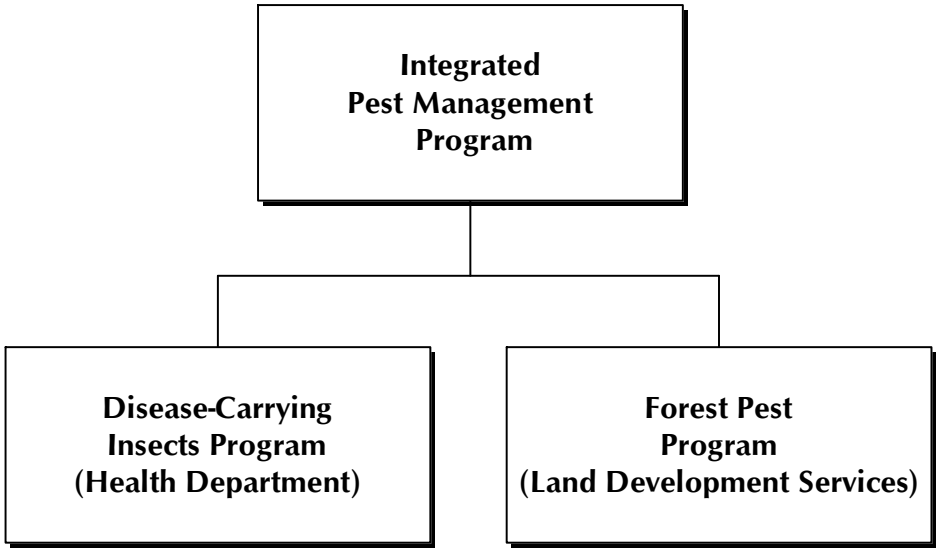
Fund 116
Integrated Pest Management Program



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 2011, the same tax rate, along with the existing fund balance, will continue to support both programs.

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 2009, staff estimates that very few acres will require treatment in FY 2010. Cankerworm populations also have moderated in recent years. Treatment has not been necessary since 2003, and none is anticipated in FY 2010. The FY 2011 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 and one in the Fair Oaks area in July of 2009. 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.

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

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.

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 22 human cases detected in the County (13 in FY 2003, three in FY 2004, one in FY 2005, zero in 2006, three in 2007, one in 2008 and one in 2009), with two fatalities, one occurring in FY 2003 and one in FY 2005.

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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 four major components: surveillance, control, emergency preparedness 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 stormwater 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 105,000 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 2010, the program produced and printed a fifth 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 2010, the program also prepared, printed and mass mailed to every residence in the County the second edition of 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 awareness has increased in relation to 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 189 human cases were recorded in calendar year 2008 (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. In FY 2009, the program initiated a tick identification service for County residents to inform them of the type of tick that had bitten them. These programs and services will continue in FY 2011. In the spring of FY 2010, DCIP will collaborate on a four poster tick control effort with other agencies in the County. The four poster is a bait station that applies an insecticide to the deer that will kill the ticks that are on the deer, therefore, controlling the tick population.

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Budget and Staff Resources

Agency Summary					
Category	FY 2009 Actual	FY 2010 Adopted Budget Plan	FY 2010 Revised Budget Plan	FY 2011 Advertised Budget Plan	FY 2011 Adopted Budget Plan
Authorized Positions/Staff Years					
Regular	10/ 10	10/ 10	10/ 10	10/ 10	10/ 10
Expenditures:					
Personnel Services	$1,312,767	$1,168,744	$1,168,744	$1,195,505	$1,195,505
Operating Expenses	941,244	1,707,847	2,078,160	1,707,847	1,707,847
Capital Equipment	9,400	0	0	0	0
Total Expenditures	**$2,263,411**	**$2,876,591**	**$3,246,904**	**$2,903,352**	**$2,903,352**

Summary by Program					
Category	FY 2009 Actual	FY 2010 Adopted Budget Plan	FY 2010 Revised Budget Plan	FY 2011 Advertised Budget Plan	FY 2011 Adopted Budget Plan
Forest Pest Program					
Authorized Positions/Staff Years					
Regular	7/ 7	7/ 7	7/ 7	7/ 7	7/ 7
Expenditures	**$926,913**	**$1,043,204**	**$1,047,179**	**$1,061,937**	**$1,061,937**
Disease-Carrying Insects Program					
Authorized Positions/Staff Years					
Regular	3/ 3	3/ 3	3/ 3	3/ 3	3/ 3
Expenditures	**$1,336,498**	**$1,833,387**	**$2,199,725**	**$1,841,415**	**$1,841,415**

Position Summary

	FOREST PEST PROGRAM		DISEASE-CARRYING INSECTS PROGRAM
1	Urban Forester III	1	Environmental Health Supervisor
4	Urban Foresters II	1	Environmental Health Specialist II
1	Information Technology Technician III	1	Environmental Health Specialist III
1	Administrative Assistant II		

TOTAL POSITIONS
10 Positions / 10.0 Staff Years

FY 2011 Funding Adjustments

The following funding adjustments from the FY 2010 Adopted Budget Plan are necessary to support the FY 2011 program. Included are all adjustments recommended by the County Executive that were approved by the Board of Supervisors, as well as any additional Board of Supervisors' actions, as approved in the adoption of the budget on April 27, 2010.

- **Employee Compensation** **$0**
  It should be noted that no funding for pay for performance or market rate adjustments is included in FY 2011.

- **Other Post-Employment Benefits** **$26,761**
  An increase of $26,761 reflects the cost of providing Other Post-Employment Benefits (OPEBs) to retirees, including the Retiree Health Benefits Subsidy. Historically, costs related to these benefits have been paid by the General Fund; however, beginning in FY 2011, these annual costs will be spread to other funds in order to more appropriately reflect benefit-related expenses within each fund. For more information on Other Post-Employment Benefits, please refer to Fund 603, OPEB Trust Fund, in Volume 2 of the FY 2011 Adopted Budget Plan.

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Changes to FY 2010 Adopted Budget Plan

The following funding adjustments reflect all approved changes in the FY 2010 Revised Budget Plan since passage of the FY 2010 Adopted Budget Plan. Included are all adjustments made as part of the FY 2009 Carryover Review, FY 2010 Third Quarter Review, and all other approved changes through April 20, 2010.

- **Carryover Adjustments** **$370,313**
  As part of the *FY 2009 Carryover Review*, the Board of Supervisors approved encumbered funding of $370,313 in Operating Expenses for contractual agreements and telecommunication needs.

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 2007 Actual	FY 2008 Actual	FY 2009 Estimate/Actual	FY 2010	FY 2011
Output:					
Gypsy moth/cankerworm field surveys completed annually in areas known or suspected to be infested	3,200	4,000	4,000 / 3,200	3,200	3,200
Mosquito larvicide treatments of catch basins to control West Nile virus	101,118	101,416	102,000 / 105,099	105,000	105,000
Efficiency:					
Gypsy moth/cankerworm field surveys conducted per staff	800	800	800 / 800	800	800
Disease-carrying insect program cost per capita	$1.66	$1.25	$1.66 / $1.28	$2.02	$2.01
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%	96%	100% / 90%	100%	100%

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Indicator	Prior Year Actuals FY 2007 Actual	FY 2008 Actual	FY 2009 Estimate/Actual	Current Estimate FY 2010	Future Estimate FY 2011
Outcome:					
Percent of County tree defoliation resulting from gypsy moth and cankerworm infestation	0%	0%	1% / 0%	0%	0%
Confirmed human cases of West Nile virus in Fairfax County, Fairfax City and Falls Church City as reported by VDH (1)	1	1	1 / 1	1	1

(1) VDH = Virginia Department of Health

Performance Management Results

Forest Pest Program: Aerial treatment for the gypsy moth was 950 acres in the spring of FY 2009. Based on field surveys of the gypsy moth population in the fall of 2008, staff estimates very few acres will require treatment in spring of FY 2010. Based on surveys for the cankerworm no treatment was necessary in spring of FY 2009, and none is required during the spring of FY 2010. Defoliation surveys for both insects conducted in the summer of 2009 indicated that there were no acres of defoliation in Fairfax County during FY 2009, totaling zero percent.

Disease-Carrying Insects (DCI) Program: The continuing goal of the DCI Program in FY 2011 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 2009, 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 $1.28 in FY 2009. This was lower than the budget of $1.66 per capita. The estimated cost for FY 2010 and FY 2011 provides the capacity for a higher cost per capita; 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 2010 and FY 2011 in cooperation with other County agencies. This program will increase the understanding of the magnitude of tick-borne diseases in the County and will define the regions of greatest risk. The DCI Program partnered with Johns Hopkins 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 2009 Actual	FY 2010 Adopted Budget Plan	FY 2010 Revised Budget Plan	FY 2011 Advertised Budget Plan	FY 2011 Adopted Budget Plan
Beginning Balance	**$3,184,363**	**$2,498,913**	**$3,275,154**	**$2,021,965**	**$2,021,965**
Revenue:					
General Property Taxes	$2,269,696	$1,945,042	$1,945,042	$1,765,515	$1,765,515
Interest on Investments	69,506	48,673	48,673	48,673	48,673
State Reimbursement	15,000	0	0	0	0
Total Revenue	$2,354,202	$1,993,715	$1,993,715	$1,814,188	$1,814,188
Total Available	**$5,538,565**	**$4,492,628**	**$5,268,869**	**$3,836,153**	**$3,836,153**
Expenditures:					
Forest Pest Program	$926,913	$1,043,204	$1,047,179	$1,061,937	$1,061,937
Disease-Carrying Insects Program	1,336,498	1,833,387	2,199,725	1,841,415	1,841,415
Total Expenditures	$2,263,411	$2,876,591	$3,246,904	$2,903,352	$2,903,352
Total Disbursements	**$2,263,411**	**$2,876,591**	**$3,246,904**	**$2,903,352**	**$2,903,352**
Ending Balance[1]	**$3,275,154**	**$1,616,037**	**$2,021,965**	**$932,801**	**$932,801**
Tax Rate Per $100 of Assessed Value	**$0.001**	**$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.