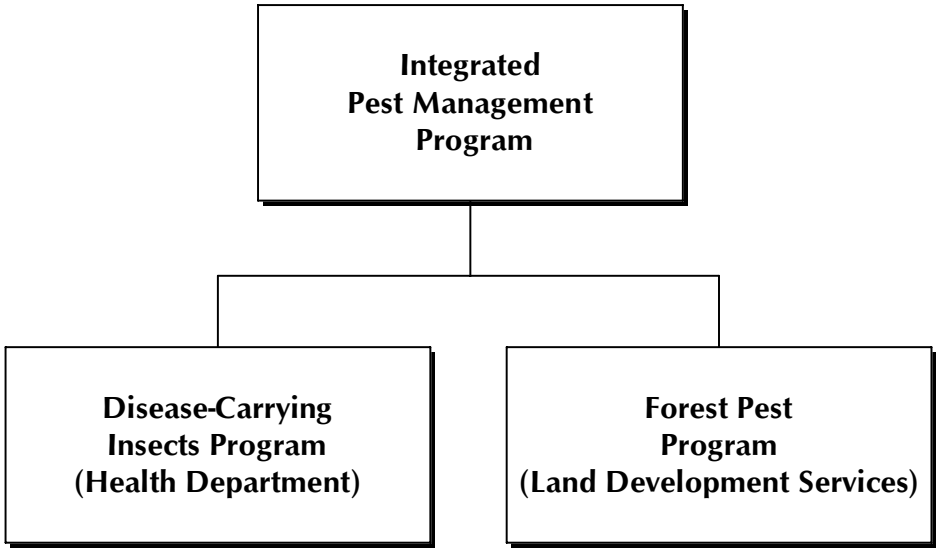
Fund 116
Integrated Pest Management Program



Mission

To suppress forest pest infestation and insect transmitted human disease throughout the County through surveillance, pest and insect control, and public information and education, so that zero percent of the County tree cover is defoliated and human morbidity and mortality are minimized while protecting the environment.

Focus

Fund 116, Integrated Pest Management Program, includes two separate programs – the Forest Pest Program managed by Land Development Services (Department of Public Works and Environmental Services) and the Disease-Carrying Insects Program managed by the Health Department. The Forest Pest Program currently focuses on preventing the spread of gypsy moth caterpillars, cankerworms, and emerald ash borers in the County. The Disease-Carrying Insects Program focuses on controlling the spread of the West Nile virus as the prevention of epidemics and the spread of disease is one of the core functions of the Health Department.

A countywide tax levy financially supports Fund 116 activities and this levy is subject to change annually due to funding requirements based on the level of infestation. Since FY 2001, the Board of Supervisors-approved tax rate has been $0.001 per $100 assessed value and has provided support for both the Forest Pest and the Disease-Carrying Insects Programs. In FY 2008, the same tax rate, along with the existing fund balance, will continue to support both programs.

THINKING STRATEGICALLY

Strategic issues for the department include:

- Coordinating inter-jurisdictional and multi-agency activities to maximize program results;
- Preventing and/or minimizing the occurrence of West Nile virus cases through surveillance, management, public education activities and inter-jurisdictional cooperation ; and
- Preventing defoliation from forest pests while minimizing any resulting environmental impacts.

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Forest Pest Program

The Forest Pest Program is a cooperative program with the United States Department of Agriculture (USDA) Forest Service and the Virginia Department of Agriculture and Consumer Services (VDACS). VDACS maintains a list of insects that are eligible for control by this Program. Currently, three insects are listed -- the gypsy moth, the cankerworm, and the emerald ash borer. The emerald ash borer was added to the list in 2003, following the emergence of this pest in Virginia. The cooperative program investigates tree damage due to forest pests by conducting annual insect monitoring surveys. The surveys check egg masses and larval densities, have an approximate 20 foot radius, are conducted every 2,000 feet throughout the County and are Forest Service approved. Forested areas with high gypsy moth and cankerworm populations are identified for possible treatment the following spring. The proposed treatment plan and resource requirements for those pests are submitted annually to the Board of Supervisors for approval in February; the County may also be eligible for reimbursement up to $75,000 for aerial treatment costs from the federal government assuming funding. Treatment is conducted in late April through early May before the gypsy moth and cankerworm can damage trees. Throughout the year, staff conducts public hearings, displays information at fairs and exhibits, and distributes brochures, educating Fairfax County communities about pest suppression methods and measures that they may take to alleviate potential forest pest population infestations.

The emergence of the emerald ash borer in Fairfax County was identified by VDACS in late 2003. In an effort to ensure that the insects did not spread any further, guidance was given by the USDA Animal Plant Health Inspection Service (APHIS) regarding eradication. Eradication efforts took place in spring 2004 before the adult borers emerged. Those efforts were coordinated among Fairfax County Forest Pest program staff, APHIS, and VDACS; and, federal funding for eradication efforts was provided to the State. Forest Pest program staff continued to assist in eradication efforts through monitoring and surveying of the treated area; however, County financial assistance in these efforts is not expected to have a significant impact on Fund 116 due to the relatively low emerald ash borer populations found in monitoring years 2005 and 2006 and potential financial assistance from the Commonwealth of Virginia.

It is noted that the size of pest populations for gypsy moths and cankerworms is cyclical. Populations will be high for a period of years, and then drop for a period, only to rise again. For example, in the early to mid 1990s, annual treatment requirements for the gypsy moth fluctuated from 3,000 to 45,000 acres. Gypsy moth populations have moderated in recent years, with 1,800 acres treated in FY 2001, 5,500 acres in FY 2002, 2,100 acres in FY 2003, no treatment was necessary in FY 2004, 150 acres were treated in FY 2005 and 500 acres were treated in FY 2006. Based on field surveys conducted in the fall of 2005, staff estimates that 4,200 acres will require treatment in FY 2007. Cankerworm populations have also moderated, with 250 acres treated for cankerworm infestation in FY 2001, 300 acres in FY 2002 and 1,400 acres in FY 2003. Treatment was not necessary in FY 2004, FY 2005, and FY 2006 and does not appear to be necessary in FY 2007. The proposed FY 2008 budget plan provides sufficient capacity to treat 2,500 acres of gypsy moths and 2,500 acres for cankerworms, should the egg mass surveys conducted between August and January of that fiscal year indicate the need. Prior to treating, the confirmed number of acres requiring treatment will be presented to the Board of Supervisors for approval.

Disease-Carrying Insects Program

The West Nile virus (WNV) is transmitted from birds to humans through the bite of infected mosquitoes, and it continues to be a public health concern. The first sign of the virus in Fairfax County was in 2000 when a positive bird was detected, and subsequently it has been found in mosquitoes, horses, and humans. To date, there have been 17 human cases detected in the County (13 in FY 2003, three in FY 2004, one in FY 2005 and zero in FY 2006), with two fatalities, one occurring in FY 2003 and one in FY 2005.

In order to address the presence of emerging diseases, the County established a multi-agency mosquito surveillance and management committee and the Health Department secured contract services in 2002 to carry out specialized activities in avian (bird) and mosquito surveillance and mosquito control. In FY 2003, the County hired a medical entomologist to further develop and guide the WNV program. Currently, the program consists of three major components: surveillance, control, and outreach and education. Inter-jurisdictional cooperation is also a key component of the WNV program, allowing for coordination of surveillance and management activities with surrounding jurisdictions and on public lands.

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In the 2004 WNV season (May to October), avian and mosquito surveillance activities were performed by County staff in lieu of contracted services. However, contracted services were retained for the more labor-intensive preemptive control activities that require a significant fleet of vehicles and specialized equipment. The County continues to proactively treat the stormwater catch basins in an effort to reduce the populations of mosquitoes that transmit WNV. Catch basins are treated in multiple six-week cycles from May through October. Treatment cycles totaling 115,000 catch basins are projected to ensure the aggressive suppression of the disease. Weather conditions, primarily rainfall, are the principal factors that determine the number of catch basins that will be treated any given year. Inspection and larviciding activities are carried out in targeted areas of the County identified as significant mosquito breeding areas. A comprehensive larval surveillance program was carried out in FY 2005 and FY 2006 to evaluate the actual extent of breeding sites in the County. The cost per capita reflects the combined funding for West Nile virus activities provided under the Health Department (General Fund) and Fund 116, Integrated Pest Management Program.

As WNV is an emerging disease in the County, the response to the virus is relatively new and will be adjusted as time progresses. This has already been demonstrated by the adjustment of the timing of catch basin treatment cycles and larval surveillance program. Program activities will continue to be modified in order to better conform to new information and data as it becomes available, allowing the WNV program to have a more focused approach to managing WNV in the County.

The outreach and education component of the WNV program is aimed at increasing residents' awareness of actions that can be taken for self protection and reduction of potential mosquito breeding areas on private property. The program continues to produce and distribute outreach material in English, Chinese, Farsi, Korean, Spanish, Urdu and Vietnamese. In FY 2006, the program produced and printed a second 18-month calendar with complementary captions, facts, figures, important dates, and helpful reminders of things for readers to do around the home to manage mosquitoes and ticks and protect residents from mosquito and tick-borne diseases. General facts, local figures and brief descriptions of the County's efforts were included to educate the public about basic mosquito biology and inform them specifically about mosquitoes and West Nile virus in Fairfax County. The telephone number, Web site, and e-mail address for the Disease Carrying Insects Program were included on every page of the calendar.

A pilot tick surveillance program was added to the Disease Carrying Insects Program in FY 2005 and a more extensive surveillance program was implemented in FY 2006. The program operates in cooperation with the Virginia Department of Health. The objective is to understand the magnitude of tick-borne disease in the County and define the areas of greatest risk. The program involves the collection and identification of tick species in the County to determine their distribution and infection rate with Lyme disease.

New Initiatives and Recent Accomplishments in Support of the Fairfax County Vision

Maintaining Safe and Caring Communities	Recent Success	FY 2008 Initiative
The Health Department will continue to closely monitor a comprehensive in-house mosquito surveillance program, serving as the first indicator for the presence of the West Nile virus, its distribution throughout the County, the mosquito species involved in transmission, as well as the magnitude of infection rate of these mosquitoes.	☑	☑
In cooperation with the Virginia Department of Health, a tick surveillance program will be continued to understand the magnitude of tick-borne disease in the County and define the areas of greatest risk. The program began as a pilot in FY 2006 and involves the identification and distribution of tick species in the County.	☑	☑

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Building Livable Spaces	Recent Success	FY 2008 Initiative
Continue to enhance the protection of forest cover in residential, public and urban environments of Fairfax County by continuing to eliminate dead trees and monitoring pests that contribute to forest infestation and safety. A healthy forest complex, in new and old neighborhoods, is critical in maintaining a quality of life that Fairfax County residents desire.	☑	☑
Practicing Environmental Stewardship	**Recent Success**	**FY 2008 Initiative**
Continue to utilize Integrated Pest Management (IPM) techniques for gypsy moth, emerald ash borer, and cankerworm control. IPM ensures that pesticide use is minimized and that residents are educated about alternative control options. Forest Pest Program staff monitors pest populations and determines the level of aerial pesticide application necessary, eliminating the need for individual homeowners to spray. The impact is that less spray material is delivered to an area because it is done in a controlled manner.	☑	☑
Creating a Culture of Engagement	**Recent Success**	**FY 2008 Initiative**
Continue to update and distribute an 18-month calendar that has proved successful as an outreach tool to educate the public about basic mosquito biology and provide specific information about mosquitoes and West Nile virus in the County.	☑	☑
Continue to enhance outreach campaign by conducting public meetings, promoting educational activities, and distributing materials on the Forest Pest and Disease Carrying Insects (DCI) programs. Public meetings help ensure that residents are aware of County treatment activities and that they have ample opportunity to provide input into the planning process. Activities involve interactive web pages, fair exhibits, and meetings tailored to citizens' informational needs. Educational materials for Forest Pest and DCI will be distributed in English and Spanish and will be disseminated through news releases, interviews, mailings, and public service announcements via several media outlets. In addition, DCI materials will be distributed in Chinese, Farsi, Korean, Urdu and Vietnamese.	☑	☑

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Budget and Staff Resources

Agency Summary				
Category	FY 2006 Actual	FY 2007 Adopted Budget Plan	FY 2007 Revised Budget Plan	FY 2008 Advertised Budget Plan
Authorized Positions/Staff Years				
Regular	10/ 10	10/ 10	10/ 10	10/ 10
Expenditures:				
Personnel Services	$665,138	$753,227	$753,227	$836,351
Operating Expenses	906,145	1,746,105	1,944,798	1,707,847
Capital Equipment	11,969	0	0	0
Total Expenditures	**$1,583,252**	**$2,499,332**	**$2,698,025**	**$2,544,198**

Summary by Program				
Category	FY 2006 Actual	FY 2007 Adopted Budget Plan	FY 2007 Revised Budget Plan	FY 2008 Advertised Budget Plan
Forest Pest Program				
Authorized Positions/Staff Years				
Regular	7/ 7	7/ 7	7/ 7	7/ 7
Expenditures	**$554,838**	**$976,159**	**$976,159**	**$1,005,952**
Disease-Carrying Insects Program				
Authorized Positions/Staff Years				
Regular	3/ 3	3/ 3	3/ 3	3/ 3
Expenditures	**$1,028,414**	**$1,523,173**	**$1,721,866**	**$1,538,246**

Position Summary

	FOREST PEST PROGRAM		DISEASE-CARRYING INSECTS PROGRAM
1	Urban Forester III	1	Environmental Health Supervisor
1	Urban Forester II	2	Environmental Health Specialists II
3	Urban Foresters I		
1	Information Technology Technician III		
1	Administrative Assistant II		

TOTAL POSITIONS
10 Positions / 10.0 Staff Years

FY 2008 Funding Adjustments

The following funding adjustments from the FY 2007 Revised Budget Plan are necessary to support the FY 2008 program:

- **Employee Compensation** **$43,124**
  An increase of $43,124 in Personnel Services is associated with salary adjustments necessary to support the County's compensation program.

- **Intergovernmental Charges** **$1,742**
  An increase of $1,742 for Department of Vehicle Services charges is based on anticipated charges for fuel, vehicle replacement and maintenance costs.

- **Carryover Adjustments** **($198,693)**
  A decrease of $198,693 is due to the carryover of one-time Operating Expenses as part of the *FY 2006 Carryover Review*.

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Changes to FY 2007 Adopted Budget Plan

The following funding adjustments reflect all approved changes in the FY 2007 Revised Budget Plan since passage of the FY 2007 Adopted Budget Plan. Included are all adjustments made as part of the FY 2006 Carryover Review and all other approved changes through December 31, 2006:

- **Carryover Adjustments** **$198,693**
  As part of the *FY 2006 Carryover Review*, the Board of Supervisors approved encumbered funding of $198,693 in Operating Expenses for arborvirus prevention and program supplies which had been ordered but not yet received.

Key Performance Measures

Objectives

- To control the infestation of gypsy moths, cankerworms, and emerald ash borers through detection and abatement programs so that zero percent of County tree cover is defoliated in a given year.

- To suppress the transmission of West Nile virus from infected mosquitoes to the human population, holding the number of human infections to three, which is the same number reported in FY 2004.

Indicator	Prior Year Actuals			Current Estimate	Future Estimate
	FY 2004 Actual	FY 2005 Actual	FY 2006 Estimate/Actual	FY 2007	FY 2008
Output:					
Gypsy moth/cankerworm field surveys completed annually in areas known or suspected to be infested	3,200	3,200	3,200 / 3,200	4,000	4,000
Mosquito larvicide treatments of catch basins to control West Nile virus	153,623	92,920	105,000 / 113,117	125,000	115,000
Efficiency:					
Gypsy moth/cankerworm field surveys conducted per staff	800	800	800 / 800	1,000	1,000
West Nile virus program cost per capita (1)	$1.23	$0.88	$1.58 / $1.05	$1.10	$1.12
Service Quality:					
Percent of County households in gypsy moth and cankerworm treatment areas notified of abatement efforts	100%	100%	100% / 100%	100%	100%
Percent of targeted catch basin areas treated with mosquito larvicide within the scheduled timeframe	100%	100%	100% / 100%	100%	100%

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Indicator	Prior Year Actuals FY 2004 Actual	FY 2005 Actual	FY 2006 Estimate/Actual	Current Estimate FY 2007	Future Estimate FY 2008
Outcome:					
Percent of County tree defoliation resulting from gypsy moth and cankerworm infestation	0%	0%	0% / 0%	0%	0%
Confirmed human cases of West Nile virus in Fairfax County, Fairfax City and Falls Church City as reported by VDH (2)	3	1	5 / 0	3	3

(1) Cost per capita in FY 2004, FY 2005, and FY 2006 was calculated by dividing the total WNV program budget by the service area population. Beginning in FY 2007, Cost per capita will be calculated based on estimated expenditures divided by the service area population.

(2) VDH = Virginia Department of Health

Performance Management Results

Forest Pest Program: Staff surveys for caterpillars and egg masses conducted in mid-summer and early fall of 2005, indicated that gypsy moth populations were increasing and some aerial treatment was necessary. To adequately address this increase, aerial treatment for the gypsy moth was 300 acres in the spring of FY 2006. Surveys for the cankerworm completed this past winter indicated that no treatment was necessary during the spring. Defoliation surveys for both insects conducted in the summer of 2006 indicated that there was no defoliation in Fairfax County during this timeframe.

Disease-Carrying Insects (DCI) Program: The goal of the DCI Program in FY 2008 is to continue to hold the number of human cases of West Nile virus (WNV) as reported by the Virginia Department of Health to no more than three cases, the same number reported in FY 2004.

WNV program costs are based on the number and size of treatment rounds in a given year, as well as education, outreach, and surveillance activities carried out in-house. Treatment rounds even though dependent on weather conditions remain relatively constant throughout the years, maintaining a relatively stable program cost. The total DCI program cost per capita was $1.05 in FY 2006. This was lower than the target of $1.58 per capita. Cost per capita in future years may increase depending on environmental factors, insecticide treatments resulting from larval inspections and surveillance activities, as well as follow-up studies for the evaluation of the outreach program.

The pilot tick surveillance program initiated in late FY 2005 was expanded in FY 2006 in cooperation with the Virginia Department of Health. The objective of the pilot program is to understand the magnitude of tick-borne disease in the County and define the regions of greatest risk. Surveillance in FY 2006 indicated that, of the ticks collected, 65 percent are the lone star tick, 5 percent are the dog tick and 30 percent are deer ticks. Of the 313 deer ticks that were tested, 8.3 percent were found to be infected with *Borrelia burgdorferi*, the bacterium that causes Lyme disease. The increased testing of ticks as the program expands is also expected to impact the cost per capita in future years.

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FUND STATEMENT

Fund Type G10, Special Revenue Funds

Fund 116, Integrated Pest Management Program

	FY 2006 Actual	FY 2007 Adopted Budget Plan	FY 2007 Revised Budget Plan	FY 2008 Advertised Budget Plan
Beginning Balance	**$2,218,928**	**$1,137,014**	**$2,570,650**	**$1,954,953**
Revenue:				
General Property Taxes	$1,774,634	$2,051,438	$2,051,438	$2,161,158
Interest on Investments	117,539	30,890	30,890	129,587
State Reimbursement	42,801	0	0	0
Total Revenue	$1,934,974	$2,082,328	$2,082,328	$2,290,745
Total Available	**$4,153,902**	**$3,219,342**	**$4,652,978**	**$4,245,698**
Expenditures:				
Forest Pest Program	$554,838	$976,159	$976,159	$1,005,952
Disease-Carrying Insects Program	1,028,414	1,523,173	1,721,866	1,538,246
Total Expenditures	$1,583,252	$2,499,332	$2,698,025	$2,544,198
Total Disbursements	**$1,583,252**	**$2,499,332**	**$2,698,025**	**$2,544,198**
Ending Balance[1]	**$2,570,650**	**$720,010**	**$1,954,953**	**$1,701,500**
Tax Rate Per $100 of Assessed Value	**$0.001**	**$0.001**	**$0.001**	**$0.001**

[1] Due to the cyclical nature of pest populations, the treatment requirements supported by this fund may fluctuate from year to year. Therefore, Ending Balances may also fluctuate depending on the level of treatment necessary to suppress gypsy moth, cankerworm, emerald ash borer or WNV-carrying mosquito populations in a given year.