CITY OF
SOUTHLAKE

VECTOR

CONTROL ANNEX

February 2016

Table of Content

Assignment of Responsibilities

This Hazard-Specific Annex to the Comprehensive Emergency Management Plan is hereby approved. This plan is effective immediately and supersedes all previous editions.

In addition, it is understood that you and/or your department has been assigned roles and responsibilities in this plan. You understand these requirements and hereby approve your department's support, including but not limited to personnel and resources as both explicitly and implicitly described in this plan.

Annex Coordinators

Primary Department: Public Works
Point of Contact: Robert Cohen
Title: Director of Public Works

_____
Signature

_____
Date:

Primary Department: Fire
Point of Contact: Mike Starr
Title: Fire Chief

_____
Signature

_____
Date:

Annex Support – Internal

Supporting Department: Police
Point of Contact: James Brandon
Title: Police Chief

_____
Signature

_____
Date:

Supporting Department: City Manager's Office
Point of Contact: Alison Ortowski
Title: Assistant City Manager

_____
Signature

_____
Date:

Supporting Division: DPS Communications
Point of Contact: Pilar Schank
Title: Deputy Director of Communications

_____
Signature

_____
Date:

Supporting Department:	Planning	
Point of Contact:	Ken Baker	
Title:	Senior Director of Planning	_____ Signature _____ Date:

Record of Changes

Change Number	Date Entered	Entered By	Summary of Changes
Example	01-12-2012	John Smith	Section 5, Table 5-1, Updated training frequency
1	5-7-2013	Kyle Taylor	Original plan adopted by Council
2	04-20-2015	Ben Williamson	Updated format and structure to match the City's Comprehensive Emergency Management Plan and to reflect growing threat of diseases other than WNV
3	07-09-2015	Ben Williamson	Final markups for approval meeting
4	02-02-2016	Ben Williamson	Update to include Zika Virus information – this is ongoing at this time.
4	04-01-2016	Ben Williamson	Update Zika information; add Alison Ortowski; Remove Ben Thatcher

Development and Maintenance

General

- The Emergency Management Coordinator and the Environmental Coordinator are responsible for maintaining this annex. Each agency will maintain SOPs that address their assigned tasks.
- This annex will be updated at the conclusion of the active mosquito season for any changes that need to be made.

Working Group

Primary Department:	Public Works
Point of Contact:	Christi Upton
Title:	Environmental Coordinator
Phone:	817-748-8638
Email:	cupton@ci.southlake.tx.us
Supporting Department:	Fire – Office of Emergency Management
Point of Contact:	Ben Williamson
Title:	Emergency Management Coordinator
Phone:	817-748-8624
Email:	bwilliamson@ci.southlake.tx.us

Explanation of Terms

Acronyms

CDC Centers for Disease Control
IPM Integrated Pest Management
WNV West Nile Virus
CHIKV Chikungunya Virus
DENV Dengue Virus
ZIKV Zika Virus

Definitions

Adulticide (spraying) - are products used to kill adult mosquitoes. Adulticides can be applied from hand-held sprayers, truck-mounted sprayers or using airplanes. Adulticides, when used well, can have an immediate impact to reduce the number of adult mosquitoes in an area, with the goal of reducing the number of infected mosquitoes that can bite people and possibly transmit West Nile virus.

Aedes – Genus name for the Aedes aegypti (yellow fever) and Aedes albopictus (Asian tiger) mosquitoes. These mosquitoes tend to be day-time biters and sometimes called ankle biters. Resting areas tend to be in tall grasses and shrubs low to the ground. Both species typically remain with a range of 200 meters. These two species mosquitoes are the common transmitter of Dengue, Zika, and Chikungunya virus.

Aedes aegypti

Aedes albopictus

Arbovirus – Any virus that is transmitted by arthropods (mosquitoes)

Chikungunya - Chikungunya (pronunciation: \chik-en-goon-ye) virus is transmitted to people by mosquitoes. The most common symptoms of chikungunya virus infection are fever and joint pain. Other symptoms may include headache, muscle pain, joint swelling, or rash.

Culex – Genus name of a general group of mosquitoes which are nighttime-active, opportunistic blood feeder and a primary vector for the WNV. Temperature-dependence drives prevalence of species. In warm temperatures Culex quinquefasciatus (southern house) mosquito, becomes prevalent, although Culex restuans is an important vector species in the early spring and late fall. These species tend to rest high in

trees during the day and come down at night to feed. The feeding range can be up to 1 mile. C. quinquefasciatus is a medium-sized brown mosquito that exists throughout the tropics and the lower latitudes of temperate regions.

Culex quinquesfaciatus

Culex restuans

Dengue - Dengue (pronounced den' gee) is a disease caused by any one of four closely related dengue viruses (DENV 1, DENV 2, DENV 3, or DENV 4). The viruses are transmitted to humans by the bite of an infected mosquito. The principal symptoms of dengue fever are high fever, severe headache, severe pain behind the eyes, joint pain, muscle and bone pain, rash, and mild bleeding (e.g., nose or gums bleed, easy bruising). Dengue Hemorrhagic Fever (DHF) is a more severe form of dengue infection. With good medical management, mortality due to DHF can be less than 1%.

Integrated pest management (IPM) is a science-based, commonsense approach for managing populations of disease vectors and public health pests. IPM uses a variety of pest management techniques that focus on pest prevention, pest reduction, and the elimination of conditions that lead to pest infestations. IPM simply means (1) don't attract pests, (2) keep them out, and (3) get rid of them, if you are sure you have them, with the safest, most effective methods.

Larvicide - are products used to kill immature mosquitoes before they become adults. Larvicides can be either biological (such as toxin from specific bacteria that is lethal to mosquito larvae but not to other organisms) or chemical products, such as insect growth regulators, surface films, or organophosphates. Larvicides are applied directly to water sources that hold mosquito eggs, larvae or pupae. Larvicides can help to reduce the overall mosquito burden by limiting the number of new mosquitoes that are produced.

Vector – the primary agent that transmits a disease. For the purpose of this plan, mosquitoes are the common vector.

West Nile Virus - West Nile virus (WNV) is most commonly transmitted to humans by mosquitoes. You can reduce your risk of being infected with WNV by using insect repellent and wearing protective clothing to prevent mosquito bites. There are no medications to treat or vaccines to prevent WNV infection. Fortunately, most people infected with WNV will have no symptoms. About 1 in 5 people who are infected will develop a fever with other symptoms. Less than 1% of infected people develop a serious, sometimes fatal, neurologic illness.

Zika - Zika is a disease caused by Zika virus that is spread to people primarily through the bite of an infected *Aedes* species mosquito. The most common symptoms of Zika are fever, rash, joint pain, and conjunctivitis (red eyes). The illness is usually mild with symptoms lasting for several days to a week.

Authorities and References

Authorities

- Basic Plan
- Health and Safety Code

Reference Documents/Sources

- Centers for Disease Control
- World Health Organization
- Tarrant County Public Health
- Denton County Public Health

Appendices

Purpose and Scope

Purpose

- This annex defines the organization, operational concepts, responsibilities, and procedures necessary to accomplish an effective approach to mosquito-borne illness (arboviral diseases).

Scope

- This annex is for mosquito response efforts in the City of Southlake to address the presence of arboviral diseases in the mosquito population.
- Currently, three distinct arboviruses are accounted for: West Nile Virus, Chikungunya, and Zika.

Concepts Addressed

- Public education and personal responsibility
- Source reduction
- Surveillance and monitoring
- Chemical control (larvicide and adulticide)
- Natural Control (e.g. mosquito fish)

Related Plans

- Direction and Control
- Communications
- Basic Plan

Situation and Assumptions

Situation

- West Nile has been present in the DFW region since 2003. The City of Southlake has experienced both positive mosquito samples and positive human cases of the West Nile Virus in recent years.
- Imported Chikungunya cases have been reported in the Texas and the un-exposed American population is at risk if the disease becomes autochthonous.
- The Zika Virus is an emerging threat and could have local impacts beginning in 2016.
- These viruses are now part of our environment and should be anticipated as a continuous threat to the City of Southlake each year.
- Adulticide is our most extreme method for controlling the mosquito population, but is necessary to help control the mosquito population.
- Arboviruses are not the same and the different species of mosquitoes (vector) that spread them vary in behavior and ecology.
- The city's response, as a vector control agency, will vary vastly depending on the vector important in the spread of each disease. For example, adulticiding at night to control for Culex species (important vector for WNV) is an effective control, while night-time truck-mounted spraying has not been shown to be an effective control method for the mosquito that transmits Chikungunya or Zika; rather, targeted fogging around a human case is the recommended method.
- Partnership with Counties:
    - Tarrant County conducts testing on the mosquito samples, public outreach, coordination, and subject matter expertise.
    - Denton County provides additional expertise and has the ability to offer additional resources.

Assumptions

- Personal protective measures including the updated 4Ds as the result of an aggressive public education campaign are the most effective method for preventing the spread of arboviruses
- The "Fight the Bite" campaign is an effective public education model and we align our public education model with this campaign.
- The presence of WNV in mosquito pools typically (based on 2012 – 2015 data) detected in early to late July, although the beginning time-frame can be any time May through October. Once the city begins to detect positive mosquito pools, the city should remain on alert until seasonal freezing weather reduces the risk by reducing the vector.
- Chikungunya and Zika have yet to show a pattern to establish assumptions, but this plan will be scalable to address any and all arboviral needs.

Public Education

General Information

Public education during an arboviral outbreak helps residents and visitors understand the risks of the disease and what can be done to protect themselves. The prevention of any mosquito-borne disease is most efficiently accomplished by ensuring that prompt and accurate information reaches the public. If the appropriate information reaches the public in a timely manner, personal protective measures may be implemented without panic and confusion. Because the typical risk begins as mosquitoes emerge in the spring months, beginning in April of each year the City will renew a public education campaign via the usage of City websites, Community Emergency Response Team (CERT), social media, signs, displays, and presentations.

The City will identify potential partners to assure a continuous flow of consistent information. Additionally, the City will utilize the CDC's "Fight the Bite" campaign or similar larger organizational campaigns to supplement its public information efforts. There will be a focus on effective risk communication campaigns that are successful because they provide accurate, clear, and timely information.

The City will provide continuous information on the City's website concerning arbovirus/disease frequently asked questions (FAQs), disease symptoms, personal preventative measures, and points of contact for additional information.

Personal Protection and Responsibility

Because the CDC and other health-related entities have found that the most effective control of arboviral disease is personal protection, there will be an emphasis in communicating personal protection and personal responsibility. All citizens must be active in personal protection and do their part to aid in the abatement process to protect themselves, their family, homes, and community.

Avoiding bites by using personal protection is a very effective way to avoid acquiring disease. In addition, since much of the land within Southlake is private property, the City will stress the importance of source reduction on private property by the property owners through its public information campaign each season. It is important for the residents to know that the majority of mosquito breeding sites are developed due to the creation of artificial breeding sites around their homes, thus homeowners must take personal action to prevent breeding mosquitoes. The following information will assist the residents and help them to become more aware of mosquito breeding sites to prevent the spread of mosquito borne-diseases.

The key component of the City's public information campaign to promote personal responsibility will focus on the 4 D's:

- **Dusk / Dawn / Day**: Dusk and dawn are the times of the day when mosquitoes that transmit **WNV** are most active. During the day is when the mosquitoes that transmit **Chikungunya and Zika** are most active. Since we cannot encourage everyone to stay indoors all day, we will focus on awareness and the remaining 3 D's. During peak mosquito season, individuals will be encouraged to limit outdoor activity during these periods.
- **DEET**: Individuals will be encouraged to use repellants that contain DEET as the active ingredient for treating exposed skin areas.

- **Dress**: Individuals will be encouraged to dress to keep skin covered as much as possible by wearing loose, long sleeved shirts and long pants. Light-colored clothing can be more effective since it allows you to see mosquitoes on you more effectively.
- **Drain**: Residents will be encouraged to drain any standing water on their property. This includes water from flower pots, bird baths, rain gutters, rain barrel, and pet dishes.

The public will also be encouraged to reduce exposure to adult mosquito populations through the following actions:

- Mow tall grass or reduce the amount of brush and other foliage on the property that can provide a resting site for adult mosquitoes.
- Use screening in homes and pet kennels. Keep door and window screens in good repair, and be sure that they are properly sealed around the frames
- Protect pets with drugs that eliminate heartworm.

Employee Safety

During peak mosquito season, City employees working in the field need to take necessary precautions to avoid bites. Mosquito repellent containing DEET will be made available to employees at all City facilities. When feasible, employees should take steps to cover arms and legs to minimize contact with mosquitoes.

Elevated Risk Information

If a sampled mosquito pool tests positive for arbovirus/diseases, information will be posted on the City's website describing the location of the sampling event, the date, and any other pertinent information.

Information dissemination methods may include the following:

- Utilization of the City's website to post mosquito abatement activities, maps, surveillance reports, mosquito FAQ's, personal protection best practices, and mosquito control website links.
- Utilization of the City's Connect CTY to alert the community of any potential virus threat and adulticide control applications.
- Adding mosquito control tips on utility water bills.
- Letters, pamphlets, brochures, and/or door hangers to be distributed to residents, shopping areas, schools, and faith based organizations within the community.
- Presentations to community groups and target populations concerning mosquito breeding reduction and related activities.
- Press releases describing arboviral response activities.

Source Reduction

The elimination or modification of mosquito breeding sites is critical, and typically, the most effective and economical solution for long-term mosquito control.

The normal habitat for mosquito larvae in the community is produced by summer rain pools and stagnate water from over watering of landscapes. Small pools of water that are created by irrigation or heavy rains during the summer produce most of our nuisance species of mosquitoes. A summer rainfall of less than an inch can produce breeding grounds for mosquitoes. Almost anything, whether natural or artificial, that will hold water for about a week or more, may breed mosquitoes. Mosquitos have adapted to a wide variety of larval habitats, and it is important to check for larvae in any pools of standing water.

However, it may be noted one of the most frequent bodies of water reported to the City are ponds, especially neighborhood ponds. Where mosquito fish and other natural predators (e.g. frogs and benthic insects) exist, these bodies of water rarely support a mosquito population. The community should be highly encouraged to introduce or re-introduce populations of predators, especially mosquito fish, where possible.

City staff will practice source reduction year round by inspecting public facilities, infrastructures, and equipment to remove any potential mosquito breeding site.

Staff will perform source reduction on public property. The following is a non-exclusive list of activities:

- encourage field staff to report areas where they may experience more mosquito bites than usual as this will allow inspectors to focus in on potential sources;
- drain and/or fill public areas where shallow stagnant water can accumulate such as gutters, potholes, and drainage ditches;
- where appropriate around homes and businesses, keep grass cut low to reduce mosquito resting places;
- inspect outdoor equipment, especially after a rain event;
- enforce current City water conservation codes and ordinances – this reduces water waste and potentially reduces mosquito source water;
- monitor park irrigation systems for leaks, breaks, or other water waste;
- treat with larvicides or other vector control measures culverts, catch basins, fountains, manhole covers, storm water inlets, and other standing water areas.

Staff will perform source reduction on private property when requested or identified as a need, e.g. the City has been notified of a human case of diseases likely spread by Aedes mosquitoes. The following is a non-exclusive list of activities:

- When the City has been notified of a human case the City will contact property owners adjacent or in close proximity to the human case while trying to preserve the confidentiality of the patient;
- Address misinformation about mosquito breeding areas;
- Seek permission to perform a field assessment of private property before entering the property;
- Assist residents in identifying potential breeding areas by conducting inspections;
- Provide solutions to the property owner when breeding sources are found and treat areas with larvicides as appropriate and with permissions;
- Follow up with the property owner at a later date.

Source reduction is a key component of the City's public information campaign. Source reduction focuses on eliminating breeding sites for larvae by encouraging residents to:

- Inspect the property inside the home and outside the home;
- Reduce all standing water around the property that may provide breeding sites;
- Adjust the irrigation system to prevent excessive-watering of lawns and plant beds;
- Repair leaky pipes and outside faucets;
- Clean gutters often;
- Empty outside pet bowls when not in use;
- Clean and adding fresh water to birdbaths once a week;
- Empty plastic wading pools weekly and storing indoors when not in use;
- Use mosquito fish in decorative ponds and fountains;
- Fill holes or depressions in trees with sand or mortar, or draining them after each rain by drilling holes into the tree;
- Utilize larvicidal dunks where water cannot be drained or otherwise be treated.

Mosquito Surveillance and Monitoring

The City's surveillance and monitoring program is conducted in partnership with Tarrant County Health Department. The City will survey and monitor mosquitoes as prescribed by Tarrant County Health Department.

Information obtained from these surveillance efforts will be used to map mosquito populations, provide public information, and determine the occurrence of any mosquito-borne disease. All surveillance data are published on Tarrant County's website. The City will link to Tarrant County's website.

The City will use mosquito surveillance and monitoring to determine what control measures are to be used, and evaluate the potential for any arboviral disease outbreak within the community. The objective of the surveillance and monitoring program is to:

- Assess the threat of arboviral exposure to residents.
- Identify high risk adult mosquito population areas.
- Identify larval habitats that are in need of targeted control.
- Monitor the effectiveness of control measures.
- Determine what level of control methods need to be implemented.

The timing of the surveillance program is April through November, but will be adjusted as recommended by Tarrant County Health Department.

Indicators of Disease

Trapping for pools of mosquitoes in a location can provide a scientific basis for taking action and preventing the risk of disease in humans. The purpose of using traps is to determine the relative human health threat by detecting the presence of arboviral agents in female mosquitoes. The information obtained from these surveillance efforts will determine the need for various control measures, assess the extent of the problem, and potentially gauge the effectiveness of control measures.

In large part because of funding, the city has partnered with Tarrant County for identification and arbovirus isolation. The city can consider Texas Department of State Health Services or utilize private laboratory services, if necessary, for similar services.

Trapping for Culex species

The City will utilize six gravid traps (Appendix B) to collect for Culex species, an important vector of WNV. Five of these traps will be kept in static locations across the city, and one trap will be moved to different locations in the City, depending on surveillance results or supporting evidence of a localized problem.

Every effort is made to consistently collect a sample of mosquitoes weekly through the trapping season, as defined by Tarrant County (typically, the first week of April through November). Occasional weather patterns during a week can significantly disrupt sampling efforts. On those occasions, sampling will resume the following week.

Trapping for Aedes species

Aedes poses a threat to spreading Dengue, CHIKV, and Zika. The CDC has not approved a test for the presence of these diseases in the mosquito. Therefore, the Aedes mosquitoes currently cannot be tested for the presence of disease.

Trapping for this species can provide information on the timing of presence and population distribution. Understanding the population dynamics is the lead indicator of disease threat.

The City has acquired three BG Sentinel traps, which are the industry standard for collecting Aedes species. These traps will be placed in high population density areas in Southlake to evaluate risk to the community.

Monitoring Human Cases

For some diseases monitoring for human cases is indicative of the risk for local acquisition of disease for the community. The diseases currently monitored through human cases are Dengue, CHIKV, and Zika, which are all most likely spread by Aedes mosquitoes. In the event of a human case of one of these diseases Tarrant County will notify the Environmental Coordinator. This information is considered confidential to the patient and will not be published or shared.

Mosquito Control Methods

Larval Mosquito Control

Larviciding is utilized when source water cannot be eliminated. There are several larval control methods available and the City will consider effectiveness, ecological impact and economics when choosing which larval control to apply. These include:

- Industry standard mosquito larvicides with reduced environmental impacts
- Mosquito fish

The City will focus on applying larvicide on public property. When inspections determine the source water that cannot be eliminated lies on private property the City will first encourage the property owner to purchase and apply the larvicide. The City will only consider applying larvicide on private property when either the property owner is either not available or is not cooperative and the City believes the source water is creating a risk.

The city may utilize §341.019 of the Health and Safety Code to mitigate mosquito breeding on private property. Staff will consult with the Directors before proceeding with mitigation efforts.

Adult Mosquito Control

Adulticiding is the application of pesticides to kill adult mosquitoes. It will be standard procedure for the City to only use adult mosquito control as a last resort.

It is also standard procedure for the city to take into account science-based information about the disease and to account for the life cycle and ecology of the species when designing an effective response to the specific disease and the main vector(s) of the disease.

Culex Species and Similar Species

The following information was taken into account:

- Science shows strongly indicates Culex species, and especially Culex quinquesfaciatus as the main vector of WNV
- Culex species can travel more than ¼ mile from the original breeding site and are active at dawn and dusk.
- Due to the transmit cycle of WNV (mosquito–bird, humans are incidental), the best indicator of threat is through mosquito pools and not human cases

These thresholds are:

- When a mosquito pool (one trap's catch of mosquitoes) has tested positive for an arbovirus.
- When notified of a positive mosquito pool within a half-mile of the border of Southlake.
- On the recommendation by Tarrant County, Denton County or the DSHS for any public health reason.

The City will use the following guidelines when applying adulticide:

- Spraying shall be conducted during hours as appropriate for the vector
- Notification to stakeholders (business, residents, regional partners) in the areas being sprayed must occur 24 hours prior to any application.
- The areas where spraying takes places shall be treated three (3) times on three consecutive days, depending on any number of variables that prohibit starting after 24 hours of notification (examples of variables below).
    - Precipitation, or threat of precipitation
    - Wind over 10 mph
    - Under 50 degrees at time of spraying
    - Contractor availability

- When variables prohibit on a specific day the spray schedule will not be altered
    - Example: notification on Wednesday, spray on Thursday, Friday, and Saturday. If a variable does not allow for spraying on Thursday, then only spray on Friday and Saturday.

- Notification (Internal)
    - Notification received by any staff member will be forwarded on immediately by text message to:
        - Environmental Coordinator
        - Emergency Management Coordinator
        - Public Information Officer
        - Director of Public Works
        - Fire Chief
        - Police Chief
        - City Manager's Office

Aedes Species and Similar Species

The following information was taken into account:

- Aedes aegypti is believed to be the main vector for CHIKV, ZIKV, and DENV. Aedes albopictus may also be an important vector, however, less is known on the importance of this species at this time.
- Aedes aegypti, especially, remains local to breeding sites and travel beyond 200 meters is unlikely. This species tends to rest in vegetation in and around urban and suburban property.
- The transmission cycle of CHIKV, DENV, and ZIKV is human–mosquito. Thus, human illness will be the best indicator of disease, although mosquito pools may also be an indicator.
- Spraying for the Aedes mosquito is best accomplished using handheld/backpack/ATV spraying systems.

The thresholds are:

- When the City has been notified by Tarrant County, Denton County or the DSHS of a confirmed human case. Notification from any other source will be noted but not considered a threshold.
- When the City has been notified by Tarrant County, Denton County or the DSHS of a significant increase in the population of Aedes mosquitoes that warrants further action.
- AND upon the recommendation by Tarrant County, Denton County or the DSHS for any public health reason.
- Or, when the City's leadership believes that the threat level has increased to necessitate a response, for example the presence of an increased population in a location at or before a large public event.
- Because this is a new threat to be addressed by the Mosquito Response Plan, the Executive Team will be included on all response decisions to a threat of disease.

The City will use the following guidelines when applying adulticide:

- Spraying shall be conducted during hours as appropriate for the vector
- The City will seek permission from the property owner prior to applying adulticiding on private property, with guidance from Tarrant County, Denton County, or DSHS.
- In the absence of permission to apply adulticides the City will not apply any adulticides to the property.
- Spraying activity will be conducted as recommended by Tarrant County, Denton County, the DSHS, or the CDC.
- Notification (Internal)
    - Notification received by any staff member will be forwarded on immediately by text message to:
        - Environmental Coordinator
        - Emergency Management Coordinator
        - Public Information Officer
        - Director of Public Works
        - Fire Chief
        - Police Chief
        - City Manager's Office

Assignment of Responsibilities

Environmental Coordinator:

- Manage Contract, mobilize contractor for control measures
    - Maintain a primary and backup contractor
- Determine spray area
    - Communicate this to GIS
- Manage traps
- Internal notification (Appendix A)
- Respond to public inquiries
- Gather information when variables are in play, Communicate with staff
- Ensure mosquito repellent with DEET is available to staff
- Communicate staff personal preparedness, source reduction, and preventative measures.

GIS Specialist

- Make maps for spray areas

Emergency Management Coordinator

- External notifications (Appendix A)
    - Stakeholders
    - Connect CTY
    - DPS Facebook
    - Website
- Coordinate with regional partners, gathering information
- Public education coordination

Community Initiatives Officer

- Community outreach programs
- Social media outreach

Public Information Officer

- MSN Article/Blurb

Deputy Director of Communications

- City Twitter and Facebook
- Interface with CMO about current conditions
- Approve communications

Executive Team - Director of Public Works, Fire Chief, City Manager's Office

- Approve initial round of spraying each season
- Provide input on new arboviral conditions (CHIKV, DNV, ZIKV)
- When variables cause unique situations (anything outside the scope of plan), provide direction
- Provide updates to senior staff and elected officials

Activities by Phases of Emergency Management

Mitigation

- Look for potential mosquito breeding sources and eliminate them

Preparedness

- Update the Mosquito Response Plan
- Attend training seminars and meetings to prepare for the arboviral season
- Maintain licenses and certifications that are required for larviciding and adulticiding
- Build public education and outreach materials
- Begin mosquito monitoring with traps
- Confirm spraying contracts, both primary and secondary
- Update the City's website with the most current arbovirus information
- Any materials and/or supplies that may be needed are gathered and made ready.
- Acquire mosquito repellent for staff members
- Acquire larvicide(s)

Response

- Begin adulticiding operations
- Utilize larvicide where possible
- Utilize code enforcement to eliminate mosquito breeding grounds
- Utilize public outreach to maintain the information flow to residents/businesses and stakeholders
- Work with Tarrant County and neighboring jurisdictions to coordinate response activities
- Search out and eliminate mosquito breeding sources

Recovery

- Conduct an after action review and account for any operational changes that need to be made
- Review the plan for any changes that are needed

Appendix A - Notifications

External Notifications

Agency	Point of Contact	Title	Email	Cell
CISD	Julie Thannum	Deputy Superintendent		
Grapevine	Liz Dimmick	EMC		
Keller	David Jones	Fire Chief		
Keller	Rachel Reynolds	PIO		
Westlake	Richard Whitten	Fire Chief		
North Richland Hills	Billy Owens	EMC		
Trophy Club	Danny Thomas	Fire Chief		
Colleyville	Kenny Phillips	EMC		

Internal Notifications

Department	Point of Contact	Title	Email	Cell
Public Works	Christi Upton	Environmental Coordinator		
Public Works	Bob Price	Director of Public Works		
Emergency Management	Ben Williamson	EMC		
Public Information	Pilar Schank	Deputy Director of Communications		
Fire	Mike Starr	Fire Chief		
Police	James Brandon	Police Chief		
CMO	Alison Ortowski	Deputy City Manager		
CMO	Shana Yelverton	City Manager		
Planning	Ken Baker	Senior Director of Planning		

Appendix B – WNV Surveillance Map