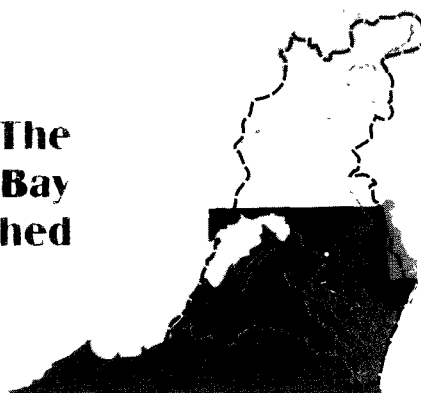


# Local Government

# Pollution Prevention TOOLKIT

*Tools and models  
to help local governments  
implement pollution prevention (P2)  
and protect the  
Chesapeake Bay, its rivers and streams.*

The  
Chesapeake Bay  
Watershed



Pollution  
Prevention  
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Chesapeake Bay Program

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# **Local Government Pollution Prevention Toolkit**

*Tools and models to help local governments  
implement pollution prevention (P2) and protect the  
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May 1998

Printed by the U.S. Environmental Protection Agency for the Chesapeake Bay Program

# **Pollution Prevention Toolkit**

*prepared on behalf of*

the Chesapeake Bay Program's  
Toxic Subcommittee  
and  
Local Government Advisory Committee

*by*

Redman/Johnston Associates, Ltd.

Printed on recycled paper

# Local Government Pollution Prevention Toolkit Table of Contents

<b>Introduction .....</b>	<b>1</b>
What is Pollution Prevention? .....	2
What Can Local Governments Do to Promote P2? .....	2
Why is P2 Important? .....	3
Local Government Challenge .....	4
 <b>Developing a Local Government Pollution Prevention Program .....</b>	 <b>5</b>
Introduction .....	5
How Do You Measure the Economic Benefits of P2? .....	5
What are the Barriers to Developing a P2 Program? .....	7
Securing and Sustaining Support for a P2 Program .....	7
Developing a Local Government P2 Program .....	8
Office Maintenance .....	11
Composting .....	15
Fleet Maintenance .....	17
Managing the Land .....	19
Maintaining the Land .....	23
Case Studies .....	25
#1 CFC Equipment Replacement - Norfolk, VA .....	25
#2 Co-Composting Facility for Solid Waste - Adams County, PA .....	27
#3 German Branch Integrated Pest Management Project - Queen Anne's County, MD .....	29
#4 An Integrated Waste Management Program - Lancaster County, PA .....	31
#5 Low-Impact Development - Prince George's County, MD .....	33
#6 Sustainable Technologies Industrial Park - Cape Charles, VA .....	37
 <b>Promoting P2 in the Small Business Community .....</b>	 <b>39</b>
Introduction .....	39
Why Promote P2 in the Small Business Community? .....	40
What are the Benefits of Promoting P2? .....	40
Developing a P2 Business Outreach Program .....	41
Getting Your Small Businesses Involved .....	42
Tools to Advance Small Business P2 Programs .....	43
Case Studies .....	45
#7 BMP Manual for Automotive Related Industries - Alexandria, VA .....	45
#8 Businesses for a Cleaner River, Elizabeth River Project - Tidewater, VA .....	47
#9 "Eco-Wise Program" - Montgomery County, MD .....	49
#10 Enviro☆ Program - Allegheny County, PA .....	51
#11 Pollution Prevention Assessments - Hampton Roads, VA .....	53
#12 Waste Audits and Household Hazardous Waste Program - Fauquier County, VA .....	55

<b>Promoting P2 to Citizens</b> .....	59
Introduction .....	59
Why Encourage P2 to Citizens? .....	60
Promoting P2 to Citizens .....	60
Getting Citizens Involved .....	62
Tools to Promote P2 to Citizens .....	62
Case Studies .....	63
#13 Bayscapes - Alliance for the Chesapeake Bay .....	63
#14 “Let’s Be Partners...” Program - Baltimore County, MD .....	65
#15 The Water-wise Gardener Program and Handbook - Prince William County, VA .....	67
<b>Assistance Programs</b> .....	69
<b>Bibilography</b> .....	79
<b>Appendices</b> .....	81
A. Chesapeake Bay Program Recognition Programs .....	81
Businesses for the Bay	
Chesapeake Bay Partner Communities	
B. Developing a Local Government P2 Program .....	91
Economic Cost Accounting Technique	
Purchasing Policies Checklist	
P2 Model Ordinances and Policies	
C. Promoting P2 Activities to Small Businesses .....	103
Steps to Establishing a P2 Program	
Economic and Technical Evaluation Forms	
P2 Checklists	
Educational Brochures	
D. Promoting P2 Activities to Citizens .....	117
Educational Brochures	

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# Introduction

**L**ocal governments in the Chesapeake Bay watershed, of which there are over 1,650, have repeatedly indicated a need for tools, techniques and models to help them contribute to the Chesapeake Bay restoration and protection effort and simultaneously, achieve community goals. With this in mind, the Chesapeake Bay Program's Toxics Subcommittee, in coordination with the Chesapeake Bay Local Government Advisory Committee, developed the *Local Government Pollution Prevention Toolkit* to help local governments implement pollution prevention programs. Local governments are vital to the pollution prevention (P2) effort; however, a gap exists in the practical and technical information available to this audience. The Toolkit seeks to fill this gap.

The first goal of the Toolkit is to raise awareness of the local government audience regarding pollution prevention opportunities that exist at the local level. This is achieved by explaining the role local governments have in P2, describing the benefits P2 activities can have on a community, and listing P2 activities local

governments can implement. Beyond raising awareness at the local level, the Toolkit seeks to help local governments implement pollution prevention activities. Practical step-by-step information, supported by case study examples, help to achieve this objective. Since everyone has a role in pollution prevention, the document examines strategies local governments can take to enlist their business community and citizens in pollution prevention activities. Again, case study examples underscore how these strategies have been successfully applied in a locality.

These three topic areas are supported by an extensive listing of technical and financial resources that are available to local governments and appendices which include examples of P2 ordinances, policies, educational brochures and other information that local governments are currently utilizing. To further facilitate the promotion of pollution prevention at the local level, a brochure is available that highlights activities

## **The Toolkit is organized into three main topic areas:**

- *Developing a Local Government Pollution Prevention Program*
- *Promoting Pollution Prevention to the Small Business Community*
- *Promoting Pollution Prevention to Citizens*

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## **Benefits of Implementing Pollution Prevention Activities**

A key fact to remember is that preventing pollution is good for everyone involved. Beyond reducing health and environmental risks for humans and living resources, pollution prevention makes sense for economic reasons. Many of the following benefits can be realized by local governments in the Chesapeake Bay watershed:

- *Saving money for local governments through reduced purchasing and energy savings;*
- *Supporting current and future regulatory compliance;*
- *Increasing efficiency of operations and use of resources;*
- *Establishing a positive environment for new business development;*
- *Creating a positive public reaction based on win-win environmental protection policy;*
- *Protecting local natural resources and contributes to the protection of the Chesapeake Bay.*

local governments can take in the P2 area. Combined, the document's chapters, case studies, appendix and brochure constitute the *Local Government Pollution Prevention Toolkit*.

## What is Pollution Prevention?

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**P**ollution prevention (P2), the preferred approach to environmental protection, seeks to reduce or eliminate the harmful effects of hazardous and non-hazardous pollution at the source or prevent it from entering the environment or a waste stream. By preventing or minimizing pollution at the source, the quantity and toxicity of harmful contaminants entering the environment through the air, soil, and water is reduced. Pollution prevention reduces health and environmental risks because it aims to halt the occurrence of pollution in the first place.

Conversely, pollution control seeks methods for proper disposal, treatment, or clean-up after pollution is released into the environment or waste stream. Pollution control has been the traditional mechanism used by communities in protecting the environment; however, this approach can be costly and lead to regulatory compliance issues. Pollution prevention, on the other hand, challenges communities, businesses, and others to evaluate the processes that create pollution and seek solutions that either minimize or eliminate the production of pollution. Utilizing this approach, local governments, businesses, and citizens can save money and help achieve regulatory compliance.

Local governments can integrate pollution prevention practices into their purchasing procedures, processing activities, and regulatory policies. For instance, local governments can seek to reduce the amount of chemical contaminants they purchase by substituting non-hazardous products for these goods. Local governments can also reduce the overall amount of goods purchased which reduces the amount of waste entering the wastestream. Additionally, processing activities, such as fleet maintenance and office maintenance, can become more efficient. Efficiency leads to higher productivity and reduced costs. Finally, by integrating pollution prevention principles into their regulatory policies, local governments can conserve community resources (i.e., land, goods, and services).

By taking steps to eliminate or minimize pollution, local governments protect their valuable local natural resources, create sustainable solutions to waste management challenges, and help protect and restore the Chesapeake Bay.

## What Can Local Governments Do to Promote P2?

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**A**s community leaders, local governments play a critical role in supporting new and innovative initiatives that help achieve community goals and objectives. Since implementing new approaches can face opposition, it takes a strong commitment by local government officials to make pollution prevention activities work in a community.

To help local governments make that commitment, the Toolkit identifies three fundamental roles local governments have in integrating pollution prevention practices at the local level. First, local governments should lead by example by implementing P2 programs in their own facilities and in their operations. Local governments can serve as the model to the rest of the community and demonstrate how pollution prevention can result in economic and environmental benefits.

### Implementing P2 in local government facilities and operations

- *Increase employee awareness of the importance of pollution prevention and provide incentives for more efficient practices;*
- *Direct growth and development to appropriate locations and target land for preservation;*
- *Utilize integrated pest management on public lands to minimize the environmental impacts of pest control.*

The second role of local governments in preventing pollution is to promote P2 practices to the business community. Raising the business community's awareness to the benefits of implementing pollution prevention activities can result in improved relations between local government and the business sector and contribute to the achievement of community goals.

### Promoting P2 activities to businesses

- *Sponsor small business educational workshops and recognition programs to promote awareness and encourage involvement in pollution prevention activities;*
- *Promote the use of water-efficient fixtures to reduce consumption;*
- *Encourage the purchase and use of non-toxic cleaning products.*

The third role local governments have in promoting pollution prevention is to encourage their citizens to implement pollution prevention techniques at home. Citizens can take many steps to incorporate pollution prevention principles into their daily habits and routines. Local governments promote those steps and in the process, improve the community's quality of life and protect the environment.

### Promoting P2 activities to citizens

- *Promote the use of plants and tree species native to the Chesapeake Bay watershed;*
- *Encourage the use of low flow faucets and shower heads;*
- *Advocate the purchasing of recycled and non-hazardous products;*
- *Recommend composting of kitchen waste and yard trimmings.*

The Toolkit is organized to help local governments take successful steps in integrating pollution prevention activities at the local level in each of these three areas.

## Why is P2 Important?

**P**rotecting the environment, managing waste, and ensuring a good quality of life are challenges most directly dealt with at the local level. Pollution prevention is a practice that assists local governments in addressing each of these local challenges in an efficient and often cost-effective manner. Pollution prevention activities are important because they have the ability to address these challenges simultaneously.

Pollution prevention activities have demonstrated their ability to protect vital and sensitive natural re-

sources. In utilizing pollution prevention techniques, local governments and others have reduced overall consumption of goods and services and reduced the amount of chemical contaminants discharged into the air, water and soil. In addition, local governments, businesses and others have found that pollution prevention supports both current and future regulatory compliance.

### Local Government Highlight City of Cincinnati, Ohio

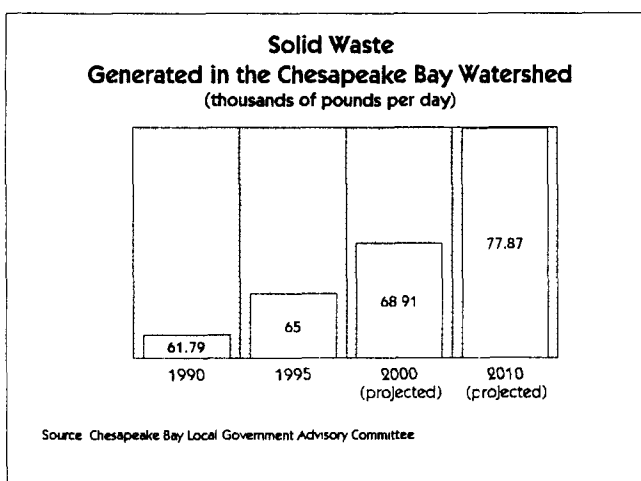
*Substituting lead-free, waterborne paint for leaded, solvent-based paints for painting road markings prevented 33,000 pounds of lead and 36,000 pounds of volatile organic compounds (VOCs) from entering the environment in Cincinnati. The Department of Public Works avoided costs with media and chemical specific regulations by making the switch.*

Pollution prevention activities also help protect and restore the Chesapeake Bay. The Chesapeake Bay Program has identified source reduction as the preferred option to preventing chemical contaminants from harming our environment. In 1994, the Bay Program adopted a Chesapeake Bay Basinwide Toxics Reduction and Prevention Strategy to work towards a Bay "Free of Toxics". The Strategy set the goal of achieving 100 percent voluntary participation by states and local governments within the Chesapeake Bay basin in the implementation of pollution prevention programs aimed at further reducing the use and generation of potentially toxic chemicals at their facilities. Furthermore, the Chesapeake Bay Program's Strategy seeks the voluntary participation of 75 percent of industrial facilities and commercial establishments, with an emphasis on small businesses, in the implementation of pollution prevention programs. The Strategy seeks to achieve both these goals by the year 2000.

By implementing pollution prevention activities and thereby reducing the use and generation of chemical contaminants, the water quality of the Bay will improve, and the living resources that inhabit the Bay, including fish, oysters and waterfowl, will be healthier.



Pollution prevention also helps communities establish more sustainable strategies to reduce and manage waste. Recent national trends indicate that Americans continue to produce excessive amounts of waste. In fact, a recent study projected that Americans will produce over 250 million tons of municipal solid waste in the year 2000 (*Characterization of Municipal Solid Waste in the United States, 1996*). This projection is an increase of over 50 million tons from 1995 figures and an increase of more than 100 million tons from 1980 statistics. The following chart indicates the amount of solid waste generated in the Chesapeake Bay watershed.



Finally, pollution prevention is a mechanism that can contribute to a positive quality of life in communities. Issues that affect quality of life, such as pollution, crime, and economics can be addressed, to a certain degree, through the implementation of pollution prevention programs. For example, several local governments and state agencies in the Chesapeake Bay wa-

tershed are providing voluntary, non-regulatory pollution prevention audits to the small business community. The voluntary audit helps businesses identify opportunities to reduce the amount and toxicity of their waste. Businesses can implement the recommendations made during the audit and, as a result, save money and support current and future compliance of regulations. This pollution prevention activity builds a stronger level of trust between government and the private sector, helps protect the environment, and promotes a healthy local economy.

## Local Government Challenge

To some degree, pollution prevention has a role to play in each of the over 1650 local governments in the Chesapeake Bay watershed. The Governors in Maryland, Pennsylvania, and Virginia and the Mayor of D.C. have signed a directive that asks for 100 percent voluntary participation of local governments in the Chesapeake Bay watershed in the implementation of pollution prevention activities. We hope that you will use the information in this Toolkit to achieve that goal.

If your community is doing good things in this area, we'd like to hear about it. Your input ensures that we continue to provide the information and services that help you help yourself protect local natural resources and the Chesapeake Bay. Please call the Chesapeake Bay Local Government Advisory Committee at (800) 446-LGAC to share your initiatives.

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# Developing a Local Government Pollution Prevention Program



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## Introduction

**L**ocal governments are in a unique position to fundamentally change the way in which we protect local and regional environments, improve economies, and create quality communities. By focusing the attention and resources of environmental protection at the pollution source - not at the end of the pipe - local governments can reduce the amount of pollution generated and the costs it entails. An approach that makes both environmental and economic sense, P2 focuses on making processes more efficient, less toxic, and less costly and, as a result, environmentally sound and economically feasible.

### Supporting Case Studies

- **CFC Equipment Replacement**  
*Norfolk, Virginia*
- **Co-Composting Facility**  
*Adams County, Pennsylvania*
- **IPM Project**  
*Queen Anne's County, Maryland*
- **Integrated Waste Management Program**  
*Lancaster County, Pennsylvania*
- **Low-Impact Development**  
*Prince George's County, Maryland*
- **Sustainable Technologies Industrial Park**  
*Cape Charles, Virginia*

In addition to improving their own procedures and activities, local governments can serve as the community's living laboratory, demonstrating the innovative techniques and cost savings of taking such actions as conserving water and energy, reducing the generation of waste, and substituting toxic materials for non-toxic materials. As such, local governments have the opportunity to demonstrate to businesses and citizens

that P2 activities can be successfully implemented and result in economic and environmental benefits.

Collectively, local governments in the Chesapeake Bay watershed are one of the leading producers of waste and pollution. But local governments can, and in some cases are, reversing this trend by implementing P2 and, in the process, influencing others to follow their lead. Local government procedures and policies, such as procurement activities, office maintenance, ground maintenance, and land use management policies can integrate P2 practices that reduce waste, protect environmentally sensitive lands, and conserve public funds.

The following chapter describes the economic benefits of P2, the barriers of implementing P2, mechanisms to secure and maintain support for P2 activities, and a step-by-step process for local governments to consider in developing a pollution prevention program. Local government case studies, included at the end of each chapter, underscore the benefits of implementing pollution prevention programs.

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## How Do You Measure the Economic Benefits of P2?

**D**etermining the economic benefits of implementing pollution prevention can be a difficult task. Local governments often consider only the purchasing cost of a product or cost of an activity to determine what products to purchase and what activities to undertake. Unfortunately, such budgeting and operating procedures do not account for the true costs of those products and activities. For instance, many local governments will purchase office equipment based solely on the purchase price of that equipment. However, in certain cases, purchasing higher-priced, more efficient equipment can save local governments in en-

ergy and maintenance costs, as well as reduce the percentage of hazardous and non-hazardous waste generated. Since many local governments often do not factor in energy costs and waste handling in their purchasing procedures, such long term cost savings are never realized.

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### **Local Government Highlight** **City and County of San Francisco, California**

*The experiences of the City and County of San Francisco demonstrate the challenges in applying "green" purchasing procedures. Recently, the City and County developed an Energy Management Action Plan to improve energy conservation in local government facilities. In developing the Plan, they examined local government procedural barriers to energy conservation. One such procedural barrier uncovered was the government's standard budgeting procedures which discouraged the purchasing of supplies that conserved energy.*

*They found that by installing a compact fluorescent in place of an incandescent light bulb saves the City \$25 in energy costs and \$40 in labor changing lamps. However, it does cost the government \$10 more to purchase. Since the purchasing procedures require the government to purchase the lower cost product, in this case the incandescents, and because the energy savings are not returned to the department realizing the savings, and since the maintenance savings are not immediately available as budget dollars, departments do not have the resources or the incentive to make the most cost-effective decisions. By not purchasing a compact fluorescent, the City loses \$55 per light bulb over the long term (ICMA, Preventing Pollution).*

In order to realize the cost effectiveness of applying pollution prevention techniques, local governments should consider adopting new accounting procedures. Several accounting procedures have been developed in order to determine the true cost of purchasing a product or paying for a service. One such accounting procedure is called *Life Cycle Cost Accounting* which not only takes into consideration the purchase cost of a product, but determines how much the product will cost throughout its lifetime. Using this accounting pro-

cedure, environmental costs and benefits are evaluated, quantified, and added to the market price of purchasing, installing, using, maintaining, and finally, disposing of the product. Although complicated, this technique encourages local governments to make purchasing decisions based on long-term economic and environmental considerations (ICMA, *Preventing Pollution*).

A similar example that can help a local government realize the economic benefits of pollution prevention is *Total-Cost Assessment (TCA)*. *Total-Cost Assessment* is a comprehensive financial analysis of the life cycle costs and savings of a pollution prevention project. A TCA approach includes the following:

- internal allocation of environmental costs to product lines or processes through full-cost accounting;
- inclusion in a project financial analysis of direct and indirect costs and short-and long-term costs, liability costs, and less tangible benefits of an investment;
- evaluation of project costs and savings over a long time period (for example, 10 to 15 years); and
- use measures of profitability that capture the long-term profitability of a project (for example, net present value and internal rate of return) (ASTM).

In addition to the two approaches listed above, the U.S. Environmental Protection Agency is encouraging a similar accounting approach called *Environmental Cost Accounting*. This approach encourages businesses and others to consider environmental cost accounting as a tool for internal business. In doing so, the U.S. EPA believes that businesses will clearly see the financial advantages of implementing pollution prevention practices (U.S. EPA, *Introduction to Environmental Accounting*).

If done well, local governments can demonstrate the financial benefits to implementing pollution prevention practices which, in turn, will help secure and sustain support for a pollution prevention program. A cost accounting technique is located in Appendix B of the document. Local governments are encouraged to review the technique and consider using it as a means of determining what pollution prevention activities would be most appropriate to implement.

## What are the Barriers to Developing a P2 Program?

---

**T**here are inherent barriers to developing any new programs in local government, particularly non-mandated programs. These barriers can be overcome by a persistent staff, top level support, dedicated funding sources, community support, and ultimately measurable program results. Some of the most prohibitive barriers to starting a local government P2 program are:

- *Lack of Program Understanding* - Local government officials and staff are involved in such diverse activities that new programs often take a backseat to day-to-day activities. Therefore, there is often a lack of understanding regarding new programs, techniques, etc.
- *Limited Resources* - Local governments often lack the financial and/or the technical means to implement pollution prevention programs. Even if financial resources are available and a willingness to implement a pollution prevention program is there, staff to implement the program may not exist. Conversely, if staffing resources are available and initial start-up funding is available, maintaining those financial resources beyond the start-up is very difficult.
- *Increasing Demands* - The complexity and sheer number of environmental laws and regulations often place managers in a reactive mode, unable to expend resources for development “non-mandated” programs.
- *Justifying a Need* - Evaluating the effectiveness of pollution prevention programs can be a frustrating experience because the results are typically long-term and do not fall neatly into the typical quantitative measurement mode. (Wigglesworth, *A Practical Guide for State and Local Governments*)
- *Lack of Coordination* - Departments and agencies within a local government can further complicate the development of new environmental protection programs such as P2. Often caught up in day-to-day activities unique to a certain department and agency, coordination becomes a difficult task. However, coordination between these departments and agencies is criti-

cal for both making a pollution prevention program successful in terms of overall reductions in waste, as well as sustaining support for the program.

- *Regulatory Impediments* - Current regulatory barriers can impede the progress of a P2 program. Such regulatory barriers include emphasis on recycling programs which draws attention away from source reduction; regulatory focus on “end-of-the-pipe” solutions; and a lack of policies that provide incentives to promote pollution prevention.

## Securing and Sustaining Support for a P2 Program

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**A** local government has several funding options to consider in creating a pollution prevention program. The options available to a local government will depend on the program’s focus. A list of grant programs that a local government can take advantage of are listed at the end of this publication. Beyond these outside sources of funding, a local government may consider using a portion of a dedicated fund for a pollution prevention program. For instance, in Montgomery County, Maryland, the EcoWise program (see case study #9) is funded by a “system benefit charge” that all commercial properties in the County pay. Similarly, in Fauquier County, Virginia (see case study #12), an Enterprise Fund supports its recycling, P2 business outreach programs and household hazardous waste management program. Tapping these dedicated sources of funding to support a pollution prevention program is another mechanism local governments can use to secure financial support.

Unfortunately, the hardest task for a local government pollution prevention effort is often sustaining support after receiving initial funding. Marketing a program and reporting regularly to higher management and elected officials will ensure a level of awareness regarding the progress of the program. In addition, creating partnerships in implementing the program will ensure broader public-private recognition of the program which will also help support the program. Clearly, the more community stakeholders involved in the program, the stronger its support base.

Three specific strategies to preserving program funding for household hazardous waste programs are recommended. These strategies can be applied to maintain support for pollution prevention programs in general. They are:

- regularly bring the program to the attention of budget decision-makers;
- supplement information about environmental benefits with information about public safety benefits; and
- cultivate program advocates.

Pollution prevention programs are unlike any other traditional local government function. Since pollution prevention programs are successful when less is created, it is difficult to remind people of their value. Therefore, local government staff must consider new ways to both market P2 programs and demonstrate their measurable successes.

## **Developing a Local Government P2 Program**

The following step-by-step guide can be used in developing a local government pollution prevention program. The steps are designed to help a local government build support for the program, complete waste evaluations, identify appropriate departments or facilities to start a program, establish goals and objectives and measure and report on program progress. The steps can be tailored to suit the individual needs of a specific local government pollution prevention program.

### **□ Educate and Seek Support of Elected Officials and Staff**

Pollution prevention is a relatively new and emerging practice which protects the environment and can save considerable budget dollars. Clearly, many local government staff and elected officials need to understand what pollution prevention techniques can be implemented by local governments and how that benefits a local government and its community. Today, many local governments may equate pollution prevention with recycling, and although recycling may lead to source reduction activities, it isn't considered pollution prevention in its conventional sense.

The first step is to encourage local government staff and elected officials to become familiar with local government pollution prevention techniques and their benefits. After some educational efforts have been made, local government officials should be encouraged to support staff in undertaking a pollution prevention program. This initial support by managers and elected officials is key to starting a pollution prevention program.

### **□ Establish a Policy Statement**

A local government should begin its pollution prevention effort by developing a policy statement on pollution prevention. The policy statement should define the reasons that P2 is being implemented, how it will be accomplished, and who will be involved. The policy statement can be very formal and specific or general in nature. For example, a policy statement might state the following: It is the local government's policy for all employees to reduce or eliminate the use of toxic materials, to reduce the volume and toxicity of all waste generated, and to recycle, reuse, or reclaim materials whenever possible. On the other hand, a policy statement may cover specific procedures or components of a pollution prevention program.

### **□ Start Small**

Select a specific facility, department or process to target pollution prevention activities. The International City County Association suggests that, "above all, it is important to start small and build on success so that initial efforts at pollution prevention are not hindered by bureaucratic decision making and paperwork." Therefore, it is critical to select a department or facility that is ready for such P2 activities to target a pilot project for the local government.

### **□ Identify Barriers to Success**

After a specific department and facility is selected, an effort to identify any institutional barriers should be initiated. Such institutional barriers may include traditional purchasing procedures and operating procedures that may limit a local government's ability to implement pollution prevention techniques.

Specific barriers include budgeting procedures that require lowest cost product purchasing regardless of the product's environmental impact (i.e., energy consumption, waste generation), and long term solid waste disposal contracts that are predicated on a cer-

tain amount of waste collected and disposed. This only promotes increases in the waste generated and handled to meet contractual obligations.

## **❑ Create a P2 Team**

Create a local government staff team which includes department managers. In addition, specific local elected officials that are interested in these types of projects should be informed of the activity that is being undertaken. By creating a local government team, you are essentially generating a commitment by the local government department to carry out the P2 activity. By informing local elected officials that may be interested in such projects, a local government is establishing a budgeting ally for future activities.

A continued level of communication with the team, local government department heads and elected officials about the progress of the project is critical to its long term success. A newsletter or fact sheet that can be distributed to these groups describing short term success and future goals is one such to keep the lines of communication open with these key stakeholders.

## **❑ Conduct a Waste Reduction Evaluation**

After a department or facility is selected and support for the project is established, a waste reduction evaluation should be conducted. The range of waste reduction opportunities that can be conducted vary greatly. A local government may agree to complete a simple survey of the local government department to identify opportunities for waste reduction. A local government may also select to complete a very detailed and technical evaluation which involves waste stream sampling and extensive engineering analysis. The goal, no matter what route a local government may take, should be to analyze and select methods to reduce waste at its source.

## **❑ Evaluate Your P2 Options**

After the waste reduction evaluation is completed, a local government department or facility should have a clear idea of the potential pollution prevention options

that will reduce waste. Options that may arise include substitution of raw materials; process and procedure modifications, process elimination; fleet and grounds maintenance enhancements; inventory control; and recycling and composting (ICMA, *Preventing Pollution*). The options should then be evaluated to determine what options are best suited for the department or facility. To determine which options are best for a department or facility, team members should ask a series of questions. Questions will help the department prioritize the options. To start, it is recommended that the low-cost, low-tech waste reduction option be implemented first. (Wigglesworth).

### **Prioritizing P2 Options**

- *Is this a P2 option with a proven success record?*
- *Are other local governments using this option?*
- *Will this option require additional staff and/or training?*
- *Does this option reduce waste at its source?*
- *Does this option reduce raw material costs/utility costs/waste disposal costs?*

Once options are prioritized, the local government should determine if the necessary budgetary resources are available to support up-front investments. Local governments have utilized a variety of programs to fund their pollution prevention activities including re-

sources from a general fund, a designated income stream, disposal and tipping fees or garbage disposal rates (Source Reduction Forum, *Making Source Reduction and Reuse Work*).

## **❑ Set Program Goals and Objectives**

Once a facility or department is selected and opportunities to implement pollution prevention practices are identified as a result of the waste evaluation, a local government should establish clear goals and objectives. Establishing goals and objectives is an essential element to setting a program up for success.

Goals of a program should incorporate existing environmental protection goals of a local government. A local government pollution prevention goal should, at a minimum, incorporate the goal of reducing the generation of all wastes and the release of pollutants. Other goals may include reducing costs of waste management, improving worker safety, reducing risk to human health and the environment, and enhancing reliability of service and improving productivity.

Objectives should include specific actions a local government will take in order to achieve its pollution prevention goals. Objectives may include obtaining a

significant percent reduction in hazardous waste generated over a specific period of time, and/or save sufficient resources through pollution prevention programs to offset half the costs of environmental management. Objectives should be quantitative in order to measure the progress in achieving the objectives over-time (ASTM).

---

### **Local Government Highlight Dunn County, Wisconsin**

*Dunn County has set a specific objective to reduce the total municipal solid waste stream by 15 percent by weight. This quantifiable objective enables the County to measure the progress of its pollution prevention program.*

*After establishing goals and objectives a local government should determine a date by which the goal will be achieved, the baseline year to which it will be compared, and establish a way to measure progress toward the goal. In establishing a measurement method, a local government should decide if it will measure a reduction from current total waste generation levels, a reduction in per capita waste generation, or a reduction from a projected increase (Source Reduction Forum, *Making Source Reduction and Reuse Work*).*

### **❑ Implement the Program**

After pollution prevention priorities have been established, goals and objectives for the program are set, and a method for measuring the program's progress is agreed upon, it is appropriate to begin to implement the local government pollution prevention program. Informing key management and elected officials of the program's implementation by preparing a report on the program's focus, as well as its short and long-

term goals and objectives should make them aware of the program and help them follow program implementation.

Again, implementing low-cost and low-tech pollution prevention practices early is a good way to create early successes and demonstrate a need to address larger P2 challenges.

### **❑ Evaluate Results, Report on Progress and Encourage Replication**

Evaluating the results of a program is another difficult undertaking. If quantifiable objectives were established with a coinciding method of measurement, then evaluating progress will not be extremely difficult. However, measuring progress requires sound method to collect data monthly to better understand the local government's wastestream. Collection of data must be kept overtime to demonstrate the long-term benefits of implementing pollution prevention programs.

The P2 team should be responsible for preparing progress reports on the program's implementation. In addition, the team should, during implementation, track real barriers that are identified by management and staff during implementation. Reporting on the progress of implementation is critical to sustaining support for the program and expanding the program to other local government offices and facilities.

Finally, local governments should seek additional pollution prevention commitments from its local officials. Certain local governments have adopted resolutions and/or ordinances that require that some level of P2 activity be carried-out in all its offices and facilities. This step ensures that pollution prevention will continue to be an important element of local government's planning, policies and procedures (ICMA, *Preventing Pollution*)

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# Office Maintenance

**R**educing waste and saving money are both possible when local governments choose to implement pollution prevention activities at their offices and facilities. Some of these choices may be the easiest a local government has to make, but nevertheless, are vital elements of source reduction. Activities range from educating employees about energy-consumption reduction techniques to modifying purchasing habits to include more environmentally friendly products.

Local governments can provide training to employees about various in-house pollution prevention activities. The concept of pollution prevention should be explained in detail since employees who understand the effects of their actions will be more active in improving office maintenance techniques. The training sessions will also provide an opportunity to involve staff in the planning process of the P2 program. Assigning one person as the pollution prevention coordinator or creating a pollution prevention team is an effective means of furthering the program.

Besides the environmental benefits of practicing pollution prevention at the office place, there are also economic benefits to conserving resources. Money that is saved through more efficient lighting, purchasing policies, or cooling and heating systems can be channeled into other local government programs or activities. Reducing the amount of water used can also amount to substantial savings.

The following section highlights pollution prevention strategies in the office for purchasing policies, energy efficiency, water conservation, paper use, and green design.

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## Purchasing Policies

**M**inimizing the quantity and toxicity of products that are purchased can have a significant impact on the waste stream. The starting point is simply

managing inventory. Evaluating inventory avoids excess buying and the purchase of unneeded raw materials. It also avoids unnecessary waste generation resulting from retaining materials past their expiration dates. Careful monitoring of purchases means less money spent by the local government.

Switching to recycled products protects resources and stimulates the market for these products. It is important for those responsible for purchasing to understand the principles behind recycled products. Post-con-

sumer recycled content is the preferred type of product. Products made with post-consumer recycled content are using materials that have completed their life cycle as a consumer product. Therefore, waste is prevented from entering a landfill. Paper is an obvious prod-

uct to buy recycled, but others to consider are toner cartridges, envelopes, and paints. Not only should recycled paper products within the office be purchased, but outside print jobs should be ordered on recycled paper and double-sided. The City of Cincinnati has an ordinance requiring city offices to specify preference for environmentally preferable supplies, services or construction materials when making purchasing decisions.

Cleaning supplies should be selected not only based on the toxicity of their contents, but also based on the types of pollution created in their manufacturing and the amount of extraneous packaging. Many non-toxic cleaning products exist that can be substituted for products that create environmental hazards.

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## Energy Efficiency

**L**ocal governments use approximately two percent of the nation's energy (ICMA, *Preventing Pollution*). Although there are up-front costs associated with changing to more energy efficient systems, a local government that makes the switch benefits eco-



nomically in the long run while reducing pollution and conserving resources.

Lighting accounts for 20-25 percent of the electricity used in the United States and is the largest contributor of carbon monoxide emissions. Some of the more efficient lighting options that are available are: electronic ballasts; compact fluorescents; lighting reflectors; daylighting controls; and motion sensors. For example, compact fluorescent bulbs use 75 percent less energy than standard incandescent bulbs. A fluorescent bulb lasts nine times longer than standard bulbs which means it will last for approximately 3.4 years if it is used for 8 hours per day during which time the standard bulb would need to be replaced ten times. While initial cost of the fluorescent bulb is relatively high (\$10-\$28), the cost is recovered in only one year of operation.

In addition, by using more efficient light bulbs and designing to take advantage of natural light, a local government reduces electricity use which decreases waste heat that is created by electricity. This reduces the amount of money spent on cooling a facility.

Cooling and heating buildings is a big energy expenditure. Better systems can save a local government substantial amounts of money while conserving energy. A building's system can be improved upon by installing double pane windows and/or windows with a low-emission coating. Windows should open to allow for natural cooling of a room. Gas powered heating and cooling systems could replace electrical.

Local governments should seek office equipment that is designed to be more energy efficient. EPA's Energy Star logo on computers, printers, and monitors is an indication of a more environmentally friendly product. These pieces of equipment power down when not in use which reduces energy consumption by 50 to 75 percent.

## **Water Conservation**

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**P**er capita use of public water supplies in the United States in 1990 averaged 183 gallons per day, according to U.S. EPA. Developing water-use efficiency programs can help local communities achieve cleaner water through conservation. Steps taken in the office can help to reduce the quantity of water diverted

from streams and rivers for water supplies. This reduces the need to construct new reservoirs for water supply which protects wetland and riparian habitats, as well as their functions in non-point source pollution abatement.

The high demand for and overuse of water contributes to nonpoint source pollution in various forms, including:

- Altered instream flows due to surface withdrawals;
- Saltwater intrusion due to excessive withdrawals;
- Polluted runoff resulting from the excess of water applied for irrigation and landscape maintenance that carries with it sediments, nutrients, salts, and other pollutants.

Water use at the office can be modified by the installation of various water conservation mechanisms. Low flush toilets use less than half the water as standard toilets. Local governments can install these toilets at their facilities and also encourage developers to do the same in new houses. Similarly, low flow faucets and shower heads use significantly less water per minute and should be installed where possible. While installing these water-efficient toilets and faucets may seem like additional cost burden, retrofits have been shown to be cost-effective. Energy costs are lowered, the need for water treatment is reduced, and the necessity of importing water is avoided.

Leaks should be repaired immediately both at the local government facility and at the municipal water system. An impetus for detecting and repairing leaks in systems is revenue loss — when water leaks before it reaches the consumer, the local government does not collect usage fees.

Decreasing the amount of water used for landscape maintenance and implementing pesticide management plans can reduce the entry of pollutants into surface and ground waters. On public grounds, water can be conserved by choosing proper times and amounts to water. Early morning or early evening watering reduces evaporation. If grass is allowed to grow longer, it will retain water better. Simple techniques such as keeping the sprinklers and hoses directed at the grassy areas and not the pavement when watering decrease the amount of water wasted.

## Paper Use

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**I**CMA notes that office paper waste increased 400 percent between 1960 and 1988. In today's world of computers and e-mail systems, offices have many options to reduce paper usage. Computers allow editing to take place on the screen, rather than on printed drafts. Margins and spacing can be modified to allow more printing per page. Memos, messages, and letters can be sent electronically to communicate within or outside of the office.

Printing should be done on both sides of a sheet. Single-sided drafts can be used to make note pads. Paper products should contain post-consumer recycled content. Chlorine-bleached papers and petroleum based inks and dyes should be avoided.

## Green Design

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**W**hen planning new facilities, green design principles can create more environmentally friendly offices. Green design promotes alternative building techniques that result in places that are healthier to live and work in, use energy more efficiently, and use materials that are less harmful on the environment. Local governments can create facilities that minimize their impact on the environment and increase source reduction by employing green design techniques. Green design conserves water and energy resources and utilizes natural materials to create structures that are more environmentally sustainable and healthier to inhabitants. Green design not only creates a more efficient facility, it also encourages more reuse and recycling during the construction process.

Green design principles include:

- site-sensitive orientation to take advantage of shading and light;
- high performance windows to minimize effects of solar heat;
- high efficiency lighting with occupancy sensors;
- detention ponds for irrigation;
- HVAC systems using environmentally-friendly refrigerants.

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### Local Government Highlight The City of Austin, Texas

*The City of Austin created the Green Builder Program to encourage residential and commercial construction that does not adversely affect the environment. The goal of the program is to influence building practices to become more sustainable which in turn will:*

- *Conserve energy, water and other natural resources.*
- *Preserve the health of the environment.*
- *Strengthen the local economy.*
- *Promote a high quality of life.*

There are five basic areas of an environmentally oriented design:

#### ☐ Building ecology

Many products used in building may be toxic and will emit unhealthy gases and substances for years after construction. Adjustments and substitutions made during the design process can prevent this. Additionally, HVAC systems can be designed to provide more fresh air and less mildew and mold build up.

#### ☐ Energy efficiency

Solar technologies and thermal massing and insulation systems can have a dramatic effect on energy consumption. Lighting and electrical fixture selection is important to consider during the design process.

#### ☐ Materials

Materials used for construction that require extensive processing and produce toxic waste should be avoided as opposed to those made from renewable sources that are safe to produce.

#### ☐ Building form

Incorporated into a design can be recycling facilities, reduced flow water fixtures, and indoor planting.

#### ☐ Good design

Buildings with ease of use and reuse will require less energy, less repair, and more value in the future. These types of buildings will be more sustainable over the long term. (Fisher, *Green Building*)

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# Composting

**C**omposting is a simple biological process in which organic matter is broken down by microorganisms into humus, which serves as a natural soil conditioner.

Composting is one of many management strategies local governments are using to stem the amount of waste entering into local landfills and incinerators. Faced with an increasing number of landfills that are at or near capacity, and with strong public opposition to the siting of new landfills and incinerators, local governments in the Chesapeake Bay watershed are establishing composting programs that can and have led to significant reductions in waste entering disposal facilities. In 1995, the U.S. Environmental Protection Agency (EPA) estimated that yard trimmings alone contribute nearly 30 million tons of the total municipal solid waste generated in the country. That equals 14 percent of total municipal solid waste. EPA also estimates that organic materials make up 67 percent of the total municipal solid waste (*Characterization of Municipal Solid Waste*, 1996). Although not all of this organic material can be used in compost, some analysts estimate that, on average, 50 percent of the municipal solid waste is compostable (ASTM, Composting).

The EPA defines composting that takes place at the point of generation (i.e., a home or business) as a source reduction activity. EPA further defines composting that takes place after organic materials have been taken to a central composting facility as recycling. In both cases, composting is a pollution prevention activity that local governments are implementing to help achieve solid waste management objectives and protect natural resources and water quality.

Compost provides a wide-range of benefits including improving moisture retention in sandy soils, contributing to soil fertility, and stimulating plant root development. To local governments, these benefits create a market in which landscapers, gardeners, farmers and nurseries can purchase compost made available at local government solid waste composting facilities. By creating a market for compost, local governments can defer the cost of a composting program.

In response to growing concern about the lack of suitable landfill and incinerator sites, states throughout the country are setting regulations discouraging landfilling or other disposal of yard trimmings. It is estimated that nearly 50 percent of the nation's population is affected by yard trimming disposal legislation (*Characterization of Municipal Solid Waste*, 1996). These regulations have accelerated composting activities at the local level.

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## Implementation

**L**ocal governments can take several approaches to implementing a composting program. Perhaps the most basic approach is to develop an educational program that promotes and encourages backyard composting by residents. A public awareness program in Takoma Park, Maryland has led to 11 percent of residents engaging in backyard composting (ASTM, Composting). Clearly, simple backyard composting is a source reduction activity that can have a significant impact. The citizen educational approach is elaborated on in more detail in the Citizens chapter of the Toolkit.

Municipal solid waste composting facilities can accept and treat waste in a variety of ways. A relatively easy approach is to implement composting programs for yard trimmings. As part of their regular curb side recycling programs, local governments can collect yard trimmings and other yard debris for composting. Local governments can also provide drop-off center service for disposal of yard trimmings. One technique to broaden the participation of residents in these programs is to provide yard trimming separating bags or bins.

Another approach local governments can engage in is called wet-stream composting. To implement this program, citizens must separate compostable materials for collection or disposal at drop-off sites. This technique captures more of the organic materials that, if not composted, would find their way into the landfill. To enhance the participation of the wet-stream approach, local governments should consider linking the program with an existing recycling program. Al-

though this program may be more difficult to implement, it does provide the greatest benefit in terms of total amount of waste collected for composting.

The final approach that could be considered is called mixed waste composting. With this approach, the

separation of organic materials is not required; however, it does result in a lower grade of compost. This compost may include small pieces of glass, metals, and plastics that lower the value of the compost as a marketable commodity.

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# Fleet Maintenance

**F**leet maintenance encompasses many activities that, done correctly, can help to prevent pollution and eliminate toxic chemicals entering several environmental media - air, water, land. Local governments can better manage their existing fleet of vehicles and select alternative vehicles that reduce the amount of pollution generated, as well as offering alternative transportation options.

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## Vehicle Maintenance

**L**ocal government vehicle maintenance departments can complete simple or complex programs to prevent pollution in the workplace. These activities, which include utilizing biodegradable cleaning systems, providing drip pans to capture automotive fluids, and reusing and recycling batteries and oil/oil filters, will protect the environment, ensure environmental compliance, and potentially save local government resources. The general maintenance of vehicles involves many hazardous and potentially hazardous processes. Therefore, it is important for local governments to responsibly maintain their vehicles and set an example to private vehicle maintenance businesses in the community that pollution prevention is environmentally responsible and cost effective maintenance approach.

Local government vehicle maintenance facilities should make a commitment to pollution prevention. This should start with getting the managers of the facility to endorse pollution prevention as a facility policy. After a commitment has been made, local government facility managers should encourage full employee participation in pollution prevention activities. Educating employees of the benefits and techniques that can be used is of upmost importance. After educating employees, it is necessary to keep them involved by seeking their suggestions on additional opportunities to reduce waste. Once a facility has both manager and employee buy-in, an evaluation of the facilities waste should be conducted. The evaluation should include a simple review of the waste that is generated and an identification of opportunities to reduce waste.

Since many pollution prevention techniques are low-cost and low-risk, local government facilities will truly benefit from any level of pollution prevention activity. Keeping facilities clean is a small step in implementing pollution prevention. By keeping the facilities and storage areas clean, floors dry, and containers covered to prevent evaporation and spillage, local governments are taking some of the initial pollution prevention steps. In addition, facilities should also keep accurate and up-to-date records of the materials purchased. This will help to ensure that older materials are used before new materials are opened.

Some simple tips to help facilities implement pollution prevention are listed below:

- Limit the access to hazardous materials to allow the facility to keep track of chemical usage and reduce unnecessary waste generation.
- Avoid unnecessary maintenance on vehicles by changing vehicle fluids on an as-needed basis rather than according to a fixed maintenance schedule.
- Help reduce the impact of spills and the use of absorbent products by using drip pans, secondary containment, and other collection devices.
- Reduce the total number of solvents used at the shop to simplify inventory procedures and reduce waste management issues.
- Conduct vehicle washing in a centralized, enclosed, and contained area to reduce potential impacts to the surrounding environment.
- Use solvent or antifreeze reclamation units as a cost effective pollution prevention measure.
- Store and recycle tires and automotive batteries.
- Collect scrap metals, such as used parts and empty materials storage containers, for recycling.

## Alternative Fuel Vehicles

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**F**ederal, state, and local governments are all exploring options to decrease vehicle emissions that are responsible for substantial contributions to air pollution. Utilizing alternative fuel vehicles offers a practical solution to this pollution problem. Options include vehicles powered by natural gas, methanol, electricity, and liquid petroleum gas.

Under the National Energy Policy Act of 1992, alternative fuel vehicles (AFVs) must be utilized by federal fleets of 20 or more vehicles and by state fleets of 50 or more (ICMA, *Preventing Pollution*). Requirements may extend to local governments in the future. The Clean Cities program is helping government and industry make the transition to alternative fuels vehicles. The partnership, coordinated by the U.S. Department of Energy, helps to create sustainable local plans to establish a viable alternative fuels market.

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### Local Government Highlight Washington, D.C.

*Washington Gas Light Company, the local natural gas utility, assisted the Clean Air Cab Company by making four of its fuel stations accessible to the cabs powered by compressed natural gas (CNG). The Clean Air Cab Company was formed in 1993 and has been successfully running its company of alternative cabs. As a network of CNG cabs increased, Washington Gas continued to support the company's efforts. For instance, credit cards are issued by the gas company for drivers to use at CNG fueling stations. Washington Gas also recommended a company to convert the fleet of taxicabs to CNG when the company was starting out and there were no original equipment manufacturers (OEMs) of larger sedans suitable for taxi service. Since that time, more companies are producing AFVs and the Clean Air Cab Company chooses to purchase from OEMs rather than converting sedans.*

Before selecting alternative fuel vehicles, a local government should evaluate cost, ease of vehicle conversion, vehicle maintenance, and fuel availability. Each type of AFV possesses both pros and cons and it is important to determine which alternative has the most

advantages for a local government. The attributes of the various alternative fuels options can be explored by contacting utility companies, conversion kit suppliers, and trade associations.

Funding for the production of AFVs or conversion of vehicles is critical to a local government that supports this P2 technique. The *Guide to Alternative Fuel Vehicle Incentives and Loans* printed by the U.S. Department of Energy is a good source of information.

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## Mass Transit

**A**nother strategy local governments can take to reduce air and water pollution, decrease highway congestion, and revitalize communities is mass transit. Mass transit systems include busses, light rail, and commuter train service. In more rural areas, local governments may provide car pool locations convenient to major highways and regional bus service to employment centers located in more urbanized areas. Mass transit strategies provide commuters an alternative to the automobile for transportation. As a result, local governments utilizing these strategies are working to reduce energy consumption and pollution.

In addition, certain mass transit strategies can encourage growth and development in targeted growth areas and support the revitalization of existing neighborhoods and central business districts. For instance, Arlington County, Virginia has found that the presence of a commuter rail line (Washington Metrorail System) is a strong incentive for attracting residents to a designated growth and development area. The combination of good planning and commuter rail service has helped to revitalize a "new downtown". In fact, a survey of commuting habits in the County's Ballston Corridor showed that 69 percent commuted to work by rail (JHK and Associates).

Local governments can encourage the use of mass transit by providing public transportation opportunities that are appealing, safe and cost effective to commuters. For instance, local governments can provide discount public transportation passes that reduce the daily cost of using mass transit. Providing a convenient, safe, and aesthetically pleasing passenger waiting area will also promote usage of mass transit systems. Finally, local governments should market the availability, benefits, and cost savings of using public transportation to promote its use.

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# Managing the Land

**P**ollution prevention can take many different forms. Effectively managing the land contributes significantly to the reduction of pollutants entering the Chesapeake Bay, its rivers and streams. Local governments in each of the Bay's jurisdictions have the authority to manage land use and therefore, have the ability to protect or harm the Chesapeake's ecosystem. In order to protect the environment, local governments can undertake several land use management pollution prevention techniques. These techniques can take the form of regulatory measures, site planning recommendations or requirements, land use planning activities, environmentally sound public land maintenance, and public education. Each of these techniques can integrate pollution prevention practices to eliminate or reduce pollution at its source which can save governments from costly environmental compliance remediation activities and infrastructure costs.

The following section will describe some of the land use management pollution prevention techniques that local governments can implement including: land use planning activities, implementing land use controls (i.e., zoning and subdivision regulations); providing incentive-based land use management programs; and encouraging or requiring integrating site planning practices.

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## Planning

**A**lthough at varying levels, each local government in the Chesapeake Bay watershed has the statutory authority to plan and regulate local land use. In Maryland, the primary authority to manage and regulate land uses rests with the counties. However, comprehensive planning is implemented by counties, cities and incorporated towns. In Pennsylvania, municipal governments - townships, boroughs, and cities - are primarily responsible for land use planning and land use regulations. However, counties are required to develop comprehensive plans and are playing an increasing role in coordinating municipal land use plan-

ning strategies and providing guidance to assist in planning and regulating the land. Virginia's authority to manage land use rests primarily with the counties and cities. Once again, towns also play a crucial role in planning and managing land use.

Land use planning is primarily completed in the context of an overall comprehensive plan. Each local government in the Chesapeake Bay watershed has the authority to develop a comprehensive plan. Although these plans are nonregulatory, they are implemented by local zoning and subdivision regulations, and capital improvement

budgets. A comprehensive plan helps a community determine the location and conditions for future growth and development while providing for the general health, safety and welfare of the community. Comprehensive plans serve as a community's road map in guiding new development, providing community services, protecting local natural resources, and targeting revitalization areas to achieve specified community goals and objectives.

Through comprehensive land use planning processes, corresponding land use regulations, and other incentives, local governments can effectively prevent pollution by guiding growth and development to appropriate locations and targeting land areas for preservation.

### Land Use Management Includes:

- *Planning*
- *Controls*
- *Incentives*
- *Site Planning*

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## Controls

**A**lthough the authority to regulate land use may vary from state to state, similar land management controls can apply if adapted appropriately. Land use regulatory controls, coupled with good planning and land management incentives, can create an effective local government land use policy that directs growth and development in appropriate areas and, as a result, prevents pollution through the reduction of non-point sources of pollution entering local waterways and through the conservation of land resources.

## **❑ Cluster Development**

Cluster development encourages land owners and developers to set aside a portion of their property to permanent open space while concentrating development on the remainder of the parcel. This concentration of lots preserves open space on the parcel of land, including environmentally sensitive land. In some instances, higher densities are awarded if the remaining land in the parcel is preserved. Studies indicate that if the land that is preserved is adjacent to other protected lands, the preserved area helps to protect the biological and hydrological functions of the watershed, as well as to raise property values.

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### **Local Government Highlight Loudoun County, Virginia**

*In 1991, Loudoun County adopted its rural village policies and zoning ordinance district which called for clustered development. The village policies and zoning ordinance were developed to preserve the natural environment, the rural road network, public services and facilities. The policy is intended to permit the compact grouping of homes located so as to blend with the existing landscape*

## **❑ Urban Growth Boundaries**

An urban growth boundary (UGB) is a tool that a local government can implement using its zoning authorities. An urban growth boundary provides guidance for future growth by establishing a dividing line between areas appropriate for urban and suburban development and areas appropriate for agricultural, rural and resource uses. Communities seeking a means to more efficiently provide government services, while protecting valuable resource land can utilize urban growth boundaries to direct growth and development.

Urban growth boundaries prevent pollution by targeting growth in areas served by infrastructure or targeted to receive infrastructure. In addition, urban growth boundaries can be established to direct growth and development away from environmentally sensitive and agricultural lands.

## **❑ Riparian Forest Buffer Restoration and Protection**

Riparian forest buffer restoration and protection is a technique that can be implemented by local governments to prevent pollution from entering local streams and storm systems. Riparian forest buffers are forests found along streams and rivers which help filter sediment and nutrients from runoff and shallow groundwater before they enter stream systems. Additionally, forested buffers enhance streamside habitat and can increase the value of property.

Local governments can play a fundamental role in the protection of forested buffers by purchasing property and/or instituting land use controls that require the protection of forested buffers. In turn, local governments utilizing riparian forest protection land use controls are preventing pollution from entering our stream systems.

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### **Local Government Highlight Baltimore County, Maryland**

*Baltimore County established a retention and restoration policy for forested buffers that requires riparian areas in new developments to be left undisturbed or established where they do not exist along perennial and intermittent streams. The regulations are designed to protect three Baltimore City drinking water reservoirs, which serve over 1.6 million people, and to protect the health of tidal creeks that feed the Chesapeake Bay.*

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## **Incentives**

Land use management incentives are instituted to encourage property owners, developers and others to manage the land to support the achievement of overall community goals and objectives. This non-mandatory approach provides an incentive to prevent pollution. For instance, in areas where nonpoint source pollution is a particular problem to a stream system, a local government may allow a developer to exceed height limitations or construct homes at a higher density in return for the protection of a portion of the land or for a reduction of impervious surface. This land use management incentive will reduce the amount of pollution at



the source, minimizing the impact of non-point sources on the stream system.

### **❑ Purchasing Land**

General state or local government funds have been established by most states to acquire land for conservation. Each of the Bay states has established programs that will allow local governments to purchase land to protect natural resources, recreational areas, or historic sites. Local governments providing matching funds can influence the use of these funds for conservation or acquisition (Chesapeake Bay Program, *Protecting Wetlands*). By purchasing sensitive lands, local governments can prevent development that could create excessive pollution and destroy valuable habitat.

### **❑ Density Bonuses**

Density bonuses may encourage developers to implement the clustering approach, which in turn preserves a greater percentage of open space. If more open space is provided, the developer is given the right to subdivide his land into more houselots than would have been permitted by the base zoning. Density bonuses provide similar benefits as cluster development.

Similarly, density penalties also serve as an incentive to protect open space. Developers are permitted to build projects at higher densities only if they cluster utilizing penalties. If clustering is not part of the proposal, the developer is allowed fewer units.

## **Site Planning**

**S**ite planning requirements for new developments can encourage further pollution prevention practices. These site planning practices can eliminate or reduce the amount of pollution at its source by decreasing the percentage of impervious surface, protecting vegetated areas, and practicing more sustainable clearing and grading practices. By considering the watershed in which the development will be created, an appropriate site plan can be designed that utilizes natural systems to achieve pollution prevention objectives. By integrating natural and engineered stormwater management approaches into site plan design, developers and local governments have the opportunity to mimic a site's predevelopment hydrology.

During the site development process, many techniques can be used to protect water quality and preserve the integrity of a watershed's ecosystem. Since development in the Chesapeake Bay watershed is increasing at an alarming rate - Maryland predicts that there will be a 100 percent increase in land consumed by development by the year 2020 - those responsible for site design should be particularly cognizant of its impact on the health of local streams and their watersheds.

Local governments should encourage site planning that prevents pollution from entering stream systems and other waterways. These site designs should include reducing the amount of impervious surface, preserving existing vegetation and utilizing environmentally sound clearing and grading practices.

Impervious surfaces can be reduced by using basic design techniques that can also save a developer and local government money. Some ways impervious surfaces can be reduced in a new development include reducing the size of a building footprint, reducing the building setback requirements, minimizing driveway size and number, and reducing street widths.

Additionally, site plan design can preserve much of the site's original vegetative cover. Preserving this land cover can help to naturally filter pollutants before they enter stream systems. Conserving vegetative cover, including trees, along streams and other natural waterways can support stormwater management activities and add value to housing lots.

Clearing and grading activities that result from new development challenge communities that are trying to balance economic and environmental public policy objectives. Unsustainable clearing and grading practices increase sediment loads and erodibility, and negatively impact water quality, habitat, and aquatic life. Sediment load is the most widely recognized and quantified impact of land development on water resources (Washington Council of Governments). Erosion from construction sites is typically 10 to 20 times that from agricultural areas (Goldman, 1986). Many local governments are now using multiple regulations to prevent the erosion and sediment by implementing natural resource preservation ordinances that protect existing vegetation, forests and steep slopes.



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# Maintaining the Land

**M**aintaining public lands to protect the environment and encouraging commercial and private land owners to follow suit are key actions that local governments can take to prevent pollution. There are many specific actions a local government can take to maintain its public lands in an environmentally sensitive manner. These techniques are less toxic, conserve water, provide habitat, and can help in managing stormwater. The following section highlights conservation landscaping and integrated pest management as two examples of actions local governments can take on public lands to prevent pollution.

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## Conservation Landscaping

**C**onservation landscaping is a land maintenance technique designed to work with natural systems to reduce pollution, conserve water, and create and enhance living resource habitat. The conservation landscaping approach encourages less fertilizer and pesticide use, coupled with less lawn area and the use of beneficial plants. Combined, this approach can protect vital soil and water resources.

Local governments interested in utilizing this approach to maintain their public lands should first become familiar with conservation landscaping techniques. Local governments should target areas in which to pilot the conservation landscaping technique. After areas are targeted, an analysis of the site environment should be completed, including a soil analysis which determines the sites pH and fertility. Fertility describes the presence of nutrients and minerals in the soil and pH measures the acidity/alkalinity. This analysis will determine the appropriate vegetative cover that should be applied to a site. Vegetative covering, including grasses, vines, shrubs or groundcover, and trees will solidify the soil, making it less susceptible to erosion and runoff. In addition to maintaining proper pH and fertility levels and a vegetative cover, beneficial insects should also be used to protect healthy soils.

Once a site has been located, analysis completed and appropriate landscaping techniques applied, a local government should consider establishing a demon-

stration site to promote the use of conservation landscaping to citizens and commercial land owners. In addition, the landscaping activities applied to the site, including application of fertilizers and pesticides, should be tracked to demonstrate the effectiveness of conservation landscaping. For additional information on conservation landscaping techniques, please see case study #13 - Bayscaping and case study #15 - Water-wise Gardener.

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### Local Government Highlight Harrisburg, Pennsylvania

*The Alliance for the Chesapeake Bay, in coordination with the City of Harrisburg and the Redevelopment Housing Authority, established a demonstration site to promote Bayscaping, a conservation landscaping technique. In April 1997, a city lot was "Bayscaped" to protect local natural resources, beautify the urban community, and help restore the Chesapeake Bay. This type of public-private initiative promotes civic pride and prevents pollution in the Bay region.*

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## Integrated Pest Management

**I**n maintaining public lands, local governments can utilize a pollution prevention technique called Integrated Pest Management (IPM). Integrated pest management is an ecological approach to pest management that takes advantage of all appropriate pest control options. These options can include biological controls, development of pest-resistant species, and changes in cultural practices, as well as use of chemical pesticides when required (ICMA, *Pesticide Management*).

In implementing IPM, the first step is to locate a site to apply its techniques. After a site is chosen, local governments should monitor the environment and pest populations. This analysis may determine that a pest problem does not exist. However, if a problem is identified several IPM techniques that modify the pest

habitat should be considered. These techniques include: physical treatment, such as trapping, swatting, hand removal, or use of window screens; biological treatment, such as introducing pest parasites and/or pathogenic microorganisms; and cultural treatment, including modification of land and/or water use, planting of resistant species, mulching, strategic timing of planting and harvest dates.

After the appropriate action has been taken, local governments should evaluate the approach and keep written records of the results.

IPM is an effective pest control program that minimizes environmental impacts, while cost effectively maintaining an attractive landscape. This pollution prevention technique helps local governments protect local streams and rivers and contributes to the restoration and protection of the Chesapeake Bay.

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# CFC Equipment Replacement Strategy

## Case Study #1 Norfolk, Virginia

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### What Is the CFC Equipment Replacement Strategy?

**T**he City of Norfolk has taken the lead in removing harmful chlorofluorocarbons (CFCs) by developing and implementing an equipment replacement strategy. The strategy, entitled the Chiller Master Plan, was completed in 1992 and amended in 1993 in response to issues of global warming and ozone depletion and the proper management of refrigerants used in air conditioning equipment. Centrifugal chillers are the mechanical components for air conditioning the City's large commercial buildings and schools. The working fluid inside the centrifugal chiller is commonly called the refrigerant that, when released to the atmosphere, will eventually deplete the ozone layer and can contribute to global warming. Therefore, the City determined that it was extremely important to better manage the use of refrigerants.

In response to this growing global issue and to ensure further compliance with environmental regulations, as well as to reduce owning and operating costs of CFC based refrigerants, the City, in cooperation with Norfolk Public Schools, created a program to properly manage refrigerants used in air conditioning equipment. The strategy, which is currently 80 percent implemented, sets out to replace older chiller equipment and to convert newer equipment to alternative refrigerants which are less harmful to the environment.

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### What are the Program's Successes?

**S**ince it was completed and circulated in 1992, over 80 percent of the Plan has been implemented. The successful implementation of the Plan

has positioned the City for environmental compliance. In addition, the City and the Norfolk City School System is benefiting from new, more energy efficient air conditioning cooling plants, reduced annual maintenance costs, reduced annual energy costs, and improved equipment operating reliability.

Additionally, the York International Corporation recognized the City of Norfolk with its Environmental Leadership Award. The Award recognized the City's effort to eliminate equipment containing CFC's from its buildings and displaying leadership in the Hampton Roads area as an "environmentally green" municipality.

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### How Much Does the Program Cost?

**T**he plan was estimated to cost the City and Norfolk Public Schools a total of \$7.1 million from fiscal year 1993 through 2000.

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### How Can The Program Work for my Local Government?

**A** local government must make a considerable commitment in order to develop and implement a similar CFC equipment replacement strategy. Converting newer equipment to environmentally safe refrigerants and replacing older air conditioning chillers comes with significant capital costs. However, these costs can be offset through reduced annual maintenance and repair costs, reduced annual energy costs, and improved operating reliability. Demonstrating the need, value, and benefits by first developing a master

or strategic plan will help establish political support for such an undertaking. In addition, compliance with environmental regulations in the future could be improved considerably which offers another incentive to develop and implement such a plan.

### **Are There Additional Pollution Prevention Resources?**

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**Y**es, the Southeastern Public Service Authority (SPSA) is the regional entity charged with waste disposal, household hazardous waste manage-

ment, and recycling for the City of Norfolk and other Hampton Roads communities. Although SPSA executes the programs, Norfolk develops, coordinates and promotes the programs. The City has recently initiated the new Environmental Award for Recycling in Norfolk's Neighborhood (E.A.R.N.N.) program. With monetary awards as an incentive, the awards program seeks to involve civic leagues in an effort to increase household curbside recycling. In addition, the City of Norfolk has adopted a "Buy Recycled" ordinance to promote a preference for purchasing goods and materials that contain a minimum percentage of recycled content.

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# Co-Composting Facility for Solid Waste Management

## Case Study #2 Adams County, Pennsylvania

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### What is the Co-Composting Project?

**A**dams County is one of the fastest growing counties in Pennsylvania. It produced over 45,000 tons of garbage and over 8 million gallons of sludge and septage in 1995, an amount that will only increase as population grows. In 1990, the last waste disposal facility in the County was closed and thereafter, it became necessary to transport garbage, sludge, and septage to out-of-county facilities at a direct cost to county residents and businesses.

Recognizing the financial and environmental liabilities of the situation, the Adams County commissioners established the Solid Waste Advisory Committee (SWAC) in mid-1992. The SWAC, composed of residents, business people, and municipal and county officials, was charged with:

- investigating suitable waste processing technologies;
- finding a long-term solution for sludge and septage;
- increasing recycling capabilities;
- reducing dependence on landfills;
- finding ways to reduce transportation costs;
- increasing the County's control over cost and availability of disposal options; and
- creating a long-term, low cost, waste management system.

The SWAC conducted its study and determined that municipal waste composting would be a common

sense solution that could keep costs low with little environmental risk.

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### What is Municipal Solid Waste Composting?

**M**unicipal co-composting is the composting of two wastestreams: municipal solid waste (MSW) consisting of residential and commercial garbage and sludge and septage. MSW provides the carbon source while sludge/septage provides the nitrogen source.

Municipal composting, just like backyard composting, speeds up the normal decomposition of organic material. As Adams County includes a great many agricultural, food processing, and food services industries, much of its waste is organic and easily degradable.

There are four basic steps to municipal composting.

#### ☐ Pre-processing

Recyclable items and items that won't compost are sorted out, primarily by mechanical means. A mixture suitable for composting is prepared and adjusted for moisture, nutrients, and particle size.

#### ☐ Decomposition

Temperature, oxygen, and moisture content are monitored to ensure that naturally occurring bacteria and microorganisms break down organic waste. The com-

post is tumbled and aerated to speed up the process and enclosed in a vessel to prevent odor.

### **☐ Curing**

Since some things decompose more slowly than others, a one to two month curing phase allows time for all materials to decompose.

### **☐ Finishing**

The compost is screened, packaged, and marketed.

The County hopes to reuse or recycle 70 to 80 percent of the solid waste, sludge, and septage that will be processed at the facility. The remaining inert waste materials will be landfilled or incinerated.

In addition to municipal wastes, the composting facility will also be able to handle excess manures from concentrated animal operations, thus helping to curb pollution from runoff into the Chesapeake Bay.

## **What are the Project's Successes?**

**T**he SWAC solicited input from other local governments that have implemented composting in their jurisdictions and received very positive feedback. This information was shared with County residents and local government officials to increase their understanding of the process. In 1993, the County revised its Municipal Solid Waste Management Plan to advocate the development of an in-county co-composting facility. The Plan was ratified by the 34 municipalities in the County and received approval from the Pennsylvania Department of Environmental Protection.

Between 1994 and 1996, more than 100 sites were evaluated for suitability for a composting facility. The site could not be located on a 100 year floodplain, within 300 feet of wetlands or dwellings, within 100 feet of a perennial stream or sinkhole, or within 1/4 mile uphill or 300 feet downhill of a public or private water source. A 182-acre site that met the land use and environmental requirements for a facility was identified. Approximately 10 to 15 acres of the site will be used for buildings or access, with the remainder serving as buffers and setbacks from wells, streams, floodplains, and dwellings.

The County released an RFP in March 1996 for the design, permitting, construction, and operation of the co-composting facility. Construction is expected to be completed by the year 2000.

## **How Much Does the Project Cost?**

**T**he investigation process, purchase of the site, and construction of the facility will cost the County approximately \$10-14 million (still in negotiations). Operational costs of the facility are estimated at \$2 million per year. However, the composting facility will likely save residents money in the future by reducing costs for garbage removal to adjacent counties. In addition, the facility will create jobs for County residents.

Adams County was able to offset some of these costs by utilizing grant funding under Pennsylvania's Municipal Waste Planning, Recycling and Waste Reduction Act (Act 101). Approximately 80 percent of the planning costs were funded through the grant. Additional funding includes a \$400,000 zero-interest loan through the U.S. Department of Agriculture and the Adams Electric Cooperative to assist in the development of the co-composting facility.

## **How Can the Project Work for My Local Government?**

**C**omposting facilities are well-suited to small, agricultural counties, as well as more suburban areas; thus, facilities can be adapted to counties of different sizes and as a county grows. The decision to utilize composting as a waste management tool should be based on an extensive and inclusive planning process. Local municipal support is critical. In Adams County, the municipalities have entered into contracts with solid waste hauling companies that specify delivery to the co-composting facility.

Allocating necessary planning time will help ensure the facility is a success. Decision-makers should visit operating facilities to better understand the process. Time must be dedicated to researching a suitable location for the facility.



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# German Branch Integrated Pest Management Project

## Case Study #3 Queen Anne's County, Maryland

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### What is the German Branch Project?

**I**ntegrated Pest Management (IPM) is a prescription approach to controlling weeds, insects, and diseases in fieldcrops, gardens, or lawns. The prescription approach assures that all recommendations are based on several factors specific to the site being diagnosed. These factors include: the site, the type of crop, the pests, and the most economically feasible solution.

The German Branch Project is a hydrologic water quality demonstration project located in Queen Anne's County. It consists of approximately 8,000 acres of cropland and pasture. It was started in 1990 to demonstrate that best management practices could help to reduce chemical and fertilizer inputs. Reducing these inputs improves the water quality of rivers and streams flowing into the Chesapeake Bay.

The University of Maryland Cooperative Extension Service recruited individuals from diverse sectors of the County to become crop scouts. After undergoing intensive training, the scouts were assigned to cooperating farmers to scout fields on a regular basis. After each scouting trip, the farmer received a report describing pests in the fields, the severity of the infestation, and a recommendation to treat the problem. The scouting began in the spring before the crop was planted and continued until the crop was mature. Recommendations ranged from simply changing some management practices to more severe cases when it was necessary to replace the desired species.

### What are the Project's Successes?

**A**n unprecedented 96 percent of the farm operators participated in the project. IPM is being used on over 6,500 acres of corn, soybeans, and wheat. Farmers who participated in the project reported a return on their investment of \$4.00 to \$8.00 for every dollar invested in IPM.

A weekly newsletter was sent to all farm operators, landowners, and agribusinesses detailing what the scouts were reporting and forecasting any potential problems. Sharing the information with agribusinesses eliminated duplication of efforts and gave the applicators an indication of possible outbreaks so that they could prepare in advance.

Fish counts in the German Branch have increased significantly since IPM has been applied to fields in the area. Macroinvertebrates have also increased, according to annual stream surveys. This is being attributed to the installation of best management practices in the watershed.

### How Much Does the Project Cost?

**T**he project was initiated with a federal grant of \$585,000. The money was divided among several agencies. The Farm Service Agency was responsible for administering the cost-share program. Cooperative Extension Service was charged with co-

ordinating the scouting program and nutrient management. The water control structures came under the Natural Resources and Conservation Service. The original grant was for a period of five years. A three-year extension with an additional \$150,000 was received in 1995.

The project is supported by a cost-share program whereby participating farmers are paid a percentage of their bills for scouting and other best management practices used on their farms. There is a limit as to how much per acres and how much each farmer can receive. These limits are 75 percent of their out-of-pocket expenses up to \$7.00 per acre. Each farmer is also limited to \$3,500 total over a three year period.

### **How Can the Project Work for my Local Government?**

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**L**ocal governments can institute an IPM program in schools, parks, government buildings, etc. Integrated Pest Management can lower government

maintenance costs through its preventive approach. This sets an example for the public that shows how we can all do our part to reduce pesticides in the environment.

### **Are There Additional Pollution Prevention Resources?**

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**T**he County is supplying 75 homeowners with a quarterly newsletter discussing water quality issues such as fertilizer application, pesticide uses, winter deicing, etc. Homeowners are urged to get their soil tested before conducting any applications to their lawn or garden. Fact sheets are distributed at public events, as well as through mailings. The local paper carries an education news article each week to aid homeowners in making decisions.

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# An Integrated Waste Management Program

## Case Study #4 Lancaster County, Pennsylvania

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### Why was the Waste Management Program Developed?

**I**n Lancaster County, Pennsylvania, a complex integrated waste management system that employs the most environmentally reliable technologies has been implemented. The goal of the waste management program is to provide safe and responsible recycling and disposal options to protect and preserve environmentally sensitive lands and vital agricultural lands. With growth and development increasing the amount of waste produced in the County and landfill space becoming more difficult to obtain, Lancaster County adopted a plan in 1986 charging the Lancaster County Solid Waste Management Authority (LCSWMA) with the responsibility of implementing a system which includes a resource recovery facility, recycling, and waste reduction programs and a new landfill. This integrated waste management handling and disposal approach has produced perhaps the best recycling and household hazardous waste management program in the Commonwealth of Pennsylvania. In addition, LCSWMA established a state-of-the-art resource recovery facility which, by itself, is an innovative pollution prevention system.

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### What is the Resource Recovery Facility?

**T**he Lancaster County Resource Recovery Facility (RRF) plays a significant role in the LCSWMA's integrated solid waste management sys-

tem. The RRF burns solid waste to generate electricity and, most importantly, reduce the volume of trash by up to 90 percent. In this facility, waste is placed into one of three independent boilers. In the boiler, waste passes through drying, burning and cooling stages before being discharged into the ash quench and conveyance system. As a result of this process, electricity is produced as the boiler water is converted into steam. The steam is piped to a turbine-generator which produces approximately 36 megawatts of electricity. Four to five megawatts are used to power the plant and the remainder is sold to Metropolitan Edison for distribution to local homes and businesses.

The water source for this process is effluent from the Elizabethtown Municipal Wastewater Treatment Plant. The RRF treats the effluent and recycles it on-site creating a zero-discharge facility. Extensive controls are placed on the facility's emission discharge to reduce air pollution. The ash that results from the burning phase is processed further to remove all ferrous metals, which are then sold to steel producers.

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### What is the Household Hazardous Waste Program?

**R**ecognizing the need to responsibly dispose of its household hazardous waste (HHW), the LCSWMA built a permanent HHW facility that was completed in January 1991. The facility, which cost \$200,000, represents the LCSWMA's commitment to reduce the amount of toxic waste entering into the

wastestream. The facility has convenient hours each week to encourage responsible disposal of household hazardous waste, which includes paints, pesticides, automotive fluids, and other household chemicals.

LCSWMA also initiated a curbside battery collection program for County households. LCSWMA provides residents with orange battery bags for disposal of household batteries used in toys, cameras, and flashlights. The orange bags are collected the same day as garbage, further encouraging appropriate disposal and/or recycling of this household hazardous material.

Finally, the LCSWMA promotes alternatives to using toxic products and processes. For instance, LCSWMA distributes a Household Hazardous Waste Wheel that lists less toxic alternatives to household cleaners, pesticides, and car maintenance products. LCSWMA also promotes recycling, composting, grass recycling, energy reduction and other source reduction alternatives to achieve its waste reduction goals.

### **What are the Program's Successes?**

**I**n addition to establishing a state-of-the-art integrated waste management system with citizen support and funding, the County has been successful in achieving its goal to protect environmentally sensitive and agricultural lands. The Household Hazardous Waste Management program has served over 19,000

residents and collected in excess of 450 tons of hazardous waste materials.

Curbside recycling programs in the County reach over 76 percent of its residents. The recycling rate from all residential and commercial/industrial programs exceeds 30 percent. Overall, the County uses only about 25 percent of landfill space needed if recycling, source reduction, and resource recovery systems were not in place.

### **How Much Does the Program Cost?**

**A** “user fee” system along with electric sale revenues are the primary financial mechanisms used to pay for LCSWMA’s integrated waste management system. Users pay tipping fees based on the amount of wastes delivered to LCSWMA’s facilities.

### **Are There Additional Pollution Prevention Resources?**

**Y**es, LCSWMA provides a series of educational materials to the general public, including brochures and fact sheets, and maintains a web site. The educational information promotes proper disposal of all waste and source reduction opportunities. LCSWMA supplements its information with materials on pollution prevention prepared by the Pennsylvania Department of Environmental Protection.

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# Low-Impact Development

## Case Study #5 Prince George's County, Maryland

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### What Is Low-Impact Development?

**N**on-point source pollution is affecting our local water quality and harming the Chesapeake Bay. Development, a leading cause of non-point sources of pollution in the Chesapeake watershed, has demonstrated its significant impact on water quality due to new development grading and clearing practices. Although zoning and site planning regulations reduce the environmental impacts of new developments on natural resources such as wetlands, floodplains, and steep slopes, the cumulative effect of grading and clearing practices on local water quality is still extensive. Although current traditional structural management measures, such as engineered stormwater management solutions, may control certain pollutants and help to mitigate environmental impacts, they are of limited value to maintaining the ecological integrity of a development site. These traditional structural management measures seek to control the effects of urban development after the fact, or at the end of the pipe, which is both costly to implement and costly to maintain.

In response to a growing economic and ecological need, Prince George's County Department of Environmental Resources set out to explore how stormwater management objectives could be met by changing the form and function of developed sites through intelligent site planning and design of landscape features. This land use pollution prevention technique, called Low-Impact Development (LID), is designed to integrate site ecological and environmental requirements into all phases of urban planning and design, and it

considers the implications of development on a broad scale, ranging from the watershed to the individual residential lot. The goal of Low-Impact Development is to eliminate, minimize, or mitigate the root causes of development-generated impacts at the source. The objectives of the Prince George's Low-Impact Development approach include: restoring the sites hydrologic regime to mimic the natural or pre-development condition; maintaining surface water and groundwater quality and minimizing the generation and off-site transport of pollutants; minimizing disturbances of riparian habitat functions; and preserving terrestrial habitat ecological functions and maximizing conservation of woodland and vegetative cover.

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### What are the Programs Successes?

**P**rince George's County introduced its comprehensive Low-Impact Development design manual in November of 1997. The manual describes the basic LID philosophies, site design principles, analytical methodologies and management practices. Much of the LID technology is based simply on existing, non-structural techniques such as minimal disturbance, site figure printing, hydraulically disconnected surfaces, use of open swales, reducing impervious surfaces and pollution prevention.

A unique feature of LID is the use of hydrologically functional landscape features using the principles of bioretention. Sometimes referred to as rain gardens, this best management practice, pioneered by the County, is simply a shallow landscaped depression used to store and treat runoff.

The first residential development using LID approaches was in the Somerset Community, an 85 acre, 200-lot, single-family residential development. In cooperation with the developer, County agencies, and significant contributions from the State of Maryland and federal agencies, the developer was able to redesign the residential community which was previously planned using traditional development practices and stormwater controls. Stormwater is managed using rain gardens on each lot, open swales, reforestation and pollution prevention. The Somerset Community reduces, eliminates or treats the impacts at the source and attempts to restore the original hydrologic functions by retaining and infiltrating runoff.

The use of LID practices for Somerset demonstrated significant cost savings. The developer was able to achieve a \$4,000 cost savings per lot as a result of less clearing, less grading, less pipe, fewer drainage control structures, elimination of roadside curb and gutter, less impervious surface, and lower wetland, tree and stream mitigation costs.

By eliminating the use of stormwater management ponds, the County hopes to realize significant costs savings through reduced infrastructure and maintenance costs. This cost savings could potentially be passed along to property owners through a stormwater tax reduction.

Because of the immense interest regarding the LID approach, County officials have made numerous presentations during conferences and workshops in the Chesapeake Bay watershed, as well as throughout the country. The U. S. Environmental Protection Agency has also awarded the County a grant to develop an LID manual for national distribution and use.

### **How Can the Program Work For My Local Government?**

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**L**ow-impact development is an alternative approach for stormwater management - one that does not represent a new mandate or regulation. This approach, instead, is an intelligent, comprehensive site design technology which minimizes impacts and utilizes the landscape to restore watershed functions. LID demonstrates that environmentally sensitive development results in reduced infrastructure construction and

maintenance costs providing strong economic and market incentives to encourage its use.

Local governments interested in applying the approach should demonstrate to developers the reduced costs for development as a result of utilizing LID as an incentive for its use. Educational materials, including pollution prevention and landscaping information, should be produced to educate citizens on the benefits of LID and how the approach can be successfully applied. In addition, flexible land development regulations and coordination in regulatory reviews and enforcement are necessary for the LID approach to work. The Somerset example demonstrated that infrastructure, stormwater management, woodland conservation, and zoning must be considered as an integrated regulatory package. Although initially this is a time-consuming exercise, streamlining opportunities can be developed as a result of the initial regulatory experience.

### **How Much Does the Program Cost?**

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**F**or those jurisdictions with existing stormwater programs, the major costs to implement the LID program are associated with the time it takes to train review and inspection staff in the new LID site design principles/practices and the development and production of any guidance or educational documents for developers, engineers and the public. The two areas where careful attention must be paid for training is in the design of the grading plan and the inspection of the grading after construction.

The LID design manual was developed as a practical guide for engineers and planners. The LID principles are simple and the analytical methodology used is commonly accepted by professional in the storm field. In many respects, LID is a simpler approach to stormwater management than conventional pipe and pond technology.

Additional costs could be incurred if a jurisdiction decides to conduct inspections and enforce actions to require maintenance of on lot BMP's such as rain gardens. Prince George's County has decided that enforcement should be left up the community through the variety of mechanisms available to homeowner associations.

The production costs for educational materials aimed at the property can be paid for by the developer. In fact, a developer using LID approaches will want to use the educational material as one of the marketing tools. Many developers are finding that there is a growing market for green development where wooded lots can command premiums.

### **Are There Additional Pollution Prevention Materials?**

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**Y**es, the County recently published the *Low-Impact Development Design Manual* to assist site planners/engineers in utilizing this cost effective de-

velopment approach. The manual provides an overview of the wide array of Low-Impact Development techniques that can be incorporated into site development.

In addition, the County produced the following:

- a brochure entitled, *Rain Gardens: The Natural Solution*, and
- reference guide entitled, *How Does Your Garden Grow?* to assist residents in enhancing their rain gardens.

Rain gardens use the concept of bioretention, an LID water quality practice in which plants and soils remove pollutants from stormwater.





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# Sustainable Technologies Industrial Park

## Case Study #6 Cape Charles, Virginia

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### What is the Sustainable Technologies Industrial Park?

**T**he Port of Cape Charles Sustainable Technologies Industrial Park is a premier eco-industrial park (EIP). The site is one of four model industrial park designations nationally. The park is being developed to meet the high standards of businesses that have made a commitment to profitability with environmental and social integrity.

At its core, an EIP is very simple. It strives simultaneously to increase business success while reducing pollution and waste. Rooted in the emerging discipline of industrial ecology, an EIP mirrors natural systems. As single organisms can be viewed alone or in a larger ecology, single enterprises can organize themselves in more complex business ecologies. This pays off for the business and the environment.

Situated in Northampton County, one of Virginia's poorest counties, the Port of Cape Charles Sustainable Technologies Industrial Park is in an area plagued by poverty and unemployment. The need to revitalize this area prompted citizens to develop Northampton County's Sustainable Development Action Strategy, which was adopted by the County Board of Supervisors. Part of the comprehensive strategy is the Sustainable Technologies Industrial Park. The 310-acre eco-industrial park has been custom-zoned as a Sustainable Technologies Industrial Park Zone and will include a coastal dune habitat preserve and wetlands for wastewater treatment.

The eco-industrial park received EPA's Brownfields Economic Redevelopment Initiative award of \$200,000 for brownfields redevelopment pilot projects. "Brownfields", or abandoned, usually urban, sites with actual or perceived contamination, are an enormous problem for U.S. cities. These sites are often not redeveloped because prospective buyers and lenders are wary of the liability associated with ownership of contaminated property. This drives developers towards "greenfields" or previously undeveloped areas, which encourages urban sprawl, diminishes natural resources, and leaves the community with obsolete properties.

EIPs are an appealing redevelopment option for brownfields because they offer the community sustainability, economic growth, and lower environmental impact than traditional industry. They often offer industry proximity to existing industrial centers and access to transportation.

The Port of Cape Charles Sustainable Technologies Industrial Park has about 100 acres of brownfields out of a total 310 acres. The center of this park will be a redeveloped brownfield. The site includes a former municipal dump, dockside, railyard, and the remains of abandoned industrial operations. The site is not suspected to contain hazardous substances which threaten public health or the marine environment, but assessments must be performed before the brownfields areas of the eco-industrial park can be redeveloped.

Specifically, the project is assessing the extent of contamination on the 25-acre former dump and designing

a strategy to redevelop the site as an international teleconference center. Meanwhile, development of the adjacent portions of the park has progressed and attracted two international manufacturing companies. Once the project is completed, the redeveloped brownfields will include the eco-industrial park, restored wetlands, a nature trail and environmental education facility, and conversion of the existing municipal sewage treatment plant to a zero-discharge water recovery and reuse system.

## **What are the Project's Successes?**

The project is:

- Formulating a complete remediation strategy for any contamination found on the site;
- Developing a feasibility study to address applicability, feasibility, and cost of applicable remediation technologies; and
- Designing an environmental management system to measure levels of performance in excess of legislative standards.

# Promoting P2 in the Small Business Community



## Introduction

**B**yond implementing pollution prevention techniques in government owned facilities and on government owned lands, local governments have a unique opportunity to promote pollution prevention in the small business community. Many local governments possess both the resources and the understanding of local environmental issues to provide businesses with the informational and technical assistance necessary to engage them in pollution prevention activities. Often leading by example, local governments can encourage businesses to make simple improvements in purchasing, materials handling and storage, regular equipment maintenance, and other standard procedures to reduce waste. Small businesses do not always have to make major capital expenditures to incorporate P2 into their processes (Wigglesworth). In promoting such actions, local governments can also demonstrate how, by utilizing source reduction and reuse techniques, a business can improve its bottom line.

### Supporting Case Studies

- **BMP Manual for Automotive Industries**  
Alexandria, Virginia
- **Businesses for a Cleaner River**  
Tidewater, Virginia
- **Eco-Wise Program**  
Montgomery County, Maryland
- **Enviro☆ Program**  
Allegheny County, Pennsylvania
- **Pollution Prevention Assessments**  
Hampton Roads, Virginia
- **Waste Audits**  
Fauquier County, Virginia

Working with small business communities around the country, local governments are playing a prominent role in advancing pollution prevention practices. These practices reduce government costs, save businesses money, protect the local environment, and, in this region, help protect the Chesapeake Bay.

### Local Government Highlight King County, Washington

*King County instituted a comprehensive pollution prevention program which, among other things, encourages businesses to implement P2 practices by providing informational and technical assistance, and providing recognition awards to businesses integrating P2 practices into their programming. Many of the businesses participating have saved in disposal costs, regulatory fees, material, and utility costs, and have increased customer approval. One such example is a muffler shop in the County that is saving \$5,700 annually by eliminating chlorinated aerosols (ICMA, *Preventing Pollution in Our Cities and Counties*).*

### Local Government Highlight Austin, Texas

*The City of Austin established a Waste Reduction Assistance Program (WRAP) that provides local businesses with technical assistance to achieve reductions in the quantity and toxicity of waste generated. The program uses on-site assessments, materials exchanges, and a business information clearinghouse to accomplish this goal. Since 1995, the WRAP program has helped prevent and divert more than 1,350 tons of waste and saved Austin small businesses more than \$472,000 (Source Reduction Forum, *Making Source Reduction and Reuse Work*).*

Although many local government officials have cited the stigma businesses have with working with local governments, voluntary pollution prevention programs often bridge the gap between business and government by working together to achieve shared objectives.

Supported by local government case studies, the following chapter includes information on why your local government should promote small business pollution prevention practices, describes steps to create a successful pollution prevention business outreach program, and lists the benefits of doing so.

## **Why Promote P2 in the Small Business Community?**

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**S**mall businesses are an essential component to a healthy community. A strong small business community not only provides valuable services and products to a region, but it also provides jobs and helps the overall economy. To sustain a strong small business community, local governments often provide public assistance tools and incentives, such as tax increment financing, to maintain those businesses. Another tool local governments should consider providing to maintain a healthy small business community is information and assistance on pollution prevention techniques that can be incorporated into a small business.

Pollution prevention, over the long term, will improve the efficiency of businesses (i.e., energy conservation savings and/or reduction in waste generated), thus saving them money and improving their bottom line. Therefore, local governments should promote P2 in their communities because they support the business community and the local economy.

Businesses generate a large percentage of the waste that enters the waste stream, including hazardous waste. This waste will often find its way into landfills, the stormwater system, and small streams and creeks, contributing to degraded streams, polluted water supplies, and the overuse of landfills.

In 1993, Montgomery County, Maryland estimated that small quantity generators - businesses including

auto body shops, painters, plumbers, printers, photographic labs - annually dispose approximately 25,000 gallons of hazardous waste materials into sewerage and stormwater systems or directly into rivers and streams. This generation and disposal of waste poses a local environmental threat to human and aquatic health and eventually will harm the Chesapeake Bay. Local governments should work with the small business community to reduce the environmental impacts of their processing activities which will help them meet public environmental policy objectives.

Since both maintaining a strong local economy, of which small businesses play a critical role, and improving the environment are primary public policy objectives of all local governments, it makes sense to use pollution prevention as one means of achieving these objectives. Clearly, pollution prevention is a win-win policy.

## **What are the Benefits of Promoting P2?**

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**L**ocal governments truly benefit from promoting pollution prevention in their small business community. By understanding the potential benefits of implementing a pollution prevention program, local governments can seek the necessary support and endorsement to get a program up and running. The following list consists of some of the general benefits a local government can expect from promoting P2 in its small business community.

- Promotes efficiency in the small business community which helps businesses improve their bottom line;
- Creates an environment in which a positive relationship between government and business can be established;
- Reduces the amount of harmful chemical contaminants that enter into the environment via illegal disposal into drains, stormwater systems and streams;
- Decreases the amount of waste entering landfills, thus reducing the dependency on valuable landfill space;
- Reduces disposal costs for the business;
- Reduces potential damage to wastewater treatment plants due to toxic chemical disposal;

- Creates opportunities for local governments to be recognized by the Chesapeake Bay Program as a *Businesses for the Bay* mentor (a voluntary P2 program for the watershed) and/or a *Chesapeake Bay Partner Community* (a local government recognition program). (See Appendix A.)

## Developing a P2 Business Outreach Program

The following steps are suggested for a local government interested in initiating a business outreach pollution prevention program. The steps are not exhaustive, however they do provide the general framework for a local government interested in establishing a program. It is further suggested that local governments contact community leaders that have been successful in implementing similar programs. Those local government officials listed in the case studies section of this chapter are willing to assist you in this endeavor.

### ☐ Inventory and Evaluate the Small Business Community

An inventory and evaluation of the small business community is the first step in establishing a small business pollution prevention outreach program. This could either be an extensive inventory and evaluation or a very general inventory. An extensive inventory may entail tasks such as inventorying the number and types of businesses, researching the percentage and types of waste produced from those businesses, and getting a sense of their purchasing and processing habits. A general inventory may include only inventorying the number and types of businesses.

Obviously, an extensive inventory and evaluation of the small business community is a resource intensive process, possibly best lead by the business itself. The general process may provide a local government with adequate information to establish an effective pollution program since just understanding the types of businesses will shed some light on their purchasing, processing and waste disposal habits. After an inventory is completed, the local government may analyze that information to determine what businesses should be targeted in a pollution prevention program.

Finally, a mailing list of businesses should be prepared in order to provide a general communication link with business. By utilizing the mailing list, a local government can provide general P2 information and technical assistance to its small businesses.

### ☐ Seek Constituent Support

Many successful local governments have indicated the importance of establishing workgroups or advisory committees that represent broad interests, citizens, businesses, government, etc., to help define a program, create program objectives and provide valuable insight to local government officials. Additionally, a formal or informal group can persuade public officials to support a program, as well as assist in its marketing. Seeking constituent support by creating advisory councils, workgroups, and committees is a critical step in developing a P2 program.

### ☐ Establish Clear Goals and Objectives

Once the small business community has been identified and a support team established, a local government should then create some clear pollution prevention goals and objectives. These goals should be consistent with the overall environmental policy objectives of a local government, and if possible demonstrate how pollution prevention practices can be an effective mechanism to achieving those objectives. In addition, this exercise will help a local government tailor a pollution prevention program best suited to meet its individual needs. Finally, by setting clear goals and objectives, a local government is essentially establishing a yard stick on which to measure the success of the program.

### ☐ Build On an Existing Program

Many local governments have built on established pollution prevention programs to generate support for their business outreach component. For instance, a local government can build on existing and successful recycling programs and/or household hazardous waste programs to establish a hazardous waste collection program for small businesses. This may lead to the development of a source reduction/waste minimization program for small businesses. Starting small, educating the public, and building on existing successful programs is an approach that has been successful.

## ☐ **Develop Informational and Technical Materials and Identify Financial Assistance Opportunities**

Preparing simple and effective technical assistance resources is critical to encouraging small businesses to implement pollution prevention techniques. Resources, such as describing the potential economic benefits of integrating P2 in business processes, can help to initially persuade businesses to participate. Local governments may also consider providing businesses with source reduction self-assessment worksheets, brochures, informational assistance networks, disposal programs and on-site assessments. In addition, a local government should identify funding opportunities that both businesses and local governments can take advantage of that advance small business pollution prevention objectives. Finally, by providing incentives, such as developing small business recognition programs, local governments have been successful in advancing source reduction goals. Additional examples of some of the tools a local government can provide businesses are provided in the appendix of the Toolkit.

## ☐ **Target Your Assistance to Interested Businesses**

After inventorying businesses, creating goals and objectives, and preparing information and technical assistance tools, a local government should target interested small businesses to participate. Initially, it is wise for local governments to target businesses that have shown an interest in applying P2 techniques. By targeting assistance, local governments will have greater opportunities to demonstrate some measurable results. This has a dual purpose: demonstrated successes will encourage other businesses to give P2 a try and they will help to sustain support for the P2 program by highlighting some initial successes.

## ☐ **Conduct Follow-Up Visits with Interested Businesses**

Establishing a relation with businesses willing to participate in a P2 program is essential to the process. After making initial contact with business owners and managers regarding the P2 program, local government officials should follow-up to keep those interested groups involved. Businesses, like anything else, ap-

preciate the extra time you provide them. These calls, visits or letters will shed some light on the effectiveness of a program, determine what new tools or assistance could be provided to advance the program, and strengthen a relationship with a small business. Down the road these follow-up efforts will help a local government measure the success of a program. Several local government officials have expressed the importance of this step in getting businesses started, as well as receiving insight to improve their programs.

## **Getting Your Small Businesses Involved**

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**A** key to getting businesses involved in pollution prevention activities is providing them with the information necessary to get them started. There are many informational, technical and financial assistance tools local governments can offer businesses to initiate P2. We have included assistance programs for businesses at the end of the Toolkit in the Assistance Programs section.

One question that is bound to come up when talking with businesses about integrating pollution prevention into their programming is “Why?”. Therefore, a critical piece of information a local government can provide to businesses is the benefits to implementing pollution prevention with, if possible, some supporting case studies that demonstrate the cost savings a business can expect if P2 is implemented into their programming. These benefits can be incorporated into an informational brochure for businesses.

After providing a justification for the value in P2 programs, some information on how a business can get started is also helpful to provide. Selected assistance tools to help your local government reach out to the business community such as a step-by-step process for businesses to use to get started and check lists of P2 activities are included in the Appendix C. These checklists will help a business understand what P2 means to them and help them identify opportunities to implement P2 in their business.

## Tools to Advance Small Business P2 Programs

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- **Establish an information network:** Local governments can provide an opportunity for small business operators, local government officials, and technical experts to discuss issues pertaining to pollution prevention. These forums are opportunities to discuss similar issues, relate effective programs, and raise issues of concern.
- **Provide informational and technical assistance:** Local governments can provide fact sheets, brochures, and references to the small business community to encourage their participation in P2 activities. Brochures can include information on the benefits to businesses that implement P2 practices and sources of additional information on the subject. Local governments can interpret regulatory measures, and/or provide references for specific questions. Local governments with adequate financial support can also sponsor training sessions. These sessions can be targeted towards public works managers, public officials, or business operators.
- **Provide on-site assessments:** A local government can create waste audit assessment teams to assist area businesses in finding potential areas in which to reduce waste. These non-regulatory waste teams can build positive linkages with small businesses that may not already exist because of lack of trust between the business and government.
- **Sponsor disposal programs:** Local governments can provide disposal services for businesses to efficiently dispose of hazardous waste. Rather than having a hazardous waste management firm mobilize costly labor and equipment to each business location, a local government can arrange for the monthly mobilization of chemists and equipment to a single site (i.e., a local government solid waste transfer station).
- **Locate grant opportunities:** By creating a vision for a community it will open up opportunities for a specific business to obtain funding. An active local government will provide the impetus and merit for small businesses to obtain grants to implement pollution prevention programs at their facilities.
- **Sponsor a small business recognition program:** Local governments can encourage small businesses to participate in a pollution prevention program by recognizing their efforts. Recognition is a powerful motivator to small businesses that are seeking to obtain free publicity for doing the right thing. Recognizing and publicizing the actions of local businesses will boost their image among customers and will provide guidance to other businesses that wish to implement their own programs. Successes can be promoted in local newspapers, press releases, and newsletters, as well as with recognition logos that can be proudly displayed in a businesses window. Environmental protection is an important issues to constituents who will appreciate businesses in their communities that are taking steps to reduce pollutants and protect the environment.





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# Best Management Practices Manual for Automotive Related Industries

## Case Study #7 City of Alexandria, Virginia

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### What is the BMP Manual?

**T**he City of Alexandria has implemented several programs to protect water quality in the region. One focus has been its local automotive industries which can substantially contribute to pollutants ending up in storm and sewer systems if they do not dispose of products properly. To help these businesses to understand the implications of their actions and to determine preventive measures, the City produced the *Best Management Practices Manual for Automotive Related Industries*.

The practices described in the manual help an automotive shop to keep heavy metals, oil, grease, and other pollutants out of local streams, the Potomac River and the Chesapeake Bay. Best Management Practices (BMPs) are outlined in order to assist in complying with the environmental requirements of the City, as well as state and federal agencies.

Fourteen recommended BMPs are keyed to specific shop activities and four advanced management practices are suggested to control pollution from more severe problems. The recommended BMPs are prac-

tices that should be implemented daily. Many of the practices are straightforward and may already be in place at the shop.

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### What are the Manual's Successes?

**A**pproximately 35 manuals have been distributed to automotive businesses in the City. The reaction of service station operators has ranged from enthusiastic acceptance to mild curiosity. As the publication is quite recent, there is no hard data available as to the results.

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### How Can the Manual Work for my Local Government?

**I**nformation and recommendations found in the manual were adapted from the Santa Clara Valley Nonpoint Source Pollution Control Program. A local government can tailor the recommendations to meet its specific requirements. The BMPs are generic in nature and make sense for any local government's automotive industries.

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# Businesses for a Cleaner River - Elizabeth River Project

## Case Study #8 Tidewater, Virginia

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### What is the Businesses for a Cleaner River Program?

**B**usinesses for a Cleaner River is an element of the Elizabeth River Project's (ERP) effort to include businesses in pollution prevention activities. The ERP was established in 1992 to improve and protect the water quality of the Elizabeth River, a tidal estuary of the Chesapeake Bay, which is one of three regions of concern identified by the Chesapeake Bay Program. The group formed a 120-member Watershed Action Team comprised of citizens, business representatives, and government officials developed a watershed action plan consisting of 18 items, each of which either directly or indirectly affects water quality.

An Implementation Team has been charged with overseeing the achievement of the plan's goals. Businesses have a significant role to play in many of the action items and therefore, one element of the ERP is the Businesses for a Cleaner River. ERP helps businesses find solutions that save money and reduce pollution. In particular, information is provided to businesses on methods of reducing costs for energy, water, and raw materials; reducing costs of waste disposal; improving landscaping of property while reducing landscape maintenance costs; and improving community image.

Businesses for a Cleaner River offers free, confidential research and training on cost-effective alternatives to reduce pollution at the source and minimize costly waste. Volunteer peers help find solutions to specific industry questions. The program also provides assis-

tance to businesses that are interested in creating or restoring wildlife habitat at their sites.

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### What are the Program's Successes?

**T**he Elizabeth River Project continues to pursue the development of a resource service to assist businesses and residents in pollution prevention and habitat enhancement. ERP has held discussions with a wide range of interests to develop a focused program and a pool of expertise providing voluntary assistance and recognition for businesses implementing pollution prevention practices. ERP has requested the Wildlife Habitat Council in Silver Spring, Maryland to bring the habitat council's assistance to the area in advising businesses on how to develop habitat on unused property.

The program has been successful in large part due to the confidential nature of the program. All participants are assured that information disclosed for the purpose of receiving assistance will be held in confidence.

The program has helped to locate financial opportunities for businesses by identifying grants that focus on pollution prevention. A small business may wish to improve its policies and update its technology, but finding grant money to support these efforts is not always easy.

To recognize those businesses that are implementing pollution prevention activities, the ERP instituted the River Stars program. River Stars is voluntary certifi-

cation and recognition for businesses that are committed to environmental protection. River Stars receive decals, plaques, and news releases. To date, 33 businesses have been named River Stars.

### **How Much Does the Program Cost?**

**F**unding for the Businesses for a Cleaner River was made possible by U.S. EPA, the Virginia Environmental Endowment, the National Fish and Wildlife Service, the Fitz-Gibbon Charitable Trust, and American Management Systems, Inc. These organizations provided approximately \$85,000 in support of the program.

### **How Can the Program Work for my Local Government?**

**W**hile the Elizabeth River Project and its Businesses for a Cleaner River is a comprehensive, re-

gional pollution prevention program, a local government could adapt elements of the program to its own jurisdiction. Recognizing businesses for their activities is an excellent outreach activity to the business community and the River Stars program is easy to replicate. Supporting the recognition program with technical assistance in improving water quality and reducing costs is optimal if the local government has sufficient financing and expertise.

### **Are There Additional Pollution Prevention Resources?**

**Y**es, the Elizabeth River Project is also very active in its citizen outreach campaign. It has successfully recruited volunteers to take part in clean-up days, habitat restoration projects, and water monitoring programs.

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# **“EcoWise Program” for Small Quantity Generators of Hazardous Wastes**

## **Case Study #9 Montgomery County, Maryland**

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### **What is the EcoWise Program?**

**S**mall businesses are critical players in protecting the local environment and that of the Chesapeake Bay watershed. Small businesses generate hazardous waste as a by-product of their business activities. Because these businesses are small, and therefore have tight budgets, paying for the proper disposal of hazardous waste is an expense that many can not afford. Unfortunately, the result is that many small businesses illegally dump their by-products down the drain, in the storm system, or in a remote stream. These actions likely violate environmental regulations and certainly contribute to the degradation of soils, ground and surface water, and ultimately the Chesapeake Bay.

Montgomery County, in recognition of the growing need to address this issue, developed the EcoWise program. The Program addresses the hazardous waste management needs of businesses known by the regulatory term of “small quantity generators”. Small quantity generators are businesses which produce hazardous waste at a rate below certain regulatory levels, such as body shops, painters, plumbers, home contractors, printers, photographic labs and woodworkers.

The program achieves cost efficiencies for hazardous waste disposal not available to most small businesses. Rather than having a costly hazardous waste management firm mobilize labor and equipment to each business location, the County has arranged for monthly

mobilization of chemists and equipment to a single site, the County’s Solid Waste Transfer Station. By having each small business self-haul its waste to this central collection site, mobilization costs are allocated over multiple users.

The EcoWise program provides businesses with an economically viable opportunity to dispose of small quantities of hazardous wastes in an environmentally responsible manner. The Program features a series of monthly collection events at which small businesses may dispose of hazardous materials. In addition to hazardous waste collection service, Montgomery County provides free publicity to businesses which participate in the EcoWise Program. Such publicity includes a press release announcing a business’ participation, signs, posters and decals to alert customers of the business’ environmental concern.

Businesses are required to register to participate in the EcoWise program.

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### **What are the Program’s Successes?**

**T**he cost to an EcoWise participant is typically 80 to 90 percent lower than the cost of direct contracting with a hazardous waste management firm. The substantial cost savings makes environmental compliance more affordable for many small businesses.

Only in its first full year, the EcoWise program has already demonstrated some measurable successes including registering nearly 170 businesses in the program. Over 8 tons or 2,300 gallons of hazardous waste have been collected. Montgomery County estimates that there are between 800 to 1,000 small quantity generators in the County. Given this estimate, the County has registered between 17 and 21 percent of the small quantity generators and has received waste from between 9 and 11 percent of the generators.

Recognized by the U.S. Small Business Administration and featured in articles in the *Washington Post*, the EcoWise program is not only benefiting the County, but also serving as a model program for local governments throughout the country.

### **How Much Does the Program Cost?**

**T**he program's annual operating budget is \$8,400 coupled with approximately \$5,000 in program overhead costs. These are paid for through a "system benefit charge" assessed on all commercial properties in the County. In addition to funding the EcoWise program, the revenues from the "system benefit charge" support the implementation of many other solid waste programs in the County. The portion of the "system benefit charge" used to fund the EcoWise program averages about 70 cents annually for each of the County's 19,000 businesses.

In addition, a small business participating in the program directly pays a per unit cost for materials disposal which again is typically 80 to 90 percent below direct contracting costs.

Although the overall cost of the EcoWise program is not excessive, the operational costs do reflect an econ-

omy building on an existing relationship with a County contractor who supports the County's household hazardous waste collection program. Therefore, local governments that do not have a contractor on which to build the program may entail higher costs to establish a small business program.

### **How Can the Program Work for my Local Government?**

**A**lthough Montgomery County is a rather large local government in the Chesapeake Bay watershed, the relatively low cost of the EcoWise program makes it quite applicable to communities of all sizes throughout the watershed. In Maryland, Montgomery County has paved the way for other local governments to have the authority from the State to collect hazardous waste from small quantity generators. Thus, in Maryland, other County governments have the ability to replicate the Program without having to negotiate with the State.

The EcoWise program did not require hiring of new municipal staff. All hazardous waste handling, screening, packing, transport and disposition is conducted by contract labor. County staff time is limited to only four hours a month for overall program management and promotion.

### **Are There Additional Pollution Prevention Resources?**

**Y**es, the County also published *Hazardous Waste Management in Montgomery County — A Handbook for Businesses Generating Small Quantities of Hazardous Waste*.

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# Enviro☆ Program

## Case Study #10 Allegheny County, Pennsylvania

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### What is the Enviro☆ Program?

**T**he Enviro☆ program is designed to recognize everyone who is practicing pollution prevention in his or her business, office or school. The objectives of the program are for businesses, with a focus on small businesses, to educate the business community of the environmental and economic savings associated with P2 practices, to demonstrate the willingness of the County Health department to serve businesses in a voluntary non-regulatory climate, and to ultimately reduce the amount of pollution generated by businesses.

Although the program targets small businesses, it is designed to be inclusive and therefore, provides large businesses the opportunity to be recognized in the program as well. Additionally, the program, now in its second year, is seeking to expand its membership base to include schools and local government facilities in order to encourage larger numbers of participants to apply.

The Enviro☆ program asks businesses and others to apply by completing a simple user-friendly application form. The application requests general information about a business, brief descriptions regarding the pollution prevention activities that a business is implementing, and a description of any cost savings or environmental benefits that are a result of the pollution prevention practices. Additionally, the program requests that a business outlines its future plans to improve and enhance its pollution prevention programs.

The County evaluates the initial applications and then visits the applicant to determine what level of recognition a business has earned. The Enviro☆ program offers three levels of recognition, depending on the extent of a businesses pollution prevention programs. Simply meeting regulatory requirements does not earn recognition. A business must go beyond the regulations; the further a business goes, the higher the recognition it receives. Criteria has been established for each level of performance. The program also differentiates between large businesses and small businesses in setting criteria that must be met to be recognized.

The following is an example of the small business criteria that must be achieved to reach one of the three recognition levels.

- First Level - Small business (under 100 employees) must implement one or more voluntary pollution prevention practices and plan to expand pollution prevention activities in the coming year.
- Second Level - Small business must demonstrate a progressively broader pollution prevention program which can include participation in EPA sponsored programs or in VIP2, and has a pollution prevention plan for the coming year.
- Third Level - Small business must meet the criteria in level 2 and document a successful and continuing pollution prevention history, including financial and environmental benefits.

Obviously, more activities are required of larger businesses in order to be recognized in the Enviro☆ program.

If a business is recognized as an Enviro☆, it receives a distinctive window display, attesting to its pollution prevention activities, a certificate suitable for framing, and the right to use the Enviro☆ logo on correspondence and in advertisements. Public recognition will also be provided.

### **What are the Program's Successes?**

**A**fter only one year of existence, the Program has recognized ten businesses. These small and large businesses have achieved variable degrees of recognition. The larger businesses were able to quantify their economic and environmental benefits that resulted from their pollution prevention practices. Additionally, one smaller business was able to quantify the benefits and there are indications that other small businesses are becoming more sophisticated in their accounting and will soon be able determine the cost savings and environmental benefits that are associated with the implementation of P2 practices.

The County, through its educational outreach efforts, has informed businesses of the benefits associated with applying pollution prevention techniques to their businesses. In addition, the County has improved its ability to work with businesses by gaining their trust as they participate in this voluntary, non-regulatory program.

### **How Much Does the Program Cost?**

**C**osts for the Enviro☆ program are minimal. County Health Department overhead charges funded the in-house design of the program, as well as supporting the preparation of brochures, newsletters and recognition awards. A quarter of one staff person's time was used in the design phases and approxi-

mately that same amount of time is being used to manage the program's implementation.

### **How Can the Program Work for my Local Government?**

**T**he Enviro☆ program was designed in a user-friendly way to promote extensive participation of the local business community - making the application easy is an incentive for businesses to apply. In turn, the administration and maintenance of the program is also relatively easy. Staff time to review the basic applications is minimal and therefore less costly.

Although on average the County holds two outreach workshops to promote the Enviro☆ program a month, the costs of these events are relatively low because they are held in conjunction with monthly trade group and civic meetings over brown bag lunches. These workshops present opportunities for business representatives to learn more about P2 and the benefits of applying P2 practices, as well as encourage them to participate in the recognition program.

Because the program has little overhead costs and is non-regulatory, it holds much promise as a valuable transferable model. The voluntary nature of the program also helps to build bridges between the County Agency, perceived as a regulatory entity only, and the business community.

### **Are there Additional Pollution Prevention Resources?**

**T**he County provides general information to promote P2 practices in the home and in the office. Well-formatted materials express the value of P2, as well as the benefits of implementing P2. Additionally, the County provides P2 outreach and educational workshops bi-monthly to interested groups and organizations.

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# Pollution Prevention Assessments

## Case Study #11 Hampton Roads, Virginia

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### What are the Pollution Prevention Assessments?

**T**he Hampton Roads Sanitation District (HRSD) and Old Dominion University (ODU) have collaborated to assist local businesses in developing and implementing successful pollution prevention programs. With the assistance of an EPA grant, the two organizations are providing free pollution prevention assessments to small and medium-sized businesses.

A team of experts, including HRSD's technical review staff and ODU environmental engineering students and faculty, performs the assessments. The information is analyzed and follow-up research is conducted to determine additional pollution prevention resources that could be utilized by the business. The end product is a comprehensive report with specific pollution prevention and recycling options to reduce waste. The project also gives businesses access to on-site technical consultation on waste reduction and gives them access to resources available from the Virginia Office of Pollution Prevention, the Elizabeth River Project's Pollution Prevention Program, and other manufacturing and pollution prevention projects.

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### What are the Program's Successes?

**T**he program focused on marine maintenance and repair facilities and commercial printers in 1995 and 1996. Participants were pleased with the results of their assessments and provided positive feedback to the program. The involvement of ODU students and faculty created a more open process without

the onus of a regulatory feel to the assessment. Due to the popularity of the first phase, other types of businesses asked to be considered for future phases of the program.

The program has been able to demonstrate that pollution prevention is not only inexpensive, but can also reduce costs for a business. Businesses are sometimes surprised by this fact and become more active in pollution prevention activities. Making businesses aware of the existing technology to prevent pollution is a significant accomplishment for the program.

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### How Much Does the Program Cost?

**H**RSD received funding from an EPA Pollution Prevention Incentives for States (PPIS) grant. The grant provided \$50,000 from EPA and required a \$50,000 match. By establishing a cost-effective relationship with ODU, the money was leveraged to create an affordable program.

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### How Can the Project Work for my Local Government?

**A** local government willing to seek innovative partnerships such as the one in the Hampton Roads area will be able to tap technical resources in the community to assist local businesses. Working with a local university saves money for the program through the acquisition of low-cost expertise and provides hands-on experience to students who are studying pollution prevention technologies.



## **Are There Additional Pollution Prevention Resources?**

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**Y**es, the Hampton Roads Sanitation District publishes a quarterly newsletter, *P2 News*. The pub-

lication is designed to keep area industrial users updated about P2 issues. It provides regulatory news, highlights HRSD's pollution prevention activities and projects, and features industries that are focusing on pollution prevention.

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# Waste Audits and Household Hazardous Waste Program

## Case Study #12 Fauquier County, Virginia

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### What is the Waste Audits Program?

In January 1996, the Fauquier County Board of Supervisors set the goal for the County to achieve a 30 percent recycling rate by July 1996. No small task considering the County was recycling at a rate of about 20 percent in 1995, much of which could be contributed to a curb-side recycling program in the Town of Warrenton. Nonetheless, the County sought new and aggressive mechanisms in which to enlist residents and others to recycle.

County officials quickly realized the recycling potential from a previously untapped source - the commercial sector. Through an aggressive marketing campaign, County recycling and litter prevention staff set out to encourage businesses in the County to reduce, reuse and recycle and, as a result, meet County recycling goals, conserve landfill space, and save businesses money.

Providing County officials to conduct waste audits at area businesses was the preferred approach to engaging the commercial sector in recycling activities. The Program Manager of the County's Recycling and Litter Prevention office aimed to conduct two inventories at local businesses per week. During these visits, County officials identified current recycling efforts, evaluated business waste streams, and provided advice on how businesses can do more to prevent pollution. Since the outreach program began, County officials have conducted over 60 inventories which have

resulted in additional reduce, reuse and recycling efforts in the commercial sector.

During these waste audits, County officials uncovered some significant pollution prevention activities that are being implemented in area businesses. Take, for example, Trinity Packaging Corporation near Remington. The Corporation recycles about 50,000 pounds of plastic per day, reusing its own waste and collecting used plastic from other companies. This pollution prevention technique saves Trinity Corporation approximately \$500,000 a year. It is these large scale success stories, as well as many small success stories, that have assisted the County in encouraging other businesses to consider pollution prevention techniques.

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### What is the Household Hazardous Waste Program?

In addition to the business outreach program, the County is also engaged in a comprehensive Household Hazardous Waste Program (HHW) for the 50,000 residents of Fauquier County. The program objectives are: to provide a convenient and safe disposal method of household hazardous waste materials; to reduce the amount of potential hazardous materials that might inadvertently end up in the landfill; to prevent potential groundwater contamination from improper disposal of these wastes, and to recycle as much of these materials as physically possible.

On the third Saturday of each month, March through November, materials are collected as follows: paints, sealers, turpentine, finishing oils, gasoline, automotive products, pesticides, insecticides, photographic chemicals, drain cleaners, battery acid, household cleaners, and dry cell batteries. Residents are not charged a fee for bringing in these materials.

The Household Hazardous Waste Program was publicized through a mass media campaign including news stories, print advertising, newsletters, radio spots, public service announcements, and numerous other methods.

### **What are the Programs' Successes?**

**S**ince the County instituted its business outreach program and its hazardous waste collection program, it has achieved both state and County recycling goals. In fact in 1997, Fauquier County recycled nearly 43 percent or 15,637 tons of its waste. This far exceeds state and County recycling goals and can be directly attributed to the County's commitment to the recycling program. In addition, while normally waste entering the landfill increases by approximately 2.5 percent each year, the percentage of waste entering the solid waste landfill in recent years has actually decreased.

The Household Hazardous Waste Collection Program has also paid dividends for the management of County solid waste. The amount of material collected between March 1995 and November 1995 was 41.35 tons and between March 1996 and June 1996 was 22.3 tons. The amount of hazardous waste materials recycled was 36.68 tons which results in a recycling rate of 89 percent.

In part because of the successes the County has achieved in its recycling program, the County Board of Supervisors recently approved nearly \$200,000 for upgrades to the County's recycling center. The funds will be used to purchase equipment to process and handle recyclable materials. The equipment will further tap the growing market for recycled goods, should pay for itself in four years, and will conserve valuable landfill space at the recently opened \$20 million County landfill.

The success of both these programs can be attributed to a strong commitment by County officials and County elected officials, an aggressive marketing campaign, and a hands-on approach that encourages pollution prevention practices in the home and in the commercial sector.

### **How Much Do the Programs Cost?**

**T**he County's business outreach effort is a valuable, cost effective program to reduce waste entering the waste stream. It cost the county \$3,920 to conduct 70 waste audits in area businesses. Each waste audit took approximately four hours of County employee time.

The Household Hazardous Waste Program is funded through a dedicated Fauquier County Enterprise Fund. This Fund supports the Household Hazardous Waste Management Program's collection of waste, as well as its marketing of the program. In FY97, the County spent \$75,833 to fund the HHW program - the vast majority of the costs covered a hazardous material handler contract.

Since May 1995, the County has invested \$278,923 in its recycling program, which includes the HHW and the waste audits programs. Part of the County's investment is defrayed by funds generated by selling the recycled materials.

However, County officials caution that the cost-effectiveness of the recycling program is highly dependent on the demand for recycled materials. When demand is low, the market for such recycled materials shrinks and so does the price the County receives for its recycled materials.

In 1995, the price for paper was about \$250 per ton, but in 1996 the price of paper plummeted to about \$50 a ton. This greatly reduced the market for recycled paper and affected the County's ability to defray the cost of its recycling program.

## **Are There Additional Pollution Prevention Resources?**

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**Y**es, the County and a non-profit organization have prepared the following document, pamphlet and informational newsletter:

- *The Fauquier County Guide To Every Day Recycling*
- *Once is Not Enough - Guide to Household Recycling*
- *KFCleanNews* Quarterly Newsletter - prepared by the members of Keep Fauquier Clean, Inc. and friends interested in recycling and environmental issues.

# Promoting P2 to Citizens



## Introduction

In addition to local government's role of promoting pollution prevention at its own facilities and with the local small business community, another important function of local government involves encouraging its citizenry to adopt pollution prevention practices. Once a local government has established a successful P2 program, it has the ability to transfer that knowledge to local residents. Assisting individual households in reducing their waste can have a substantial impact on community waste streams.

### Supporting Case Studies

- **Bayscapes**  
*Alliance for the Chesapeake Bay*
- **"Let's Be Partners..." Program**  
*Baltimore County, Maryland*
- **The Water-wise Gardener Program**  
*Prince William County, Virginia*

A local government educates residents about P2 techniques and provides the resources to make pollution prevention more accessible and practical. Local governments can sponsor recycling pick-ups, conduct household hazardous waste disposal programs, promote septic system best management practices, and hold educational seminars to encourage their residents to participate in pollution prevention efforts.

The general population has accepted the premise of the importance of pollution prevention. Consumers are purchasing more durable products, reusing products, and using less toxic products (Source Reduction Forum, *Creating Incentives*). A local government

that promotes and explains P2 practices can increase the amount of citizen involvement.

### Local Government Highlight Phoenix, Arizona

*The City of Phoenix developed a pollution prevention program which targets both the business community and the public. The public education effort aims to change residents' chemical product usage. Organizers of the P2 program developed promotional materials and games that target water conservation, pesticides, and household hazardous waste. The materials are distributed at various community events and at information booths throughout the city, through which it has been possible to reach hundreds of residents. The City of Phoenix was able to provide information to the community that heightened awareness of sources of pollution and generated changes in behavior.*

### Local Government Highlight Rowan County, Kentucky

*The Gateway District Health Department of Kentucky established a program to prevent discharges from septic systems. The program focuses on public education; repair and upgrade; financial assistance; and information dissemination. The project was developed to combat the high bacteria levels in local creeks and rivers. Once an old or failing septic system is identified, staff works with residents to determine what steps can be taken to rectify the situation. Significant interest in the program was generated through television and print media coverage, as well as awareness programs in the schools.*

## Why Encourage P2 to Citizens?

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**L**ocal governments can take steps at their own facilities and they can promote P2 to the business community; however, to create a truly comprehensive pollution prevention program, residents need to be included in the process. Their support of local government action will enhance pollution prevention programs and their activities at home will increase overall waste reductions.

Individuals who wish to do their share to prevent pollution sometimes require additional information. Becoming an educated consumer will more likely result in modified buying habits. Citizens that buy in bulk, shop with reusable bags, and try non-hazardous products are making a contribution to source reduction efforts. Around the home, residents can identify hazardous and non-hazardous waste and learn how to prevent its harmful effects on the environment. Brochures promoting alternative cleaning supplies, composting techniques, and energy efficiency policies are all useful means of expanding citizens' participation in pollution prevention.

As individuals contributing to the pollution prevention effort, measurable results may not be that apparent. However, the combined effect of altering residents' behavior will substantially contribute to the overall improvement of the environment and human health. Involving constituents in pollution prevention program of a locality can only increase the "win-win" nature of pollution prevention.

The benefits of including citizens in pollution prevention policies are evident for both the local government and the residents. Informing citizens of local programs improves the image of the local government and creates a link for future cooperation. Saving money over the long-term by implementing environmental measures that also result in improved energy efficiency, reduced cost for products, or improved human health appeals to citizens.

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### Local Government Highlight State of Texas

*Texas government officials have learned how involving citizens in water conservation practices can save money while helping the environment. Low-flow toilets in use throughout Texas could reduce the need to build new water and wastewater treatment plants by 15 percent and result in savings of as much as \$68 million per year. Residential water and sewer bills may also be reduced by as much as \$200 million over the long term.*

*The Texas Water Development Board estimates that the use of water-efficient plumbing fixtures should save a typical four-member household 55,800 gallons of water and \$627 in lower water and energy (i.e., water heating and pumping) costs per year. The Board also projects that the use of low-flow fixtures might reduce water use statewide by 805 million gallons per day by the year 2040 (Jensen, 1991).*

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## Promoting P2 to Citizens

**E**ach local government must decide how extensive of a citizen outreach program it will implement in its jurisdiction. Contrary to the business community, expressing the ideological arguments for pollution prevention in addition to the economic incentives proves to be an effective mechanism with citizens. The environmental costs of pollution hold much influence over the behavior of individuals.

### ☐ Set an Example

The actions of local governments at their own facilities and their effects on economic efficiency and environmental improvements of government functions can be a means of influencing behavior. By demonstrating their own commitment to the environment, underscored by improved efficiency and cost savings, local governments set a standard for their constituents. Successes can be communicated through press releases, brochures, and open houses.

## ☐ **Incorporate Pollution Prevention into Legislation**

In order to include pollution prevention in the entire spectrum of local government activities, legislation affecting various social issues can include pollution prevention. For example, housing regulations can include energy and water conservation specifications. Local governments can also adopt an ordinance that demonstrates the commitment of the jurisdiction and its businesses and residents to modifying behavior in a more environmentally-sustainable manner. Gaining support from citizens for pollution prevention legislation will make it more effective.

## ☐ **Implement a “Pay-as-you-Throw” Program**

Local governments can change residents waste habits by charging individuals for the amount of waste generated. Research has shown that residents are more inclined to reduce waste and/or recycle if they are subject to a municipal unit-based pricing system. This policy has been implemented at the commercial level for years, but can also be effectively applied at the residential level.

## ☐ **Sponsor a Public Education Campaign**

Through topic specific public education campaigns, residents are made aware of the results of their pollution and what impact changes in behavior can have. Campaigns can focus on household and home maintenance, lawn and garden techniques, and automotive practices. Pamphlets, signs, workbooks, and handouts are all effective tools for conveying messages.

Educational programs are less expensive than recycling and disposal programs for a local government and can have a substantial impact on residents' behavior. Seminars and workshops can be offered that provide information on landscaping techniques that reduce run-off, septic system practices that protect water quality, or water conservation techniques that also save energy and money. Information presented to interested residents can later be shared with participants' neighbors.

## ☐ **Produce Materials to Assist Citizens in Implementing P2 Programs**

Informational pieces serve two roles. One is to raise awareness of activities and items that are causing pol-

lution and how they are impacting the environmental quality of the area. The other role is to provide specific guidance as to how to correct these activities. It is important to provide for the safe disposal of those hazardous and non-hazardous products that are utilized by residents. An effective local government will provide the technical and informational assistance necessary to ensure both prevention and safe disposal.

Many of the practices that apply to local government facilities can be utilized on a smaller scale by residents. The information can be presented in the form of articles in local government publications, inserts into public utility bills, simple fact sheets, or more elaborate publications such as handbooks and videos.

## ☐ **Sponsor a Clean-Up Day**

While many residents may actively practice pollution prevention measures, there are still segments of the population that are unaware of their role in waste reduction. By sponsoring a clean-up day, a local government promotes residents' awareness of the effects of their activities. For example, a “Neighborhood Clean-Up Day” sponsored in Mountain View, California helped to remove hazardous waste such as used motor oil, old car batteries, and excess paints and pesticides. While properly disposing of these items, local government staff also distributed information on alternative, less toxic products and P2 practices. After three collections, over 200 gallons of waste oil, 150 gallons of paint, 50 car batteries, and dozens of other hazardous materials were collected.

## ☐ **Join Cooperative Associations to Promote P2**

Local governments can establish links with their communities by joining community organizations comprised of local retailers, manufacturers, and consumers to discuss different perspectives and concerns about pollution prevention and environmental quality. Together, the participants can combine their resources and develop comprehensive strategies for preventing pollution.

This type of cooperation will not only serve to discover the best options for pollution prevention, but it will also generate a positive climate for attracting additional businesses and residents to a community.

## Getting Citizens Involved

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**I**n residents, local governments perhaps have their most receptive audience for pollution prevention. Public sentiment places value on pollution prevention activities and many residents simply require guidance as to how to reduce the impact of their actions on the environment. Depending on a local government's size, the level of its commitment will vary. What is important is to demonstrate the value and practicality of pollution prevention activities at all levels. These actions will cumulatively result in significant advancement in the reduction of waste and its harmful effects on the environment.

Appendix D provides examples of surveys that help evaluate citizen involvement and understanding of P2 activities. There are also model brochures offering options for residents in relation to recycling, landscaping, and household hazardous waste.

## Tools to Promote P2 Programs to Citizens

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- **Promote backyard composting:** Composting is an excellent activity for residents to undertake. Yard trimmings and food waste comprise a large part of the residential waste stream. By being made aware of the ease and utility of collecting yard clippings and fruit and vegetable scraps into a composting pile or bin, residents may choose to pursue this technique. Education is the primary role local governments have in encouraging backyard composting. In developing a backyard composting educational program, local governments should consider providing educational brochures to residents that describe the reasons and benefits of composting and the general process to be used (ASTM). In addition to providing educational materials, local governments can sponsor

workshops to promote composting and provide composting materials free or at a reduced cost.

- **Suggest alternative products:** Residents are often unaware of the toxicity of products that they are using in their households. Substituting less toxic pesticides, cleaning products, paints, etc. can reduce the amount of household hazardous waste generated. Local governments can use their knowledge of pollution prevention to compile a list of products and their alternatives for distribution to residents.
- **Sponsor household hazardous waste collections:** Although a local government is promoting source reduction, the need still exists for the safe disposal of household hazardous waste. A local government can sponsor monthly drop-off days for excess pesticides, oil-based paints, cleaning solvents, motor oil, batteries, etc.
- **Provide information on landscaping techniques:** Residents can have a profound impact on water quality by modifying their landscaping techniques. Reducing fertilizers and pesticides and planting appropriate trees and shrubs make for a healthy lawn and healthy environment. Landscaping practices can be incorporated into the development process or retrofitted by an individual homeowner. Local governments can promote the implementation of innovative techniques.
- **Initiate a water quality monitoring program:** Citizens provide volunteer service as monitors of their local streams and rivers. A minimum of time invested in training citizens will result in increased awareness of water quality issues and a long-term evaluation of the health of a stream. Indications of improved water quality will reinforce other citizen efforts to reduce the amount of pollution entering water sources.



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# BayScapes

## Case Study #13

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Chesapeake Regional Information Service  
Alliance for the Chesapeake Bay  
530 E. Main Street, Suite 501  
Richmond, VA 23219  
(804) 775-0951

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### What is BayScaping?

**B**ayScapes are environmentally sound landscapes benefiting people, wildlife and the Chesapeake Bay. BayScaping advocates a holistic approach through principles inspired by the relationships found in the natural world.

Conservation landscaping promotes landscaping management that works with nature to reduce pollution and enhance wildlife habitat. It encourages a low input formula for yard care: less fertilizer and pesticide use combined with less lawn area and the use of beneficial plants equals less water use and less overall maintenance. The goal of the BayScapes program is the protection of vital soil and water resources.

The BayScapes program teaches homeowners and landowners how to practice conservation landscaping, create wildlife habitat, use native plants, conserve water, create diversity, use Integrated Pest Management, and plan for the long term. Each guide suggests *practical techniques* to help manage landscapes wisely and, at the same time, reduce overall maintenance. Through simple changes in the management of the lawn and garden, BayScaping represents an innovative way to contribute to the health and vitality of local waterways and Chesapeake Bay.

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### What are the Program's Successes?

**T**he BayScapes program is outlined in the following seven guides available to educate the homeowners and residents about environmentally sound landscape management.

#### ☐ Conservation Landscaping

The key to conservation landscaping is wise management of soil, water, and vegetation. This guide explains low input formula for yard care, which is less fertilizers and pesticides, and maintenance of a healthy vegetative cover and proper pH and fertility levels.

#### ☐ BayScaping to Conserve Water

As much as 40 percent of the water used at home per month can find its way into the landscape. Excess water runs off the land and carries nutrients, sediment and toxic products into local waterways. This guide demonstrates how the amount of water needed to maintain a yard can be reduced by two-thirds with little expense or effort. Some key elements include timing and thoroughness of watering, proper equipment, and plant selection.

#### ☐ Creating Landscape Diversity

Areas of all sizes can benefit from diversity by utilizing different types of plants. Native grasses, ground covers, wildflowers, shrubs and trees provide a variety of shapes, colors, smells, and habitats.

#### ☐ Using Beneficial Plants

Native plants require little maintenance such as trimming, watering, fertilizer, or pesticides because they are well adapted to local climate and soil types. Planting native plants reduces nutrients and pesticides running off yards and gardens into local rivers and streams.

## **❑ BayScaping for Wildlife Habitat**

Developing land for residential use destroys wildlife habitat. Providing a backyard habitat for animals can reverse this trend. Food and cover are provided by planting a variety of native plants, artificial nesting boxes, or water sources.

## **❑ Integrated Pest Management**

IPM offers a variety of choices to manage pests. While IPM does not totally eliminate chemical pesticides, it does reduce the volume. This guide presents some of the components of IPM such as identification of pests, the use of beneficial insects, the application of organic pesticides, and proper pesticide usage.

## **❑ BayScaping for the Long Term**

This guide presents the four basic planning principles of improving the yard over time: inventory existing site conditions; plan uses for different parts of the yard; select plants that are most suitable; and determine costs of maintenance.

To date, fifteen demonstration projects have been coordinated in the Chesapeake Bay watershed. One example is a project in Virginia where the City of Chesapeake, the Elizabeth River Project (a non-profit organization), and the Alliance for the Chesapeake Bay co-sponsored a two-day workshop. Over 40 participants at the workshop learned the principles of BayScaping, discussed and designed a project, and completed work at a park in the City.

## **How Much Does the Program Cost?**

**F**unds required to implement BayScaping techniques vary according to the specific site. However, it should be stressed that compared to other op-

tions to manage landscapes in an environmentally sound manner, BayScapes is extremely cost-effective. Plants are relatively inexpensive and at public sites, volunteers can provide much of the labor. In addition, BayScapes save money through low-impact, low-maintenance design.

## **How Can the Program Work for my Local Government?**

**T**he resources provided by the BayScaping program are free of charge. They can be accessed on the internet at:

<http://web.gmu.edu/bios/bay/acb/bs/index.htm>

or by contacting the U.S. Fish and Wildlife Service at (410)573-4500 or the Alliance for the Chesapeake Bay at (800) 662-2747. Local governments can obtain the information packets and promote the techniques to their residents or residents can request the information directly. The Alliance welcomes requests from local governments to coordinate a BayScapes workshop to implement the techniques at a community site.

## **Are There Additional Pollution Prevention Resources?**

**E**ach information packet presents a list of additional resources that may be consulted. For specific information about soils, soil testing, fertilizers, water management, pest control and other issues, the local Cooperative Extension office is an excellent resource. The Cooperative Extension is a service of the land-grant university systems in the District of Columbia, Maryland, Pennsylvania and Virginia.

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# **“Let’s Be Partners...Water Pollution: What We Can Do To Reduce and Prevent It”**

## **Case Study #14 Baltimore County, Maryland**

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Baltimore County Department of Environmental Protection  
and Resource Management  
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Towson, MD 21204  
(410) 887-4488 x251

### **What is the “Let’s Be Partners...” Program?**

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**R**ecognizing the value of educational programming in promoting the protection of the environment, Baltimore County established a “Let’s Be Partners...” program as a cost effective mechanism to maintain good water quality. “Let’s Be Partners...” is a citizen’s educational program designed to encourage students, residents, businesses and others to become familiar with, and take actions to, prevent pollution before it becomes a costly “end of the pipe” problem. Baltimore County, the third largest county in population and land area in Maryland, is a leader in innovative environmental protection initiatives. “Let’s Be Partners...” is the only program of its kind in Maryland that utilizes an integrated, comprehensive, and community-based approach to address citizen behavior leading to water pollution.

The “Let’s Be Partners ...” education program is a modular, multi-level, mixed-media, County-specific program that addresses the following:

- The watershed concept/local stream awareness;
- Water pollution causes, sources, effects;
- What can be done to reduce and prevent pollution;
- Where to get further information;
- How to get involved.

Directly supporting the County’s National Pollutant Discharge Elimination System (NPDES) Municipal Stormwater Permit, the “Let’s Be Partners...” program is growing in its popularity with educators, citizens and citizen organizations, as well as with other local governments. In implementing the program, the County makes presentations to community groups, integrates the program into public and private school curricula, and prepares and distributes information to the general public, including slide presentations, brochures, and water pollution surveys.

The “Let’s Be Partners...” program prides itself on its unique and innovative ideas and creative implementation approaches. For instance, the program provides an important linkage between the watershed concept that underlies the County’s environmental management programs and individual behavior. The County utilized extensive research on values, perception, motivation, behavior modification, and effectiveness measurement to support its approaches. Additionally, the program emphasizes cost-effective pollution prevention over pollution regulation, structural controls and clean-up.

### **What are the Program’s Successes?**

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**A**lthough still in its early stages, the program has demonstrated some notable early successes. Over 7,000 citizens have participated in the program, over 170 presentations were made, and 86 action pledges have been received. In addition, requests for

presentations are rapidly increasing, from 12 in 1995 to 84 in 1997.

When water quality issues and questions are raised, up-to-date answers are available via speaker presentations and printed materials. This has led to considerable citizen commitments to prevent pollution. For example, the program's Environmental Pledge component can demonstrate that over 350 volunteer action projects to protect prevent pollution are being undertaken as a result of the program's implementation.

Effectively piloted in public and private schools K-12, university/college classes, workshops, neighborhood meetings and community coalitions, youth groups and service clubs, the program's school component is being used in Baltimore County Schools.

In addition to the results realized in the community, the "Let's Be Partners..." program received an Innovations in Government Award from the National Association of Counties (NACO). In 1997, Baltimore County was one of only two Maryland counties to achieve the Gold Chesapeake Bay Partner Community status awarded by the multi-state Chesapeake Bay Program. The "Let's Be Partners..." program contributed greatly to the Chesapeake Bay Partners application.

### **How Can the Program Work for My Local Government?**

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**A**lthough the "Let's Be Partners..." program is designed specifically for Baltimore County audiences, its message is universal. The water quality issues that are addressed in the program, particularly non-point source pollution, are issues that communities throughout the country are addressing. This program identifies pollution causes and their impacts on valuable water resources, and suggests action alternatives (called Enviro-Tips) which can help citizens address their pollution issues.

Currently, the program is being used as a model for other local governments and non-profit organizations interested in preparing pollution prevention educational programs. The informational brochures and educational materials need only slight modifications in order for them to be utilized in other communities.

### **How Much does the Program Cost?**

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**B**altimore County's Department of Environmental Protection and Resource Management entirely supports the program's operating budget. The budget includes a part-time educator (\$40,000), part-time staff support for festivals and other outreach events (\$6,000), printing and copying costs (\$1,000), educational supplies (\$2,000), and travel costs (\$1,000). The total estimated annual operating costs for the program is approximately \$50,000. However, due to increases in public demand for the program, additional resources must be leveraged to expand the program and fulfill public requests.

### **Are There Additional Pollution Prevention Resources?**

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**T**he "Let's Be Partners..." program includes the following resource information:

- Introduction/Background Training
- Water Pollution Surveys
- Curricula
- Environmental Terminology/Definitions
- Slide Presentations/Audio Tapes
- Interactive, Hands-on Activities
- Follow-up Activities (i.e., field trips, speakers, art projects)
- Regional Resources Library, Slide Bank, and Resource Packet
- Supporting Pamphlets, Brochures and Hand-outs
- Environmental Pledge Program
- Program Evaluation

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# The Water-wise Gardener Program and Handbook

## Case Study #15 Prince William County, Virginia

Marc Aveni  
Virginia Cooperative Extension  
Prince William County Office  
8033 Ashton Avenue, Suite 105  
Manassas, VA 20110  
(703) 792-6285

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### What is the Water-wise Gardener Program?

**R**ecognizing that the County's water supply not only provides drinking water for the community, but also feeds into the Chesapeake Bay, the Prince William County Office of the Virginia Cooperative Extension and the County Department of Public Works collaborated to establish programs to encourage residents, businesses, and farmers to modify their behavior to protect water quality. Their goal was to educate County residents about the importance of preventing pollution from entering local waters and the Bay.

One element of the public education program is the *Water-wise Gardener* program which was established in 1991. The program helps homeowners reduce the amount of non-point source pollution entering local streams and the Bay by involving them in a series of educational activities. Many homeowners have an interest in establishing attractive lawns and landscapes, but their maintenance of these areas impacts ground and surface water. With improper management, pollutants can be carried by water percolating through the soil to the water table or washed into lakes and streams via storm and surface water runoff.

The program is comprised of different levels of involvement for participants: workshops/seminars, publications, demonstration sites, and one-on-one site visits from trained Master Gardeners. In this way, people

can participate at the level at which they are most comfortable. The objective of the program is to have citizens implement, in a measurable way, the techniques and practices recommended for fertilization, pest control, water use, and composting through a partnership with trained Master Gardener volunteers. Participants develop model lawns utilizing the techniques and their results are documented.

The *Water-wise Gardener* handbook provides public officials with a framework for developing a program and includes sections on planning, implementation, data evaluation and reporting, surveys, and marketing materials.

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### What are the Program's Successes?

**A**lmost 500 people in Prince William's County have participated in the *Water-wise Gardener* program. Over a five-year period, these homeowners have reduced the amount of nitrogen fertilizer applied to their lawns by an estimated 20,000 pounds.

Prior to participating in the program, homeowners rarely tested their soils before applying fertilizer. After participating, more than 90 percent tested the soil. Participants also reduced pesticides by more than 30 percent by applying integrated pest management practices learned through the program.

The program has also been able to prompt an attitude shift. Participants were taught that attractive lawns

are not incompatible with water quality protection. Using the techniques promoted by the program, the homeowners not only learned how their actions were protecting water quality, but also were shown that their lawns could look good using alternative practices.

Impressed by the success of the *Water-wise Gardener* program, the U.S. Department of Agriculture's Cooperative State Research, Education and Extension Service (CSREES) requested that the Prince William model be developed into a regional model for residential water quality public education. Aside from Prince William, the model has been transferred to ten counties in Virginia: Arlington, Caroline, Chesterfield, Fairfax, Fauquier, Henrico, King George, Loudoun, Spotsylvania, and Stafford. Information has also been shared with counties in Alabama, Maryland, North Carolina, and South Carolina.

### **How Much Does the Program Cost?**

**F**unding for the program has come from various sources since its inception. The CSREES provided the initial funding to develop the model and handbook. Over the years, its average annual grant has been approximately \$65,000 which has partially paid the salary and benefits for 1.5 staff persons.

To implement the model, Virginia provided funds through its Section 319 program. Grants of approximately \$10,000-\$20,000 annually were used for printing costs and salary of technicians in counties where the program was transferred. Virginia Tech has also provided funds for the project. Prince William County

was able to earmark \$10,000-\$20,000 per year for implementation of the model in the County.

### **How Can the Program Work for my Local Government?**

**A** local government can utilize the *Water-wise Gardener* handbook to create its own educational program. The local government can determine its level of financial commitment to the program and implement what is feasible. Working with its Cooperative Extension Service, other agencies, or volunteer groups, a community can implement the program with little cost to the local government.

The handbook includes five incremental steps that may be executed. For instance, if a local government has limited financial resources, it may choose to hold a workshop or seminar. The estimated budget to complete this task is \$350, but the event increases citizens' awareness, provides some basic informational materials, and may lay the groundwork for further activity.

### **Are There Additional Pollution Prevention Resources?**

**Y**es, the County prepared a notebook of pollution prevention resources concerning seven topics. The notebook contains brochures, articles, and fact sheets on topics such as hazardous waste collection, motor oil recycling, and integrated pest management. Citizens can consult the notebook to locate drop-off locations, determine points of contact, or learn more about pollution prevention in general.

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# Assistance Programs

The following section provides information on federal, state, and private organizations P2 assistance programs. The programs have been separated into five categories:



The **General Information** category includes organizations, state agencies, and websites that provide information on pollution prevention programs applicable to various audiences.



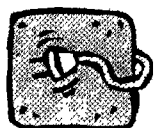
The **Financial Assistance** category lists federal and state resources to help finance pollution prevention activities in a local jurisdiction.



The **Business Assistance** category provides pollution prevention resources specific to the business community.



The **Technical Assistance** category provides resources to contact to address pollution prevention problems and identify training opportunities to solve the problems.



The **Energy Efficiency** category highlights the array of programs aimed at helping local government, business, and citizens become more energy efficient.





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# General Assistance



## ☐ Pollution Prevention Information Clearinghouse (PPIC)

The PPIC is a free, non-regulatory service of the U.S. Environmental Protection Agency dedicated to reducing or eliminating industrial pollutants through technology transfer, education, and public awareness. Pollution prevention publications and fact sheets can be ordered through the clearinghouse.

Pollution Prevention Information Clearinghouse  
U.S. Environmental Protection Agency  
401 M Street, SW, Room NEB606 (7407)  
Washington, DC 20460  
(202) 260-1023  
<http://www.epa.gov/opptintr/library/libppic.htm>

## ☐ WasteWi\$e

WasteWi\$e is a free, voluntary, U.S. Environmental Protection Agency program to help eliminate costly municipal solid waste. The program allows partners to design their own solid waste reduction programs tailored to their needs. Participants sign on to the program for a 3-year period and undertake appropriate activities to reduce waste.

WasteWi\$e Program  
U.S. Environmental Protection Agency  
401 M Street, SW (5306W)  
Washington, DC 20460  
800 EPA-WISE (372-9473)  
<http://www.epa.gov/wastewise>

## ☐ Enviro\$en\$e

Enviro\$en\$e, an integral part of the U.S. Environmental Protection Agency's web site, provides a single repository for pollution prevention information, such as pollution prevention case studies, points of contact, environmental statutes, regulations, and compliance and enforcement policies and guidelines.

<http://www.epa.gov/envirosense/index.html>

## ☐ The National Pollution Prevention Roundtable (NPPR)

The National Pollution Prevention Roundtable is the largest membership organization in the United States devoted solely to pollution prevention (P2). The mission of the Roundtable is to provide a national forum for promoting the development, implementation, and evaluation of efforts to avoid, eliminate, or reduce pollution at the source.

The National Pollution Prevention Roundtable  
2000 P Street, NW, Suite 708  
Washington, DC 20036  
(202) 466-7272 or (888) 745-7272  
<http://es.inel.gov/nppr>

## ☐ Source Reduction Forum of the National Recycling Coalition

The Source Reduction Forum's goal is to conserve resources and reduce waste by: encouraging the efficient use of materials; developing and promoting source reduction and reuse strategies; and integrating these strategies into recycling.

Source Reduction Forum  
National Recycling Coalition  
1727 King Street, Suite 105  
Alexandria, VA 22314-2720  
(703) 683-9025

## ☐ Household Hazardous Waste Resource Bank

The Chesapeake Bay Program's Toxic Subcommittee provides a Household Hazardous Waste Resource Bank to access for HHW publications and information.

<http://www.chesapeakebay.net/bayprogram/committ/tsc/hhw/hhwcover.htm>

### ☐ **Pennsylvania Office of Pollution Prevention and Compliance Assistance**

The Office provides technical information, grants information and staff contacts. Additional Internet links within PA DEP and other pollution prevention sites are provided on the homepage.

Pennsylvania Department of Environmental Protection  
PO Box 2063, 16th floor  
Harrisburg, PA 17105-2063  
(717) 783-0540  
[http://www.dep.state.pa.us/dep/deputate/pollprev/pollution\\_prevention.html](http://www.dep.state.pa.us/dep/deputate/pollprev/pollution_prevention.html)

### ☐ **Maryland Department of the Environment**

MDE's primary mission is to protect and restore the quality of Maryland's air, water, and land resources. The Department works to achieve the State's environmental goals while fostering economic development, safe communities, and environmental education.

Pollution Prevention Coordinator  
Maryland Department of the Environment  
2500 Broening Highway  
Baltimore, MD 21224  
(410) 631-4119  
<http://www.mde.state.md.us/permit/p2prog.html>

### ☐ **Virginia Office of Pollution Prevention**

The Virginia Department of Environmental Quality, through its Office of Pollution Prevention, provides

free, voluntary, non-regulatory, technical assistance and materials to industry, governments, academia, non-profits and the general public on how to prevent pollution.

Office of Pollution Prevention  
Virginia Department of Environmental Quality  
629 East Main Street, 5th floor  
PO Box 10009  
Richmond, VA 23240-0009  
(804) 698-4235  
<http://www.deq.state.va.us/opp/opp.html>

### ☐ **DCRA Pollution Prevention Committee**

The DC Department of Consumer and Regulatory Affairs (DCRA) ensures the health, safety and economic welfare of District residents and protects the environment.

DC Environmental Regulation Administration  
2100 Martin Luther King, Jr. Avenue, SE Room 203  
Washington, DC 20020  
(202) 645-6080

### ☐ **DC Department of Public Works**

The DC Department of Public Works collects recyclables from households every other week.

DC Department of Public Works  
Recycling Coordinator  
65 K Street, NE  
Washington, DC 20002  
(202) 727-5887

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# Financial Assistance



## ☐ **Pollution Prevention Incentives for States (PPIS)**

These grants are intended to build and support state pollution prevention capabilities and to test innovative pollution prevention approaches. Awards are made through EPA regional offices.

Office of Pollution Prevention and Toxics  
U.S. Environmental Protection Agency  
401 M Street, SW (TS-779)  
Washington, DC 20460  
(202) 260-2237

## ☐ **Environmental Financing Information Network**

This network provides information on financing alternatives for state and local environmental programs and projects, including pollution prevention and control, primarily in the form of abstracts of publications, case studies, and contacts. Services include an online database, a hotline, and distribution of publications pertaining to financing. The case studies and abstracts outline successful financing alternatives, while the contact profiles refer users to financial and program experts (for example, government officials) who have general or particular experience in public financing and environmental programs.

Environmental Financing Information Network  
Resource Management Division  
U.S. Environmental Protection Agency  
401 M Street, SW (3304)  
Washington, DC 20460  
(202) 260-0420

## ☐ **Hardship Grants Program for Rural Communities**

The U.S. Environmental Protection Agency makes grants to states who in turn can provide assistance to rural communities for wastewater treatment improvements.

U.S. Environmental Protection Agency  
401 M Street, SW  
Washington, DC 20460  
(202) 260-2268

## ☐ **Stormwater Management Program**

Grants and technical assistance for PA counties and municipalities for watershed planning for stormwater control.

Bureau of Watershed Conservation  
Pennsylvania Department of Environmental Protection  
(717) 772-4048

## ☐ **Non-Point Source Pollution Control Projects**

Funding for PA projects that implement education, monitoring, demonstrations or innovative practices to control non-point sources of pollution.

Bureau of Watershed Conservation  
Pennsylvania Department of Environmental Protection  
(717) 772-5629

## ☐ **Recycling Grants**

PA municipalities and counties are eligible for 90 percent reimbursement toward establishing a municipal recycling program.

Bureau of Land Recycling and Waste Management  
Pennsylvania Department of Environmental Protection  
(717) 787-7382

## ☐ **Household Hazardous Waste Collection Program**

PA municipalities and counties engaging in HHW collection and disposal programs are eligible for 50 percent reimbursement.

Bureau of Land Recycling and Waste Management  
Pennsylvania Department of Environmental Protection  
(717) 787-6239

### **☐ Alternative Fuels Incentive Grants**

Grants for PA municipalities and others for costs associated with implementing alternative fuel vehicles program.

Office of Pollution Prevention  
Pennsylvania Department of Environmental Protection  
(717) 783-9981  
[http://www.dep.state.pa.us/dep/deputate/pollprev/Information/AFIG/AFIG\\_Homepage.htm](http://www.dep.state.pa.us/dep/deputate/pollprev/Information/AFIG/AFIG_Homepage.htm)

### **☐ Virginia Water Quality Improvement Fund**

The purpose of the Virginia Water Quality Improvement Act of 1997 is to restore and improve the quality of state waters and to protect them from impairment and destruction for the benefit of current and future citizens of the Commonwealth. Because this is a shared responsibility among state and local governments and individuals, the Act also creates the Water Quality Improvement Fund which provides grants to local governments, soil and water conservation districts and individuals for point and nonpoint source pollution prevention, reduction and control programs

Virginia Department of Environmental Quality  
629 East Main Street, 5th floor  
PO Box 10009  
Richmond, VA 23240-0009  
(804) 698-4545

### **☐ Virginia Pollution Prevention Grant Program**

Grants are awarded for pollution prevention activities in two categories: manufacturers and members of the Businesses for the Bay program.

Center for Innovative Technology  
(703) 689-3013

### **☐ Litter Prevention and Recycling Grants**

Grants totaling up to \$250,000 are made to develop and implement education programs for litter prevention and recycling in VA.

Virginia Department of Environmental Quality  
(804) 698-4556

# Business Assistance



## ☐ The American Institute of Pollution Prevention (AIPP)

AIPP is a non-profit organization comprised of industry trade associations and professional societies. It provides information on P2 resources available from AIPP Members and others; promotes policies, including defining the economics of P2; and sets future directions for P2 through cooperative and collaborative efforts among industry, government, and the public.

The American Institute of Pollution Prevention  
1616 P Street, NW, Suite 100  
Washington, DC 20036  
(202) 797-6567  
<http://es.epa.gov/aipp/>

## ☐ Center for Hazardous Materials Research (CHMR)

The Center offers pollution prevention workshops for industrial representatives, consultants, engineering students, and regulatory personnel. Other features of CHMR are a speakers' bureau, onsite pollution prevention facility assessments and technical assistance, pesticide research and education, and a regulatory information and technical assistance hotline.

Center for Hazardous Materials Research  
University of Pittsburgh Applied Research Center  
320 William Pitt Way  
Pittsburgh, PA 15238  
(412) 826-5321

## ☐ Small Business Compliance Assistance Centers

U.S. EPA's Office of Enforcement and Compliance Assurance -in partnership with industry, academic institutions, environmental groups and other federal and state agencies -has established "virtual" (telecommunications-based) national Compliance Assistance Centers for four specific industry sectors heavily

populated with small businesses that face substantial federal regulation and is working on two new centers. The sectors include: printing, metal finishing, automotive services and repair, printed wiring boards, small chemical manufacturers and agriculture. In addition, three new Compliance Assistance Centers are being added to the site in 1998 for chemical industry, local governments, and transportation.

Small Business Compliance Assistance Centers  
<http://es.epa.gov/oeca/mfcac.html>

## ☐ Green Seal

Green Seal is a nonprofit organization dedicated to protecting the environment by promoting the manufacture and sale of environmentally preferable consumer products. It sets environmental standards and allows the use of its certification mark on products found to meet them. Green Seal also educates consumers on how to use their buying decisions to help the environment.

Green Seal  
1730 Rhode Island Ave. NW, Suite 1050  
Washington, D.C. 20036  
(202) 331-7337  
<http://www.crest.org/environment/GreenSeal>

## ☐ Anacostia River Business Coalition

The Anacostia River Business Coalition (ARBC) is a group of businesses in the Washington, D.C. area that is seeking greater private sector involvement in the restoration and protection of the Anacostia River. ARBC has sponsored technical assistance workshops for businesses and is developing a public awareness campaign to help residents and businesses participate in the River clean-up.

Anacostia River Business Coalition  
(703) 750-5558

### **❑ Businesses for a Cleaner River**

Businesses for a Cleaner River is the Elizabeth River Project's outreach effort to include businesses in pollution prevention activities. The service offers free, confidential research and training to reduce pollution at the source and minimize waste.

Businesses for a Cleaner River  
The Elizabeth River Project  
109 E. Main Street, Suite 305  
Norfolk, VA 23510  
(757) 625-3648  
<http://www.pilot.infi.net/~erp/>

### **❑ Virginia Small Business Assistance Program**

The Virginia Small Business Assistance Program (SBAP) is a non-regulatory branch of the Virginia Department of Environmental Quality's Office of Small Business Assistance (OSBA). It offers small businesses free technical assistance on air quality and related environmental requirements.

Virginia Department of Environmental Quality  
Office of Small Business Assistance  
P.O. Box 10009  
Richmond, VA 23240-0009  
(804)698-4000  
[http://www.deq.state.va.us/osba\\_smallbiz.html](http://www.deq.state.va.us/osba_smallbiz.html)

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# Technical Assistance



## ☐ **Waste Reduction Resource Center (WRRC)**

The WRRC provides multimedia waste reduction support for the states of U.S. EPA Regions III and IV. The Center's clearinghouse staff provides access to and supports the collection of waste reduction information. The clearinghouse collection contains over 7,000 journal articles, case studies, technical reports, books, and video tapes. The topics cover all general industry categories, manufacturing processes, hazardous waste streams, and water and air discharges. *Specific information* includes economical and technical data, process descriptions, waste reduction techniques, and implementation strategies. The collection also contains information on municipal recycling, solid waste reduction, environmental audits, and perspectives in pollution prevention. In addition, the WRRC has listings of numerous electronic bulletin boards providing information on environmental issues and technologies.

Waste Reduction Resource Center  
<http://www.p2pays.org/wrrc/>  
(800) 476-8686

## ☐ **The Waste Reduction Institute for Training and Applications Research (WRITAR)**

The WRITAR is a non-profit organization dedicated to facilitating the implementation of innovative strategies, techniques, and technologies that prevent pollution at the source. The Institute's activities include

training, policy analysis, and the development of educational materials.

The Waste Reduction Institute for Training and Applications Research (WRITAR)  
1313 5th Street, NE  
Minneapolis, MN 55414-4502  
(612) 379-5995

## ☐ **Pennsylvania Technical Assistance Program**

This program offers technical assistance, access to pollution prevention information, linkages to other resources, and sponsorship of seminars.

Pennsylvania Technical Assistance Program  
Penn State University  
110 Barbara Building II  
810 North University Drive  
University Park, PA 16802  
(814) 865-0427

## ☐ **Maryland Technology Extension Service**

This service assists in problem identification, support, and solution development.

Technology Extension Service  
Engineering Research Center  
University of Maryland  
College Park, MD 20742-3261  
(301) 454-7941

# Energy Efficiency



## ☐ Energy Pollution Prevention Information Clearinghouse (EPIC)

The U.S. Department of Energy Pollution Prevention Information Clearinghouse (EPIC) was developed under a joint effort of the U.S. DOE and the U.S. EPA to enhance the exchange of pollution prevention (P2) information between Federal, state, and local government agencies, as well as with industries, academic institutions and the general public. The system provides access to Federal and state P2 regulations, DOE P2 policy and guidance, special DOE reports and memos, site project summaries, Pollution Prevention Opportunity Assessments, newsletters, P2 contacts, and other periodic reports.

<http://epic.er.doe.gov/epic/>

## ☐ Center of Excellence for Sustainable Development

The Center of Excellence for Sustainable Development, created by the U.S. Department of Energy's Office of Energy Efficiency and Renewable Energy, helps communities design and implement innovative strategies that enhance the local economy, as well as the local environment and quality of life. Assistance to help communities develop more sustainably is available in the resource database of articles and ordinances that are accessible from the homepage.

Center of Excellence for Sustainable Development  
U.S. Department of Energy  
Office of Energy Efficiency and Renewable Energy  
1617 Cole Boulevard  
Golden, CO 80401  
(800) 363-3732  
<http://www.sustainable.doe.gov/>

## ☐ Green Lights Program

The U.S. EPA's Green Lights program encourages organizations to install energy efficient lighting in order to prevent the creation of air pollution (including greenhouse gases, acid rain emissions, air toxics, and tropospheric ozone), solid waste, and other environmental impacts of electricity generation. EPA provides free, in-depth, technical training software to help

determine the profitability of proposed lighting installations.

Green Lights Program  
U.S. Environmental Protection Agency  
401 M Street, SW (6202J)  
Washington, DC 20460  
(202) 564-9190  
(888) STAR-YES  
<http://www.epa.gov/greenlights.html>

## ☐ Clean Cities

Clean Cities is a locally-based government/industry partnership, coordinated by the U.S. Department of Energy, to expand the use of alternatives to gasoline. Clean Cities works with local businesses and governments to establish viable alternative fuels markets.

Clean Cities Program  
U.S. Department of Energy (EE-33)  
1000 Independence Avenue, SW  
Washington, DC 20585  
(800) 224-8437 (CCITIES)  
<http://www.eren.doe.gov/transportation/transportation.html>

## ☐ U.S. Postal Service Alternative Vehicle Program

Through partnerships with industry, utilities, and the U.S. Department of Energy, the Postal Service has fostered the development of alternative fuel vehicles.  
(703) 280-7138

## ☐ Metropolitan Washington Alternative Fuels Partnership

The Partnership assists local governments in acquiring alternative fuel vehicles and in establishing the necessary fueling infrastructure.

Metropolitan Washington Alternative Fuels Partnership  
Metropolitan Washington Council of Governments  
777 North Capitol Street, NE, Suite 300  
Washington, DC 20002-4226  
(202) 962-3355



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# Bibliography

American Society for Testing and Materials (ASTM). November 1994. *Standard Guide for Development and Implementation of a Pollution Prevention Program*. Philadelphia, PA.

Chesapeake Bay Program Local Government Advisory Committee. October 1997. *Beyond Sprawl: Land Management Techniques to Protect the Chesapeake Bay*.

Chesapeake Bay Program. April 1997. *Protecting Wetlands: Tools for Local Governments in the Chesapeake Bay Region*.

Fisher, Thomas. 1996. "Green Building." Environmental Design Collaborative.

Franklin Associates, Ltd. June 1997. "Characterization of Municipal Solid Waste in the United States 1996 Update." U.S. Environmental Protection Agency Municipal and Industrial Solid Waste, Division Office of Solid Waste Report No. EPA530-R-97-015.

Goldman, S.J., K. Jackson and T.A. Bursztynsky. 1986. *Erosion and Sediment Control Handbook*. New York: McGraw-Hill, Inc.

Goo, Robert. November/December 1991. "Do's and Don'ts Around the Home." in *EPA Journal*, EPA-22K-1005.

International City/County Management Association (ICMA). 1998. *Composting: A Local Waste Management Solution*. Special Data Issue. Washington, D.C.

International City/County Management Association (ICMA). August 1989. *Pesticide Management for Local Governments*. MIS Report, Volume 21, Number 8. Washington, D.C.

International City/County Management Association (ICMA). *Preventing Pollution: A Guide for Local Government*. Washington, D.C.

Jensen, R. 1991. *Indoor Water Conservation*. Texas Water Resources 17(4).

Mann, Julie E. *Citizens Water Quality Handbook*. Northern Virginia Soil and Water Conservation District: Fairfax, VA.

- Metro-Dade County Department of Environmental Resource Management. October 1995. *Guide to Establishing a Pollution Prevention Assistance Program*. Dade County, FL.
- Montgomery County Department of Public Works and Transportation. June 1996. *Hazardous Waste Management in Montgomery County*.
- National Association of Counties (NACO). Fall 1995. *Preventing Pollution in our Cities and Counties*. Washington, D.C.
- New York State Department of Environmental Conservation. November 1993. *Pollution Prevention Guidance for Local Governments*. Albany, NY.
- Northern Virginia Planning District Commission. December 1996. *Nonstructural Urban BMP Handbook*. Annandale, VA.
- PA Department of Environmental Protection. September 1996. *An Environmental Self-Evaluation for Small Business*. Harrisburg, PA.
- RMI. 1991. *Water efficiency: A resource for utility managers, community planners, and other decision makers*. The Water Program, Rocky Mountain Institute, Snowmass, CO.
- Source Reduction Forum of the National Recycling Coalition. 1996. *Creating Incentives and Overcoming Obstacles to Source Reduction and Reuse*. Washington, D.C.
- Source Reduction Forum of the National Recycling Coalition. 1996. *Making Source Reduction and Reuse Work in Your Community*. Washington, D.C.
- U.S. Department of Energy. November 1995. *Guide to Alternative Fuel Vehicle Incentives and Laws*. Washington, D.C.
- U.S. Environmental Protection Agency. December 1992. *Building State and Local Pollution Prevention Programs*. EPA. Washington, D.C.
- U.S. Environmental Protection Agency. April 1995. *Cleaner Water through Conservation*. EPA 841-B-95-002. Washington, D.C.
- U.S. Environmental Protection Agency. April 1996. *Pollution Prevention Success Stories*. EPA 742-96-002. Washington, D.C.
- Washington Metropolitan Council of Governments. January 1997. *1996 Metropolitan Washington Pollution Prevention Conference Proceedings*. Washington, D.C.
- Wigglesworth, David T. 1993. *Pollution Prevention - A Practical Guide for State and Local Government*. Florida: CRC Press.
- Wigglesworth, David T. 1988. *Profiting From Waste Reduction in Your Small Business*. Alaska Health Department.

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# Appendix A

## Chesapeake Bay Program Recognition Programs

### ☐ Businesses for the Bay

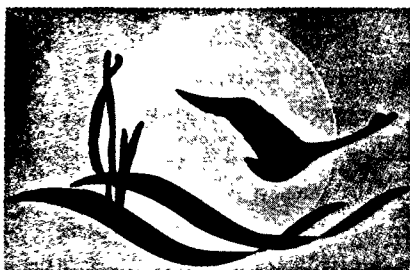
### ☐ Chesapeake Bay Partner Communities

The Chesapeake Bay Program promotes source reduction among local governments as a means of improving the environmental health of the Chesapeake Bay. In order to encourage P2 at the local level, the Bay Program developed two recognition programs — *Businesses for the Bay* and *Chesapeake Bay Partner Communities*.

The *Businesses for the Bay* program recruits industries, small businesses, and local government to become part of a team dedicated to the long-term improvement of the Bay and its rivers and streams. Team members develop annual pollution prevention goals and voluntarily implement their P2 practices. As a result, businesses and others experience cost savings, gain an improved public image, and contribute to a healthier Bay.

The *Chesapeake Bay Partner Communities* program recognizes local governments for their commitment to the protection of the Chesapeake Bay, its rivers, and streams. By indicating activities achieved in six theme areas, local governments determine their standing as Gold, Silver, or Bronze *Bay Partners*. *Chesapeake Bay Partner Communities* form a network of local government officials who are concerned with protecting local environmental resources and restoring the health of the Chesapeake Bay.





## Chesapeake Bay Program

# BUSINESSES FOR THE BAY

**W**hat is Businesses for the Bay?  
*An Opportunity for the Bay  
 and An Opportunity for YOU!*

**Businesses for the Bay** is a voluntary team of forward-looking industries, commercial establishments, and small businesses within the Chesapeake Bay watershed. We are committed to implementing pollution prevention in our daily operations and reducing our chemical releases to the Chesapeake Bay. As members of the **Businesses for the Bay Team**, we helped design this pollution prevention program.

**B**enefits of joining our Businesses for the Bay Team are:

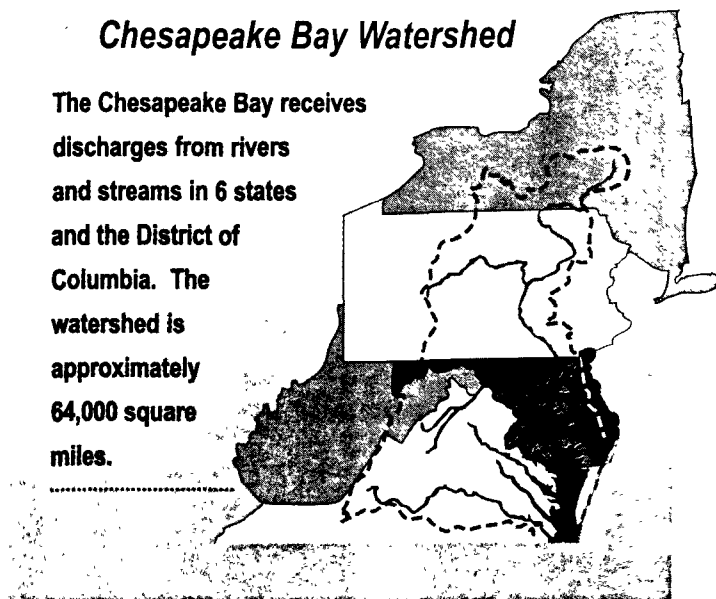
- Cost savings from reduced waste management
- Positive publicity
- Increased patronage
- Eligibility for the prestigious Chesapeake Executive Council's\* **Businesses for the Bay Excellence Awards**
- A cleaner, healthier Bay for all

## What is Pollution Prevention?

**Businesses for the Bay** recognizes pollution prevention as a hierarchy of activities that reduce or eliminate the amount of chemicals at the source of production or prevent them from entering the environment or waste stream. Source reduction is the preferred method when practical (including point and nonpoint, industrial and agricultural, urban and suburban sources), followed by reuse/recycling, and energy recovery. Treatment, followed by safe disposal, should be used as a last alternative.

## Chesapeake Bay Watershed

The Chesapeake Bay receives discharges from rivers and streams in 6 states and the District of Columbia. The watershed is approximately 64,000 square miles.



**O**ur mission is to build support for pollution prevention across all businesses throughout the watershed.

As a team member of **Businesses for the Bay**, you will develop your own annual pollution prevention goals which may range from reducing the volume of chemicals used at your facility to acting as a mentor and providing technical assistance for other businesses. We recognize that all pollution prevention activities, no matter how large or small, will make a difference in the Chesapeake Bay watershed. We hope that by working together our combined contributions will have a substantial impact in reducing chemical releases across the watershed.

*\* The Chesapeake Executive Council is comprised of Maryland Governor Parris Glendening; Pennsylvania Governor Thomas Ridge; Virginia Governor George Allen; District of Columbia Mayor Marion Barry; Chesapeake Bay Commission Chair Delegate W. Tayloe Murphy, Jr.; and U.S. Environmental Protection Agency Administrator Carol Browner.*

## ***Businesses for the Bay Goal***

The overall goal of the Businesses for the Bay is to contribute to the long-term improvement of the quality of the Bay and its rivers through widespread, voluntary implementation of pollution prevention practices throughout the Chesapeake Bay watershed.

**B**usinesses for the Bay will measure our progress by:

- **Raising participation in pollution prevention activities throughout the watershed.** We strive to have 75% of all businesses in the Chesapeake Bay watershed implement pollution prevention by the year 2000.
- **Achieving an aggregate reduction in the amount of chemical releases across the Chesapeake Bay watershed.** We expect that our combined efforts will result in a 65% reduction of Toxic Release Inventory chemicals and 75% reduction of Chesapeake Bay Toxics of Concern chemicals between a 1988 baseline and the year 2000. This measure is not evaluated at the facility-level, but represents the combined efforts of all businesses throughout the watershed.
- **Increasing the number of small businesses participating in pollution prevention.**
- **Increasing the number of members involved in pollution prevention mentoring.**

**B**usinesses for the Bay would like you to join our team! It is easy! Here's how:

- **Step 1:** Choose your pollution prevention activity. The list on the next page provides ideas of the pollution prevention activities you can

choose, or you can develop your own. You can commit to any number of activities each year.

- **Step 2:** Fill out the enclosed Commitment Worksheet. You also may attach a cover letter describing any past pollution prevention activities, your commitment(s), and any other information you would like to share. Send the completed worksheet and optional cover letter to the address at the bottom of the worksheet. You will receive an acknowledgment of membership. There is no cost to join.
- **Step 3:** On August 1, 1997, tell us about your progress by filling out a simple reporting form that we will provide you.
- **Step 4:** Reconfirm and update your annual commitment(s) to **Businesses for the Bay** by renewing your Commitment Worksheet for another year.

## ***Chemicals Targeted for Reduction by Businesses for the Bay***

### **Chesapeake Bay Toxics of Concern**

Atrazine	Copper
Benz[a]anthracene	Fluoranthene
Benzo[a]pyrene	Lead
Cadmium	Mercury
Chlordane	Naphthalene
Chromium	PCBs
Chrysene	Tributyltin

### **Toxic Release Inventory Chemicals**

Chemicals required for reporting under Section 313(c) of the Emergency Planning and Community Right to Know Act

## **R**ecognition for Progress in Pollution Prevention

As a **Businesses for the Bay** partner, you will receive recognition for your pollution prevention efforts. **Businesses for the Bay** will issue periodic press releases that recognize the accomplishments and ongoing support of partners. Each partner will also receive individual recognition through a certificate acknowledging progress in pollution prevention.

# Chesapeake Executive Council's Businesses for the Bay Excellence Awards

The Chesapeake Bay Program commends the members of **Businesses for the Bay** because our voluntary actions contribute to implementation of the *1994 Chesapeake Bay Basinwide Toxics Reduction and Prevention Strategy*. This strategy, endorsed by the Chesapeake Executive Council, recognizes pollution prevention as the preferred approach to reducing chemical releases throughout the watershed. To honor the achievements of **Businesses for the Bay**, the Chesapeake Bay Program has developed a prestigious award for which only team members are eligible.

The Chesapeake Executive Council's **Businesses for the Bay** Excellence Awards will be presented by your Governor/Mayor (of the District of Columbia), the Administrator of the U.S. Environmental Protection Agency, and the chair of the Chesapeake Bay Commission. Separate awards will be presented to small, medium, and large businesses within the watershed that demonstrate outstanding achievement in pollution prevention. A separate application form for the Executive Council's **Businesses for the Bay** Excellence Awards will be distributed to you with the progress report form each year.

## Chesapeake Bay Program

The Chesapeake Bay Program is a unique regional partnership dedicated to the restoration and protection of the Bay watershed and its living resources.

Chesapeake Bay Program partners include the State of Maryland, the Commonwealth of Pennsylvania, the Commonwealth of Virginia, the District of Columbia, the U.S. Environmental Protection Agency representing all federal agencies, and the Chesapeake Bay Commission. The Chesapeake Bay Program, led by the Chesapeake Executive Council, is a non-regulatory program aimed at developing consensus-based solutions to environmental concerns within the watershed.

**Businesses for the Bay is a new partner, demonstrating the commitment of industry to a healthy bay.**

## Examples of Pollution Prevention Activities

### SOURCE REDUCTION

- Set a measurable reduction goal in your use/ generation of toxic chemical(s)
- Avoid overbuying and discarding unused, expired materials
- Practice preventative maintenance on equipment to avoid spills and leaks
- Change a process that eliminates the need for toxic chemicals
- Reduce the volume of toxic chemicals used within a process
- Substitute more toxic chemicals with less-toxic or non-toxic chemicals
- Conduct regular assessments of your facility to identify pollution prevention opportunities
- Train your employees on how to practice pollution prevention

### REUSE/RECYCLING

- Develop and implement a recycling program
- Identify and employ technologies for in-house recycling of production materials

### MENTORING/RECRUITING

- Become a mentor to businesses in need of technical/financial assistance
- Work to recruit other businesses to join Businesses for the Bay Team

If you have questions about **Businesses for the Bay**, call 1-800-YOUR-BAY and ask for the Businesses for the Bay Coordinator or call your state pollution prevention coordinator at the number listed below.

Melissa Whitmill .....(410) 631-3772  
or (800) 633-6101, x-3772

Pollution Prevention Coordinator  
Maryland Department of the Environment

Sharon Kenneally-Baxter .....(804) 698-4344  
Pollution Prevention Coordinator  
Virginia Department of Environmental Quality

Michele Blake .....(717) 772-8945  
Pollution Prevention Coordinator  
Pennsylvania Department of  
Environmental Protection

Nick Kauffman .....(202) 645-6080  
Pollution Prevention Coordinator  
District of Columbia Department of  
Consumer and Regulatory Affairs

## BUSINESSES FOR THE BAY



### Chesapeake Executive Council:

To:

Governor, State of Maryland  
Governor, Commonwealth of Pennsylvania  
Governor, Commonwealth of Virginia  
Mayor, District of Columbia  
Chair, Chesapeake Bay Commission  
Administrator, U.S. Environmental  
Protection Agency  
Chesapeake Bay Program Office  
410 Severn Avenue  
Suite 109  
Annapolis, MD 21403

**J**oin the Businesses for the Bay Team  
This team represents businesses that helped design **Businesses for the Bay** and are committed to implementing pollution prevention in their daily operations.

Allied Signal  
Aristokraft, Inc.  
Anheuser-Busch Inc.  
Baltimore Gas & Electric Company  
Buchart Horn, Inc.  
Chemetals, Inc.  
Chesapeake Paper Products Company  
Condea Vista Company  
Coors Brewing Company  
CYTEC Engineered Materials  
Duron, Inc.  
E.I. DuPont de Nemours & Company, Inc.  
E.A. Engineering, Science & Technology  
Eastalco Aluminum Company  
FMC Corporation  
Georgia-Pacific Corporation  
Goldschmidt Chemical Corporation  
Grace Division  
Lebanon Agricorp

Liberty Fabrics, Inc.  
Northrop Grumman Corporation  
O'Sullivan Corporation  
P.H. Glatfelter Company  
Pennsylvania Power and Light Company  
Potomac Electric Power Company  
Proctor and Gamble  
Reynolds Metals Company  
Shorewood Packaging  
Siemens Automotive Corporation  
Sun Papers  
Taylor-Ramsey Corporation  
Union Camp Corporation  
Ward Machinery  
Warner Lambert  
Wood Preservers, Inc.

**AND YOU!**





## BUSINESSES FOR THE BAY ANNUAL COMMITMENT WORKSHEET

Your **Businesses for the Bay** Commitment Worksheet represents your pledge to help achieve the **Businesses for the Bay** pollution prevention goal of the Chesapeake Bay watershed. Please make sure that all the information on the Commitment Worksheet is included; the information you provide helps us recognize your pollution prevention efforts. If you would like, you may attach your Commitment Worksheet to a cover letter describing any past pollution prevention activities, your commitment to the Bay, and other information you would like to share. Please send the worksheet and the optional cover letter to the address listed on the mailer on the back of this sheet.

Business name:

Contact person:

Address:

Telephone:

Fax:

Primary type of business (i.e., what do you produce or what service(s) do you provide?):

Primary SIC (Standard Industrial Classification) code(s):

Does your company report to the Toxics Release Inventory? ☐ Yes ☐ No

☐ I would like to join the **Businesses for the Bay Team** and would like someone to contact me to help set my goals.

Dear Governor/Mayor:

As a **Businesses for the Bay** partner, \_\_\_\_\_, is committed to working toward the **Businesses for the Bay** goal by identifying and implementing pollution prevention activities. As part of our pollution prevention commitment, we will complete the following pollution prevention activities (check one or more pollution prevention activities you will do during the upcoming year):

### SOURCE REDUCTION

- ☐ Set a measurable reduction in our use/generation of toxic chemicals.
- ☐ Avoid overbuying and discarding unused, expired materials.
- ☐ Practice preventative maintenance on our equipment to avoid spills and leaks.
- ☐ Change a process to eliminate or reduce the need for toxic chemicals.
- ☐ Substitute more toxic chemicals with less-toxic or non-toxic chemicals.
- ☐ Conduct regular assessments of our facility to identify pollution prevention opportunities.
- ☐ Train our employees on how to practice pollution prevention within our facility.
- ☐ Other:

### REUSE/RECYCLING

- ☐ Develop and implement a recycling program in our facility for our commonly disposed materials.
- ☐ Employ technologies for in-house recycling of our production materials.
- ☐ Other:

(continued)

- ☐ Would you like to become a pollution prevention mentor to smaller businesses in need of technical/financial assistance?
- ☐ Would you like to work to recruit other watershed businesses to join the Businesses for the Bay Team?

Signed, \_\_\_\_\_

(Name and Title)

(Date)

*Please fold the Commitment Worksheet on dotted line, staple at the bottom and mail to the address below.*

For more information about Businesses for the Bay, technical assistance or pollution prevention resources, you can contact:

Chesapeake Bay Program Office  
Businesses for the Bay Coordinator  
1-800-YOUR BAY

Melissa Whitmill  
Pollution Prevention Coordinator  
Maryland Department of the Environment  
(410) 631-3772 or (800) 633-6101, x-3772

Sharon Kenneally-Baxter  
Pollution Prevention Coordinator  
Virginia Department of Environmental Quality  
(804) 698-4344

Michele Blake  
Pollution Prevention Coordinator  
Pennsylvania Department of  
Environmental Protection  
(717) 772-8945

Nick Kauffman  
Pollution Prevention Coordinator  
District of Columbia Department of  
Consumer and Regulatory Affairs  
(202) 645-6080

BUSINESSES FOR THE BAY

Place  
Stamp  
Here

TO: George Allen, Governor  
Commonwealth of Virginia  
P.O. Box 1475  
Richmond, VA 23218

Staple Here

## Program Themes

Local governments participating in the program are asked to indicate their activities in six theme areas. Each theme contains benchmarks that serve as criteria for determining if a community qualifies for Gold, Silver, or Bronze recognition.

**Development that Works** - Land use initiatives, policies, and management practices designed to protect natural resources, water quality, and community character.

**Preventing Pollution** - Techniques applied to reduce the effects of pollution on human health and the environment, as well as reduce costs and encourage sustainable development practices.

**Conserving and Preserving Living Resources** - Activities that provide for the sustained health of the living resources in the Chesapeake Bay.

**Valuing Trees and Forests** - Efforts to protect forests and streamside buffers that reduce the harmful impacts of agriculture and development on water quality.

**Conserving the Countryside/Revitalizing Communities** - Programs that conserve and preserve rural and agricultural lands, protect cultural resources, and revitalize urban centers.

**Community Participation** - Cooperative efforts with non-profit organizations and the private sector to plan, implement, and monitor Bay restoration programs.

The Chesapeake Bay Partner Communities program is administered by the Chesapeake Bay Local Government Advisory Committee (LGAC) on behalf of the Chesapeake Bay Program, comprised of the states of Maryland, Pennsylvania, and Virginia; the District of Columbia; the Chesapeake Bay Commission; and the U.S. Environmental Protection Agency.

The program is endorsed by:  
 Maryland Association of Counties  
 Maryland Municipal League  
 Pennsylvania State Association of Township Supervisors  
 Pennsylvania State Association of Boroughs  
 County Commissioners Association of Pennsylvania  
 Virginia Association of Counties  
 Virginia Chesapeake Bay Local Assistance Department  
 Alliance for the Chesapeake Bay  
 Interstate Commission on the Potomac River Basin  
 Susquehanna River Basin Commission

For more information or  
 an application, contact:  
 LGAC

416 Goldsborough Street  
 Easton, MD 21601  
 (410) 822-9630  
 (800) 446-LGAC

Join your neighbor as a



A program dedicated to recognizing communities for their commitment to the protection of the Chesapeake Bay, its rivers, and streams.



## As a Chesapeake Bay Partner, you will:

- ✓ Receive recognition from your Governor for your achievements.
- ✓ Receive press coverage in local, regional, and Bay-related publications.
- ✓ Join a network of local government officials who are concerned with protecting the Bay.
- ✓ Create a healthy environment for business and citizens.
- ✓ Gain eligibility for additional technical assistance programs.
- ✓ Strengthen qualifications in grant applications by demonstrating your commitment to environmental efforts.

"These communities are among the leaders in this region in carrying out sound, local practices to improve their environments. They deserve this special recognition because local government efforts are vital to our long-term success in restoring the Bay and its rivers."

Michael McCabe  
U.S. EPA  
Regional  
Administrator  
Region III

In the inaugural year,  
26 communities were  
named Bay Partners.

Maryland	Pennsylvania	Virginia
Baltimore County Town of Bel Air City of Bowie Calvert County	Harris Township Lititz Borough Pequea Township Spring Township	Fairfax County
Anne Arundel County Charles County Harford County Kent County	Warwick Township	Albemarle County Prince William County
Carroll County Howard County Prince George's County Queen Anne's County	East Manchester Township Borough of Lewiston City of Harrisburg Manor Township	Town of Warrenton York County



## To apply to become a Chesapeake Bay Partner, you should:

- ✓ Request an application from the LGAC by calling (800)446-5422 or by visiting the Bay Program website: [www.chesapeakebay.net/bayprogram/localgov/localgov.htm](http://www.chesapeakebay.net/bayprogram/localgov/localgov.htm)
- ✓ Review the six themes of the program.
- ✓ Discuss your community's actions with appropriate staff members.
- ✓ Complete the application, including any support documentation that is requested.
- ✓ Submit your application by April 30, 1998 to the LGAC, 416 Goldsborough Street, Easton, MD 21601.

"As mayor of one of the inaugural Bay Partner Communities, I have seen first hand the positive results of this program. Achieving GOLD status helped our community to realize how our actions contribute to the protection and restoration of local streams and the Chesapeake Bay."

Russ Petyjohn  
Mayor, Lititz  
Borough, PA  
Chair,  
LGAC

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# Appendix B

## Developing a Local Government P2 Program

- ☐ Economic Cost Accounting Technique
- ☐ Purchasing Policies Checklist
- ☐ P2 Model Ordinances and Policies
  - Recycled Product Procurement Policy
  - Developing a Hazardous Waste Reduction Program
  - Procurement Policy for Recycled Products, Norfolk, VA
  - City of Cincinnati Draft P2 Policy Statement



## Economic Cost Accounting Technique for Pollution Prevention

The following tables will assist your local government in identifying cost savings that result from certain pollution prevention techniques. In determining what pollution prevention activities to implement first, local governments are encouraged to calculate the potential cost savings a P2 technique may have in order to prioritize your pollution prevention initiatives.

### A. Capital Costs for this Pollution Prevention Technique

Item	Cost
New Equipment	
Materials and Supplies	
Facility/Storage Preparation	
Installation/Utility Connections	
Permitting Costs	
Staff Training/Marketing/Educational Information	
Other	
Total Capital Costs	

### B. Annual Operating Costs for a Pollution Prevention Technique

Item	Annual Cost
Equipment	
Materials and Supplies	
Operation & Maintenance (e.g. labor, storage space, service contracts)	
Waste Disposal	
Ongoing Staff Training and Marketing	
Other	
Total Annual Operating Costs	

### C. Annual Cost Savings for this P2 Technique

Decreases in operating cost or increases in revenue are positive. Increases in operating cost or decreases in revenue are negative.

Item	Annual Savings
Equipment	
Materials and Supplies	
Operation & Maintenance (e.g. labor, storage space, service contracts)	
Waste Disposal	
New Revenue (e.g., from sale of recyclable materials, or in materials exchange)	
Other	
Total Annual Cost Savings	

### D. Calculation of Net Annual Cost or Savings for this P2 Technique

$$\frac{\text{Total Annual Savings}}{\text{(from table C)}} - \frac{\text{Total Annual Operating Costs}}{\text{(from table B)}} = \frac{\text{Annual Net Cost or Savings}}{\text{(from table B)}}$$

### E. Calculation of Payback Period for this P2 Technique

$$\frac{\text{Total Capital Costs}}{\text{(from table A)}} \div \frac{\text{Annual Net Savings}}{\text{(from table D)}} = \frac{\text{Payback Period}}{\text{(years)}}$$

Source: ICMA, *Preventing Pollution: A Guide for Local Governments*



## HOW GREEN ARE OUR PURCHASING POLICIES?

1. Do you have a green mission statement for purchasing?

Yes      No

2. Do you have any of the following policies?

Yes      No      Policy encouraging purchase of environmentally preferable products

Yes      No      Policy of buying products made with recycled materials (such as paper)

Yes      No      Policy of ordering outside print jobs on recycled paper

Yes      No      Policy of ordering outside print jobs copied double-sided

3. Do you use any of the following tools to support purchasing decisions?

Yes      No      Life-cycle cost analysis

Yes      No      Energy audits

Yes      No      Water use and loss audits

Yes      No      Material safety data sheets

Yes      No      Computer-based tracking systems for chemicals

4. Which of the following materials do you purchase with recycled content or other environmental attributes (e.g., energy-efficient, chlorine-free)?

Yes      No      N/A      Printing and writing paper

Yes      No      N/A      Newspaper

Yes      No      N/A      Other paper products

Yes      No      N/A      Office products \_\_\_\_\_

Yes      No      N/A      Toner cartridges

Yes      No      N/A      Engine oil

Yes      No      N/A      Paints

Yes      No      N/A      Other \_\_\_\_\_

Yes      No      N/A      Other \_\_\_\_\_

Yes      No      N/A      Other \_\_\_\_\_

5. Who decides what products are purchased? Do individual buyers have discretion in purchasing some items over others (e.g., discretion with computers but not paper)? How much product is purchased directly by users (i.e., outside of the formal purchasing function)?

6. Review existing specifications.
  - a. Which products have detailed specifications?
  - b. Do these specifications inadvertently work against environmentally preferable products?
7. Does your RFP process provide disincentives for green buying?

## **Model Ordinance Establishing a Recycled Product Procurement Policy**

- WHEREAS, the volume of material disposed of at the (city/county) landfill (s) has been increasing annually, and
- WHEREAS, sanitary landfill space is at a premium and it is becoming increasingly difficult to site new landfills, and
- WHEREAS, much of the material that enters the waste stream can be recycled. reused or incorporated in the manufacture of new products, and
- WHEREAS, (city/county) participation in and promotion of recycling programs can significantly reduce the volume of material entering the waste stream thereby extending (city/county) landfill life expectancy and reducing expenses, and
- WHEREAS, for recycling programs to be effective, markets must be developed for products that incorporate postconsumer materials in their manufacture, are reusable, or are designed to be recycled, and
- WHEREAS, California State Law requires that local agencies buy recycled products if fitness, quality and price are equal to nonrecycled products and allows local agencies to adopt purchasing preferences for recycled products.

NOW THEREFORE BE IT RESOLVED by the (Council/Board of Supervisors) of the (city/county) of \_\_\_\_\_ as follows:

That \_\_\_\_\_ is hereby amended by adding Section \_\_\_\_\_ to read as follows:

1. Within twelve months subsequent to the effective date of this section, all (city/county) departments, agencies, offices, boards and commissions must conduct a review of existing product and service specifications to determine whether existing specifications either require the use of products manufactured from virgin materials or exclude the use of recycled products, reusable products, or products designed to be recycled.
2. In the event that such specifications do exclude the use of recycled products or require the use of virgin materials, then such exclusions or requirements must be eliminated unless the pertinent department or entity can demonstrate to the satisfaction of the (city manager/chief executive officer/etc.) that these recycled products would not achieve a necessary performance standard.
3. Within the same 12 month period, all (city/county) departments and agencies must recommend changes to the (city manager/chief administrative officer/etc.) to ensure that performance standards for particular products can be met and that specifications are not overly stringent, and to recommend changes to ensure that specifications will incorporate a requirement for the use of recycled materials, reusable products, and products designed to be recycled to the maximum extent practicable. subject to an alternative showing that either the performance of the product will be jeopardized or that the product will negatively impact health, safety or operational efficiency.
4. Outside contractors bidding to provide products or services to the (city/county), including printing services, must demonstrate that they will comply with the specifications described in paragraph 3 to the greatest extent feasible.

5. (City/county) staff will work to encourage the copier industry to develop high-speed copiers that will accept recycled paper. in addition, recycled paper shall be purchased and used In all copy machines trial will accept it.
6. When recycled products are used, reasonable efforts shall be undertaken to label the products to indicate that they contain recycled materials. (City/county) departments and agencies shall use for their mast-head stationery and envelopes recycled paper that includes postconsumer recycled content and indicate on the paper and envelopes that they contain recycled material. Other recycled products used by the (city/county) shall also indicate that they contain recycled material to the extent practicable.
7. A (10% or greater) price preference may be given to recycled products, reusable products offered as alternatives to disposable products. arid products designed to be recycled where they are offered as alternatives to non-recyclable products. The preference percentage shall be based on the lowest bid or price quoted by the supplier or suppliers offering non-recycled products.
8. The (city/county) will cooperate to the greatest extent feasible with neighboring city and county governments in an effort to develop a comprehensive, consistent and effective procurement effort intended to stimulate the market for recycled products. reusable products and products designed to be recycled.
9. All related (city/county) departments and agencies shall work cooperatively to further the purposes of the ordinance. The (city/county)'s economic development process shall incorporate the goal of stimulating the market for recycled material.

Source: Local Government Commission, *Model Ordinances for Environmental Protection* (Sacramento: Local Government Commission, 1990). Reprinted with permission.

## **Model Resolution for Developing a Hazardous Waste Reduction Program in the City/County/District of \_\_\_\_\_**

In the matter of establishing a program to assist businesses adopt hazardous waste reduction measures in the City/County/District of \_\_\_\_\_.

WHEREAS, hazardous waste reduction includes reducing the use of hazardous substances, reducing the generation of hazardous waste at the source, and recycling hazardous waste to reduce pollutant releases to all environmental media; and

WHEREAS, hazardous waste reduction saves businesses money by increasing productivity while reducing hazardous waste management costs, short and long-term liability, and chemical feedstock costs; and

WHEREAS, hazardous waste reduction protects the health and environment of the community, decreases employee exposure to workplace chemicals, and reduces the need for offsite hazardous waste management facilities; and,

WHEREAS, the City/County/District of \_\_\_\_\_ encourages businesses, where feasible, to employ hazardous waste reduction practices, rather than treat and/or dispose of toxic chemical waste into the land, air, and water-,

NOW THEREFORE BE IT RESOLVED that the City/County/District of \_\_\_\_\_ establishes a hazardous waste reduction program to assist area businesses reduce their hazardous waste; and

FURTHER, BE IT RESOLVED that the following educational activities will be pursued: (Choose one of more)

1. Establish a blue ribbon task force on waste reduction;
2. Encourage local business groups, trade associations and volunteers to assist local businesses incorporate waste reduction measures;
3. Develop a waste reduction library;
4. Conduct a series of workshops;
5. Include waste reduction education as a part of local inspections;

FURTHER, BE IT RESOLVED that in-depth technical assistance will be provided to area businesses interested in reducing their waste; and

FURTHER, BE IT RESOLVED that regulatory measures that encourage the use of waste reduction measures will be developed; and

FURTHER, BE IT RESOLVED that the \_\_\_\_\_ Department/Division serve as the lead agency for this effort; and,

FURTHER, BE IT RESOLVED that the (lead dept. or division) submit a proposed work program to this Council/Board by (date) that identifies the hazardous waste reduction activities selected for implementation, along with a timetable and required financial support.

Source: Local Government Commission, *Model Ordinances for Environmental Protection* (Sacramento: Local Government Commission, 1990). Reprinted with permission.

## **Procurement Policy for Recycled Products City of Norfolk, Virginia**

**Sec. 33.1-46. Policy for recycled materials; preference for recycled paper and paper products in competitive scaled bidding.**

- (1) It shall be the policy of the city to promote the recycling of materials and the reduction of waste matter so as to make environmentally sound procurement decisions.
- (2) In the procurement of the following products for use in city operations, the city will select products containing recycled materials provided the quality is suitable for the purpose intended:
  - (a) Cement and concrete containing fly ash;
  - (b) Paper and paper products containing recovered materials;
  - (c) Lubricating oils containing re-refined oils;
  - (d) Retreaded tires; and
  - (e) Building insulation products containing recovered materials.
- (3) In determining the award of any contract for paper and paper products, the purchasing agent shall procure using competitive scaled bidding and shall award, consistent with Virginia Code section 11-47.2, to the lowest responsible bidder offering recycled paper and paper products of a quality suitable for the purpose intended, so long as the bid price is not more than ten (10) percent greater than the bid price of the lowest responsive and responsible bidder offering a product that does not contain recycled material.  
(Ord. No. 36,567, § 1, 9-17-91)

The City created a pollution prevention policy statement that affirms its commitment to P2. Following is a draft version of this policy statement.

**City of Cincinnati "Draft" P2 Policy Statement**  
(currently pending before City Council)

The City of Cincinnati is committed to excellence and leadership in protecting the environment. In keeping with this policy, the City's objective is to reduce waste and emissions whenever possible. We strive to minimize adverse impacts on the air, water, and land through pollution prevention and energy conservation. City management charges each employee to accept this commitment and incorporate sound pollution prevention and waste minimization practices into our daily goals and project activities.

Within our operations and support functions, we incorporate the objective of reducing the quantity and/or toxicity of all wastes, and minimizing adverse impacts on air, water and land resources.

By successfully preventing pollution at its source, we can achieve costs savings, increase operational efficiencies, improve the quality of our service delivery, maintain a safe and healthy workplace for our employees, and improve the environment. The City's guidelines include the following:

Reducing or eliminating the generation of waste is a vital and prime consideration, and receives equal consideration with issues such as safety, costs, quality control, environmental quality and project design in service delivery, or in providing facility support operations. Emphasis on the elimination, reduction, reuse or recycling of materials eliminates the need to classify and dispose of generated waste.

Pollution prevention is an individual, as well as collective responsibility of our City, and serves as an indicator of successful performance for each employee and our entire organization. Therefore, program progress and special achievements resulting from the implementation of this policy will be encouraged and routinely shared with all employees. In addition, employee performance evaluations will include ratings to reflect the individual's level of commitment to sound pollution prevention and waste minimization practices.

Cooperation and flexibility among organizational units promotes broader acceptance and participation with pollution prevention activities, and management is committed to enhancing this process. Therefore, interdepartmental “focus groups” or “P2 assistance teams” will be formed to help promote the concept and implementation of pollution prevention.

Periodic program evaluations will be conducted to measure the effects of pollution prevention activities. The City’s P2 program will set specific “milestone” dates for achieving specific levels of success in the prevention of pollution. First, base line data on all City generated waste streams will be established and then, periodic assessments will be conducted to measure the progress of the program.

Each city department and/or division will be responsible for identifying, quantifying and prioritizing all of their waste streams. Prioritizing should be based on the hazardous nature and/or the volume of the waste generated.

The City will develop a mechanism whereby all departments and/or divisions pay directly for their waste disposal costs out of their individual budgets, if they do not already do so. This will internalize the costs associated with the waste and create an additional incentive for the elimination or reduction of these wastes.

Finally, the City commits to continue the pollution prevention program beyond the completion of the U.S. EPA funded Pollution Prevention Incentives for States grant project, which is in part, the impetus for the City’s current efforts. This total management level of commitment will ensure the City’s dedication to the P2 concept of continuous improvement by waste reduction.



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# Appendix C

## **Promoting P2 Activities to Small Businesses**

- ☐ **Steps to Establishing a P2 Program**
- ☐ **Economic and Technical Evaluation Forms**
- ☐ **P2 Checklists**

PA DEP Facility Pollution Prevention Checklist

Office Environmental Checklist

Environmental Checklist for Printers

- ☐ **Educational Brochures**

Eco-Wise Program, Montgomery County, MD

Businesses for a Cleaner River, Elizabeth River Project, VA



## **Steps for Establishing a Small Business Pollution Prevention Program**

The process outlined below is only a general overview for getting a business started on pollution prevention. More detailed resources are available; however, this process should provide the framework by which a business can establish its program.

### **Step 1 Create a Pollution Prevention Group**

Seeking the input and ideas from all parts of a business is critical to getting support for the initiative and creating a pollution prevention program that benefits all aspects of a business. An group or team can be the first step in getting organized. The team should consist of employees, management and in some cases the owner(s). The primary objectives of the team will be to organize the effort, conduct self audits, consider areas in which pollution prevention can be used, and report on the groups findings.

### **Step 2 Examine your Business Profile**

A small business needs to consider incorporating pollution prevention techniques into its business plan. Reducing waste through business planning requires little money to implement, but can have significant impact on the waste stream by preventing waste-producing materials, processes and procedures from entering the business. Careful business planning can lead to better purchasing procedures, inventory procedures, and process operations.

### **Step 3 Conduct a Self Evaluation**

The team should consider all aspects of a business in developing a pollution prevention program. All policies and procedures should be evaluated to identify areas in which pollution prevention techniques can be utilized. The information collected during this process should be well documented to provide a baseline for measuring the effectiveness of waste reduction activities undertaken in response to the evaluation. The appendix provides a checklist (not exhaustive) of activities a small business should be evaluating during its self evaluation.

### **Step 4 Select Waste Reduction Techniques**

After completing an evaluation, it is time to select those options that will help achieve pollution prevention goals. Comparing technologies used at similar facilities can lead to optimum selections. When selecting options, it may be useful to utilize the following two forms as general guidelines. (from Wigglesworth, *Profiting from Waste Reduction in Your Small Business*)

## Economic Evaluation Form

Date completed: \_\_\_\_\_ Person completing form: \_\_\_\_\_

Waste Reduction Option: \_\_\_\_\_

	Yes	No	Not Sure
Is this option within your price range?			
Does this option have an acceptable payback period (under one year is considered excellent)?			
Does this option reduce your raw material costs?			
Does this option reduce your utilities costs?			
Does this option reduce material and waste storage costs?			
Does this option reduce regulatory compliance costs?			
Will this option reduce the costs associated with worker injury or illness?			
Will this option reduce your insurance premiums?			
Will this option reduce your waste disposal costs?			

## Technical Evaluation Form

Date completed: \_\_\_\_\_ Person completing form: \_\_\_\_\_

Waste Reduction Option: \_\_\_\_\_

	Yes	No	Not Sure
Does this option have a proven track record?			
Will this option maintain product quality?			
Will this option adversely affect productivity?			
Will this option require additional staff?			
Are you certain that this option will create less waste?			
Are you certain that this option will not move waste problems from one form to another?			
Is your plant layout and design capable of incorporating this option?			
Will the vendor guarantee this option?			
Does this option reduce waste at its source?			
Are materials and parts readily available?			
Are other businesses using this option?			
Does this option promote recycling?			



## FACILITY POLLUTION PREVENTION CHECKLIST

Pollution prevention, through waste reduction and energy efficient practices, can result in cost savings for businesses, while at the same time protecting environment. The following series of questions is meant to stimulate thinking about possible pollution prevention actions that might be undertaken by many manufacturing facilities. Each set of questions begins with the phrase, "*Have you considered...*"

### YOUR MANAGEMENT STRATEGY

- ☐ developing a usable source reduction plan for your facility?
- ☐ training employees to be aware of hazardous waste reduction opportunities?
- ☐ accounting for waste treatment and disposal expenses as a direct cost of producing a product?

### WATER USE/REUSE

- ☐ flow control valves?
- ☐ identifying water inflow and outflow from each unit process?
- ☐ evaluating reuse of clean or contaminated water?
- ☐ using timers or foot pedals to control water usage?
- ☐ reactive rinsing?

### MATERIAL HANDLING

- ☐ segregating raw and waste material containers?
- ☐ segregating different waste materials in separate containers?
- ☐ purchasing materials in bulk or larger containers?
- ☐ controlling inventory to reduce waste?
- ☐ labeling all containers properly?
- ☐ labeling process tanks?

### SOLVENT CLEANERS

- ☐ avoiding cross-contamination of solvent?
- ☐ avoiding water contamination of solvent?
- ☐ removing sludge continuously?
- ☐ using a tank cover or air knife to reduce surface evaporation?
- ☐ monitoring solvent composition?
- ☐ consolidating cold cleaning operations?
- ☐ using cryogenic or plastic media blasting for paint stripping instead of solvent stripping?
- ☐ using nonchlorinated solvents instead of chlorinated solvents?
- ☐ installing a vapor recovery system to capture vaporized solvents?
- ☐ installing on-site distillation units?
- ☐ evaluating work removal rate?

### ALKALINE/ACID CLEANERS

- ☐ removing sludge more frequently?
- ☐ avoiding cross-contamination of solvent?
- ☐ reusing cleaners by filtering and rejuvenating?

### PLATING/ETCHING/METAL FINISHING

- ☐ using low temperature baths to reduce surface evaporation?
- ☐ prolonging plating solution bath life through filtration, reducing drag-out, avoiding contamination, etc.?
- ☐ using lower concentration plating bath?
- ☐ redesigning part racks to reduce drag-out before the rinse, possibly with air blow-off?
- ☐ using trivalent chromium instead of hexavalent chromium?
- ☐ using noncyanide plating solutions such as chloride or sulfate solutions?
- ☐ using in-line recovery techniques?
- ☐ regenerating spent bath solutions?
- ☐ segregating all waste streams?
- ☐ using spray or fog nozzle rinses to reduce drag-out?
- ☐ using wetting agents to reduce surface tension, this minimizing drag-out?
- ☐ reusing rinse water?
- ☐ recovering chrome and nickel plating solutions by an evaporation unit?

### RINSE WATER

- ☐ using multiple rinse tanks?
- ☐ using countercurrent rinsing?
- ☐ installing drainboards and drip tanks?
- ☐ installing racks above plating tanks to reduce drag-out?
- ☐ using fog nozzles and spray units?
- ☐ agitating rinse bath (air or solution agitation)?
- ☐ recycling and reusing spent rinse water through such metal recovery techniques as ion exchange, reverse osmosis, and electro-chemical recovery?
- ☐ segregating all waste streams?
- ☐ using an evaporator for material recovery from rinse tanks and reuse in plating bath?

### PAINT APPLICATION

- ☐ using equipment with high transfer efficiency such as electrostatic applicators?
- ☐ using high-solids coatings such as powder coatings?
- ☐ segregating all waste streams?
- ☐ using cheesecloth over filters to reduce spent filter generation?
- ☐ recycling over-spray, for instance, from powder coatings?
- ☐ evaluating the use of different types of paint arrestors such as water wash and filters?
- ☐ arranging formal training for spray operators?
- ☐ optimizing spray conditions in terms of speed, distance, angle, pressure, etc.?
- ☐ using booth coatings for easy booth cleaning?
- ☐ inspecting all parts, such as racks, for cleanliness?
- ☐ using gun washer equipment for equipment clean-out?
- ☐ reducing the use of solvent-based and metal-based paints, where possible, by using water-based coatings?
- ☐ using a charged screen with electrostatic system to reduce edge buildup and to capture and reuse over-spray paint?

### LEAK AND SPILLS

- ☐ using seal-less pumps?
- ☐ installing spill basins on dikes?
- ☐ installing splash guards and drip boards?
- ☐ installing overflow control devices?
- ☐ maximizing use of welded pipe joints?

### SLUDGE DEWATERING

- ☐ using mechanical dewatering devices such as filter presses, centrifuges, vacuum filters, or compression filters?
- ☐ keeping different metals sludges segregated?
- ☐ using filter bags?
- ☐ using sludge dryers?

### PARTS WASHING

- ☐ covering all solvent cleaning units?
- ☐ using refrigerated freeboard on vapor degreaser units?
- ☐ improving parts draining before and after washing?

### OIL/WATER SEPARATION

- ☐ using a centrifuge system to cover cutting fluids?
- ☐ chemical treatment?
- ☐ filtration?
- ☐ coolant regeneration?

### GENERAL LIGHTING, HEATING AND WATER

- ☐ using fluorescent overhead lamps?
- ☐ installing motion detectors for rest room lights?
- ☐ trying less expensive lamps for exit signs?
- ☐ adding set back thermostat for heating system(s)?
- ☐ testing water valves regularly throughout building to eliminate leaks?
- ☐ checking for leaks around windows and doors?

**For more information about pollution prevention approaches contact:**

**DEP's Office of Pollution Prevention & Compliance Assistance**  
P.O. Box 2063, 16th Floor, RCSOB  
Harrisburg, PA 17105-2063  
(717) 783-0540  
FAX: (717) 783-8926

This fact sheet and related environmental information are available electronically via Internet. Access the DEP website at <http://www.dep.state.pa.us> (choose Information by Subject/Pollution Prevention and Compliance Assistance ).



## OFFICE ENVIRONMENTAL PRACTICES CHECKLIST

*This checklist was compiled by the Bullitt Foundation from various sources and is provided to their grantees. The Foundation requires grantees to complete this checklist with grant contracts and encourages them to take the steps outlined below.*

**Yes    No    N/A**

### **Reduce**

- |                          |                          |                          |  |
|--------------------------|--------------------------|--------------------------|--|
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Offer incentives to staff and volunteers to travel to work and meetings without driving alone in a motorized vehicle.  |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Provide advice or assistance with ridesharing, mass transit or nonmotorized transportation options for workshops, conferences or other special events hosted by your organization. |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Replace disposable plates and utensils with durable dishes and flatware.   |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Keep a supply of extra mugs and glasses in a common area.  |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Keep cloth towels next to the sink to be used instead of paper towels.   |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Make two-sided copies, and print letters and reports on both sides of the page.  |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Use electronic mail whenever possible.   |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Avoid using cover sheets to send fax transmittals.   |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Buy a plain paper fax, so the paper can be recycled.   |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Use canvas shopping bags when buying office supplies.  |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Purchase products (including take-out meals) in recycled and recyclable containers.  |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Purchase items in bulk packages or in concentrated form.   |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Be selective with mailing lists for annual reports and newsletters.  |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Reduce junk mail by taking your name off unwanted mailing lists.   |

### **Reuse**

- |                          |                          |                          |  |
|--------------------------|--------------------------|--------------------------|--|
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Reuse paper that is clean on one side for in-house drafts and photocopies.     |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Refill toner cartridges used in photocopiers and laser printers.               |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Give preference to products that incorporate post-consumer recycled materials. |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Do research at libraries or on-line, rather than ordering written materials.   |

☐ ☐ ☐ Share periodicals with associates instead of receiving multiple copies.

☐ ☐ ☐ Donate old or outdated equipment or furniture.

### **Recycle**

☐ ☐ ☐ Recycle office paper, aluminum, steel, glass, newspaper and cardboard.

☐ ☐ ☐ When possible, recycle magazines, colored paper, wood, oil and plastics.

☐ ☐ ☐ Reduce or eliminate the use of colored paper.

☐ ☐ ☐ Purchase recycled paper with high post-consumer content that is not bleached with chlorine. Use Green Seal-certified products whenever they are available.

### **Toxics & Hazardous Materials**

☐ ☐ ☐ Use only non-hazardous supplies for cleaning, landscaping and maintaining the office.

☐ ☐ ☐ If hazardous materials cannot be used up or recycled, take them to a hazardous waste disposal facility.

☐ ☐ ☐ Switch to soy-based and other non-toxic inks for your printing needs.

☐ ☐ ☐ Use rechargeable batteries instead of disposable ones.

☐ ☐ ☐ Avoid chemical pesticides for insect control.

Score: Total Yes \_\_\_\_\_

Total No \_\_\_\_\_

Total N/A \_\_\_\_\_

Organization \_\_\_\_\_

Date \_\_\_\_\_

Note: Purchasing officers or buyers can contact Green Seal at (202) 331-7337 for more information or to become a Green Seal Environmental Partner.



## ENVIRONMENTAL CHECKLIST FOR PRINTERS

How can you determine if a particular printer has a true commitment to the environment. The bottom line is that it is at best difficult to gauge a company's overall environmental score, and that score will probably change depending upon the type of printing a company does (heatset web, for example, is inherently more polluting than sheetfed printing).

Short of going on-site with an expert in environmental compliance and conducting an audit, what can you do? The following list will help evaluate the company that does your printing. You may be able to use this list of concerns to help determine a printer's degree of environmental sensitivity.

Is the printer...

- ☐ Actively stocking and promoting the use of environmentally desirable papers?
- ☐ Knowledgeable about new developments in papers?
- ☐ Knowledgeable about new developments in inks?
- ☐ Pro-actively training their staff members to be flexible in work habits and to be open to new environmental innovations? Or are you often warned that using a new paper or ink will probably result in compromising quality and turnaround?
- ☐ A signatory of the CERES principles-a public commitment to an environmental code of ethics?
- ☐ Conducting regular environmental audits of shop operations?
- ☐ In compliance with the federal Clean Air Act and EPA regulations, as well as state and local laws?
- ☐ Recycling their waste ink to the maximum extent possible, thus minimizing the amount hauled away as hazardous waste?
- ☐ Recovering photochemical (silver) wastes from darkroom chemicals? Has sewage effluent been tested for compliance with local regulations?
- ☐ Recycling other waste from their manufacturing operations:
  - Wash-up solvents?
  - Paper trimmings and plates? (Nearly all printers now do this.)
  - Cardboard?
  - Steel banding from pallets?
  - The pallets themselves?
- ☐ Conducting an annual audit of energy consumption and comparing it to sales volume?

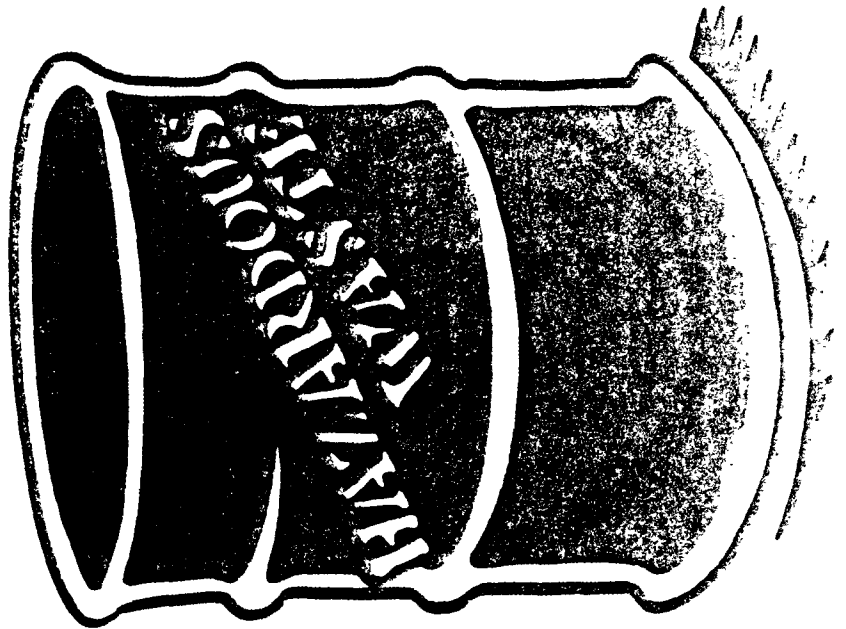
- ☐ Taking steps to improve lighting, heating, and air conditioning efficiency?
- ☐ Monitoring water usage?
- ☐ Providing on-site recycling for employees?
- ☐ Considering environmental impact when making purchasing decisions on equipment and chemicals:
  - Using low-volatility wash-up solvents and cleaning agents?
  - Eliminating chlorinated hydrocarbons wherever possible?
  - Eliminating ozone-depleting compounds wherever possible?
  - Eliminating the use of alcohol in press fountain solutions?
  - Using vegetable off-based inks with under 10% VOCs as their standard ink?
- ☐ Actively educating customers about the environmental impact of printed products and offering production alternatives?

Reprinted with permission from *Newsletter for the Environmentally Responsible Print Buyer*, Jan/Feb 1995, © Ecoprint, 1995.

## It's Easy to Register for the EcoWise Program

To receive a registration packet for the EcoWise program, just tear off and return the postage pre-paid reply card in this brochure. Your registration packet will include EcoWise registration forms, a list of materials and fees, a schedule for upcoming collection events and a copy of *Hazardous Waste Management in Montgomery County*, the County's handbook for businesses generating small quantities of hazardous waste.

For questions or more information about the EcoWise Program, call the Division of Solid Waste Services at (301) 217-2770.



Bulk Rate  
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Montgomery County, Maryland  
Division of Solid Waste Services  
101 Monroe Street, 6th Floor  
Rockville, MD 20850



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MONTGOMERY COUNTY'S  
PROGRAM FOR BUSINESSES  
GENERATING SMALL AMOUNTS  
OF HAZARDOUS WASTES



Montgomery County, Maryland  
Division of Solid Waste Services

## Does Your Business Generate Hazardous Wastes?



You probably want to answer, "no." But many businesses and organizations produce some hazardous materials that may be flammable, toxic, corrosive or reactive. If you do, it is very important to dispose of these wastes in a way that protects human health and the environment — and complies with all federal, state and local regulations.

Many small businesses in Montgomery County may be eligible for the EcoWise program, a cost-effective, environmentally responsible disposal option for small quantities of hazardous waste.

## What Is the EcoWise Program?

The EcoWise program is a partnership between the Montgomery County Division of Solid Waste Services (DSWS) and County businesses and organizations. EcoWise provides organizations with the opportunity to dispose of small quantities of hazardous wastes in an environmentally responsible manner.

Disposal through the EcoWise program costs less than contracting with a hazardous waste management firm, and participating organizations stand to benefit from County-sponsored publicity recognizing the environmental stewardship of EcoWise partners.

## Eligibility for EcoWise

To be eligible to participate in the EcoWise program, your business or organization:

- must be located in Montgomery County and
- must produce less than 100 kilograms of hazardous waste per month as detailed in Maryland regulations.

## How the EcoWise Program Works

The EcoWise program consists of a series of County-sponsored collection events during which eligible hazardous waste generators may deliver certain toxic, flammable, corrosive or reactive waste products for recycling, treatment or disposal.

**Where:** Collection events occur at the Montgomery County Solid Waste Transfer Station near the intersection of Maryland Route 355 and Shady Grove Road.

**When:** Collection events occur on the second Wednesday of each month from 1 p.m. to 5 p.m. The County may schedule more frequent collections as demand for the service increases.

## What Will Be Accepted

Eligible hazardous waste generators may dispose of up to 100 kilograms (approximately 220 pounds) per visit of the following materials:

- acids
- bases
- fuels
- solvents
- oil-based paints and stains
- photographic chemicals
- oxidizers
- reactive materials
- batteries
- pesticides
- heavy metals



**The EcoWise program does not accept acutely hazardous wastes, radioactive materials, explosives and medical waste.**

## EcoWise Program Fees

There is no fee to pre-register for the EcoWise program, but you will pay a fee each time you bring hazardous materials to a collection event. The type and weight of the materials you bring for disposal will determine the fee you pay.

**The cost to a typical EcoWise participant will be approximately one quarter the cost of paying for disposal through a hazardous waste management firm.**

## Benefits of Participating in the EcoWise Program

Participating in the EcoWise program not only benefits the environment but also will benefit your business or organization. As an EcoWise participant, you will:

- be included in press releases identifying businesses and organizations that have demonstrated environmental stewardship and
- receive signs, posters and decals to inform your customers about your environmentally responsible practices.



*EcoWise participants receive signs, decals and posters*



**Extensive research exists today** to provide businesses with alternatives to pollution and waste generation that save money, reduce liability and improve worker safety and morale.

At the heart of the Businesses for a Cleaner River program is our commitment to helping you find solutions that save you money.

**Well** documented methods will be relayed to help you:

- ◆ Reduce costs for energy, water and raw materials.
- ◆ Reduce the cost of waste disposal.
- ◆ Improve aesthetics of your property and reduce landscape maintenance costs.
- ◆ Develop strong employee volunteer support for wildlife habitat programs.
- ◆ Improve community relations and achieve positive recognition.
- ◆ Achieve regulatory compliance through voluntary, win-win actions.

## Confidential Service

All participants are assured that information disclosed for the purpose of achieving assistance from the Elizabeth River Project is held in strict and complete confidence. We may ask your permission to recognize you for special achievements.

Made possible by funds from:

US Environmental Protection Agency, Region III, through VA Dept. of Environmental Quality;  
VA Environmental Endowment;  
National Fish and Wildlife Foundation;  
Fitz-Gibbon Charitable Trust; and  
American Management Systems, Inc.

## Partners

working with  
The Elizabeth River Project  
to make Businesses for a  
Cleaner River a success:

Alliance for the Chesapeake Bay  
Chesapeake Bay Foundation  
Chesapeake Bay Program  
City of Chesapeake  
City of Norfolk  
City of Portsmouth  
City of Virginia Beach  
Hampton Roads Chamber of  
Commerce  
Hampton Roads Planning District  
Commission  
Hampton Roads Sanitation District  
Virginia's Center for Innovative  
Technology  
Virginia Department of  
Environmental Quality.

**Elizabeth River Project**

109 E. Main Street, Suite 305  
Norfolk, VA 23510

(757) 625-3648 Fax 625-4435

e-mail: [erp@norfolk.infi.net](mailto:erp@norfolk.infi.net)

Website: <http://www.infi.net/~erp/>



Logo courtesy of Mark Curry,  
Norfolk Naval Shipyard  
Photography - copyright 1996  
Bill Turner

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# Businesses for a Cleaner River



## Elizabeth River Project

## Resource & Referral Service

Resource Assistance Line  
(757) 625-3648

## Elizabeth River Project

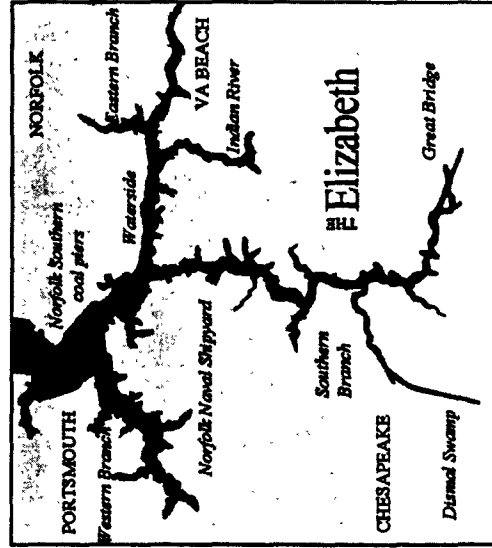


Call the independent, non-profit Elizabeth River Project, a partnership of business, government, scientific and citizen interests working together since 1992. We're a non-regulatory organization committed to finding positive, cooperative solutions to our river's problems.

**Discover win-win solutions** that help your bottom line while helping the Elizabeth River.

**Be recognized** in the community for your work resulting in a cleaner river.

**Become known as a "River Star"** of the Elizabeth River Project's new certification program, Businesses for a Cleaner River!



# Businesses for a Cleaner River - River Stars

A Special Program of Elizabeth River Project



## River Stars

### Voluntary Certification and Recognition

**R**iver Stars, our certification and recognition program, will help you communicate your commitment to environmental protection through decals, plaques, news releases, and a recognition banquet. In addition, successful participants will be highlighted in our Annual State of the River Report to the public.

**F**or more information, call Jill Goodman Bieri or Laura Dukat, (757) 625-3648.

### Demonstration Projects to Be Chosen

**T**he Elizabeth River Project is selecting businesses, schools, neighborhoods and government facilities to serve as demonstration projects during 1997 for both Solutions to Pollution and Wildlife Habitat Enhancement efforts. Successes will serve as potential case studies for others seeking assistance.



### Solutions to Pollution

#### Resources and Referrals

- ◆ Free, confidential research and training on cost-effective alternatives to reduce pollution at the source and minimize costly waste.
- ◆ Volunteer pool of peer expertise to help us find solutions tailored to your industry.
- ◆ "Green Directory" of pollution prevention and waste reduction services.
- ◆ Facilitation between government sources of information and the private sector. We're working in partnership with Businesses for the Bay and state and local efforts.

### Wildlife Habitat Enhancement

#### Resources and Referrals

- ◆ Create a wildlife habitat while increasing employee morale and improving community relations.
- ◆ Free advice on low-cost projects to restore wildlife habitat, control erosion and filter pollutants.
- ◆ "Green Directory" of sources of plants and materials. Volunteer pool of peer expertise.

The Elizabeth River Project - businesses, citizens and government working together for a cleaner river.

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# Appendix D

## Promoting P2 Activities to Citizens

### ☐ Survey Questionnaires

Pollution Prevention

Water Pollution Action Alternatives

### ☐ Educational Brochures

Rain Gardens, Prince George's County, MD

Recycle, Let's Separate Together, Lancaster County, PA

Creating a Water-Wise Landscape, Virginia Cooperative Extension

Household Hazardous Waste, Pennsylvania Environmental Council







# CITIZEN QUESTIONNAIRE-POLLUTION PREVENTION SURVEY QUESTIONNAIRE #1



Thank you for taking a few moments to answer the questions below. The results of this survey will be used by the **Baltimore County Department of Environmental Protection and Resource Management (DEPRM)** in an environmental education program for pollution reduction.

1. Is there a creek, stream or other waterway near your home (within a mile)?

\_\_\_\_ Yes      \_\_\_\_ No      \_\_\_\_ Don't know

If Yes, what is it called? \_\_\_\_\_ Don't know \_\_\_\_\_

2. Do you believe the water in the creek or stream nearest your home to be clean enough for:

	Yes	No	Don't know
Drinking	_____	_____	_____
Fishing	_____	_____	_____
Swimming/Wading	_____	_____	_____

3. Is the place where you live:

\_\_\_\_ Single family detached house    \_\_\_\_ Apartment    \_\_\_\_ Mobile home    \_\_\_\_ Townhouse or duplex

Street name: \_\_\_\_\_ Zip: \_\_\_\_\_

4. Have you ever planted a tree or a shrub?    \_\_\_\_ Yes    \_\_\_\_ No

5. Approximately how much of your lawn do you and your family members use on a regular basis?

\_\_\_\_ All    \_\_\_\_ Most    \_\_\_\_ Half    \_\_\_\_ Less than half    \_\_\_\_ None    \_\_\_\_ N/A

6. Would you be willing to convert some of you lawn to ground cover, shrubs, or trees?

\_\_\_\_ Yes    \_\_\_\_ No    \_\_\_\_ Not Sure    \_\_\_\_ N/A

7. Who performs the lawn care/landscape maintenance where you live?

\_\_\_\_ Property Owner    \_\_\_\_ Lawn care company    \_\_\_\_ Both    Other: \_\_\_\_\_

8. How often is fertilizer applied to the lawn where you live?

____ Not used	
____ Once every 2 to 3 years	Season: _____
____ Once every year	Season: _____
____ Twice a year	Seasons: _____
____ More than twice a year	Season/s: _____
____ Other	Season/s: _____
____ Don't know	

If used, approximately how much is applied per year (lbs)? \_\_\_\_\_

9. How often are chemical pesticides used on the property where you live?

\_\_\_\_ Applied on a regular schedule    \_\_\_\_ Applied as needed    \_\_\_\_ Not Used    \_\_\_\_ Don't know

Do you ever use non-chemical pest control methods?

(attractants, barriers, traps, hand-picking of weeds, etc. )    \_\_\_\_ Yes    \_\_\_\_ No

--Please turn over--

10. Is your home served by Baltimore County's  
"One and One" curbside recycling service? ☐ Yes ☐ No ☐ Don't know
11. Does anyone in you household regularly recycle?  
☐ Yes ☐ No If Yes, where? ☐ Home ☐ Office ☐ School
12. Do you have a compost pile where you live? ☐ Yes ☐ No ☐ Don't know
13. When someone in you household washes the car, where is it done? (Check all that apply)  
☐ On the grass ☐ On gravel ☐ On a concrete driveway  
☐ On bare soil ☐ At a commercial car wash ☐ On the street
14. Approximately how often is the car washed?  
☐ Weekly ☐ Monthly ☐ Every other month ☐ Once a year ☐ Twice a year ☐ Other
15. When the oil or antifreeze in your car must be changed, where is the work done?  
☐ At a dealer, ☐ At home If you change it yourself, how do you dispose of used oil?  
gas station, or lube center ☐ Recycle ☐ Other(specify) \_\_\_\_\_
16. Use the appropriate letter to indicate how you would dispose of the following materials:  
(T) TRASH (R) RECYCLE (D) HOUSEHOLD DRAIN (O) OTHER (specify) (X) DON'T KNOW
- |  |                                     |                                     |  |
|--|-------------------------------------|-------------------------------------|--|
| <input type="checkbox"/> Paint (water based) | <input type="checkbox"/> Yard waste | <input type="checkbox"/> Fertilizer | <input type="checkbox"/> Paint (oil based) |
| <input type="checkbox"/> Metal polishes      | <input type="checkbox"/> Gasoline   | <input type="checkbox"/> Turpentine | <input type="checkbox"/> Pesticides        |
| <input type="checkbox"/> Chlorine bleach     | <input type="checkbox"/> Wood stain | <input type="checkbox"/> Pet waste  | <input type="checkbox"/> Batteries         |
17. When choosing a product to buy, do any of the following factors influence your decision? please check (✓)  
☐ Amount of packaging ☐ Product safety ☐ Packaging material ☐ Ease of disposal ☐ None of these
18. Do you have a pet? ☐ Yes ☐ No If Yes, what type: \_\_\_\_\_  
How do you dispose of pet waste? \_\_\_\_\_
19. Do you own a "Bay" license plate? ☐ Yes ☐ No
20. Is your age: ☐ Under 10 ☐ 10-19 ☐ 20-29 ☐ 30-39 ☐ 40-49 ☐ 50-59 ☐ 60-69 ☐ Over 70
21. Sex: ☐ M ☐ F
22. What is the highest grade of school you completed?  
☐ Less than high school: present grade level \_\_\_\_\_  
☐ High school or GED  
☐ Some college, university or technical school  
☐ College graduate (4 years)  
☐ Post graduate degree

Comments: \_\_\_\_\_  
\_\_\_\_\_

THANK YOU!! If you would like information about this project, call DEPRM at (410) 887-5683, Monday thru Friday 8:30 a.m. - 4:30 p.m.  
PLEASE RETURN SURVEYS TO: Baltimore County Department of Environmental Protection and Resource Management (DEPRM)  
401 Bosley Avenue, Suite 416  
Towson, Maryland 21204



## WATER POLLUTION ACTION ALTERNATIVES SURVEY QUESTIONNAIRE #2



Thank you for taking a few moments to answer the questions below. The results of this survey will be used by the *Baltimore County Department of Environmental Protection and Resource Management (DEPRM)* to determine the effectiveness of the "*Let's Be Partners*" educational program.

As a direct result of the information you received in the program, have you begun to use any of the environmental action alternatives listed below? Place an (✓) in the appropriate space for each action. (Leave the question blank if it is not applicable to you).

<u>Action</u>	<u>I already do this</u>	<u>I am considering doing this</u>	<u>I will do this</u>	<u>No Change</u>	<u>Comments:</u>
1. <i>buy low or non-toxic products</i>	_____	_____	_____	_____	_____
2. <i>buy products with less packaging</i>	_____	_____	_____	_____	_____
3. <i>for pest control:</i>					
a. <i>use attractants</i>	_____	_____	_____	_____	_____
b. <i>use barriers</i>	_____	_____	_____	_____	_____
c. <i>use traps</i>	_____	_____	_____	_____	_____
d. <i>use less chemicals</i>	_____	_____	_____	_____	_____
4. <i>wash car on grass</i>	_____	_____	_____	_____	_____
5. <i>use a hand mower</i>	_____	_____	_____	_____	_____
6. <i>recycle:</i>					
a. <i>oil</i>	_____	_____	_____	_____	_____
b. <i>antifreeze</i>	_____	_____	_____	_____	_____
c. <i>paper</i>	_____	_____	_____	_____	_____
d. <i>yard waste</i>	_____	_____	_____	_____	_____
7. <i>reduce lawn area</i>	_____	_____	_____	_____	_____
8. <i>plant trees or shrubs</i>	_____	_____	_____	_____	_____
9. <i>plant ground cover</i>	_____	_____	_____	_____	_____
10. <i>compost at home</i>	_____	_____	_____	_____	_____
11. <i>buy less fertilizer</i>	_____	_____	_____	_____	_____
12. <i>remove some paved surfaces</i>	_____	_____	_____	_____	_____
13. <i>take household hazardous waste to a collection center</i>	_____	_____	_____	_____	_____

--Please turn over--

<u>Action</u>	<u>I already do this</u>	<u>I am considering doing this</u>	<u>I will do this</u>	<u>No Change</u>	<u>Comments:</u>
14. <i>take a soil sample</i>	_____	_____	_____	_____	_____
15. <i>use recommended grass seed varieties</i>	_____	_____	_____	_____	_____
16. <i>collect pet waste</i>	_____	_____	_____	_____	_____
17. <i>flush pet waste (dog)</i>	_____	_____	_____	_____	_____
18. <i>use biodegradable detergent</i>	_____	_____	_____	_____	_____
19. <i>use marine pumpout</i>	_____	_____	_____	_____	_____
20. <i>join a greening committee</i>	_____	_____	_____	_____	_____
21. <i>remove trash and leaves from a storm drain</i>	_____	_____	_____	_____	_____
22. <i>paint a storm drain</i>	_____	_____	_____	_____	_____
23. <i>buy a Bay License Plate</i>	_____	_____	_____	_____	_____
24. <i>join or support an environmental non-profit organization</i>	_____	_____	_____	_____	_____
25. <i>help with a clean-up</i>	_____	_____	_____	_____	_____
26. Is your age: _____ Under 10    _____ 10-19    _____ 20-29    _____ 30-39    _____ 40-49    _____ 50-59    _____ 60-69    _____ Over 70					
27. Sex:        _____ M        _____ F					
28. What is the highest grade of school you completed?					
_____ Less than high school: <i>present grade level:</i> _____					
_____ High school or GED					
_____ Some college, university or technical school					
_____ College graduate (4 years)					
_____ Post graduate degree					

**Comments:** \_\_\_\_\_

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THANK YOU!! If you would like information about this project, call DEPRM at (410) 887-5683, Monday thru Friday 8:30 am-4:30 pm.

**PLEASE RETURN SURVEYS TO:** Baltimore County Department of Environmental Protection and Resource Management (DEPRM)  
401 Bosley Avenue, Suite 416  
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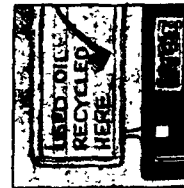
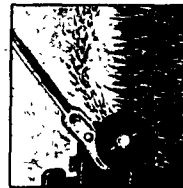
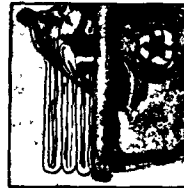
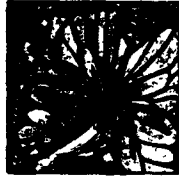
# TREADING LIGHTLY.

Using nature to protect nature, our lifestyles can have a low impact on the environment. By placing a Rain Garden in your yard, you reduce stormwater pollution and provide a natural habitat for birds.

How about a natural hummingbird feeder outside your window? Plant cardinal flower and enjoy the scenery. Each garden is planted with a variety of grasses, flowers, and trees, and can be personalized to create a unique look.

Rain Gardens are only one part of a low environmental impact lifestyle. Prince George's County offers many programs to educate and inform residents about ways to help protect the environment and the quality of our water.

The County provides information about recycling, smart lawn care, and suggestions for caring for your car without harming the environment. Residents can get involved in the Stream Teams program, adopting and monitoring a local stream. You can call 95-CLEAN to learn how to recycle hazardous wastes such as paint and motor oil. By using all of these programs we are treading lightly on our environment.



**R**A I N . . . it's nature's way of nourishing our world and replenishing our water sources. Many of our daily activities, from washing cars



to fertilizing lawns, can turn this precious resource into an environmental problem.

The flow of water created by a rainstorm—stormwater runoff—can be polluted by oil, chemicals, pesticides, and sediments built up on our lawns, driveways, streets, and parking lots as a result of our daily activities. Rain washes these pollutants into storm drains, and ultimately, into local streams and rivers.

The Prince George's County Department of Environmental Resources has developed an innovative and environmentally sensitive approach to reducing stormwater pollution. Rain Gardens are a natural solution to the challenge of protecting our water quality, providing many benefits to the homeowner and the environment.

## A B E N E F I C I A L S Y S T E M

A neighborhood planted with Rain Gardens receives many benefits. Each home has a beautifully landscaped area, enhancing the look of the overall community. Such areas help protect the environment by providing shade and wind breaks. And, because they are in your yard, less mowing is required. These gardens are cost-effective, too. They require little maintenance and

reduce the need for other costly stormwater systems. Gardens can also serve as educational tools for you and your children. Plants can be added to attract hummingbirds or butterflies—you can have a nature center right in your own yard!



## W H A T I S T H E R A I N G A R D E N C O N C E P T ?

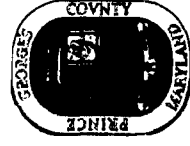
## W H A T D O I H A V E T O D O ?

As a homeowner you are responsible for the care of your garden. Gardens planted in common areas are maintained by the Homeowner's Association. As an environmentally sensitive system, these gardens require less time and work than a yard—no mowing, no pesticides—and very little maintenance other than the occasional weeding. While your role is to be responsible for the care of your garden, your reward is enjoying the beauty of this natural setting and a cleaner, healthier environment.

## *For More Information...*

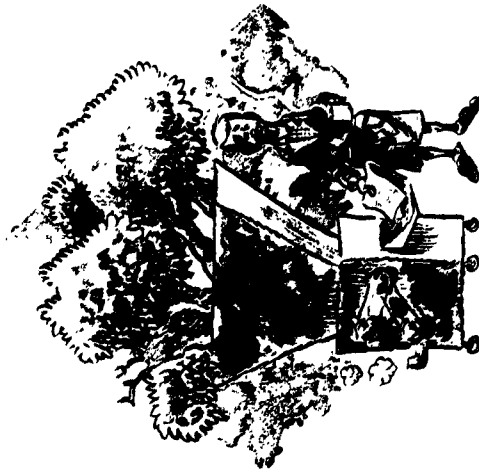
Please call the

Prince George's County  
Department of Environmental Resources  
at (301) 883-5833



Wayne K. Curry, County Executive  
Samuel E. Wynkoop, Jr., Director

The first step is separation of recyclables from trash by the homeowner. The second step is delivery of recyclables to a recycling center. In many municipalities, a curbside collection service for recyclable materials is provided to homeowners. In other municipalities, drop-off centers are nearby, where homeowners can deliver their recyclables. At some drop-off centers you can receive payment for delivering your recyclables.



#### BENEFITS OF RECYCLING

1. **SAVES MONEY** – By reducing your trash volume you may reduce your trash bill.
2. **SAVES ENERGY**
  - ♦ Making one ton of paper from recycled paper uses 70% less energy
  - ♦ Making one ton of aluminum from recycled aluminum cans uses 95% less energy

### 3. SAVES THE ENVIRONMENT

#### Recycling Paper

- ♦ One ton = 17 trees saved
- ♦ 60% less water used to produce new paper products

#### Recycling Glass

- ♦ 50% less water used to produce new glass products
- ♦ 79% less mining waste produced

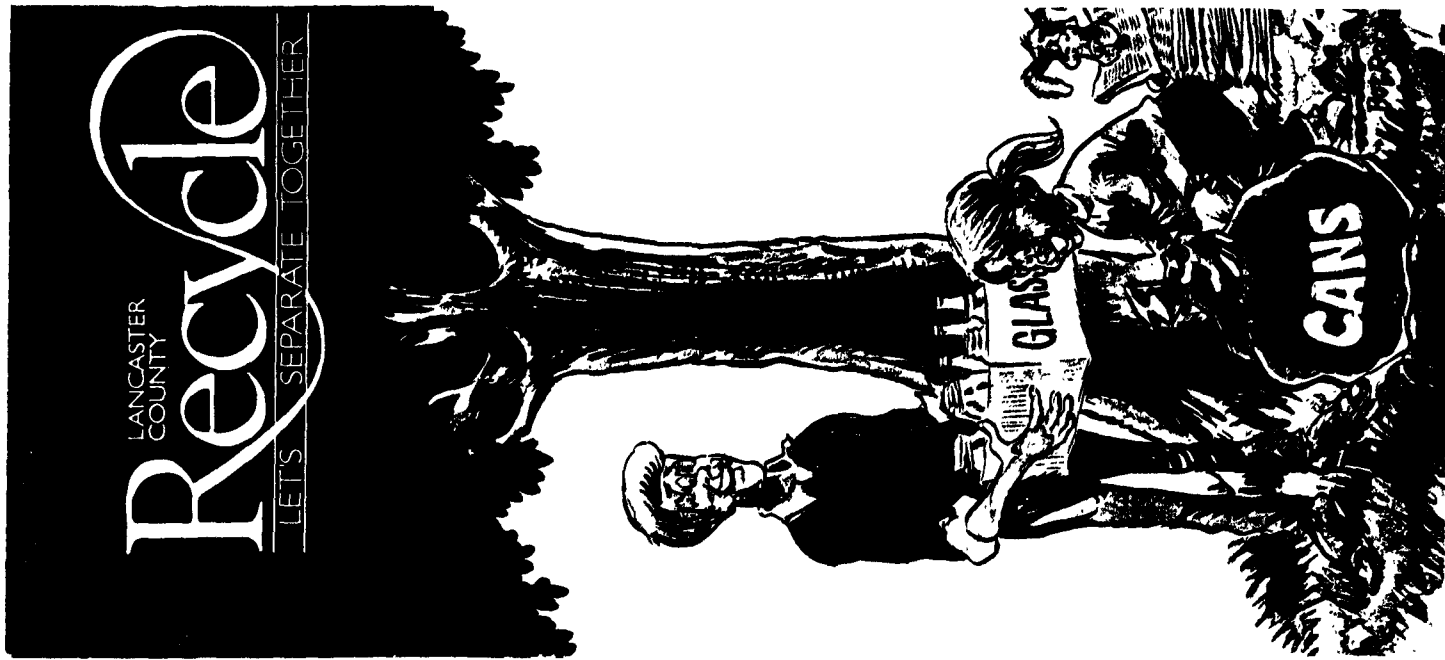
#### Recycling Aluminum

- ♦ 98% less air & water pollution produced
- ♦ Lessens dependency on imports

For more information on the recycling opportunities available to you, contact your municipal office or the Lancaster County Solid Waste Management Authority at (717) 397-9968.

## LANCASTER COUNTY SOLID WASTE MANAGEMENT AUTHORITY

1299 HARRISBURG PIKE  
P.O. BOX 4425  
LANCASTER, PA 17604



## LANCASTER COUNTY'S TRASH PROBLEM – AND SOLUTIONS

The average person throws away about five pounds of trash daily. That is almost one ton of trash every year! Collectively, Lancaster Countians generate more than 1100 tons of trash every day. That is over 400,000 tons every year!

Solid waste disposal has become a serious problem for our County. In the past, all of



our trash has been buried in landfills. As land becomes more scarce, the cost of this traditional method of disposal will rise. We need alternatives.

In Lancaster County, a solid waste system is being developed that is comprised of three major components. These three components – recycling, waste-to-energy and landfilling – when combined with one another will provide us with an efficient, reliable and environmentally sound trash disposal system for the future.

All three of the components are equally important. A recycling program is necessary because it saves valuable landfill space, conserves energy, and is good for the environment. Waste-to-energy incineration plants recover valuable electricity from trash and reduce the volume of the trash by 90% or more, also saving landfill space. A landfill is necessary for the final disposal of incinerator ash and for items that cannot be burned or recycled.



## HOW CAN YOU HELP SOLVE THE TRASH PROBLEM?

The best way to help solve the problem is to reduce the amount of our trash. A goal has been set to reduce by 25% the volume of trash from the County. Currently only 10% of our trash is recycled. It is the responsibility of all trash producers – all of us – to reduce the volume of our waste. We can do this through recycling, smart purchasing and reducing yard waste.

### MINIMIZE YOUR YARD WASTE

- Grass clippings and leaves should not be put in your trash. They can be composted and used as mulch or soil conditioner in your garden and flower beds.

### THINK WHEN YOU BUY

Buy items in the grocery store that are recyclable or packaged using a recycled mate-



rial (often labeled as such). Try not to buy items containing excessive packaging that is not recyclable.

### RECYCLE

Recycling means separating valuable items from trash and reusing those items for the production of new products. Many items in your trash, such as aluminum cans, glass, paper, cardboard, used motor oil, car batteries and some plastics are recyclable.





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Virginia Nurserymen's Association,  
providing Professional Nurserymen's Certification

For more information on selection, planting, cultural practices, and environmental quality, contact your local Virginia Cooperative Extension Office. If you want to learn more about horticulture through training and volunteer work, ask your Extension agent about becoming an Extension Master Gardener. For monthly gardening information, subscribe to *The Virginia Gardener Newsletter* by sending your name and address and a check for \$5.00 made out to "Treasurer, Va. Tech" to The Virginia Gardener, Department of Horticulture, Virginia Tech, Blacksburg, VA 24061-0349. Horticultural information is also now available on the Internet by connecting with Virginia Cooperative Extension's gopher server at [gopher.ext.vt.edu](mailto:gopher.ext.vt.edu).

The development of this series was funded by USDA Smith Lever 3(d) National Water Quality Initiative Funds and the Virginia Department of Conservation and Recreation, Division of Soil and Water Conservation.

## Use the Best Watering Method

While soils vary greatly in their ability to hold water, your garden and lawn should receive enough water to wet the soil to the bottom of the root zone each time you water — generally 1 inch per week. Determine this by digging a hole 5 to 6 inches deep in the watered area the day *after* watering so the water has a chance to seep in. Adjust weekly watering to your soil needs.

**Avoid watering by hand** — it often wastes water as there is excess runoff, and water does not penetrate beyond the top 1 inch of soil. This irrigation practice harms plants by forcing root growth too close to the surface. If you must water by hand, place a 5-gallon bucket with a few holes in the bottom next to the plant and fill it with water; when it is has drained, move it to the next plant and refill.

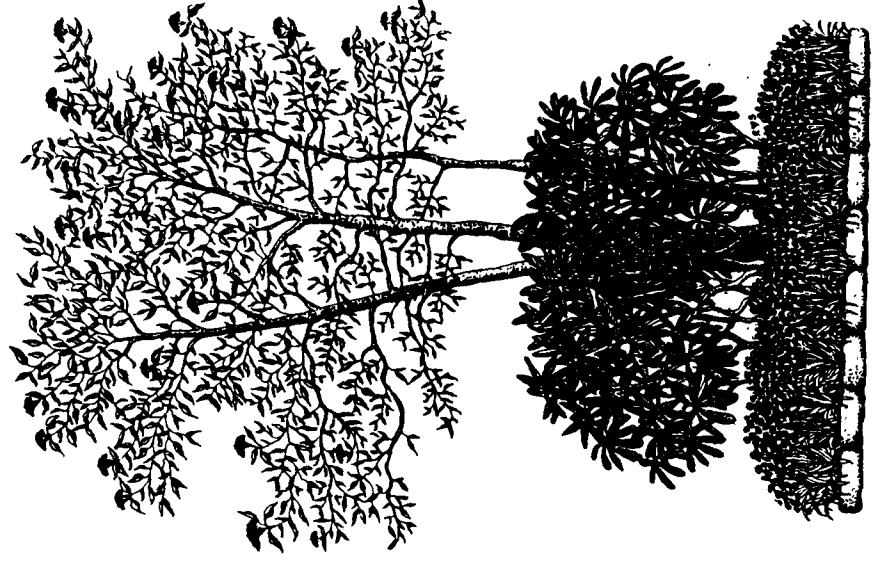
**Properly used sprinkler systems** can deliver a large quantity of water in a short time. They have the disadvantage, however, of excessive evaporation, both during watering and from the plant and soil surface. Early morning watering minimizes water loss. However, sprinkler systems that deliver the water from overhead are the most effective means of watering turfgrass. Be sure to position sprinklers to shower areas of vegetation, not driveways, streets, or patios. Water until the soil is moist 6 inches deep, usually 1 inch per week applied at one time.



**Trickle or drip irrigation systems and ooze hoses** are very efficient, slowly applying water to vegetable and ornamental gardens. Soil moisture can be maintained at a level most suitable to plant uptake. If properly installed and maintained, little water is lost to evaporation or runoff and water use can be reduced by up to 50 percent. For many situations, the expense of installing a good-trickle irrigation system will be compensated by reduced water usage, less replacement of plant materials, and less work. On any



# Creating a Water-Wise Landscape

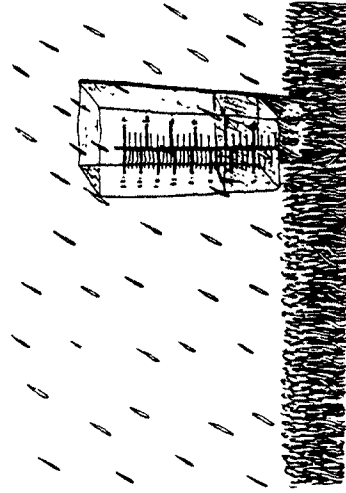


Virginia Cooperative Extension



## Measure the Quantity of Water

To measure the amount of water — whether from a sprinkler or rain — use a rain gauge or a tin can set in the lawn or garden area to be measured. The soil has received an inch of water when the water in the container is an inch deep.



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## Creating a Water-Wise Landscape

### What is Water-Wise Landscaping?

Water-wise landscape design and management focus on working with nature and natural forces (such as rainfall) to create an aesthetically pleasing, livable landscape, while using less water from the local supply.

Minimizing the need for watering in your landscape requires careful observation, planning, and common sense. Several principles for water-wise landscaping include choosing the best design and plants, preparing soils, and watering properly for efficient water use.

Water-wise landscaping is also known as xeriscaping, a word trademarked by the National Xeriscape Council. The word is a combination of the prefix xero- or xer- meaning dry or dryness and the suffix -scape meaning scene or view.

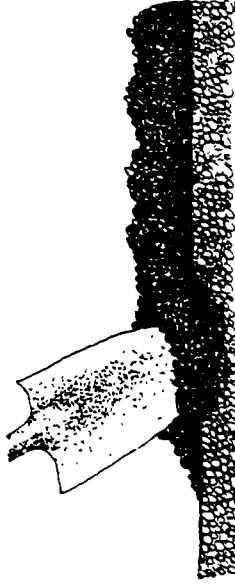
### Plan Your Landscape

The first step in any successful landscape is a good plan. Observe the site and take notes on the current use of different areas or their desired use. Indicate high-use areas, desirable views, environmental concerns (such as wind direction, slopes, dense shade), and traffic flow through the yard. Sketch the property, including any permanent structures, trees, and shrubs that you plan to leave, grass areas, driveways, and sidewalks.

Based on your notes, develop a plan that meets your needs for use, appearance, and budget. Consider maintenance and water requirements in making your decisions. For example, maintaining a high-quality lawn area for entertaining will require frequent fertilizing and mowing, as well as high water use. A more maintenance-free choice for get-togethers is a deck or patio, but don't overdo the use of wood or concrete on your land. Leave plenty of vegetative surface for rain to reach the soil and soak in; otherwise, runoff and erosion problems are created. Whatever plan you develop, the cost can be distributed over a period of time if you implement your design over several years.

### Prepare Soil Adequately

Good soil is the basis for healthy plants and optimum use of water. The key to good soil is the addition of organic matter, such as compost. Sandy soil will hold water and nutrients better if organic matter is incorporated. Clay will absorb water faster, reducing runoff and erosion, if it is loosened with organic matter. Incorporate approximately 2 to 3 inches of compost, shredded leaves, or other fine organic material to the soil annually.



In locations with established trees and shrubs, it is difficult to incorporate organic matter, but applying and maintaining a 2- to 3-inch layer of an organic mulch (coarse leaves, shredded bark, pine needles, or wood chips) will gradually improve the soil as the humic acid formed by the decomposing material leaches into the ground.

### Select Plants Wisely

Decide on the trees, shrubs, and ground covers for your water-wise landscape based on their natural ability to grow well in your area. Select plants that do well with little or no addition of water. Consider native plants as well as introduced species for residential landscapes. Your local Extension agent and nursery personnel can help you identify suitable plants for your location.

Limit plants with high water demands to small areas that can be watered efficiently. Grouping plants by water requirements is one way to guard against overwatering some plants and underwatering others.

In general, ground covers require less water than turfgrass, so replacing some of your lawn with a ground cover will conserve water. If you have large deciduous trees in your yard and want to reduce work and water, go natural — allow leaves to accumulate as they would in nature. Plant a few understory shrubs (such as azaleas and rhododendrons), a few understory trees (such as dogwood), and quit raking!

### Mulch Your Gardens

Use mulch to conserve soil moisture. Organic mulches help retain moisture so there is less need to water. They also recycle plant materials that might otherwise end up in the landfill. In addition, mulches control annual weeds that compete with desired plants for water. Organic mulches improve soil structure as they decompose and moderate the soil temperature, two factors that also help plants use water efficiently.

### Use Optimum Cultural Practices

Proper mowing and fertilizing of the lawn help conserve moisture. Mowing at the proper height (do not remove more than one third of the grass at any one mowing) allows the grass to develop deeper roots that are more efficient in using soil moisture, and reduces annual weeds. Fertilizing at the proper time (your Extension agent or local nursery experts can help you determine this) encourages healthier turf that needs less watering.

Leaving shrubs in their natural forms reduces stress to the plants and, therefore, lessens their need for water.

Keeping weeds, insects, and diseases under control reduces the competition and stress to plants that increase their water demands.



These principles minimize the water demands in your landscape, help you save money and time, and reduce your impact on the local water supply.

### Use Turfgrass Appropriately

Limit the amount of turfgrass you use in the landscape to areas in which grass provides a functional benefit (i.e., a play area for children) that exceeds the benefit of other ground covers or surfacing materials. Select turfgrass suitable to your climate and site.

Design the grass area to make watering easier. Long, narrow areas and small, odd shapes are hard to water efficiently. Avoid turf in the strip between the sidewalk and the road; most irrigation water will land on the paved surfaces and run off.

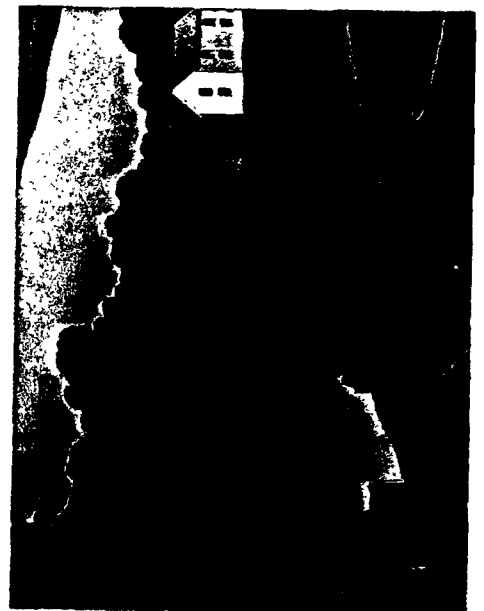
## What You Can Do In Your Community

By working together, the people in a community can plan and create effective systems for managing hazardous wastes. Many communities have begun to sponsor Household Hazardous Waste collection days. These efforts have helped reduce the amount of hazardous waste in many areas while heightening public awareness of the problem.

Successful collection efforts in many cities have helped officials protect their community's wastewater treatment plants and groundwater from hazardous waste contamination. Many communities were able to collect large quantities of hazardous materials on the strength of a one or two day effort. If your community has a program for disposal of hazardous wastes, please support it.

We also encourage you to:

- ☐ Learn as much as you can about your wastewater treatment plant and share that information with your family and friends. Clean water is for everyone.
- ☐ Learn about your community's landfill system and special programs for the disposal of hazardous wastes.
- ☐ Contact your area's hazardous waste agency. They can provide information on companies which are licensed to handle hazardous wastes along with possible funding sources for such efforts.



## WHAT THE FUTURE HOLDS

In Pennsylvania we are blessed with an abundance of springs, lakes, and streams. We have come to expect clean water and a safe environment as a part of our everyday lives. The PA Department of Environmental Protection provides support for Household Hazardous Waste Collection programs throughout the Commonwealth. These programs include the licensing of contractors, the registration of projects, and grants to municipalities. For additional information on the safe use, storage, and disposal of hazardous household products, contact:

**Pennsylvania Environmental Council, Inc.**  
Household Hazardous Waste Hotline  
1-800-322-9214

One of the DEP Regional Offices, as shown below:

**\* Southeast Regional Office**  
Lee Park Suite 6010 - 555 North Lane  
Conshohocken, PA 19428-2233  
(610) 832-6212

**\* Northeast Regional Office**  
Two Public Square  
Wilkes-Barre, PA 18711-0790  
(717) 826-2516

**\* Southcentral Regional Office**  
One Ararat Boulevard  
Harrisburg, PA 17110  
(717) 657-4588

**\* Northcentral Regional Office**  
Suite 101, 208 West Third Street  
Williamsport, PA 17701  
(717) 327-3653

**\* Southwest Regional Office**  
400 Waterfront Drive  
Pittsburgh, PA 15222-4745  
(412) 442-4120

**\* Northwest Regional Office**  
230 Chestnut Street  
Meadville, PA 16335-3481  
(814) 332-6848

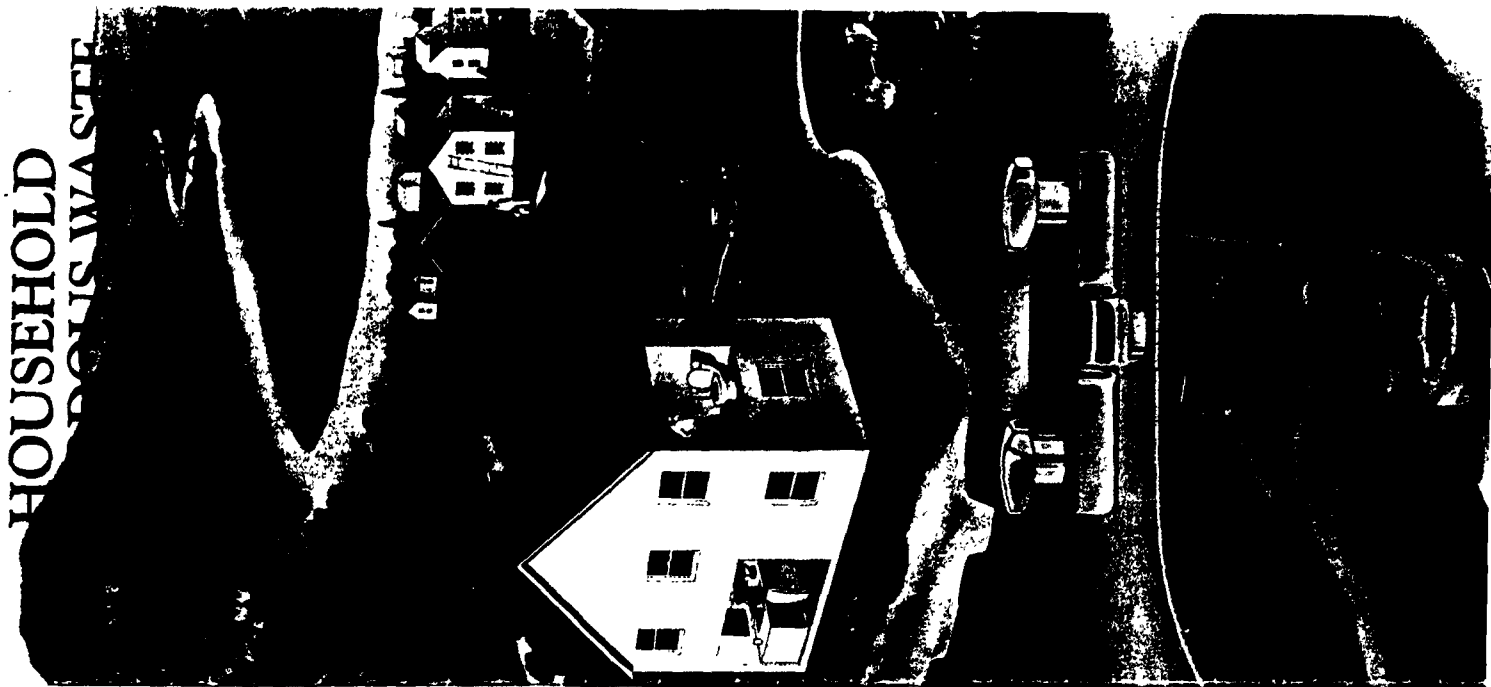
**Department of Environmental Protection**  
Bureau of Land Recycling and Waste Management  
Division of Hazardous Waste Mgmt.

P.O. Box 8471  
Harrisburg, PA 17105-8471  
(717) 787-6239

Information on the waste chart is general in nature. The state and local governments may have requirements and/or restrictions which may be different from those shown on the chart.

**Tom Ridge**  
Governor

**James M. Seif**  
Secretary



# Are You Poisoning Your Water?

If someone were to drop a poisonous substance into your community's water supply, the act would be considered a serious crime and a state of public emergency would be declared.

But when you dump a can of paint thinner down the drain or throw out an old car battery with the trash, no alarms are sounded, no news flashes are issued. Yet, the impact on your water resources could be just as disastrous.

That is not a far-fetched statement. The average household contains between three and ten gallons or ten to forty liters of materials that are hazardous to human health or to the natural environment. Collectively, these materials can poison our water if they are not stored carefully and disposed of properly.

## What Is A Hazardous Material?

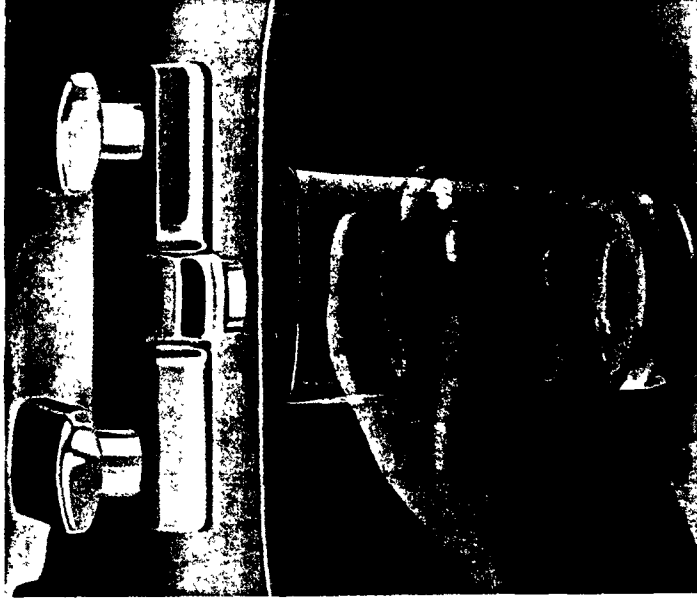
Many government environmental agencies consider a substance hazardous if it can catch fire, if it can react or explode when mixed with other substances, if it is corrosive, or if it is toxic.

This definition includes many things that you probably are storing right now in your garage, basement, bathroom, or kitchen. Some, like paint thinner or car batteries, are pretty obvious, but there are many that you might not ordinarily think of such as polishes, insecticides and glues.

## Dangers Of Hazardous Waste

The improper disposal of household wastes can cause problems for the entire community. Wastes can be explosive or highly flammable. Sewers have exploded and garbage trucks have burned because people have carelessly discarded flammable or reactive wastes.

Hazardous wastes can also be corrosive. The acid from discarded auto batteries can eat away many substances. Some wastes are poisonous to humans or wildlife, while others can cause cancer, birth defects or other serious medical problems.



## Where Do We Put Them?

One of the worst ways to dispose of many hazardous materials is to "just dump them down the drain." Wastewater treatment plants are not designed to handle certain types of hazardous wastes.

Unfortunately, disposing of wastes in a landfill has not proven an effective solution either. Without special design, the modern sanitary landfill is not equipped to accept hazardous wastes. Hazardous wastes improperly disposed of in a landfill can pollute the environment through the groundwater, surface water and air.

If the public cannot dispose of most hazardous wastes in the sewer system or a landfill, what can be done?

This brochure describes some prevention measures you can take in your home to reduce the quantity of waste you must dispose. The **Household Hazardous Waste Chart** indicates the best way of dealing with most hazardous materials found in the home.

## First: Reduce The Amount

You do not need a Ph.D. in chemistry to reduce the use of hazardous wastes in your home. The following suggestions can help:

- ☐ Before you buy a product, read the label and make sure that it will do what you want. Once you buy something you are responsible for disposing of it properly.
- ☐ Do not buy more than you need. That way, you will not need to dispose of the surplus.
- ☐ Read and follow directions on how to use a product and dispose of the container. (There is a good reason why the labels say "do not incinerate" or "do not mix with bleach.")
- ☐ Use safer substitutes when they are available.

## Second: Take Care Of The Wastes

Even if you reduce the wastes that must be dealt with as outlined above there is still the question of what to do with what is left over.

Recycling is an excellent way of handling some hazardous wastes. Used motor oil, paint thinners and some other solvents can be refined and reused just as aluminum cans are. Local civic groups can help you identify recycling programs.

Municipal or commercial incineration is another effective means of dealing with some hazardous wastes. However, a specially designed incinerator is needed to destroy hazardous materials. "Incinerators" in your home, such as your fireplace or woodstove, can not get hot enough to destroy hazardous wastes and should **never** be used to destroy wastes.

Take your household hazardous wastes to a licensed contractor or recycling agency which may be located through the yellow pages. If such a group does not exist, your local wastewater treatment operator may be able to give you more information on the disposal of liquid waste. Your local sanitation department may be able to give you more information on the disposal of solid wastes.

The **Household Hazardous Waste Chart** will guide you in disposing of potentially hazardous material around your home. You should display this chart in a convenient location.

Remember to never dump hazardous wastes on the ground, and always check the chart before pouring them down the drain.

## About the Chesapeake Bay Program

The Chesapeake Bay Program is leading the way in the protection and restoration of the nation's largest estuary - the Chesapeake Bay. This unique partnership includes the states of Maryland, Pennsylvania, Virginia, the District of Columbia, U.S. Environmental Protection Agency, representatives of the federal government, the Chesapeake Bay Commission, a tri-state legislative body, and participating non-source communities.

In the historic 1987 Chesapeake Bay Agreement, the Chesapeake Bay Program partners set a goal to reduce the nutrients nitrogen and phosphorus entering the Bay by 40 percent by the year 2000. In the 1992 Amendments to the Chesapeake Bay Agreement, partners agreed to maintain the 40 percent goal beyond the year 2000 and to attack nutrients at their source - up stream in the tributaries. The goal of reducing nutrients to the Chesapeake Bay is intended to help achieve the Chesapeake Bay Program's primary mission - to restore and protect the Bay's living resources.

The **Toxics Subcommittee** of the Chesapeake Bay Program is leading the effort to reduce chemical contaminants from entering the Bay with an ultimate goal of a "Bay Free of Toxics." This goal was set by the Chesapeake Bay Program in 1994 as part of its *Chesapeake Bay Program's Toxics Reduction and Prevention Strategy*. The Strategy recognizes the importance and encourages the implementation of pollution prevention activities to achieve this goal.

The **Chesapeake Bay Program Local Government Advisory Committee** encourages local government action to protect and restore the Chesapeake Bay and its waters. The Local Government Advisory Committee seeks to improve communication by providing information and technical assistance to the 167 local governments in the Bay region, and serves as the local government voice in the Bay Program. In 1996, with the Chesapeake Bay Program's adoption of the *Local Government Participation Booklet*, the LGAC is supporting the development of tools and techniques that will assist local governments in their efforts to protect local natural resources and contribute to the protection and restoration of the Chesapeake Bay.

## Acknowledgments

The Chesapeake Bay Program's Toxics Subcommittee and the Chesapeake Bay Local Government Advisory Committee would like to thank members of the Local Government Pollution Prevention Focus Group for their insight and input into the development of the Local Government Pollution Prevention Booklet. Members of the Focus Group include **Jeanne Armacost**, Baltimore County, Maryland; **Marc Aveni**, Prince William County Cooperative Extension Service, Virginia; **Sharon Baxter**, Office of Pollution Prevention, Virginia Department of Environmental Quality; **Michele Blake**, Office of Pollution Prevention and Compliance Assistance, Pennsylvania Department of Environmental Protection; **Benji Brackman**, Loudoun County, Virginia; **Larry Coffman**, Prince George's County, Maryland; **Kelly Eisenman**, U.S. Environmental Protection Agency Chesapeake Bay Program Office; **Naomi Friedman**, National Association of Counties; **Tom Griffin**, Office of Pollution Prevention, Virginia Department of Environmental Quality; **Bicky Redman**, Adams County, Pennsylvania; **Sarah Richardson**, Alliance for the Chesapeake Bay; **Aron Trombka**, Montgomery County, Maryland, and **James Wheeler**, Pennsylvania Association of Township Supervisors.

We would also like to thank the Toxics Subcommittee's Pollution Prevention Workgroup and those local government representatives that provided information for contributions, case studies and local government highlights that are included throughout the Booklet.



*The Chesapeake Bay Program is the cooperative partnership among the states of Maryland, Pennsylvania, Virginia; the District of Columbia; the Chesapeake Bay Commission, a tri-state legislative body; the U.S. Environmental Protection Agency, representing the federal government; and participating citizen advisory groups.*

[www.chesapeakebay.net/bayprogram](http://www.chesapeakebay.net/bayprogram)