

*Suffolk County Vector Control & Wetlands  
Management Long Term Plan & Environmental  
Impact Statement*



**Task 4 Suffolk County Vector Control  
Current Operations**

*Prepared for:*

**Suffolk County Department of Public Works  
Suffolk County Department of Health Services  
Suffolk County, New York**

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**SUFFOLK COUNTY VECTOR CONTROL AND WETLANDS MANAGEMENT  
LONG - TERM PLAN AND ENVIRONMENTAL IMPACT STATEMENT**

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This Task Report was drafted by Cashin Associates (personnel including David J. Tonjes, PhD).

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## 1. Introduction

The intent for this Task of the Suffolk County Vector Control and Wetlands Management Long Term Plan and Generic Environmental Impact Statement was to provide a basis for developing a Management Plan by accurately describing existing vector management operations within the County. There were eight component activities undertaken for this purpose:

- 1) a report was completed describing historical vector control work in Suffolk County
- 2) a report describing current operations was completed
- 3) a description of New Jersey, downstate New York, and Connecticut vector control activities was made
- 4) a report on monitoring requirements in nearby states for Open Marsh Water Management projects was compiled
- 5) two policy papers discussing the basis for assessing whether or not the Management Plan should include mosquito control activities for the purposes of nuisance control and/or human health protection were prepared
- 6) a report on the potential for the salt marsh mosquito (*Ochlerotatus sollicitans*) to transmit Eastern Equine Encephalitis was prepared
- 7) paper and computer records assembled by Suffolk County Vector Control were compiled into appropriate data bases, and a Geographic Information System for these records was created
- 8) site visits and other educational efforts were made for key team members to support Management Plan development

This work thus traces the evolution of the County's mosquito control efforts from some of the earliest targeted mosquito control work in the nation around 1900 to today's Integrated Mosquito Management program, judged by reviewers to be among the most progressive and technically adept in the northeast US. It also laid some groundwork for identification of modifications to make the program even better, and to create a clear and credible basis for any selected future mosquito control activities.

## **2. Written Reports**

Seven reports were prepared as part of this Task. They have each been submitted to the County for review. The finalized reports, or in cases where no final version was received, draft versions of the reports have been appended to this Task report.

A history of vector control operations was researched and written by Cashin Associates, PC (CA), and a draft is included in Appendix A. The report was completed in December, 2004, and forwarded to the County for review. It was delivered to the TAC and CAC for comment in August 2005. This report traced the evolution of the County's mosquito control program. Ditching and oiling of marshes in 1900 in Lloyd Harbor constituted among the first organized mosquito control activities in the US. In 1925, State legislation established the County's Citizens Committee on Mosquito Elimination (the forerunner to today's Suffolk County Department of Public Works Division of Vector Control). The near-complete ditching of salt marshes followed in the 1930s. Water management as a means of mosquito control was largely superseded by DDT use following World War II, and this continued into the 1960s when, at the prodding of the nascent Environmental Defense Fund, Suffolk County became the first US jurisdiction to ban DDT. This led to the beginning of more well-rounded approaches to mosquito control. Integrated Mosquito Management was developed over the next several decades, so that the County now relies on water management, surveillance prior to larvicide or adulticide use, and public education efforts to minimize mosquito impacts. Mosquito-borne disease is still a major concern, although malaria no longer bedevils the County; today, the County Health Department worries about detections of mosquitoes carrying West Nile Virus or Eastern Equine Encephalitis, both of which can be fatal. It should be noted that important, baseline research for this report was conducted by the Suffolk County Department of Health Services Office of Ecology.

CA also researched and prepared a report documenting the current operations of Suffolk County Vector Control. The report was completed in December, 2004, and forwarded to the County for review. Sources of information included several of the recent Plans of Work prepared by the County, site visits and observations of mosquito control activities, and interviews of key County employees, especially Superintendent Dominick Ninivaggi. This report, a draft of which is included in Appendix B, documents the County's adherence to the principles of Integrated Mosquito Management in some detail, including specific actions taken, pesticides used, and equipment available to conduct operations. It also presents the Table of Organization for Suffolk County Vector Control, and includes a copy of the 2004 budget.

Appendix C contains a report on other vector agencies in the tri-state area. This report was researched and prepared by Wayne Crans, PhD, William Zawicki Vector Management, and Cameron Engineering, acting as subconsultants to CA. It was completed in April, 2005, and forwarded to the County for review. Comments on the report were received in August, 2005. Dr. Crans responded to the comments, and the report was finalized in September, 2005. The information was gathered through a combination of interviews, site visits, and professional knowledge. Dr. Crans, and William Zawicki, past president of the American Mosquito Control Association, used their professional judgement to construct a review of Suffolk County operations in the context of other northeast US mosquito control agencies. Their evaluation was almost uniformly good, describing the County's program as technically advanced and its overall approach as progressive and equal to almost all other such programs in the area. The report did identify, both explicitly through the comparisons, and implicitly through the descriptions of other operations, ways that the County operations might be enhanced.

In Appendix D is a description of monitoring requirements for Open Marsh Water Management projects in various states in the mid-Atlantic region. It found there were few formal monitoring requirements in the states of Connecticut, New Jersey, and Delaware. The US Fish and Wildlife Service, in connection with a multi-Refuge, multi-state exploration of environmental impacts of Open Marsh Water Management, had established a written protocol (in conjunction with the US Geological Survey) for evaluating pre- and post-project conditions. However, it is unclear if US Fish and Wildlife Service will continue to require compliance with these monitoring standards for projects outside of this research. This general lack of formal monitoring requirements was compared to the protocols that the County is following at the Wertheim National Wildlife Refuge Open Marsh Water Management demonstration project site. New York State Department of Environmental Conservation has required as a permit condition that this monitoring regime be followed for 10 years post-construction. This report was filed with the County in April 2005; comments were received and addressed in April 2005.

Appendix E contains two reports prepared to address the issues of nuisance control and public health protection. The first report, entitled, "Considerations Regarding Mosquito Control for Public Health Maintenance and Nuisance Abatement," was prepared by Cashin Associates, PC, in April 2005. This paper discussed some issues that have been raised regarding what is called control of mosquitoes to address nuisance problems, and mosquito control conducted to preserve public health. The paper suggested that rather



than being distinct, these two represent a continuum. The means of evaluating projected risks, as developed through the project impact assessment, associated with mosquito-borne disease, impacts from pesticides to humans, impacts from pesticides to the environment, and quality of life concerns for various populations were discussed. This paper was submitted to the County in April 2005. A second paper was prepared by Dr. Crans. It is entitled “Nuisance versus Control Decisions: Public Health Implications for Suffolk County,” and was submitted to the County in September 2005. It discusses the feeding habits of mosquitoes, and how the history of a mosquito’s feeding can be determined through dissections. The value of collecting such information, which is known as parity, is that it can be used to gauge the public health threat associated with a particular sample of mosquitoes. Dr. Crans described how those kinds of information might be used to make certain operational decisions to ensure public health protection.

Appendix F contains a paper entitled, “Eastern Equine Encephalitis and Salt Marsh Mosquitoes,” and was prepared by Dr. Crans. It discusses the history of Eastern Equine Encephalitis, and its mosquito ecology. Particular associations between kinds of habitat and the disease are given, and then a case is made that the salt marsh mosquito is not only capable of transmitting Eastern Equine Encephalitis, but is probably responsible for every human case experienced in New Jersey over the past 30 years or so.

The final report is in Appendix G. It was prepared by CA, and covers the efficacy of larvicides and adulticides, based on literature searches and local data interpretation. Modern pesticides used for vector control purposes generally are 90 percent or more effective, although circumstances associated with applications need to be considered carefully to ensure this efficacy is maintained.

### **3. GIS Construction**

Bowne Management, a subconsultant to CA, undertook the task of converting disparate information sources within Suffolk County Vector Control to a unified Geographic Information System (GIS). This process, which also included the incorporation of outside-of-the-agency data as part of Task 5, involved data entry of paper records and conversion of electronic records, as well as simple incorporation of some County GIS material. Examples of the kinds of information brought into this unified system include:

- Surveillance sites and associated data, including paper records of breeding locations
- Chemical application mappings
- Complaint records
- Certain water management-associated structures
- No-spray list addresses
- Dead bird records

Bowne Management completed this effort in February, 2005, considerably under budget. The funds remaining from the Task were applied to efforts to digitize portions of the mosquito ditch network, which would technically be part of Task 5. Bowne will report on those efforts as part of Task 5. Bowne Management will deliver a completed GIS, along with training to use the system, as part of Task 5.

#### **4. Expert Site Visits**

CA has contracted with several experts in mosquito control for assistance in developing the Management Plan. These include:

- Wayne Crans, PhD, Rutgers University
- William Zawicki, president, William Zawicki Vector Management
- Andrew Spielman, DSc, Harvard School of Public Health
- Richard Pollack, PhD, Harvard School of Public Health

Each of these experts was brought to Suffolk County for the express intent of making them familiar with the current operations and capabilities of Suffolk County Vector Control. The site visits were conducted from March to August, 2004.

**5. Budget Status**

Bowne Management has funds remaining from its effort in Task 4. CA will request a transfer of these funds to Task 5, to support finalization of the GIS, and any training required for the County to use the delivered system.

Wayne Crans, PhD, and Andrew Spielman and Richard Pollack (HSPH) did not use all of their allocated funds for this Task. CA will seek to have any unused funds for these individuals and organization transferred to Task 14, for expert advice in the development of the Environmental Impact Statement.

Sinnreich Safar and Kosakoff did not submit any invoices for work under this Task. CA will seek to transfer the funds for this Task to Task 14, in order to best utilize the firm’s legal advice in the Environmental Impact Statement process.

The budget status for the Task is presented in Table 1, along with proposed reallocations. CA has submitted a letter to Chief Deputy Commissioner Richard LaValle, Suffolk County Department of Public Works, requesting these proposed re-allocations.

Table 1. Proposed Remaining Task 4 Budget Reallocations

Organization	Original Task 4 Budget	Remaining Task 4 Budget as of 9/23/05	To Task 5	To Task 14
CA-CE	\$69,757	\$16.84		\$16.84
Bowne Management	\$97,512	\$6,264.79	\$6,264.79	
SSK	\$4,000	\$4,000		\$4,000
HSPH	\$6,400	\$2,000		\$2,000
Zawicki Management	\$12,200			
W. Crans	\$11,200	\$1,100		\$1,100