

# COUNTY OF SUFFOLK



STEVEN BELLONE  
COUNTY EXECUTIVE

DEPARTMENT OF ECONOMIC DEVELOPMENT AND PLANNING  
DIVISION OF PLANNING AND ENVIRONMENT  
COUNCIL ON ENVIRONMENTAL QUALITY

Lawrence Swanson  
Chairperson  
CEQ

## MEMORANDUM

TO: Interested/Involved Parties

FROM: <sup>JC</sup> John Corral, Senior Planner

DATE: October 4, 2018

RE: Proposed Acquisition of Land Under the Old Suffolk County Drinking Water Protection Program 12-5E (1)(a) – For the Orowoc Creek County Wetlands Addition – Giella Property, Town of Islip

---

Enclosed is an Environmental Assessment Form for the above referenced County project which has been submitted to the Council on Environmental Quality (CEQ) for review. Pursuant to Title 6 NYCRR Part 617 and Chapter 450 of the Suffolk County Code, the CEQ must recommend a SEQRA classification for the action and determine whether it may have a significant adverse impact on the environment which would require the preparation of a Draft Environmental Impact Statement (DEIS).

The Council would like to know your environmental concerns regarding this proposal and whether you think a DEIS or a determination of non-significance is warranted. This project will be discussed at the **October 17, 2018** CEQ meeting. If you are unable to attend the meeting to present your views, please forward any recommendations or criticisms to this office prior the date of the meeting. **If the Council has not heard from you by the meeting date, they will assume that you feel that the action will not have significant adverse environmental impacts and should proceed accordingly.**

JC/cd  
Enc.

cc: John Sohngen, Assoc. Public Health Engineer  
Suffolk County Department of Health Services  
Andrew P. Freleng, Chief Planner  
Department of Economic Development and Planning

# COUNTY OF SUFFOLK



**Steven Bellone**  
SUFFOLK COUNTY EXECUTIVE

**Department of  
Economic Development and Planning**

**Theresa Ward**  
Deputy County Executive and Commissioner

**Division of Planning  
and Environment**

October 3, 2018

Mr. Lawrence Swanson, Chairperson  
Council on Environmental Quality  
H. Lee Dennison Building – 11<sup>th</sup> Floor  
100 Veterans Memorial Highway  
Hauppauge, New York 11788

Dear Mr. Swanson:

Attached for your review and consideration is a Short Environmental Assessment Form and an Introductory Resolution authorizing the acquisition of land for open space preservation purposes known as the Orowoc Creek County Wetlands Addition – Giella Property in the Town of Islip. Please review the proposal and forward the Council's SEQRA recommendation to the County Executive and Legislature.

If you have any questions, please do not hesitate to contact Laretta Fischer of my staff.

Sincerely,

Sarah Lansdale, A.I.C.P.  
Director of Planning

cc: Laretta R. Fischer, Chief Environmental Analyst  
Melissa Kangas, Planning Aide  
Andrew Freleng, Chief Planner  
John Corral, Planner

**SUFFOLK COUNTY  
SHORT ENVIRONMENTAL ASSESSMENT FORM**

6 NYCRR Part 617

State Environmental Quality Review


**Instructions:** The applicant or project sponsor is responsible for the completion of Part 1. Responses become part of the application for approval or funding, are subject to public review and may be subject to further verification. Complete Part 1 based on information currently available. If additional research or investigation would be needed to fully respond to any item, please answer as thoroughly as possible based on current available information.

Complete all items in Part 1. You may also provide any additional information which you believe will be needed by or useful to the lead agency; attach additional pages as necessary to supplement any item.

**Part 1 – Project and Sponsor Information**

Name of Action/Project: Authorizing the Acquisition of Land Under the Old Suffolk County Drinking Water Protection Program 12-5 E(1)(a) - For the Orowoc Creek County Wetlands Addition - Giella Property (Town of Islip - SCTM # 0500-343.00-02.00-035.000)		
Project Location (include map): The property is located north of Moffitt Boulevard and east of Saxon Avenue in the hamlet of Islip, Town of Islip (SCTM# 0500-343.00-02.00-035.000)		
Brief Description of Proposed Action (include purpose, intent and the environmental resources that may be affected): Acquisition of land by Suffolk County under the Old Suffolk County Drinking Water Protection Program 12-5 E(1)(a) and its transfer to the County Parks Department in order to assure it remain as open space for passive recreational use.		
Name of Applicant/Project Sponsor: Suffolk County Division of Planning and Environment/Lauretta R. Fischer, Chief Environmental Analyst		Email: lauretta.fischer@suffolkcountyny.gov
		Telephone #: 631-853-6044
Address: 100 Veterans Memorial Highway, H. Lee Dennsion Bldg. - 2 <sup>nd</sup> Floor		
City/P.O.: Hauppauge	State: New York	Zip Code: 11788
1. Does the proposed action only involve the legislative adoption of a plan, local law, ordinance, administrative rule or regulation? If Yes, attach a narrative description of the intent of the proposed action and the environmental resources that may be affected in the municipality and proceed to Part 2. If No, continue to question 2.		Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
2. Does the proposed action require a permit, approval or funding from any other governmental agency?  If Yes, list agency(s) name and permit or approval: <input style="width: 60%; height: 20px;" type="text"/>		Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
3a. Total acreage of the site of the proposed action: 0.25		
3b. Total acreage to be physically disturbed: 0		
3c. Total acreage (project site and contiguous properties) owned or controlled by the applicant or project sponsor: 0.25		
4. Check all land uses that occur on, adjoining and near the proposed action:		

<input type="checkbox"/> Urban	<input checked="" type="checkbox"/> Forest	<input checked="" type="checkbox"/> Parkland	<input type="checkbox"/> Agriculture	<input type="checkbox"/> Rural (non-agriculture)
<input type="checkbox"/> Industrial	<input type="checkbox"/> Aquatic	<input checked="" type="checkbox"/> Commercial	<input checked="" type="checkbox"/> Residential (suburban)	<input type="checkbox"/> Other:
5a. Is the proposed action a permitted use under the zoning regulations?				Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A <input type="checkbox"/>
5b. Is the proposed action consistent with an adopted comprehensive plan?				Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A <input type="checkbox"/>
6. Is the proposed action consistent with the predominant character of the existing built or natural landscape?				Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A <input type="checkbox"/>
7. Is the site of the proposed action located in, or adjoining a state listed Critical Environmental Area (CEA)?  If Yes, identify CEA: <input type="text"/>				Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
8a. Will the proposed action result in a substantial increase in traffic above present levels?				Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
8b. Are public transportation services available at or near the site of the proposed action?				Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
8c. Are any pedestrian accommodations or bicycle routes available on or near the site of the proposed action?				Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
9. Does the proposed action meet or exceed the state energy code requirements?  If the proposed action will exceed requirements, describe design features and technologies: <input type="text"/>				Yes <input type="checkbox"/> No <input type="checkbox"/> N/A <input checked="" type="checkbox"/>
10. Will the proposed action connect to an existing public/private water supply?  If Yes, does the existing system have capacity to provide service? Yes <input type="checkbox"/> No <input type="checkbox"/>  If No, describe method for providing potable water: <input type="text"/>				Yes <input type="checkbox"/> No <input type="checkbox"/> N/A <input checked="" type="checkbox"/>
11. Will the proposed action connect to existing wastewater utilities?  If Yes, does the existing system have capacity to provide service? Yes <input type="checkbox"/> No <input type="checkbox"/>  If No, describe method for providing wastewater treatment: <input type="text"/>				Yes <input type="checkbox"/> No <input type="checkbox"/> N/A <input checked="" type="checkbox"/>
12a. Does the site contain a structure that is listed on either the State or National Register of Historic Places or dedicated to the Suffolk County Historic Trust?				Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
12b. Is the proposed action located in an archeological sensitive area?				Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
13a. Does any portion of the site of the proposed action, or lands adjoining the proposed action, contain wetlands or other waterbodies regulated by a federal, state or local agency?				Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>

<p>13b. Would the proposed action physically alter, or encroach into, any existing wetland or waterbody?</p> <p><b>If Yes</b>, identify the wetland or waterbody and extent of alterations in square feet or acres:</p> <input type="text"/>	<p>Yes <input type="checkbox"/> No <input checked="" type="checkbox"/></p>
<p>14. Identify the typical habitat types that occur on, or are likely to be found on the project site (check all that apply):</p> <p> <input type="checkbox"/> Shoreline      <input checked="" type="checkbox"/> Forest      <input type="checkbox"/> Agricultural/grasslands      <input type="checkbox"/> Early/mid-successional  <input checked="" type="checkbox"/> Wetland      <input type="checkbox"/> Urban      <input type="checkbox"/> Suburban </p>	
<p>15. Does the site of the proposed action contain any species of animal or associated habitats, listed by the State or Federal government as threatened or endangered?</p>	<p>Yes <input type="checkbox"/> No <input checked="" type="checkbox"/></p>
<p>16. Is the project site located in the 100 year flood plain?</p>	<p>Yes <input type="checkbox"/> No <input checked="" type="checkbox"/></p>
<p>17. Will the proposed action create storm water discharge, either from point or non-point sources?</p> <p><b>If Yes</b>,</p> <p>a. Will storm water discharges flow to adjacent properties? Yes <input type="checkbox"/> No <input type="checkbox"/></p> <p>b. Will storm water discharges be directed to established conveyance systems (runoff and storm drains)? Yes <input type="checkbox"/> No <input type="checkbox"/></p> <p><b>If Yes</b>, describe:</p> <input type="text"/>	<p>Yes <input type="checkbox"/> No <input checked="" type="checkbox"/></p>
<p>18. Does the proposed action include construction or other activities that result in the impoundment of water or other liquids (e.g. retention pond, waste lagoon, dam)?</p> <p><b>If Yes</b>, explain size and purpose:</p> <input type="text"/>	<p>Yes <input type="checkbox"/> No <input checked="" type="checkbox"/></p>
<p>19. Has the site of the proposed action or an adjoining property been the location of an active or closed solid waste management facility?</p> <p><b>If Yes</b>, describe:</p> <input type="text"/>	<p>Yes <input type="checkbox"/> No <input checked="" type="checkbox"/></p>
<p>20. Has the site of the proposed action or an adjoining property been the subject of remediation (ongoing or completed) for hazardous waste?</p> <p><b>If Yes</b>, describe:</p> <input type="text"/>	<p>Yes <input type="checkbox"/> No <input checked="" type="checkbox"/></p>
<p><b>I AFFIRM THAT THE INFORMATION PROVIDED ABOVE IS TRUE AND ACCURATE TO THE BEST OF MY KNOWLEDGE</b></p> <p>Applicant/Sponsor Name: Laurretta R. Fischer, Chief Environmental Analyst  Date: 10-3-2018</p> <p>Signature: </p>	

**SUFFOLK COUNTY**  
**SHORT ENVIRONMENTAL ASSESSMENT FORM**  
6 NYCRR Part 617  
State Environmental Quality Review

**Part 2 – Impact Assessment (To be completed by Lead Agency)**

	No, or small impact may occur	Moderate to large impact may occur
1. Will the proposed action create a material conflict with an adopted land use plan or zoning regulations?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
2. Will the proposed action result in a change in the use or intensity of use of land?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
3. Will the proposed action impair the character or quality of the existing community?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
4. Will the proposed action have an impact on the environmental characteristics that caused the establishment of a Critical Environmental Area (CEA)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
5. Will the proposed action result in an adverse change in the existing level of traffic or affect existing infrastructure for mass transit, biking or walkway?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
6. Will the proposed action cause an increase in the use of energy and fail to incorporate reasonably available energy conservation or renewable energy opportunities?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
7. Will the proposed action impact existing public/private water supplies?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
8. Will the proposed action impact existing public/private wastewater treatment utilities?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
9. Will the proposed action impair the character or quality of important historic, archaeological, architectural or aesthetic resources?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
10. Will the proposed action result in an adverse change to natural resources (e.g., wetlands, waterbodies, groundwater, air quality, flora and fauna)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
11. Will the proposed action result in an increase in the potential for erosion, flooding or drainage problems?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
12. Will the proposed action create a hazard to environmental resources or human health?	<input checked="" type="checkbox"/>	<input type="checkbox"/>

**SUFFOLK COUNTY**  
**SHORT ENVIRONMENTAL ASSESSMENT FORM**

6 NYCRR Part 617  
State Environmental Quality Review

**Part 3 – Determination of Significance**

The Lead Agency is responsible for the completion of Part 3. For every question in Part 2 that was answered “moderate to large impact may occur”, or if there is a need to explain why a particular element of the proposed action may or will not result in a significant adverse environmental impact, please complete Part 3. Part 3 should, in sufficient detail, identify the impact, including any measures or design elements that have been included by the project sponsor to avoid or reduce impacts. Part 3 should also explain how the lead agency determined that the impact may or will not be significant. Each potential impact should be assessed considering its setting, probability of occurring, duration, irreversibility, geographic scope and magnitude. Also consider the potential for short-term, long-term and cumulative impacts. Attach additional pages as necessary.

- Check this box if you have determined, based on the information and analysis above, and any supporting documentation that the proposed action may result in one or more potentially large or significant adverse impacts and an environmental impact statement is required. (Positive Declaration)
  
- Check this box if you have determined, based on the information and analysis above, and any supporting documentation that the proposed action will not result in any significant adverse environmental impacts. (Negative Declaration)

\_\_\_\_\_  
Name of Lead Agency

\_\_\_\_\_  
Date

\_\_\_\_\_  
Print or Type Name of Responsible Officer in Lead Agency

\_\_\_\_\_  
Title of Responsible Officer

\_\_\_\_\_  
Signature of Responsible Officer in Lead Agency

\_\_\_\_\_  
Signature of Preparer (if different from Responsible Officer)

**RESOLUTION NO. -2018 AUTHORIZING ACQUISITION OF LAND UNDER THE OLD SUFFOLK COUNTY DRINKING WATER PROTECTION PROGRAM [C12- 5(E)(1)(a)] – FOR THE GIELLA PROPERTY – OROWOC CREEK ADDITION (TOWN OF ISLIP - SCTM#0500-343.00-02.00-035.000)**

**WHEREAS**, Article XII of the SUFFOLK COUNTY CHARTER established the Old Suffolk County Drinking Water Protection Program, as amended and effective as of November 30, 2000, the first priority of which being the acquisition of qualified lands to be funded by revenues generated by the quarter percent (1/4%) sales and compensating use tax; and

**WHEREAS**, in compliance with Sections C12-3(B) and (C) of the SUFFOLK COUNTY CHARTER, as amended and effective as of November 30, 2000, prior to the Division Director of the Division of Real Estate entering into any negotiations for the acquisition of, and consummation of acquisition of any such parcel, the Board of Trustees of the Department of Parks, Recreation and Conservation shall review and recommend its acquisition; and

**WHEREAS**, adequate funding is provided for, under the Old Suffolk County Drinking Water Protection Program, pursuant to Section C12-5(E)(1)(a) of Article XII of the SUFFOLK COUNTY CHARTER, as amended and effective as of November 30, 2000, for the acquisition of such land; and

**WHEREAS**, Resolution No. 1064-2017 authorized planning steps and Procedural Motion No. 5-2018 authorized the acquisition of the subject property; and

**WHEREAS**, the Environmental Trust Review Board has reviewed the appraisals and the report of the Internal Appraisal Review Board and has approved the purchase price and authorized the Director of the Division of Real Estate to negotiate the acquisition; now, therefore, be it

**1<sup>st</sup> RESOLVED**, that the County of Suffolk hereby approves the acquisition of the subject property set forth below under Article XII of the SUFFOLK COUNTY CHARTER, Section C12-5(E)(1)(a), as amended and effective as of November 30, 2000, for a total purchase price of [REDACTED], subject to a final survey; and hereby authorizes additional expenses, which shall include but not be limited to the cost of surveys, appraisals, environmental audits, title reports and insurance, and tax adjustments:

<b><u>PARCEL:</u></b>	<b><u>SUFFOLK COUNTY TAX MAP NUMBER:</u></b>	<b><u>ACRES:</u></b>	<b><u>REPUTED OWNER AND ADDRESS:</u></b>
No. 1	District 0500	0.25±	Shirley Giella
	Section 343.00		191 Morris Drive
	Block 02.00		East Meadow, NY 11554
	Lot 035.000		

; and, be it further

**2<sup>nd</sup> RESOLVED**, that the Director of the Division of Real Estate and/or his designee, is hereby authorized, empowered, and directed, pursuant to Section C42-2(C)(3)(d) of the SUFFOLK COUNTY CHARTER, to acquire the parcel(s) listed herein above from the reputed owner, the



funding for which shall be provided under the Old Suffolk County Drinking Water Protection Program, Section C12-5(E)(1)(a) of the SUFFOLK COUNTY CHARTER, as amended and effective as of November 30, 2000, for a purchase price of [REDACTED], subject to a final survey; and, be it further

**3<sup>rd</sup> RESOLVED**, that the County Comptroller and County Treasurer are hereby authorized to reserve and to pay [REDACTED], subject to a final survey, from previously appropriated funds in 176-LAW-1423-4770 GDX2, under the Old Drinking Water Protection Program, Section C12-5(E)(1)(a) of the SUFFOLK COUNTY CHARTER, as amended and effective as of November 30, 2000, for this acquisition; and, be it further

**4<sup>th</sup> RESOLVED**, that the Director of the Division of Real Estate and/or his designee; the County Planning Department; and the County Department of Public Works are hereby authorized, empowered, and directed to take such actions and to pay such additional expenses as may be necessary and appropriate to consummate such acquisition, including, but not limited to, securing appraisals, title insurance and title reports, obtaining surveys, engineering reports and environmental audits, making tax adjustments and executing such other documents as are required to acquire such County interest in said lands; and, be it further

**5<sup>th</sup> RESOLVED**, that the subject parcel(s) shall be transferred to the Department of Parks, Recreation and Conservation for passive recreation use; and, be it further

**6<sup>th</sup> RESOLVED**, that the above activity is an unlisted action pursuant to the provisions of Title 6 NYCRR, Part 617; and, be it further

**7<sup>th</sup> RESOLVED**, that the project will not have a significant effect on the environment for the following reasons:

- 1.) the proposed action will not exceed any of the criteria in 6 NYCRR, Section 617.7, which sets forth thresholds for determining significant effect on the environment, as demonstrated in the Environmental Assessment Form; and
- 2.) the proposed use of the subject parcel(s) will be passive recreation; and
- 3.) if not acquired, the property will most likely be developed for residential purposes, incurring far greater environmental impact than the proposed acquisition and preservation of the site would have; and, be it further

**8<sup>th</sup> RESOLVED**, in accordance with Section 279-5(C)(4) of the SUFFOLK COUNTY CODE, the Suffolk County Council on Environmental Quality is hereby directed to prepare and circulate any appropriate notices or determinations in accordance with this resolution.

DATE:

APPROVED BY:

\_\_\_\_\_  
County Executive of Suffolk County

Date of Approval:

# OROWOC CREEK ADDITION - GIELLA PROPERTY

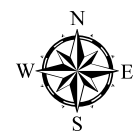
SCRPTM#: 0500 34300 0200 035000

Old Suffolk County Drinking Water Protection Program Section 12-5 E (1) (a)

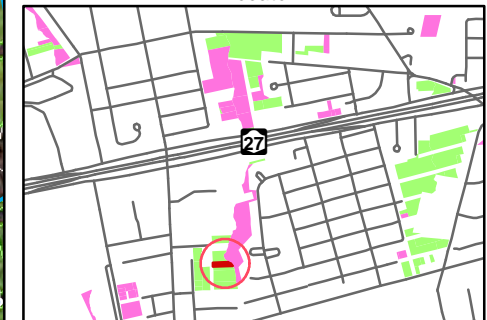
0.25 ± acres - Hamlet of Islip, Town of Islip



- Proposed Acquisition
- County of Suffolk
- Town of Islip
- SCRPTSA Tax Parcels
- SC Master List
- Planning Steps Reso 1002-2007
- NYS Freshwater Wetlands



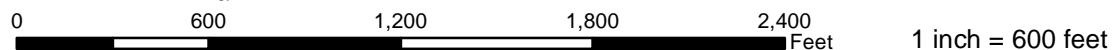
Locator



- Proposed Acquisition
- Town of Islip
- County of Suffolk

COPYRIGHT 2016, COUNTY OF SUFFOLK, N.Y.  
 Real Property Taxmap parcel linework used with permission of Suffolk County Real Property Tax Service Agency (R.P.T.S.A.). This rendering is a DRAFT MAP in that 1) the data displayed is an interagency or intra agency work produced for the purpose of identifying and correcting data. It is not a final agency determination. It is not statistical or factual compilation of data. In some cases correct data has been left out and questionable or inaccurate data has been exaggerated to help identify errors. In short, this is a DRAFT MAP produced in an effort to aid in the correction of data and is not held out as being complete or accurate in any way.

© 2016 Aerial Photography New York State Office of Information Technology Services.



# COUNTY OF SUFFOLK



STEVEN BELLONE  
COUNTY EXECUTIVE

DEPARTMENT OF ECONOMIC DEVELOPMENT AND PLANNING  
DIVISION OF PLANNING AND ENVIRONMENT  
COUNCIL ON ENVIRONMENTAL QUALITY

LAWRENCE SWANSON  
CHAIRPERSON  
CEQ

## MEMORANDUM

TO: Interested Parties/Involved Agencies  
FROM: <sup>JC</sup> John Corral, Senior Planner  
DATE: October 4, 2018  
RE: Proposed Vector Control 2019 Annual Plan of Work

Enclosed please find the 2019 Annual Plan of Work for the Suffolk County Vector Control Pesticide Management Committee which has been submitted to the Council on Environmental Quality (CEQ) for review. Pursuant to Title 6 NYCRR Part 617 and Chapter 450 of the Suffolk County Code, the CEQ must recommend a SEQRA classification for the action and determine whether it may have a significant adverse impact on the environment which would require the preparation of a Draft Environmental Impact Statement (DEIS).

The Council would like to know your environmental concerns regarding this proposal and whether you think a DEIS or a determination of non-significance is warranted. This project will be discussed at the October 17, 2018 CEQ meeting. If you are unable to attend the meeting to present your views, please forward any recommendations or criticisms to this office prior the date of the meeting. **If the Council has not heard from you by the meeting date, they will assume that you feel that the action will not have significant adverse environmental impacts and should proceed accordingly.**

JC/cd  
Enc.

cc: John Sohngen, Assoc. Public Health Engineer  
Suffolk County Department of Health Services  
Andrew P. Freleng, Chief Planner  
Department of Economic Development and Planning  
Carrie Meek-Gallagher, NYSDEC

COUNTY OF SUFFOLK



STEVEN BELLONE  
SUFFOLK COUNTY EXECUTIVE

DEPARTMENT OF PUBLIC WORKS

DARNELL TYSON, P.E.  
DEPUTY COMMISSIONER

GILBERT ANDERSON, P.E.  
COMMISSIONER

ERIC M. HOFMEISTER  
DEPUTY COMMISSIONER

MEMORANDUM

**TO:** Jason Richberg,  
Clerk of the Suffolk County Legislature

**FROM:** Gilbert Anderson, P.E.  
Commissioner

**DATE:** October 1, 2018

**RE:** Division of Vector Control 2019 Annual Work Plan

Pursuant to Article VIII, Section C8-4, B(2) of the Suffolk County Administrative Code, enclosed please find a copy of the 2019 Annual Plan of Work for the Division of Vector Control for distribution to all members of the Legislature. This Annual Plan is consistent with the Findings of the Vector Control and Wetlands Management Long Term Plan and GEIS as approved by the Legislature in Resolution 285-2007 on March 20, 2007 and signed by the County Executive on March 22, 2007. As such, no further compliance under SEQRA is required.

A resolution for approval of the 2019 Plan of Work will be submitted to the Legislature by the County Executive's Office.

Thank you for your cooperation.

Attachments: Plan of Work, EAF, Long Term Plan Resolution with Findings

cc: Dennis Cohen, Chief Deputy County Executive  
Theresa Ward, Deputy County Executive & Commissioner, EDP  
Darnell Tyson, P.E., Deputy Commissioner, DPW  
Eric Hofmeister, Deputy Commissioner, DPW  
Thomas Iwanejko, Vector Control Director  
John Corral, CEQ

SUFFOLK COUNTY IS AN EQUAL OPPORTUNITY/AFFIRMATIVE ACTION EMPLOYER

SUFFOLK COUNTY DEPARTMENT OF PUBLIC WORKS  
DIVISION OF VECTOR CONTROL



2019 ANNUAL PLAN OF WORK

Introduction: The Suffolk County Department of Public Works, Division of Vector Control, is responsible under the County Charter to use every means feasible and practical to suppress mosquitoes, ticks and other arthropods which are vectors of human disease requiring public action for their control §C8-4(B). The Division's responsibility is to control infestations of mosquitos, ticks and other arthropods that significantly threaten public health, or create social or economic problems for the communities in which they occur. The Division meets its responsibilities in consultation with the Suffolk County Department of Health Services (SCDHS) and appropriate federal, state and local agencies.

MOSQUITO RESEARCH SURVEILLANCE AND CONTROL

Background: Suffolk County has a long history of mosquito control efforts that first began under the United States Department of Agriculture (USDA) in 1900 with experimental projects for malaria and salt marsh mosquito control. Additional control efforts were often undertaken by owners of large estates and resorts located along the coastline seeking control of salt marsh mosquitoes through private ditch construction. Demand for a structured mosquito control program grew in Suffolk as effective levels of mosquito control were seen in Nassau County, New York City and New Jersey through both wetland filling and the ditching of marshes. In 1933, a countywide mosquito control began under the Suffolk County Emergency Work Relief Bureau, which provided jobs during the Great Depression. The Suffolk County Mosquito Extermination Commission was later created in 1934 to unite the individual town and private control efforts under a central agency. A significant increase in mosquito control efforts was further funded under the Federal Works Project Administration (WPA) in 1937 employing over 650 workers to assist the Suffolk County Mosquito Extermination Commission. It was during the years of 1933-1938 that the majority of our 9.5 million feet of mosquito ditches were created throughout Suffolk.

In 1974, the Suffolk County Charter was amended transferring the mosquito control functions and authority from the Mosquito Control Commission to the Suffolk County Department of Health Services, Division of Public Health, Bureau of Vector Control. During 1992, due to budget deficits, the county legislature transferred Vector Control from Health Services to the Department of Public Works, Division of Vector Control.

## 2019 ANNUAL PLAN OF WORK- DIVISION OF VECTOR CONTROL

### Vector Control Annual Plan of Work:

The Suffolk County Charter and New York State law requires an annual Vector Control plan of work for the succeeding year be submitted by resolution for legislative approval each year. This Plan of Work has been prepared pursuant to and in compliance with the Vector Control and Wetlands Management Long Term Plan and Generic Environmental Impact Statement (the Long Term Plan). The Long Term Plan was approved by the County Legislature as Resolution 285-2007 on March 20, 2007 and signed by the County Executive on March 22, 2007. The 2019 Annual Plan of Work is therefore governed by State Environmental Quality Review Act (SEQRA) Regulation 617.10(d)(1) which provides the following: "When a final generic EIS has been filed under this part (1) no further SEQR compliance is required if a subsequent proposed action will be carried out in conformance with the conditions and thresholds established for such actions in the generic EIS or its findings statement." This issue is also discussed in the Findings, appended hereto, pages 7 and 58. The 2015 Plan of Work added the use of a new active ingredient, prallethrin, which required a modification of the Long Term Plan. In accordance with the Findings, a SEQR review of prallethrin was conducted in order to allow the use of the new active ingredient. This review was completed with the issuance of a Negative Declaration as CEQ Resolution 34-2014 and the modification of the Long Term Plan approved by the Legislature as Resolution 706-2014. This Annual Plan complies with the reporting requirements in Executive Order 15-2007 (Suffolk County Vector Control Pesticide Management Committee) and Resolution 285-2007 (which adopted the Findings Statement for the Long-Term Plan). The reporting requirements of Resolution 285-2007 are satisfied within this Annual Plan, and the Pesticide Management Committee submits a report to CEQ independently to satisfy Executive Order 15-2007.

### 2018 SUMMARY OF VECTOR CONTROL ACTIVITIES

1. Service Requests: For 2018, over 1,150 service requests were taken by office staff concerning mosquito issues and over 650 e-mail requests were sent in via our web app (<http://dpw.suffolkcountyny.gov/vectorcomplaint/>). Incorporating the web app has allowed residents to report on mosquito issues of concern 24/7 and reduces staff time spent taking telephone calls.
2. Public Education: Vector Control staff continue to give presentations to community associations and commercial pest control applicators on mosquito and tick issues including the expanding Asian Tiger mosquito and tick surveillance and control. Education of homeowners also occurs when field crews conduct inspections of private property advising residents on steps they can take around their home to reduce mosquito and tick encounters. If no one is home during an inspection, crews will leave an educational flyer on mosquito control to help inform residents. Health Services staff also holds informative meetings, post to social media and updates the County website with information and findings on mosquito borne diseases, steps homeowners can take and updating postings for mosquito spray events.
3. Water Management: Wetland activities conform to the guidelines set forth in the Long Term Plan and follow the GEIS Finding statement's Wetlands Best Management Practices

## 2019 ANNUAL PLAN OF WORK- DIVISION OF VECTOR CONTROL

(BMP's). The Wetlands Stewardship Program finalized the Wetlands Stewardship Strategy in 2015 and Vector Control works under the programs guidance. Maintenance of existing structures (select ditches and culverts) are conducted as described in BMP's 2, 3 and 4 in the Findings Statement and Long Term Plan. Water management projects beyond BMP's 2, 3, and 4 undergo review through SEQRA, and are subject to Suffolk County's Council of Environmental Quality (CEQ) and legislative review.

With the Wetlands Stewardship Strategy finalized, the County is undertaking several Integrated Marsh Management (IMM) projects as called for under the plan. The County has received \$1.3M in Sandy funding from the National Fish and Wildlife Foundation Coastal Resiliency grant for IMM work to be done in the Town of Islip in cooperation New York State Department of Environmental Conservation. Marsh restoration projects will be undertaken at Gardiner's County Park in West Islip, West Sayville County Park, and at Timber Point DEC wetlands in Great River. These projects have received all required permits and are in NEPA review. Once the NEPA review has been completed, work will begin during the 2018-2019 winter season. The County has also received \$560,000 from a Federal Hazard Mitigation Grant Program under FEMA for IMM work at Smith Point County Park in Shirley for costal marsh resiliency. Permits have also been secured for from the NYSDEC for this project with NEPA review and construction targeted for winter of 2019-20 completion.

The Beaverdam Creek County Park in Brookhaven Hamlet is being studied for the re-establishment of a wetlands complex at a dredge spoil impacted marsh. This project is a cooperative undertaking between several County agencies and the Post Morrow Foundation. The goal of this restoration project is to return tidal circulation to a diked marsh that is a mostly phragmites and several low areas that breed salt marsh mosquitoes. A tidal creek will be created through the dike to allow for the return of salt marsh vegetation, phragmites control and a reduction in mosquitoes by allowing killifish access to the low areas of the site.

A cooperative project with the Town of East Hampton, the East Hampton Trustees and The Nature Conservancy is underway to map mosquito breeding activity in Accabonac Harbor with the goals of pesticide reduction and preliminary design work for potential wetlands restoration project. The cooperative project began in 2017 with Stony Brook University Student Interns using GPS to plot mosquito breeding locations, with the locations mapped and characterized by level of activity. In 2018, the East Hampton Trustee's expanded the cooperative program to utilize additional samplers and to cover 190 acres of Accabonac Harbor marshlands. Using the data, aerial treatment zones were remapped allowing for Vector Control to greatly reduced pesticide use while continuing to protect human health and quality-of-life. The cooperative project is expected to continue in 2019, with the goal of using the data to collaborate on work for the next phase of the project to begin planning for wetland restoration. Restoration planning using the identified mosquito hotspots will further reduce or potentially eliminate the need to treat Accabonac Harbor using pesticides on a regular basis. This pilot project will be used as a guide to invite other cooperators to develop similar programs at marsh complexes within their jurisdictions. This program will greatly benefit the County through cost savings from reduced pesticide and helicopter usage and through restoration of wetlands resulting in environmental benefits to the marsh community and those who depend on its flora and fauna. Estimated cost savings to the County from the

## 2019 ANNUAL PLAN OF WORK- DIVISION OF VECTOR CONTROL

2018 Accabonac Harbor wetland project is \$18,000 from reduce pesticide applications and helicopter hours treating the marsh. This savings was achieved by reducing the treatment blocks at Accabonac from approximately 190 acres to only the 70 acres identified as active mosquito breeding hotspots.

A NYSDEC grant for the restoration of a former Terry Creek marsh at the Indian Island County Park in Riverhead is being reevaluated for fiscal feasibility. Plans for the restoration include restoring a historic tidal creek at the site, establishing tidal wetland vegetation and installing a culvert over an active park roadway. The project is under review due to the high costs associated with moving the dredge spoil material off-site.

Suffolk County was awarded a \$795,000 USDA - NRCS grant for restoring 25 Sandy impacted parcels within the Mastic Beach area to their former historic wetland condition. There are 3 damaged homes and bulk heading that will also be removed under this grant to restore the wetland ecosystem. Vector Control will be undertaking the wetland restoration of these parcels and work with other DPW Divisions on the removal of the structures.

4. Larval Control: Crews perform approximately 7,450 inspections of larval sites. Checked and treat as required 20,000 catch basins in communities with past history of West Nile virus positive pools or human cases. Vector Control crews also investigated over 110 reported abandoned swimming pools that were reported from the public and municipal agencies to be investigated by staff.

Treated approximately 20,000 acres with the biorational larvicides: *Bacillus thuringiensis israelensis* (Bti), *Bacillus sphaericus* or methoprene depending on mosquito stage of development, weather, coastal tides and virus findings [See table of pesticide usage on the last page of the Plan]. Improvements to the aerial larval control program through incorporating the product VectoPrime FG, a granule with a Bti/methoprene mix allowed for better targeting application sites with reduced drift issues compared to the liquid products. The granule also allows applications over upland vegetated transition zones, where tree cover makes application using liquids difficult. VectoPrime FG is a quick acting, non-residual product that does not persist in the environment. Cost per acre is more expensive using the VectoPrime FG, but savings are anticipated in the reduced need for follow-up adult control (ULV fogging) through improved targeting of the larval breeding sites.

5. Adult Control: We conduct adult control when infestations are severe and widespread and/or necessary to respond to the presence of mosquito-borne pathogens. Community-wide requests for adult control were reduced in 2018, with the notable exception of the communities of Mastic, Mastic Beach, South Shirley and Brookhaven Hamlet that border the Fire Island National Seashore and William Floyd Estate. While marshlands within the neighboring US Fish and Wildlife Refuge at Wertheim allow for regulated mosquito control activities under a special use permit, the National Park Service does not allow Vector Control to treat their land holdings, except under tiered conditions for virus response. This creates unique hardships on the neighboring communities to the Fire Island Seashore from



## 2019 ANNUAL PLAN OF WORK- DIVISION OF VECTOR CONTROL

immense numbers of biting mosquitoes migrating into these areas and results in the need for repeated adult ULV spraying of adjoining residential areas.

6. Research and Surveillance: Vector Control field crews and lab staff collect and identify over 100,000 larval and adult mosquito samples each season, depending on mosquito population and local viral activity levels. In addition, Health Services Arthropod-Borne Disease Laboratory (ABDL) collects and process approximately 50,000 mosquitoes for arbovirus surveillance. Vector Control responds to virus isolations in consultation with the Health Commissioner and staff and evaluates the effectiveness of treatments in cooperation with the ABDL. Vector staff perform special studies of new mosquito problem areas, monitoring for pesticide resistance, identifying the sources of unusual infestations or researching introduced vector species, including the Asian Tiger Mosquito.

### Technical and Institutional Framework for Vector Control

To achieve this goal, the Division employs an integrated control program also referred to as integrated pest management or IPM. Control measures are employed in a hierarchical manner that emphasizes prevention of the concern, and are guided by a surveillance program to ensure that control measures are only directed to address a clear need. Control proceeds from the long-term, environmentally sound measures such as wetland management and biological control to the use of highly specific larvicides, and only incorporates chemical control by adulticiding if other measures prove to be either insufficient or not feasible. This integrated approach is recognized as the most effective and environmentally sound manner in which to conduct a mosquito control program.

Because mosquitoes are of high public health importance, the Division works closely with SCDHS Arthropod Borne Disease Laboratory (ABDL). The ABDL concentrates its efforts on surveillance for mosquito-borne pathogens, primarily the arboviruses West Nile Virus (WNV), Zika and Eastern Equine Encephalitis (EEE). The Vector Control Division conducts laboratory work that concentrates on estimating populations of mosquito adults and larvae identification. The Division also conducts laboratory work related to special projects designed to improve the control program and to evaluate the impacts of wetlands management. The results of this surveillance are used to guide and evaluate the Division's ongoing control work.

During times of a declared public health threat, the Division comes under the operational control of SCDHS. However, these declarations are rare and are issued by the New York State Health Commissioner as was the case in 2017 for the finding of EEE in Manorville.

The New York State Department of Health (NYSDOH) provides important support to the program by analyzing mosquito samples for pathogens, providing technical advice and guidelines and determining when a public health threat declaration is required. NYSDOH also provides significant assistance with public education, as well as financial aid for vector surveillance and control. Because mosquito control involves work in environmentally sensitive areas and the use of pesticides, environmental compliance and protection are important components of the program. The Division is heavily regulated and subject to inspection under a series of New York State Department of Environmental Conservation (DEC) permits, as well as

## 2019 ANNUAL PLAN OF WORK- DIVISION OF VECTOR CONTROL

regulations pertaining to the use of pesticides and licensing of applicators. Close contact is maintained with DEC, United States Fish and Wildlife Services (USFWS), EPA and other agencies throughout the year to ensure that all work is conducted to a high environmental standard.

### 2019 PROGRAM COMPONENTS

WATER MANAGEMENT: Field personnel conduct this component from January 1 to April 30, and October 1 to December 31 (varies due to seasonal weather). Water management during the winter months is a functional way to reduce the need for pesticide applications during the summer, by keeping mosquito ditches and creeks free of blockages. The Division expects to conduct water management in each of the County's ten towns, as needed. Highest priority is assigned to larval habitats where adult mosquito infestations have the greatest potential for negative impact. In particular, areas that had virus isolations or showed unexpectedly high infestations in 2018 will have high priority over the coming winter. Water management activities will be carried out in such a manner so that the primary goal of the work will be to protect the health of the marsh, while also reducing mosquito numbers.

Water management minimizes mosquito production through maintaining or improving systems of tidal channels, ditches, culverts and other structures that drain off surface water and/or allow access to potential larval habitats by predatory fish. In some cases, the current ditch system has become an important component of the wetland as it exists today, and maintenance of the system is necessary to maintain tidal flow, fish habitat, or existing vegetative patterns. Much of this is maintenance work that may not require a permit, but is nonetheless conducted after consultation with the New York State Department of Environmental Conservation (DEC) to ensure consistency with conservation of the wetland. More extensive work to rehabilitate wetlands in a manner that restores and preserves resource values while also reducing mosquito production is now underway under the umbrella term Integrated Marsh Management (IMM). In accordance with the Long Term Plan, all water management activities are conducted with appropriate notification to and oversight by the Council for Environmental Quality (CEQ), as outlined in the Findings Statement of the Suffolk County Legislature that was adopted by Suffolk County Resolution 285-2007.

The Wetlands Stewardship Committee completed its work in establishing standards for wetlands Best Management Practices (BMP's) and a Wetlands Stewardship Strategy was issued by Executive Order 01-2015 on July 13, 2015. With that Strategy in place, plans for 2019 include more extensive grant sponsored marsh restoration projects. These are projects that restore and enhance the natural resource values of the wetlands while also reducing or eliminating the need for pesticides to control mosquitoes. All work is planned in partnership with the landowner and NYSDEC, USFWS and other natural resources agencies and undergoes SEQRA/CEQ review as required.

CONTROL OF MOSQUITO LARVAE: All field personnel conduct larval control during the active mosquito season. Most crews conduct ground larviciding, while a heavy equipment crew assists in helicopter larvicide applications. This component is conducted during the active mosquito season of May 1 to October 1. Larval control is required when water management has

## 2019 ANNUAL PLAN OF WORK- DIVISION OF VECTOR CONTROL

not been able to completely prevent mosquito production or is not appropriate for the site. Larval control is the Division's second most important control method. Ground crews visit known larval habitats, check for the presence of larvae, obtain larval specimens for identification in the laboratory and apply larvicide if necessary. Field crews also eliminate larval habitats by unclogging pipes, removing containers or otherwise eliminating standing water. While the acreage of these sites is often small, their proximity to residential areas makes them important sources. Ground crews also respond to complaints from the public. The Division's most intense efforts are directed to the major salt marshes and wetland complexes, which require use of the helicopter. These large marshes are surveyed weekly, or after extreme flood tides. If larvae are discovered, a contract helicopter applies larvicide. For salt marshes and similar habitats, either Bti (*Bacillus thuringiensis israelensis*), Altosid (methoprene), or a combination of materials are applied, based on larval stage, temperature, and weather conditions. Larval control is employed if inspection of a site reveals larval production is occurring.

The larval control products to be used in 2019 and the conditions under which they are used are described as follows:

Altosid Liquid Larvicide Concentrate (methoprene, EPA 2724-446) – Aerial application to tidal and freshwater marshes.

Altosid Liquid Larvicide (methoprene, EPA 2724-392) – Ground application to tidal and freshwater marshes, as well as other temporarily flooded areas.

Altosid Pellets (methoprene, EPA 2724-448) – Ground application to intermittently or permanently flooded areas such as freshwater swamps, catch basins, drainage areas and recharge basins, provided that they are not fish habitats.

Altosid XR-G (methoprene, EPA 2724-451) – Ground or aerial application to tidal wetlands; ground application to intermittently flooded freshwater areas; aerial application in freshwater areas in response to Eastern Equine Encephalitis (EEE) or West Nile Virus (WNV) with required approval by DEC.

Altosid XR Briquets (methoprene, EPA 2724-421) – Catch basins and other drainage or artificial structures that are not fish habitats.

Aquabac 200G (Bti, EPA 62637) – Ground application to intermittently flooded freshwater and tidal areas.

Sphaeratax SPH (50G) (*B. sphaericus*, EPA 84268-2) – Ground application to freshwater and brackish areas that hold stagnant water such as ditches, impounded marshes, swamps, puddled areas, sewage lagoons; late season application to catch basins.

Valent BioSciences Vectobac 12 AS (Bti, EPA 73049-38) – Aerial application to tidal and freshwater marshes; ground application to intermittently flooded areas such as tidal and freshwater marshes.

## 2019 ANNUAL PLAN OF WORK- DIVISION OF VECTOR CONTROL

Summit B.t.i. Briquets (Bti, EPA 6218-47) – Catch basins, ground depressions, artificial sites.

Fourstar Briquets 90 (Bti plus B. sphaericus, EPA 83362-3) – Catch basins, ground depressions, artificial sites

Valent VectoPrime (Bti and methoprene EPA 73049-501) – Ground and aerial application to tidal and freshwater marshes, as well as other temporarily flooded areas.

Valent VectoBac WDG (Bti EPA 73049-56) – Ground and aerial application to tidal and freshwater marshes, as well as other temporarily flooded areas.

The equipment to be used for larval control includes various trucks for crew transportation, samplers such as dippers and mosquito traps, truck-mounted hydraulic sprayers, backpack sprayers and granular blowers, plus specially-equipped helicopters for larvicide applications on areas too large or inaccessible for ground treatment. All pesticide applications use USEPA and NYSDEC registered materials and are conducted under appropriate Article 15 Protection of Waters and Article 24 Freshwater Wetland DEC permits and in accordance with label directions and other relevant State and Federal law.

The Division has developed technical guidelines for larval surveillance and control that determine where and when larvicides are used and what materials are selected for a particular situation. These guidelines emphasize the use of bacterial products when possible and reserve methoprene for those situations where bacterial products are unlikely to be effective. As per the Findings for the Long Term Plan and Executive order 15-2007, the Pesticide Management Committee has reported on the results of its review of literature on methoprene and potential impacts, as well as on research sponsored by the County. The Committee found no significant new concerns regarding the use of methoprene. The County is committed to implementing a Pesticide Reduction Action Plan, that will seek to further accelerate pesticide reduction. As part of this Pesticide Reduction Action Plan, the County will continue to work with technical experts to further refine protocols related to larval monitoring and larvicide usage, consistent with the Long-Term Plan and GEIS. The County is not aware of any new data, studies or reports which contravene research, reports and Findings of the Long Term Plan with respect to larval treatment guidelines or thresholds. Therefore, those Findings are still valid, and govern this Annual Plan.

In accordance with the Division's priorities and goals, approximately 1,500 major larval habitats known to the Division are regularly surveyed and controlled as necessary throughout the active season. These known historic mosquito habitats consist primarily of freshwater wetlands and salt marshes, as well as roadside ditches, recharge areas and other non-wetland sites. The remaining major larval habitats and the countless artificial container larval sites will be controlled on a service requested basis, as resources permit. Maps showing major larval habitats requiring control are on file at the Division's office in Yaphank.

**CONTROL OF ADULT MOSQUITOES:** This control method is conducted generally from May through September, but is highly weather dependent. It is carried out only when adult infestations constitute an immediate threat of mosquito-borne disease or there is a severe and widespread infestation of vector species, as determined by surveys and/or numerous public

## 2019 ANNUAL PLAN OF WORK- DIVISION OF VECTOR CONTROL

complaints. While the need for adult control can be reduced by the other program components, it is not possible to control all larval sites in Suffolk County for a variety of reasons including shifting weather patterns, disease findings and storm events. In addition, some Federal lands are restricted as Wilderness including extensive portions of Fire Island National Seashore and William Floyd Estate in Mastic Beach. It is also not appropriate to treat for adult mosquitoes in every area where residents express a concern, nor is it reasonable to treat small areas or individual properties for adult mosquitoes. Adult control is conducted only when it is clear, based on complaints, Division trap surveillance and/or SCDHS consultation that a substantial portion of a community is infested with vector species or there is a threat of mosquito-borne disease. Then, the entire affected area is treated so as to give relief to the greatest number of residents in an environmentally sound and cost effective manner. The guidelines for adult control in this Plan are consistent with those described in the GEIS Findings Statement.

Adult control can be deemed to be necessary under two separate operational scenarios in the GEIS. One is defined as a “Vector Control” (public health nuisance) application, the other is defined as “Health Emergency” application. Vector Control adulticide applications are made to reduce excessive numbers of human biting mosquitoes that could impact public health and quality of life by their biting activities. These high populations also represent potential vectors if a pathogen is present or appears in the area. Health Emergency applications are made when an unacceptably high risk of disease transmission to humans is detected, based on the ongoing presence of pathogens in mosquitoes. In either case, pesticide use decisions are only made on the basis of scientifically-determined surveillance data.

The need for responding to a Health Threat is determined under the New York State Department of Health West Nile Virus Response Plan and the County’s Zika Action Plan, adapted for local conditions by staff experts at Vector and Health Services. Because of the persistent presence of WNV in the County, the County perpetually begins each year in Risk Category 2. The New York State Department of Health has determined that there is an ongoing threat to the public health from West Nile Virus, and no longer declares health threats each year. The determination of when the threat of west Nile rises to the level that requires adulticiding is made by the County Vector Control staff in consultation with the Health Commissioner and ABDL staff. As additional pathogens including Zika virus becomes established in the US; the CDC, NYS Health and Suffolk continually reevaluate the risk to County residents. Currently, only travel related Zika cases have been reported in Suffolk, but Health ABDL continues to monitor Asian Tiger mosquitoes that have shown competence to carry Zika.

The need for adulticiding in response to WNV varies greatly from year to year. An analysis of Suffolk County’s WNV history during the years 2000-2017 indicates that most years, (10 of 17) the number of human cases of WNV was low, 0-4 cases. Under such conditions, the WNV human transmission risk level is low, even when WNV is found in the County. In these low risk years, determining exactly where and when to adulticide is nearly impossible with limited data. As a result, in low years, adulticiding is usually not warranted due to the difficulty in delineating specific areas to target. High risk years are caused largely by environmental conditions favorable to virus amplification in birds and mosquitoes, such as a warm spring and a hot dry summer weather. These conditions manifest themselves in late June and early July through higher than normal numbers of positive mosquito samples and calculated infection rates. WNV history also

## 2019 ANNUAL PLAN OF WORK- DIVISION OF VECTOR CONTROL

demonstrates that, in years when WNV activity is higher than normal, human cases are more likely to occur in certain parts of the County than other areas. In years with early indicators of high risk, adulticiding targeted to these high risk areas can measurably reduce the risk of human transmission and is therefore warranted. When a high risk year is identified, these WNV applications generally take place in late July and August during peak transmission. Responding to early indications of high risk is important, because adulticiding should occur before peak human transmission occurs in the first 2-3 weeks of August. Waiting to see transmission results in actual human cases is not appropriate because by the time cases are detected, transmission has been ongoing for several weeks and it may be too late to prevent further transmission. Whenever a virus isolation or human case is identified, Vector Control crews are sent to scout the area and treat locations of standing water, including catch basins and recharge basins/sumps.

As indicators of risk of transmission to humans accumulate, Vector Control and Health determines when control measures are best suited to the situation and which areas should be targeted for maximum benefit. The Commissioner of the SCDHS generally makes the final determination of the need for adult control in response to pathogens if a public health threat is declared. This strategy is consistent with the goal in the Findings to reduce the use of pesticides by a targeted tiered approach.

To ensure adulticides are used only when there is a clear need and a likely benefit, the criteria for conducting an adulticide treatment will include:

### **1. Evidence of high numbers of mosquitoes biting residents and visitors (Vector Control):**

- Service requests from public - mapped to determine extent of problem.
- Requests from community leaders, elected officials.
- New Jersey trap counts higher than generally found for area in question (at least 25 females of human-biting species per night).
- Centers for Disease Control (CDC) portable light trap counts of 100 or more.
- Confirmatory crew reports from the problem area or adjacent larval habitat, with landing rates of over one biting mosquito per minute over a five minute period.

### **2. Higher than normal risk of human disease transmission that can be reduced by adulticiding (Health Threat):**

- Indications of a higher than normal year for WNV activity County-wide as determined by such measures as infection rates and/or the number or proportion of positive mosquito samples, especially by late July or early August. In a year with normal or below normal levels of WNV activity, adulticiding is generally not indicated.
- In a high risk year, adulticiding may be warranted when there are indications of higher than normal levels of WNV risk (such as the number of positive mosquito samples, infection rates, vector species populations and history of human transmission) in particular areas. Adulticiding priority will be given to those parts of the County where WNV cases have occurred in multiple years and at high densities compared to the rest of the County.
- Zika response will occur when positive mosquitoes are found in traps or local transmission by mosquitoes is suspected due to acquired cases without travel history.
- Adulticiding will be strongly considered if EEE is detected during July, August or September when human transmission is most likely.

## 2019 ANNUAL PLAN OF WORK- DIVISION OF VECTOR CONTROL

- Adulticiding in response to other pathogens (such as dengue, chikungunya, malaria or other emerging pathogens) will be considered on a case-by case basis based on the vector ecology of the pathogen involved.

### **3. Control is technically and environmentally feasible:**

- A target area can be clearly defined based on geographic features and the distribution of vector species and other risk factors.
- Weather conditions are predicted to be suitable for ULV application when mosquitoes are active. Aerial applications in response to WNV are particularly dependent on weather conditions, and near-ideal conditions of low wind combined with high temperatures and humidity are needed for truly effective results.
- The road network is adequate and appropriate when truck applications are considered.
- Legal restrictions on the treatment of wetlands, open water buffers, and no-spray list members in the treatment zone will not create untreated areas that would prevent adequate coverage to ensure treatment efficacy.
- There are no issues regarding listed or special concern species in the treatment area.
- Meeting label restrictions for selected compounds will not compromise expected treatment efficacy.

### **4. Likely persistence or worsening of problem without intervention:**

- Considerations regarding the history of the area, such as the identification of a chronic problem area for biting mosquitoes or a history of virus transmission.
- Seasonal cycles of pathogen activity, such as whether or not the treatment is in time to prevent WNV transmission or whether it is too late and most transmission has already occurred.
- Determination if the problem will spread beyond the currently affected area absent intervention, based on the life history and habits of the species involved.
- Crew reports from adjacent larval habitats suggest adults will soon move into populated areas.
- Life history factors of mosquitoes present – i.e., if a brooded species is involved, determining if the brood is young or is naturally declining.
- Weather factors, in that cool weather generally alleviates immediate problems, but warm weather and/or the onset of peak viral seasons exacerbate concerns.
- Determining, if the decision is delayed, will later conditions prevent treatment at that time or not. Conversely, adverse weather conditions might reduce the treat of disease transmission.

In essence, criteria 1 and/or 2 are necessary thresholds which should be met, prior to a treatment being considered, while criteria 3 and 4 are countervailing factors that would indicate treatment might not be required. Treatment will not occur unless criteria 1 or 2 are satisfied through a combination of surveillance indicators, although not all surveillance techniques may be feasible in every setting and situation. The County is not aware of any new data, studies or reports which contravene the research, reports and Findings of the Long Term Plan with respect to adulticide treatment guidelines or thresholds. Therefore, those Findings remain valid and guide this Annual Work Plan.

## 2019 ANNUAL PLAN OF WORK- DIVISION OF VECTOR CONTROL

Vector Control applications will normally be made by truck since that technique has been shown to be effective for the most common species involved, although aerial application remains an option for unusually widespread problems or areas with limited road networks. Health Threat applications will generally be done by aerial application due to the need to treat large areas. Necessary public notices will be issued in a timely manner (normally, at least 24 hours pre-application), and appropriate precautions will be made to meet DEC restrictions on applications, and to avoid “No Spray” properties. To protect sensitive resources, buffer areas will be provided as needed between the sensitive area and the application equipment. A 150-foot buffer from freshwater wetlands will be provided to avoid the need for DEC Article 24 (Freshwater Wetlands) permits unless a permit or other authorization from DEC has been received prior to treatment.

In 2009 and previous years, an Emergency Authorization was requested from DEC if freshwater wetlands were involved to eliminate the need for an Article 24 (Freshwater Wetlands) permit. In 2011, NYSDEC issued Vector control an Article 24 permit to allow adulticide applications in freshwater wetlands and adjacent areas, if necessary, to protect the public health and replace the use of Emergency Authorizations. This DEC permit controls the use of adulticides in and adjacent to freshwater wetlands during the term of that permit: 2011-2020. The permit covers Health Threat applications throughout the County and also allow Vector Control applications in and adjacent to some freshwater wetlands in heavily developed areas of southern Brookhaven Town. Appropriate required public notices are issued in collaboration with Health, including CodeRed telephone alerts, website and phone hotline notices and social media updates. If an aerial application is required, the helicopter is equipped with a GPS and weather monitoring guidance technology will be used to optimize the delivery of the pesticide specifically to the targeted zone.

Efficacy measurements will be made following adulticide applications as weather conditions and staff resources allow. The Long-Term Plan also calls for the establishment of resistance testing for the more commonly used compounds. Continued testing of local mosquitoes against resmethrin (Scourge), sumithrin (Anvil) and Duet (sumithrin and prallethrin) in 2016 through 2018 revealed no local resistance to these materials in several species of mosquitoes tested. Species tested included *Aedes albopictus* the Asian Tiger Mosquito (potential carrier for Zika), *Culex pipiens* (WNV) and several salt marsh species including *Aedes sollicitans* (EEE and dog heartworm) and *Aedes taeniorhynchus* (Rift Valley and Venezelan Equine Encephalitis viruses).

The Long-Term Plan proposed a general reliance on resmethrin, a synthetic pyrethroid, as the adulticide pesticide. However, the Federal and State re-registration for resmethrin products is ending by the manufacturer and existing stocks are nearly exhausted. Sumithrin, a similar pyrethroid, was proposed by the Long Term Plan to be the primary back-up to resmethrin, and the primary pesticide for hand-held applications. Sumithrin has now become the Division’s primary adulticide material. Sumithrin, like resmethrin has been found to be an effective pesticide for mosquito control, can be used for ultra-low volume applications for truck and aerial delivery, undergoes rapid decay in the environment, and, as discussed below, has few identified non-target effects when applied as proposed under the Long-Term Plan. The Division has also begun use of Duet, with the Long Term Plan modified to include Duet and its active ingredients, sumithrin and prallethrin. Duet is similar to the Division’s primary sumithrin product, Anvil, in



## 2019 ANNUAL PLAN OF WORK- DIVISION OF VECTOR CONTROL

that both products contain sumithrin and the synergist piperonyl butoxide (PBO). However, in addition to 5% sumithrin and 5% PBO, Duet also contains 1% prallethrin. This amount of prallethrin is not sufficient to control mosquitoes, but it does induce them to fly, a phenomenon known as “benign agitation”. Benign agitation causes mosquitoes that are resting to fly so that they will encounter the aerosol droplets and increase the likelihood mosquitoes would be exposed to a lethal dose of sumithrin. Duet has been shown to be particularly effective against mosquitoes that tend to rest during the optimal time of the day for aerosol treatment, that is, at night. The primary use for Duet will be against the Asian Tiger mosquito (ATM), *Aedes albopictus* and may be used for control of other active daytime species including salt marsh mosquitoes. The ATM is an introduced species that inhabits containers and tends to bite during the daytime, making it a significant biting pest that is difficult to control because it is less active at night.

The Long-Term Plan also identifies two other pyrethroids, permethrin and natural pyrethrins, as potential adulticide compounds. Neither is preferred; however, as permethrin is a widely available product that is manufactured for many homeowner pest and farm uses that may increase mosquito resistance to the material. Natural pyrethrins are identified as a potentially useful compound because its label allows for use over agricultural areas. In addition to the pyrethroids, malathion, an organophosphate pesticide, was identified as a potential adulticide. Malathion would only be considered for use under very specialized conditions, such as in Zika response if a thermal fogging application was required, daylight applications were called for, or if resistance testing indicated pyrethroid applications would be ineffective in meeting the goals for public health protection. All of these pesticides are applied at the label rates, in the best way of achieving effective mosquito control and to avoid the development of pesticide resistance. The adulticides included in this Annual Plan have been fully evaluated in the GEIS for the Long-Term Plan, and this Annual Plan is fully consistent with the attached Findings. Vector Control continually reviews available pesticides and alternatives, including emerging materials and application techniques for the most environmentally suitable control methods.

**PUBLIC EDUCATION:** Mosquito problems resulting from larval habitats around homes and yards, containers, drains and the like, is generally brought to the Division's attention through residents' requests for service. Control of these "domestic" container mosquitoes is promoted through education and appeal to individual property owners to ‘Dump the Water’. Given the Zika and WNV threat posed by these container mosquitoes, especially the Asian Tiger Mosquito *Aedes albopictus* and the House Mosquito *Culex pipiens*, Vector and SCDHS have taken on a leading role in public education. Sanitarians are utilized to require property owners to clean up potential mosquito larval sites. Public education includes the distribution of pamphlets, telephone contact, site visits, media exposure and presentations to various citizens' groups and associations. In addition, the Division offers assistance to residents in eliminating sources of mosquitoes on their property, and leaves “door hangers” with educational information at properties they visit. Educational materials are also available on the County Web site. The appearance of introduced, container-breeding species *Aedes japonicus* and *Aedes albopictus* and continued Zika concern means this component must take on increasing importance, since the public’s cooperation is required to control these backyard container larval habitats.

## 2019 ANNUAL PLAN OF WORK- DIVISION OF VECTOR CONTROL

PUBLIC NOTIFICATION AND THE “NO-SPRAY” REGISTRY: In 2000, the County passed new laws to improve required public notification for adult mosquito control. As a result, there is now an increased use of the media and extensive outreach to local officials. The Health Services and Vector Control Websites are used to post spray notices and maps. For each adulticide application, over e-mails and faxes are sent to various officials and other interested parties. Newsday and News12 often post spray schedules and maps. And Health has begun posting spraying updates to social media including Facebook and Twitter. It is important to recognize that adulticide applications are very sensitive to the weather, especially aerial applications. The need to inform the public needs to be balanced with the need to conduct operations promptly, within weather windows and before the problem spreads and more acreage needs treatment. It is usually not appropriate to provide more than 24 hours’ notice in most cases, because beyond that time, weather forecasts are not very reliable. Attempts to provide more than 24-hour notice often result in aerial spray operations being announced and then cancelled. These cancellations are confusing to the public and difficult to reschedule. Despite these difficulties, the County provides 48-hour notice for aerial adulticide applications whenever possible for non-virus response.

In addition to the previous public notification procedures, the County has implemented a County law, passed in 2010, requiring the use of its “Code Red” automated calling and messaging system to provide more thorough public notice for adulticiding. This system allows automated phone calls to be placed to all landline telephones in an area designated for treatment. These messages provide basic information about the operation, such as spray hours, and refer the recipient to additional sources of information. The system ensures that nearly everyone in the area knows about the operation. Use of the Code Red system has been very successful and provides a new level of public information for the program. Residents can also register their cellphones or e-mail addresses to receive the Code red updates through FRES.

The Division also maintains a “no-spray” registry of residences where adult mosquito control is not desired. During ground applications the application unit is shut off 150 feet prior to passing such a residence and not turned on until 150 feet after. This registry represents an effort to balance the desires of those residents who want control of adult mosquitoes with those who oppose the use of pesticides. In 2018, the “no-spray” registry listed 296 properties, including 31 for health concerns, 35 beekeeper hive locations and 68 were organic farms locations including backyard gardens and 162 opposed to pesticide use. When control is required to deal with a public health threat, the Commissioner of SCDHS can override the list. Even then, list members are contacted prior to applications in their area through the Code Red system or called directly. In addition to this legally required registry, the Division maintains on the list beekeepers and organic farms who register. Beekeepers’ properties are generally avoided and beekeepers are notified via Code Red before treatments so that they can take any additional actions they may deem necessary to protect their hives. In addition, several steps are taken to avoid impacts to bees including timing of applications to the evening hours when bees are not foraging. Vector also uses mosquito control materials least likely to impact bees and through adjustment of spray equipment and technique using an ultra-low volume (ULV) droplet size that will impact mosquitoes, but not injure larger bodied insects, including bees. Certified organic farms are avoided and a buffer zone around the farm is included.

## 2019 ANNUAL PLAN OF WORK- DIVISION OF VECTOR CONTROL

Although not required to do so by law, the County also provides public notification for aerial larviciding. An e-mail notice of the marshes to be treated by helicopter is sent each week to Legislators, local governments and other interested parties. In addition, a list of marshes to be treated is posted each week on the County Web site and the list is sent to the local media.

SURVEILLANCE AND RESEARCH: All control operations are based on information obtained from surveillance and research. This a cooperative effort between Vector Control staff in the Department of Public Works and the Arthropod Borne Disease Laboratory in the Department of Health Services. Knowledge of mosquito populations, species composition and arbovirus activity is used to guide and evaluate control measures. Arbovirus surveillance allows the Division, in cooperation with the County and State Health Departments, to gauge the potential for disease transmission and to take appropriate action.

- A) Mosquito population surveillance: Approximately 12,000 larval and adult mosquito surveys are analyzed each year. These surveys are necessary for locating infestations, directing control efforts and evaluating the effectiveness of those efforts. The mosquito species that breed in various locations are determined from larval samples. Numbers of adult mosquitoes in residential areas are estimated from a network of approximately 30 New Jersey light traps in fixed locations throughout the County. New Jersey traps provide staff with ongoing population trends and are compared with service requests in a community to assist in determining the need for adult mosquito spraying. In 2018, over 110,000 mosquitoes from these traps were identified to species and counted. This tedious work is conducted by the Vector Control mosquito entomologist. In addition, Vector maintains an array of specialized Mosquito Magnet type traps to monitor seasonal cycles and long term trends in populations of the introduced exotic, container-breeding species *Aedes japonicus* and *Aedes albopictus* (The Asian Tiger Mosquito).
- B) Arbovirus surveillance in mosquitoes: Viral surveillance is conducted primarily by the ABDL and will be directed primarily at the main pathogens, WNV, Zika and EEE. Surveillance will be conducted according to the latest CDC and State DOH guidelines, modified for Suffolk County's unique environment. To monitor virus activity, CDC light traps and gravid traps are placed on a weekly or rotating basis at various locations throughout the County. These sites are chosen based on their history of viral activity or the presence of viral indicators such as the finding of birds with WNV in the area. The ABDL and the Division collect and process approximately 50,000 live, adult mosquitoes annually for viral analysis. Mosquitoes collected are sorted by species, frozen, and sent to Albany for arbovirus analysis in the State DOH laboratory.
- C) Human, avian and other surveillance: SCDHS, State DOH, DEC and CDC monitor other WNV and EEE indicators such as unusual bird deaths or the number of dead birds sighted in an area. The presence of WNV-positive birds is an indicator of virus activity in an area, and ABDL picks up selected dead birds for WNV testing. The County conducts a rapid RNA test (the RAMP test) to check for WNV in dead birds. There are also indications that the number of dead bird sightings in an area is a surrogate indicator of risk. SCDHS and NYS also monitor hospitals, blood banks and outreach to physicians to quickly detect human cases of Zika, WNV and other emerging vector borne illnesses.

## 2019 ANNUAL PLAN OF WORK- DIVISION OF VECTOR CONTROL

- D) Efficacy monitoring: While the Division has always monitored the effectiveness of the control program in a variety of ways, there has been an increased effort in this area, based on trial work to develop methods conducted in 2007. In particular, trapping of adult mosquitoes before and after adulticide events is conducted using carbon dioxide baited CDC light traps, NJ traps or reviewing service request logs. In addition, indicators of virus activity before and after treatment are followed to be sure the desired effect is achieved. While the number of adult mosquitoes in New Jersey traps and other traps is a key indicator of the overall success of the larval control program, additional effort will be directed toward before and after sampling of treated areas to confirm the efficacy of the treatment methods used.
- E) Special surveys and field investigations: Vector's Control staff conduct special surveys to determine the source of mosquito problems when these turn up in places where they are not expected. Special surveys of problems that appear early in a season can allow larval crews to prevent further trouble through the summer. Given the somewhat unpredictable ways mosquitoes can cause problems for residents of and visitors to the County, it is important that the Division retain a flexible ability to investigate issues as they are identified.
- F) Support for Wetlands Restoration/Stewardship activities: Vector Control continues to provide support for monitoring and other investigations related several wetland restoration activities. In particular, Division staff assist in the ongoing monitoring of the Integrated Marsh Management (IMM) projects at Wertheim and Seatuck National Wildlife Refuges. In addition, the Division will assist the Wetlands Stewardship Program in identifying and evaluating prospective sites for future IMM projects, particularly those that will help meet Long Term Plan goals for pesticide use reduction. With the completion of the Wetlands Stewardship Strategy and the availability of grant funding, this component of the program will continue in 2019 with several funded restoration projects.

### COOPERATIVE EFFORTS AND OUTREACH:

Other provisions of the Work Plan notwithstanding, Vector Control may participate in research, monitoring, and demonstration projects in cooperation with other levels of government such as the State, Towns or Federal agencies such as the US Fish and Wildlife Service or Army Corps of Engineers. These activities may be subject to separate DEC permitting and SEQRA compliance, and to CEQ and Wetlands Stewardship Committee review as well.

Vector Control will also continue to work with the various local governments, including the cooperative effort with East Hampton Town to provide a framework to develop, plan and construct wetland restoration projects that will restore wetland functions and values, and lead to a reduction in pesticide use, while still protecting human health and quality-of-life through reduced mosquito numbers.

### TICK RESEARCH SURVEILLANCE AND CONTROL:

On October 17, 2013, the County approved Resolution 797-2013 requiring this Plan of Work to include a section on the "steps being taken to reduce the incidence of tick-borne diseases in

## 2019 ANNUAL PLAN OF WORK- DIVISION OF VECTOR CONTROL

Suffolk County”. Accordingly, the 2019 Plan of Work includes a section on current tick surveillance, research and control activities. For 2019, these steps will continue to be limited to planning, information gathering, outreach, technical assistance, and small scale tick control trials and as such will be Type II actions under SEQRA Section 617.5 (c) (20), (21) and (27).

In 2013, the Division began work under Resolution 797-2013 to determine how the County might best be able to reduce the impact of tick-borne diseases. This was a follow-up to the Tick Management Task Force (TMTF) that was submitted to the Legislature in May of 2008 in response to Resolution 1123-2006. In addition, Resolution 132-2014 created the Tick Control Advisory Committee (TCAC) to advise Vector on tick control planning. Large scale effort to reduce the number of ticks on a countywide landscape, such as those described by the TMTF, would have the potential for adverse impacts on the environment and would need full SEQRA review. While no large scale control efforts can be undertaken without an environmental review of tick control under SEQRA and potentially an EIS of the plan, several interim actions are being undertaken. The development of a Tick Control Plan and environmental review, therefore, is a major effort that has yet to be funded. Re-establishment of the TCAC under Resolution 1668-2016 is assisting the County to develop a plan of action and identify the resources needed going forward to fully develop a County-wide environmentally sound tick control plan.

In 2019, Vector Control will continue to work on developing a County-wide tick control plan with the limited resources available. Studies on tick control efforts are currently restricted to research activities that would not require full environmental review under SEQRA. Vector is also working to improve the technical basis for control efforts and provide practical information to the various public and private entities currently undertaking localized tick control programs. These cooperative efforts can help leverage the County’s limited resources through partnership efforts.

The 2019 tick control efforts include:

1. In 2015 the County created a new position and hired an Entomologist for tick-related activities. Having this person devoted full time to tick research and control was a major step forward in understanding the tick problem in Suffolk.
2. Continue to work with the TCAC in 2019 to explore tick control and funding options that may be available to the County. Most importantly, the TCAC will allow for the continued input and feedback from stakeholders needed to gauge what options might be feasible and acceptable for implementation at each local level. This is a significant task, since each of the available control options have their own unique local benefits and drawbacks. Public acceptance of various tick control options may also vary considerably across Suffolk County.
3. Site surveillance at select locations continues on a bi-weekly level since 2015 to more accurately track seasonal changes in tick activity, population and species shifts.
4. Continued assistance to NYS Parks personnel in the selection and design of several grid-based tick surveillance programs in State Parks which are standardized with Vector

## 2019 ANNUAL PLAN OF WORK- DIVISION OF VECTOR CONTROL

Controls efforts and data sharing. Incorporating NYS Parks efforts boosted the overall tick surveillance network in the County considerably with no additional burden on County resources.

5. Vector and SCDOH staff continue pathogen tick surveillance at 10 sites across Suffolk County, originally established in 2016. Sampling from locations throughout Suffolk indicates the extent of virus activity for tick-borne diseases including: Lyme, Powassan, anaplasmosis, babesiosis and ehrlichiosis across the County and track changes.
6. Staff continues its efforts to reach out to local and nationally recognized tick experts for their advice and input on research and control strategies. Staff attend regional seminars and conferences to discuss emerging diseases, introduced species and new developments. These efforts have already proven very helpful in gaining knowledge that may not be published but is highly valuable and allow fostering of mutually beneficial collaborations and potential funding sources.
7. Vector staff will continue to provide technical advice and help design a tick management program for landowners, government agencies, municipalities and civic groups that are conducting tick control or are considering doing so. These activities will continue to provide further opportunities to learn what techniques local entities are interested in adopting, currently using, or which may be useful to the County and others.
8. Vector Control and Cornell Cooperative Extension (CCE) were awarded an \$8,500 grant through NYS Integrated Pest Management (IPM) for additional field acaricide testing. Vector was awarded a student internship in 2018, though CCE and Cornell University which greatly enhancing Vectors tick related efforts with no added county costs. There is an opportunity for another student internship through this program for 2019 as well.
9. CCE and Vector Staff were awarded a grant through NYS IPM for increased surveillance efforts focused on the newly identified invasive long horned tick, *H. longicornis*. This species has been found in close proximity to Suffolk County: NJ, Satan Island and Hudson Valley in NY, PA and several other states. This species has been documented to feed on a wide range of animals, including humans. In addition, vector staff acquired samples of this new tick to aide in identification, if found locally.
10. Vector Control and CCE are applying for state grant funding through the newly launched Northeast Regional Center for Excellence in Vector-Borne Diseases at Cornell University and work cooperatively seeking other potential funding sources to further tick research in Suffolk.

The prevention of tick-borne diseases in the County is a difficult and complex issue. It is particularly difficult because the biology of these vectors and diseases are significantly linked to deer overpopulation, expansion of range and limited management. In addition, tick control technology suitable for large scale application is not as well developed as mosquito control techniques. A proper plan with concurrent SEQRA compliance would require additional resources to undertake an EIS, beyond those currently available to Vector. However, tick-borne

2019 ANNUAL PLAN OF WORK- DIVISION OF VECTOR CONTROL

diseases and the adverse impacts ticks have on the ability of County residents to utilize the outdoors, and even their own property, are important issues that need continued investigation.

The Findings Statement for the Long Term Plan requires Vector Control to provide an annual report of pesticide use to the Legislature. The table below summarizes the use of pesticides by the Division in 2018.

**Suffolk County Pesticide Acreage Estimates for 2018**

Pesticide	Active Ingredient	EPA#	Amount used	Units	Amount in use units	Units	Dose (units / acre)	Air/Ground Application	Total 2018 Acreage
<b>Ground Larvicide</b>									
Altosid 5%	Methoprene	2724-392	0	GL	0	fl	4	Ground	0
Altosid pellets	Methoprene	2724-448	6.75	LB	6.75	lbs	5	Ground	1
Altosid XRG	Methoprene	2724-451	20	LB	20	lbs	5	Ground	4
Bti briquets - Summit	Bti	6218-47	456	EA	456	ea	435	Ground	1
Fourstar 90 briquets	Bti/ <i>B. sphaericus</i>	83362-3	2044	EA	2044	ea	435	Ground	5
Aquabac 200G	Bti	62637-3	440	LB	440	lbs	10	Ground	44
VectoPrime FG	Bti/Methoprene	73049-501	2167	LB	2167	lbs	4	Ground	542
Spheratax 50G	Bti/ <i>B. sphaericus</i>	84268-2	1862	LB	1862	lbs	15	Ground	124
Altosid XR briquets	Methoprene	2724-421	21372	EA	21372	ea	218	Ground	98
<b>Ground Larvicide Total Acres:</b>								Ground Total	819
<b>Aerial Larvicide:</b>									
VectoPrime FG	Bti/Methoprene	73049-501	48369.3	LB	48369.3	lbs	4	Aerial	12,092
Duplex Altosid 20% &	Methoprene	2724-446	40.5	GL	5184	fl	0.75	Aerial	6,912
Duplex VectoBac 12AS	Bti	73049-38	972	GL	124416	fl	18	Aerial	6,912
<b>Aerial Larvicide Total:</b>								Aerial Total	19,004
<b>Total Larvicide Acreage:</b>								Total Larval	19,823
<b>Adulticide:</b>									
Scourge	Resmethrin	432-667	0	GL	0	fl	0.6	Ground/Air	0
Anvil 10+10	Sumithrin	1021-1688-8329	71	GL	9088	fl	0.6	Ground/Air	15,147
Duet	Sumithrin+Prallethrin	1021-1795-8329	9.29	GL	1189.12	fl	0.75	Ground	1,585
Suspend SC (Tick)	Deltamethrin	432-763	0.75	GL	96	fl	20	Ground	5
<b>Adulticide Acreage:</b>								Adulticide:	16,732

Note: Suspend SC was applied on behalf of Parks Department to control ticks at the Flight 800 Memorial at Smith Point.  
 Note - Vectobac 12AS and Altosid 20% are applied by air at varying rates (alone or in Duplex mix). Acres treated were calculated for each rate.  
 Note - When Duplex mix of Vectobac+Altosid was applied, each acre treated by the mix was counted as a single treatment acre.

**SUFFOLK COUNTY**  
**SHORT ENVIRONMENTAL ASSESSMENT FORM**  
6 NYCRR Part 617  
State Environmental Quality Review

**Instructions:** The applicant or project sponsor is responsible for the completion of Part 1. Responses become part of the application for approval or funding, are subject to public review and may be subject to further verification. Complete Part 1 based on information currently available. If additional research or investigation would be needed to fully respond to any item, please answer as thoroughly as possible based on current available information.

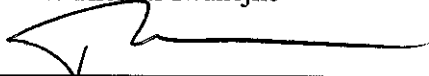
Complete all items in Part 1. You may also provide any additional information which you believe will be needed by or useful to the lead agency; attach additional pages as necessary to supplement any item.

**Part 1 – Project and Sponsor Information**

Name of Action/Project: Vector Control 2019 Annual Plan of Work		
Project Location (include map): Throughout the County		
Brief Description of Proposed Action (include purpose, intent and the environmental resources that may be affected):  2019 Annual Plan of Work for the County’s ongoing mosquito control program, to be conducted pursuant to the Vector Control and Wetlands Management Long Term Plan and GEIS (the Long Term Plan).		
Name of Applicant/Project Sponsor: Suffolk County DPW, Division of Vector Control		Email: Tom.Iwanejko@suffolkcountyny.gov Telephone #: 631 852-4270
Address: 335 Yaphank Ave		
City/P.O.: Yaphank	State: NY	Zip Code: 11980
1. Does the proposed action only involve the legislative adoption of a plan, local law, ordinance, administrative rule or regulation? <b>If Yes</b> , attach a narrative description of the intent of the proposed action and the environmental resources that may be affected in the municipality and proceed to Part 2. <b>If No</b> , continue to question 2.		Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
2. Does the proposed action require a permit, approval or funding from any other governmental agency?  <b>If Yes</b> , list agency(s) name and permit or approval: NYSDEC Article 15 & 24 Permits are in place as is Clean Water Act NOI w DEC		Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
3a. Total acreage of the site of the proposed action: Acres treated varies according to results of surveillance of mosquito populations and virus findings.		
3b. Total acreage to be physically disturbed: Acres treated varies according to results of surveillance of mosquito populations and virus findings.		
3c. Total acreage (project site and contiguous properties) owned or controlled by the applicant or project sponsor:  Acres treated varies according to results of surveillance of mosquito populations and virus findings.		



<p>4. Check all land uses that occur on, adjoining and near the proposed action:</p> <input checked="" type="checkbox"/> Urban <input checked="" type="checkbox"/> Forest <input checked="" type="checkbox"/> Parkland <input checked="" type="checkbox"/> Agriculture <input checked="" type="checkbox"/> Rural (non-agriculture) <input checked="" type="checkbox"/> Industrial <input checked="" type="checkbox"/> Aquatic <input checked="" type="checkbox"/> Commercial <input checked="" type="checkbox"/> Residential (suburban) <input type="checkbox"/> Other:	
5a. Is the proposed action a permitted use under the zoning regulations?	Yes <input type="checkbox"/> No <input type="checkbox"/> N/A <input checked="" type="checkbox"/>
5b. Is the proposed action consistent with an adopted comprehensive plan?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A <input type="checkbox"/>
6. Is the proposed action consistent with the predominant character of the existing built or natural landscape?	Yes <input type="checkbox"/> No <input type="checkbox"/> N/A <input checked="" type="checkbox"/>
<p>7. Is the site of the proposed action located in, or adjoining a state listed Critical Environmental Area (CEA)?</p> <p><b>If Yes, identify CEA:</b>  <input type="text" value="Site varies, but adheres to NYSDEC specified permitted locations and applications."/></p>	Yes <input type="checkbox"/> No <input type="checkbox"/>
8a. Will the proposed action result in a substantial increase in traffic above present levels?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
8b. Are public transportation services available at or near the site of the proposed action?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
8c. Are any pedestrian accommodations or bicycle routes available on or near the site of the proposed action?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
<p>9. Does the proposed action meet or exceed the state energy code requirements?</p> <p>If the proposed action will exceed requirements, describe design features and technologies:  <input type="text"/></p>	Yes <input type="checkbox"/> No <input type="checkbox"/> N/A <input checked="" type="checkbox"/>
<p>10. Will the proposed action connect to an existing public/private water supply?</p> <p><b>If Yes, does the existing system have capacity to provide service?</b>  Yes <input type="checkbox"/> No <input type="checkbox"/></p> <p><b>If No, describe method for providing potable water:</b>  <input type="text"/></p>	Yes <input type="checkbox"/> No <input type="checkbox"/> N/A <input checked="" type="checkbox"/>
<p>11. Will the proposed action connect to existing wastewater utilities?</p> <p><b>If Yes, does the existing system have capacity to provide service?</b>  Yes <input type="checkbox"/> No <input type="checkbox"/></p> <p><b>If No, describe method for providing wastewater treatment:</b>  <input type="text"/></p>	Yes <input type="checkbox"/> No <input type="checkbox"/> N/A <input checked="" type="checkbox"/>
12a. Does the site contain a structure that is listed on either the State or National Register of Historic Places or dedicated to the Suffolk County Historic Trust?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
12b. Is the proposed action located in an archeological sensitive area?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
13a. Does any portion of the site of the proposed action, or lands adjoining the proposed action, contain wetlands or other waterbodies regulated by a federal, state or local agency?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>

<p>13b. Would the proposed action physically alter, or encroach into, any existing wetland or waterbody?</p> <p><b>If Yes</b>, identify the wetland or waterbody and extent of alterations in square feet or acres:</p> <input type="text"/>	<p>Yes <input type="checkbox"/> No <input checked="" type="checkbox"/></p>
<p>14. Identify the typical habitat types that occur on, or are likely to be found on the project site (check all that apply):</p> <p><input checked="" type="checkbox"/> Shoreline      <input checked="" type="checkbox"/> Forest      <input checked="" type="checkbox"/> Agricultural/grasslands      <input checked="" type="checkbox"/> Early/mid-successional</p> <p><input checked="" type="checkbox"/> Wetland      <input checked="" type="checkbox"/> Urban      <input checked="" type="checkbox"/> Suburban</p>	
<p>15. Does the site of the proposed action contain any species of animal or associated habitats, listed by the State or Federal government as threatened or endangered?</p>	<p>Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></p>
<p>16. Is the project site located in the 100 year flood plain?</p>	<p>Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></p>
<p>17. Will the proposed action create storm water discharge, either from point or non-point sources?</p> <p><b>If Yes</b>,</p> <p>a. Will storm water discharges flow to adjacent properties? Yes <input type="checkbox"/> No <input type="checkbox"/></p> <p>b. Will storm water discharges be directed to established conveyance systems (runoff and storm drains)? Yes <input type="checkbox"/> No <input type="checkbox"/></p> <p><b>If Yes</b>, describe:</p> <input type="text"/>	<p>Yes <input type="checkbox"/> No <input checked="" type="checkbox"/></p>
<p>18. Does the proposed action include construction or other activities that result in the impoundment of water or other liquids (e.g. retention pond, waste lagoon, dam)?</p> <p><b>If Yes</b>, explain size and purpose:</p> <input type="text"/>	<p>Yes <input type="checkbox"/> No <input checked="" type="checkbox"/></p>
<p>19. Has the site of the proposed action or an adjoining property been the location of an active or closed solid waste management facility?</p> <p><b>If Yes</b>, describe:</p> <input type="text"/>	<p>Yes <input type="checkbox"/> No <input checked="" type="checkbox"/></p>
<p>20. Has the site of the proposed action or an adjoining property been the subject of remediation (ongoing or completed) for hazardous waste?</p> <p><b>If Yes</b>, describe:</p> <input type="text"/>	<p>Yes <input type="checkbox"/> No <input checked="" type="checkbox"/></p>
<p><b>I AFFIRM THAT THE INFORMATION PROVIDED ABOVE IS TRUE AND ACCURATE TO THE BEST OF MY KNOWLEDGE</b></p> <p>Applicant/Sponsor Name: Thomas Iwanejko      Date: 10/01/2018</p> <p>Signature: </p>	

**SUFFOLK COUNTY**  
**SHORT ENVIRONMENTAL ASSESSMENT FORM**  
6 NYCRR Part 617  
State Environmental Quality Review

**Part 2 – Impact Assessment (To be completed by Lead Agency)**

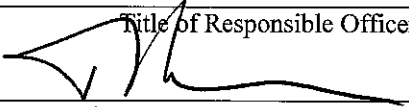
	No, or small impact may occur	Moderate to large impact may occur
1. Will the proposed action create a material conflict with an adopted land use plan or zoning regulations?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
2. Will the proposed action result in a change in the use or intensity of use of land?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
3. Will the proposed action impair the character or quality of the existing community?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
4. Will the proposed action have an impact on the environmental characteristics that caused the establishment of a Critical Environmental Area (CEA)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
5. Will the proposed action result in an adverse change in the existing level of traffic or affect existing infrastructure for mass transit, biking or walkway?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
6. Will the proposed action cause an increase in the use of energy and fail to incorporate reasonably available energy conservation or renewable energy opportunities?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
7. Will the proposed action impact existing public/private water supplies?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
8. Will the proposed action impact existing public/private wastewater treatment utilities?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
9. Will the proposed action impair the character or quality of important historic, archaeological, architectural or aesthetic resources?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
10. Will the proposed action result in an adverse change to natural resources (e.g., wetlands, waterbodies, groundwater, air quality, flora and fauna)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
11. Will the proposed action result in an increase in the potential for erosion, flooding or drainage problems?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
12. Will the proposed action create a hazard to environmental resources or human health?	<input checked="" type="checkbox"/>	<input type="checkbox"/>

**SUFFOLK COUNTY**  
**SHORT ENVIRONMENTAL ASSESSMENT FORM**  
6 NYCRR Part 617  
State Environmental Quality Review

**Part 3 – Determination of Significance**

The Lead Agency is responsible for the completion of Part 3. For every question in Part 2 that was answered “moderate to large impact may occur”, or if there is a need to explain why a particular element of the proposed action may or will not result in a significant adverse environmental impact, please complete Part 3. Part 3 should, in sufficient detail, identify the impact, including any measures or design elements that have been included by the project sponsor to avoid or reduce impacts. Part 3 should also explain how the lead agency determined that the impact may or will not be significant. Each potential impact should be assessed considering its setting, probability of occurring, duration, irreversibility, geographic scope and magnitude. Also consider the potential for short-term, long-term and cumulative impacts. Attach additional pages as necessary.

Coordinated review and GEIS have already been conducted for the Suffolk County Vector Control program and this Annual Plan of Work is fully consistent with the March 22, 2007 Findings for the GEIS. As such, no further SEQRA review is necessary. A copy of the findings statement is attached to this application.

<input type="checkbox"/> Check this box if you have determined, based on the information and analysis above, and any supporting documentation that the proposed action may result in one or more potentially large or significant adverse impacts and an environmental impact statement is required. (Positive Declaration)	
<input checked="" type="checkbox"/> Check this box if you have determined, based on the information and analysis above, and any supporting documentation that the proposed action will not result in any significant adverse environmental impacts. (Negative Declaration)	
Name of Lead Agency	Date
Print or Type Name of Responsible Officer in Lead Agency	Title of Responsible Officer
Signature of Responsible Officer in Lead Agency	 Signature of Preparer (if different from Responsible Officer)

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

**GENERIC ENVIRONMENTAL IMPACT STATEMENT  
STATEMENT OF FINDINGS**



**Steve Levy  
Suffolk County Executive**

**Department of Environment and Energy**

Carrie Meek Gallagher  
*Commissioner*

**Department of Public Works**

Gilbert Anderson, P.E.  
*Commissioner*

**Department of Health Services**

Humayun J. Chaudhry, D.O., M.S.  
*Commissioner*

**Department of Public Works, Division of Vector Control**

Dominick Ninivaggi  
*Supervisor*

**PROJECT MANAGEMENT**

Project Manager: Walter Dawydiak, P.E., J.D.  
Chief Engineer, Division of Environmental Quality, Suffolk County Department of Health Services

**Adopted March 22, 2007**

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

**GENERIC ENVIRONMENTAL IMPACT STATEMENT**  
**STATEMENT OF FINDINGS**

**Table of Contents**

Statement of Findings .....	1
A. Introduction.....	2
B. Overview .....	2
C. Procedural Requirements .....	9
D. Long-Term Plan Overview .....	10
E. Reasonable Alternatives Considered.....	33
F. Long-Term Plan Potential Significant Impacts and Identified Mitigation .....	39
G. Requirements for Further Environmental Reviews .....	57
Appendix 1 to the Statement of Findings: Contents of the Triennial Report .....	61
Appendix 2 to the Statement of Findings: Structure of the Wetlands Stewardship Committee.....	67
Appendix 3 to the Statement of Findings: Adopting Resolution 1150-2007.....	69

**List of Figures**

Figure 1. Overall Hierarchy of Proposed Best Management Practices .....	25
Figure 2. Review Process for Management Activities with No or Minimal Impacts.....	26
Figure 3. Review Process for Management Activities with Minor Impacts.....	27
Figure 4. Review Process for Management Activities with the Potential for Significant Impacts .....	28
Figure 5. Review Process for Management Activities with the Potential for Major Impacts .....	29
Figure 6. Review Process for Interim Management/Ongoing Maintenance Activities .....	30

**List of Tables**

Table 1. Management Activities with No or Minimal Impacts .....	41
Table 2. Management Activities with Minor Impacts .....	42
Table 3. Management Activities Usually More Likely to Have Potential Significant Impacts .....	43
Table 4. Management Activities with the Potential for Major Impacts.....	44
Table 5. Interim Management/Ongoing Maintenance Actions.....	45
Table 6. Bee Risk Quotients, Study Area Maximum Average Pesticide Concentrations .....	53
Table 7. Bee Risk Quotients, Study Area Mean Pesticide Concentrations .....	53
Table 8. Orders of flying insects that contain many/certain insects that are generally similar in size or smaller than mosquitoes (0.15 inches).....	55

**STATEMENT OF FINDINGS  
SUFFOLK COUNTY VECTOR CONTROL AND WETLANDS MANAGEMENT  
LONG-TERM PLAN**

Preparation/Submission Date: February 1, 2007

Issuance Date: As of adoption by the Suffolk County Legislature

SEQRA Classification: Type 1

Lead Agency: County of Suffolk  
Suffolk County Legislature  
William H. Rogers Building  
725 Veterans Memorial Highway  
Smithtown, NY 11787

Contact Name: Mr. James Bagg  
Chief Environmental Analyst  
Council on Environmental  
H. Lee Dennison Building  
100 Veterans Memorial Highway  
Hauppauge, NY 11788  
(631) 853-5203

Location: Countywide, but excluding the Orient Point Mosquito  
Control District and Fire Island National Seashore

## **A. Introduction**

The subject action is the Suffolk County Vector Control Wetlands Management and Long-Term Plan (herein the Long-Term Plan; October, 2006). This Statement of Environmental Findings has been prepared in accordance with the environmental review requirements of the State Environmental Quality Review Act (SEQRA), as set forth in 6 NYCRR Part 617 and Chapter 279 of the Suffolk County Charter. This statement of findings has been prepared to demonstrate that:

1. the procedural requirements of SEQRA have been met;
2. the proposed Long-Term Plan was selected from among the reasonable alternatives as the choice that minimized potential impacts; and
3. as required by 6 NYCRR Section 617.11(d), consistent with social, economic and other essential considerations from among the reasonable alternatives available, the action is one that avoids or minimizes adverse environmental impacts to the maximum extent practicable. Adverse environmental impacts will be avoided or minimized to the maximum extent practicable by incorporating as conditions to this Statement of Findings those mitigative measures that were identified as practicable.

## **B. Overview**

### **Purpose/Goals**

Suffolk County has developed this Long-Term Plan to control mosquitoes (protect public health), reduce pesticide usage, and manage and protect wetlands. A major goal is to reduce larviciding by 75 percent, as measured in acres treated, over 12 years; currently, 4,000 acres of tidal wetlands are routinely larvicided. Another key goal is to continue to reduce adulticiding. In recent years, less than two percent of Suffolk County has received non-emergency adulticide treatments.

### ***Description of Action***

The Long-Term Plan enhances integrated pest management, including increased surveillance (including pre-adulticide, and post-adulticide efficacy), operational improvements (e.g., catch basin larviciding), and expanded public education/outreach. Strict numeric mosquito criteria will



be used to justify every non-Health Emergency adulticide treatment. The use of technology has also been optimized. For example, the Adapco Wingman spray technology is used to minimize pesticide usage, and geographic information systems have been improved.

Wetlands management will be critical in reducing larvicide usage. As part of the program, no new ditches will be created, and routine use of machine ditch maintenance has ceased. During the first three years, implementation of the Long-Term Plan will focus on low-impact water management without significant changes to the wetland ecology. Wetlands functions and values will be the paramount objective for all wetland management projects.

In the longer term, a Wetlands Stewardship Committee strategy will address the assessment and management needs of all 17,000 acres of tidal wetlands in Suffolk.

At a minimum, the Long-Term Plan will be updated on a triennial basis, with the first update due in 2010. The triennial report will contain detailed information on effectiveness of implementing a broad variety of recommendations related to public health, vector control, and water management (see Appendix 1 for format and examples of specific indicators). Any significant changes to the Plan may be subject to further environmental review (see section G).

### **Impact Analysis**

A comprehensive environmental review was conducted for the potential impacts of the Long-Term Plan. As discussed in Section F, there is no data or analysis which documents that implementation of the Long-Term Plan will have any potentially significant adverse impacts (with the possible exception of adulticide impacts to non-target insects which are believed to be minor and can be mitigated, as well as Wetlands Best Management Practices 5 through 15, which would be subject to additional environmental review if proposed). Successful implementation of the Plan will, however, result in significant beneficial impacts (e.g., pesticide reduction).

Potential environmental impacts were reviewed for all aspects of the program, through exhaustive literature searches, local experiments (including collection of extensive monitoring data) and demonstration projects, and a comprehensive, quantitative risk analysis. Vector control and water management programs, and impacts, were evaluated for numerous jurisdictions.

The pesticides analysis results can be summarized as:

- Human health: negligible impacts (acute, chronic, or carcinogenic) from any larvicide or adulticide agent.
- Ecological impact: no significantly increased risks for impacts for mammalian, avian, or reptilian wildlife from any pesticide. Possible risks for aquatic impacts were associated only with the adulticides permethrin and, potentially more so, malathion. However, models indicate that the increased risk for invertebrate impacts does not propagate up the food chain, and a sophisticated ecosystem model showed recovery to be complete by the following spring.

Bees are the standard for understanding agricultural pesticide impacts to flying insects and, based on theoretical potential effects to bees, all adulticides posed a potential risk to non-target flying insects. However, vector control adulticides are generally not applied when bees are flying (day time). No study has attributed significant impacts to insect populations from vector control adulticides at the concentrations and methods in which they are applied. Also, the literature suggests that effects of transient stressors on insect populations are fleeting, with populations recovering within days. Mitigation measures contained in the Long-Term Plan are expected to minimize any potential impacts to non-target flying insects.

The water management impact assessment found that there should be no significant impacts from careful, site-specific application of the selected Best Management Practices. For the first three years of the Long-Term Plan (through early 2010), implementation of the Long-Term Plan will focus on low impact Best Management Practices (BMPs 1-4, including de minimis ditch maintenance and maintenance/repair of existing culverts). Any other BMPs (including BMPs 5-15) will automatically trigger additional environmental review.

The Long-Term Plan involves a new approach to the management of Suffolk County's coastal marshes, and there will be no new ditch construction, no routine ditch maintenance of the overall grid ditch system, and minimal, limited machine ditch maintenance (expected to be annually limited to 50,000 linear feet, affecting less than 50 acres of marsh) in conjunction with projects where it is necessary to preserve or enhance important ecological functions in tidally restricted areas.

## **Mitigation**

Mitigation is discussed in detail in Section F. Mitigation is summarized as follows, in terms of integrated pest management, water management, and pesticide usage.

### *Integrated Pest Management*

The Long-Term Plan mitigates potential impacts because it enhances many aspects of the current Integrated Pest Management approach, including:

- Public outreach will be bolstered. In particular, there will be targeted education efforts in areas that have a greater probability of receiving adulticide applications.
- Surveillance efforts (pre-spray and post-spray efficacy) will increase, including increasing the number of traps used and the number of set-outs made. New Jersey Light Traps will increase from 27 to 30, and CDC trap-nights are expected to increase from 80 to 105 trap nights per week, at peak). Surveillance results will be better communicated to the public as a means of justifying program decisions.
- Current efforts to reduce mosquito breeding in catch basins and other storm water systems will be increased. Catch basin monitoring will increase, with the goal of increasing from 10,000 to 40,000 inspections per year.
- Focus will be increased on reducing the number of tires that litter the County. These sites serve as key habitats for important disease vectors, and so these efforts clearly reduce the risks of disease transmission.
- Biocontrol use will be mitigated through the use of disease-free, native fish, whenever possible (although the use of disease-free fathead minnows is also a possibility), and through strict observance of restrictions to ensure fish do not escape to other water bodies and do not threaten endangered species or significant habitats.

## **Wetlands Management**

Water management was the cause of many comments from interested parties. It is of prime importance that wetlands management be organizationally and functionally separated from vector control. To mitigate potential effects from any wetlands management project, the following measures will be instituted.

- For the first three years of the Long-Term Plan (through early 2010), implementation of the Long-Term Plan will focus on low impact Best Management Practices (BMPs 1-4, including de minimis ditch maintenance and maintenance/repair of existing culverts).
- Any other BMPs (including BMPs 5-15) will automatically trigger additional environmental review. While BMPs 1-4 will be generally classified as Type II Actions, they may be subject to further SEQRA review if deemed necessary by DEE and/or CEQ. BMPs 5-15 will be deemed Unlisted or Type I Actions to ensure appropriate SEQRA review.
- A Wetlands Stewardship Committee, chaired by the Suffolk County Department of Environment and Energy, will be a key part of the Long-Term Plan, and this Committee will provide recommendations on all projects using BMPs 10-15, and can review any other project its membership wishes to consider.
- In 2010, the first triennial report will include recommendations from the Wetlands Stewardship Committee strategy; at that point, any Long-Term Plan modifications may be subject to further environmental review (see section G).
- The Long-Term Plan now emphasizes marsh health and preservation in design, implementation, and assessment of all wetlands management projects.
- All necessary permits will be acquired, which will require a great deal of formal project reviews.

### ***Pesticide usage***

Pesticide impacts are mitigated in several ways, as follows.

- Implementation of the long-term plan is expected to result in decreasing need to use larvicides (an eventual 75 percent reduction is a Long-Term Plan goal).
- Precise triggers (trap counts or landing rates) are required to be met before any Vector Control adulticide applications.
- Efficacy testing will be a significant element of the Long-Term Plan, and these data should provide justification for the pesticide use that does occur.

- Use of the Adapco Wingman technology will optimize aerial adulticide applications (maximize mosquito control while minimizing pesticide usage)
- Continued consultation with New York State Department of Environmental Conservation (NYSDEC) and other resource agencies will ensure that all pesticide applications avoid impacts to endangered species and minimize impacts to settings of particular concern, whether through the use of setbacks, adjustments in application timing, or avoidance of specific areas.
- The plan report now appears to want to lessen such buffers, which right now are 100-150 feet. CEQ feels the buffers are necessary, though if more nuanced applications are proven to avoid non-target impact/drift, CEQ will be willing to consider such evidence as part of the long term strategy.

It is important to emphasize that the Long-Term Plan will be an adaptively managed Plan. The Steering Committee and the advisory committees (Citizens and Technical) are expected to continue to function, and issues can continue to be addressed, even if they arise or are realized after this iteration of the Plan has been completed.

### **Further Environmental Review**

The triggers for further environmental review which are specified herein constitute the minimum conditions under which additional environmental review would be initiated. At any time, the County could commence additional environmental review based on substantial new technical information.

Further environmental reviews (see Section G) are possible under at least two circumstances: adoption of the Annual Plan of Work, and in relation to wetlands management projects. Both are summarized below.

#### *Annual Plans of Work*

On an annual basis, the Council on Environmental Quality will review Annual Plans of Work and make a recommendation with respect to the State Environmental Quality Review Act to the Suffolk County Legislature. Annual Plans of Work that comply with the form and content of the Long-Term Plan generally should not require further environmental review. If an Annual Plan

of Work diverges from the Long-Term Plan, whether in terms of the scope of particular elements, or in terms of specific products or approaches to vector control, then all or part of the Annual Plan may be subject to further environmental review, at the determination of the Suffolk County Legislature and/or other involved agencies.

In general, annual plans need to focus on the use of surveillance to determine where mosquito problems exist, and to primarily employ source reduction tools to reduce the impact of mosquitoes on people. The implementation (over time) of the techniques for wetlands management developed in the Best Management Practices manual, as outlined in the Wetlands Management Plan may be a source reduction tool.

Specific triggers for additional SEQRA reviews have been detailed. These triggers include:

- failure to include public education and outreach steps to educate residents and visitors on the means that are available to avoid mosquito bites and diseases associated with mosquitoes
- inadequate mosquito population or disease surveillance
- failure to commit to respond to all mosquito complaints using personnel appropriately trained to identify and mitigate sources of mosquito problems
- failure to use the review processes outlined in the Wetlands Management Plan for wetlands management projects
- proposed use of a non-native biocontrol organism not already resident in Suffolk County natural environments
- proposed use of a larvicide other than *Bacillus thuringensis* var *israelensis* (Bti), *Bacillus sphaericus*, or methoprene
- proposed use of an adulticide other than resmethrin, sumithrin, permethrin, natural pyrethrins, or malathion
- identification of a preferred adulticide agent other than resmethrin or sumithrin
- use of BMPs 5-15.

### Wetlands Management

Most wetlands management projects will be subject to further environmental review. Projects utilizing Best Management Practices 1 through 4, as determined by DEE, (none to Minimal Impacts) will not, unless unusual site-specific conditions are cause for concern; all others will.

The triggers for further environmental review which are specified in the FGEIS and below in Section G constitute the minimum conditions under which additional environmental review would be initiated. At any time, the County and/or the Council on Environmental Quality could commence additional environmental review based on substantial new technical information.

### **C. Procedural Requirements**

Suffolk County Department of Public Works (SCDPW) prepared an Environmental Assessment Form (EAF) for the development of a Vector Control and Wetlands Management Long-Term Plan and submitted the EAF to the Council on Environmental Quality (CEQ) on May 2, 2002. On May 15, 2002, the CEQ issued a recommendation for a Positive Declaration to the Suffolk County Legislature. The Legislature issued the Positive Declaration at its meeting on August 6, 2002.

A draft Scoping document was prepared by Suffolk County Department of Health Services (SCDHS). The draft Scope was circulated for public review beginning August 7, 2002. A public Scoping hearing was held on September 10, 2002, at the Suffolk County Legislative Building in Hauppauge. This hearing was conducted by the CEQ, acting on behalf of the County Legislature, as authorized by Chapter 279 of the Suffolk County Administrative Code.

The CEQ held open the public Scoping record until September 25, 2002, in order to afford the opportunity for additional written comments regarding the scope of the DGEIS. All written comments received through that date, as well as minutes and summaries from the various meetings conducted as part of the Scoping process, were collected together and published by the County.

The Final Scope was published August 1, 2003, and was adopted by the Legislature by Resolution 1122 on December 16, 2003. The resolution was signed by County Executive Robert Gaffney on December 18, 2003.

A Draft Generic Environmental Impact Statement (DGEIS) for the Suffolk County Vector Control and Wetlands Management Long-Term Plan was submitted to CEQ on May 3, 2006. It was accepted as complete by CEQ at its May 17, 2006 meeting. At that meeting, CEQ set a 60 day comment period (through July 17, 2006) and also announced that two public hearings would be held. Public hearings were thus held, on Thursday, June 29, 2006, from 6 to 9 pm, at the Maxine S. Postal Legislative Auditorium, Riverhead, and on Thursday, July 6, 2006, from 10 am to 1 pm in the Rose A. Caracappa Legislative Auditorium, Hauppauge, before members of CEQ, with CEQ Chair Dr. R. Lawrence Swanson presiding.

At the CEQ meeting held on August 9, 2006, CEQ determined that the comments received in writing and at the hearings were substantive in nature, and forwarded a recommendation to the Legislature that it cause to have a Final Generic Environmental Impact Statement (FGEIS) prepared. The Legislature, at its meeting on October 17, 2006, passed resolution 1103-2006 authorizing the preparation of a FGEIS. The resolution was signed by County Executive Steve Levy on October 20, 2006.

The FGEIS was received by CEQ on November 9, 2006. The FGEIS Supplement was sent to the CEQ on January 4, 2006. All documents were forwarded to the Legislature for review and consideration together with comments from CEQ, and considered at the January 29, 2007 meeting of the Environmental, Planning and Agriculture Committee (EPAC) of the Suffolk County Legislature. These findings incorporate the direction from the Legislature.

To the extent that these Findings may contain measures (e.g., mitigation) which are not already explicitly in the Plan, the Plan is deemed to be amended to incorporate these Findings. If any provisions in the Findings are potentially inconsistent with the Plan, the provisions of the Findings are deemed to prevail.

#### **D. Long-Term Plan Overview**

##### *Introduction*



On August 6, 2002, the Suffolk County Legislature adopted a “Positive Declaration” on the County’s proposed Vector Control and Wetlands Management Long-Term Plan. The Legislature subsequently appropriated funding to conduct the program, resulting in SCDPW (as fiscal manager) and SCDHS (as project manager) preparing and issuing a Request for Proposals (RFP) for the preparation of a Long-Term Vector Control and Wetlands Management Plan together with any associated environmental reviews.

An open and public process was undertaken to generate a Long-Term Plan and to perform the environmental impact assessment of the Long-Term Plan. Elements of public participation and input included:

- Formation of project committees such as the Technical Advisory Committee (TAC), the Citizens Advisory Committee (CAC), the Wetlands Subcommittee, and the Monitoring Subcommittee. These formally constituted committees (the TAC and CAC) and more informal groups provided venues and means for comment and review of project work products, and for feedback and input on the development of the Long-Term Plan to be made.
- Reviews of various project work products by nationally recognized technical experts (organized by the TAC).
- The Best Management Practices Manual and Wetlands Management Plan were released in draft form for public review in July 2005. The Long-Term Plan was released for public review in September 2005. On the basis of received public comments, the Long-Term Plan and the associated Wetlands Management Plan and Best Management Practices Manual were revised, and released in draft form again in December 2005. At that time, a draft version of the DGEIS was also released for public comment and review.
- Following the receipt of comments, the County once again revised the Long-Term Plan, the Wetlands Management Plan, and the Best Management Practices Manual. These documents, together with a revised DGEIS, were formally submitted to the CEQ on May 3, 2006.

- Following the public comment period on the DGEIS, the Long-Term Plan, the Wetlands Management Plan, and the Best Management Practices Manual were again revised, with the updated versions released in October 2006. On November 9, 2006, the FGEIS was delivered to CEQ, as a response to comments made on the DGEIS.

Therefore, it is clear that the Long-Term Plan and its associated environmental reviews are the product of an open and very public process, one in which several substantial revisions have been made following extensive public input to generate draft plans and analyses. The Plan was revised several times, on a voluntary basis, by the County.

In addition, Suffolk County commissioned its consultant, Cashin Associates, PC, and its team of subconsultants to conduct extensive fieldwork and local data collection, including local experimentation and environmental characterizations. These efforts included:

- Designing, permitting, constructing, and monitoring a progressive water management project at Wertheim National Wildlife Refuge, in conjunction with US Fish and Wildlife Service (USFWS) and the County.
- Designing, permitting, and conducting the Caged Fish experiment of larvicide and adulticide impacts under environmentally relevant conditions, documenting all aspects of the applications and subsequent fate and transport, and testing for biological effects, in conjunction with the County and the US Geological Survey (USGS).
- Identifying and characterizing 21 local wetlands (Primary Study Areas) to serve as a basis for determining environmental impacts associated with water management.
- Identifying and characterizing four sentinel areas of the County to allow for careful modeling of the risks to human health and the environment from proposed pesticide applications.
- Conducting an assessment of the potential for mosquito control ditches to convey land-based pollutants to the surrounding estuaries.
- Testing for changes in invertebrate communities at five pairs of salt marshes from extended exposure to mosquito control larvicide formulations.

- Determining the long-term vegetation characteristics at two south shore salt marshes, and relating changes in vegetation patterns to extrinsic environmental changes, such as ditching, changes in land use, major storms, and similar factors.
- Monitoring turtle use of upland mosquito ditches near Napeague Harbor, and surveying for their presence in three similar settings.
- Surveying additional stormwater control structures beyond those identified by preliminary County assessments for the potential to breed mosquitoes that might impact human health.
- Testing innovative mosquito control formulations and devices in County environments.
- Constructing a Geographical Information System (GIS) database of local vector control information along with other relevant County environmental data sets.
- Designing and preparing to implement a test of remote sensing capabilities to ascertain vegetation geographical patterns and temporal trends in County salt marshes.

This information was released to the public through 27 separate publications associated with the Literature Search, additional reports connected with other tasks of the project, construction and maintenance of a project website where all relevant information, publications, and presentations were posted, professional presentations at local, national, and international meetings, and through production and dissemination of a project specific newsletter.

### *Nuisance versus Disease*

The Long-Term Plan attempted to distinguish between mosquito control conducted to control nuisance, and mosquito control conducted to prevent human health impacts. However, such a distinction proved to be impracticable. The Plan was successful, however, in describing approaches geared to “Vector Control” (control in the absence of a detected pathogen; synonymous, for purposes of the Long-Term Plan, with the term “Public Health Nuisance Control”), as differentiated from actions associated with “Emergency Response.”

It is noted the Long-Term Plan approach is consistent with Public Health Law. The law reflects the position that a severe infestation of mosquitoes that results in large numbers of people receiving many bites is clearly not a “healthy” situation, even if no specific disease is transmitted. State and County Public Health Law describe a mosquito infestation as a “public health nuisance,” whether or not pathogens have been detected. A public health nuisance is, by definition, a condition that can adversely affect public health.

It is not possible to distinguish specific mosquito control steps for human health protection from all other mosquito control actions. For instance, West Nile virus (WNV) occurs and reoccurs across nearly all the County in most years. Nearly all human-biting mosquitoes found in the County have the potential to transmit WNV. Source reduction, wetlands management, larval control efforts, and wetland management techniques can reduce the potential for infection by reducing the pool of mosquitoes that can transmit disease. However, since female adult mosquitoes that have fed at least once are the only mosquitoes that carry WNV, the application of these techniques that limit the production of adult mosquitoes necessarily occurs prior to the mosquitoes becoming infected.

WNV impacts in the County are believed to be much less than they might in the absence of such control measures. Modeling suggests that West Nile virus incidence rates could be an order of magnitude higher in the absence of vector control (i.e., potentially tens of deaths, and hundreds of serious illnesses, annually). It is quite probable that other factors, such as the composition of the County’s mosquito population, also impacts the infection rate here. However, the control program also has a role in shaping the mosquito population, so that again it is difficult to separate out clearly the impact of the control program from other factors. The terminology used for control of adult mosquitoes may appear to support a distinction between nuisance and disease control, but that is not so. “Health Emergency” adulticide applications are made when the Commissioner of the SCDHS, acting under authority granted by the New York State Department of Health, determines that immediate risks to human health need to be reduced, by reducing adult mosquito populations in a certain area because there is a particularly high risk of transmission of disease to humans. The implication is that other applications are not made to reduce health risks. However, the Long-Term Plan has accurately designated these other kinds of adulticide applications “Vector Control” applications (i.e., control vectors with potential to adversely affect public health, prior to detection of WNV or other pathogens). The terminology is intended to

underline that all human-biting mosquitoes in the County are potential vectors of disease (most often, WNV), and that the reduction of large numbers of these mosquitoes will reduce overall disease risks. This clear connection between the reduction of large numbers of human-biting mosquitoes and decreases in disease risk is the reason that all aspects of the County control program are seen to be part of an overall disease control effort. It is true that alleviation of impacts to residents' and visitors' quality of life does follow from adulticide applications, and this is an important benefit of the program. This brief discussion focuses on West Nile virus. As discussed in the Long-Term Plan and GEIS, an integrated vector control program is credited to manage risks from other diseases and Eastern Equine Encephalitis.

#### *Content of the Vector Control Long-Term Plan*

Those aspects of the Vector Control portion of the Long-Term Plan were developed as an implementation of Integrated Pest Management. Integrated Pest Management is a means of addressing pest problems that uses a hierarchical approach where those activities that have greater impact on the organisms but potentially have fewer environmental or human health risks are assayed first, and where actions taken are commensurate with the problem.

The scope of the Long-Term Plan includes all of Suffolk County. However, Orient Point Mosquito Control District is responsible for vector control in that portion of the County. In addition, implementation of mosquito control in Fire Island National Seashore will require completing a separate permit application and environmental review process, and, due to its status in the national park system, may require some additional considerations that do not apply to the remainder of Suffolk County.

The hierarchical elements of the Vector Control component of the Long-Term Plan are:

- Public education and outreach

Public education and outreach is central to the effectiveness of the Long-Term Plan. The Long-Term Plan will re-enforce existing efforts that allow residents and visitors to avoid being bitten by mosquitoes, and that address mosquito breeding problems determined through responses to citizen complaints. The Long-Term Plan calls for expansion of general public outreach through program presentations, brochures, and web site maintenance, and will target the areas of the County, predominantly along the south shore, where adulticide

applications have been made more frequently. Specific efforts to improve catch basin maintenance and to address tire litter are expected to provide dividends in terms of reductions of disease risks. The County will maintain its “Do Not Spray” registry and will expand its efforts to educate Suffolk County residents regarding specific elements of the vector control program.

- Scientific surveillance

A central tenet of Integrated Pest Management is that information is necessary in order to determine appropriate actions. The Vector Control Long-Term Plan surveillance program is intended to generate necessary information in sufficient quantity and in a timely manner so that the activities of the vector control program are optimized. Surveillance generally determines two parameters concerning the local mosquito population. One is number and speciation, generally called population surveillance. The second is pathogen presence, which is generically called disease monitoring.

Population surveillance looks to assess larval and adult populations. Larval populations are determined at set stations, where crews collect samples with laboratory confirmation of numbers and speciation. Crews also seek for breeding sites in response to citizen complaints. The County will maintain its existing larval population sampling efforts, and endeavor to respond to all complaints within three days. Adult populations are assessed through trapping, primarily. The fixed New Jersey trap network will be expanded by three under the Long-Term Plan, and, if adult control is proposed, special population sampling using CDC light traps will be undertaken prior to any application to ensure numerical triggers are exceeded. In addition, post application sampling will be conducted to measure efficacy. In some circumstances, landing rates will be used either in place of trapping or as an adjunct to trapping efforts.

Disease surveillance generally uses CDC gravid or CDC light traps. The initial set out of CDC traps will be expanded to 35 weekly set outs, and will be proportionately increased as the season progresses. The County will continue to send its pools of potentially infected mosquitoes to the State Department of Health for testing, although the Long-Term Plan recommends the construction of a Bio-Safety Level 3 laboratory in Suffolk County so that testing may occur more quickly and be conducted on more potential pools than is currently

possible. Dead birds will continue to be collected, tested for WNV presence locally, and tested for a larger range of pathogens at the State laboratory.

Generally, SCVC will assume responsibility for population surveillance, and the Suffolk County Department of Health Services Arthropod-Borne Disease Laboratory (ABDL) will be responsible for disease surveillance. SCVC and the ABDL will continue to work closely together and share responsibilities to ensure that the primary mission of public health protection is adequately supported.

A discussion of surveillance results will be included in Annual Plans of Work. Detailed reporting and analysis of surveillance data will be included in each Triennial Report.

- Source control

Source control means to eliminate conditions conducive to mosquito breeding. This is a focus of public outreach efforts. It is also the most effective method of mosquito control conducted in response to public complaints. The County already has a strong program to encourage residents to take steps to drain standing water from containers near houses, to ensure pools are properly maintained, and to replace water in birdbaths at frequent intervals. The County will expand these efforts by addressing issues such as used tire management and catch basin maintenance with other local governments, and will expand the storm water facility maintenance program to private concerns such as shopping centers or apartment complexes. These efforts are especially important as the house mosquito (*Culex pipiens*) is believed to be the prime vector for WNV in Suffolk County (other mosquitoes are also significant risk factors for WNV transmission, as well).

- *Wetlands Management*

The Long-Term Plan reconfirms the existing County commitment to abandon ditching as a means of wetlands management for mosquito control, and to avoid machine ditch maintenance except in the most limited of circumstances. In the longer run, the Long-Term Plan has identified the utilization of more progressive wetlands management in salt marshes (as defined in the Best Management Practices Manual) as one element in increasing effective control of mosquitoes and decreasing the potential for environmental impacts associated with vector control. Potential reductions of 75 percent in larvicide use, reductions in adulticide

use, and improvements in important salt marsh ecological functions are all thought to result from careful and considered application of the Best Management Practices in select coastal marshes in the County.

Concerns raised by interested and involved parties have resulted in much more thorough review and appraisal of wetlands management as a means of vector control. For the first three years of the Long-Term Plan, only minor and relatively no impact projects will be considered by the County (see Figure 1, Figures 2-3, and Figure 6). Any project that is usually more likely to have potentially significant impacts or major impacts (Best Management Practices 5 to 15; Figures 4-5) will be subject to additional review under SEQRA. In addition, any project involving machine maintenance of existing ditches, structures, waterways, or other features associated with wetlands will be noticed to CEQ, either through submission of a copy of the permit application for the project, or submission of a project description detailed enough to serve as a NYSDEC permit application.

- Biocontrols

Biocontrols are not a major facet of the County program. This is largely due to the potential for environmental impacts from the invasive and aggressive *Gambusia* fish which has served the County as its primary biocontrol for several decades, and so the necessity to restrict biocontrols to settings where the fish will almost certainly not impact natural water bodies. In addition, many settings where biocontrols would serve good purposes for mosquito control are ecologically sensitive, often because they are largely predator-free. The Long-Term Plan proposes to substitute fathead minnows (*Pimephales promelas*) for *Gambusia*, as the minnow has been identified as a more benign species should it escape to natural water bodies. The County will also follow developments in other jurisdictions regarding other promising organisms that are shown to consume mosquitoes, such as certain freshwater copepods (potential biocontrols for catch basins). However, the County will be very cautious in implementing biocontrol use, to ensure that sensitive environments are not disrupted through the introduction of predator species.

- Larval control

The Long-Term Plan reaffirms the County commitment to only using pesticides when scientifically-collected information supports its use, in the context of Integrated Pest



Management principles. Surveillance data regarding the species and stages of immature mosquitoes along with information on the time of year and conditions at the prospective treatment site will be used to determine if use of one of two bacterial pesticides, *Bacillus thuringiensis var israelensis* (Bti) or *Bacillus sphaericus* (Bs), or the insect growth hormone mimicker methoprene, is appropriate. At times, the County may use a “duplex” treatment of Bti and methoprene, as well. Application rates will always be at label maximums. This insures maximum effectiveness for the application, and is important to reduce the development of resistance in treated populations. For regularly sampled locations, the primary determinant of the need to larvicide will be “presence/absence” over an appropriate subset of sampling points. The Long-Term Plan also identifies the potential to develop numerical triggers through analysis of data sets as augmented by continuing sampling, through the creation of a GIS (Geographical Information System) database of historical sampling results as part of the Plan development process. The County will continue to apply larvicides by helicopter to marshes that have large expanses of breeding, although it is anticipated that implementation of the Wetlands Stewardship Strategy (to be developed by the Wetlands Stewardship Committee under the direction of SCDEE) will help to significantly reduce larviciding needs. Other larvicides will be applied by field crews in response to surveillance data generated by citizen complaints or regular surveillance of smaller breeding locations. To check *Culex pipiens* populations further, the County will expand its surveillance of catch basins to some 40,000 (or more) sites each year. Time release formulations of methoprene, or, sometimes, Bs, will be used to prevent the emergence of adult mosquitoes at these sites.

The Long-Term Plan requires the establishment of an efficacy program and also sampling to determine if resistance is being generated in treated populations.

- Adult control

Control of adult mosquitoes is the least favored means of mosquito control. Adulticide use signals the failure of all other potential treatment means, and is the last option for program managers. The County always endeavors to minimize its use of adulticide products.

Adult control can be deemed to be necessary under two separate operational scenarios. One is defined as a “Vector Control” (public health nuisance) application; the other is defined a

“Health Emergency” application. In either case, pesticide use decisions are only made on the basis of scientifically-determined surveillance data.

Vector Control adulticide applications are made to reduce large numbers of human biting mosquitoes. Criteria for conducting a Vector Control treatment include:

1. Evidence of mosquitoes biting residents (there is no problem unless people are affected):

- Service requests from public - mapped to determine extent of problem
- Requests from community leaders, elected officials

2. Verification of problem by SCVC (service requests must be confirmed by objective evidence):

- New Jersey trap counts higher than generally found for area in question (at least 25 females of human-biting species per night).
- CDC portable light trap counts of 100 or more.
- Landing rates of one per minute over a five minute period.
- Confirmatory crew reports from problem area or adjacent breeding areas.

3. Control is technically and environmentally feasible (pesticides should only be used if there will be a benefit):

- Weather conditions predicted to be suitable (no rain, winds to be less than 10 mph, temperature to be 65°F or above).
- Road network adequate and appropriate for truck applications.
- "No- treatment" wetlands, wetlands and open water buffers, and no-spray list members will not prevent adequate coverage to ensure treatment efficacy.
- There are no issues regarding listed or special concern species in the treatment area.
- Meeting label restrictions for selected compounds (such as avoiding farmland) will not compromise expected treatment efficacy.

4. Likely persistence or worsening of problem without intervention (pesticides should not be used if the problem will resolve itself):

- Considerations regarding the history of the area, such as the identification of a chronic problem area.
- Determination if the problem will spread beyond the currently affected area absent intervention, based on the life history and habits of the species involved.
- Absent immediate intervention, no relief from the problem can be expected.
- Crew reports from adjacent breeding areas suggest adults will soon move into populated areas.
- Life history factors of mosquitoes present – i.e., if a brooded species is involved, determining if the brood is young or is naturally declining.
- Seasonal and weather factors, in that cool weather generally alleviates immediate problems, but warm weather and/or the onset of peak viral seasons exacerbate concerns.
- Determining, if the decision is delayed, if later conditions will prevent treatment at that time or not. Conversely, adverse weather conditions might remove most people from harm's way.

In essence, criteria 1 and 2 are necessary thresholds which must be met, prior to a treatment being considered. With enhanced surveillance, there will be rigorous, numeric validation of mosquito control infestation near a potentially affected population in all cases. Treatment will not occur unless criteria 1 and 2 are satisfied through a combination of surveillance indicators, although not all surveillance techniques may be feasible in every setting and situation.

Vector Control applications will normally be made by truck. Necessary public notices will be issued in a timely manner (normally, at least 24 hours pre-application), and appropriate precautions will be made to meet NYSDEC restrictions on applications, and to avoid “No Spray” properties (including all farms).

The need for Health Emergency treatments is determined by the New York State Department of Health West Nile Virus Response Plan for mosquito-borne disease. Because of the persistent presence of WNV in the County, the County perpetually begins each year in Tier II. As indicators of pathogen presence accumulate (positive dead birds, positive pools of mosquitoes), the Commissioner of the SCDHS will petition the Commissioner of the State Department of Health to declare a Health Emergency. If the petition is granted, and the risk assessments made by SCDHS indicate that risks to the residents of an area of the County are no longer tolerable, the Commissioner will declare a Health Emergency. In conjunction with NYSDEC and SCVC, SCDHS will determine the optimal treatment area to reduce risks of disease transmission to people. An application will be made to NYSDEC for NYSDEC to issue an Emergency Authorization to permit adulticide applications that might otherwise violate the State Freshwater Wetlands Regulations. Appropriate required public notices will be issued. Pre-application mosquito sampling will be conducted (for efficacy determinations). If, as is almost always the case for Health Emergency applications, an aerial application is proposed, a helicopter using the Adapco Wingman guidance system will be used to optimize the delivery of the pesticide.

Efficacy measurements will be made following every adulticide application. The Long-Term Plan also calls for the establishment of resistance testing for the more commonly used compounds.

The Long-Term Plan proposed a general reliance on resmethrin, a synthetic pyrethroid, as the adulticide pesticide. Resmethrin has been found to be an effective pesticide for mosquito control, can be used for ultra-low volume applications for truck and aerial delivery, undergoes rapid decay in the environment, and, as discussed below, has few identified non-target effects when applied as proposed under the Long-Term Plan. Sumithrin, a similar pyrethroid, is proposed to be the primary back-up to resmethrin, and the primary pesticide for any hand-held applications (the resmethrin label is currently interpreted as not permitting hand-held applications). The Long-Term Plan also identifies two other pyrethroids, permethrin and natural pyrethrins, as potential adulticide compounds. Neither is preferred; however, permethrin is a more widely available product that is manufactured by more than one company, and so may continue to be available under conditions when the patented, less-widely used pyrethroids may not be. Natural pyrethrins are identified as a potentially useful

compound because its label allows for use over agricultural areas. In addition to the pyrethroids, malathion, an organophosphate pesticide, was identified as a potential adulticide. Malathion would be used under very specialized conditions, such if thermal fogging were needed, daylight applications were called for, or if resistance testing indicated pyrethroid applications would be ineffective in meeting the goals of the application. All of these pesticides would be applied at the maximum label rate, as that is the best way of achieving effective mosquito control and is helpful in avoiding the development of pesticide resistance.

Each year, SCVC will prepare and submit to CEQ and the Legislature a report on its pesticide use in the previous calendar year. The report will document actions taken to minimize the use of pesticides. It will summarize any notable scientific findings regarding the pesticides used by the program. The report will also identify any research or product development that may lead to selections of alternatives to the compounds selected by SCVC over that time period. The report will also review the thresholds used for Vector Control application consideration, and determine if those thresholds were appropriate to achieve the goals of protecting public health and the environment.

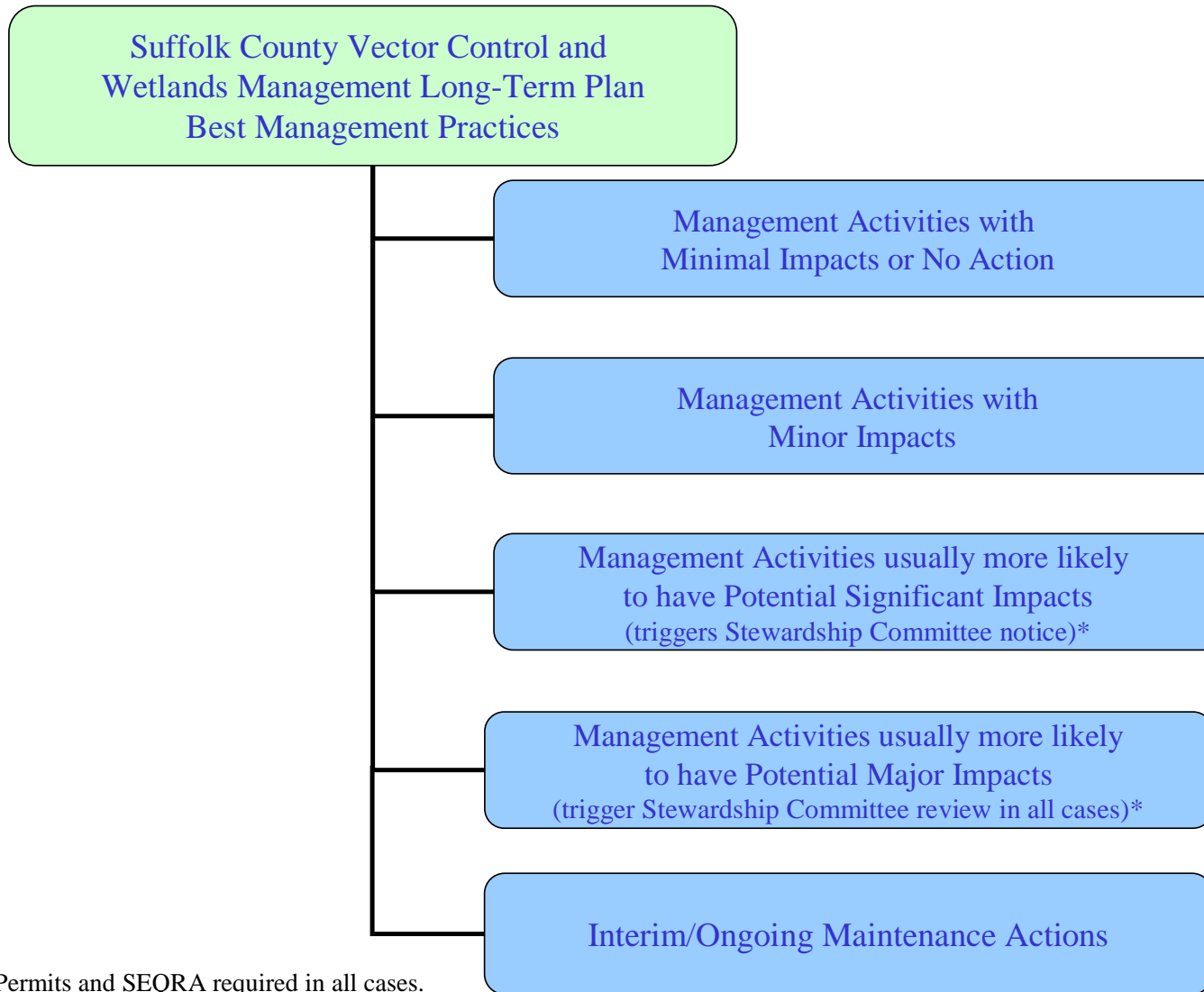
*Wetlands Management component of the Long Term Plan*

The Long-Term Plan establishes a Wetlands Stewardship Committee. The Suffolk County Department of Environment and Energy (SCDEE) will chair the committee. NYSDEC permits and reviews will be required for nearly every project. No project requiring a NYSDEC permit will be allowed to proceed without explicit review and approval of SCDEE, meaning that permit applications and Wetlands Stewardship Committee considerations will not begin without SCDEE vetting of the proposed project. Any project that is usually more likely to have potential for major impacts (Best Management Practices 10-15), or any other project, using Best Management Practices 5 through 9 that the Wetlands Stewardship Committee membership determines to need review, will undergo the review and recommendations of the Wetlands Stewardship Committee of the project goals, design, and impact assessment. Any project requiring a NYSDEC permit will be noticed to CEQ. Thus, any project except for the most minor will undergo extensive scrutiny and analysis prior to any alteration of the marsh.

If the DEE adopts any of the BMPs 2-4 as part of [their] its stewardship strategy, then “Maintenance as define in BMPs 2-4 needs further clarification [classification].

- a) No material alteration of marsh hydrology, tidal circulation characteristics, vegetation or animal populations shall occur as part of any maintenance activity.
- b) Maintenance should involve only existing water features in a marsh and cannot be used to expand any feature in length, width or depth.
- c) Suffolk County can remove blockages/obstructions in a ditch or impairments to tidal flow in accordance with conditions identified in the FGEIS.
- d) Maintenance cannot expand a ditch network.
- e) Maintenance shall avoid enhancement of storm water conveyance.

Figure 1. Overall Hierarchy of Proposed Best Management Practices

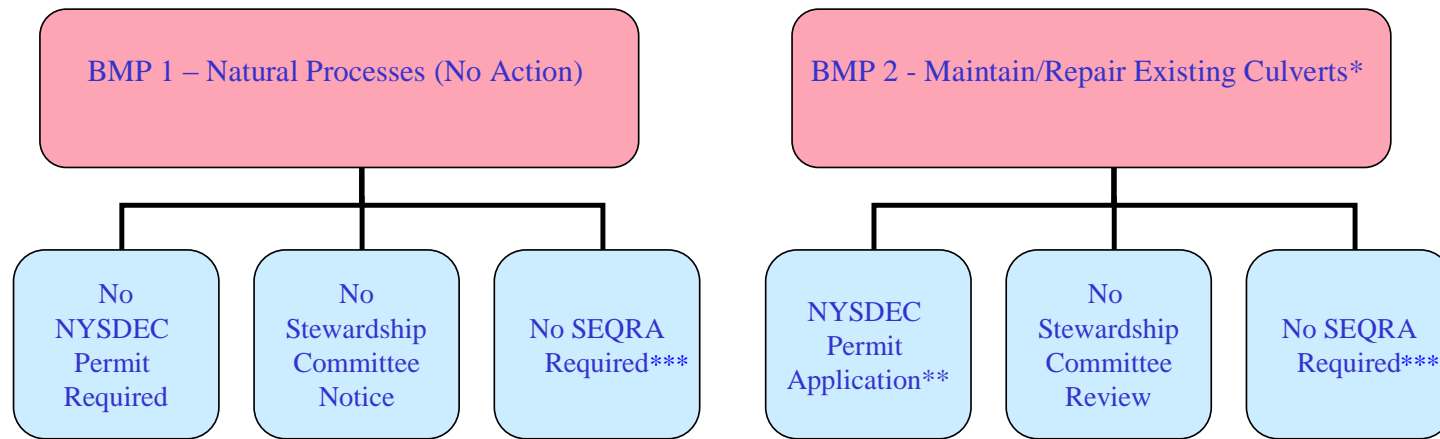


\* DEC Permits and SEQRA required in all cases.

Figure 2. Review Process for Management Activities with No or Minimal Impacts

## S.C. Vector Control and Wetlands Management Long-Term Plan Review Process for Wetlands Activity

### NO ACTION & MINIMAL IMPACT



\* Replacement in-kind with substantially identical culvert.

\*\* Notice will also be sent to Town and Trustee jurisdictions.

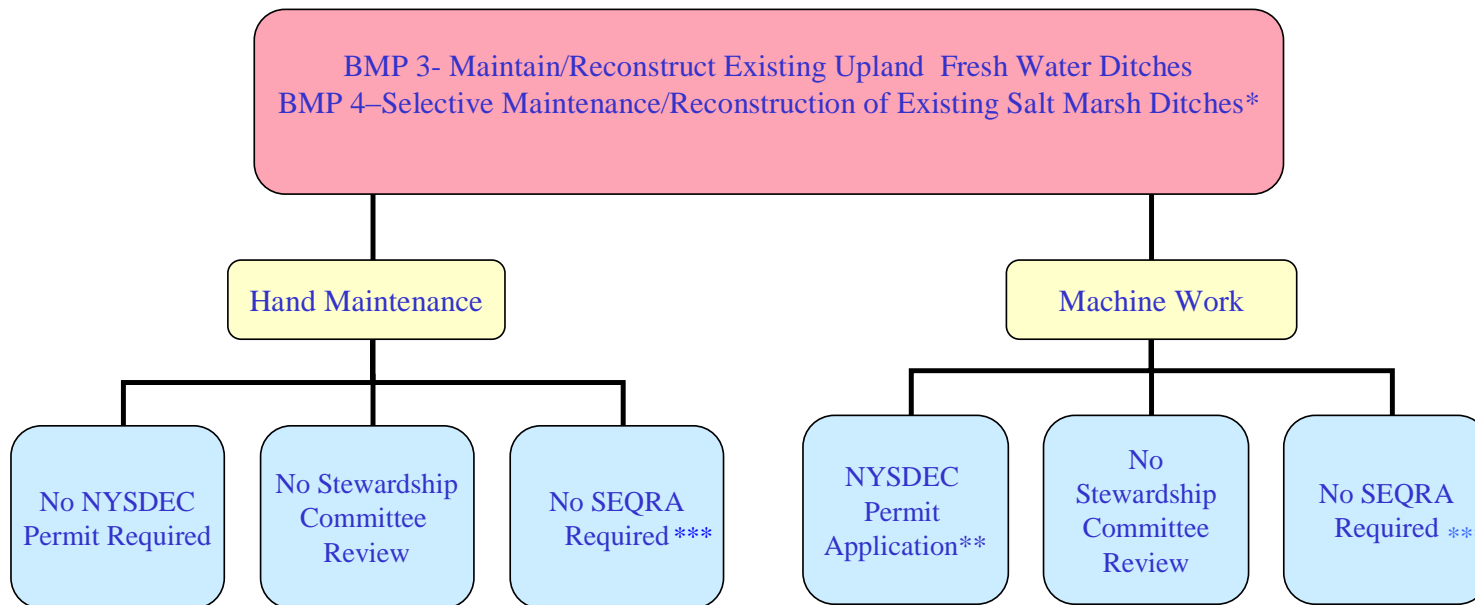
\*\*\* BMP 1-4 may require SEQRA review if deemed appropriate by DEE/CEQ.



Figure 3. Review Process for Management Activities with Minor Impacts

## **S.C. Vector Control and Wetlands Management Long-Term Plan** **Review Process for Wetlands Activity**

### **MANAGEMENT ACTIVITIES WITH MINOR IMPACTS**



\* Minimal machine maintenance when required for critical public health or ecological purpose (50,000 feet/year, 50 acres maximum, 1 acre minimum).

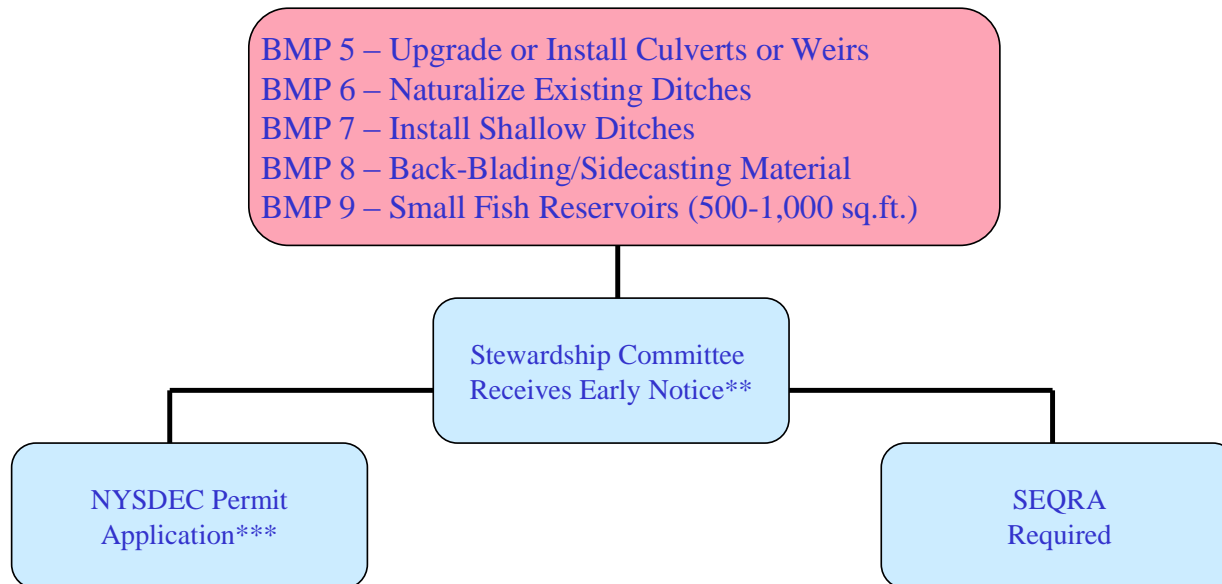
\*\* Notice will also be sent to Town and Trustee jurisdictions.

\*\*\* BMP 1-4 may require SEQRA review if deemed appropriate by DEE/CEQ.

Figure 4. Review Process for Management Activities with the Potential for Significant Impacts

## **S.C. Vector Control and Wetlands Management Long-Term Plan** **Review Process for Wetlands Activity**

### **MANAGEMENT ACTIVITIES USUALLY MORE LIKELY TO HAVE POTENTIAL SIGNIFICANT IMPACTS\***



\* In former plan drafts, BMP's 5-9 were designated "minor impacts" unless they affect 15 or more acres. In the current plan all are deemed usually more likely to have "potential significant impacts," irrespective of size. Impacts may be beneficial not necessarily adverse.

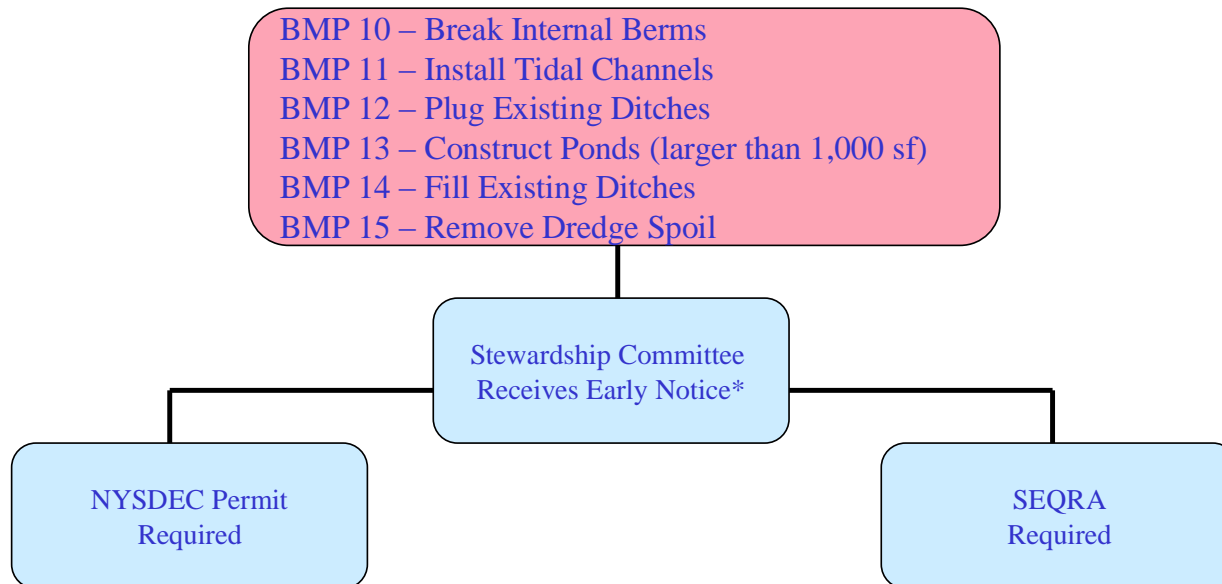
\*\* Stewardship Committee can submit comments to project sponsor and/or SEQRA lead agency prior to project approval. Stewardship Committee meetings can also occur, as needed.

\*\*\* Notice will also be sent to Town and Trustee jurisdictions.

Figure 5. Review Process for Management Activities with the Potential for Major Impacts

## **S.C. Vector Control and Wetlands Management Long-Term Plan** **Review Process for Wetlands Activity**

**MANAGEMENT ACTIVITIES USUALLY MORE LIKELY  
TO HAVE POTENTIAL MAJOR IMPACTS\***

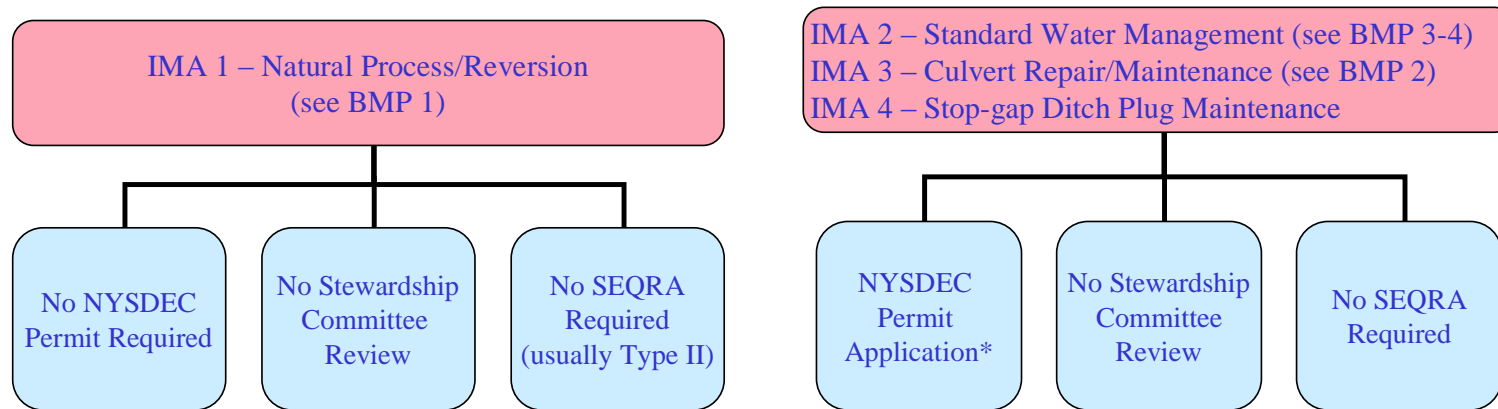


\* Includes representation from local jurisdictions.

Figure 6. Review Process for Interim Management/Ongoing Maintenance Activities

## S.C. Vector Control and Wetlands Management Long-Term Plan Review Process for Wetlands Activity

### INTERIM MANAGEMENT/ONGOING MAINTENANCE ACTIVITIES (IMA)



\* Notice will also be sent to Town and Trustee jurisdictions.

In addition, over the first three years of the Long-Term Plan, the Stewardship Committee is charged with developing more rigorous indicators for marsh health for Suffolk County, and using them to assess marsh health and develop a strategy to manage all of the counties 17,000 acres of salt marsh (not just the 4,000 acres of vector control concern). SCDEE will oversee the development of this strategy. Marsh health (functions and values) and the preservation of marshes are to be paramount considerations in evaluating any potential project.

The Wetlands Stewardship Committee is envisioned in the Long-Term Plan to have the following composition:

Estuary programs:

- Long Island Sound Study (LISS) representative
- Peconic Estuary Program (PEP) representative
- South Shore Estuary Reserve (SSER) representative

State

- New York State Department of Environmental Conservation (NYSDEC) Region I
- NYSDEC Bureau of Marine Resources
- New York State Department of State (NYSDOS)

County

- County Legislature
- County Executive
- Suffolk County Department of Health Services (SCDHS)
- Suffolk County Department of Public Works (SCDPW)
- Suffolk County Department of Environment and Energy (SCDEE) (chair)
- Suffolk County Department of Planning
- Suffolk County Department of Parks
- Council on Environmental Quality (CEQ)

Local

- Town representative (based on project location)
- Trustee's representative (based on project location)

Non-governmental Organizations

- Two appointed by County Legislature
- Two appointed by County Executive

Any agency or entity that initiates a project that is before the committee, cannot vote on that project.

Appendix 2 more completely describes the functions of the Wetlands Stewardship Committee.

The Long-Term Plan identified priority sites for consideration of wetlands management (approximately 4,000 acres of salt marshes), and also identified other sites where no marsh

management for vector control purposes appeared to be appropriate (also approximately 4,000 acres). The Long-Term Plan, in the context of the Integrated Marsh management program developed by the Wetlands Stewardship Committee under the direction of SCDEE, proposes to assess the priority sites and the remaining 9,000 acres of other coastal marshes over the next 12 years or so to determine whether marsh management (possibly with a vector control element) is appropriate.

*Other important Long-Term Plan elements*

SCVC and the Arthropod Borne Disease Lab (ABDL) have redefined areas of operation under the Long-Term Plan, with SCVC focusing on population dynamics and control, and the ABDL concentrating on disease surveillance and determination of the need for adulticide treatment to reduce health risks. Each division has been slightly reorganized, and the County has committed to providing the personnel necessary for the organizations to meet their duties under the Long-Term Plan. The Long-Term Plan also emphasizes the need for continuing professional education to maintain the current top-notch standing of these organizations and to support continuing review and reporting on program elements.

The Long-Term Plan is not envisioned to be a static document. Means for continuing adaptive management are outlined in the Plan, including, obviously, incorporation of the findings of the Wetlands Stewardship Committee into the Wetlands Management element of the Plan. In addition, to meet the need for continuing evolution of the Long-Term Plan, and also to meet important public outreach goals, the production of a Triennial Report has been proposed. Its outline is attached as Appendix 1 to this Findings Statement.

## **E. Reasonable Alternatives Considered**

In accord with the requirements of SEQRA, the environmental review of the Long-Term Plan considered reasonable alternatives to the Long-Term Plan.

- No Action (continue the existing program)

SEQRA requires that a “no action” alternative be considered. If no changes were made to the existing situation, then the existing mosquito management program would be continued.

The existing program is an Integrated Pest Management program, but the Long-Term Plan has identified ways that it could be improved. The ways that the existing program would be improved include:

- An expanded and improved education program
- An expanded surveillance program
- Potential construction of a local BioSafety Level 3 laboratory
- Improved GIS capabilities for data management
- Improved source reduction, including an emphasis on tire management and storm water facility maintenance
- Implementation of a more ecologically sound and yet more effective water management program
- Selection of a better biocontrol agent than *Gambusia* fish
- Proposed implementation of numerical triggers for larviciding
- Establishing goals for larvicide reductions through more effective water management
- Purchase and installation of the Adapco system for aerial adulticide applications
- Establishing clear and precise numerical triggers for Vector Control treatments
- Creating pesticide efficacy programs
- Establishing resistance testing

- Establishing clear distinctions for the complementary roles of SCVC and the ABDL
- Creating mechanisms by which the Long-Term Plan can be modified as needs dictate

Thus, the No Action alternative is clearly inferior to the Long-Term Plan.

- No Mosquito Control

A considered alternative was one where no mosquito control was to be conducted. This alternative was found to be insufficiently protective of human health. A model of WNV prevalence in the theoretical absence of mosquito control found that tens of deaths might occur each year, with more than one hundred additional cases requiring hospitalization. In addition, because careful implementation of progressive water management can augment important salt marsh functionalities, potential ecological benefits would be lost. Human health and environmental impacts from pesticide use (see Section F below), which would be avoided under this alternative, were not found to be of the same magnitude as the potential human health impacts from disease. The potential for ecological impacts from water management are mitigated by processes established for programmatic and project level reviews (see Section D above and Section F below).

- Alternative IPM approaches

Various permutations of the overall Long-Term Plan approach were considered. They included:

- No water management at all

This is to adopt a marsh reversion policy for all marshes throughout the County. The environmental analysis suggested that, for certain marshes, allowing ditches to infill could increase mosquito breeding. In addition, for certain marshes, allowing the ditches to infill would reduce tidal circulation, and therefore lead to reduced functioning as a salt marsh. Therefore, having no water management at all would lead to potentially greater human health impacts because of increased mosquito breeding, and decreases in important ecological functions.



- Selective ditch maintenance

Experiences in other jurisdictions suggests that there are water management alternatives that potentially are more effective as mosquito control means, have potentially fewer environmental impacts, and should augment certain marsh functionalities such as fish production and water bird use of the marsh. This suggests that ditch maintenance is an inferior means of conducting water management.

- Ditch maintenance of all ditches

This alternative is based on the notion that structures should be maintained as they were constructed to be. However, it is clear that not all ditches are needed for mosquito control purpose. It is also likely that some ditches have had negative environmental impacts on certain marshes. Therefore, a universal policy of ditch maintenance is also an inferior means of mosquito control and of marsh management.

- Alternative larvicide compounds

Three alternatives were considered: ethoxylated fatty alcohols, Temphos, and Golden Bear Oil. Temphos clearly has the potential for greater ecological impacts to non-target aquatic invertebrates compared to Bti, Bs, and methoprene. The other two compounds are not as well studied. However, they appear to have the potential for non-target organism impacts, and do not appear to meet operational needs for SCVC. Therefore, these three compounds were evaluated to be inferior choices.

- No larvicide use in fresh water settings, with no methoprene use in salt water settings

Based on efficacy data, it is clear that mosquito breeding would be increased under this choice. The County has found that increased mosquito populations increase risks of disease transmission. Therefore, selecting this alternative would increase the risk of human disease. The analysis was not able to quantify the increase in risks, however. Selection of this alternative is based on the environmental benefits of reduced larvicide use outweighing the increase in human health risks. Although no use of pesticides is risk free, the quantitative risk analysis found that the proposed Long-Term Plan use of Bti, Bs, and methoprene should result in no changes to ecological conditions, as the modeling

suggested the exposure of organisms to these pesticides would be below thresholds where impacts were found to occur. Therefore, it is likely that no discernable environmental benefits would ensue, and so the risk increase to human health is likely to be much greater than (and incommensurate with) any potential ecological benefits. In fact, significantly increased adulticide usage could occur as a result. This makes this alternative inferior to the Long-Term Plan.

- Alternative adulticide compounds

Four alternatives were considered: naled, fenthion, chlorpyrifos, and deltamethrin. Qualitative risk assessments were conducted of these compounds. Naled, fenthion, and chlorpyrifos are organophosphate pesticides. US Environmental Protection Agency studies suggest they are likely to have more non-target impacts than the pyrethroids selected for the Long-Term Plan. They thus represent inferior choices to resmethrin and sumithrin (the preferred Long-Term Plan adulticides). Deltamethrin is also a synthetic pyrethroid. The qualitative analysis of deltamethrin suggested it should have ecological and human health impacts that are similar to the selected pyrethroids. Because no information surveyed suggested it would have lower impacts than the selected pyrethroids, it was not selected as an alternative that should be preferred over the Long-Term Plan choices.

- Use of Mosquito Magnets in Davis Park

Mosquito Magnets and other mosquito traps have been found to be effective in some testing. However, local tests conducted under the Long-Term Plan did not find that they deterred mosquitoes from reaching a target area. Therefore, establishing an array of such traps across the barrier beach to reduce infiltration of mosquitoes to the community was thought to be technically flawed.

- Adulticide only for Health Emergencies

Four study areas were considered for the quantitative risk assessment. Two areas (Dix Hills, with one application, and Manorville, with two applications) were evaluated under Health Emergency scenarios. Mastic-Shirley (10 applications) was evaluated for a mix of Health Emergency and Vector Control applications, and Davis Park (14 applications)

was evaluated for Vector Control applications only. Increasing the number of applications did not increase risks above impact thresholds for most of the scenarios and compounds evaluated. Potential impacts to terrestrial insects were found under all scenarios and for all pesticides (see Section F below). Potential impacts to aquatic invertebrates were found for the higher use scenarios for permethrin and malathion, but not for resmethrin and sumithrin. More sophisticated ecological modeling suggested that any permethrin impacts would be of short duration, and would not affect ecological conditions in the following season (these results were thought to be valid for malathion, as well). The only potential risk found to be greater than threshold limits for human health was found for the highest potential release of malathion in Davis Park, and this risk increase could be mitigated by washing the exposed vegetables (a “community gardener” scenario was modeled for all risk assessment areas, even though it was understood that conditions on Fire Island do not allow for extensive vegetable gardens). Thus, only under the highest use scenario with the highest potential exposure concentration was there even a suggestion that Vector Control applications might lead to greater impacts than Health Emergency applications. Thus, the risk assessment generally found the potential for increased risks associated with Health Emergencies and Vector Control applications to be similar (and negligible). Therefore, there would be only slight risk benefits to be achieved by eliminating Vector Control applications. The analysis by the County, however, finds that increased numbers of mosquitoes tends to increase risks of disease transmission. Therefore, there is a risk benefit for human health from decreased disease risks when Vector Control applications are made. Therefore, eliminating Vector Control applications would not only decrease quality of life, but it would increase human health risks, and provide only negligible risk advantages. This made it an inferior alternative.

- Adulthood only after human illness

This programmatic choice is logically flawed. For one, adulticides are used to avoid human illness. In this scenario, the illness has already occurred. Secondly, it needs to be understood that there is often a week or more lag between the time of infection and diagnoses of illness. Because mosquitoes often have high mortality rates (especially for brooded mosquitoes), the mosquitoes that may have been responsible for the illness may

already be dead when the illness is determined. Therefore, it will often be the case that treatment decisions will be made for reasons other than the targeted mosquitoes having caused illness. If so, those treatment criteria could be used prior to the onset of illness. Because the mosquitoes that caused illness are not likely to still be present, it is clear that eliminating mosquitoes that caused people to become ill is not the direct cause of the proposed adulticide application. This means other criteria must be used to determine where and when the application will be made. If other criteria are used, then these self-same criteria could have been applied prior to the onset of illness, with the effect of potentially preventing impacts to human health. In nearly all mosquito control situations with a virus like WNV that has a long lag between induction of illness and diagnosis of the disease, and where brooded mosquitoes are important to the risk of transmission, past human cases are a poor criterion on which to base mosquito control decisions, and the more important criteria that measure current risks from virus presence are not affected by incidences of disease. Therefore, disease occurrence in humans is a suboptimal trigger for treatment.

- No adulticiding

Information collected in the impact assessment suggests that adulticiding is effective at killing adult mosquitoes. If virus is circulating in these mosquitoes, their deaths will decrease risks to people from mosquito-borne disease. The analyses carried out on adulticide applications suggest that no significant increases in risks to the environment or human health result from judicious use of these pesticides. Therefore, avoiding the use of adulticides does not result in significant risk reductions. On the contrary, it could result in significant risk increases for mosquito-borne disease impacts.

## **F. Long-Term Plan Potential Significant Impacts and Identified Mitigation**

### *Introduction*

Suffolk County, through its consultant, Cashin Associates, and the team of subconsultants assembled by Cashin Associates, has conducted a most thorough and complete evaluation of potential impacts of the proposed Long-Term Plan. As detailed above in Section C, the overall approach to this project provided for a robust feedback system whereby initial findings were commented on and criticized, leading to revised and improved programs and analyses of the proposed programs. Not only were traditional methods of environmental analysis used (such as the literature search and modeled risk analysis), but local and unique experiments, assessments, and demonstration projects were undertaken to strengthen the development of the project and its environmental impact analysis.

Several elements are key to the findings regarding the proposed Long-Term Plan. These are:

- The 27 volume literature search
- The quantitative risk assessment of potential ecological and human health impacts of the proposed Long-Term Plan pesticides, using four exemplar areas of the County with different application scenarios, conducted by Integral Consulting.
- The Caged Fish experiment of fate and transport and potential impacts to sentinel organisms for methoprene and resmethrin under operational conditions in salt marsh ditches, under the direction of Professor Anne McElroy, Stony Brook University.
- The Wertheim National Wildlife Refuge demonstration of progressive water management practices and their potential to create environmental benefits and meet mosquito control needs, with the cooperation of USFWS.
- A model of potential human health impacts from WNV in the absence of local mosquito control, based on serological data collected in New York, Ohio, and Ontario.

Hundreds of samples of air, water, sediment, and biota were taken, with samples analyzed to the low part-per-trillion level, the lowest known detection limit ever attained. Numerous other efforts from this three-year study contributed to the conclusions reached here.

The contributions of volunteers were extremely important, and shaped the results presented here. These volunteers included citizens and government and academic professionals from outside of the project, who served on the various committees and who analyzed project output and draft and provisional documents.

### *Impacts and Mitigation*

The following specifies potentially significant impacts that may be incurred with the adoption of the Long-Term Plan by the Suffolk County Legislature, and also identifies mitigation of these potential impacts.

- Education and Outreach

The Long-Term Plan identified the potential for impacts associated with counseling the public to use DEET to avoid mosquito bites. Although it is not clear that any health impacts result from the use of DEET, the Long-Term Plan repeats the advice of the State Department of Health and urges the public to use caution when applying DEET to skin, and to ensure label directions are followed. Any potential impacts associated with DEET use are mitigated by reductions in disease risk associated with its effective deterrence of mosquito bites.

- Source Reduction

Collection of littered tires can increase waste management requirements, and the maintenance of storm water structures can also generate somewhat problematic materials. The scope of these problems, in light of waste management as a whole County-wide, is not great. The impact of problems associated with these waste streams is mitigated by the potential for improved mosquito management, especially in the reductions of risks to human health.

- Water Management

The Long-Term Plan identifies 15 Best Management Practices and four Interim Management/Ongoing Maintenance Activities (Tables 1 through 5) that could be conducted in coastal marshes to further mosquito control purposes. The following five tables summarize the possible impacts associated with each, and also identify mitigation for each potential impact (identified in the Tables as “Potential Benefits”).

Table 1. Management Activities with No or Minimal Impacts

<b>BMP</b>	<b>Action</b>	<b>Factors to Consider</b>	<b>Potential Benefits</b>	<b>Possible Impacts</b>	<b>Equipment to be used</b>	<b>General Compatibility With Tidal Wetlands 6 NYCRR Part 661</b>
BMP 1.	Natural processes (reversion/no action)	<ul style="list-style-type: none"> <li>- Default option</li> <li>- Land owner prefers natural processes to proceed unimpeded</li> <li>- Natural reversion is actively infilling ditches</li> <li>- No existing mosquito problem</li> </ul>	<ul style="list-style-type: none"> <li>- Return to pre-ditch hydrology</li> <li>- More natural appearance/processes</li> <li>- Requires no physical alterations</li> </ul>	<ul style="list-style-type: none"> <li>- Possible increase in mosquito breeding habitat, creation of problem</li> <li>- Loss of ditch natural resource values</li> <li>- Loss of tidal circulation</li> <li>- Phragmites invasion if fresh water is retained on marsh</li> <li>- Drowning of vegetation if excess water is held on marsh</li> </ul>	Not applicable	NPN
BMP 2.	Maintain/repair existing culverts	<ul style="list-style-type: none"> <li>- Flooding issues</li> <li>- Are existing culverts adequate for purpose?</li> <li>- Are existing culverts functioning properly?</li> </ul>	<ul style="list-style-type: none"> <li>- Maintain existing fish and wildlife habitats</li> <li>- Maintain tidal flow and/or prevent flooding</li> </ul>	<ul style="list-style-type: none"> <li>- Continue runoff conveyance into water bodies</li> <li>- Roads &amp; other associated structures</li> </ul>	<ul style="list-style-type: none"> <li>- Hand tools (minor maintenance)</li> <li>- Heavy equipment for repair</li> </ul>	GCp

Please note that other jurisdictions besides NYSDEC may also regulate activities in wetlands.

NPN = Uses Not Requiring a Permit  
 GCp = Generally Compatible Use- Permit Required

Table 2. Management Activities with Minor Impacts

BMP	Action	Factors to Consider	Potential Benefits	Possible Impacts	Equipment to be used	General Compatibility With Tidal Wetlands 6 NYCRR Part 661
BMP 3.	Maintain/ reconstruct existing upland/ fresh water* ditches	<ul style="list-style-type: none"> <li>- Flooding issues</li> <li>- Are existing ditches supporting flood control?</li> <li>- Are existing ditches needed for agricultural uses?</li> </ul>	<ul style="list-style-type: none"> <li>- Maintain existing fish and wildlife habitats and hydrology</li> <li>- Prevent or relieve flooding</li> <li>- Support turtle habitat</li> <li>- Provide fish habitat</li> </ul>	<ul style="list-style-type: none"> <li>- Continue runoff conveyance?</li> <li>- Perpetuate existing degraded conditions</li> <li>- Excess drainage</li> </ul>	<ul style="list-style-type: none"> <li>- Hand tools (minor maintenance)</li> <li>- Heavy equipment for reconstruction (rare)</li> </ul>	NPN, GCp (6 NYCRR Part 663)
BMP 4	Selective Maintenance/ Reconstruction of Existing Salt Marsh Ditches	<ul style="list-style-type: none"> <li>- Local government issues and concerns resolution</li> <li>- SCDHS Office of Ecology review</li> <li>- Mosquito breeding activity</li> <li>- Land owners long-term expectations</li> <li>- Overall marsh functionality</li> <li>- Ditch maintenance is to be selective and minimized</li> </ul>	<ul style="list-style-type: none"> <li>- Enhance fish habitat</li> <li>- Maintain existing vegetation patterns</li> <li>- Maintain existing natural resource values</li> <li>- Allow salt water access to prevent/control Phragmites</li> <li>- Reuse pesticide usage</li> </ul>	<ul style="list-style-type: none"> <li>- Perpetuate ongoing impacts from ditching (lack of habitat diversity)</li> </ul>	<ul style="list-style-type: none"> <li>- Hand tools (minor maintenance)</li> <li>- Heavy equipment for reconstruction</li> </ul>	NPN, GCp

Please note that other jurisdictions besides NYSDEC may also regulate activities in wetlands.

NPN = Uses Not Requiring a Permit  
 GCp = Generally Compatible Use- Permit Required



Table 3. Management Activities Usually More Likely to Have Potential Significant Impacts

BMP	Action	Factors to Consider	Potential Benefits	Possible Impacts	Equipment to be used	General Compatibility With Tidal Wetlands 6 NYCRR Part 661
BMP 5.	Upgrade or install culverts, weirs, bridges	<ul style="list-style-type: none"> <li>- Flooding</li> <li>- Flow restrictions</li> <li>- Associated marsh impacts</li> <li>- Cooperation from other involved departments</li> </ul>	<ul style="list-style-type: none"> <li>- Improve tidal exchange and inundation</li> <li>- Improve access by marine species</li> <li>- Increase salinity to favor native vegetation</li> <li>- Improve fish habitat &amp; access</li> </ul>	<ul style="list-style-type: none"> <li>- Negative hydrological impacts</li> <li>- Changes in vegetation regime</li> </ul>	<ul style="list-style-type: none"> <li>- Heavy equipment required</li> </ul>	GCp, P, PiP
BMP 6.	Naturalize existing ditches	<ul style="list-style-type: none"> <li>- Grid ditches</li> <li>- Mosquito breeding activity</li> <li>- Landowner needs</li> <li>- In conjunction with other activities</li> </ul>	<ul style="list-style-type: none"> <li>- Increase habitat diversity</li> <li>- Increase biofiltration</li> <li>- Improve fish habitat and access by breaching berms</li> </ul>	<ul style="list-style-type: none"> <li>- Hydrology modification</li> <li>- Minor loss of vegetation</li> <li>- Possible excess drainage</li> </ul>	<ul style="list-style-type: none"> <li>- Hand tools (minor naturalization)</li> <li>- Heavy equipment for major</li> </ul>	GCp
BMP 7.	Install shallow spur ditches	<ul style="list-style-type: none"> <li>- Mosquito breeding activities</li> <li>- Standard water management not successful (continued larviciding)</li> </ul>	<ul style="list-style-type: none"> <li>- Increase habitat diversity</li> <li>- Allow higher fish populations</li> <li>- Improve fish access to breeding sites</li> </ul>	<ul style="list-style-type: none"> <li>- Drainage of ponds and pannes</li> <li>- Hydraulic modification</li> <li>- Structure not stable</li> </ul>	<ul style="list-style-type: none"> <li>- Preferably hand tools</li> </ul>	GCp
BMP 8.	Back-blading and/or sidecasting material into depressions	<ul style="list-style-type: none"> <li>- Mosquito breeding activities</li> <li>- Standard water management not successful (continued larviciding)</li> </ul>	<ul style="list-style-type: none"> <li>- Improve substrate for high marsh vegetation</li> <li>- Compensate for sea level rise or loss of sediment input</li> <li>- Eliminate mosquito breeding sites</li> </ul>	<ul style="list-style-type: none"> <li>- Excessive material could encourage Phragmites or shrubby vegetation</li> <li>- Materials eroded so that application was futile</li> </ul>	<ul style="list-style-type: none"> <li>- Heavy equipment required</li> </ul>	Usually NPN or GCp; could be PiP or I
BMP 9.	Create small (500-1000sq. ft) fish reservoirs in mosquito breeding areas	<ul style="list-style-type: none"> <li>- Mosquito breeding activities</li> <li>- In conjunction with other water management</li> <li>- Natural resource issues</li> </ul>	<ul style="list-style-type: none"> <li>- Increase wildlife habitat diversity/natural resource values</li> <li>- Improve fish habitat</li> <li>- Eliminate mosquito breeding sites</li> <li>- Generate material for back-blading</li> </ul>	<ul style="list-style-type: none"> <li>- Convert vegetated area to open water with different or lower values</li> </ul>	<ul style="list-style-type: none"> <li>- Heavy equipment required</li> </ul>	PiP

Please note that other jurisdictions besides NYSDEC may also regulate activities in wetlands.

NPN = Uses Not Requiring a Permit

GCp = Generally Compatible Use- Permit Required

P = Permit Required

PiP = Presumptively Incompatible Use- Permit Required

I = Incompatible Use

Table 4. Management Activities with the Potential for Major Impacts

BMP	Action	Factors to Consider	Potential Benefits	Possible Impacts	Equipment to be used	General Compatibility With Tidal Wetlands 6 NYCRR Part 661
BMP 10.	Break internal berms	<ul style="list-style-type: none"> <li>- Water quality (poor)</li> <li>- Standing water (mosquito breeding)</li> <li>- Impacts on structural functions</li> </ul>	<ul style="list-style-type: none"> <li>- Allow access by marine species</li> <li>- Prevent waterlogging of soil and loss of high marsh vegetation</li> <li>- Improve fish access to mosquito breeding sites</li> <li>- Prevent stagnant water</li> </ul>	<ul style="list-style-type: none"> <li>- Changes in system hydrology</li> <li>- Excessive drainage of existing water bodies</li> <li>- Introduction of tidal water into areas not desired</li> </ul>	<ul style="list-style-type: none"> <li>- Hand tools (minor)</li> <li>- Heavy equipment (major)</li> </ul>	Pip
BMP 11.	Install tidal channels	<ul style="list-style-type: none"> <li>- Improve water quality</li> <li>- Tidal ranges and circulation</li> <li>- Increase salinity (invasive vegetation)</li> <li>- Natural resources enhancement</li> </ul>	<ul style="list-style-type: none"> <li>- Improve tidal exchange</li> <li>- Improve access by marine species</li> <li>- Increase salinity to favor native vegetation</li> <li>- Improve tidal inundation</li> <li>- Improve fish habitat</li> </ul>	<ul style="list-style-type: none"> <li>- Changes in system hydrology</li> <li>- Excessive drainage or flooding of uplands</li> <li>- Increase inputs from uplands into water body</li> </ul>	<ul style="list-style-type: none"> <li>- Heavy equipment</li> </ul>	PiP
BMP 12.	Plug existing ditches	<ul style="list-style-type: none"> <li>- Improve fish habitat</li> <li>- Tidal ranges and circulation</li> <li>- Prevent upland inputs</li> <li>- Natural resources enhancement</li> </ul>	<ul style="list-style-type: none"> <li>- Return to pre-ditch hydrology &amp; vegetation</li> <li>- Reduce pollutant conveyance through marsh</li> <li>- Provide habitat for fish &amp; wildlife using ditches</li> <li>- Retain water in ditch for fish habitat</li> <li>- Deny ovipositioning sites</li> </ul>	<ul style="list-style-type: none"> <li>- Changes in system hydrology</li> <li>- Reduce tidal exchange</li> <li>- Reduce fish diversity in ditches due to lack of access</li> <li>- Impoundment of freshwater could lead to freshening &amp; Phragmites invasion</li> <li>- Possible drowning of marsh vegetation</li> </ul>	<ul style="list-style-type: none"> <li>- Heavy equipment</li> </ul>	PiP or I
BMP 13.	Construct ponds greater than 1000 sq.ft.	<ul style="list-style-type: none"> <li>- Landowner's needs</li> <li>- Water fowl habitat</li> <li>- Natural resources enhancement</li> <li>- Aesthetic improvements</li> </ul>	<ul style="list-style-type: none"> <li>- Increase habitat values for targeted species and associated wildlife</li> <li>- Improve habitat for fish</li> <li>- Eliminate mosquito breeding sites</li> </ul>	<ul style="list-style-type: none"> <li>- Changes in system hydrology</li> <li>- Convert vegetated areas to open water with different and possibly lower values</li> </ul>	<ul style="list-style-type: none"> <li>- Heavy equipment</li> </ul>	PiP
BMP 14.	Fill existing ditches	<ul style="list-style-type: none"> <li>- Landowner's needs</li> <li>- Aesthetic improvements</li> <li>- To restore pre-ditch hydrology</li> <li>- Vegetated areas</li> </ul>	<ul style="list-style-type: none"> <li>- Return to pre-ditch hydrology and vegetation</li> <li>- Reduced likelihood of pollutant conveyance through marsh</li> <li>- Create vegetated habitat to replace that lost by ditches or by other alterations</li> <li>- Deny mosquito breeding habitat by eliminating stagnant ditches</li> </ul>	<ul style="list-style-type: none"> <li>- Potential to create new breeding habitats if ditches are not properly filled or by making the marsh wetter</li> <li>- Loss of ditch habitat for fish, other marine species &amp; wildlife using ditches</li> <li>- Loss of tidal circulation</li> <li>- Phragmites invasion if freshwater is retained on marsh</li> <li>- Drowning of vegetation if excessive water is held on marsh</li> </ul>	<ul style="list-style-type: none"> <li>- Heavy equipment</li> </ul>	PiP or I
BMP 15.	Remove dredge spoils	<ul style="list-style-type: none"> <li>- Increase wetland habitat</li> </ul>	<ul style="list-style-type: none"> <li>- Convert low-value upland to more valuable wetland habitats</li> <li>- Eliminate mosquito breeding sites</li> </ul>	<ul style="list-style-type: none"> <li>- Could result in new breeding sites if not carefully designed</li> <li>- Major change in local topography</li> </ul>	<ul style="list-style-type: none"> <li>- Heavy equipment</li> </ul>	PiP

Please note that other jurisdictions besides NYSDEC may also regulate activities in wetlands.

PiP = Presumptively Incompatible Use- Permit Required

I = Incompatible Use

Table 5. Interim Management/Ongoing Maintenance Actions

Interim Action	Action	Factors to Consider	Potential Benefits	Possible Impacts	Equipment to be used	General Compatibility with Tidal Wetlands 6 NYCRR Part 661
IMA 1.	Natural processes (No action reversion)	-Presumptive interim action	- Non-intervention in natural system	- Non-intervention in natural system	- Non-intervention in natural system	- Non-intervention in natural system
IMA 2.	Selective ditch maintenance (Standard Water Management)	- mosquito breeding activity - water quality (poor) - improve fish habitat	- Enhance fish habitat - Maintain existing vegetation pattern - Improve fish access to breeding sites - Increase fish and wildlife habitat diversity - Increase biofiltration - Improve fish habitat and access by breaching berms	- Perpetuate ongoing impacts from ditches - Hydrology modification - Minor loss of vegetation - Possible excess drainage of marsh surface	- Hand tools (Minor) - Heavy equipment (Major)	NPN, GCp
IMA 3.	Culvert repair/maintenance when tidal restrictions are apparent	- improve water quality - restore pre-restriction hydrology -mosquito breeding activities	- Maintain existing habitat - Maintain existing flows and/or prevent flooding	- Continue runoff conveyance into water bodies - Potentially inadequate water transmission	- Heavy equipment	GCp
IMA 4.	Stop-gap ditch plug maintenance	- prevent upland inputs - increase wetland habitat - sustain fish and wildlife habitat	- Return to pre-ditch hydrology & vegetation - Reduce pollutant conveyance through marsh - Provide habitat for fish & wildlife using ditches - Retain water in ditch for fish habitat - Deny ovipositioning sites	- Reduce tidal exchange - Reduce fish diversity in ditches due to lack of access - Impoundment of freshwater could lead to freshening & Phragmites invasion - Possible drowning of marsh vegetation - Impermanent approach (likely to fail within 5 years)	- Heavy equipment	GCp

Please note that other jurisdictions besides NYSDEC may also regulate activities in wetlands.

NPN = Uses Not Requiring a Permit  
GCp = Generally Compatible Use- Permit Required

Extensive experience in other jurisdictions such as New Jersey and Connecticut, suggests that careful site selection and professional implementation of these Best Management Practices tends to minimize the potential for negative impacts and increase the potential for benefits to accrue.

In addition to these efforts to mitigate impacts, Suffolk County will take the following actions to ensure that projects do not result in unwanted and unexpected negative environmental impacts:

- All water management projects are to be conducted on the basis that marsh health and marsh preservation are the primary project concern.
- All projects using Best Management Practices 5 to 15 (listed in Tables 3 and 4) will be subject to initial review through SCDEE and also will be subject to further environmental review.
- All projects will receive NYSDEC permits, as required, and undergo State environmental reviews, as required. Any project requiring a NYSDEC permit will be noticed to CEQ.
- The Long-Term Plan calls for the creation of a Wetlands Stewardship Committee. The Committee will be chaired by SCDEE. This Committee, as discussed in Section D, (and further outlined in Appendix 2) will be responsible for developing a definition of marsh health, and to use that definition to develop a County-wide marsh management plan that will be the basis of an Integrated Marsh Management program. The Integrated Marsh Management program will address all County marsh management needs, including those associated with vector control. The Wetlands Stewardship Committee will also be required to review and make recommendations on all projects that use Best Management Practices 10 to 15, and Best Management Practices 5-9 that the membership of the Committee determines requires further review.
- For the first three years of the Long-Term Plan, the County will only conduct water management projects that have the potential for minimal environmental impacts.
- All wetlands management projects will be developed, reviewed, and assessed on site-specific basis.

- Projects that do not meet goals and objectives after implementation will be subject to remedial activities to mitigate any potential impacts.

- Biocontrols

The Long-Term Plan identified potential impacts of the introduction of fish into certain fresh water habitats as a potential impact associated with the use of biocontrols. This is because certain predator-deficient environments allow for the development of aquatic invertebrates, insects, and amphibians. Some of the insects that can flourish in these environments are mosquitoes. Thus, it can seem to be worthwhile, from a mosquito control standpoint, to introduce mosquito larvae predators to reduce emergent populations. This would likely have negative impacts on other species, however. Therefore, the County will mitigate this potentially negative impact by limiting fish releases generally to locations where they have been used before. In addition, any expansion of fish releases will only occur after the locations have been reviewed and determined not to provide these kinds of “vernal pool” or “coastal plain pond”-type environments, and that any connected waters that the fish might migrate to also do not constitute such environments. This will be done for natural waters, and also for the various artificial waterways (such as recharge basins) that sometimes appear to need treatment.

- Larval Control

Comments were received on the County’s proposed use of methoprene and its potential for environmental impacts. The comments tended to focus on two areas:

- 1) The County ignored important scientific findings in making its analysis
- 2) The County did not correctly interpret a study conducted in Minnesota

There is no study that was evaluated as part of the Long-Term Plan which suggested that methoprene, as used in vector control applications in Suffolk County (as per NYSDEC-approved label requirements), has significant adverse ecological impacts. To the contrary, the Long-Term Plan's comprehensive risk assessment found that methoprene has no such impacts. Therefore, these findings do not recognize these comments and potential impacts as being substantiated. No commenters have refuted the specific technical materials in the

DGEIS or the FGEIS. Some commentators have recommended that, as a matter of policy, methoprene should be eliminated from the County's vector control program, without scientific documentation of adverse impacts. The commentators have made the recommendation based on speculation that, in the future, scientists may document adverse methoprene impacts in our salt marsh. This basis of speculation is clearly contrary to SEQRA.

Michael Horst has published research regarding impacts of methoprene on various crustaceans since 1999. He has found serious impacts, especially to larval stages of crabs and lobsters. The following summarizes the findings of this environmental assessment with regard to Dr. Horst's research:

- Methoprene is applied in wetland areas, not where larval crabs and lobsters used by Dr. Horst are found. Blue claw crabs hatch offshore and only arrive in estuaries when they are close to being fully developed. It is unlikely any are present in salt marshes in larval forms. Lobsters hatch offshore, develop offshore, and live offshore. A modeling exercise, made to estimate the maximum amount of pesticides that could have been in Long Island Sound when the 1999 lobster die-off occurred, found the maximum amount of methoprene that could be present in the near offshore waters of the sound was measured in the parts per quadrillion, and the lowest concentration linked to effects are in the parts per billion.
- Dr. Horst tends to overestimate the concentration of methoprene that could be present in salt marsh ponds, ditches, and streams, and in estuarine waters, according to all other researchers in the field. He also finds effects that, sometimes, others cannot duplicate.
- Dr. Horst has identified effects from methoprene that other researchers have not found, and have not looked for. This is because he is concerned about impacts from methoprene effects on endocrine systems of organisms. It is possible that pesticides (and other chemicals) that affect endocrine systems are not being correctly evaluated. However, the work in this field is preliminary, and cannot and should not be used to draw conclusions regarding any environmental impacts, based on only a few, limited laboratory studies.

To more specifically illustrate problems with the methoprene research cited by commentators, Dr. Horst's 1999 research with crab larvae used concentrations up to 500 times higher than those levels present in real-world vector control applications. Dr. Horst's more recent work in 2005 with lobster larvae suggested that there was increased mortality in Stage II lobster larvae in experiments conducted utilizing concentrations of 1 to 2 ppb methoprene continuously during a 72 hour exposure. These results were not confirmed in concurrent Stony Brook University analyses.

In any case, one ppb methoprene exposures maintained continuously for 72 hours is an extremely unrealistic exposure. The Caged Fish Study, conducted as part of the Long-Term Plan, with independent verification by USGS, clearly demonstrated that the concentrations required to cause impacts found by the Horst laboratory do not persist in the water column. Nominal concentrations of methoprene rapidly decrease to near or below detection limits of 5 ng/L (0.005 ppb); most of this reduction occurs within two hours of application. In addition, the quantitative risk assessment found, with comfortable margins of error, that risks of ecological impact do not increase to any significant level when methoprene is applied as is anticipated under the Long-Term Plan. Field sampling of salt marshes around Suffolk County also found no differences in the presence or absence of keystone marsh species with the use or not of methoprene in the marshes.

Some have placed great reliance on reports from researchers in Minnesota that appear to show impacts from methoprene use in fresh water marshes. The Hershey group's studies, published in 1997 and 1998, looked at six years of data collected from 1989 to 1994. The research indicated that methoprene use was correlated with relative reductions in insect populations and diversity (primarily in the chironomids), compared to control sites (but note that all populations actually increased in numbers and diversity over the study period; the treatment site populations grew more slowly than the control site populations did). However, sampling of the same marshes in 1997 and 1998 found the effect was gone, although insecticide use was continued. These reports are interpreted by many, including Suffolk County, as indicating that methoprene was not the primary cause of the change in the marsh insect populations.

In summary, the Hershey results do not document potential adverse impacts of methoprene, particularly in terms of Suffolk County's vector control setting. Scientifically, the Minnesota results are equivocal. The results relied on by Hershey impacts were apparently anomalous, as variations in chironomid populations occurred only in later years of the study, with no apparent causal explanation. Confounding factors such as meteorological variations may have been the root of observed impacts on chironomids. Significantly, Hershey's results were not reproduced in subsequent studies and years (i.e., no impacts, despite continuing pesticide use). Finally, it is important to emphasize that, even though the Hershey study was rigorously evaluated, it is substantially irrelevant to the Suffolk County vector control program. Hershey's work was performed exclusively in fresh water systems, while Suffolk's use of methoprene is focused predominantly on salt marshes. As such, Hershey dealt with different use patterns and ecological settings than those present in Suffolk County.

Aerial applications of larvicides appear to have the potential to cause impacts to certain bird species. Aircraft, especially when flown low over a marsh, have been observed to startle resting and nesting birds, causing them to take flight. Research on the impacts of startling such birds at one or two week intervals, as can occur due to repeated applications of larvicide across a season, is sparse, and so the impacts to any such species is based on speculation.

This potential impact is mitigated in two ways through the Long-Term Plan. One is by identifying important populations, and then altering application techniques to avoid any startling. This is already the practice of SCVC when piping plover nesting sites may be in potential flight paths. SCVC has requested that local experts work more closely with it to identify any significant populations or environments that may be impacted by its operations; although the focus of this effort is on fresh water settings, the same experts may be useful in identifying at risk populations in salt marshes, and the times when they are most sensitive to disturbance. Secondly, it is hoped that full implementation of progressive water management across the salt marshes will lead to a reduction in aerial larviciding. This has been the experience in neighboring jurisdictions where these procedures are used regularly.

Generally, the potential for impacts from the use of larvicides will be mitigated by the proposed large-scale reduction in applications, as the need for such applications is reduced.



Another overall mitigation is the benefit to human health resulting from disease risk reductions when potential vector populations are reduced.

As mentioned above, potential impacts associated with larval controls in fresh water settings are going to be further mitigated by encouraging information exchange between experts with knowledge of at risk organisms or settings, and SCVC. As each party understands habitat needs of the organisms, and proposed treatments by SCVC, it is anticipated that alterations can be made in the means SCVC uses to control mosquitoes to minimize the potential for impacts. These alterations could be shifts in the time of day that applications are made, to avoidance of treatments for certain settings at certain times, to more studied selection of treatments and times or applications to optimize mosquito control while minimizing the opportunities for impacts to occur. SCVC has, for example, worked closely with NYSDEC to avoid treating any tiger salamander habitats at times when impacts might affect breeding, or development and emergence of young. This is true although there do not appear to be any reasons to believe larvicide applications directly affect amphibians.

The quantitative risk assessment, the scientific literature in general, and local field work all found no potential impacts from the use of the biorational larvicides selected by the County under its proposed application means. Nonetheless, the County will seek to minimize its use of pesticides in the program. This is for several reasons:

- Minimizing pesticide use complies with spirit of the County pesticide phase-out law
- Minimizing pesticide use complies with Integrated Pest Management, where other means of pest control are preferred to the use of pesticides
- Reliance on pesticides for mosquito control can lead to suboptimal control. Resistance might develop, weather or other factors may impede the delivery of the pesticide, or the application may fail to impact the targeted population as expected (for a number of reasons). Thus, the pesticide may not achieve the expected efficacy.
- The potential exists for impacts due to accidents or misapplications.
- All studies, experiments, and calculations involve some uncertainties; in the case of much of the work with mosquito control pesticides, there are certainly a number of

factors and conditions that have not been completely studied and understood. Therefore, there is still a potential for impacts from the use of these products.

Therefore, the County will continue to seek to reduce its use of these compounds wherever and whenever it is feasible to do so.

- Adult Control

In the course of modeling helicopter releases of adulticides, RTP Environmental discovered there was drift of the pesticides from the release point so that at least some of the material was deposited outside of the target zone. To mitigate this potential impact, the County purchased an Adapco Wingman system. This is a coupled weather station-modeling-aircraft guidance system, where real-time meteorological data are used to model potential draft patterns of released ultra-low volume pesticides, and flight patterns are instantaneously generated to optimize the delivery of the pesticides to the target zone. This modeling system was installed on the contract helicopter used by the County in late 2005.

The quantitative risk assessment found at the point in the model grid where pesticides concentrations were greatest in Davis Park, that some elevated risks for human health for a receptor called the “community gardener” are possible (the community gardener receptor was studied in all settings, although it is not feasible for someone on Fire island to have a large, extensive vegetable garden). A community gardener is someone who eats all of their vegetables and fruit in summer from home-grown produce (15 percent of all annual produce ingestion) and works in the garden. Such an individual receives a higher dose of pesticides from residues ingested on the vegetable and from dermal contact with contaminated plants. The exposure modeled is a chronic, non-cancerous toxicity associated with malathion only. The risk can be mitigated by washing produce. It is also mitigated because malathion is not a preferred pesticide for the Long-Term Plan, and exposures associated with the pyrethroids (including resmethrin and sumithrin) do not exceed concentrations of concern. Public education efforts will help to mitigate risks associated with home-grown produce ingestion.

The quantitative risk assessment determined that there could be impacts to night-flying insects based on air dispersion model output concentrations compared to significant concentrations that could cause effects on bees (see Table 6 and Table 7).

Table 6. Bee Risk Quotients, Study Area Maximum Average Pesticide Concentrations

Pesticide	Davis Park	Dix Hills	Manorville	Mastic-Shirley (aerial)	Mastic-Shirley (truck)
Permethrin	200	8	9	20	90
Resmethrin	90	4	4	8	40
Sumithrin	100	5	6	10	60
Malathion	200	30	20	50	100

(PBO effects included)

Table 7. Bee Risk Quotients, Study Area Mean Pesticide Concentrations

Pesticide	Davis Park	Dix Hills	Manorville	Mastic-Shirley (aerial)	Mastic-Shirley (truck)
Permethrin	7	3	2	7	2
Resmethrin	3	1	1	3	1
Sumithrin	4	2	1	4	1
Malathion	20	20	9	30	8

(PBO effects included)

A number of key factors may act to mitigate and in some cases entirely remove the potential for risks to honeybees and other non-target insects:

- Actual risks would be most likely to occur when insect activity coincides with the application timing, with risks being largely mitigated for daytime insects if spraying were to occur at night.
- Additional habitat preferences, activity patterns, and behavior could result in lower risks for certain non-target insects than those predicted in this evaluation. For example, many insects are active on the ground and may be below vegetation, which may intercept applied adulticides. Many insects, such as crickets, beetles, ants, and millipedes, spend a portion of their life cycle underground. If this period does not temporally coincide with the spray season, the potential for exposure could be significantly mitigated. Some flying insects, such as certain moths and dragonflies, rest at nighttime underneath plants or other structures, and therefore would be less likely to be exposed during nighttime applications. Certain insects may actively avoid sprayed areas, and it has been shown that permethrin has a strong repellent effect on honeybees, for example.
- Verification of the air modeling data showed that under "normal" atmospheric conditions, there was typically a three to one difference between predicted PBO values and measured PBO values; with unusual atmospheric conditions, the agreement was less good (an average of 14:1). The model overpredicts the pesticide concentrations. Conservatively, it seems reasonable to assert a slight overprediction

of three to five times on the basis of the air modeling, which suggests that under most atmospheric conditions resmethrin has little potential for impact to bees, using the study area mean concentrations as a basis for understanding impacts. The same would follow for sumithrin; similar conclusions follow for at least two of the permethrin results.

- Exposures and risks are predicted based upon instantaneous conditions, precluding the incorporation of degradation of adulticides. However, adulticides are generally not persistent in terrestrial environments. Because of the difficulty in measuring resmethrin concentrations in the field, it was conservatively assumed that the resmethrin to PBO ratio would remain constant. However, deposition samples collected on solid media and aqueous samples collected within 30 minutes of the pesticide applications all found that the resmethrin had significantly decreased in concentration relative to PBO. This strongly suggests that the degradation of resmethrin may reduce the predicted concentrations enough so that the concentration of concern for bees is not achieved under most conditions.

The combination of degradation of resmethrin and overprediction by the air modeling makes it conceivable that the predicted concentrations are at least an order of magnitude greater than may actually occur. This suggests there is not likely to be a potential impact for resmethrin to flying insects under the more conservative assumptions in Table 6 for any of the aerial application scenarios. Because sumithrin has been found to behave similarly to resmethrin in laboratory experiments, it may be that it, too, degrades very quickly relative to PBO. If that were the case, then aerial applications of sumithrin would likewise be of much less concern, even under the more conservative modeling scenario.

In very broad terms, the toxicity of an insecticide dose is proportional to the size of the affected insect. The pesticides used under the Long-Term Plan are intended to be toxic to mosquitoes. Therefore, insects of similar or smaller sizes are likely to be affected if they are also exposed to the pesticide. Table 8 lists the orders of flying insects found in the New York metropolitan area that are of similar or smaller size compared to mosquitoes.

Table 8. Orders of flying insects that contain many/certain insects that are generally similar in size or are smaller than mosquitoes (0.15 inches)

Order	Notes	Order Exemplars
Diptera	Some classify this order as larger than mosquitoes (mosquitoes belong to Diptera)	True flies – black flies, midges, fruit flies, houseflies, mosquitoes
Ephemeroptera	Often attracted to lights; short-lived; Paleoptera; some classify this order as larger than mosquitoes	Mayflies
Homoptera	Important herbivores	Aphids, scale insects, leaf hoppers, cicadas
Mecoptera	Seldom common; insect predators	Scorpion flies
Proscoptera	Many wingless; effective dispersers (often first colonizers of islands)	Bark lice
Strepsiptera	Only males fly; insect parasites	
Thysanoptera	Often destructive to plants	Thrips
Zoraptera	Termite-like; rare; winged individuals may be dispersal form	

There has only been one test of pyrethroid application impacts on flying insects; in that experiment, both the control and test sites experienced declines in populations, and both recovered within a week. Another test using a different class of adulticide also found recovery of the insect population within a week. This suggests that any effects on non-target organisms are likely to be short-lived; since the mechanism for recovery is likely to be in-migration, one caveat, thus, is that the treatment area sizes should be minimized.

Acute and chronic impacts to aquatic invertebrates were predicted for malathion under many evaluated scenarios, and for permethrin in one case through the quantitative risk assessment. No elevations in risk that are likely to cause impacts were predicted for the use of resmethrin or sumithrin. A sophisticated aquatic ecosystem model developed by the US Environmental Protection Agency was used to test whether permethrin use might result in ecological impacts (permethrin, rather than malathion, was tested because pyrethroids were identified as the preferred adulticide, and so testing a pyrethroid for impacts was deemed to be of greater value in predicting any ecological impacts from implementing the Long-Term Plan). The model found short-term declines in populations for a variety of organisms following modeled exposure to permethrin. However, all but one population recovered within several months of the cessation of applications, and the slower recovery of the remaining population did not lead to any ecological changes in the modeled system.

Mitigation of these potential impacts includes:

- Measurement of effects may be based on overpredictions of deposited concentrations (see just above)
- Pyrethroids, as represented by resmethrin, appear to degrade very rapidly (testing of pesticides in association with the Caged Fish experiment was only able to detect resmethrin in the water column immediately following applications)
- Historically, applications have only been made to small portions of the County. In 2003, which had more adulticide use of any year since 1999, only six percent of the County received an adulticide application. This means that any potential impacts are extremely limited in terms of geographical extent.

More generally, the County will also seek to mitigate potential impacts to those areas that commonly receive one (or more) Vector Control adulticide application in a season. Targeted outreach will stress the importance of avoiding exposure to mosquitoes, and in taking mitigating steps if exposure cannot be avoided. The Commissioner of SCDHS will also craft an advisory detailing the means that SCDHS recommends (or suggests) to minimize risks for potential impacts from exposure to adulticides. Washing of home-grown vegetables in areas where adulticides may be used more often will be an important outreach topic.

The small area of the County impacted by adulticides in any one year is a general mitigation of impacts. In addition, the strict compliance of SCVC with defined, numerical application triggers may reduce the number of applications, and will mitigate any public perceptions that applications are made on the basis of ambiguous criteria. Finally, implementation of progressive water management steps should provide more effective larval control than has been achieved using larvicides and ditch maintenance, which may decrease the need for adulticide applications.

The use of adulticides also provides ancillary benefits. Adulticide applications reduce risks for mosquito-borne disease and also reduce impacts to quality of life. This is because efficacy data clearly shows adulticides are effective means of reducing mosquito populations, although these populations may recover within several weeks in conditions allow. The collection of efficacy data in association with adulticide applications will allow the County to

clearly justify this element of the program. If the efficacy data do not support claims of population reductions, then the County will need to reexamine its use of this control tool.

The County will mitigate the overall impacts of its use of pesticides through an annual review. Elements of this review will include documenting the use of pesticides in the previous year, analysis of any relevant scientific findings on the products in use, and considered evaluation of alternatives in light of any new information (research or product development) since the previous year's report. The report will also discuss the application thresholds used to determine if Vector Control applications should be made, and determine if adjustments need to be made in light of human health and environmental considerations.

- Adaptive management

Suffolk County has made a public commitment to adaptively managing the Long-Term Plan. This is a clear mitigation of any impact associated with the Long-Term Plan. If the above analysis did not adequately identify a potential impact, or if some potential impact was overlooked in the environmental analysis, the ability to adjust the program to meet changed circumstances allows the Long-Term Plan to be modified. The list of issues to be addressed in the Triennial Plan, attached as an appendix to this Findings Statement, makes clear Suffolk County's determination to carefully assess the effectiveness and potential impacts of the Long-Term Plan.

## **G. Requirements for Further Environmental Reviews**

Potential further environmental reviews for actions taken under the Long-Term Plan relate to at least two types of actions:

- adoption of the Annual Plan of Work by the County Legislature
- reviews of water management projects and BMPS 5-15

The triggers for further environmental review which are specified herein constitute the minimum conditions under which additional environmental review would be initiated. At any time, the County and/or the Council on Environmental Quality could commence additional environmental review based on substantial new technical information.

The adoption of these Findings by the Legislature (as Lead Agency) means the Legislature is satisfied that the potential impacts of the Long-Term Plan have been adequately reviewed. From this perspective, if an Annual Plan of Work complies substantively with the Long-Term Plan, then potential impacts of that annual plan will have been adequately considered, as well, and the Annual Plan of work would be deemed a Type II Action pursuant to SEQRA.

The primary criterion for determining if an Annual Plan of Work is not substantively in accord with the Long-Term Plan should be the annual plan's compliance with the overall approach of the Long-Term Plan, and, where specified, a failure to use particular actions, or a major deviation from an important specific set of actions. In general, annual plans need to focus on the use of surveillance to determine where mosquito problems exist, and to primarily employ source reduction tools to reduce the impact of mosquitoes on people. An important source reduction tool must be implementation (over time) of the techniques for water management developed in the Best Management Practices manual, as outlined in the Wetlands Management Plan. Any plan that proposes to manage mosquitoes without surveillance or to not use water management as a means of obtaining long-term control of mosquito problems will require additional environmental review.

Other criteria that would lead to additional environmental review of an annual plan would be:

- failure to include public education and outreach steps to educate residents and visitors on the means that are available to avoid mosquito bites and diseases associated with mosquitoes
- Inadequate mosquito population or disease surveillance
- failure to commit to respond to all mosquito complaints using personnel appropriately trained to identify and mitigate sources of mosquito problems
- failure to use the review processes outlined in the Wetlands Management Plan for water management projects
- proposed use of a non-native biocontrol organism not already resident in Suffolk County natural environments
- proposed use of a larvicide other than *Bacillus thuringensis var israelensis* (Bti), *Bacillus sphaericus*, or methoprene



- proposed use of an adulticide other than resmethrin, sumithrin, permethrin, natural pyrethrins, or malathion
- identification of a preferred adulticide agent other than resmethrin or sumithrin

Environmental reviews may consist of a negative declaration if no significant environmental impacts will result (6 NYCRR §617.10(d) (3)) or a supplemental environmental impact statement if one or more significant adverse environmental impacts was not adequately addressed (6 NYCRR §617.10(d) (4)). Use of an expanded EAF may be appropriate when a negative declaration is proposed.

The adoption of these Findings by the Legislature (as Lead Agency) means the Legislature is satisfied that the potential impacts of the Long-Term Plan have been adequately reviewed. From this perspective, the classification of allowable water management actions (as described in the Best Management Practices manual) as “no to little” potential impacts, “minor” potential impacts, “usually more likely to have potentially significant” impacts, and “usually more likely to have major” potential impacts will have been accepted, and the descriptions of the potential for impacts (and the mitigation steps to avoid impacts) will have been deemed to be adequate.

Nonetheless, on a project by project basis, the following criteria need to be considered to determine if additional environmental reviews are warranted:

- the techniques to be employed have been classified as having the potential for potentially significant or major environmental impacts (BMPs 5-15)
- consultation with local authorities or review by the Wetlands Stewardship Committee finds there is a potential for environmental impacts under the proposed course of action
- review by the CEQ finds there is a potential for environmental impacts under the proposed course of action

Environmental reviews may consist of a negative declaration if no significant adverse environmental impacts will result (6 NYCRR §617.10(d) (3)) or a supplemental environmental impact statement if one or more significant environmental adverse impacts was not adequately addressed (6 NYCRR §617.10(d) (4)). In light of the extensive reviews of the techniques to be employed for water management in the GEIS and associated documents, use of an expanded

EAF to cite relevant sections of the GEIS or to report on local data collection efforts that justify the project may be appropriate if a negative declaration is proposed.

The triggers for further environmental review which are specified above constitute the minimum conditions under which additional environmental review would be initiated. At any time, the County could commence additional environmental review based on substantial new technical information.

## Appendix 1 to the Statement of Findings: Contents of the Triennial Report

The following outline is intended to provide a preliminary overview of issues which will be analyzed to form the basis of the Triennial Report. The outline includes indicators (where available) which will be used to measure success. The content and format of the Triennial Report will be contingent on Steering Committee and Wetlands Stewardship Committee input which will be sought at the early stages of report preparation.

### 1) Executive Summary

The Executive Summary will provide an overview of the following issues, which will be addressed in detail in subsequent report sections.

- Public health (viral surveillance, human disease)
- Vector control (pesticide usage, water management, surveillance, etc.)
- Education/outreach
- Wetlands Stewardship Program – Accomplishments and Plans
- Potential Plan Updates and Amendments

### 2) Public Health

- Viral surveillance results
- Human health (cases and deaths from mosquito-borne diseases)

### 3) Vector Control Long-Term Plan Implementation

The report will integrate results from the Department of Public Works, Division of Vector Control and Department of Health Services, Division of Public Health.

#### A. Public Education and Outreach

##### Current Program:

- Recommend avoidance of the outdoors at dawn and dusk.
- Consider use of personal repellants (DEET, Bite Blocker, Picaridin, Oil of Lemon Eucalyptus).
- Maintain home environments that do not foster mosquito breeding.
- Distribute Publications such as “Fight the Bite” and “Dump the Water.”
- Maintain County Web Site
  - Post spray events
  - Link to no spray list

##### Long-Term Plan Recommendations:

- Establish tire management education program to eliminate mosquito breeding habitat. Encourage other county departments and municipalities responsible for routine sanitation or maintenance activities to properly dispose of tires.
- Conduct farmer irrigation outreach-targeted education through Cornell Cooperative Extension.
- Encourage private storm water system maintenance.
- Conduct tailored outreach to municipal highway departments regarding storm water structures as mosquito habitat.

- Emphasize personal responsibility for reducing impacts from mosquitoes (avoiding mosquitoes whenever possible, wearing long-sleeves and pants, and using repellents).
- Improved efficacy reporting. Results made available to the public via the web and annual reports.
- Post efficacy reports on the SCVC website. Reports will summarize the results of mosquito control efforts measured before, during and after aerial spray event.
- Maintain the Citizens Advisory Committee.
- Create a listserv for adulticide application notifications.
- Integrate new web site into existing county site.
- Revise public notice/guidance.
- Participation in “Mosquito Awareness Week.”
- Targeting specific communities (recommended in DGEIS comment period).
- Focusing on educating school-aged children (recommended in DGEIS comment period).

### **Indicators of Success**

- Degree to which current program and Long-Term Plan recommendations are implemented. Implementation will be quantified, where possible. E.g.:
  - Partnerships established with towns for tire management plans.
  - Public education workshops which have been conducted.
  - Brochures and fact sheets disseminated to public.
  - Number of efficacy reports posted.
  - Programs targeted at specific communities and school-aged children.

## **B. Scientific Surveillance**

### **Current Program:**

- Presence or absence of larvae
- Collect and process 10,000-12,000 larval and adult mosquito samples
- Collect and process approximately 75,000 mosquitoes for arbovirus surveillance
- Integration of Geographic Information System (GIS) and Global Positioning System (GPS) technology for surveillance information
- 27 permanent NJ traps; 80 CDC trap-nights per week.

### **Long-Term Plan Recommendations:**

- Increase surveillance capabilities.
- Increase staff for surveillance for both SCVC and the ABDL.
- Increase permanent NJ trap network to 30.
- Increase CDC trapping to 105 trap-nights per week.
- Conduct quantitative mosquito assessment prior to EVERY adulticide event.
- Conduct post-spray efficacy monitoring.

**Indicators of Success**

- Degree to which current program and Long-Term Plan recommendations are implemented. E.g.:
  - Number of staff-days dedicated to surveillance.
  - Number of mosquito samples processed.
  - Number of CDC light traps deployed and NJ traps maintained.
  - Number of pre-adulticide mosquito counts.
  - Annual reports on surveillance analysis, including post-spray efficacy.

**C. Source Reduction/Control**

**Current Program:**

- Public education program (above).
- Response to citizen complaints.
- Catch basin and recharge basin control efforts.

**Long-Term Plan Recommendations:**

- Expand surveillance of catch basins from 10,000 to 40,000 inspections.
- Augment education component (County tire collection effort, private storm water management system outreach effort, increase interaction between SCVC and highway departments )

**Indicators of Success**

- Catch basins inspected.
- Records on response to complaints.
- Improve waste management and county departments tire management

**D. Biocontrols**

**Current Program:**

Mosquito fish, (*Gambusia* spp.)

**Long-Term Plan Recommendations:**

- Fathead minnows; other disease free fish native to the area.
- Predacious Copepods

**Indicators of Success**

- Research alternatives and explore other states initiatives
- Same or increased level of biodiversity after introduction of biocontrol
- Reduced mosquito larvae counts in sampling

**E. Larval control**

**Current Program:**

- Biorational larvicides, *Bacillus thuringiensis* var. *israelensis* (Bti), *Bacillus sphaericus* (Bs), and methoprene
- Surveillance of the nearly 2,000 breeding points in the County

- 15,000 inspections of breeding sites and other surveillance findings (includes catch basins and sumps)
- Approximately 4,000 acres of the County's salt marshes aerial larvicided

**Long-Term Plan Recommendations:**

- Increased surveillance
- Surveillance of the 2,000 breeding points in the County
- 15,000 inspections of breeding sites and other surveillance findings
- Identify problem breeding sites
- Expanded catch basin and recharge basin larviciding
- Implementation of ecological controls
- Implementation of formal resistance testing and management
- Water management - 75% percent reduction goal in acreage treated

**Indicators of Success**

- Number of inspections/surveillance events.
- Area larvicided (frequency and extent).
- Record and analyze dip counts in relation to reduction in treatments (results).
- Annual larvicide efficacy reports (results).
- Reduced adulticide events expected after successful larvicide control in known problem areas.

**F. Adult control ( only if necessary)**

**Current Program:**

- Resmethrin, sumithrin, malathion, permethrin and natural pyrethrin
- Adulticide-directed surveillance, decision-making procedures, and efficacy and resistance testing

**Long-Term Plan Recommendations:**

- Criteria for spraying
  - Evidence of mosquitoes biting humans – service requests mapped
  - Verification of problem-New Jersey trap counts > 25 females /night
  - CDC light trap counts > 100; Landing rates of one to five per minute
  - Control is technically feasible Weather conditions suitable (no rain, winds<10 mph, temperature 65 ° or above)
- Improved spray technology (“Adapco Wingman”) to minimize pesticide application and optimize mosquito control.
- Augment the New Jersey light trap network from 27 to 30. Expand as resources allow (see surveillance).
- Increase the number of CDC light traps from 27 to 35. Expand as resources allow (see surveillance).
- Increase CDC trap-nights to 105 per week.
- Reduce adulticide usage (currently less than 2% of County in non-emergency situations).

**Indicators of Success**

- Reduction in adulticide usage.
- Efficacy tests post treatment indicate 90 – 99% population reduction.
- Efficacy tests posted annually on county web page and in annual reports.
- Aerial application efficacy released within a week or so of the application.
- Post Health Emergency reductions in the parity and infection rates for the target mosquito species (if staff and lab resources available).

**G. Water Management:**

**Current Program**

- Hand maintenance/machine maintenance limited to < 200,000 linear ft/yr
- Machine work limited to repair and replacement of existing structures
- No new machine ditching
- Machine maintenance limited to 50,000 ft/year (no more than 50 affected acres), and only when essential for public health or ecological reasons.
- Natural Process (No action/ reversion)
- Culvert repair/ maintenance when tidally restricted
- Stop gap ditch plug

**Long-Term Plan Recommendations**

- Develop a strategy for managing Suffolk County’s 17,000 acres of tidal wetlands, irrespective of Vector Control concern (goal: 12-year implementation window).
- Reversion priorities, allowing natural processes to fill ditches (approx. 4,000 acres; no vector control).
- Candidates for possible restoration/water management (currently routinely larvicided; approx. 4,000 acres). Marsh health is paramount objective.
- Areas requiring more assessment (approx. 9,000 acres); low-impact best management practices are possible.
- The pre-existing policy of "no new ditching" will be continued.
- Less than four percent of the County’s tidal wetlands (~ 600 acres) subject to machine ditch maintenance over the next decade.

**Indicators of Success**

Implementation of Plan recommendations (above).

**4) Wetlands Stewardship Program – Accomplishments and Plans**

**Long-Term Plan Recommendations**

- Develop a comprehensive assessment and management plan for the 17,000 acres of tidal wetlands within three years
- Ensure the protection and preservation of functions, values, and health
- Use Vector Control Wetlands Management Plan as foundation (Goodbred Report; primary study area results)
- Inventory/assess wetlands County-wide

- Review and evaluate major wetland restoration projects
- Implement early action demonstration projects
- Develop Long-term strategies

**Indicators of Success**

- Existence/adoption of strategy
- Acres/subsystems assessed
- Acres /subsystems restored
- Integrated plans implemented

**5) Recommended Plan Updates and Amendments**

Plan updates and amendments will be made, as needed. Updates may be recommended by involved agencies, the Citizens Advisory Committee, Technical Advisory Committee, and/or Wetlands Stewardship Committee. Updates require review/approval of the Steering Committee.



**Appendix 2 to the Statement of Findings: Structure of the Wetlands Stewardship Committee**

**SUFFOLK COUNTY VECTOR CONTROL AND WETLANDS MANAGEMENT LONG-TERM PLAN**  
**Wetlands Stewardship Committee (WSC) – Overview \***

**Membership (Tentative)**

**Estuary programs**

Long Island Sound Study representative  
Peconic Estuary Program representative  
South Shore Estuary Reserve Program representative

**County**

County Legislature – Presiding Officer  
County Executive  
Suffolk County Department of Environment & Energy -  
will serve as Chair of Committee

**State**

New York State Department of Environmental  
Conservation Region I

*Council on Environmental Quality*

Suffolk County Department of Health Services

New York State Department of Environmental  
Conservation Bureau of Marine Resources  
New York State Department of State

*Suffolk County Department of Public Works*

Suffolk County Department of Planning  
Suffolk County Department of Parks

**Non-governmental Organizations (NGOs)**

Two appointed by County Legislature  
Two appointed by County Executive

**Town (only when projects proposed in a Town)**

1 Supervisor and 1 Trustee rep

Nature of Committee; Support from Work Group, Agencies, and Contractor

The Stewardship Committee is comprised of policymakers, high-ranking agency officials, and NGOs from agencies and organizations with responsibility for wetlands management. The Committee will meet on a quarterly basis, or as needed to vote on wetlands management projects. The Committee will be supported by professional staff at the Suffolk County Departments of Environment, Health, and Public Works. Suffolk County Capital Program 8730 (Wetlands Planning) is also expected to support the Committee and the Wetlands Stewardship Program ("WSP," see below), via a contracted workplan. A "Wetlands Management Work Group," consisting of technical experts from agencies, NGOs, and academia, will meet more frequently, and will report to the Stewardship Committee. The work group will conduct many of the functions formerly performed by the Long-Term Plan's "Wetlands Subcommittee" (i.e., will guide monitoring, assessment, and project design).

**Wetlands Stewardship Committee - Charges**

- Oversee and make recommendation all major aspects of the Wetlands Stewardship Program.
- Meet to review and make recommendations on all proposed wetlands projects which propose use of Best Management Practices 10 through 15 in Long-Term Plan.

- Review and make recommendations on proposed wetlands projects which propose use of Best Management Practices 5 through 9 in Long-Term Plan, at Committee's discretion.
- Provide review and recommendations on the water management component of the Triennial Long-Term Plan Update. This update shall incorporate results of the Wetlands Stewardship Program.

The WSP is a cooperative effort between the Wetlands Stewardship Committee and various Suffolk County Departments (Environment and Energy as the committee chair, Health Services as Stewardship Program project manager, Public Works as project sponsor, and Planning and Parks as key partners). The WSP is charged with developing indicators of wetlands health, assessing wetland health, establishing preservation and restoration priorities, and designing and implementing pilot projects. The WSP will also coordinate activities among estuary programs.

Within three years, the WSP will develop a Wetlands Stewardship Strategy (WSS) to address the assessment and management needs of all tidal wetlands in Suffolk County (approximately 17,000 acres), not just those wetlands of concern with respect to vector control. Marsh health will be the paramount objective. The scope of WSC activity will generally be limited to tidal wetlands. However, freshwaters and freshwater wetlands which are closely hydrologically connected, and integral to a tidal wetlands subsystem, may be considered on a case-by-case basis. Federal, state, town and village jurisdictions are encouraged to participate in the Stewardship Committee (e.g., in terms of project review), but are not required to do so.

\*Working outline, subject to establishment of final membership, by-laws and procedures by Suffolk County Dept. of Environment & Energy

**Appendix 3 to the Statement of Findings: Adopting Resolution 1150-2007**

Intro. Res. No. 1150-2007

Laid on Table 2/6/2007

Introduced by Deputy Presiding Officer Viloría-Fisher

**RESOLUTION NO. 285 -2007, ADOPTING THE SUFFOLK COUNTY VECTOR CONTROL AND WETLANDS MANAGEMENT LONG-TERM PLAN AND A STATE ENVIRONMENTAL QUALITY REVIEW ACT FINDINGS STATEMENT FOR THE FINAL GENERIC ENVIRONMENTAL IMPACT STATEMENT**

**WHEREAS**, it is the policy of Suffolk County to reduce or eliminate pesticide usage, to the extent practicable; and

**WHEREAS**, Suffolk County is committed to preserving and restoring its tidal wetlands, which have been dramatically altered by an extensive vector control grid ditch network which was substantially created in the 1930s; and

**WHEREAS**, the West Nile Virus threat highlighted the need to further optimize an already effective Vector Control Program, which is essential to protect public health, and also has important ancillary quality of life benefits; and

**WHEREAS**, in acknowledgement of the need to develop a comprehensive long-term vector control plan to protect public health and welfare, while reducing pesticide usage and enhancing wetlands which may be affected by Vector Control, in Resolution No. 688-2002, this Legislature authorized the development of a Suffolk County Vector Control and Wetlands Management Long-Term Plan (hereinafter "Long-Term Plan," dated October 2006, annexed hereto, incorporated by reference and made a part hereof), designated itself as lead agency under the State Environmental Quality Review Act (hereinafter "SEQRA", N.Y. Environmental Conservation Law Article 8) and its implementing regulations (subject to appropriate coordination), classified the action as Type I, and adopted a Positive Declaration for the Long-Term Plan, causing a Generic Environmental Impact Statement (hereinafter "GEIS") to be prepared; and

**WHEREAS**, this Legislature adopted the Final Scope for the Generic Environmental Impact Statement, pursuant to Resolution No. 1122-2003; and

**WHEREAS**, the Long-Term Plan and GEIS were prepared in a public and open process with extensive input and guidance from Citizens and Technical Advisory Committees, as well as the Council on Environmental Quality (hereinafter the "CEQ"), interested citizens of the County, and Local, State, and Federal agencies; and

**WHEREAS**, comments from agencies, advisory committees, the public, and the CEQ resulted in multiple voluntary iterations of the Long-Term Plan (including publications in September 2005, May 2006, and October 2006), and, as a result, the Plan has been substantially improved; and

**WHEREAS**, the Departments of Health Services, Public Works, and Energy and the Environment caused the preparation of a Draft GEIS in accord with the procedures and rules of SEQRA as defined in 6 NYCRR Part 617; and

**WHEREAS**, pursuant to Chapter 279 of the Suffolk County Charter, the Council on Environmental Quality evaluated the Draft GEIS and found it to be complete according to the standards set forth under SEQRA; and

**WHEREAS**, the Council on Environmental Quality then solicited public comments on the Draft GEIS, including holding two public hearings; and

**WHEREAS**, this Legislature, on the advice of the Council of Environmental Quality, found that comments received on the Draft GEIS were substantive in nature, requiring the preparation of Final GEIS, as per Resolution No. 1103-2006; and

**WHEREAS**, the Suffolk County Departments of Health Services, Public Works, and Energy and the Environment therefore caused the preparation of a Final Generic Environmental Impact Statement in accordance with the procedures and rules of SEQRA as defined in 6NYCRR Part 617; and

**WHEREAS**, the Final GEIS was filed with the Council on Environmental Quality and made available to the general public; and

**WHEREAS**, the Council on Environmental Quality forwarded the Long-Term Plan, the Final GEIS, and the Final GEIS Addendum, together with its comments and recommendations and those received from the public with this Legislature, for consideration at the January 29, 2007 meeting of the Environment, Planning and Agriculture Committee of the Suffolk County Legislature, as part of CEQ Resolution No. 08-07; and

**WHEREAS**, the Suffolk County Departments of Health Services, Public Works, and Energy and the Environment caused the preparation of a draft Findings Statement; now, therefore be it

**1st RESOLVED**, that the Legislature adopts the Long-Term Plan as an appropriate, comprehensive, long-term wet lands management and vector control plan to protect public health and welfare, while reducing pesticide usage and protecting wetlands; and be it further

**2nd RESOLVED**, that, pursuant to 6 NYCRR Part 617 and Chapter 279 of the Suffolk County Charter, the Legislature hereby adopts the Statement of Findings annexed hereto, incorporated by reference and made a part hereof, certifies that the requirements of SEQRA have been met, and certifies that, consistent with social, economic and other essential considerations, the proposed Long-Term Plan has been developed from among the reasonable alternatives available, as the choice that avoids or minimizes potential adverse, environmental impacts, to the maximum extent practicable; and be it further

**3rd RESOLVED**, that the Legislature certifies that adverse environmental impacts will be avoided or minimized to the maximum extent practicable by incorporation, as conditions within the Statement of Findings, where those mitigative measures that have been identified as practicable; and be it further

**4th RESOLVED**, that the Legislature finds that there is a need for a strategy to address the management needs of the County's 17,000 acres of tidal wetlands, not just the 4,000 acres of tidal wetlands of greatest concern to Vector Control; and be it further

**5th RESOLVED**, that the Legislature supports the Wetlands Stewardship Committee concept described in the Findings Statement, as a means of coordinating and overseeing future marsh management projects, as well as overseeing development of a strategy to address the management needs of the County's 17,000 acres of tidal wetlands, consistent with applicable laws; and be it further

**6<sup>th</sup> RESOLVED**, that the Commissioner of the Suffolk County Department of Environment and Energy, or her designee, is hereby authorized and directed to serve as Chair of the Wetlands Stewardship Committee, and to oversee development and implementation of appropriate procedures and by-laws of that Committee, including membership and voting, which procedures and by-laws shall be consistent with applicable laws; and be it further

**7<sup>th</sup> RESOLVED**, that the Suffolk County Department of Environment and Energy will prepare a report on Wetlands Stewardship Committee activities to this Suffolk County Legislature within three years, with said report containing a strategy to address the management needs of the County's 17,000 acres of tidal wetlands.

DATED: March 20, 2007

APPROVED BY:

/s/ Steve Levy  
County Executive of Suffolk County

Date: March 22, 2007