



## APPLICATION FORM

All applications must include the following information. Separate applications must be submitted for each eligible program. **Deadline: June 1, 2018.** Please include this application form with electronic entry. If you do not receive an email confirming receipt of your entry within 3 days of submission, please contact [Gage Harter](#).

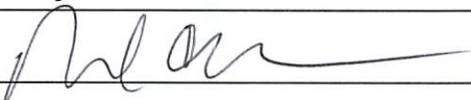
### PROGRAM INFORMATION

County: York County  
Program Title: Mosquito Control Door-to-Door Campaign  
Program Category: Communications

### CONTACT INFORMATION

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Title: Operations Superintendent  
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### SIGNATURE OF COUNTY ADMINISTRATOR OR DEPUTY/ASSISTANT COUNTY ADMINISTRATOR

Name: Neil A. Morgan  
Title: County Administrator  
Signature: 

**2018 VACO Achievement Awards  
Nomination Summary  
York County, Virginia**

**Program Title: Mosquito Control Door-to-Door Campaign**

**Program Category: Communications**

**Program Overview:**

York County, Virginia follows the Integrated Pest Management approach, with Communication and Education as the backbone of our Mosquito Control operations. We are always striving to find better ways to inform citizens about preventative measures they can take to keep mosquito populations low and the importance of these efforts. In order to address each residence, we decided to canvass subdivisions on foot. Talking to citizens and giving them beneficial information about mosquitoes can help them keep their yard safe as well as the community. In 2016, the Federal Government diverted money to the Zika Virus outbreak and, as a result of this, the Virginia Department of Health provided door hangers to Mosquito Control operations in Virginia. The door hangers provide citizens with basic information on how to prevent mosquitoes. York County started distributing door hangers by walking through high density subdivisions that would be most susceptible to mosquito borne disease spreading. This is based off of human population density and the habitat preference of mosquito species. Canvassing involves hanging door hangers from the VDH coupled with a York County Mosquito Control pamphlet and speaking to residents about the information provided and what services York County offers its citizens.

**2018 VACO Achievement Awards  
Nomination Summary  
York County, Virginia**

**1. The Problem/Need for the Program:**

York County experiences the invasive Asian tiger mosquito, *Aedes albopictus*, which can transmit West Nile Virus, dog heartworm, a bridge vector for Equine Encephalitis virus, and has potential to transmit Zika. It is a container breeding mosquito that is most commonly found in citizen's yards. The Asian tiger mosquito, along with other species that can carry diseases, is more common in areas with higher human populations. The most effective way to eliminate mosquitoes at a residence is to remove their reproductive habitat, which citizens can do by ridding their yard of standing water. York County has approximately 19,000 residences and only three full time Mosquito Control employees. The County cannot eliminate all standing water on their own and citizens are encouraged to get rid of standing water from their yards. This helps in the effort if they are aware of the effect it has on mosquitoes. Given the need for citizen involvement in the reduction of mosquito breeding habitat, our best approach is to educate citizens what they can do to contribute. Canvassing informs citizens about mosquitoes in general and what they should do to dampen mosquito issues. If they express additional concerns, they now have contact information in hand and can talk to a Mosquito Control employee at their convenience.

**2018 VACO Achievement Awards  
Nomination Summary  
York County, Virginia**

**2. Program Development:**

The Asian tiger mosquito is an invasive mosquito that can be a carrier of several mosquito borne diseases. This mosquito mainly breeds in artificial containers, and usually does not fly more than 300 feet from where it grew up in water. Therefore it is primarily found near a residence that possesses these containers. Mosquitoes spend three quarters of their life in standing water, so targeting them in concentrated areas is easier than when they are flying around dispersed as adults. Mosquito larvae hatch and develop in standing water, so removing it inhibits adult mosquitos' ability to lay eggs and larvae's ability to grow into adults. Identifying and eliminating areas of standing water can be challenging but effective. For standing water that cannot simply be dumped out, larvae can be eliminated by treating the standing water with a larvicide that kills mosquito larvae before they can emerge as adults. York County has approximately 19,000 residences and only three full time Mosquito Control employees. The County cannot eliminate all standing water on their own, so citizen involvement is needed to get rid of standing water from their yards, especially in artificial containers that breed the invasive Asian tiger mosquito. As part of our Integrated Mosquito Management program, York County puts forth a lot of effort in communicating these facts to its citizens, in order to reduce the number of Asian tiger mosquitoes biting citizens. York County follows the Integrated Pest Management approach, which has Communication and Education as the

backbone of the system, which later employs Sanitation, Mechanical, Biological, and Chemical control, in that hierarchy, when the latter prove insufficient. Since the target mosquito species is breeding in citizen's yards, mostly due to containers in their yard, it became evident that speaking to citizens directly would be most effective. There have been correlations showing if objects which would harbor mosquito eggs and larvae were dumped, fewer pesticides would be used.

After the Zika Virus outbreak in 2016, the federal government gave states funding to help the cause. Virginia decided to place some of its funding into educational material, in the form of informational door hangers. The door hangers had material about how to protect the body from mosquito bites and how to eliminate mosquito breeding habitat from their immediate area. The Peninsula Health Department, which services York County, made an announcement that any mosquito control division that would like some door hangers to give out could receive them for free. York County received 41,000 door hangers. In addition to the door hangers provided, York County coupled it with our own informational pamphlet. It gives more information about mosquito biology, the County's mission regarding mosquitoes, how the County approaches Mosquito Control, and why we spray for mosquitoes. The addition of our pamphlet provides more detailed information about mosquito biology, which most citizens are not fully aware of. After talking to many citizens, it became apparent to us that a good portion of them do not know mosquitoes breed in water, what mosquito larva looks like, or that there are multiple species of mosquitoes. Spraying has its own section in the pamphlet because that is another topic citizens typically talk to us about. The section lets citizens know we spray

when higher mosquito levels or disease warrant it. We have to be conscious of our spraying to make sure resilience does not build in our mosquito populations, so the spray works as it should.

The Asian tiger mosquito is a vector to several diseases and Zika was suspected to be one of them. Zika can only be spread from human to mosquito to human. A difference with the Asian tiger mosquito as compared to other species is that it bites humans throughout the day, not during the typical dawn and dusk time period. People are therefore more vulnerable to being bitten and the potential for a disease to spread increases. There is no vaccine for Zika, so precautionary measures are the best way to combat it. Since the Asian tiger mosquito has a short fly range, for them to spread disease, humans must be in close proximity to each other. We decided to focus our door to door campaign in areas with higher human population density. More humans also equates to the possibility of a larger amount of containers that can hold water. The data detailing the highest areas of human population and subdivisions throughout the county was provided by our GIS department.

Starting June 2016, Mosquito Control employees, mostly summer interns, walked door to door through selected subdivisions, and either spoke with the resident at home or hung a door hanger on the front door. In 2016, approximately 3,000 door hangers were distributed in 45 subdivisions. Fifteen percent of subdivisions were canvassed and twenty one percent of houses. In 2017, approximately 5,700 door hangers were distributed in 45 subdivisions. Fifteen percent of houses not canvassed in the previous year, were canvassed in 2017 with an added thirty percent of houses in the County personally

contacted. In total for 2016 and 2017, thirty percent of subdivisions were canvassed and fifty one percent of houses were visited. In years following, we intend to continue canvassing with an improved pamphlet from York County along with the door hanger. The York County pamphlet will be more concise to help get the point across more efficiently. With the average of twenty five percent of houses canvassed a year, in the next two years, all houses will ideally be personally contacted. This effort will have impacted all of the residents and make for a better, mosquito free community.

### **3. The Cost of the Program:**

Over a two year period, approximately 9,556 homes were canvassed. The work was conducted by student interns who were trained in mosquito biology, mosquito identification and customer service. The cost for distributing the information, including labor and paper, was approximately \$1.67 per house. The time spent canvassing was typically two to three hours. This was due to availability of our interns, canvassing being conducted in the heat of the summer, and conducting this during the mosquito season. Cost for the County's full time Mosquito Control staff to canvass would cost from \$23 to \$41. Using interns to provide information to our citizens is a large cost savings in labor itself. Assuming citizens follow the information provided to them, it will reduce the amount of standing water and therefore the amount of pesticides used to combat the local mosquito population. Pesticides are a large cost to our operations and only full time staff can apply it. They also, on average, last thirty days so staff would continually have to treat a container to hinder it from breeding mosquitoes. An educated citizen would know

to dispose of containers or check them weekly for standing water, avoiding the need for pesticide application. This also decreases the amount of adult mosquitoes becoming a nuisance to the community and possibly spreading disease. While there are costs for any preventative program, the benefits of this approach are immeasurable in helping prevent outbreaks of mosquito-borne disease. One estimate of the cost of West Nile Virus case puts it around \$20,000. Therefore prevention from simple education and subsequent elimination of standing water is much more cost-effective.

(Staples, J. Erin et al. "Initial and Long-Term Costs of Patients Hospitalized with West Nile Virus Disease." *The American Journal of Tropical Medicine and Hygiene* 90.3 (2014): 402–409. *PMC*. Web. 2 Mar. 2018.)

#### **4. The Results/Success of the Program:**

Since Zika has brought a heightened interest in mosquito borne disease, citizens showed more concern towards mosquitoes. It was also beneficial to receive the educational material from the VDH to share with our citizens during this peak interest period. Without the door hangers provided from VDH, we would have only a pamphlet to distribute, which is not as attention grabbing or easy to leave at front doors as a door hanger. Summer interns were great campaigners because they could be given various tasks to complete outside their main job of trapping for adult mosquitoes, one of which was the educational canvassing effort. Our door to door campaign led to more information shared with a larger scope of citizens York County Mosquito Control would not typically interact with. We reached out to fifty one percent of the houses in York County in the two year period. The spread of basic mosquito abatement knowledge let

citizens become more aware of their important part in reducing the mosquito population. A common misconception citizens have about reducing mosquito populations is that a ground spray truck is the main way the County reduces mosquitoes. Our education effort reframed that mindset, letting citizens know spraying is used after mosquito populations get above a certain level. This correlates to a lack of attempt to reduce mosquitoes at their vulnerable, confined larval state in standing water primarily on citizen's personal property. Mosquito Control also received service requests and phone calls from citizens with questions and concerns about mosquitoes as a result of reading the provided material at their front door. We hope that, as a result of this door to door campaign, more citizens are aware of the services York County Mosquito Control provides to them free of cost and that they are more aware of their ability to control mosquitoes and mosquito bites for their family and community.

## **5. Worthiness of Award:**

This program has benefited York County citizens in various ways. The primary worth of this program is the protection our citizens get from mosquitoes by the knowledge we provided to them. This is done three fold; by eliminating mosquito breeding containers and other habitat in their yard, by covering their skin from mosquito bites, and by coming into contact with York County Mosquito Control, a free resource for citizens to help control the mosquitoes around them.

York County expanded their relationship with the Virginia Department of Health and their regional department, the Peninsula Health Department, by meeting with VDH

employees and discussing their needs and expectations for Zika Virus prevention and citizen education. VDH then provided York County with 41,000 door hangers, newly designed and applicable to all citizens in the prevention of mosquitoes and mosquito bites. The door hangers were helpful during the height of the Zika Virus fear, and will still be applicable, despite concerns for Zika Virus being diminished in Virginia.

Another way that this program has been valuable is in its basic premise of being educational to citizens. Through approaching their house and either speaking with the residents or leaving information on their door, we shared with them information about mosquitoes, mosquito borne diseases, and the service that taxpayers pay for in mosquito control. This makes residents more informed and better able to be involved in their environment and community.

## **6. Brief Program Summary:**

York County has a mosquito problem. Like other coastal communities and those that contain wetland areas, or even those with a lot of rain that cannot drain or be absorbed quickly, the county experiences a mosquito problem sometimes year round. There are several thousand homes in York County and only three full-time Mosquito Control employees. Reaching everyone is impossible, so outreach is necessary. The division utilizes social media, electronic subscription notifications, and now, door-to-door canvassing to reach our citizens. Beginning in 2016, staff began going door-to-door in densely populated areas of the county to distribute door hangers provided by the Virginia Department of Health on the dangers of mosquitoes and the Zika virus. Mosquito

Control staff paired the door hangers with its informational brochure. When visiting homes, if the resident was present, staff would discuss mitigation efforts. If the resident was not at home, the information was left on the door. Since 2016, over 8,000 homes have been visited.