

Integrated Mosquito Management Program City of Colleyville, Texas



Integrity - Service - Innovation

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Contents

INTRODUCTION	3
OBJECTIVES.....	3
WEST NILE VIRUS (WNV).....	4
CITY OF COLLEYVILLE PLAN FOR MOSQUITO SURVEILLANCE AND CONTROL MEASURES....	4
Public Education & Role of Residents	5
Surveillance	5
Mosquito Control Strategies	6
RISK LEVELS AND RESPONSE	7
Low Risk Level	7
Medium Risk Level	7
High Risk Level	8
Escalation and De-escalation Charts	10
Contact Information	11

INTRODUCTION

Mosquitoes are insects that belong to the order Diptera, or True Flies. Female mosquitoes have modified mouthparts that form a long piercing-sucking proboscis, while male mosquitoes have mouthparts that are incapable of piercing skin. There are over 2,500 different species of mosquitoes that have been identified throughout the world, with approximately 150 species occurring in the United States. The Texas Department of Health estimates there are approximately 82-84 mosquito species in the State of Texas, although only about 12 of these mosquito species have been implicated in the transmission of serious diseases.

Mosquitoes typically need still, stagnant water that is isolated from fish or other small predators to complete their metamorphosis from egg to adult. Larval habitats can range from marshes, freshwater wetlands, and tree holes to human-made structures like catchments, gutters, and discarded tires. Not all species of mosquitoes feed on humans and other mammals, many species feed mostly on birds, amphibians, or reptiles. Only a small percentage of the known mosquito species are considered to carry the West Nile Virus.

Mosquitoes may be controlled through a variety of different physical, chemical, and biological methods. Physical methods usually involve source reduction, which is simply the physical removal of mosquito breeding habitats. Biological measures mainly center on the use of bacteria that kill mosquito larvae or the use of natural mosquito predators. Chemical treatment typically involves the application of pesticides to attempt to control adult mosquito populations.

Today, communities are developing locally tailored mosquito control programs that may be scaled to adapt to changing conditions. For many areas, this means providing the basic level of protection by monitoring mosquito movement, population size, and infection rates. Just as we keep an eye on our checkbook to prevent overdrafts, or track hurricanes to avoid weather disasters, knowing how many and what kinds of mosquitoes are in the area helps communities respond more effectively when threatened, especially in the aftermath of flooding and clean-up activities. Because regions vary in geography and climate, and because each community's economy is supported by different industries, the need for mosquito control is a local matter. In fact, the type of mosquito control program a community needs may change over time. This means a community needs a program that is tailored and flexible.

OBJECTIVES

The City of Colleyville's Integrated Mosquito Management Plan was developed to meet several objectives. Including but not limited to:

- Provides guidelines and information on mosquito populations, prevalence of diseases, and control strategies;
- Provides a systematic approach for utilizing mosquito sampling and human disease data to establish Risk Levels;
- Establishes actions that will be undertaken for each risk level;
- Establishes the escalation and de-escalation between risk levels;
- Establishes an adulticiding policy;
- Provides for the consultation with subject matter experts;

- Formalize the public notification procedures

WEST NILE VIRUS (WNV)

West Nile Virus is a mosquito-borne illness. Up to 80 percent of people infected with WNV will have no symptoms and will recover on their own; however, some cases can cause serious illness or death. People over 50 and those with weakened immune systems are at a higher risk of becoming ill, if they become infected with the virus.

The relatively rapid spread of WNV and the increase in disease incidence indicates that WNV is permanently established in the United States. It is likely that the virus survives the winter either within birds that remain in the area or possibly within mosquitoes that survive the winter in the adult stage. When spring returns, the virus reemerges within the birds and is readily passed to early season mosquitoes. As mosquito populations increase, mosquitoes begin to feed more frequently on birds, causing an increasing number of birds and mosquitoes to become infected. If environmental conditions are favorable for transmission, the virus will amplify to a theoretical point of spillover. At the point of spillover, transmission to humans becomes more likely, unless a mosquito control program is implemented.

CITY OF COLLEYVILLE PLAN FOR MOSQUITO SURVEILLANCE AND CONTROL MEASURES

The risk of mosquito-borne diseases depends on the size of mosquito populations and the incidence rate of disease. Collecting information on adult mosquito populations is very important for both targeting control measures and gauging the potential for disease outbreak.

In 2003, the City of Colleyville, along with other cities in the county, joined the Tarrant County Public Health Mosquito Surveillance Program. The program's main objective is collecting adult mosquitoes through the use of gravid traps. Captured mosquitoes are sent to the Tarrant County Public Health Department lab for testing. Each sample or pool will consist of mosquitoes that are collected at a single collection site. The information obtained from these surveillance efforts will be used to map mosquito populations, provide public information, and to determine the incidence of WNV or other viruses tested for as determined by Tarrant County Health. An effective surveillance and control program should therefore, allow analysts to detect the presence of WNV and of other mosquito-borne viruses during the amplification phase. In 2013, the City executed an Interlocal Agreement with Tarrant County that allows the City to utilize County contracts for abatement response operations such as ground fogging and aerial spraying.

The City of Colleyville's Integrated Mosquito Management Program consists of the following control measures.

- Public Education and Role of the Residents
- Mosquito Surveillance
- Mosquito Control Strategies

Public Education & Role of Residents

Residents can play an important role in reducing the number of adult mosquitoes by eliminating standing water that may support the development of mosquito larva and pupa. Residents for example can do some of the following:

- Residents can properly dispose of discarded tires, cans, and buckets
- Maintain pools correctly, unclog blocked gutters and drains, dump water from bird baths and pet dishes at least every 2-3 days.
- Ensure that air conditioning condensation is not pooling for several days, control irrigation so that standing water is not produced.



Surveillance

The surveillance of mosquitos will be done by way of trapping and testing the trapped samples. The overall goal of mosquito surveillance is to:

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



Mosquito Control Strategies

The primary objective of mosquito control is to decrease the risk of mosquito-borne human diseases. This objective should be accomplished by:

- Stressing source reduction as a viable means of control, both by residents and on municipal properties, including enforcement actions for stagnant water located on private property;
- Larviciding where such activities are feasible, practical, and likely to be effective.
- Promoting the use of personal mosquito protection measures, especially for the elderly and those individuals with compromised immune systems, through public education and outreach.
- Providing public information so that citizens are informed about the current Risk Level, areas of the City where WNV has been located, current municipal control measures, and what can be done by the public to help reduce risks.
- If warranted, implement adult mosquito control measures through targeted UTV pesticide applications (adulticiding) including UTV mounted fogging and possibly Truck Mounted Fogging.
- Aerial spraying will be considered by the City of Colleyville in the conjunction with the regional approach administered by the Tarrant County Public Health Department.



RISK LEVELS AND RESPONSE

The City of Colleyville will operate the Integrated Mosquito Management Program under three different risk levels. The risk levels include low risk, medium risk, and high risk. The risk levels and the actions taken by the City are described below.



Low Risk Level

Probability of human outbreak is low; subnormal to normal mosquito activity is observed; and no evidence of WNV in the immediate area.

- Public Education - The City of Colleyville will conduct abatement mosquito operations such as providing printed materials (brochures, flyers about mosquito habitat reduction), provide property assessments by request to help identify mosquito-breeding habitats on individual properties, and publicize information about avoiding mosquito bites and encourage larviciding by residents. (Bacillus Thuringiensis Israelensis (BTI) and other low toxicity products). The Tarrant County Public Health Department (TCPH) website is a good source of the education materials and contains frequently asked questions. <http://www.tarrantcounty.com/ehealth/cwp/view>
- Larvicide - The City of Colleyville will larvicide within public rights-of-way areas and city owned properties containing stagnant water with mosquito larvae, using low toxicity materials such as Vectolex FG granules along with BTI and BVA2 larvicide oil. This operation will be done during the mosquito season (typically April 1 to November 1).
- Surveillance - The City of Colleyville will set out five traps each week alternating between 14 test locations identified within the City and submit mosquito samples to the Tarrant County Public Health Department for testing (typically April 1 to November 1). The City will also work with the Tarrant County Public Health department to participate in the winter month sampling program.
- Preparedness - The City of Colleyville will utilize the Tarrant County Interlocal Agreement to provide abatement actions whenever possible. If circumstances are such that the County's contracts do not provide adequate services, the City will contract with a certified entomologist and licensed pesticide contractor for the annual mosquito season. The City will retain their services for consultation and recommendation purposes.

Medium Risk Level

WNV has been detected in trapped mosquitoes, probability of human outbreak is increasing, and normal to above normal mosquito activity is observed. All activities at the Low Risk Level will continue and the following additional actions will take place at this level.

- Notification - Citizens and property owners will be immediately notified of the detection of WNV in trapped mosquitoes by Code Red notification within at least a ¼-

mile radius of the positive test site and information will be posted on the City's website.

- Site-specific investigation - The City of Colleyville will conduct an area inspection within a ¼-mile radius of the mosquito-sampling site that tested positive in order to identify locations in need of mosquito source or habitat reduction. The survey will include all areas that are visible from public property and will not involve City staff entering private property. If obvious sources of mosquito breeding environments are found, code enforcement officials will notify property owners of the situation and direct that action be taken to eliminate the source(s) within ten (10) days. If, after the ten-day period, the breeding sources have not been remediated, a citation may be issued. Obvious sources of mosquito breeding environments include, but are not limited to tires, open containers, and overhead roof drains plugged with leaves, etc.).
- Test site mitigation – Immediately upon receiving notification of a positive sample, the test site location will be treated with using low toxicity materials such as Vectolex FG granule and BTI briquettes. The test site will be sampled each week until such time that a positive sample is not received.
- Monitoring – City staff will prepare and distribute a weekly status report of mosquito activity and program functions.
- Targeted application of adulticides – In a situation were a single testing site has three positive samples during the course of a single season, it will be required that all future positive samples at any location will receive a targeted application of adulticides for the remaining duration of the season.

High Risk Level

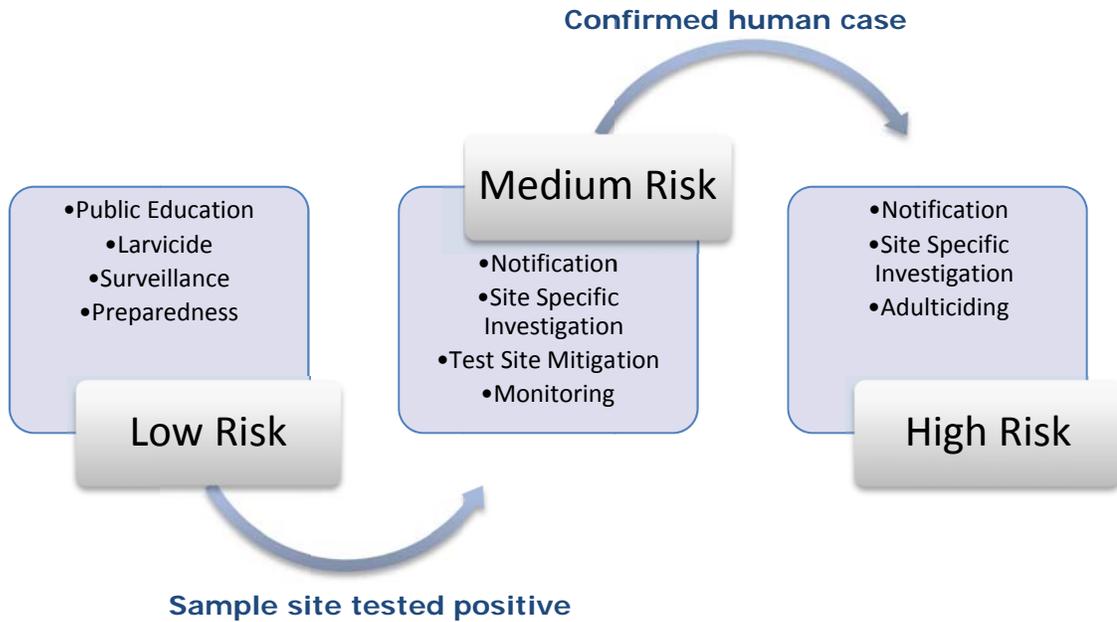
Confirmed human case has occurred within the jurisdiction; above normal mosquito activity is observed. WNV may or may not have been detected in trapped mosquitoes. All activities at the Medium Risk Level will continue and the following additional actions will take place at this level.

- Notification - Citizens will be immediately notified of the detection of a WNV human case by Code Red notification within a ½-mile radius of the confirmed positive human case and information of the infected area will be posted on the City's website so that citizens can take extra precautions to avoid being bitten.
- Site-specific investigation - The City of Colleyville will conduct an area inspection within a ½-mile radius of the mosquito-sampling site that tested positive in order to identify locations in need of mosquito source or habitat reduction. The survey will include all areas that are visible from public property and will not involve City staff entering private property. If obvious sources of mosquito breeding environments are found, code enforcement officials will notify property owners of the situation and direct that action be taken to eliminate the source(s) within ten (10) days. If, after the ten-day period, the breeding sources have not been remediated, a citation will be issued. Obvious sources of mosquito breeding environments include, but are not limited to tires, open containers, and overhead roof drains plugged with leaves, etc.).

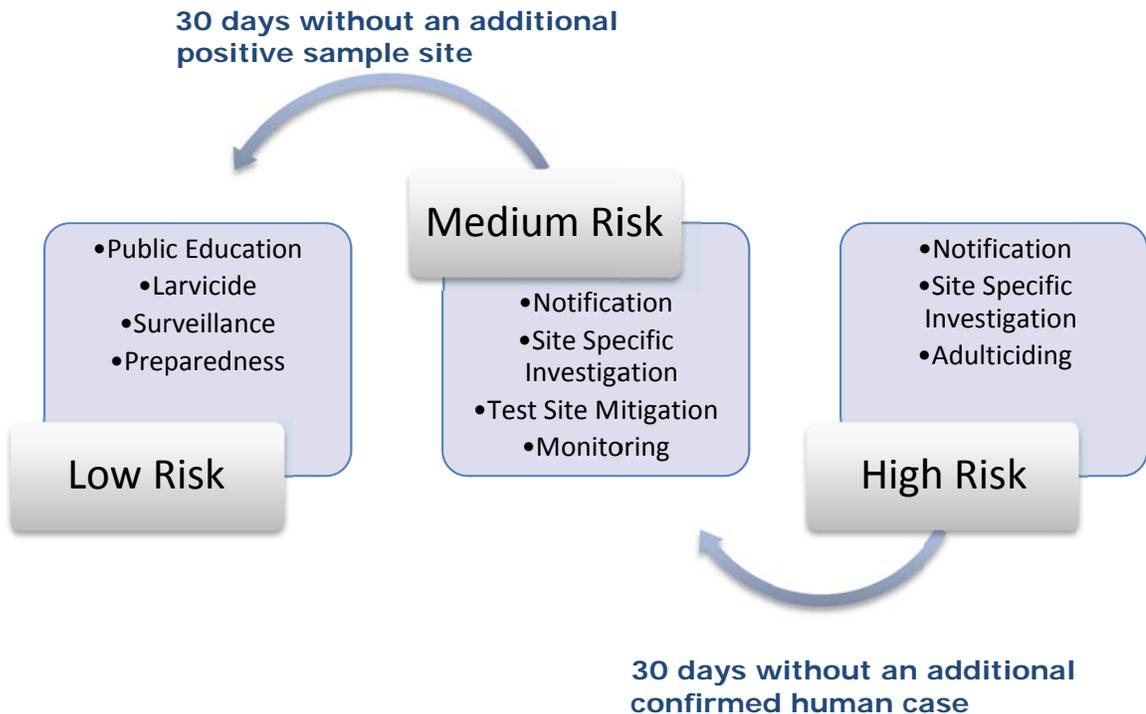
- Adulthood - If the City and consulted Certified Entomologist determine that fogging is needed, beyond test site mitigation, the city manager is authorized to initiate this process. Mobilization will take effect within 48 hours to apply adulticides (truck-mounted or UTV mounted fogging). **Fogging operations will take place within rights-of-way and City owned property.** Adulthood will be coordinated with larviciding and public information/bite avoidance actions, in order to be effective. Contractors will be certified to apply pesticides and all applications will be in full compliance with all Texas Department of Health (TDH) requirements.

Escalation and De-escalation Charts

Escalation Chart



De-escalation Chart



Contact Information

Colleyville Public Works Environmental Compliance Officer 817-503-1092
Colleyville Public Works Main Office 817-503-1090
Tarrant County Public Health Department 817-884-1111