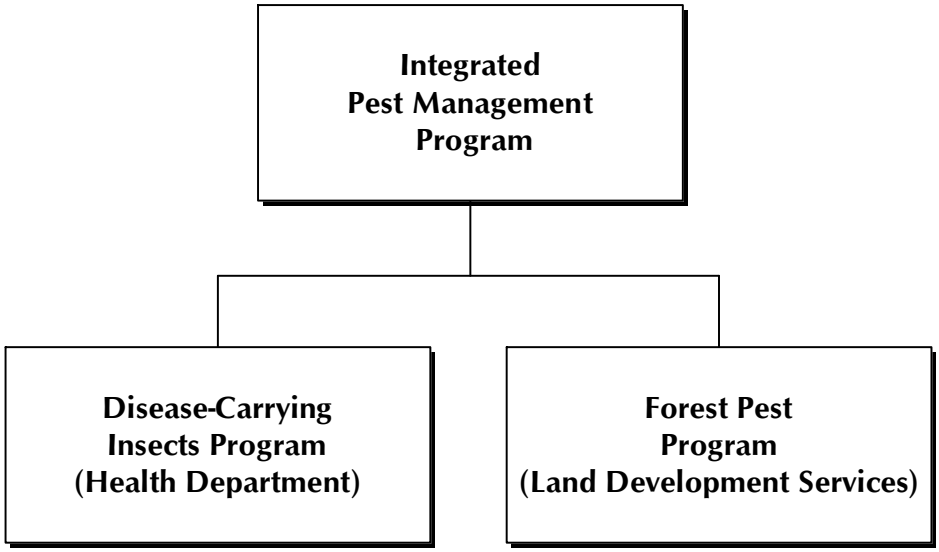
Fund 116
Integrated Pest Management Program



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, hemlock woolly adelgid and emerald ash borers in the County. The Disease-Carrying Insects Program focuses on controlling the spread of the West Nile virus and Lyme disease, 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 2010, 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, four insects are listed – the gypsy moth, the cankerworm, hemlock woolly adelgid and the emerald ash borer.

The gypsy moth program and the cankerworm program investigate tree damage due to both pests by conducting annual 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 these pests are submitted annually to the Board of Supervisors for approval in February; the County may also be eligible for partial reimbursement for aerial treatment costs from the federal government assuming funding is available. 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.

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.

In recent years, gypsy moth populations have moderated. Since FY 2001 treatment acreage has fluctuated between zero acres and 5,500 acres annually, with the average being 2,100 acres. Based on field surveys conducted in the fall of 2008, staff estimates that 965 acres will require treatment in FY 2009. Cankerworm populations also have moderated in recent years. Treatment has not been necessary since 2003, and none is anticipated for FY 2009. The proposed FY 2010 budget provides capacity to treat 2,500 acres for gypsy moths and 2,500 acres for cankerworms, should egg mass surveys conducted between August and January of that fiscal year indicate the need.

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 the treated area; however, County financial support for these efforts is not expected to be significant due to the relatively low emerald ash borer populations found in recent years, and due to potential financial assistance from the Commonwealth of Virginia. In July of 2008, staff identified three new infestations in the Newington, Herndon and Bailey's Crossroads areas. As a result of these infestations, USDA and VDACS have an established quarantine in northern Virginia which prohibits ash wood material from leaving the area. Fairfax County staff is implementing an outreach program to inform public and private entities of the state and federal regulations.

Hemlock woolly adelgid is a recent addition to the VDACS list of insects that can be controlled by the Forest Pest Program. Staff is considering various control options for this pest.

On average, County staff annually treats 2,100 acres to combat the gypsy moth infestations.

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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; subsequently, the disease was found in mosquitoes, horses and eventually in humans. To date there have been 21 human cases detected in the County (13 in FY 2003, three in FY 2004, one in FY 2005, zero in 2006, three in 2007 and one in 2008), 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 West Nile virus (WNV) program. Currently the program consists of three major components: surveillance, control and outreach/education. Inter-jurisdictional cooperation is also a key component of the WNV program, allowing for coordination of surveillance and management activities on public lands and with surrounding jurisdictions.

Since the 2004 WNV season (May to October), avian and mosquito surveillance activities have been performed by County staff in lieu of contracted services. However, contracted services have been retained for the more labor-intensive preemptive control activities that require a significant fleet of vehicles and specialized equipment. 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 County continues to proactively treat the storm water catch basins in an effort to reduce the population of *Culex* mosquitoes that transmit WNV. Catch basins are treated in several six week cycles from May through October. Treatment cycles totaling 115,000 catch basins are planned to ensure the aggressive suppression of the disease. Weather conditions 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.

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 2009, the program produced and printed a fourth edition 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, ticks, West Nile virus and Lyme disease in Fairfax County. In FY 2009 the program also prepared, printed and mass mailed to every residence in the County a 20 page "Reference Guide to Mosquitoes, Ticks, West Nile virus and Lyme Disease". All the newly produced material is also posted on the Web.

In the past few years a new public health threat has emerged in the form of Lyme disease. Lyme disease is a bacterial infection transmitted to man by the bite of an infected black-legged (deer) tick (*Ixodes scapularsi*) and is an increasing problem in Fairfax County as the endemic area of the disease continues to expand southward. A total of 208 human cases were recorded in calendar year 2007 (the most recent year for which statistics are available). A tick identification service was implemented in FY 2005 to determine the distribution and infection rate of the bacterium (*Borerleia burgdorferi*) that causes Lyme disease. In FY 2009 the program expanded to include the sampling of white footed mice (*Peromyscus leucopus*), the reservoir for the bacterium that causes Lyme disease, to determine the distribution and infection rate. This program will continue in FY 2010.

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

Maintaining Safe and Caring Communities	Recent Success	FY 2010 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.	☑	☑
Maintaining Safe and Caring Communities	**Recent Success**	**FY 2010 Initiative**
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 2005 and involves the identification and distribution of tick species in the County, and seeks to improve the level of community understanding for how Lyme disease is transmitted to residents of the County.	☑	☑
Building Livable Spaces	**Recent Success**	**FY 2010 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 2010 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.	☑	☑

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Creating a Culture of Engagement	Recent Success	FY 2010 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 and Lyme disease 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.	☑	☑

Budget and Staff Resources

Agency Summary				
Category	FY 2008 Actual	FY 2009 Adopted Budget Plan	FY 2009 Revised Budget Plan	FY 2010 Baseline Budget
Authorized Positions/Staff Years				
Regular	10/ 10	10/ 10	10/ 10	10/ 10
Expenditures:				
Personnel Services	$967,952	$1,078,495	$1,078,495	$1,193,717
Operating Expenses	1,352,501	1,707,847	1,900,556	1,707,847
Capital Equipment	6,931	0	0	0
Total Expenditures	**$2,327,384**	**$2,786,342**	**$2,979,051**	**$2,901,564**

Summary by Program				
Category	FY 2008 Actual	FY 2009 Adopted Budget Plan	FY 2009 Revised Budget Plan	FY 2010 Baseline Budget
Forest Pest Program				
Authorized Positions/Staff Years				
Regular	7/ 7	7/ 7	7/ 7	7/ 7
Expenditures	**$947,293**	**$1,030,498**	**$1,030,498**	**$1,054,633**
Disease-Carrying Insects Program				
Authorized Positions/Staff Years				
Regular	3/ 3	3/ 3	3/ 3	3/ 3
Expenditures	**$1,380,091**	**$1,755,844**	**$1,948,553**	**$1,846,931**

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Position Summary			
	FOREST PEST PROGRAM		**DISEASE-CARRYING INSECTS PROGRAM**
1	Urban Forester III	1	Environmental Health Supervisor
4	Urban Foresters II	2	Environmental Health Specialists II
1	Information Technology Technician III		
1	Administrative Assistant II		
TOTAL POSITIONS			
10 Positions / 10.0 Staff Years			

FY 2010 Funding Adjustments

The following funding adjustments from the FY 2009 Revised Budget Plan are necessary to support the FY 2010 program:

- **Employee Compensation** **$115,222**
  An increase of $115,222 in Personnel Services is associated with salary adjustments necessary to support the County's compensation program.

- **Carryover Adjustments** **($192,709)**
  A decrease of $192,709 is due to the carryover of for one-time Operating Expenses as part of the *FY 2008 Carryover Review*.

Changes to FY 2009 Adopted Budget Plan

The following funding adjustments reflect all approved changes in the FY 2009 Revised Budget Plan since passage of the FY 2009 Adopted Budget Plan. Included are all adjustments made as part of the FY 2008 Carryover Review and all other approved changes through September 15, 2008:

- **Carryover Adjustments** **$192,709**
  As part of the *FY 2008 Carryover Review*, the Board of Supervisors approved encumbered funding of $192,709 in Operating Expenses for arbor virus 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 no more than 1 percent of the 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 no more than three.

Indicator	Prior Year Actuals			Current Estimate	Future Estimate
	FY 2006 Actual	FY 2007 Actual	FY 2008 Estimate/Actual	FY 2009	FY 2010
Output:					
Gypsy moth/cankerworm field surveys completed annually in areas known or suspected to be infested	3,200	3,200	4,000 / 4,000	4,000	4,000
Mosquito larvicide treatments of catch basins to control West Nile virus	113,117	101,118	115,000 / 101,416	102,000	102,000

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Indicator	Prior Year Actuals FY 2006 Actual	FY 2007 Actual	FY 2008 Estimate/Actual	Current Estimate FY 2009	Future Estimate FY 2010
Efficiency:					
Gypsy moth/cankerworm field surveys conducted per staff	800	800	1,000 / 800	800	800
Disease-carrying insect program cost per capita	$1.05	$1.66	$1.63 / $1.25	$1.66	$1.72
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% / 96%	100%	100%
Outcome:					
Percent of County tree defoliation resulting from gypsy moth and cankerworm infestation	0%	0%	1% / 0%	1%	1%
Confirmed human cases of West Nile virus in Fairfax County, Fairfax City and Falls Church City as reported by VDH (1)	0	1	3 / 1	1	1

(1) VDH = Virginia Department of Health

Performance Management Results

Forest Pest Program: Aerial treatment for the gypsy moth was 3,500 acres in the spring of FY 2008. Based on field surveys of the gypsy moth population in the fall of 2008, staff estimates 965 acres will require treatment in spring of FY 2009. Based on surveys for the cankerworm no treatment was necessary in spring of FY 2008, and none is anticipated during the spring of FY 2009. Defoliation surveys for both insects conducted in the summer of 2008 indicated that there were 15 acres of defoliation in Fairfax County during FY 2008, close to zero percent.

Disease-Carrying Insects (DCI) Program: The continuing goal of the DCI Program in FY 2010 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 goal as in prior years. In FY 2008 there was only one human case of WNV.

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, although dependent on weather conditions, remain relatively constant throughout the years, maintaining a relatively stable program cost. The total DCI program cost per capita was $1.25 in FY 2008. This was lower than the budget of $1.63 per capita. The estimated cost for FY 2009 and FY 2010 provides the capacity for a higher cost per capital; actual spending will depend 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 tick surveillance program, begun in FY 2005, continues in FY 2009 and FY 2010 in cooperation with other County agencies. This program will increase the understanding of the magnitude of tick-borne disease in the County and will define the regions of greatest risk. The DCI Program partnered with Johns Hopkins University and George Mason University to test the black-legged ticks for *Borrelia burgdorferi*. The increased testing for the presence of Lyme disease may also impact the DCI Program 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 2008 Actual	FY 2009 Adopted Budget Plan	FY 2009 Revised Budget Plan	FY 2010 Baseline Budget
Beginning Balance	**$3,072,756**	**$2,567,353**	**$3,184,363**	**$2,496,057**
Revenue:				
General Property Taxes	$2,263,836	$2,161,158	$2,161,158	$1,945,042
Interest on Investments	168,155	129,587	129,587	48,673
State Reimbursement	7,000	0	0	0
Total Revenue	$2,438,991	$2,290,745	$2,290,745	$1,993,715
Total Available	**$5,511,747**	**$4,858,098**	**$5,475,108**	**$4,489,772**
Expenditures:				
Forest Pest Program	$947,293	$1,030,498	$1,030,498	$1,054,633
Disease-Carrying Insects Program	1,380,091	1,755,844	1,948,553	1,846,931
Total Expenditures	$2,327,384	$2,786,342	$2,979,051	$2,901,564
Total Disbursements	**$2,327,384**	**$2,786,342**	**$2,979,051**	**$2,901,564**
Ending Balance[1]	**$3,184,363**	**$2,071,756**	**$2,496,057**	**$1,588,208**
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 West Nile Virus - carrying mosquito populations in a given year.