboratory support services. While provincial public health laboratory services for human samples have been expanded over 2002 levels, both mosquito and dead bird laboratory services have been reduced. In order to have access to the level of surveillance data needed to operationalize the risk assessment mandated by the new Regulation, TPH must increase in-house resources and capabilities as well as seek partnerships and outside support where possible.

### (a) Mosquito Surveillance

Toronto Public Health began weekly adult mosquito trapping at 15 trap locations across the City on May 15<sup>th</sup>, 2003. These mosquitoes have been sent to Brock University for species identification and viral analysis. Over 60% of the mosquitoes trapped were *Culex restuans*, and all samples submitted to date have been negative for WNV.

Initial surveillance for mosquito larvae in the City's roadside storm water catch basins has also begun. No larvae have been found to date. Low mosquito activity likely reflects the unseasonably cool weather in Ontario this spring. However, larvae are expected to be found in these catch basins as the weather warms up.

### (b) Dead Bird Surveillance

Toronto Animal Services (TAS) is responsible for handling all reports of dead birds and requests for dead bird collection. In May 2003, TAS received and responded to 1,022 calls about dead bird sightings, as compared with 1,411 calls over the entire WNV season in 2002. Of the 641 dead birds collected, only one was suitable for testing, and it was negative for WNV. As June 12<sup>th</sup> 2003, more than 100 birds from across the Province have been tested for WNV. Of these, ten have been positive for WNV, including four in Ottawa, two each in York Region and Haldimand-Norfolk, and one each in Oxford County and Durham Region.

### (c) Human Surveillance

While the Control of Infectious Diseases & Infection Control (CIDIC) program has been almost entirely reallocated to management of the SARS outbreaks since mid-March 2003, preparations have also been made for the WNV season. TPH has developed information for distribution to

long term care institutions and child care facilities, and work on a newsletter to all Toronto physicians is underway.

Procedures have been updated to address the new human WNV case definitions. In 2003, the human case definitions became considerably more complex, classifying human illness according to severity of symptoms and the level of clinical and laboratory evidence. There are three main categories of infection by severity: WNV Asymptomatic Infection, WNV Fever, and WNV Neurological Manifestations. The latter two categories have four levels of laboratory confirmation: suspect, possible, probable, and confirmed. The WNV Asymptomatic Infection category is subclassified as either probable or confirmed.

All symptomatic individuals must now be investigated and reported to the Province, whereas only cases with encephalitis or laboratory confirmation were reportable in 2002. The added volume of non-encephalitis cases combined with the high level of complexity embodied in these case definitions will increase the pressure on TPH to ensure accurate and timely case classification and reporting.

This year, TPH will participate in a provincial pilot test of a new information system for WNV reports. While details of this new system have not yet been released, it is hoped that the new system will increase reporting efficiency between TPH and the MOHLTC. To ensure data integrity, the new system must be used in parallel with the existing Reportable Diseases Information System (RDIS) as a back-up, creating a duplicate workload for data entry staff.

In addition, TPH investigators must complete a provincial questionnaire for each human case to identify the location(s) where they may have acquired their infection and to inform the local Medical Officer of Health's decisions on additional mosquito control measures. These five-page forms must be sent by fax to the MOHLTC.

There are new challenges and unanticipated increases in human surveillance workloads. The introduction of a more complex case definition for human WNV disease, the need for rapid detection of the disease and the identification of the likely source of infection will require far more detailed case management and follow up work than planned. This will require additional funding of \$79,256 per annum, which includes one additional public health inspector for case management and follow up work.

(d) Standing Water Investigations:

TPH, Municipal Licensing and Standards (ML&S), Parks and Recreation, and Works and Emergency Services are cooperating on responses to complaints regarding standing water. During May 2003, the 26 public health inspectors working in the Health Hazard Program responded to a total of 1,571 complaints relating to standing water. In a number of cases, ML&S worked in cooperation with TPH to serve emergency orders for corrective action under the Building Code. This approach has proved very effective in dealing with derelict and abandoned swimming pools across the City.

(e) Estimated Costs for Enhanced Surveillance

A 2001 study commissioned by TPH identified the need for a minimum of 40 permanent adult mosquito trap locations in order to conduct effective mosquito surveillance across the City. However, the Province supports WNV testing and mosquito identification for only 15 mosquito traps. The current level of mosquito surveillance is insufficient to accurately undertake the risk assessment prescribed by the Province or to identify “hot spots”. Therefore, TPH requires an additional 25 traps to be funded from re-allocated funds from the 2003 approved budget. A corresponding increase in the number of WNV field operators from four to eight, at a cost of \$85,916. These staff will conduct mosquito trapping and larval monitoring across the City and will also be trained to carry out mosquito species identification.

The level of demand for bird pick up is already higher than last year and is expected to increase with the onset of warmer weather and whenever WNV receives media attention. Therefore, TAS requires two additional dispatch staff and four additional Animal Care & Control Officers for a 6-month period to provide this service. With the increase in the number of seasonal staff and the planning, coordinating and reporting requirement pressures now being placed on TAS, funding is also being sought to hire a supervisor for 6 months. The cost for these staffing enhancements is \$174,080.

The level of demand for standing water investigations far exceeds the figure budgeted for in the original 2003 program and has resulted in delays in service delivery in all other areas of Toronto Public Health’s Health Hazard Program. To sustain this workload, Toronto Public Health requires an additional 4 public health inspectors at a total cost of \$233,261.

Mosquito Control:

In 2003, TPH will focus its mosquito control activities on larvae within storm water catch basins that are owned and maintained by the City. Surveillance of other bodies of water, particularly in natural areas and wetlands, will be undertaken to evaluate any potential health risk. At this time, there is no evidence to support the need for pesticide use in natural areas. However, in the event of an outbreak of WNV disease in humans, additional mosquito larvae control may be needed.

(a) City-owned Catch Basins

The application of larvicide in City-owned catch basins will be done by 28 students that have been hired and are currently being trained to qualify as licensed pest exterminators. Based on surveillance results and depending on weather, the first larvicide application will begin the week of June 23<sup>rd</sup>, 2003.

The approved WNV program for 2003 included the hiring of 24 staff to undertake the larviciding of city-owned catch basins under the jurisdiction of Works and Emergency Services. Full provincial funding for the purchase of larvicide has enabled TPH to reallocate \$50,000 towards larval control in catch basins on lands managed by Toronto Parks and Recreation, including the hiring of an additional four students.

(b) Pilot Projects in Catch Basins:

Toronto Water and Wastewater Services in collaboration with TPH will conduct a number of pilot projects to investigate alternative, non-chemical methods to control mosquito larvae in catch basins. These include flushing, vacuuming, drilling drainage holes, filter cloths and non-chemical products such as ultrasound and steam. Planning has been completed and implementation will begin when mosquito activity increases. Pilot projects will take place in the more environmentally sensitive areas, such as catch basins in close proximity to outfalls and parks.

(c) Environmental Monitoring of Methoprene and its Impact

The Ontario Ministry of the Environment (MOE) is working with several health units in Ontario (including Toronto) and with various conservation authorities to monitor the levels of methoprene in natural waters and any potential impact on aquatic organisms. The MOE is also planning to monitor drinking water for methoprene. Toronto Water and Wastewater Services will include methoprene in its pesticide monitoring at sewage outfalls and in streams.

(d) Application of Larvicides on Private Properties

Surveillance activities in 2002 indicated that Culex mosquitoes are the main carrier of WNV in Toronto. Since storm water catch basins are an important breeding ground of Culex mosquitoes in urban areas, TPH indicated that it would control mosquito breeding in City-owned catch basins on the road allowance using methoprene. TPH is also encouraging the public to address mosquito-breeding sites on their own properties, which may include catch basins.

The MOE has received numerous applications for the control of mosquitoes on private property. The MOE has requested local Medical Officers of Health to indicate their support for these control activities within their jurisdictions and to recommend any additional conditions that should be attached to the permit.

TPH does not support the use of pesticides to control mosquitoes on private property solely to reduce their nuisance effects. However, TPH does support the issuance of permits for the use of larvicides on private properties under certain circumstances, as outlined in Attachment G.

(e) Estimated Costs for Enhanced Control of Mosquito Larvae

The identification of “hot spots” based on surveillance data may require an additional (i.e. a third) application of methoprene in the City-owned catch basins and the selective application of larvicide to surface bodies of water in the City.

With the increase in the number of staff and scope of the larviciding plan, an additional four public health inspectors are required for the WNV program for three months at a total cost of \$58,445. These inspectors will coordinate the activities of the larviciding teams, assist in mapping and monitoring surface bodies of water, assist with the management of identified “hot spots”, and participate in community outreach activities where required.

The City does not have a sufficient number of trained staff to extend the control of mosquito larvae to non-natural surface bodies of water. The only practical alternative at this time is to hire a private pest exterminator. An additional \$350,000 is requested as contingency funding for this purpose. If required, these funds would be used for the treatment with Bti of all ditches, storm water management facilities (ponds and drainage channels) and park water features. Multiple treatments will be required due to the low duration of Bti effectiveness. TPH does not support the application of larvicides in natural bodies of surface water.

(f) Adult Mosquito Control

It is not possible to predict accurately the extent of WNV activity in Toronto this year or the risk to humans that will require the control of adult mosquitoes. However, the enactment of Ontario Regulation 199/03 increases the likelihood that additional mosquito control measures will be required in 2003. The June 2003 Board of Health report entitled, "Enhanced Mosquito Control Activities to Prevent and Control West Nile Virus", outlines the challenges in making such a determination. It also outlines the need to increase TPH capacity for surveillance, the mapping of surface bodies of water, and for the adoption of contingency plans to enable additional mosquito control based on the results of risk assessment.

The Regulation outlines procedures and standards for the identification of areas of significant viral activity ("hot spots"), and indicates the circumstances when the Medical Officer of Health should consider the control of adult mosquitoes. The regulation also stipulates the treatment of an area within a three-km radius of identified "hot spots". The control of adult mosquitoes should be done only as a last resort and only if the potential effectiveness of the intervention and the associated benefits of reduced human WNV illness outweigh the potential for adverse effects on human health or the environment from pesticide use.

The MOHLTC currently has some private pest control operators on retainer which could be mobilized to undertake mosquito control in Toronto if required. While the retainer fee is funded 100% by the Province, the actual costs of application are 50% cost shared. Contingency funding of \$120,000 is requested to cover the costs for the treatment of 20 "hot spots". Should there be an extensive outbreak of WNV disease this year with a larger scope of risk than 20 hot spots, additional resources will be needed and would be the subject of a subsequent report to the Board of Health.

Data Management:

As was demonstrated in the SARS outbreak, meaningful and real time data will be necessary in order to meet the required reporting needs and to keep the public adequately informed. TPH has developed a data management module within THEIS (the Toronto Healthy Environments Information System) to manage all relevant WNV data in 2003. Additional funding of \$80,000 for an Information Technology Consultant / Program Analyst will be required to manage the information linkages and to trouble-shoot problems as the season progresses.

Additional funding of \$35,010 is also required to hire an Epidemiologist for 6 months to interpret WNV surveillance data and assist with program evaluation and future planning at the end of the season.

## Attachment F

### Response to Council Motions

- (1) The Medical Officer of Health has been requested to consider staffing the WNV information line on a 24-hour basis.

The WNV information line is staffed between 08h30 and 16h30 five days a week for general information and 8h30 to 19h00 seven days a week for reports of dead birds. Since the kinds of complaints and information dealt with through the WNV information line are not of an emergency nature, current hours of operation should provide a sufficient level of service.

Extending the program to a 24-hour service would require an additional seven clerks to enable the line to be staffed in three shifts. This would cost over \$100,000 and would provide little health benefit. If there is a surge in demand due to an elevated human risk of WNV and a requirement for enhanced mosquito control activities, the level of staffing and hours of operation will be extended as necessary with the reassignment of existing staff.

- (2) In conjunction with the Commissioner of Works and Emergency Service, the Medical Officer of Health was asked to develop an inspection strategy to deal with standing water in ditches and culverts that are used to drain public rights-of-way.

TPH and Municipal Licensing and Standards (ML&S) are coordinating the investigation of all standing water complaints, and where appropriate, the matter is forwarded to Works and Emergency Services for the necessary remediation. As TPH does not have sufficient resources to continue to monitor these areas during the WNV season, the matter has been referred to the Interdepartmental WNV Co-ordinating Committee for consideration. The budget implications of addressing this issue have not yet been determined.

- (3) The MOH, Commissioner of Works & Emergency Services, and the CFO & Treasurer were asked to report back on the feasibility and costs to the City of expanding the WNV program to include larviciding catch basins on private property.

It is not feasible for TPH to undertake mosquito control on private properties with existing staff as this would disrupt implementation of the City's control plan. If this service was contracted out to private pest exterminators, the costs would range from \$30.00 to \$40.00 per catch basin per application, with the variation in costs being based on the total number of catch basins to be treated. A minimum of two applications would be required during the season. There are a limited number of private pest control operators prepared to take on this type of work and, at this late stage in the year, it will be very difficult to secure contract commitments. Adding any chemical to a catch basin is illegal without an MOE permit, which can only be issued to a licenced pest exterminator. While TPH does not recommend that the City take responsibility for larviciding privately owned catch basins, private property owners could make their own arrangements through a licenced applicator to obtain the necessary permit.

Larviciding is only one of a number of options available to control mosquitoes in catch basins, and members of the public who have catch basins on their property are already being advised of alternative approaches. One approach is the use of 25-gauge aluminum screen stapled to a wooden frame, which can be installed above catch basins in areas of low traffic. This measure will effectively isolate airborne mosquitoes from the standing water at the bottom of the catch basin.

- (4) The Medical Officer of Health was asked to develop a neighbourhood response mechanism to educate communities where WNV cases exist.

Community outreach initiatives will be targeted at the neighbourhood level to deal with WNV issues as needed based on surveillance data. Local community outreach will be essential when “hot spots” are identified in order to communicate to residents the degree of community health risk in an accurate and timely way. Research has also shown this approach to be an effective means of achieving behaviour change to reduce human WNV exposure by the adoption of personal protective measures. Details are still being developed.

- (5) The Medical Officer of Health was asked to submit monthly reports through the Board of Health to City Council on reported and/or confirmed cases of WNV in humans and animals in each ward and the outbreak control actions taken by City staff.

The format, timing and level of detail in routine surveillance reports for the public are still under discussion within TPH. Efforts will be made to be consistent with the practices of surrounding health units and to provide clear, useful & timely information while protecting patient confidentiality.



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Appendix G

Community & Neighbourhood Services  
Eric Gam, Commissioner

Dr. Sheela V. Basrur  
Medical Officer of Health

Public Health  
277 Victoria Street  
5<sup>th</sup> Floor  
Toronto, Ontario M5B 1W2

Reply:  
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Acting Manager, WNV Program  
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E-mail: dkartzal@toronto.ca

June 9, 2003

Mr. Keith West  
Director, Central Region  
Ontario Ministry of the Environment  
5775 Yonge Street, 8th Floor  
Toronto, Ontario  
M2M 4J1

Dear Mr. West:

City of Toronto surveillance data from 2002 indicates that there is a significant risk to human health this summer from West Nile Virus (WNV). To help reduce this health risk, I support enhanced mosquito control measures in Toronto in 2003, including the selective use of larvicides to prevent the development of *Culex* species mosquitoes in the City.

*Culex* mosquitoes are the most common carrier of WNV in our region, and although they prefer to bite birds, it is likely that they will also take blood meals from humans. The primary means of WNV transmission to humans is the bite of an infected mosquito. As a result, the use of a larvicide against *Culex* mosquitoes is aimed at reducing the size of the *Culex* mosquito population and thus reducing the overall human health risk of WNV in the City of Toronto.

*Culex* mosquitoes tend to breed in smaller, artificial containers of water. Surveillance activities in Toronto and elsewhere in North America have identified stormwater catch basins as significant breeding areas for *Culex* mosquitoes. Therefore the City of Toronto's larviciding campaign in 2003 will focus on catch basins within the road allowance using methoprene. However, there are other catch basins in the City that are privately owned and maintained in which *Culex* mosquitoes may breed. As well, there may be surface bodies of water that are breeding grounds for *Culex* mosquitoes. The associated WNV health risk may be further reduced by the selective application of Bti if removal of these standing waters or remediation of the situation is impractical.

If the Ontario Ministry of the Environment determines that it is appropriate to issue a permit for the use of larvicide on private property, it is recommended that the following conditions be attached to the permit:

1. The application of methoprene or Bti must be for the mitigation of health risk. More specifically, it is for the use of methoprene against Culex larvae in catch basins or for the use of Bti on surface bodies of water, provided these are not part of natural bodies of water and cannot readily be remediated.
2. The applicator provides a monthly progress report to Toronto Public Health that identifies the properties that have been treated, the date(s) of application, and the types and amounts of pesticides used. This information will be collected for environmental monitoring of pesticide residues in surface waters by Toronto Water & Wastewater Services.
3. The applicator provides Toronto Public Health with a copy of the final report to the Ministry of the Environment, that identifies the properties that have been treated, the dates of application, and the types and amounts of pesticides used.
4. No person shall apply methoprene in catch basins or Bti on surface bodies of water unless the person is the holder of a permit issued by the Ontario Ministry of the Environment which authorizes the application.

In conjunction with other City departments and agencies, Toronto Public Health will be conducting surveillance of other species of mosquitoes, particularly in natural areas and wetlands, to evaluate any potential health risk. At this time there is no evidence to support the use of pesticide applications in natural areas or wetlands.

If you have any questions, please contact Danny Kartzalis, Manager, WNV Program, at 416-338-3673 or [dkartzal@toronto.ca](mailto:dkartzal@toronto.ca).

Yours truly,



Dr. Sheela V. Basrur  
Medical Officer of Health

cc: Cathy Wright, Ministry of the Environment, Central Region  
Ron De Burger, Director of Healthy Environments, Toronto Public Health  
Danny Kartzalis, Acting Manager, WNV Program, Toronto Public Health  
Joe Fortuna, WNV Coordinator, Toronto Public Health  
Mike Price, General Manager, Water & Wastewater Services, City of Toronto  
Vic Lim, Manager, Industrial Waste & Stormwater Quality, Water & Wastewater Services  
Michael D'Andrea, Manager, Infrastructure Asset Management, Water & Wastewater Services  
Jane Speakman, Legal Services, City of Toronto