MOSQUITO ACTION PLAN

December 2014

1.0 PURPOSE OF THE MOSQUITO ACTION PLAN

The purpose of the **Mosquito Action Plan** is to provide clear guidelines to City Council and City staff, and information to stakeholders regarding the various responses made to prevent and control mosquito-borne diseases.

2.0 INTRODUCTION

In 2012, West Nile Virus (WNV) caused the largest outbreak in Dallas County history, with a total of 388 WNV human cases, including 18 deaths. WNV is now considered endemic in the United States and some level of WNV infection can be expected every year. Following the WNV outbreak of 2012, the Dallas County Health and Human Services (DCHHS) along with its municipal partners anticipates the need for a coordinated and proactive plan to address WNV in its communities.

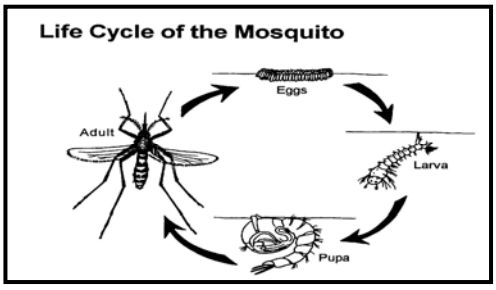
The City of Rowlett has contracted with DCHHS for vector control and City of Garland for health services within its City boundaries. DCHHS will work alongside the City of Rowlett to help develop strategies to protect residents from mosquito-borne illness. Both entities are committed to working together to suppress mosquito populations through mosquito surveillance and control. DCHHS will also provide assistance to the City of Rowlett with regard to response activities in the event of a vector borne disease outbreak. The City of Garland will provide investigation and notification of all occurrences of all cases of mosquito-borne illness that occur in the City of Rowlett to DCHHS Environmental Health Division.

The City of Rowlett along with its partnering agencies recognizes that the main contributing factor to the success of mosquito control response measures is the effective cooperation and communication among collaborative agencies. A coordinated response effort is an essential component in the prevention and reduction of the spread of mosquito-borne diseases.

As outlined in the Mosquito Action Plan WNV prevention activities will focus on **Public Education and Information**, **Surveillance,** and **Mosquito Control Measures**.

3.0 MOSQUITO LIFE CYCLE AND SEASON

Mosquitoes have four distinct stages in their life history: the egg, larva, pupa, and adult. Adults feed on plant materials; only females feed on the blood of birds or mammals to provide the nourishment needed for their eggs to develop. Adults mate and the females lay eggs in water or in damp soil that may become inundated. The eggs hatch into larvae, which look wormlike and feed on microorganisms, including algae. They grow and molt through four stages and undergo a metamorphosis during which they become pupae, the non-feeding stage where the wings develop internally. The pupae emerge as adults to complete the life cycle.



The mosquito life cycle depends on temperature and moisture. Warm, wet conditions are most hospitable to mosquito breeding and larvae development. Some species can take as little as four days to complete a life cycle, while others develop over a period as long as several weeks. The accumulation of water in any object or natural depression that contains some organic matter for even a few days can serve as a breeding site for mosquitoes. The busiest time is from May until October, but mosquito larvae have been found as late as November. At temperatures less than 50 degrees, mosquitoes become less active or dormant. The adult females of some species find holes where they wait for warmer weather, while others lay their eggs in freezing water and die. The eggs remain viable until the temperatures rise and can hatch.

4.0 MOSQUITO ACTION PLAN

Following the West Nile Virus outbreak of 2012, the Environmental Health Services Division anticipated the need for a coordinated and proactive plan of action to address WNV in the community. Although it is impossible to predict how one West Nile Virus season will compare to the next, the Environmental Health Services Division has developed a three-phased plan that focuses on **Public Education and Information**, **Surveillance,** and **Mosquito Control Measures**.

As previously stated, the Mosquito Action Plan will involve a coordinated approach among different governmental entities. This plan will be established involving the following entities and departments:

- Rowlett Environmental Health Services (Rowlett EHS)
- Dallas County Health and Human Services (DCHHS)
- City of Garland Health Department (GHD)

Below is a list of the roles to be performed by each of the two partnering agencies—DCHHS and Garland HD):

Dallas County Health and Human Services (DCHHS):

- Clearinghouse for public information and education
- Perform trapping, testing and mapping operations
- Collect human and mosquito surveillance data and disseminate to City of Sachse
- Perform ground spraying operations when warranted/required
- Perform Epidemiological investigations
- Report WNV cases to appropriate state entities
- Coordinate press releases throughout the season to help inform public of status of WNV cases

Garland Health Department:

- Assist with public information and education
- Epidemiological investigation of case and confirmation with local health professionals
- Provide support to the City of Rowlett and DCHHS with regard to reporting cases

4.1 Public Education and Information

Objective: To increase public awareness of mosquito-borne diseases and to educate public on the most effective ways to reduce the risk of WNV infection including mosquito habitat reduction, personal protection, and property preparation.

Providing public information and soliciting public support is vital to the success of any mosquito control effort. Public education is considered a leading strategy for helping residents reduce their individual risk

for WNV infection and learn appropriate environmental controls that can be implemented at the household level. Educational activities take several forms, so key prevention messages are repeated, reinforced, and consistent. Getting the message out to the public regarding personal prevention and breeding source reduction is a major part of the mosquito control program. The more people that are aware of WNV, the better they can protect themselves and help in reducing breeding sources.

4.1.1 Source Reduction and Personal Protection

Source reduction is the elimination of mosquito breeding sites. The alteration or elimination of mosquito larval habitats is the most effective and economical method of providing long term mosquito control. Through education and public information releases, City of Rowlett staff will provide technical assistance and encourage citizens to participate in source reduction through the removal of used tires, cleaning of rain gutters and bird baths, emptying or treating unused swimming pools, draining or dumping other artificial water containers, unclogging ditches, punching holes in tires used as play ground equipment, and otherwise eliminating potential mosquito breeding sites around the home. Reducing the amount of breeding areas in a city will save the potential larvicide and adulticide pesticide applications. Many types of breeding sites, however, cannot or should not be eliminated. Mosquitoes in these areas will have to be controlled by applications of a suitable larvicide. Improper drainage of wetlands and indiscriminate ditching can create more mosquito problems than were there to start.

In general, the populations most susceptible to mosquito-borne illnesses are children under the age of 15 and adults over the age of 50. The most effective way for a person to reduce their risk of WNV and other mosquito-borne diseases is through the prevention of mosquito bites. Wearing long pants and sleeves, applying insect repellent while outdoors, and keeping screens on all open windows and doors while indoors are some simple, but effective methods of preventing mosquito bites. Educational pamphlets and mosquito control brochures are available from the DCHHS Offices and the Rowlett EHS webpage. It is always important to remind the citizens to remember the “Four D's of Mosquito Protection”:

1. **DRAIN -** all areas of standing water
2. **DEFEND -** use insect repellents
3. **DRESS -** protectively with long sleeve and pants
4. **DUSK/DAWN -** limit outdoor exposure at dusk and dawn

4.1.1.1 Planned Activities for Source Reduction and Personal Protection

The City of Rowlett has developed the following activities that will help with the goals of mosquito habitat reduction, personal protection, and property preparation.

1. The city staff updates website information continually during the WNV season and posts mosquito surveillance data results with maps and tables showing recent WNV activity. This information will be posted as soon as WNV is detected and updated on at least a weekly basis.
2. Fact sheets/brochures/pamphlets continue to be distributed to community-based organizations, community boards, elder care facilities, libraries, other organizations citywide. The public will be informed about the proper personal protective measures to avoid mosquito bites.

3. All City staff will be informed of recommended personal protection measures against mosquito bites via Human Resources, city intranet sites, and staff meetings.
4. Rowlett EHS will assist in providing mosquito repellent products as available to field staff and at public events, especially those held in the evening.
5. DCHHS's website will also be regularly updated and provided information and educational materials on WNV.

4.1.2 Response to Concerns from Residents and Businesses

City of Rowlett staff invites citizens to log complaints or concerns regarding mosquito problems through the City website, telephone or email (See FAQ's for contact information). Mosquito control is a public effort and without the help and support of citizens, mosquito control personnel will be fighting a losing battle.

Calls from residents or businesses can help pinpoint large populations of mosquitoes, thus allowing City and DCHHS staff to target "hot spots" rather than treating the entire city. City staff will treat this as an opportunity to educate the homeowner on mosquito biology and control, source reduction and personal protective measures.

4.1.2.1 Planned Activities for Response to Concerns from Residents and Businesses

The City of Rowlett has developed the following activities that will help with the goal of response to concerns from residents and businesses:

1. City staff hosts a connection center to encourage citizen reports/complaints.
2. The City's website will be regularly updated beginning in April.
3. The City Environmental Health and Code Enforcement staff will respond to mosquito concerns/complaints from residents and businesses by gathering information, locating targeted areas, performing site visits, addressing the issue and/or making recommendations for future action.

4.2 Surveillance (Collection, Survey, and Mapping Methods)

Objective: To quickly detect human illness due to mosquito-borne diseases and to monitor the abundance of mosquito populations and detect the presence of arboviruses.

Disease surveillance is a fundamental public health activity. WNV surveillance focuses mainly on infected humans and mosquitoes. Accordingly, the cornerstone of the DCHHS's mosquito control program is surveillance. Treatment strategies based on surveillance are best because they work with the latest information on the mosquito population. All surveillance data is shared regularly between the City and DCHHS.

4.2.1 Human Surveillance

Human cases of WNV are required to be reported to the DCHHS Environmental Health Division, and every individual diagnosed with WNV in Dallas County receives follow-up from the DCHHS. Since DCHHS provides services to the entire City of Rowlett (both Dallas and Rockwall Counties), human cases of WNV occurring in Rockwall County are reported to DCHHS as well as the Rockwall County Health Department. Public Health officials interview all WNV victims to gather demographic data and

information about exposure risk, mosquito bite history, and symptoms and duration of illness (as well as complications, if any).

Human case surveillance helps public health investigators better understand environmental factors involved in infection, helps identify geographical "hot spots," and helps refine and enhance public education efforts accordingly. In addition, human case surveillance allows Health Department partners to provide timely and accurate clinical information to local health care providers.

4.2.1.1 Planned Activities for Human Surveillance

The City of Rowlett has developed the following activities that will help with the surveillance of human infection:

1. City staff will work closely with DCHHS and Garland HD to ensure that surveillance data are standardized and remain confidential.
2. DCHHS will remind health care providers and hospitals to report confirmed cases of WNV to the City of Rowlett Environment Health Division. DCHHS will provide the criteria for reporting and submission of appropriate laboratory specimens for WNV testing.
3. Garland Health Department and DCHHS will conduct epidemiological investigations of cases to determine if they meet the WNV case definition.
4. All confirmed case reports are forwarded to the Texas Department of State Health Services, which reports cases to Centers for Disease Control and Prevention (CDC) via the ArboNET web-based tracking application.

4.2.2 Mosquito Surveillance (Trapping and Testing)

Mosquito surveillance should be a routine part of any mosquito control program. Routine surveillance can keep control personnel informed about locations of major breeding areas, helping to identify problem sites where control should be concentrated. Carefully interpreted survey data can provide vital information. Information that can be gained from mosquito surveillance includes:

- Determine the geographical areas of highest risk;
- Assess the need for and timing of intervention events;
- Identify larval habitats that are in need of targeted control;
- Monitor the effectiveness of control measures; and
- Develop a better understanding of transmission cycles and potential vector species.

DCHHS will continue to trap and test adult mosquitoes collected in City of Rowlett for WNV at its own laboratories. With testing taking place locally at DCHHS laboratories versus State laboratories, the time required to receive results is greatly reduced. This allows for increased public education, more focused mosquito-breeding reduction activities, and more targeted control of larvae and mosquitoes in areas with increased viral activity.

4.2.2.1 Planned Activities for Mosquito Surveillance:

The City of Rowlett has developed the following activities that will help with trapping and testing activities associated with the surveillance of mosquito populations:

1. DCHHS initiates mosquito surveillance and control activities annually in City within geographic regions and throughout the County. Adult mosquito trapping is done heavily

during the peak mosquito season from April until late October. The season may be adjusted basing on surveillance findings, weather, and other factors.

2. DCHHS uses gravid traps for all six trap sites in the City of Rowlett. Mosquitoes are collected from all six trap sites on a weekly schedule during mosquito season (see Map 1 for Mosquito Trap Locations). Gravid traps are left overnight at predetermined locations and the contents are collected the following morning.
3. After trapping, the mosquitoes are delivered to the DCHHS laboratory for identification and analysis. The female mosquito pools are tested for WNV; and results are returned to the DCHHS and forwarded to the City.
4. Supplemental mosquitoes traps are sometimes placed in additional surveillance locations where positive mosquito pools/confirmed human cases have been found or additional monitoring is desirable.
5. In Dallas County, mosquitoes tested for WNV are the *Culex quinquefasciatus* species. These are the species believed to be the most likely to transmit WNV in our area.
6. In the event that pesticides are applied for adult mosquito control, mosquito trapping may be used to evaluate the efficacy of the control measures.
7. The City staff will assist DCHHS in conducting live mosquito trapping and mapping.
8. The City field employees such as Parks and Public Works crews should monitor and report mosquito habitat sightings to Environmental Health staff.

4.3 Mosquito Control Measures

Objective: To reduce the abundance of WNV-infected adult mosquitoes in targeted areas through the use of pesticides and natural sources.

The best mosquito control program is an integrated program that includes point source reduction of breeding areas, routine larviciding in those breeding areas that cannot be eliminated, and adulticiding only when necessary.

4.3.1 Larvicide Control (Hand Application)

Larviciding, or killing the mosquito while in the larval stage (*pupal stage included*), is one of the most common methods of mosquito control used today. It is considered the best course of action for mosquito control after source reduction. When mosquitoes are in their immature stages, they are concentrated in a relatively small or fixed area. The kill occurs before mosquitoes are out flying, causing biting nuisances, and capable of transmitting diseases to people, pets, and domestic animals. However, every body of standing water need not be larvicided. Several factors must be considered before larviciding. These include the mosquito species, larval density, size of the area, seasonality, susceptibility, the larvicide formulation, environmental issues, jurisdiction, rain and wind conditions, and cost.

The City staff currently uses one larvicide to control mosquito populations: Summit Bti. The bacteria Bti (*Bacillus thuringiensis israeliensis*) has been on the market for several years and is one of the most successful biological control agents currently used. These floating Bti briquets will give up to thirty days of treatment under normal conditions. They are dropped into the water and left to dissolve. Surface films are also very effective against both larvae and pupae, but may suffocate other surface breathing aquatic insects. The City will continue to explore other EPA-approved products that may increase the effectiveness of the larviciding program.

4.3.1.1 Planned Activities for Larvicide Control Measures

The City of Rowlett has developed the following activities that will help with larvicide control measures:

1. The City Code Enforcement and Environmental Health staff continue to implement the larvicide treatment of stagnant swimming pools and selected natural areas including creeks drainage easements, street catch basins, and detention ponds. (See Map 2 for Larvicide Application Monitoring Areas)
2. The City staff continues to address stagnant water concerns during all inspections of neighborhoods, apartment complexes, commercial areas, industrial areas and vacant properties.
3. The City staff continues to conduct on-going monitoring of mosquito habitat for larvae. These sites will be mapped on the City's Geographic Information System and subjected to monthly routine inspection.
4. The City staff will monitor reported breeding sites; make contact with property owners asking them to address the problem; conduct on-site inspections of the more egregious conditions; and make referrals to appropriate agencies for abatement.
5. The Environmental Health staff will work with Parks Department and Public Works to ensure that green areas (e.g., parks, ball fields, and outside theaters) receive adequate mosquito control, especially in areas where infected mosquitoes are found.

4.3.2 Adulticide Control (Spray Trucks Application)

The presence of mosquito-borne viral pathogens in the City will result in one or more responses by DCHHS. The City/DCHHS will utilize its surveillance data to assess the risk of an outbreak of human disease and the need to apply pesticides in a limited and targeted area to control adult mosquitoes by time of year; weather conditions; the intensity of viral activity; the distribution, density, species, and infection rate of the vector population; and the density and proximity of human populations.

Permethrin is an active ingredient for ground spray that is used by DCHHS, when mixed and sprayed according to label directions, are considered by the US Environmental Protection Agency (EPA) to be safe with respect to adults, children, and pets. *Permethrin* is a synthetic pyrethroid commonly used in mosquito control program to kill adult mosquito upon contact. This non-persistent pesticide decomposes in sunlight and in contact with moisture in less than 24 hours. Most people are not harmed by pyrethroids used in mosquito spraying. The DCHSS uses the truck-mounted fogging unit to apply adulticide to the targeted areas.

4.3.2.1 Planned Activities for Adulticide Control Measures

The City of Rowlett has developed the following activities that will help with adulticide control measures:

1. Intense larval control and habitat reduction will continue throughout the City.
2. The City staff will coordinate the response with the DCHHS in advance. The response of DCHHS will depend upon the surveillance data on a citywide basis to identify areas at risk for human transmission. The spraying responses are initiated by the DCHHS can be grouped into three potential scenarios:

    - Detected positive mosquito trap test
    - Detected Human case with previous positive trap test
    - Detected human case without previous positive trap test
      (Note: In this scenario, DCHHS will set up a trap in this area. If trap results are positive, ground spraying will be scheduled to start within 72 hours.)

3. The public will be notified of adulticide ground-spraying schedules in advance, which will allow sufficient time to take any necessary precautions to reduce pesticide exposure. Information on the pesticide to be used will be provided to the public.

4. The City staff uses multiple communications to alert the public of areas and times that adulticide ground-spraying will occur. These include the City's website, EHS web page, press releases, social media (Facebook, Twitter, RTN16), community signs, and Everbridge notification system.
5. In addition, the DCHHS will update its website with notices of spraying and encourages local news outlets to publicize spraying activity.
6. DCHHS will continue to monitor the efficacy of the adulticiding activities.

4.3.3 Adulticide Control (Airplane-Mounted Equipment Application)

Aerial applications of mosquito control insecticides are useful for rapidly treating large areas that cannot be easily accessed or covered in a timely manner by ground-based spraying equipment. Aerial applications may be recommended when there is a widespread and imminent threat from mosquitoes infected with an arbovirus such as WNV. Aerial applications of pesticides require advanced planning to identify the areas that should be treated, to identify the areas to be avoided, and to properly notify or warn populations and businesses (e.g. beekeepers, aquaculture farmers, food preparation facilities) within the proposed spray area. Properly certified applicators must be aboard each aircraft that is conducting aerial pesticide applications.

4.3.3.1 Planned Activities for Aerial Spray Applications

The City of Rowlett has developed the following activities that will help with adulticide control measures associated with Aerial Spray Applications:

1. If outbreak is widespread and covers multiple jurisdictions, the City staff will coordinate aerial spraying and control activities with DCHHS.
2. Determine whether declaration of a "State of Emergency" should be considered by the Governor at the request of designated County or City officials.
3. The City Council will hold a special meeting for the decision whether to participate in city-wide aerial spray.

4.3.4 Natural Mosquito Predators

There are a number of insects and small animals that are natural predators of the mosquito. These predators help keep mosquito populations under control. Mosquitoes will be among the first organisms to return to the pools that form in a cleaned out ditch following a rain. During routine surveillance of mosquito habitats, the larvicide technician should look for and become familiar with these organisms that feed on mosquito larvae in the wild. Some of the mosquito's natural enemies include mosquito-fish, guppies, dragonflies, birds, and bats.

4.3.4.1 Planned Activities for Natural Mosquito Predators

The City of Rowlett has developed the following activities that will encourage the use of natural mosquito predators:

1. The privately owned properties are encouraged to maintain and stock natural mosquito predators such as minnows, guppies, dragonflies, and frogs in wetlands and ponds to control larvae.
2. The City Parks Department continues to monitor natural predators for all city-owned properties such as wetlands, catch basins, and ponds.

5.0 QUESTIONS AND ANSWERS ABOUT WEST NILE VIRUS

What is the basic transmission cycle for the West Nile virus?
Mosquitoes become infected when they feed on birds infected with the virus. After an incubation period (roughly 10 days), infected mosquitoes can transmit WNV to humans and/or other animals. Disease symptoms do not develop in everyone who is bitten by an infected mosquito. Elderly and other people who are fighting an illness are more likely to develop symptoms and possibly encephalitis.

How do people get West Nile Virus?
Transmission comes through the bite of a mosquito (primarily the *Culex spp.,* or possibly *Aedes sollicitans*) that is infected with the West Nile Virus. The virus is located in the mosquito's salivary glands. It is not commonly transmitted by casual contact between people, but in a small number of cases it has been transmitted by blood transfusions, organ transplants, breast feeding and even during pregnancy from mother to baby.

What are the symptoms of West Nile Virus?
Most people who are infected with WNV have no symptoms. Some experience flu-like symptoms, including fever, headaches, and body aches, and skin rash and swollen lymph glands are also common symptoms. In fewer cases, the infection may be more severe and an infected person may also experience neck stiffness, stupor, disorientation, coma, tremors, convulsions, muscle weakness, and/or paralysis. Severe infection may lead to permanent neurological damage or death in the most extreme cases.

What is the treatment for West Nile virus?
There is no specific treatment for West Nile virus. Mild cases usually clear up with no treatment. In more severe cases, intensive supportive therapy is indicated including hospitalization, intravenous fluids and nutrition, and good nursing care. If you develop symptoms of severe WNV illness, such as unusually severe headaches or confusion, seek medical attention immediately.

Is there a vaccine against West Nile virus?
Though there are vaccines for the West Nile Virus for horses and other pets, there is no vaccine for human use at this time. Several companies are working towards developing a vaccine.

How long does it take to get sick if bitten by an infected mosquito (incubation period)?
Most people who are infected with WNV have no symptoms or experience only mild illness. If illness does occur, symptoms appear within 3 to14 days of being bitten by an infected mosquito.

I've gotten a mosquito bite. Should I be tested for West Nile virus?
No. Illnesses related to mosquito bites are still uncommon. However, you should see a doctor immediately if you develop symptoms such as high fever, confusion, muscle weakness, severe headaches, and stiff neck or if your eyes become sensitive to light. Patients with mild symptoms should recover completely and do not require any specific medication or laboratory testing.

Besides mosquitoes, can you get West Nile virus directly from other insects or ticks?
Infected mosquitoes are the primary source of WNV and caused the recent outbreaks in the Dallas Metroplex area. Although several types of ticks in Africa and Europe have been found infected with WNV, there is no information to suggest that ticks or other insects in this country are able to transmit WNV.

Should I report dead birds to the Health Department?
No. The Dallas County Health Department will no longer take reports of dead birds to monitor for WNV. Testing of birds for WNV had limited value as an early warning system for the WNV infection. If you have a dead bird on your property, please dispose it of. While there is currently no evidence that WNV

can be spread directly from birds to people, dead birds can carry other diseases and, therefore, should never be handled with bare hands. Use plastic bags or gloves to carefully place dead birds in double-plastic bags and then place dead birds in the outdoor trash.

Will the public be notified in advance about spraying activities?
Residents can learn about adulticiding schedules in advance through public service announcements, the media, the City's website, Dallas County Health Department's website, and signs in rights-of-way.

What can I do to help eliminate/reduce mosquitoes from my yard?
At this time, the Texas Department of State Health Services recommends residents not allow water to stagnate. Citizens can help by removing sources of stagnant water on their property. Areas to check include french drains, gutters, old tires, flowerpots, trash containers, swimming pools, bird baths and pet bowls. Citizens may actively treat areas of stagnant water on their property, not including creeks and other protected waterways. Mosquito larvicidal treatments can be purchased at feed stores and home improvement centers.

Will the City/DCHHS monitor areas on private property?
No, the City/DCHHS may only monitor the areas that are publicly owned and maintained. Private landowners are responsible for all maintenance on their own property. The City/DCHHS may contact the landowners for this matter. If residents/business owners have a concern of mosquito breeding areas on abandoned/vacated private property, they can contact the City of Sachse to discuss potential Code Enforcement measures that may be taken to rectify the situation.

What insect repellents should I use?
The Center for Disease Control (CDC) recommends adults wear repellent that contain 30 percent of the ingredient DEET to be most effective against the mosquitoes that carry WNV. However, lesser amounts of DEET products may be used with repeat applications during outdoor time periods as specified on the CDC website at http://www.cdc.gov/ncidod/dvbid/westnile/

Should outdoor activities be cancelled when there is evidence of West Nile virus activity?
There is no reason to change plans for outdoor activities, but common sense should be taken to avoid mosquito bites, particularly at dusk and early evening.

How can I find out what cases have been reported?
Please visit the following resources for more information regarding reported cases:

Texas Department of State Health Services West Nile Virus website
http://www.dshs.state.tx.us/idcu/disease/arboviral/westnile/

DCHHS website
http://www.dallascounty.org/department/hhs/home.html

City of Rowlett website
http://www.rowlett.com/

6.0 GLOSSARY/ACRONYMS

Adulticide	a type of pesticide used to kill adult mosquitoes
Arbovirus	shortened term for **ar**thropod-**bo**rne **virus,** a virus that is carried by arthropods
Arthropod	a group of an animal that does not have a backbone and have jointed walking appendages, such as insects, spiders and lobsters
Bacillus sphaericus	a bacterium; type of biological pesticide used to control mosquito larvae in water (mosquito larvae die after ingesting this bacterium)
***Bacillus thuringiensis* var. *israelensis* (Bti)**	a bacterium; type of biological pesticide used to control mosquito larvae in water (mosquito larvae die after ingesting this bacterium); bacteria found in Mosquito Dunks®
CDC	Centers for Disease Control and Prevention
Culex pipiens	a species of mosquito, the primary vector for West Nile virus, commonly found in urban areas; breeds in fresh, but stagnant water, such as backyard containers and storm drains
DCHHS	Dallas County Health and Human Services
DEET	DEET (chemical name, N, N-diethyl-meta-toluamide) is the active ingredient in many insect repellent products
Encephalitis	inflammation of the brain, which can be caused by numerous viruses and bacteria, including West Nile virus
Gravid traps	mosquito traps designed to attract pregnant female mosquitoes
Larvae	immature mosquitoes that live in water; stage which hatches from the egg, prior to adult stage
Larvicide	a type of pesticide used to control immature or larval mosquitoes
Light traps	mosquito traps outfitted with a light to attract mosquitoes

Malathion	an organophosphate pesticide used to control adult mosquitoes; active ingredient in the product Fyfanon®
Methoprene	a type of (synthetic) insect growth regulator used to control larval mosquitoes; it prevents mosquito larvae from emerging and developing into adult mosquitoes
Mosquito breeding site	a location where mosquitoes lay eggs, usually in stagnant water with organic material
Mosquito pools	a group of mosquitoes of the same species, collected in given area and combined at the laboratory for testing for the presence of West Nile and related viruses
Outbreak	an unexpected increase in frequency or distribution of a disease
Permethrin	a synthetic pyrethroid pesticide used to control adult mosquitoes; active ingredient in the product Biomist®
Pesticide	substance used to kill pests such as insects, mice and rats; an insecticide is a form of pesticide
Picaridin	(chemical name, 1-Piperidinecarboxylic acid, 2-(2-hydroxyethyl) - 1-methylpropylester) is the active ingredient in many insect repellent products
Piperonyl butoxide	An additive to pyrethroid pesticides that improves the effectiveness of the active ingredient
Resmethrin	a synthetic pyrethroid pesticide used to control adult mosquitoes; active ingredient in the product Scourge®
Source reduction	the removal or reduction of larval mosquito habitats
St. Louis encephalitis (SLE)	mosquito-borne viral disease that causes inflammation of the brain; very similar to West Nile virus
Sumithrin	a synthetic pyrethroid pesticide used to control adult mosquitoes; active ingredient in the product Anvil 10+10®
VectoBac	brand name for the larvicide *Bacillus thuringiensis* var. *israelensis* (*Bti*)
VectoLex	brand name for the larvicide *Bacillus sphaericus*
VectoMax	brand name for the larvicide based on mixture of *Bacillus sphaericus and B. thuringiensis* var. *israelensis* (*Bti*)
Vector	an organism (an insect in most cases relating to WNV) capable of carrying and transmitting a disease-causing agent from one host to another

Viral	of, or relating to, a virus
Viral encephalitis	inflammation of the brain caused by a virus, such as WNV
WNV	West Nile Virus

7.0 CONTACT/REFERENCE

For additional information, the following contacts have been provided:

- Rowlett Environmental Health: (972) 412-6125
- Rowlett Code Enforcement: (972) 412-6283
- Dallas County Health and Human Services: (214) 819-2100
- Garland Health Department: (972) 205-3460

ATTACHMENT 1

Below is a copy of the sample script that will be transmitted via the City of Rowlett Everbridge notification system to inform residents if Dallas County Health and Human Services initiates a ground spraying response.

> "Mosquitoes testing positive for the West Nile Virus were discovered at a trap located in the vicinity of *[general location]*. Dallas County is planning to perform ground spraying as a response. The first ground spraying will start on *[Day of week], [Date]* at 9:00 pm and finish by 6:00 am. The second ground spraying will start on *[Day of week], [Date]* at 9:00 pm and finish by 6:00 am.
>
> Individuals are recommended to stay indoors while the treatment is being conducted in their area.
>
> For additional information contact Chuck Dumas at the City of Rowlett at (972) 412-6284 or visit the City's website at www.rowlett.com. Thank you."

ATTACHMENT 2

Below is a copy of the sample text that will be provided on the City of Rowlett website should Dallas County Health and Human Services initiate a ground spraying response.

In response to mosquito-borne disease surveillance, Dallas County Health and Human Services (DCHHS) has scheduled truck-applied mosquito spraying

City:	Rowlett
Date(s):	_____, ___, 2013
Time:	9:00 p.m. to 6:00 a.m.
Area:	Please see attached map

This is a tentative schedule and is subject to change without notice due to disease priorities, weather or unforeseen circumstances.

Individuals are recommended to stay indoors while the treatment is being conducted in their area.

Historically, in the DFW Metroplex, mosquito-borne diseases season such as West Nile Virus is typically from May through October with the peak of human cases occurring in August.

DCHHS continues to encourage residents to take the following precautions to reduce mosquito bites and mosquitoes:

- Wear long, loose-fitting, light clothing to avoid mosquito bites at DUSK and DAWN when mosquitoes are most active.
- Use EPA-approved insect repellants containing DEET
- Deep door and window screens in good condition and frames sealed tightly to prevent mosquitoes from entering the house.
- Dump, drain and reduce standing water and mosquito breeding sources outside your house.

For additional information and/or maps of West Nile Virus and treatment areas visit the following DCHHS website: www.dallascounty.org/department/hhs/home.html