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Profile of Local Government Operations








The Government Series

GENERAL INFORMATION

This report is one in a series of volumes published by the U.S. Environmental Protection Agency (EPA) to provide information of general interest regarding environmental issues associated with specific industrial sectors. Science Applications International Corporation (McLean, VA) developed this document under contract. The Local Government Workgroup of the National Pollution Prevention Roundtable developed the pollution prevention sections that appear in Chapter 3 and Appendix C of this document. This publication may be purchased from the Superintendent of Documents, U.S. Government Printing Office. The following page lists the available sector notebooks and document numbers.

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Electronic versions of all sector notebooks are available via Internet on the Enviroene World Wide Web at **http://www.epa.gov/oeca/sector/index.html**. Enviro$ense is a free, public, environmental exchange system operated by EPA's Office of Enforcement and Compliance Assurance and Office of Research and Development. The Network allows regulators, the regulated community, technical experts, and the general public to share information regarding: pollution prevention and innovative technologies; environmental enforcement and compliance assistance; laws, executive orders, regulations, and policies; points of contact for services and equipment; and other related topics. The Network welcomes receipt of environmental messages, information, and data from any public or private person or organization. Direct technical questions to the "Feedback" button on the bottom of the web page.

SECTOR NOTEBOOK CONTACTS

The Sector Notebooks were developed by the EPA's Office of Compliance. Direct general questions about the Sector Notebook Project to:

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Questions and comments regarding the individual documents should be directed to the specialists listed below. **See the Notebook web page at: www.epa.gov/oeca/sector for the most recent titles and staff contacts.**

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*Spanish translations available.

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LIST OF ACRONYMS

ACO	Administrative Consent Order
AST	Aboveground Storage Tank
AHERA	Asbestos Hazards Emergency Response Act
BIF	Boiler and Industrial Furnace
CAA	Clean Air Act
CAAA	Clean Air Act Amendments of 1990
CACO	Consent Agreement/Consent Order
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CSQG	Conditionally Exempt Small Quantity Generator
CFC	Chlorofluorocarbon
CFR	Code of Federal Regulations
CSO	Combined Sewer Overflow
CSS	Combined Sewer Systems
CWA	Clean Water Act
CZMA	Coastal Zone Management Act
CZARA	Coastal Zone Act Reauthorization Amendments
EA	Environmental Assessment
EIS	Environmental Impact Statement
ELP	Environmental Leadership Program
EPA	United States Environmental Protection Agency
EPCRA	Emergency Planning and Community Right-to-Know Act
ESA	Endangered Species Act
FACA	Federal Advisory Committee Act
FIFRA	Federal Insecticide, Fungicide, and Rodenticide Act
FR	Federal Register
FWPCA	Federal Water Pollution Control Act
FWS	Fish and Wildlife Service
HAP	Hazardous Air Pollutant (CAA)
HSWA	Hazardous and Solid Waste Amendments
LDR	Land Disposal Restrictions (RCRA)
LEPC	Local Emergency Planning Committee
MACT	Maximum Achievable Control Technology (CAA)
MCL	Maximum Contaminant Level
MCLG	Maximum Contaminant Level Goal
MFS	Marine Fisheries Service
MSDS	Material Safety Data Sheet
MSW	Municipal Solid Waste
NAA	Nonattainment Area
NAAQS	National Ambient Air Quality Standards (CAA)
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
NEPA	National Environmental Policy Act

NESHAP	National Emission Standards for Hazardous Air Pollutants
NOV	Notice of Violation
NO_X	Nitrogen Oxides
NPDES	National Pollutant Discharge Elimination System (CWA)
NPL	National Priorities List
NSPS	New Source Performance Standards (CAA)
OAR	Office of Air and Radiation
OECA	Office of Enforcement and Compliance Assurance
OPA	Oil Pollution Act
OPPTS	Office of Prevention, Pesticides, and Toxic Substances
OSHA	Occupational Safety and Health Administration
OSW	Office of Solid Waste
OSWER	Office of Solid Waste and Emergency Response
OW	Office of Water
P2	Pollution Prevention
PCB	Polychlorinated Biphenyl
PMN	Premanufacture Notice
POTW	Publicly Owned Treatment Works
PSD	Prevention of Significant Deterioration
PSM	Process Safety Management
RCRA	Resource Conservation and Recovery Act
SARA	Superfund Amendments and Reauthorization Act
SDWA	Safe Drinking Water Act
SEP	Supplemental Environmental Project
SERC	State Emergency Response Commission
SIC	Standard Industrial Classification
SIP	State Implementation Plan
SO_x	Sulfur Oxides
SPCC	Spill Prevention, Control, and Countermeasure
SSO	Sanitary Sewer Overflow
TCLP	Toxicity Characteristic Leaching Procedure
TOD	Transit-Oriented Development
TRI	Toxic Release Inventory
TSCA	Toxic Substances Control Act
TSD	Treatment, Storage, and Disposal
TSS	Total Suspended Solids
UIC	Underground Injection Control (SDWA)
UST	Underground Storage Tank (RCRA)
VMT	Vehicle Miles Traveled
VOE	Variance or Exemption
VOC	Volatile Organic Compound
WWTP	Wastewater Treatment Plant

1. INTRODUCTION

1.1 SUMMARY OF THE SECTOR NOTEBOOK PROJECT

Environmental policies based upon comprehensive analysis of air, water and land pollution (such as economic sector, and community-based approaches) are becoming an important supplement to traditional single-media approaches to environmental protection. Environmental regulatory agencies are beginning to embrace comprehensive, multi-statute solutions to facility permitting, compliance assurance, education/outreach, research, and regulatory development issues. The central concepts driving the new policy direction are that pollutant releases to each environmental medium (air, water and land) affect each other, and that environmental strategies must actively identify and address these interrelationships by designing policies for the "whole" facility. One way to achieve a whole facility focus is to design environmental policies for similar industrial facilities. By doing so, environmental concerns that are common to the manufacturing of similar products can be addressed in a comprehensive manner. Recognition of the need to develop the industrial "sector-based" approach within the EPA Office of Compliance led to the creation of this document.

The Sector Notebook Project was initiated by the Office of Compliance within the Office of Enforcement and Compliance Assurance (OECA) to provide its staff and managers with summary information for eighteen specific industrial sectors. As other EPA offices, states, the regulated community, environmental groups, and the public became interested in this project, the scope of the original project was expanded. The ability to design comprehensive, common sense environmental protection measures for specific industries is dependent on knowledge of several interrelated topics. For the purposes of this project, the key elements chosen for inclusion are: general industry information (economic and geographic); a description of industrial processes; pollution outputs; pollution prevention opportunities; Federal statutory and regulatory framework; compliance history; and a description of partnerships that have been formed between regulatory agencies, the regulated community and the public.

For any given industry, each topic listed above could alone be the subject of a lengthy volume. However, in order to produce a manageable document, this project focuses on providing summary information for each topic. This format provides the reader with a synopsis of each issue, and references where more in-depth information is available. Text within each profile was researched from a variety of sources, and was usually condensed from more detailed sources pertaining to specific topics. This approach allows for a wide coverage of activities that can be further explored based upon the references listed at the end of this profile. As a check on the

information included, each notebook went through an external document review process. The Office of Compliance appreciates the efforts of all those that participated in this process and enabled us to develop more complete, accurate and up-to-date summaries. Many of those who reviewed this notebook are listed in Chapter 7 and may be sources of additional information. The individuals and groups on this list do not necessarily concur with all statements within this notebook.

1.2 PROVIDING COMMENTS

OECA's Office of Compliance plans to periodically review and update the notebooks and will make these updates available both in hard copy and electronically. If you have any comments on the existing notebook, or if you would like to provide additional information, please send a hard copy and computer disk to the EPA Office of Compliance, Sector Notebook Project (2223-A), 401 M St., SW, Washington, DC 20460. Comments can also be sent via the web page or to notebook@epamail.epa.gov.

1.3 ADAPTING NOTEBOOKS TO PARTICULAR NEEDS

The scope of the sector described in this notebook approximates the national occurrence of entities within the sector. In many instances, entities within specific geographic regions or states may have unique characteristics that are not fully captured in these profiles. The Office of Compliance encourages state and local environmental agencies and other groups to supplement or re-package the information included in this notebook to include more specific information that may be available. Additionally, interested states may want to supplement the "Summary of Applicable Federal Statutes and Regulations" chapter with state and local requirements. Compliance or technical assistance providers may also want to develop the "Pollution Prevention" sections in more detail. Please contact the appropriate specialist listed on the opening page of this notebook if your office is interested in assisting us in the further development of the information or policies addressed within this volume. If you are interested in assisting in the development of new notebooks, please contact the Office of Compliance at 202-564-2395.

1.4 WHY WERE LOCAL GOVERNMENTS INCLUDED IN THE SECTOR NOTEBOOK PROJECT?

To date, the sector notebook project has focused exclusively on specific sectors of private industry, such as iron and steel, printing, and pulp and paper. However, the project is now expanding its scope to include government-managed and operated sectors. This

notebook–*Profile of Local Government Operations*–represents the first notebook to be included in the new Government Series.

> It is at the local, community, and neighborhood level that environmental problems often originate and must be resolved. Engaging local leaders and communities in the effort to meet future environmental challenges is critical to achieving successful outcomes. EPA realizes that local governments must be empowered to fully realize their stewardship responsibilities, and we are working to ensure that local governments have access to the information, expertise, and resources necessary to build comprehensive, long-term environmental solutions at the local level.
>
> *U.S. Environmental Protection Agency Strategic Plan*

Over the past few years, EPA has been working closely with local governments to address their impacts on the environment, as well as to understand their operations and ability to achieve environmental compliance. As a result of this working relationship, EPA has developed and implemented many policies and programs that focus specifically on local governments, especially small local governments. These policies and programs are designed to encourage compliance by offering both assistance and incentives to local governments.

The purpose of this document is to provide EPA personnel with the additional information needed to effectively work with and, as necessary, regulate the local government sector. Equally important, however, the document is designed to assist local governments in achieving environmental compliance. The intent of this document is to give the reader a better understanding of the different types of local governments, the operations those governments provide that have the potential to significantly affect the environment, the potential environmental impacts of those operations, the regulatory requirements with which local governments must comply, and potential pollution prevention opportunities.

The cumulative environmental aspects and impacts that could result from activities managed or operated by local governments (e.g., wastewater treatment, solid waste management), combined with the large number of local governments in the United States, enhances the need for this type of tool.

Like other EPA sector notebooks, this document presents overview information and data on all aspects of local governments. In addition to this introductory chapter, the document comprises six chapters:

- ***Chapter 2*** presents an overview of local governments, including the types, numbers, and sizes of local governments in the United States.

- ***Chapter 3*** identifies the major operations conducted by local governments and presents pollution prevention opportunities for each.

- ***Chapter 4*** provides an overview of the federal statutes and regulations that may affect local governments.

- ***Chapter 5*** presents compliance and enforcement data on local governments.

- ***Chapter 6*** examines major legal actions that have been taken against local governments.

- ***Chapter 7*** provides information on voluntary programs designed for and available to local governments. It also identifies associations and organizations that may be relevant to local governments.

Chapter 3, which is the heart of this profile, focuses on eight specific areas of operation that local governments are commonly responsible for conducting:

- Construction/property management
- Pesticide/vector management
- Public safety
- Solid waste management
- Wastewater management
- Water resources management
- Water supply
- Vehicle/equipment maintenance.

Although this list may not include all operations conducted by local governments, it is representative of the operations that present the most significant environmental aspects and impacts. This document intentionally omits other operations with significant environmental aspects and impacts, such as power generation and transportation, because they are the subjects of other EPA sector notebooks. (Page ii of this profile provides more information on the power generation and transportation sector notebooks.)

It should be noted that while federal and state agencies regulate local government operations, local governments also play the role of the regulator in many environmental programs. Several programs may be developed at the federal and state levels, but are delegated to local governments to implement and regulate. Chapter 3 also discusses this aspect of local governments.

2. OVERVIEW OF LOCAL GOVERNMENTS

There are three distinct layers of government within the United States—the federal government, state governments, and local governments. Local governments are distinguished from the federal and state governments in that their authority is defined in state constitutions and by state law. According to the U.S. Bureau of the Census, there are four distinct types of local governments:

- ***County Governments***—Established to provide general government, often as a direct extension of the state government. Counties cover all of the land area in the U.S. (County governments are legally designated as "boroughs" in Alaska and "parishes" in Louisiana.)

- ***Subcounty Governments***—Include both municipal and township governments.[1] Subcounties are established to provide for direct rule in a local area. Subcounties provide general government for a defined area that is generally smaller than a county.

- ***Special Districts***—Authorized by state law to provide only one, or a limited number of, designated functions. These districts have sufficient administrative and fiscal autonomy to be recognized as separate governments. They are generally referred to as districts, authorities, boards, or commissions.

- ***School Districts***—Provide public elementary, secondary, and/or higher education. These districts, like special districts, have sufficient autonomy to qualify as separate governments.

As shown in Exhibit 2-1, the United States had nearly 85,000 local governments in 1992. Subcounties represented the largest percentage of local governments (42 percent), while counties accounted for the smallest percentage (4 percent). The disbursement of local governments across the 50 states varies considerably, from 125 in Rhode Island to 6,722 in Illinois. This variance is

For the purposes of this document...

The term ***local government*** means all of the government units described in the opening paragraph of this chapter (i.e., county, subcounty, special district, and school district). The term ***subcounty*** refers to municipalities and towns/townships combined.

[1] ***Municipalities*** include those governments designated as cities, boroughs (except in Alaska), towns (except in some New England states, Minnesota, New York, and Wisconsin), and villages. ***Townships*** include those governments designated as towns in Connecticut, Maine, Massachusetts, Minnesota, New Hampshire, New York, Rhode Island, Vermont, and Wisconsin, as well as townships in other states.

primarily attributable to the legal structure established in each state for the formation of local governments. Other characteristics of the state, such as population and geographic size, may also affect the numbers. Exhibit 2-2 provides the number of local governments in each state.

Exhibit 2-1. Number of Local Governments by Type, 1992

Type of Local Government	Number
County governments	3,043
Subcounty governments -19,279 Municipalities (53.6%) -15,656 Townships (46.4%)	35,935
School districts	14,422
Special districts	31,555
Total	**84,955**

Source: 1992 Census of Governments. Government Organization, Volume 1, Number 1, Table 3.

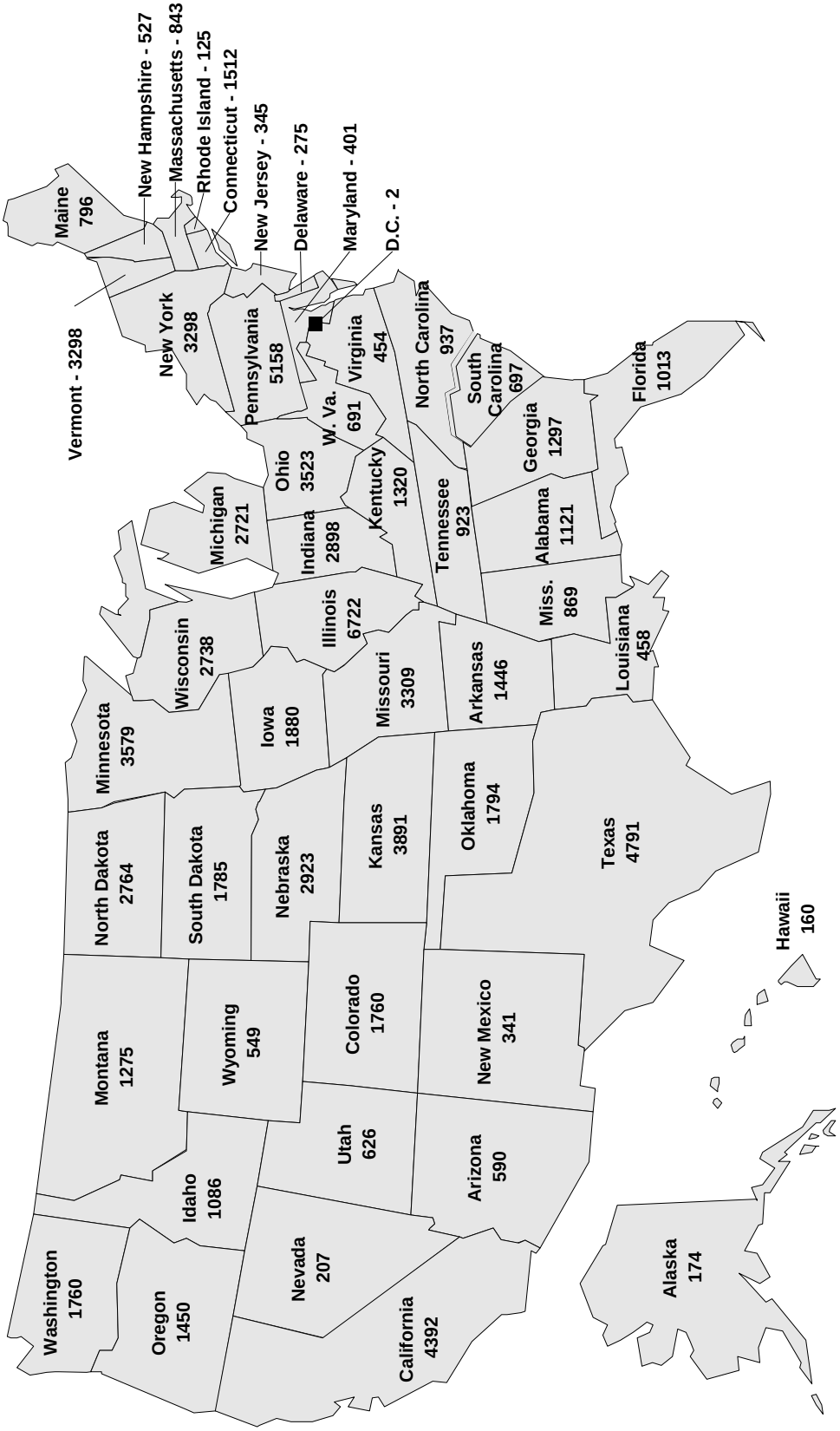
Although these are four discrete types of local government, it is important to note that subcounties, special districts, and school districts can be located within a county, yet still maintain their autonomy for specified functions. For example, a subcounty, school district and special district could all be located within one county. The Census Bureau would count this situation as four local governments. In 1992, each county in the United States had an average of 27 local governments. Appendix A provides more detailed information on the number and types of local governments in the United States.

The remainder of this chapter discusses the provision of services, organizational structures, and financial conduct of local governments, as well as the importance of public participation to local government.

2.1 APPROACHES FOR PROVIDING SERVICES

As mentioned in Chapter 1, local governments provide a wide assortment of services to their populations. These services are as diverse as the local governments providing them. The

Exhibit 2-2. Number of Local Governments in Each State, 1992



mechanisms through which local governments provide the services are also diverse. A local government usually provides services through two distinct mechanisms:

- Through its own employees
- Through a contract.

A county, for example, may hire and retain its own personnel and equipment (e.g., dumpsters, trucks) to collect solid waste within its boundaries. In contrast, a county may negotiate a contract with a private waste management company to collect solid waste. Through either of these mechanisms, the local government is providing the service. It should be noted, too, that even though a local government may not actually conduct the operation (e.g., collect solid waste) and contracts it to a private company, the local government is still ultimately responsible for the environmental performance of that operation and contractor. For this reason, local governments should be aware of the environmental requirements of all operations whether they actually conduct them or not.

In addition to the two methods of providing service discussed above, a local government may allow private companies to compete for the business rather than provide the service itself. For example, a county may decide to allow several private waste management companies to compete for business from commercial and residential customers. In this type of scenario, the local government is not responsible for the environmental performance of the private waste management companies.

In situations where the local government does not, or cannot, provide services, another option is to establish a special district. Special districts are local government units that perform one or more specific services that are not being supplied by other government units. Special districts are known by a variety of titles, including districts, authorities, boards, and commissions. A majority of special districts are established to perform a single function, but some have been given authority to provide several, usually related large-scale services, such as water supply, wastewater treatment, or solid waste management. They may exist within the boundaries of a single city, across city and county boundaries, or across state lines.

Examples of special districts include the Tennessee Valley Authority, which provides water, electricity, and flood control services in the southeast; the Port Authority of New York/New Jersey, which provides transportation services in New York and New Jersey; and the Sanitary District of Decatur, which manages the sanitary sewer system in parts of several local governments in Illinois.

Special districts are the fastest growing local government unit in the United States for various reasons. Special districts can often provide a service more efficiently, because their boundaries can be tailored to provide services where they are specifically required. In addition, special districts are independent financial entities and are able to levy user fees or special assessments, rather than rely on taxes or municipal bonds to fund their services.

2.2 ORGANIZATIONAL STRUCTURE

Most local governments have some basic organizational structures, however, the variations in these structures are as numerous as the local governments themselves. For counties, the principal governing body is usually a county board, which may also be referred to as a board of county commissioners or county commission. The county board often appoints a county administrator or manager whose responsibilities may include appointing county officials, supervising all county offices and departments, and executing regulations. At the subcounty level, various government structures are possible, the most common of which are listed below:

- Commission
- Council-mayor
- Council-manager.

In each of these forms of government, the commissions/councils and mayors/managers have clearly defined roles and responsibilities, ranging from passing local ordinances to overseeing specific departments to developing and approving budgets. Special districts, like both counties and subcounties, can be organized in a variety of ways, depending on the type of special district and the types of services they provide.

Appendix A presents more information on the organization of local governments and typical organizational structures.

2.3 FINANCIAL OVERVIEW

From a financial standpoint, a local government operates like any business, organization, or household. It has cash inflow and outflow, savings accounts, investments, and debt. It also has a defined system for managing its finances and controlling its assets, liabilities, and capital. Appendix A examines these financial components of local governments. Specifically, the appendix provides information on a local government's budget process, revenue generation, expenditures, cash and security holdings, and debt and debt transactions.

2.4 PUBLIC PARTICIPATION

Public participation is a critical component in a local government's efforts to comply with environmental regulations because it adds a layer of accountability to the performance of the local government. Public participation ensures that citizens are informed of environmental issues affecting them and involved in decision-making processes from the outset, which helps avoid conflicts, misunderstandings, and any consequent potential delays in operations. Public participation involves various activities that can be divided into two basic categories: 1) public outreach and education and 2) public involvement. Public outreach and education tools are designed to increase the public's awareness, in this case, of environmental issues pertaining to local government operations. Public involvement tools are designed not only to inform the public, but also to encourage activism and involve the public in decision-making processes. Public involvement also is important in fostering good relationships and open communication among citizens, operators of local government facilities, local governments, and other stakeholders. Appendix B describes the tools in each of these categories.

3. LOCAL GOVERNMENT OPERATIONS

Local governments, regardless of size, location, or demographic factors, are responsible for providing a variety of services (i.e., operations) to their populations. This chapter identifies and examines some of the services and the specific day-to-day activities that occur within each. The purpose of this chapter is to provide an overview of the operations and activities, present the environmental aspects and impacts of the operations/activities, and identify the environmental requirements to which these operations/activities may be subject. Chapter 4 and Appendix D present additional information on the specific environmental requirements.

It should be noted that the following sections are not exhaustive discussions of every aspect of the specific operations. Instead, the sections attempt to highlight the activities with the greatest potential to impact the environment. Other related activities, while not directly discussed in this chapter, are identified in the regulatory matrix that is included as Appendix D to this profile.

A significant aspect of all of the operations presented in this chapter is pollution prevention. Not only does pollution prevention result in less waste that must undergo treatment and disposal, it also plays an important role in helping local governments achieve compliance. For these reasons, this chapter begins with an overview of pollution prevention and its relationship with compliance. This chapter also includes a section on purchasing and its relationship with pollution prevention and compliance. In addition, each section on a specific operation discusses pollution prevention practices and presents a case study.

3.1 POLLUTION PREVENTION AND COMPLIANCE ASSISTANCE

Pollution prevention, also known as source reduction, is any practice that eliminates or reduces pollution at its source. Pollution prevention is achieved through material substitutions, process changes, and the more efficient use of natural resources (e.g., raw materials, energy, water, and other resources). Through pollution prevention, the use and production of hazardous substances can be minimized, thereby protecting human health, strengthening economic well-being, and preserving the environment.

Pollution knows no boundaries. Pollution originating in the air, on the land, in the water, and even on the other side of the world can eventually impact every living thing. Pollution prevention can be applied across these environmental media (i.e., air, water, and land) and addresses both point source and nonpoint source pollution. Point source pollution includes industrial and

manufacturing wastes; nonpoint source pollution originates from automobiles, construction, agricultural runoff, and so forth.

3.1.1 Benefits of Pollution Prevention

Pollution prevention practices are one of the best ways for localities to meet compliance standards. Information on the waste streams and pollution prevention tips and strategies are included with each local government operation in this chapter.

These strategies can:

- Lead local organizations to meet compliance standards
- Improve practices and procedures to ensure continued compliance
- Move local organizations beyond these environmental compliance thresholds.

Many of the pollution prevention tips contained in this profile are cost effective procedures that not only save precious environmental resources but also money.

Pollution prevention measures often:

- Inherently save money in production and material costs
- Many times lead to increased regulatory compliance and exemption from penalty fees
- Lead to reduction in disposal costs
- Reduce risk of employee exposure to hazardous waste by creating safer working conditions.

3.1.2 Implementation of Pollution Prevention at the Local Government Level

Local governments across the United States have integrated pollution prevention into their different agencies using many methods. Currently, pollution prevention practices are used at the local level in the following areas: wastewater pretreatment and septic tank programs; watershed and groundwater protection programs; educational activities targeted at residents; technical assistance and compliance assistance to local businesses and industries; partnership activities between government agencies; and in-house practices of municipal and county facilities. Appendix C contains four examples of successful pollution prevention programs implemented at the local level.

3.1.2.1 Purchasing and Procurement Opportunities

Local governments can incorporate environmental and health factors into purchasing decisions. Through revised purchasing procedures, local governments and other organizations can avoid potentially harmful chemicals, reduce the risk of accidental injuries, and move toward compliance. More information on purchasing and procurement procedures is located in the next section of the profile.

3.1.2.2 Other Pollution Prevention Practices to Move Beyond Compliance

Aside from practicing pollution prevention to achieve compliance, local government organizations can use pollution prevention to improve workplace productivity and efficiency. Many pollution prevention practices in the office save time, energy, natural resources and money.

There are many ways agencies can practice energy efficiency and reduce air emissions and energy consumption while saving money. The following list presents selected tips that address general office practices:

- **Purchase Energy Efficient Products and Equipment.** By looking for the Energy Star® label on appliances, computers, printers, copiers, light fixtures, and heating and cooling equipment you can reduce your energy bill by 30 percent and your electric lighting charges by 50 percent while cutting pollution.

- **Turn Unused Appliances and Equipment Off.** Turn off equipment (e.g., computers, printers, copiers) and lights at night and on weekends, and unplug appliances when they are not in use.

- **Use Natural Lighting or, When Not Practical, Fluorescent Lighting.** Design buildings and offices to maximize natural lighting, thereby decreasing energy usage. If lighting is needed, consider using fluorescent lighting. By replacing lamps and light fixtures with energy conserving fluorescent bulbs, you will save 75 percent of the energy used with incandescent bulbs. If you currently have fluorescent lighting, consider using a more efficient type that has an electronic ballast that burns cooler. Caution: Remember to properly dispose of fluorescent bulbs.

- **Reduce Paper Usage and Increase Electronic Mail.** By double siding copies, reusing single-sided paper (e.g., for receiving faxes, taking notes), using electronic mail, and

circulating documents with routing slips, an organization can save a significant amount of energy and natural resources. One ton of waste paper saves enough energy to power an average home for 6 months.

- **Reduce Usage of Packaging and Shipping Materials.** By using boxes and envelopes suited to the size of your mailings, you can reduce large quantities of materials - both in the packaging itself as well as the packing materials. When packaging is necessary, reuse old newspaper or purchase packaging materials that do not contain polystyrene or other plastics.

Resources

"Preventing Pollution in our Cities and Counties: A Compendium of Case Studies," NPPR, NACo, NACCHO and U.S. Conference of Mayors, 1995.

U.S. EPA Pollution Prevention Information Clearinghouse, 401 M Street, SW (7409), Washington, DC 20460 (http://www.epa.gov/opptintr/p2home)

Enviroene, U.S. EPA Operations Research Development Division, 401 M Street, SW (MC-8722R), Washington, DC 20460 (http://www.epa.gov/envirosense)

National Pollution Prevention Roundtable, 2000 P Street NW, Suite 708, Washington, DC 20036 (http://www.p2.org)

National Association of Counties, 440 First Street, NW, Washington, DC 20001 (http://www.naco.org)

National Association of City and County Health Departments, 440 First Street NW, Suite 450, Washington, DC 20001

U.S. Conference of Mayors, 1620 I Street, NW, Washington, DC 20006 (http://www.usmayors.org/uscm)

American Council for an Energy Efficient Economy, 1001 Connecticut Avenue, NW, Suite 801, Washington, DC 20036 (http://aceee.org)

3.2 PURCHASING PRACTICES THAT ENCOURAGE REGULATORY COMPLIANCE AND POLLUTION PREVENTION

Local governments use numerous products to perform public services. Product manufacturing (including raw material extraction), transportation, use, and disposal can generate byproducts that stress local and global environmental resources, as well as pose health threats to product users and the public. By incorporating environmental and health criteria into purchasing specifications, local governments can avoid the use of potentially harmful chemicals, reduce the risk of accidents and toxic releases, and more easily achieve regulatory compliance. Localities are also discovering they can save money by reducing the amount of hazardous materials they handle and by purchasing energy efficient equipment.

Presidential Executive Order 13101 (which strengthens Executive Order 12873) "Greening the Government Through Waste Prevention, Recycling, and Federal Acquisition," has directed federal agencies to increase their demand for recycled content products and other environmentally preferable products and services. Many local and state governments have voluntarily adopted policies that support the Executive Order and have increased their procurement of recycled products and products that are less hazardous, non-toxic, energy efficient, and that generate less waste.

3.2.1 Typical Products Purchased by Local Governments and Environmentally Preferable Product Alternatives

The composition of wastes and the types of emissions generated by local governments is directly affected by the products they purchase. Choosing environmentally-preferable alternatives to products that are considered hazardous, or that contribute to wastes covered under environmental regulations, is a preventative strategy available to any agency involved in product requisition. Please refer to the accompanying local government operations in this profile for specific wastes generated and pollution prevention opportunities.

Exhibit 3-1 presents products that may be purchased by local governments and includes environmentally preferred alternatives to consider. This does not constitute an endorsement of any particular products. All products should be researched and tested.

Exhibit 3-1. Typical Products Purchased by Local Governments and Environmentally-Preferred Alternatives

Department/Operation	Products Purchased	Environmentally-Preferred Alternatives
Construction/Property Management	Construction Site Fill/Base Material (stone, dirt, etc.)	Fill/Base Containing Recycled Materials (recycled concrete, glass, or asphalt)
	Structural Building Materials	Recycled Content Building Materials
	Electrical Equipment	Energy-Efficient Equipment and Building Design (low-mercury fluorescent lights; energy efficient HVAC)
	Adhesives	Vegetable-Based Adhesives
	Petroleum-Based Solvents and Cleaners	Vegetable/Citrus-Based Solvents
	Petroleum-Based Paints	Water-Based Low VOC Paints
Vector/Pest Management	Chemical Pesticides and Herbicides	Integrated Pest Management (mechanical, physical, and biological pest control techniques; least-hazardous chemical options)
Public Safety	Fire Response and Suppression	Ozone-Safe Fire Extinguishers
	Mercury Batteries	Mercury-Free and Rechargeable Batteries
	Mercury Thermometers	Mercury-Free Thermometers
	Lead Bullets	Ceramic Bullets (for firing range use only)
Solid Waste Management	Vehicle Fuel (gasoline, diesel fuel)	Alternative Fuels (natural gas, propane, solar generated electricity)
	Recycling Bins and Residential Trash Cans	Recycled Content Recycling Bins and Trash Cans

Department/Operation	Products Purchased	Environmentally-Preferred Alternatives
Wastewater Management	Chlorine, Hypochlorite	Ultraviolet Osmosis
	Petroleum-Based Lubricants	Vegetable-Based Lubricants
	Petroleum-Based Solvents	Vegetable/Citrus-Based Solvents; Aqueous-Based Parts Washers
Vehicle/Equipment Maintenance	Petroleum-Based and Chlorinated Solvents (parts washers, brake cleaners)	Aqueous-Based Cleaners; Microbial Agents; Vegetable/Citrus-Based Solvents; Aerosol-free Cleaners
	Automotive Fluids	Recycled Automotive Fluids (re-refined motor oil and recycled propylene glycol antifreeze)
	Tires	Retread Tires; Tires with Maximum Durability
Printing	Petroleum-Based Inks	Soy/Vegetable-Based Inks; Water-Washable Ink Systems
	Perchloroethylene; Petroleum Distillates (blanket washes)	Vegetable Ester Solvents; Terpene-Based Solvents
Administrative Activities	Electronic Office Equipment	Energy-Efficient Office Equipment
	Office Furniture	Refurbished Furniture
	Paper Supplies; Paper Use	Post-Consumer Recycled Content, Chlorine-Free Paper; Double-Sided Copying; Reuse of Scrap Paper
	Toner Cartridges	Remanufactured Toner Cartridges

3.2.2 Top Pollution Prevention Opportunities

The following list highlights selected strategies for preventing pollution through purchasing practices:

- Pass a purchasing policy that promotes the integration of environmental and health criteria in all product specifications.

- Form an interdepartmental committee to investigate environmental purchasing opportunities.

- Educate the entire staff about health effects associated with chemicals commonly contained in the products they use, or are exposed to, and provide information on alternatives. Prompt users to choose environmentally preferable products.

- Involve product end-users throughout the decision-making process, request that vendors perform product demonstrations for staff, and compare products.

- Choose one department/operation at a time to incorporate environmentally preferable products. Review final product specifications with product user or operation supervisor to ensure that their needs are satisfied.

- Review all purchases and product Material Safety Data Sheets for potential environmental and health impacts associated with products being purchased.

- Avoid purchasing products that are potentially harmful to the user, public, or environment (e.g., contain known or suspected carcinogens and other toxic ingredients).

- Prevent the generation of hazardous wastes in operations by eliminating products that contain hazardous ingredients.

- Participate in cooperative purchasing ventures with other jurisdictions, your state, and vendors to increase availability of environmentally preferable products and reduce internal costs associated with the formal bid process.

- When researching environmental purchasing, utilize resources and expertise available from vendors, manufacturers, government agencies, non-profit and other organizations.

- Consider environmental and health impacts associated with a product's life cycle prior to drafting bid specifications (“product life cycle” includes raw material extraction or development, product manufacturing, transportation to market, product use, and disposal).

- Implement waste reduction activities (e.g., implement lease agreements that require vendors to take responsibility for products as they become obsolete; require prospective

bidders to avoid excess paper and packaging in their bid and proposal submittals such as avoiding plastic covers and dividers, using both sides of paper, and using post-consumer recycled content paper; specify copiers and printers with double-sided printing capabilities; etc.)

- Begin an energy conservation program and invest in energy-efficient equipment and building design (specify EPA "Energy Star" certified equipment and require equipment installers to activate efficiency features upon product installation).

Appendix C presents information on a local government that significantly reduced pollution by implementing carefully chosen purchasing operations.

Resources

National Association of Counties (NACo) Environmental Purchasing Project, 440 First Street, NW, Washington, DC 20001; phone: (202) 393-6226, *(www.naco.org/programs/environ/purchase.cfm).*

Environmentally Preferable Purchasing Listserve (EPPNET). Established and maintained by the Northeast Recycling Council (802) 254-3636. To subscribe to EPPNET, send an e-mail message to (*lyris@aladdin.webrover.com*) with SUBSCRIBE EPPNET <FIRST NAME> <LAST NAME> on the subject line or in the body of the message.

U.S. EPA Environmentally Preferable Purchasing Program, U.S. EPA (7409), 401 M Street, SW, Washington, DC 20460 *(http://www.epa.gov/opptintr/epp).*

U.S. EPA and DOE Energy Star Program, U.S. EPA (6202J), 401 M Street, SW, Washington, DC 20460 (888) 782-7937, *(http://www.epa.gov/appdstar/buildings.html).*

Office Green Buying Guide and Choose Green Reports: Green Seal, 1400 16th Street, NW, Suite 300, Washington, DC 20036-2215; phone: (202) 588-8400, *(www.greenseal.org).*

Scientific Certification Systems, 1939 Harrison Street, Suite 400, Oakland, CA, 94612; phone: (510) 832-1415, *(www.scs1.com/).*

Toxic Turnaround - A Guide to Reducing Pollution for Local Governments, Environmental Health Coalition, 1717 Kettner Blvd., Suite 100, San Diego, CA; phone: (619) 235-0281, *(www.environmentalhealth.org).*

Sustainable Building Technical Manual - Green Building Design, Construction, and Operations, Public Technology, Inc. (PTI), the U.S. Green Building Council (USGBC), U.S. DOE, and U.S. EPA; printed copies available for purchase from PTI at (301) 490-2188, and from USGBC at USGBC-SF, 90 New Montgomery Street, Suite 1001, San Francisco, CA 94105.

Environmental Purchasing Model Resolutions from Local Governments, National Association of Counties, 440 First Street, NW, Washington, DC, 20001; phone: (202) 393-6226, *(www.naco.org/programs/environ/purchase.cfm).*

"Pollution Prevention Questionnaire for Municipal Departments" and "Procurement Recommendations Applicable to Multiple City Departments and Agencies," Environmental Defense Fund, 1875 Connecticut Ave., NW, Suite 1016, Washington, DC 20009; phone (202) 387-3500; contact Lois Epstein (Lois_Epstein@edf.org).

3.3 CONSTRUCTION/PROPERTY MANAGEMENT

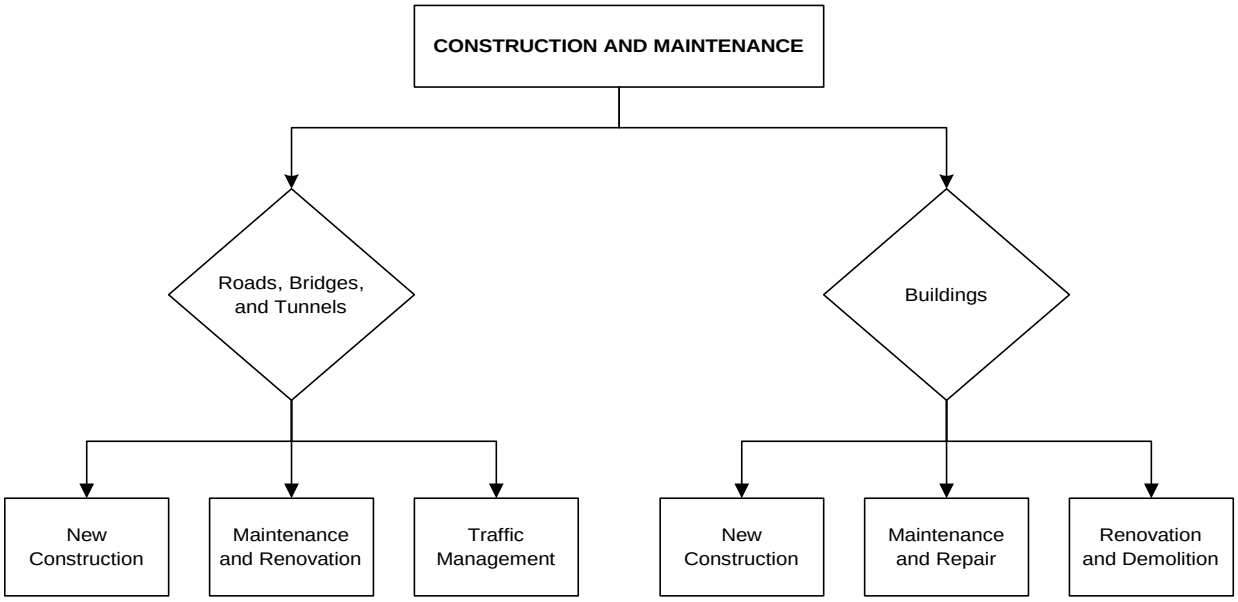
As shown in Exhibit 3-2, local governments may be responsible for constructing and maintaining roads, bridges, tunnels, buildings, treatment plants, and landfills, as well as for renovating and demolishing buildings. Construction and maintenance activities, which typically involve planning, coordination, and oversight by the local government, are essential to the infrastructure for transportation, administration, public services (e.g., wastewater treatment), and, in some cases, housing.

3.3.1 General Activities

Several administrative activities can affect the severity of environmental impacts, as well as relevant regulatory burdens on the construction and maintenance of local government facilities. The following list presents some of these activities:

C ***Zoning***. Zoning decisions that allow an increase in the total impervious area of the local government's jurisdiction lead to increased storm water runoff, often causing increased erosion, degraded water quality, and the need for the local government to install new controls or best management practices (BMPs) to comply with its National Pollutant Discharge and Elimination System (NPDES) storm water permit. By considering the

Exhibit 3-2. Construction and Maintenance



impacts prior to making the zoning decisions, the local government can either prepare for the impact of those decisions (e.g., concurrently construct storm water catch basins while allowing construction of a new commercial parking lot) or decide that the cost of the zoning decision is greater than the benefit.

C ***Coordination***. Many agencies within the local government are often required to directly coordinate their efforts in order to comply with existing permits. BMPs included as part of a publicly owned treatment works (POTW) NPDES permit condition for a combined sewer system often require street sweeping on a regular basis. The POTW may be ultimately responsible for permit compliance, but the local government street maintenance department may be needed to ensure that the permit conditions are met (e.g., the streets get swept every 2 weeks).

- ***Planning and Design***. Whenever a local government is planning and designing a construction project, a local government should apply the concept of an environmental

management system. That is, the local government should evaluate the environmental aspects and impacts of the project and establish procedures to minimize the impacts.

- ***Monitoring Contractors***. In many cases, local governments hire contractors to assist or manage local government operations, such as monitoring or well sampling, solid waste disposal, or vehicle maintenance. Local governments must develop reporting or monitoring methods, therefore, to ensure that contractor operations comply with all regulations that apply to the local government.

3.3.2 Roads/Bridges/Tunnels

Local government activities related to roads, bridges, and tunnels include new construction, maintenance of existing infrastructure, and traffic management. Because these activities could affect the environment, they may be subject to environmental laws and regulations, as indicated in the following list.

C New construction—Clean Water Act (CWA), Endangered Species Act (ESA), Rivers and Harbors Act, Clean Air Act (CAA), National Environmental Policy Act (NEPA), and Resource Conservation and Recovery Act (RCRA)

C Maintenance and renovation—RCRA, CAA, and CWA

C Traffic maintenance—CAA

3.3.2.1 New Construction

Construction of new roads, bridges, or tunnels generally involves clearing land, constructing the new structure, and disposing of construction waste.

Clearing Land for Construction. Clearing land involves the removal of vegetation and existing structures to prepare a site for construction. Clearing land can impact the environment by:

C Reducing the structural safety of land (e.g., making it more susceptible to erosion, landslides, or floods)

C Harming aquatic resources (particularly wetlands) and endangered species

- Increasing soil erosion and sedimentation caused by the removal of vegetation

- Increasing the flow to storm sewer systems leading to increased potential for downstream flooding and increased stream bank erosion in receiving waters.

Additional impacts of construction include dust/odors from construction traffic, air emissions, noise, and vibration from construction equipment.

New construction may directly affect wetlands through the placement of fill for grading purposes. Sediment from construction sites may also affect the hydrologic capacity of wetlands. Wetland losses may increase downstream flooding and may impact a wide variety of aquatic and upland species. If impacting aquatic areas, such as wetlands, and endangered species habitat, local governments must obtain a special permit before beginning a construction project. The U.S. Army Corps of Engineers (Corps) regulates any dredging and general construction in, over, and under navigable waters of the United States under Section 10 of the Rivers and Harbors Act. The Corps also regulates the discharge of dredged and fill material into waters of the United States, which include wetlands. These wetland activities are regulated under Section 404 of the CWA and may require a Section 404 permit. In addition, controlling construction site discharges (particularly storm water runoff) is regulated under the storm water provisions of EPA's NPDES permitting program, as well as local erosion and sediment control programs.

The ESA provides protection for federally listed threatened and endangered species of plants, animals, and their habitats. Local government responsibilities under the ESA depend upon whether the proposed activities occur with federal government involvement. Federal government involvement is triggered when a project seeks to cross public lands, receives public funds, or requires a federal permit (e.g., Section 404 wetland permit).

Endangered species are plants and animals that, without special protection and management, are in danger of becoming extinct. Threatened species are likely to become endangered in the foreseeable future.

Any activities by local governments that involve new construction may be regulated under NEPA (if they involve federal funds) or other state laws that require the preparation of an environmental impact statement. Construction impacts on receiving waters may be regulated under the NPDES storm water section of the CWA and may require the local government to obtain a permit and implement certain controls. Air and noise impacts may be regulated under the CAA and state and local ordinances.

Construction Waste Disposal. Most of the waste generated through construction activities is nonhazardous solid waste. Typical wastes generated at construction sites include concrete, steel, wood, rubber, asphalt, soil, and organic matter, such as stumps.

The disposal of these wastes may be regulated under a variety of federal, state, and local laws. Hazardous construction wastes are regulated under the federal RCRA hazardous waste regulations. Many states and local governments have regulations regarding the disposal of nonhazardous construction and demolition debris at special construction waste landfills. Many states allow debris such as uncontaminated concrete and asphalt to be used as fill material.

3.3.2.2 Maintenance and Renovation

Maintenance and renovation of roads, bridges, or tunnels may include street sweeping, maintenance of storm sewers, snow removal, and removal and disposal of lead-based paint. Street sweeping involves using mechanical sweepers to remove dirt, grit, and solids from road surfaces. Snow removal includes plowing streets and sanding and salting roads. Lead-based paint may be removed and disposed of during bridge and tunnel maintenance. Maintenance and renovation activities may impact the environment by removing materials that can enter storm sewers (sweeping), adding materials that end up in storm sewers and are discharged to water ways (salting, sanding, sandblasting), or emitting contaminated dust to the air (paint removal). Aspects of these activities may be regulated under the CWA, RCRA, and local solid waste disposal requirements.

Street Sweeping. Local governments may be required to sweep streets as a condition of their NPDES storm water or combined sewer overflow (CSO) permit conditions. Street sweeping reduces the concentration of pollutants in storm water runoff and improves street appearance. Considered a BMP and an integral part of a storm water pollution control plan, street sweeping also ensures the continued structural effectiveness of storm sewers.

Maintenance of Storm Sewers. Local governments may be required to maintain storm sewers as part of their NPDES storm water or CSO permit. Maintenance of storm sewers may include catch basin cleaning, litter removal from storm channels, and maintenance of storm water detention facilities. Catch basin cleaning and litter removal from channels protect against street

flooding and remove potential pollutants from storm water. Publicly owned storm water detention facilities and other pollutant removal structures, such as sand filters and oil and grit separators, also require frequent maintenance. Disposal of materials generated during cleaning may be regulated under local solid waste disposal requirements.

Snow Removal. To maintain road safety in the winter, local governments may apply salt and abrasives (e.g., sand) and remove snow . Heavy applications of salts and abrasives may be necessary at busy intersections and steep hills. These activities can negatively affect water quality by increasing sedimentation and salinity in surrounding water bodies. If applied frequently or improperly, salt may leach into the groundwater and contaminate drinking water supplies.

To prevent such contamination, snow removal activities may be regulated under a local government's NPDES storm water permit. The permit may require or recommend that the local government take steps to minimize the impact of snow removal activities. In addition, the permit may require designation of sensitive areas (i.e., near public water supply facilities or high levels of groundwater recharge) where pollution prevention practices must be followed. Some of these practices include prohibiting dumping of heavily treated snow directly into water bodies or in or around drinking water supplies or landfills, proper operation of salt storage facilities to reduce potential salt-contaminated runoff, and use of alternative deicing materials.

Removal and Disposal of Lead-Based Paint. Lead-based paint is typically removed from bridges by sandblasting or abrasive blasting prior to refurbishing and repainting. Sandblasting/abrasive blasting removes the existing paint off a bridge or tunnel with high velocity sand or synthetic particles. This process could contaminate the air with lead dust and soil and water during disposal or spills of lead-contaminated sand/abrasive and paint chips. Where possible, blasting takes place in areas with containment to prevent releases of lead-contaminated materials to the environment. Occupational Safety and Health Administration (OSHA) regulations minimize worker exposure to lead dust, and RCRA regulates the disposal of materials contaminated with lead-based paint. Prevention of lead dust releases may be regulated by the CAA under the State Implementation Plan (SIP).

3.3.2.3 Traffic Management

Traffic management includes designing roads and bridges, access points, and traffic signals. Road designs, location of access points, and installation and scheduling of traffic signals affect the environment by impacting motor vehicle emissions. Increased access points to major roads

generally lead to more traffic, while new traffic signals often lead to increased emissions from engine idling. A local government's traffic management plan must conform to the state's SIP as required under the CAA. In many areas, therefore, a local government's traffic management actions do not result in a net increase of air pollutants in the state.

3.3.3 Buildings

Local government activities related to buildings include constructing new schools, public housing, administrative facilities, and other government buildings; maintaining and repairing those buildings; renovating old buildings; and demolishing unusable buildings. Because these activities could affect the environment, they may be subject to environmental laws and regulations, as indicated in the following list.

- New construction—CWA, ESA, Rivers and Harbors Act, CAA, and NEPA

- Maintenance and repair—CWA, RCRA, CAA, Emergency Planning and Community Right-to-Know Act (EPCRA), Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA), and Toxic Substances Control Act (TSCA)

- Renovation and demolition—RCRA, CAA, and TSCA

3.3.3.1 New Construction

As with the construction of roads, bridges, and tunnels, the construction of new buildings involves clearing land, building the structure, and disposing of construction materials. The impacts and regulations of these activities are similar to those discussed previously in Section 3.3.2.1 for roads, bridges, and tunnels.

Similar to new construction of roads, bridges, and tunnels, storm water runoff (which may contain sediment and construction waste) from new building construction has the potential to contaminate surface waters and must be controlled under the requirements of the NPDES storm water program. As with other construction, most of the waste generated through building construction activities is nonhazardous solid waste. The disposal of these wastes may be regulated under a variety of federal, state, and local laws. Hazardous construction wastes are regulated under the federal RCRA hazardous waste regulations. Many states and local governments have regulations regarding the disposal of nonhazardous construction and

demolition debris at special construction waste landfills. Many states allow debris such as uncontaminated concrete and asphalt to be used as fill material.

3.3.3.2 Maintenance and Repair

Local governments are responsible for activities related to the maintenance and repair of buildings, including operating boilers and cooling systems and applying pesticides. In addition, indoor air quality is a concern, although local governments are not required to comply with any regulations at present.

Indoor Air Quality–Radon. Over the past 40 to 50 years, exposure to indoor air pollutants has increased in part because of construction of more tightly sealed buildings, reduced ventilation rates to save energy, the use of synthetic building materials and furnishings, and the use of chemically formulated personal care products, pesticides, and housekeeping supplies. In recent years, comparative risk studies performed by EPA and its Science Advisory Board have consistently ranked indoor air pollution among the top five environmental risks to public health. Radon is one particular indoor air pollutant of concern associated with this issue. Common effects of indoor air quality problems on occupants include headache; fatigue; shortness of breath; sinus congestion; coughing and sneezing; eye, nose, throat, and skin irritation; dizziness; and nausea.

Radon levels can vary from structure to structure. The average indoor radon level is estimated to be about 1.3 picocuries per liter (pCi/L), and about 0.4 pCi/L of radon is normally detected in the outside air. The U.S. Congress has set a long-term goal for indoor radon levels to be no more than outdoor levels. While this goal is not yet technologically achievable in all cases, levels in most structures today can be reduced to no more than 2 pCi/L. EPA recommends followup radon testing or mitigation in buildings with levels of 4 or more pCi/L.

At this time, local governments are not required to enforce any standards for acceptable radon levels in commercial or residential buildings, including schools. State and local governments may pass legislation recommending radon mitigation to owners of buildings in which the radon level is greater than 4pCi/L; however, this is not a required activity under the CAA or any other major environmental law at present.

The federal government, as well as most state and local governments, do not have regulations or established enforcement capabilities regarding indoor air quality in buildings, including schools.

For some schools, assistance may be available from local or state departments of health or environment. The federal or state OSHA office may also provide some help.

Boiler Operations. Local governments are often required to operate boilers to produce steam or electricity to heat government buildings. Boiler operations include storing fuels and boiler chemicals, operating the boiler, maintaining the boiler, and disposing of residuals from fuel burning. Storing fuels and chemicals can affect the environment through spills that have the potential to reach groundwater or surface waters. Operating boilers may impact the environment through air emissions from fuel burning. Coal ash from fuel burning can contaminate waterways if it contains heavy metals or other toxics and is not disposed of in a manner that prevents it from coming in contact with water ways or rain water.

The storage of liquid boiler fuel (e.g., heating oil) may be regulated under the Spill Prevention, Control, and Countermeasures (SPCC) program of the CWA, which requires a facility to develop spill prevention plans. The storage of chemicals may be regulated under EPCRA or Section 112(r) of the CAA (risk management plans), which requires the development of emergency plans and reporting based on the quantity of chemicals stored.

Disposal of residuals, such as coal ash, may be regulated under RCRA, depending on the metals or other toxics contained in the ash. Air emissions from the boiler may be regulated under the CAA, which requires the local government to obtain a permit and meet emissions standards depending on the heat output of the boiler and date of boiler construction.

Emergency Release Notification (EPCRA Section 304). A facility is required to notify the State Emergency Response Commission (SERC) and Local Emergency Planning Committee (LEPC) of a release equal to or exceeding a predetermined amount of certain hazardous chemicals. The chemicals covered by this requirement include EPCRA extremely hazardous substances (EHSs), and hazardous substances identified in CERCLA. The emergency release notification activates emergency plans and provides information to the LEPCs and SERCs, who coordinate release response activity in order to prevent harmful effects to the public.

Appendices A and B of 40 CFR Part 355 list the EPCRA EHSs and 40 CFR Part 302 lists CERCLA hazardous substances.

Hazardous Chemical Inventory and Reporting (EPCRA Sections 311 and 312). Under EPCRA, any facility that is required by the OSHA Hazardous Communication Standard (HCS) to prepare or have available a material safety data sheet (MSDS) for a hazardous chemical is subject

to EPCRA Sections 311 and 312 requirements if the chemical is present onsite at any one time in excess of threshold levels.

MSDS Reporting. Under Section 311 of EPCRA, a facility must submit a *one-time notification* identifying the hazardous chemicals (including EPCRA EHSs and OSHA hazardous chemicals) present at the facility in amounts equal to or in excess of threshold quantities to the SERC, LEPC, and local fire department (40 CFR 370.21). To meet the notification requirement, a facility must submit either an MSDS (or copies of MSDSs), or a list of the EPCRA EHSs and OSHA hazardous chemicals. After initial reporting, if a facility determines that it has a hazardous chemical that is newly covered in amounts equal to or in excess of the threshold level or there has been significant new information on an already reported chemical, it must update the information reported under Section 311 within 3 months after discovery.

Tier Reporting. Under Section 312 of EPCRA, a facility must meet an annual reporting requirement for OSHA hazardous chemicals and EPCRA EHSs in amounts equal to or in excess of threshold levels. If equaling or exceeding the threshold levels at any time in the preceding year, a facility must submit to the SERC, LEPC, and local fire department an "Emergency and Hazardous Chemical Inventory Form." This form must be submitted by March 1 of each year. EPA publishes two types of inventory forms, **Tier I** and **Tier II**, for reporting this information. While federal regulations require only the submission of a Tier I form, EPA encourages, and some states require, the use of the Tier II form.

LEPCs make this information available to the public, and fire departments and public health officials use the information to plan for and respond to emergencies.

Cooling Systems. Local governments operate cooling systems to maintain temperature in government buildings and to store food in government building cafeterias. Cooling systems contain refrigerants, such as chlorofluorocarbons (CFCs) or ammonia. If released, CFCs have the potential to harm the environment because they are ozone-depleting substances. The CAA requires maintenance of cooling systems to be conducted by certified personnel who are using certified equipment and following specified guidelines for reclaiming CFCs. The storage and use of ammonia may require reporting under EPCRA or CAA Section 112(r).

Pesticide Application. Maintaining buildings includes applying pesticides to eliminate vectors (e.g., insects, rodents) that spread disease, as well as plants and insects that can harm the structural integrity of the building. Frequently used pesticides include herbicides, insecticides,

fungicides, and plant growth regulators. Pesticides are also used on building exteriors for aesthetics. Improper indoor application of pesticides can harm human health, causing respiratory and skin infections, and even death. Improper outdoor application can cause health problems in humans, while also destroying flora and fauna and contaminating groundwater and surface water supplies through infiltration and runoff. Section 3.4 of this profile describes pesticide management activities.

3.3.3.3 Renovation and Demolition

Renovation and demolition of buildings can impact the environment as materials trapped within the building structure become exposed to the environment. The removal and disposal of asbestos and the removal and disposal of lead paint can significantly affect both human health and the environment.

Asbestos. Buildings owned by local governments may very well contain asbestos or asbestos-containing materials (ACM). Used for insulation and as a fire retardant, asbestos and ACMs can be found in a variety of building construction materials, including pipe and furnace insulation materials, asbestos shingles, millboard, textured painted and other coating materials, and floor tiles. When encapsulated, asbestos fibers do not impact human health or the environment. During renovation or demolition, however, asbestos fibers may be released. If inhaled or ingested, these fibers can cause respiratory damage. Renovation and demolition activities are regulated under the CAA, which requires local governments to contact EPA prior to renovation or demolition, use only accredited trained personnel and appropriate equipment for asbestos removal, and follow specified procedures for asbestos disposal.

Asbestos is recognized as the greatest environmental concern to schools. If a local government owns or operates a school building constructed or insulated with asbestos, particularly if renovations or demolitions occur that release fibers, then indoor air quality can be impaired and people might suffer severe respiratory and other health problems. Local governments operating schools could face enforcement actions pertaining to asbestos-related violations.

In October 1986, Congress passed the Asbestos Hazard Emergency Response Act (AHERA), which required EPA to establish a comprehensive regulatory framework within which local governments would inspect, manage, plan, and conduct operations and maintenance (O&M)

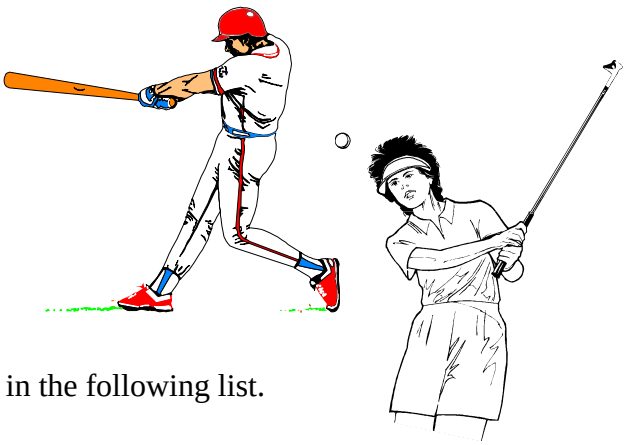
activities and appropriate abatement responses to control ACM in schools. To this end, EPA promulgated the asbestos-containing materials in schools rule in October 1987.[1]

Many states and local governments have since developed comprehensive asbestos management/ control programs and/or abatement contractor certification programs. In addition, EPA's National Emission Standard for Hazardous Air Pollutants (NESHAP) for asbestos regulates asbestos emissions during building demolition or renovation and the transport and disposal of asbestos waste. Also, according to federal regulations, school building owners are supposed to inspect school buildings for friable and nonfriable asbestos materials. Inspection activities include reviewing building records, inspecting and sampling materials, and mapping the locations of confirmed or suspected asbestos locations.

Buildings built in the sixties are more likely to have asbestos-containing sprayed- or troweled-on friable materials than other buildings. EPA banned the use of asbestos-containing materials in the 1970s.

Lead-Based Paint. Lead-based paint is typically found on building interiors and exteriors of buildings constructed prior to 1978. During renovation and demolition, paint removal has the potential to impact human health and the environment as fibers, dust, and paint chips are released. Paint chips and dust can cause indoor air contamination during renovation, and soil contamination from demolition or improper disposal. Assessment of lead-based paint hazards and removal of lead-based paint is regulated under TSCA. Disposal of any building materials contaminated by lead-based paint is regulated under RCRA.

3.3.4 Outdoor Recreation Facilities (including stadiums and golf courses)



Local governments construct and maintain outdoor recreation facilities, including swimming pools, playing fields, and stadiums. Because these activities could affect the environment, they may be subject to environmental laws and regulations, as indicated in the following list.

[1] U.S. EPA, *EPA Study of Asbestos-Containing Materials in Public Buildings*, A Report to Congress, Washington, DC, February 1988, p. 1.

- New construction—CWA, RCRA, ESA, Rivers and Harbors Act, CAA, and NEPA
- Maintenance and renovation—CWA, RCRA, EPCRA, CERCLA, CAA, TSCA, and FIFRA

3.3.4.1 New Construction

New construction of swimming pools, playing fields, golf courses, and stadiums has many of the same impacts of constructing buildings, roads, bridges, and tunnels. New construction involves clearing and grading land, landscaping, and building the structure. Section 3.3.2.1 describes these impacts and the associated regulations.

3.3.4.2 Facility Maintenance and Renovation

Facility maintenance and renovation are performed on playing fields and golf courses, stadium buildings (including wastewater treatment plants), and swimming pools.

Playing Field and Golf Course Maintenance. Playing field and golf course maintenance may involve numerous activities, including mowing, irrigating (watering), fertilizing, resodding, applying pesticides, spreading lime, and maintaining vehicles. Local governments may conduct each of these activities to keep their playing fields in the desired condition for their designated use. Mowing is typically done by gasoline powered mowers that can pollute the air with particulates, volatile organic compounds (VOCs), and noise. While mowing activities are generally exempt from EPA regulations, the mowers themselves are required to meet specifications described in the mobile sources section of the CAA.

Activities such as irrigating, fertilizing, and applying pesticides may impact the environment through irrigation or storm water runoff that may contaminate local waterways or cause soil erosion. If playing field irrigation leads to a direct discharge (i.e., water is drained to a pipe that leads to a surface water or a storm water system), the discharge may be regulated under the NPDES program in the CWA. If the discharge drains to a municipal sewer system, the discharge may be regulated under the pretreatment program in the CWA. Local governments that fertilize their playing fields and golf courses with biosolids from a municipal wastewater treatment plant must comply with the biosolids management section of the CWA. Pesticide application may be regulated under FIFRA. Section 3.4 provides additional information on regulations concerning the application of pesticides and fertilizers.

Maintaining vehicles and equipment used for playing field and golf course maintenance may be regulated under several environmental laws. Section 3.10 describes in detail these activities and the applicable laws and regulations. Appendix D identifies numerous activities associated with playing fields and golf courses that may have environmental aspects.

Maintaining Stadium Buildings. Maintenance of stadium buildings includes many of the activities related to maintenance of other buildings that are described in this section. In addition to operating boilers and cooling systems, maintenance of stadium buildings may include operating a wastewater treatment plant during stadium events; operating a large electrical system that includes capacitors and transformers; storing and using cleaning chemicals; sanding and salting, as well as removing snow from stadium parking lots; and managing nonhazardous waste streams, including food wastes.

Large stadiums may have their own wastewater treatment plants to accommodate a relatively large number of users during stadium events. Operation of a stadium wastewater treatment plant has the potential to impact the environment in the same manner as a larger municipal wastewater treatment plant, which is described in Section 3.7. Wastewater treatment plants may impact surface waters through treatment plant discharges and contaminate the air through treatment plant emissions, including odors. In addition, treatment plant chemicals can affect the air or waterways if they are improperly stored or applied. Discharges from wastewater treatment plants are regulated under the CWA, which may require an NPDES permit or compliance with local pretreatment regulations. The storage of treatment plant chemicals may be regulated under EPCRA, while disposal of spilled chemicals may be regulated under RCRA.

Stadiums that hold evening events often have extensive lighting and public address systems that require capacitors and transformers to assure the necessary electrical current. Stadiums may also have diesel fuel-fired generators for auxiliary power. Capacitors and transformers that contain PCB oils are regulated under TSCA, which requires labeling of PCB-containing equipment. The storage of oils, as well as spills of PCB oils and oils without PCBs, including diesel fuel, may be regulated under the SPCC provisions of the CWA, depending on the total volume of oil stored at the stadium.

Maintaining stadium parking lots may involve applying salt or sand to lots or removing snow. Each of these activities may be regulated under the CWA if the facility has an NPDES storm water permit or under local ordinance if the facility does not have a permit. Stadiums use chemicals for cleaning all aspects of the stadium, including restrooms, food service areas, and seating areas. The storage and use of these chemicals may be regulated under the CAA, EPCRA

and CERCLA. Appendix D identifies numerous activities associated with maintaining stadiums and other recreational facilities that may have environmental aspects.

Maintaining Swimming Pools. Many local governments operate outdoor recreation facilities that include swimming pools. Swimming pool maintenance involves treating pool water through filtration and the addition of chemicals. The use and storage of pool chemicals may be regulated under EPCRA, and the disposal of unused or spilled pool chemicals may be regulated under RCRA. Filtered materials are generally nonhazardous and may be disposed of according to state and local nonhazardous solid waste regulations. Appendix D identifies numerous activities associated with maintaining a swimming facility that may have environmental aspects.

3.3.5 Vehicle/Equipment Maintenance

Local governments are responsible for maintaining all vehicles associated with construction and property management activities according to the operations described in Section 3.10

3.3.6 Pollution Prevention in Construction and Maintenance

Local governments are responsible for construction and maintenance activities. Included in this category are constructing and maintaining roads, bridges and tunnels, and building, maintaining, renovating and demolishing structures. In some cases, these activities are conducted through contractual arrangements. A simple building/construction cycle includes the following activities:

- Pre-construction
- Construction
- Maintenance and repair.

3.3.6.1 Typical Wastes Generated

Pre-construction activities involve the preparation of a site for future development. During this phase existing vegetation and structures may be removed, creating demolition waste including asbestos, mercury, PCB, lead based paints, and dust. Other pre-construction impacts include increased potential for storm water runoff and possible negative impacts on aquatic resources and habitat.

Construction activities may involve grading, drilling, and filling. These activities generally do not generate substantial hazardous waste but may result in habitat loss through erosion,

sedimentation, and disruption of the natural environment. Building construction and maintenance activities generate wastes from paints, thinners, grease, resins and sealers, glues, cleaners, hydraulic oils, paint remover/stripper, soiled rags, and solder, as well as a host of solid wastes including paper, plastic, scrap lumber, insulation, metals, gypsum, and roofing materials.

Maintenance and repair activities involve the removal and replacement of worn or damaged surfaces, structural members and lubricating or cooling fluids. This could result in the generation of hazardous wastes such as lead based paint or asbestos, cleaning fluids, used lubricating oil, and cooling system fluids.

Pollution prevention begins long before the first nail is driven. Local governments can conduct a baseline analysis of institutional issues that affect pollution prevention /green building construction and maintenance policy implementation. Areas to examine include procurement policies, zoning, building codes and standards, operations and maintenance policies, and recycling policies. Throughout the construction and maintenance process, opportunities exist for implementing pollution prevention.

Construction and Demolition (C&D). A major opportunity in the construction and demolition (C&D) industry is the expansion of the recovery and reuse of materials. Areas to examine include the type of demolition process selected, labor costs, contracting constraints, project schedules, material storage space, and marketability of materials.

Local governments should collaborate with the local stakeholders to understand local conditions and issues. The key is to make material recovery a part of the planning and contracting process and make waste management and recovery plans part of the contractual scope-of-work. Recovery levels could be made an explicit factor in awarding contracts. Prevailing labor rates and local market conditions will need to be considered since labor costs are viewed as the single most important barrier to increasing C&D materials recovery.

Local planning and permit departments could consider the impacts of connecting permit authorization with material recovery efforts. Educational outreach programs including workshops, websites and informational packets are a critical source of encouraging greater participation in C&D material recovery programs.

3.3.6.2 Top Pollution Prevention Opportunities

- Adopt a resolution or policy to direct future building toward green practices.
- Use "first-in, first-out" materials management.
- Segregate waste streams.
- Reduce risks of spills by controlling access to storage areas and routinely inspecting containers.
- Recycle used cleaning, lubricating or cooling fluid.
- Use water-based paints and coatings to minimize the use of petroleum-based solvents and the hazardous air emissions associated with such solvents.
- Avoid unnecessary grading and removal of vegetative cover to minimize road run-off into surface water.
- Use waterborne or thermoplastic traffic paint.
- Consider deconstruction and reuse of existing buildings rather than demolition.
- Use high efficiency lighting and electronic ballasts to illuminate roadways and tunnels, and install occupancy sensors to control lighting fixtures.

3.3.7 Success Stories

3.3.7.1 The Riverdale Deconstruction Case Study

This study fully documents the manual disassembly and salvage of a 2,000-square-foot, 4-unit, residential building in an urban area of Baltimore County, Maryland. It addresses issues such as the salvage of common building materials (i.e., brick, framing lumber, hardwood flooring, windows, doors, and assorted fixtures), labor requirements and activities, total cost comparison, and environmental benefits, among others. In addition this study also proposes recommendations for the improvement of the deconstruction industry. For more information on this case study,

contact Peter Yost at (301) 249-4000, or read about this case study on the Internet at http://www.smartgrowth.org/casestudies/casestudy_index.html.

3.3.7.2 Fort ORD Deconstruction Pilot Project Summary

The closure of Fort Ord, U.S. Army Military Reservation in 1994 left more than 28,000 acres and over 7,000 buildings to be reused in the local community. Working collaboratively with the University of California Santa Cruz Extension and the Presidio of Monterey Base Realignment and Closure Office, the Fort Ord Reuse Authority established a specialized program for testing the feasibility of a more environmentally effective approach to remove the substandard facilities, abate the remnant hazards, and reuse the materials in new construction. Implementation began in April of 1998, with four buildings selected for deconstruction, three for relocation, and one concrete building for disassembly. Non-contaminated materials were offered at a public sale and contaminated materials were stockpiled for future research. For more details on this project and to receive a copy of the complete final report, call Standen Cook at (408) 883-3687, or read about them on the Internet at http://www.fora.org.

3.3.7.3 City of Austin Smart Growth Initiative Summary

Early in 1998, the City of Austin, TX announced its kick-off of the Smart Growth Initiative. The ultimate goals of the initiative are to manage growth, protect the City's quality of life and assure the creation of a healthy economy. The Austin City Council created a special subcommittee to overhaul the City's Land Development Code to provide a foundation for the Smart Growth initiative by:

- Establishing general planning principles, including land use and traffic planning guidelines
- Developing a City of Austin-supported neighborhood-based planning framework
- Providing incentives and a viable mechanism for infill development and redevelopment
- Analyzing the provision, management and regulation of wastewater service
- Outlining a plan for the purchase of water conservation easements in the most environmentally sensitive areas

- Creating a plain English version of the Land Development Code

- Simplifying the development process, providing project-based development guidelines, clear expectations, and definitive expiration dates.

For more information on this initiative, contact Michele Middlebrook-Gonzalez at (512) 499-2410, or read about it on the Internet at http://www.ci.austin.tx.us/smartgrowth/smart_growth.htm.

Resources

"Hazardous Waste Minimization Checklist and Assessment Manual for the Building Construction Industry," CA EPA, Dept. of Toxic Substances Control, Office of Pollution Prevention and Technology Development, May 1993, Sacramento, CA.

"Hazardous Waste Minimization for the Building Construction Industry," Fact Sheet, op. Cit.

"Building Construction Industry," Waste Audit Study, op. cit.

"Cooling Water Systems, Management Guidelines for Water Quality Protection," Palo Alto Regional Quality Control Plant, Palo Alto, CA.

"Blueprint for a Clean Bay, Construction-related Industries," Santa Clara Valley Non-point Source Pollution Control Program, 1992, San Jose, CA.

"Residential Construction Waste: From Disposal to Management," interim document, NAHB Research Center, Inc., Upper Marlboro, MD.

"Environmental Handbook For Oregon Construction Contractors: Best Pollution Prevention Practices," River City Resources Group, Inc., May 1994. (located in California EPA, Office of Pollution Prevention and Technology Development Reference Library, (800) 700-5854).

"Environmental Handbook For Oregon General Construction Contractors: Regulatory Guidance," Oregon Waste Reduction Assistance Program, Palermini And Associates, April 1994 (located in California EPA, Office of Pollution Prevention and Technology Development Reference Library, (800) 700-5854).

"Construction And Demolition Waste Recycling Guide: Recycling Construction and Demolition Waste In The Los Angeles Area," LA Network, August 1992 (located in California EPA, Office of Pollution Prevention and Technology Development Reference Library, (800)700-5854).

"Blueprint For A Clean Bay: Best Management Practices To Prevent Stormwater Pollution From Construction-Related Activities," Bay Area Stormwater Management Agencies Association (BASMAA), 1995 (located in California EPA, Office of Pollution Prevention and Technology Development Reference Library, (800) 700-5854).

"Pollution Prevention Training Instructors' Guide," Science Applications International Corporation (SAIC), March 1996 (located in California EPA, Office of Pollution Prevention and Technology Development Reference Library, (800) 700-5854).

"Start at the Source: Residential Site Planning & Design Guidance Manual For Stormwater Quality Protection," Tim Richman & Associates, January 1997 (located in California EPA, Office of Pollution Prevention and Technology Development Reference Library, (800) 700-5854).

Barron, Thomas S., "Pollution Prevention In The Construction Industry: A Workbook Covering The Chemicals Used And Wastes Generated By Construction Trades," Construction industry workshop, 1997 (located in California EPA, Office of Pollution Prevention and Technology Development Reference Library, (800) 700-5854).

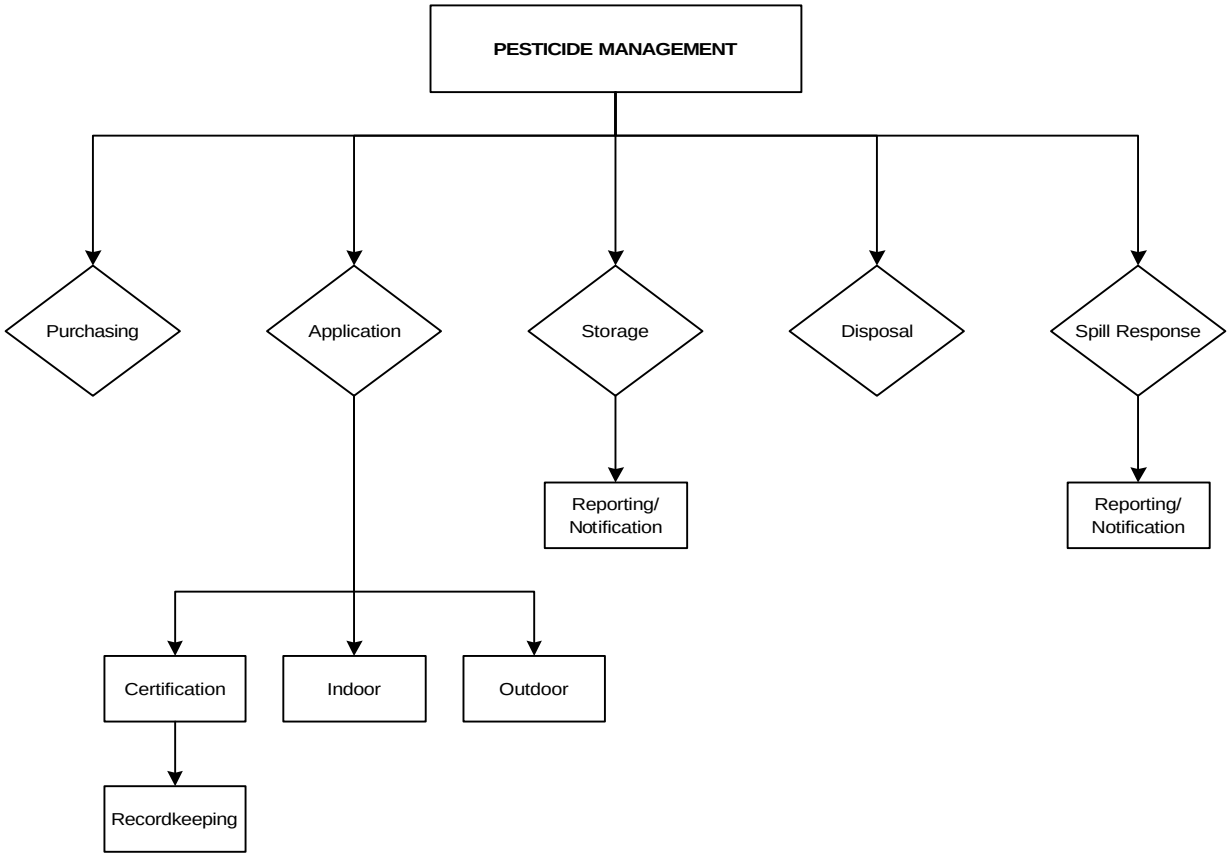
Gruder, Sherrie, "Construction Resources: A Waste Reduction And Recycling Guide for Wisconsin Builders and Contractors," University of Wisconsin-Extension, Solid and Hazardous Waste Education Center, 528 Lowell Hall, Madison, WI, Nov. 1997.

For more information, contact Isao Kobashi, Santa Clara County Pollution Prevention Program, Phone: (408) 441-1195, Fax: (408) 441-0365, E-mail: isao_kobashi@qmgate.pln.co.scl.ca.us.

3.4 PESTICIDE/VECTOR MANAGEMENT

Local governments are responsible for pesticide/vector management, which includes applying, storing, and disposing of pesticides to improve the health and appearance of their outdoor and indoor properties. Exhibit 3-3 presents activities associated with pesticide management.

Exhibit 3-3. Pesticide Management



Because these activities could affect the environment, they may be subject to environmental laws and regulations, as indicated in the following list.

- Application—FIFRA, CWA and ESA
- Storage—FIFRA, EPCRA, CERCLA, and CAA
- Disposal—FIFRA, CWA, and RCRA
- Spill/Release Response—EPCRA, CERCLA, and CAA

In addition, although purchasing is not regulated, local governments can minimize environmental impacts through their purchasing decisions.

3.4.1 Purchasing Pesticides

Purchasing includes the acquisition of pesticides and pesticide application equipment. Although these purchases are not regulated directly by environmental laws, purchasing decisions could

impact the environment. The purchase of pesticides sold in recyclable containers that can be returned to the dealer will, for example, prevent the local government from having to dispose of the containers, which could be a regulated waste under RCRA. In addition, a local government can purchase certain types of equipment that apply pesticides more efficiently, thereby conserving resources, and reducing the environmental impacts of application.

3.4.2 Applying Pesticides

Pesticide application methods and practices depend largely upon the nature of the application. Pesticides may be applied indoors (e.g., housing units, schools, other publicly owned buildings) or outdoors (e.g., solid waste management units, parks and other recreational areas, other publicly owned land). Pesticide application ranges from household products, such as cockroach sprays and insect repellents (which can be applied without training as long as the label requirements are followed), to restricted use pesticides (which can only be applied by certified individuals).

The hundreds of application methods available can be categorized into three major types:

- Sub-surface application methods, including injecting the pesticide into the ground to control subterranean insects, such as termites, grubs, and nematodes, and other sub-surface methods, such as incorporating the pesticide into the soil

- Surface applications, which include applying pesticides, repellants, disinfectants, or mildewcides directly to the surface of something (e.g., applications to floorboards, structures, animals or insects, crack/crevices)

- Aerial application, including aircraft applications, spray booms to apply pesticides to trees, or fumigants to control mosquitoes and wood-boring insects, such as termites.

Pesticides can be applied in many forms, including gases, sprays, dusts, granulars, baits, and dips. Pesticide application can impact the environment in several ways and is regulated under federal and state environmental laws and regulations. Pesticide-related activities conducted by local governments are primarily regulated under FIFRA, which specifies application in a manner consistent with the label. All pesticide management operations must comply with pesticide use requirements unless an emergency exemption has been granted by EPA (40 CFR 166). (It should be noted that FIFRA implementation has been delegated by the federal government to the states.)

Excessive applications may also be regulated under the CWA if the local government develops best management practices that are included in its storm water or wastewater discharge permit.

3.4.2.1 Applying Pesticides Indoors

Indoor applications occur in non-agricultural areas or any type of structural or industrial areas requiring pest management. Applicators must follow label requirements for both general and restricted use pesticides. Applicators applying pesticides indoors must follow guidelines listed under 40 CFR 171, regulating the use of pesticides in, on, or around the following structures:

- Food-handling establishments
- Human dwellings
- Institutions (e.g., schools and hospitals)
- Industrial establishments (e.g., warehouses and grain elevators, and any other structures and adjacent areas, public or private).

The potential environmental impacts from indoor pesticide application are air pollution and contamination of personal items. Misuse of a pesticide could cause damage to non-target species, such as humans, pets, or other animals and plants that come into contact with the pesticide. Pesticide labels should be followed strictly to prevent indoor pollution and potential hazards to humans and animals. The label controls when and under what conditions pesticides can be applied, mixed, stored, loaded, or used. Labeling requirements establish worker protection standards imposed under FIFRA, which include information on restricted entry intervals after pesticide usage and personal protective equipment requirements.

3.4.2.2 Applying Pesticides Outdoors

The outdoor use of pesticides refers to the application of any pesticide outside enclosed manmade structures. Local governments may be responsible for supervising the use of restricted pesticides to control pests in the following areas:

- Public forests, nurseries, and forest seed producing areas

- Ornamental trees, shrubs, flowers, and turf producing areas

- Maintenance of public roads, electric power lines, pipelines, railway rights-of-way, or other similar areas

- Recreation or other outdoor areas requiring pest management.

One of the most common methods of applying pesticides to outdoor areas is liquid spraying. Liquid spraying may be conducted by aerial spraying, tractor spraying, spray rigs, blasters, hand spraying, or other liquid spray devices. The potential environmental impacts from outdoor pesticide application are human exposure and air, soil, and water contamination. The application of certain pesticides may destroy or have adverse effects on endangered or threatened species of fish, wildlife, or plants and their habitats. Local governments must ensure that the use of pesticides does not jeopardize the existence of these species or their habitats, as stated under 50 CFR 402.

Outdoor pesticide activities are regulated under the label requirements and application provisions of FIFRA. FIFRA establishes worker protection standards designed to protect agricultural workers and pesticide handlers. This includes posting warning signs in areas where pesticides have been applied. FIFRA also requires the certified applicator to maintain records regarding the product name, amount, approximate date of application, and location of application of each pesticide used for a 2-year period.

3.4.2.3 Cleaning Application Equipment

There is no satisfactory way to completely remove all traces of any pesticide from application equipment. At the end of each application, however, several steps can be followed to clean as much pesticide as possible off of the equipment:

C Rinse the inside and outside of the tank three times with clean water.

C Put in a moderate amount of clean water and spray it out. A small amount of liquid detergent added to the water will help clean the inside of the sprayer system.

C Clean the nozzles, nozzle screens, and suction screens with compressed air or a soft brush.

3.4.2.4 Certifying Applicators

Pesticides can be classified into two categories--general use and restricted use pesticides. General use pesticides are those that when applied properly will not cause adverse effects on the environment and can be applied by anyone. Restricted use pesticides are those that when applied may cause adverse effects on the environment, including injury to the applicator. Applicators and supervisors of restricted use pesticides must be certified under Section 11 of FIFRA, which outlines federal and state certification procedures for applicators. Applicators who use restricted use pesticides must be certified to use pesticides by demonstrating competency in specified areas:

- Label and labeling comprehension
- Safety techniques
- Environmental awareness
- Pest identification
- Pesticide application
- Equipment use
- Application techniques
- Laws and regulations.

3.4.2.5 Keeping Records

Local governments who have staff or use certified pesticide applicators must keep and maintain various restricted use pesticide records for 2 years. The records must include the types, amounts, uses, dates, and places of application of all restricted use pesticides.

3.4.3 Storing Pesticides

Local governments are responsible for storing any unused or excess pesticides. The recommended procedures and criteria for proper storage apply to areas where pesticides are classified as highly toxic or moderately toxic and have written on their labels DANGER, POISON, WARNING, or the "Mr. Yuk" symbol. FIFRA defines adequate storage as placing pesticides in proper containers and in safe areas to minimize the possibility of accidental release that could result in adverse effects on the environment. Storage sites should be in a dry, well ventilated, separate area where fire protection is provided. Identification signs should be posted to advise of the contents and hazardous nature of the pesticide. The potential environmental impacts from pesticide storage are air, soil, and water contamination from accidental releases.

Because pesticides are typically stored in large quantities for future use, accidental releases may be large, causing immediate detrimental effects on the surrounding environment.

Pesticides that cause adverse effects on the environment should be stored only in facilities where special attention has been given to the hazardous nature of the pesticide. Temporary storage of highly toxic or moderately toxic pesticides may occur at isolated sites and facilities where there is unlikely contact with external conditions that may cause a release. Each container should be stored with the label plainly visible, and the container should be inspected for corrosion and leaks. The storage of pesticides must follow FIFRA guidelines under which all pesticides stored by the local government must be registered or ruled exempt from the registration requirements (40 CFR 152.15 through 152.30). FIFRA covers worker protection standards that must be followed when personnel handle pesticides. In addition, FIFRA lists safety measures that must be followed by personnel who are around pesticides and containers.

If a local government stores or uses specified amounts of certain pesticides, it may be subject to planning and reporting requirements of EPCRA and Section 112(r) of the CAA. These requirements are described below.

3.4.3.1 Risk Management Planning (CAA Section 112(r))

Under Section 112(r) of the amended CAA, facilities that have more than a threshold quantity of any of the 140 regulated substances in a single process are required to develop risk management programs and to summarize these programs in risk management plans by June 21, 1999 (40 CFR Part 68). Risk management plans, which are intended to prevent accidental releases of regulated substances and to reduce the severity of those releases that do occur, will be made available to state and local government agencies and the public. EPA has been working with industry groups to develop model risk management programs. To review the model program, refer to EPA's Chemical Accident Prevention and Risk Management Planning website at http://www.epa.gov/swercepp/acc-pre.htm#Model Plans/.

> At present, EPA has established a list of 140 regulated substances that fall under the Risk Management Planning Regulations of the CAA. These substances were published in the *Federal Register* on January 31, 1994; EPA amended the list by rule, published on December 18, 1997. EPA may further amend the list in the future as needed.

3.4.3.2 Notification of a Canceled or Suspended Pesticide

Under FIFRA, EPA or a registrar can cancel or suspend the registration of a pesticide or of a specific use of a pesticide. In such situations, EPA or the state regulatory agency would request that all entities having supplies of that pesticide notify the state. If a local government has any amounts of canceled or suspended pesticides, it must notify the state of the amount. The state will respond with specific directions concerning the pesticide.

3.4.4 Disposing of Pesticides

Pesticide management includes the disposal of excess pesticides that are not capable of being stored for later use. Pesticide disposal can involve dilution with water, incineration, chemical degradation, burial in a specially designated landfill, and well and soil injection. The potential environmental impacts from pesticide disposal are air, soil, and water contamination from releases. The environmental implications are the same as for the application process, except that the concentration of the pesticide is typically stronger because of the quantity and mass of the disposed pesticide. The disposal of pesticides is a critical process and if not properly conducted can have immediate detrimental effects on the environment.

General and restricted use pesticide labels outline proper disposal guidelines. FIFRA, RCRA, and the CWA regulate these practices. Disposal activities may require notifying EPA, the state, or a local solid waste disposal facility (landfill or incinerator) that is complying with permit provisions. Before disposing of excess pesticide, the local government should try two options:

- Store and reuse any leftover portion at the prescribed dosage rates

- Return any excess to the manufacturer or distributor for relabeling or reprocessing into other materials.

3.4.5 Vehicle/Equipment Maintenance

Local governments are responsible for maintaining vehicles and equipment associated with pesticide management activities according to the operations described in Section 3.10.

3.4.6 Pollution Prevention in Pesticide Management

Reduction in the use of pesticides in local government operations can be achieved by using Integrated Pest Management (IPM). IPM utilizes regular monitoring to determine if and when treatments are needed. It employs physical, mechanical, cultural, biological, and educational tactics to keep pest numbers low. Least-toxic pest control methods are used as a last resort. Using these alternatives will result in decreased use of pesticides. Many of the tips listed in Section 3.4.6.2 may not initially appear to be related to pesticide pollution prevention. The tips will result in lowered reliance on pesticide use by making the plants healthier. Healthy plants are able to withstand pest invasions much like healthy humans. Although IPM reduces reliance on pesticides, some pesticide use may still be necessary. In these cases, use pesticides properly and safely.

3.4.6.1 Typical Wastes Generated

The following lists presents typical waste generated during pesticide management and ways to handle them:

- Empty containers including bags, drums, bottles, and cans. Containers should be triple rinsed or "jet rinsed" prior to disposal. Tripled rinsed containers should be crushed or punctured to prevent reuse. Containers can be reduced in quantity by buying in bulk; however, never buy more than the amount needed. When possible, purchase in recyclable containers that can be returned to dealers.

- Excess mixture (i.e., the diluted pesticide left over in the spray tank). The best disposal method is to use it on a site.

- Excess product (i.e., the unused pesticide no longer needed due to a change in procedures or because the pest problems are solved). The best disposal method is to find someone who can use it.

- Rinse water from containers and application equipment. This rinse water can be added to a tank and used.

- Expired pesticides resulting from poor inventory management or from improper storage. Contact the vendor to inquire if the manufacturer will take back the product.

3.4.6.2 Top Pollution Prevention Opportunities

The following recommendations can help local governments achieve reductions in pesticide and herbicide applications and maintain regulatory compliance associated with chemical use, storage, and disposal.

- Design for water conservation. Group plants with similar water needs together so they can be irrigated together and water will not be wasted on plants that do not need it. Proper watering will reduce stress on plants and allow their natural resistance to withstand pest attacks without the need for pesticides.

- Employ Environmental Landscape Management (ELM). ELM is a common-sense approach that starts with healthy growing space. Select pest resistant plants, use sound planting techniques, and correctly manage the established landscape. Place the right plants in the right place; choose plants according to soil characteristics (pH level, moisture retention), rainfall, and sunlight conditions. Use more native plant species and reduce the use of exotics.

- Avoid monocultures. Monocultures (single-species planting, such as large areas of grass) are very susceptible to infestation since most pests are host-specific. Growing different species together prevents pests from readily spreading.

- Reduce water runoff by building retaining walls, which direct water to a dry well or other areas to collect and percolate through soil. If pesticides are used, this will reduce the likelihood of nearby water body contamination.

- Use proper mowing practices. Mow grass with sharp blades. A dull blade rips grass making larger wounds and increasing susceptibility to disease pathogens. Sharp blades also increase equipment efficiency and reduce wear on equipment. Never cut more than one-third the height of the grass at any time.

- Scout the landscape regularly to learn which plants have problems. Most plants (except grass) seldom have more than one major pest problem. By scouting, you will find problems early and be able to solve them with IPM without resorting to pesticides.

- Use pesticides only when needed, not on a prescribed schedule. Use spot treatment instead of treating the entire area.

- Correctly identify insects prior to treatment. Less than 1 percent of all insects are harmful to plants. Take care not to harm beneficial insects.

- Use least toxic pest control methods:

  – Horticultural oils

  – Insecticidal soaps

  – Natural enemies such as:

    < Pathogens, such as *Bacillus thuringiensis*, which infects and controls caterpillars

    < Predators, such as purple martins, praying mantis, lady beetles, beneficial nematodes, and spiders

    < Parasites, such as parasitic wasps

  – Diatomaceous earth

  – Boric acid

  – Pyrethrins

  – Insect growth regulators, which halt or interfere with the development of an insect before it matures

  – Pheromones, which disrupt normal mating behavior by stimulating breeding pests and luring them into traps

  – Insect traps

  – Mechanical treatments, such as cultivating to control weeds; hand picking of pests off plants, and sticky traps.

- Buy pesticides only in small quantities and store carefully in labeled, airtight containers. Plan your purchases so pesticides do not expire.

- Understand that pest eradication is generally an unrealistic management objective. An attempt to totally eliminate a pest is likely to result in excessive pesticide application.

- Outsource pest control services and write IPM requirements into the specifications.

- Keep clutter, excess water sources (e.g., drips or standing water in plants), and food waste minimized to discourage pests from entering buildings.

3.4.7 Success Stories

3.4.7.1 The City and County of San Francisco, California

In October 1996, the San Francisco Board of Supervisors passed Chapter 39 of the Administrative Code, mandating that City departments adopt IPM. Chapter 39 states, "The City, in carrying out its operations, shall assume pesticides are potentially hazardous to human and environmental health." IPM coordinators were assigned in each department to act as the primary contacts for staff and the public on IPM. The IPM coordinators also file the department's IPM Implementation Plan, keep records on pesticide application, and review and keep on file the Inspection and Quality Assurance forms submitted by the IPM service providers. The IPM Implementation Plan outlines pest management strategies that the City department uses to control pests. The strategies emphasize preventive tactics and least-toxic approaches. For additional information, contact Alan Hom, IPM Project Coordinator, at (415) 554-6399.

3.4.7.2 Westchester County, New York

Westchester County passed a local law (Chapter 690) to create a Pest Management Committee to develop and implement pest management policies using the principles of integrated pest management. They also created a requirement to use chemical pesticides only where feasible alternatives are not available. For additional information, contact Katherine S. Carsky, Chair, Board of Legislators Committee on the Environment, (914) 285-2846.

3.4.7.3 Cape May County, New Jersey

In September 1992, the Cape May County Board of Chosen Freeholders unanimously passed resolution 8199-92, formally adopting an IPM plan. The plan defined IPM and established procedures to identify pest problems and control strategies. Routine applications of pesticides were permanently discontinued. When chemicals are deemed necessary, an entomologist determines the least toxic option. Cumulative savings to date amount to $44,551, and the use of pesticides and herbicides has been reduced drastically. For additional information, contact Harry E. Kehr, Director, Department of Facilities and Services, (609) 465-1296.

3.4.7.4 The City of Santa Monica, California

Because most pest control was performed by contractors, the City of Santa Monica changed its pest control activities by changing their purchasing practices. The City drafted a request for qualifications, request for proposals (RFP), and specifications for IPM contractors which required contractors to provide detailed information on their IPM experience. The RFP required vendors to rank pest management options in categories of “low,” “medium” and “high” risk to human health and the environment. Santa Monica's specifications for IPM contractors included utilization of non-pesticide methods whenever possible and mandated approval from the City prior to applying or storing pesticides. For additional information, contact Debbie Raphael, Environmental Programs Analyst, at (310) 458-2255.

Resources

Common Sense Pest Control, by William Olkowski, Sheila Daar, and Helga Olkowski, The Tauton Press, 1991, Newtown, CT, pp. 715.

"Biological Control of Insect and Mite Pests of Woody Landscape Plants: concepts, agents and methods" by Michael J. Raupp, Roy G. Van Driesche, and John a. Davidson. Maryland Cooperative Extension Service, 1993, pp. 39.

"Suppliers of Beneficial Organisms in North America" by Charles D. Hunter, California Environmental Protection Agency, Department of Pesticide Regulation, Environmental Monitoring and Pest Management Branch.

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National Farm*A*Syst, B142 Steenbock Library, 550 Babcock Drive, Madison, WI 52706-1293, Phone: (608) 262-0024, Email: farmasyst@macc.wisc.edu.

Integrated Pest Management/Cooperative State Research Service. Contact Dr. Robert C. Riley, Dr. James R. Cate, or Dr. John M. Barnes. USDA Cooperative State Research Service, Plant and Animal Sciences, Aerospace Building, Washington, D.C. 20250-2220. Telephone: (202) 401-4781, Fax: (202) 401-4888.

Integrated Pest Management/Cooperative Extension Service. Contact Michael S. Fitzner, USDA Extension Service, Ag Box 0909, Washington, D.C. 20250-0909. Telephone: (202) 720-2471, Fax: (202) 720-4395. E-mail: mfitzner@esuda.gov. 401- 4939.

Integrated Pest Management Information, National IPM Network - Colorado State University, *http://www.colostate.edu/Depts/IPM/csuipm.html.*

National IPM Network. *http://ipmwww.ncsu.edu/main.html*

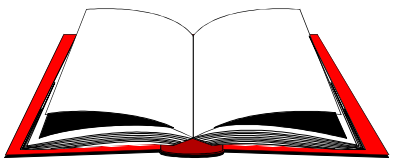
For more information, contact Kay Gervasi, Pollution Prevention Manager, Broward County Department of Natural Resource Protection, Phone: (954) 519-1257, Fax: (954) 765-4894, Email: kgervasi@co.broward.fl.us.

3.5 PUBLIC SAFETY

As shown in Exhibit 3-4, local governments help ensure public safety by providing emergency planning and response to releases of hazardous substances, fire protection, and police protection. Emergency planning and response activities include analyzing community hazards and developing a local emergency response plan to prepare for and respond to chemical emergencies. While also involved in emergency planning, fire department activities include fire suppression and hazardous materials response.

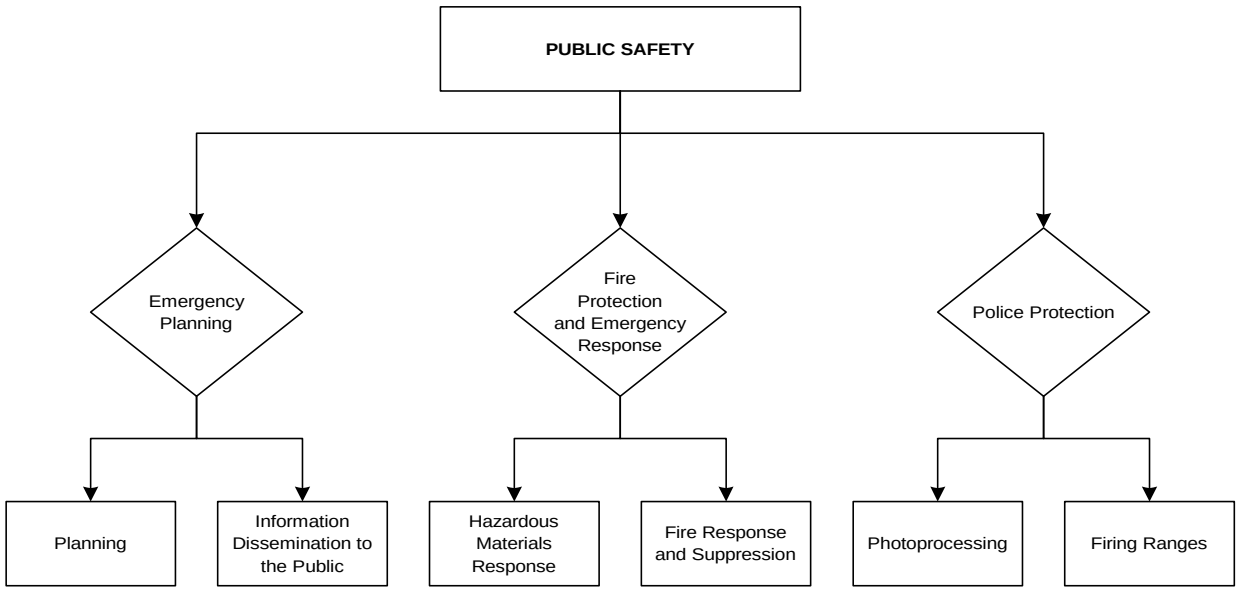
3.5.1 Emergency Planning

Local governments have the basic responsibility for understanding risks posed by chemicals at the local level,



managing and reducing those risks, and dealing with emergencies. Local governments must meet requirements both as regulated entities and as regulators under EPCRA. EPCRA regulates both emergency planning and the dissemination of information on certain chemicals to the public.

Exhibit 3-4. Public Safety



3.5.1.1 Planning

Under the emergency planning section of EPCRA, local governments must prepare for and respond to emergencies involving hazardous substances. Local governments and fire departments are expected to participate in the local emergency planning efforts under EPCRA. LEPCs, appointed by SERCs for every local emergency planning district, are broadly representative of their communities and generally include representatives of elected local officials; law enforcement officials, civil defense workers, and firefighters; first aid, health, environment, and transportation workers; owners/operators of facilities; and community group representatives.

LEPCs must analyze community hazards and develop local emergency response plans to prepare for and respond to chemical emergencies. The focus for emergency planning for LEPCs is the list of 366 "extremely hazardous substances" identified by EPA as having immediate health effects and hazardous properties, but plans also address all hazardous materials in the community

that present risks to public health and safety. These substances are found in some widely used insecticides, herbicides, fertilizers, photographic chemicals, and solvents, as well as in wastewater treatment and drinking water treatment processes.

Local emergency response plans delineate potential local hazards, response capabilities, and procedures to follow in an emergency. An emergency plan must include the identity and location of hazardous materials, procedures for immediate response to a chemical accident, ways to notify the public about actions it must take, names of coordinators at industrial plants, and schedules and plans for testing the plan. Initial plans were required by October 1988. The LEPC publicizes the plan through public meetings or newspaper announcements. In addition, the LEPC updates the plan at least annually based on chemical information reported by local industries and the public.

In addition to requirements imposed by federal law, local governments must comply with all applicable state and local right-to-know laws. State and local emergency response committees are permitted to impose requirements in addition to those imposed by EPCRA.

3.5.1.2 Providing Chemical Information Dissemination to the Public

Under EPCRA, LEPCs receive hazardous chemical inventory and emergency release information submitted by facilities and have access to toxic chemical release information supplied by facilities to EPA. LEPCs can provide this information to local officials, community leaders, and the public to aid in preparing for emergencies and managing chemical risks. The following describes the EPCRA reporting requirements for chemicals:

- ***Hazardous Chemical Reporting***. Under EPCRA, LEPCs receive hazardous chemical inventory information submitted by facilities and make it available to the public upon request. Facilities with chemicals that are present in excess of certain amounts are required to submit either actual copies of MSDSs or lists of MSDS chemicals to the LEPC, the SERC, and the local fire department. This reporting requirement has been in effect since October 1987. In addition, these facilities must submit annual inventories on the same hazardous chemicals to the LEPC, the SERC, and the local fire department. These inventory forms are due on March 1 of each year. LEPCs make this information available to the public, and fire departments and public health officials use the information to plan for and respond to emergencies. Local governments also are subject to the reporting requirements if they have or use any of the specific chemicals in excess of the threshold amounts.

- ***Emergency Release Notification***. Under EPCRA, LEPCs receive emergency release information submitted by facilities and make it available to the public upon request. A facility is required to immediately notify the community and the state (i.e., the LEPC and the SERC) of the release of more than a predetermined amount of certain hazardous chemicals. Chemicals covered by this requirement include not only the 366 "extremely hazardous substances," but also more than 700 hazardous substances subject to the emergency notification requirements of the Superfund hazardous waste cleanup law. The emergency release notification activates emergency plans, and the information on emergency releases is considered in the LEPC planning process. Local governments are also subject to this notification requirement.

- ***Toxic Chemical Release Reporting***. LEPCs, as well as the public, have access to an EPA database called the Toxic Release Inventory (TRI), which contains information on annual toxic chemical releases submitted by certain facilities. Under EPCRA, specific facilities must estimate and report each year the total amount of toxic chemicals that they release into the environment, either accidentally or as a result of routine plant operations, or transport as waste to another location. EPA compiles this information into the database. The annual release data are used, along with the other information the LEPC receives, to put together a more complete picture of the hazardous substances in each district.

3.5.2 Fire Protection and Emergency Response

Local governments may be responsible for providing fire protection services to their communities. Fire protection services and responsibilities include fire response and suppression (i.e., firefighting), salvage (e.g., pumping water out of basements), investigation of fires, repair and maintenance of equipment, and fire prevention.

To provide appropriate fire protection, a city is usually divided into a number of fire districts with at least one fire station in each district, depending upon various factors (e.g., population density, topography, and the nature of buildings and building materials). Each station has teams or companies for one or more fire trucks (ladder, hose, engine company). Smaller communities are likely to have only one firefighting company. Many states allow counties and towns or

townships to carry out fire protection functions. Fire departments receive financial assistance through local governments, fund raising, and state loans, although these funds may not be enough to fully staff and equip a district. Thus, many areas use volunteer firefighters. In small towns and villages, which often depend entirely on volunteers, local governments usually contribute part of the money for trucks and other equipment (except in the smallest communities). A volunteer fire department may fall under the jurisdiction of a local government (which is sometimes required by state law), or it may be incorporated as an independent fire company, which is self-governing and owns its own station and equipment.

3.5.2.1 Fire Protection

As discussed above, fire departments are typically responsible for emergency planning and emergency mitigation, including fire response and suppression (i.e., firefighting) and hazardous materials response. In this role, fire departments attempt to safeguard lives and property against the injurious effects of accidents or uncontrolled hazards, fire, explosion, or hazardous materials. Because fire protection activities can affect the environment, they may be subject to environmental laws and regulations, as indicated in the following list.

- Emergency planning—EPCRA
- Fire response and suppression—CAA and EPCRA
- Hazardous materials response—RCRA and CWA

3.5.2.2 Emergency Planning

As discussed, firefighters may be appointed to LEPCs under the emergency planning provisions of EPCRA. Section 3.5.1 presents more information on this topic.

3.5.2.3 Fire Response and Suppression

Agents used for fire suppression vary based on the location and type of fire. Halons, which are low toxicity, chemically stable compounds, have been used for fire and explosion protection throughout this century. Halons are now known to contribute to the depletion of the ozone layer and have been phased out of production. Effective January 1, 1994, the production and importation of new halons (1211, 1301, or 2402) were banned in the United States. Recycled halon is now the only source of supply. The environmental impacts of halon use in firefighting are primarily damaging to the ozone layer.

Firefighters use a number of traditional fire extinguishing agents, including water, carbon dioxide, dry chemicals, and foam, that are good alternatives to halons for many fire protection applications. Recent research has led to the commercialization of new agents and technologies: halocarbon compounds, inert gas mixtures, water-mist or fogging systems, and powdered aerosols. The potential environmental impacts from firefighting activities using water are soil and water contamination from runoff. Many conventional synthetic foams contain solvents regulated under EPCRA.

3.5.2.4 Hazardous Materials Response

Hazardous materials can be located anywhere at any time. In the event of a spill, the public safety agency (e.g., fire department, local hazardous materials response team) having jurisdiction where the discharge occurred is responsible for taking the actions necessary to protect public health and safety and the environment. Based on the nature of the hazard presented by this discharge, public safety personnel may be obliged to stand by until the hazard is controlled.

The public safety agency may bill the responsible party (i.e., the property owner or whoever caused the spill) for the expenses incurred to protect the public and the environment. In addition, safety personnel may use materials to control a spill, protect the environment, and mitigate the hazard. These materials and personnel costs may be charged to the responsible party.

Depending on the type of hazardous material released, various response techniques may be used to control the spill and minimize the impacts on human health and the environment. The key to effectively combating spills is careful selection and proper use of the equipment and materials most suited to the type of spill and the conditions at the spill site. The types of response techniques include:

Response techniques:
- Mechanical containment and recovery
- Chemical and biological methods
- Physical methods.

- C Mechanical containment or recovery, such as booms, barriers, and skimmers, as well as sorbent materials, that are used to capture and store the spilled material until it can be disposed of properly.

- C Chemical and biological methods (e.g., dispersants and gelling agents for oil spills).

C Physical methods, such as natural processes (e.g., evaporation, oxidation, and biodegradation). Depending on the type of material spilled, this may not be the best response technique available.

Sorbents contaminated with hazardous materials must be disposed of according to the hazardous waste provisions of RCRA.

3.5.3 Police Protection

Police protection involves law enforcement, traffic safety, and other activities related to law enforcement and preservation of order. Local governments, rather than states or the national government, have primary policing responsibilities:

C ***Patrol.*** A patrol officer is responsible for investigating complaints, reporting accidents, making arrests, and maintaining peace and order.

C ***Investigative/detective force***. The investigative/detective force concentrates on specialized work involved in the detection and apprehension of criminals (e.g., vice, intelligence, narcotics, homicides, bomb threats).

C ***Traffic regulation*****.** Traffic regulation involves traffic control, engineering, and enforcement.

C ***Crime prevention*****.** A crime prevention unit often works with an investigative unit and focuses on youth investigation, safety education, and other evidence collection and identification activities.

To support these units, police departments may participate in various activities including the development of photographs (i.e., photoprocessing) from arrests and shooting range practice at either police department or publicly owned facilities. Because these activities could affect the environment, they may be subject to various environmental laws and regulations, as indicated in the following list.

- Photoprocessing—RCRA, CAA, and CWA
- Firing ranges—RCRA, CERCLA, and EPCRA
- Laboratory operations—RCRA, EPCRA, CERCLA, and CWA

3.5.3.1 Photoprocessing

Police departments may have their own photoprocessing laboratories or contract out this activity to commercial photoprocessing laboratories. Processing photographic film requires the use of various chemicals to develop and produce finished goods. The photosensitive medium used for black and white processing is an emulsion of fine silver halide crystals in a matrix of gelatin, which is applied in a thin layer on either paper or clear plastic film. The film used for color photography consists of three separate layers of photosensitive emulsion with intermediate layers which are coated on a clear film base. Each emulsion is sensitive to either red, green, or blue light due to the presence of selective dyes in the emulsion.

The wastes generated from photoprocessing vary widely according to the type and volume of processing. Exhibit 3-5 presents examples of typical photoprocessing wastes. Wastes generated during photoprocessing are primarily aqueous effluents. The disposal of wastewater from photoprocessing may be regulated under the pretreatment or NPDES program of the CWA.

Exhibit 3-5. Examples of Typical Photoprocessing Wastes

Wastewater	Hazardous Waste	Air Emissions	Solid Wastes
Used, treated fixers Used developers Used activators/ stabilizers Rinse water	Chrome-based system cleaners Non-empty aerosol cans Discarded, unused, or outdated chemicals Used, untreated fixers Used shop towels contaminated with hazardous waste	Volatile organic compounds or toxics emitted from: – Film cleaners – Solvents	Empty containers Developed or out-dated film Out-dated materials Used, empty aerosol cans Used shop towels

Photoprocessing solutions may be too acidic or alkaline to meet local wastewater discharge limits. Fluids disposed of or spilled in floor drains or otherwise released from the facility property are regulated under the NPDES, pretreatment, or storm water provisions of the CWA. These provisions require notifying EPA, the state, or a local treatment plant; complying with permit provisions; and preventing untreated fluids from reaching surface waters. The storage

and disposal of hazardous wastes (e.g., non-empty aerosol cans; discarded, unused, or outdated chemicals; solvent-contaminated rags) are regulated under the hazardous waste provisions of RCRA. Air emissions from the various chemicals used in photoprocessing (e.g., volatile organic compounds or toxics emitted from film cleaners, solvents) may be regulated under the CAA.

3.5.3.2 Firing Ranges

Most police departments require their police officers to practice firing accuracy at local indoor or outdoor firing ranges. If conducted at outdoor firing ranges, this activity may contaminate the soil (and possibly the groundwater) with lead from the birdshot, bullets, and bullet fragments, as well as produce airborne lead dust.

Despite the likely contamination, EPA's current position is that the deposition of lead from lead shot, bullets, and bullet fragments at firing ranges is considered to be within the normal and expected use pattern of the manufactured product, and the resultant contamination is not subject to the RCRA regulations. The bullets and bullet fragments are not characterized as "hazardous wastes" because they have not been discarded. Where an imminent and substantial endangerment to health or the environment may have been created by expended shot or debris, however, remedial requirements may apply under RCRA. In addition, the remediation of lead-contaminated soil at a firing range, either for maintenance or site closure, is regulated under the hazardous waste provisions of RCRA and/or CERCLA. Under the provisions of EPCRA, fire ranges must report releases of lead dust transported by the wind. A release is reportable when more than 1 pound of lead particles smaller than 0.004 inches in diameter is released beyond the boundaries of the site or facility.

Notwithstanding the above, EPA encourages the use of alternative approaches that ranges can take to reduce the possibility of lead contamination. These include installing devices that can intercept and collect the shot and bullets for recycling and substituting less hazardous materials (e.g., plastic and steel shot) for the lead shot. To reduce and/or eliminate lead pollution, many indoor and outdoor firing ranges use bullet "traps." Bullet traps have a rubber media that capture bullets and contain them, as well as a filter system that eliminates airborne lead dust. These traps prevent the lead pollution of air and soil, which would normally occur from bullet impact with metal, sand, or the ground. Most local firing ranges hire salvage companies to recover, clean, and recycle the bullet traps and filter systems. The disposal of bullets and bullet fragments recovered from a bullet trap may be regulated under the hazardous waste provisions of RCRA.

3.5.3.3 Laboratory Operations

Chemicals used in the laboratory include acids (e.g., sulfuric, hydrochloric, nitric), bases (e.g., sodium hydroxide, potassium hydroxide, sodium azide solution), and others (e.g., chlorine, ferric salts, carbon disulfide, and benzene). The quantity of wastes generated depends on the number and types of tests performed. Disposal of lab wastes down the sink or drain may be regulated under the pretreatment or NPDES program of the CWA. The storage and disposal of some wastes generated from laboratory activities may be regulated under the hazardous waste provisions of RCRA.

3.5.4 Vehicle/Equipment Maintenance

Local governments are responsible for maintaining all vehicles associated with public safety activities according to the operations described in Section 3.10.

3.5.5 Pollution Prevention and Public Safety

Public safety operations, especially emergency planning and response activities, can involve a variety of different local government agencies, local industry and other community representatives. Within the public safety arena, local governments have responsibilities as a regulated entity, an enforcement agent, a generator of various waste streams, and a provider of quality services to the constituents they serve. Pollution prevention strategies can help local governments efficiently and effectively meet the regulatory requirements associated with public safety operations, provide value added services, and implement a proactive approach to protecting their community from chemical emergencies. The three primary functions associated with public safety are emergency planning, fire protection and emergency response, and police protection. The opportunities for pollution prevention within these three primary functions can best be realized by examining both a list of the wastes generated and the specific services provided through each of these functions.

3.5.5.1 Emergency Planning

Services

- Understand and manage risks associated with specific chemicals and facilities in their community.

C Prepare for and respond to emergencies involving hazardous substances.

C Provide chemical information to the public.

***Waste Streams*.** There are no significant wastes associated with emergency planning other than any wastes created by the clean up of a specific release. Usually these types of clean ups involve state and often federal oversight.

***Pollution Prevention Opportunities*.** LEPCs, and Local Emergency Coordinators and Planners, are in an excellent position to promote pollution prevention through their relationships with both the facilities that store and release chemicals in their community and the general public they serve and protect. With guidance and assistance from state and regional pollution prevention programs, local agencies involved in emergency planning and response can use pollution prevention as a tool to better manage the risks in their communities by working with facilities to reduce and eliminate the chemicals posing the risk. Through EPCRA, communities are provided valuable information regarding the presence, quantities, and release of chemicals in their environment. This information can be used to identify local prevention priorities and establish a basis for local officials, citizen groups, and state pollution prevention officials to target and approach specific facilities.

Top Pollution Prevention Opportunities

- Encourage facilities which are required to develop risk management plans to consider pollution prevention strategies to meet or avoid this regulation.

- Establish a pollution prevention task force or subcommittee through the LEPC to investigate ways to access state and regional pollution prevention resources to address chemical concerns and priorities.

- Incorporate pollution prevention requirements into Right-to-Know and other local enforcement actions.

- Sponsor and/or co-sponsor pollution prevention workshops and other educational events for industrial facilities.

3.5.5.2 Fire Protection and Emergency Response

Services

- Fire response and suppression
- Hazardous materials response
- Fire code inspections
- Employee training
- Vehicle and equipment maintenance

Waste streams. A majority of the waste associated with fire response and suppression and hazardous materials response operations is a product of the specific nature of the release or the fire that takes place. Fire protection services usually involve vehicle and equipment maintenance activities similar to those associated with public works and other local government operations. For specific guidance regarding pollution prevention opportunities for vehicle maintenance operations, please refer to Section 3.10.

Top Pollution Prevention Opportunities

- Safeguarding lives and property, the primary objective of this service can not be jeopardized. There are pollution prevention strategies which can be incorporated through training and response protocols that will minimize the waste generated and long-term environmental impacts associated with the response incident without compromising human health and property.

- Incorporate strategies within emergency and fire response protocols and responder training courses to maximize the containment of spilled materials and contaminated fire suppression run-off and to prevent migration to waterways, sewers, and permeable surfaces.

- Incorporate the use of reusable absorbent booms and pads for materials containment to replace clay and other absorbent materials that can only be used once. Reusable booms and pads can provide the opportunity to recover a percentage of the material released and significantly reduce the amount of waste generated.

- Consider the use of halon free suppression materials where appropriate and develop a specific protocol for using halon suppressants only for situations where a suitable alternative is not available.

- Review training exercises and other drill activities for opportunities to substitute less hazardous and non-hazardous materials, and incorporate water reuse and conservation measures where and when the effectiveness of the training is not compromised.

- Promote site specific pollution prevention strategies through fire code inspections and enforcement activities.

3.5.5.3 Police Protection

Services

- Patrol/surveillance to maintain peace and order
- Investigation of crimes, and detection and apprehension of criminals
- Traffic regulation enforcement and traffic control
- Crime prevention, safety outreach, and education

Waste Streams

- Photoprocessing wastes (fixers, developers, film cleaners, etc.)
- Vehicle maintenance wastes
- Gun cleaning wastes (solvents, rags)
- Shooting range wastes (spent casings, lead slugs, lead dust emissions)
- Batteries
- Office paper and other solid wastes

Top Pollution Prevention Opportunities

- Consider the use of digital cameras to eliminate and/or reduce the need for photoprocessing.

- Consider the use of contracted photoprocessing services through a vendor that recycles photo wastes to eliminate the generation of photo wastes in house.

- Most liquid photoprocessing wastes can be recycled through a large commercial photoprocessing company or metals reclaimer.

- Consider the use of ceramic or other non-lead bullets for training where the effectiveness of the training is not compromised. Where alternatives to lead bullets are not suitable, the use of traps and other devices should be employed at both indoor and outdoor shooting ranges to capture bullets and bullet fragments for recycling.

- Consult Section 3.10 for pollution prevention opportunities associated with vehicle and fleet maintenance.

- Implement a recycling program for office paper, cardboard and other significant solid waste streams.

Resources

"Preventing Industrial Toxic Hazards: A Guide for Communities," M. Wise and L. Kenworthy, INFORM.

"Risk Management Planning: Will It Lead to Inherently Safer Operations?" by Carol J. Forrest; Pollution Prevention Review/ Summer 1997.

"Accidents Do Happen: Toxic Chemical Accidents in the United States," December 1996, National Environmental Law Center. "Too Close to Home," National Environmental Law Center.

For more information, contact Tom Hersey, Coordinator - Pollution Prevention Programs, Erie County Department of Environment and Planning, Phone: (716) 858-7674, Fax: (716) 858-7713, Email: hersey@cdbg.co.erie.ny.us.

3.6 SOLID WASTE MANAGEMENT

Local governments may be responsible for managing solid waste created by households and businesses within the community. Proper management of solid waste is critical to public health, as well as to the aesthetics of a community. Exhibit 3-6 presents activities associated with solid waste management. Because these activities could affect the environment, they may be subject to environmental regulations as indicated in the following list.

- Collection and storage—CWA
- Composting—EPCRA, CERCLA, and CAA
- Disposal—RCRA, CWA, and CAA

Household hazardous waste collection and storage programs are not regulated by federal statutes.

RCRA defines solid waste as any garbage or refuse; sludge from a wastewater treatment plant, water supply treatment plant, or air pollution control facility; and other discarded material, including solid, liquid, semi-solid, or contained gaseous material resulting from industrial, commercial, mining, and agricultural operations, and from community activities. The main constituent of the latter group is municipal solid waste (MSW), which includes paper and paperboard, yard waste, wood, metal, glass, food waste, plastics, rubber, leather, textiles, household hazardous waste, and miscellaneous inorganic waste.

3.6.1 Collecting and Storing Municipal Solid Waste

Solid waste management begins with the collection and storage of solid waste. Collection involves either picking up the waste at curbside or backdoors or gathering it from drop-off locations. Storage is basically maintaining the waste at an interim site prior to recycling or final disposal.

3.6.1.1 Collection

Depending on the demographics, geographic environment, and/or state law, every local government has some type of service in which solid waste is collected from residents. A local government can use its own employees and equipment, a private firm(s) through an established contract(s) with the local government, or a private service that has contracted directly with residents.

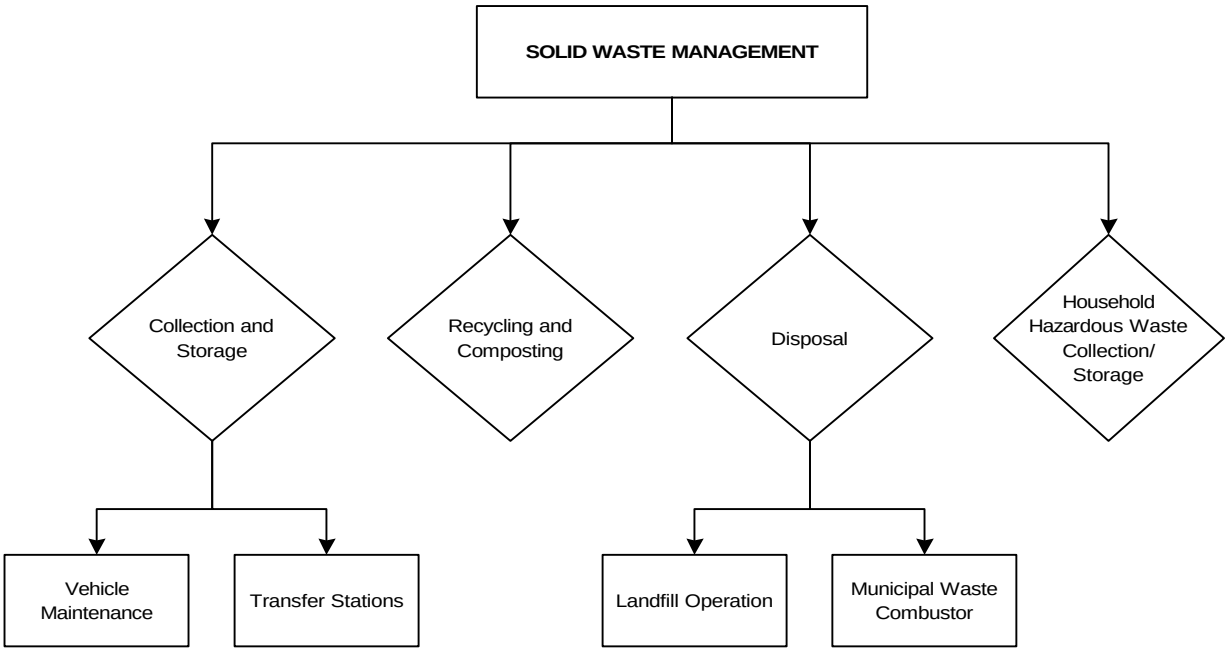
Local governments use an array of methods for collecting solid waste, including the following:

C Curbside or alley collection

C "Backyard set out-set back" or "backyard carry," in which containers are carried from backyards by collection crews to the curbs for collection

C Drop-off stations, where residents deliver solid waste to a specified site, such as a transfer station, local dumpster, or the disposal site itself.

Exhibit 3-6. Solid Waste Management



Most activities undertaken during collection are not regulated by any particular environmental statute. Federal guidelines for the collection and storage of residential, commercial, and institutional solid waste are given at 40 CFR Part 243, but are not binding on state and local governments. There may be local ordinances or state health laws that pertain to the frequency of collection, depending on the community.

3.6.1.2 Storage/Operation of Transfer Stations

Once a local government has collected the solid waste, it may have to store the waste at an interim location prior to recycling or final disposal. If necessary, such storage usually occurs at a transfer station. A transfer station is a facility where wastes are transferred from smaller collection vehicles to larger transport vehicles, such as tractor trailers, railroad gondola cars, or barges. These vehicles then transport the waste to its final destination.

Not all local governments have transfer stations. In small communities in which the nearest landfill is within 10 to 15 miles, compactor trucks take solid waste directly to the landfill. If stations are used, collection crews take waste to the transfer stations where it is weighed and either temporarily stored or moved directly into a larger vehicle.

These activities may impact the environment if waste is not contained and kept from leaving the transfer station by wind or storm water runoff. In addition to basic local building and health codes, the operation of transfer stations may be regulated under the local government's NPDES storm water or CSO permit conditions. Storage should be on a short-term basis only and should prevent the waste from being released to the environment. In some conditions, improper storage could be deemed disposal and could trigger more stringent regulation of the waste.

3.6.2 Recycling and Composting

3.6.2.1 Recycling

Many local governments have established recycling programs as part of their integrated waste management strategy. Recycling reduces the amount of waste ultimately being disposed of, conserves natural resources, and, in some situations, generates revenue for the local government. A local government recycling program usually includes the following activities:

- Collecting recyclables
- Separating recyclable from nonrecyclable materials
- Processing the recyclable materials
- Marketing the "final" product.

Collection of recyclables is extremely similar to collection of municipal solid waste. Specially designed vehicles collect recyclables either at curbside or from designated drop-off locations.

Separating recyclables from nonrecyclable materials depends on the collection method. Basically, three categories of collection drive separation activities:

- Source separation by type of recyclable (e.g., glass, paper, aluminum) either by the generator (i.e., the resident) or by the collector at curbside

- Commingled collection (i.e., generator separates recyclables from nonrecyclables)

- Mixed collection, in which there is no separation.

In source separation, segregated recyclables are usually stored by the local government until the amount is sufficient to send to a processor or market. Private recyclers or dealers usually further process (e.g., can flattening, glass pulverizing) the recyclables in small communities. During

commingled collection, the local government transports the recyclables to a materials recycling facility where the recyclables are segregated. Most segregation occurs by hand, but some automated systems are being used. In mixed collection, all waste is collected together and taken to a central processing facility. The mixed waste is shredded and magnets and air separators segregate out the recyclable materials in a process known as front-end processing.

Processing recyclables generally includes activities that prepare the material for final shipment to the recycler or dealer. Once segregated, recyclables may need further processing to make them more dense or package them in a way that is appropriate for final shipment. For example, bottles may be crushed, metals flattened, and paper baled. Such activities reduce storage area, facilitate handling, and reduce transportation costs.

By definition, recycling does not occur until someone uses the recycled product to make new products. If there is no market for the recycled materials, there is no recycling. The local government is responsible for locating markets for its recycled materials. This process is similar to marketing any product or commodity and involves four distinct steps: 1) determining the possible uses of the end product, 2) identifing potential markets, 3) marketing the product, and 4) developing a distribution system. Failure to effectively market the product may ultimately result in more waste being landfilled.

The major environmental impact associated with recycling is the volume of waste diverted from landfills or incineration. This diversion extends the life of landfills and limits the volume of wastes being combusted, thus reducing environmental impact.

Federal environmental statutes do not directly regulate the recycling of typical solid wastes (e.g., paper, plastic, glass, aluminum). However, the recycling of used oil is regulated under 40 CFR Part 279, which establishes standards for used oil generators, collection centers, transporters and transfer facilities, processors and re-refiners, burners of off-specification used oil, used oil fuel marketers, the use of used oil as a dust suppressant, and used oil disposal. Used oil generated by households is exempt from these requirements. Like federal environmental law, most state laws that address solid waste recycling typically do not focus on the recycling process itself, but may specify source separation requirements or recycling/recovery goals.

3.6.2.2 Composting

Composting is a process of aerobic biological decomposition of organic materials to produce a stable and usable organic topsoil that does not require disposal. Resources used to create the

final compost product originate from the roughly 70 percent of the municipal solid waste stream that is organic material (i.e., food waste/scraps, yard and lawn clippings).

Three primary activities are associated with composting:

- Collecting/receiving wastes for composting
- Processing the wastes (e.g., decomposition)
- Marketing.

A local government can collect or receive wastes for composting from a variety of sources. The local government may have active yard waste collection programs, complete with trucks that vacuum up leaves. Many communities have separate yard waste pickup as a part of recycling programs or drop-off stations for yard wastes. Significant composting wastes also result from recyclable material separation and processing. Once recyclable materials are removed from the solid waste stream, the remaining wastes may be suitable for composting.

During the processing or decomposition stage of composting, the local government may need to adjust the physical and chemical properties of the waste to make it more amenable to composting. For example, it may shred or grind the waste into a smaller particle size, alter the carbon-to-nitrogen ratio, or add water to the waste. All of these activities are designed to facilitate decomposition. Depending on the types and amounts used, chemicals added to alter the properties of the composted waste may be regulated under EPCRA or Section 112(r) of the CAA (risk management plans). Composting that occurs outside may create nuisance odors. Local ordinances may address odor problems.

A key aspect of composting programs is the concept of biosolids recycling. Sewage sludge biosolids are solid, semi-solid, or liquid residue generated during the treatment of domestic sewage in a wastewater treatment plant. Composting of household organic materials is not regulated by any major federal statutes, although many states do establish composting standards. However, the requirements for land application of biosolids at 40 CFR Part 503 pertain to materials **derived** from biosolids (e.g., biosolids that have undergone a change in quality through treatment, such as composting, or by mixing with other materials, such as wood chips, municipal solid waste, or yard waste). These regulations specify pollutant limits, management practices, operating standards, monitoring requirements, and recordkeeping and reporting requirements. As with recycling, the local government is responsible for locating a market for its compost.

3.6.3 Source Reduction

Local governments often encourage programs that are directed at conserving resources and reducing the amount of solid waste generated in the first place, thereby helping to mitigate the burden of collection, processing, and disposal practices. In many states, source reduction is the topic of legislation directed at government procurement and purchasing requirements (e.g., local governments can model their own policies after state directives to use recycled paper, double-sided copies), labeling guidelines, and product reuse (e.g., "bottle bills"). Many states have waste reduction goals that require 25 to 50 percent reduction in the solid waste stream before a particular year.

Local governments can perform waste audits to assess the flow of materials through their systems. In doing so, disposal costs are quantified, unnecessarily disposed materials are identified and quantified, cost savings are estimated, and new programs are initiated and monitored. These audits can help managers to determine the most appropriate and effective source reduction programs for their community.

3.6.4 Disposal

Local governments must dispose of solid waste that is not recyclable, compostable, or considered household hazardous waste. The two primary types of disposal practices are landfilling and municipal waste combustion, or incineration, which may employ conventional techniques or a "waste-to-energy" approach.

3.6.4.1 Landfill Operation

Local governments often own and operate solid waste landfills for final disposal of the majority of solid waste generated within their jurisdictions. Solid waste landfills provide an engineered facility for the long-term containment of solid waste and involve the following activities:

- Receiving and depositing solid waste into the landfill
- Controlling disease vector populations
- Managing/monitoring landfill gas production, leachate, and storm water
- Recordkeeping.

Most landfills include a large disposal area that contains numerous smaller cells. Solid waste is deposited in these cells daily, compacted using specially designed bulldozers, and then generally

covered with either a thin layer of soil or some alternative cover. The local governments control the flow of solid waste into the facility to exclude materials such as hazardous waste or other materials that should be managed elsewhere or could be recycled to make the landfill safer and preserve capacity. Once a cell is full, it is covered with a final cover designed to limit infiltration and vector populations, as well as to provide a base for cover vegetation.

Local governments must monitor groundwater in close proximity to the landfill and employ a system of pipes that collect methane gas generated as a byproduct of decomposition. Methane gas has been identified as a significant greenhouse gas. Facilities that generate sufficient quantities of methane can recover the landfill gas for use as an energy source. Storm water runoff associated with landfills may be regulated under the CWA storm water provisions.

Landfill operations are subject to the minimum criteria for municipal solid waste landfills given at 40 CFR Part 258. These criteria address location restrictions, operating criteria, design criteria, groundwater monitoring and corrective action requirements, closure and post-closure care requirements, and financial assurance criteria. If a municipal solid waste landfill subject to this rule does not meet these requirements, it is considered an open dump, which is prohibited under Section 4005 of RCRA.

A local government could be subject to state permit provisions if it has developed its own solid waste permit program under delegated authority from EPA. Under the CAA, landfills are subject to air emission guidelines (40 CFR Section 60.30c), and EPA is developing NESHAPs for emissions from landfills as a long-term action. In addition, landfills may be regulated under prevention of significant deterioration (PSD), nonattainment area (NAA) provisions, and new source performance standards (NSPS) programs.

3.6.4.2 Municipal Waste Combustion

An alternative method of managing solid waste is through combustion. Solid waste combustion involves the incineration of all or a portion of the solid waste stream in specially designed solid waste combustion facilities and the disposal of the residual ash in landfills.

When choosing to employ municipal combustion, local governments can either retrofit existing facilities, build new facilities, or enter into regional partnerships. If they are building new facilities, they must site, design (incorporating elaborate air pollution controls), permit, and construct the combustion facility. Once a combustion facility is in place, the local government must ensure its proper operation, provide a relatively constant flow of waste as a feed stream, and

manage and dispose of the residual ash. Most new incinerators have the capacity to recover and reuse the energy released during combustion (the "waste-to-energy" process).

Municipal waste combustion is regulated primarily under the CAA (40 CFR Part 60), which establishes guidelines and standards of performance for municipal waste combustors, as well as standards of performance for incinerators. Regulations under RCRA would only apply if the facility receives and burns hazardous waste. Other CAA regulatory programs to which combustion may be subject are PSD, NAA provisions, NESHAPs, and NSPS.

The disposal of residual ash from the combustion of municipal waste, including fly ash and bottom ash, is regulated under RCRA and state law. Generally, these two types of ash are combined and then disposed of either at a municipal landfill or a special ash landfill. Under RCRA, each facility must determine whether the combined ash constitutes a hazardous waste and, if so, the ash must be managed as a hazardous waste. If the ash is not a hazardous waste, it can be managed under state law, which may allow disposal in a solid waste landfill or provide for disposal in an ash monofill (or impose other special requirements).

3.6.5 Household Hazardous Waste Collection and Storage

Local governments may sponsor basic household hazardous waste collection programs. These programs may be single-day or continuous events that provide for the safe collection, identification, sorting, storage, and disposal or reuse of household hazardous waste. Such programs may be operated by the local government or administered under a contract with a waste management firm. The materials collected during a household hazardous waste collection program may be recycled (e.g., used oil), used as a waste fuel (e.g., solvents), or disposed of properly at hazardous waste facilities.

Common Household Hazardous Wastes

Oil-based paint and varnish, paint and varnish remover, pesticides, insecticides, herbicides, motor oil, brake fluid, fuels, antifreeze, oven cleaners, drain cleaners, bleach, solvents, pool chemicals, mothballs, dye, nail polish, photo chemicals, toilet cleaners, fertilizer, metal polish, floor cleaners, wood strippers, muriatic acid, creosote, sealants, and both household and automotive batteries

Under the regulations that implement RCRA, hazardous waste generated by households is exempt from federal hazardous waste regulations. Nevertheless, these wastes can and do pose an environmental and health risk when they are managed improperly. These products may contain toxic substances that can be released when they are poured down the sink, sewer, onto the

ground, or when they are landfilled or incinerated. Thus, many state and local governments have established household hazardous waste collection, storage, and disposal programs.

Under federal regulation, the collection, transportation, storage, treatment, and disposal of household hazardous waste are exempt from the regulations applicable to commercial hazardous waste. In addition, resource recovery facilities that manage municipal solid waste are not subject to hazardous waste regulations (with the exception of ash that exhibits a hazardous characteristic, such as toxicity) if they meet specified conditions.

3.6.6 Vehicle/Equipment Maintenance

Local governments are responsible for maintaining all vehicles associated with solid waste activities according to the operations described in Section 3.10.

3.6.7 Other Operations That May Be Regulated

Another operation associated with solid waste management is pesticide application. Pesticides may be used in solid waste management activities to control weed growth and control vectors. Activities related to pesticide use and storage may be regulated under the provisions of FIFRA, EPCRA, or CAA Section 112(r). Section 3.4 provides more information on pesticide management.

3.6.8 Pollution Prevention in Solid Waste Management Operations

Numerous opportunities exist for pollution prevention in solid waste management operations. As the lead municipal department with responsibility of "putting waste in its place," solid waste operators have a responsibility to demonstrate their commitment to waste reduction by ensuring that their operations prevent pollution and are in compliance with existing environmental regulations. With a diverse range of activities, solid waste managers provide a range of services with polluting possibilities. These can generally be categorized as follows:

- Source reduction
- Collection and storage
- Processing—recycling and composting
- Disposal
- Household hazardous waste (HHW).

With the exception of source reduction, each of these categories generates wastes as described below.

3.6.8.1 Typical Wastes Generated

Curbside *collection* is provided for solid waste and recyclables, with drop off facilities for other materials and special wastes. Key wastes generated by collection operations include used motor oil and filters, antifreeze, parts washer solvent, used hydraulic oil, tires, used vehicles and vehicle parts, and air emissions.

The *processing* of recyclables at material recovery facilities, solid waste at transfer stations, and yard waste at compost sites often generates waste. Key wastes include dust from compost sites, hydraulic oil, site runoff, recycling residues, electrical transformers, and spilled fuels.

Waste *disposal* includes landfill and waste-to-energy facility operations. Key landfill wastes include leachate and air emissions. Key waste-to-energy facility wastes include bottom ash, fly ash, bulky materials, air pollution control residues, air emissions, and wastewater.

Household hazardous waste collection programs are frequently operated by a local government as a service to the citizens, where the local government typically assumes generator status for household materials upon acceptance at the collection point. Problematic wastes generated internally by solid waste management operations include PCBs and mercury from fluorescent ballasts, paints, and CRTs (cathode ray tubes) from computer monitors.

3.6.8.2 Top Pollution Prevention Opportunities

Overall

Perform a waste audit - understand your waste stream in order to identify high priority items for source reduction and reuse (e.g., textiles, yard waste, construction and demolition material).

Collection

- Establish "take back" program with motor oil suppliers to provide re-refined oil.

- Use in-line oil filters to reduce frequency of oil filter disposal.

- Capture and recycle on site spent antifreeze.
- Convert parts washer to aqueous-based systems.
- Convert fleet to natural gas as feasible.
- Maximize collection efficiency (minimize trips) by using route management software and multi-purpose vehicles.
- Recycle tires and utilize retread tires where appropriate.
- Specify tires for maximum durability.

Processing

- Establish a preventative maintenance program for all major pieces of equipment to minimize potential fluid discharges.
- Capture and recycle spilled hydraulic oil using oil absorbent material.
- Minimize recycling residues through on-going education of customers, limits on compaction equipment, and employee training.
- Maximize acceptability of compost products by minimizing heavy metal content of source materials, including pretreatment requirements for industrial contributors and increased frequency of street sweepings.

Disposal

- Minimize landfill site runoff by capturing and recirculating leachate and development of effective storm water management plans.
- Capture and reuse methane gas generated at landfill sites.
- Minimize hazardous nature of incinerator ash by implementing battery recycling and household hazardous waste collection programs.

Household Hazardous Waste

Educate HHW participants to "use it up," provide a waste exchange for unopened materials, and bulk containerize latex paint for reuse or resale.

Other

- Establish preventative maintenance program for electrical equipment and require equipment vendors to take back all devices with mercury switches or PCB transformers.

- Replace underground storage tanks with above ground tanks with proper containment systems.

- Minimize pesticide usage through litter prevention and site management programs.

3.6.8.3 Success Story

The City of Milwaukee Department of Public Works provides solid waste and recycling collection and processing services for more than 600,000 people. In 1990, the department began a review of its operations to determine what types of pollution prevention efforts could be implemented.

As a result of waste audits at numerous facilities, the city has implemented the following:

C Encouraged residents to leave grass clippings on their lawns by launching the "Just Say Mow" campaign.

C Designed, tested, and added 45 split body packers for multi-purpose collection.

C Developed and implemented a GIS-based routing program to minimize trip times.

C Replaced fuel stations with state-of-the art fueling facilities, including pump emission controls and containment.

C Implemented storm water management plans for each of its facilities.

C Improved fleet maintenance by use of re-refined motor oil and paint booth improvements.

C Discouraged drop off of latex paints and educated public to reduce and reuse materials.

Resources

EPA Office of Solid Waste Management - *www.epa.gov/osw.*

Azimi and Saphire, Rethinking Resources: New Ideas for Community Waste Reduction - *http://www.informinc.org/rethinking.html.*

Comprehensive Municipal Pollution Prevention Project: Inventory Phase, Regional Municipality of Hamilton-Wentworth, April, 1995.

For more information, contact Steve Brachman, Waste Reduction and Management Specialist, UW-Extension, Phone: (414) 227-3165, Fax: (414) 227-3165, E-mail: brachman@uwm.edu.

3.7 WASTEWATER MANAGEMENT

Local governments are responsible for designing, planning, constructing, financing, operating, and maintaining wastewater treatment plants. They are also responsible for the conveyance systems that transport wastewater to the treatment plant and discharge storm water runoff to nearby water bodies. A publicly owned treatment works (POTW) consists of the wastewater treatment plant and a collection system that transports sanitary sewage to it. A collection system can be either of two types (or some combination of the two):

- Separate sanitary sewer systems are designed to convey only municipal sanitary sewage and industrial wastewater.

- Combined sewer systems are designed to convey storm water runoff in addition to municipal sanitary sewage and industrial wastewater.

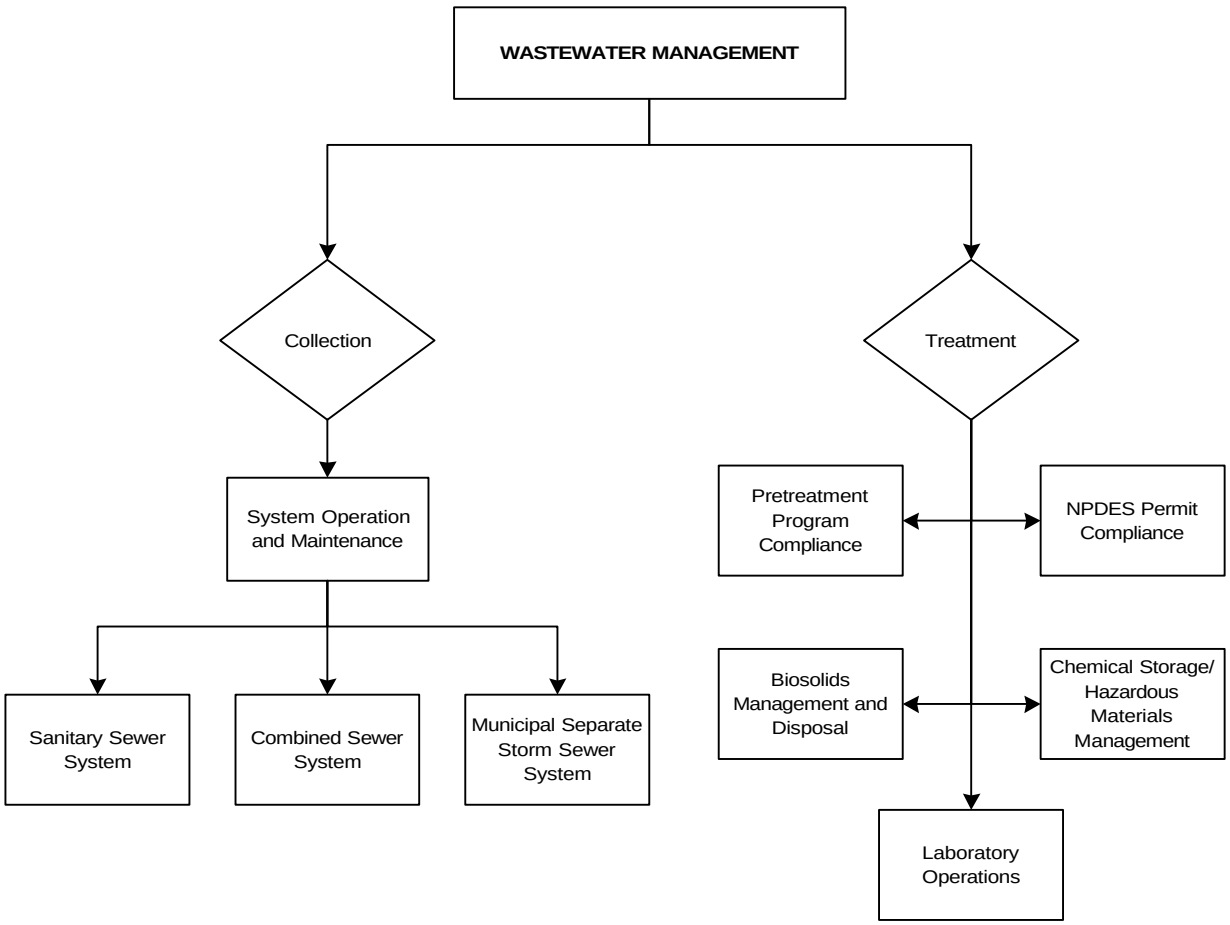
Defining "Municipal" Sewer Systems

EPA uses a broad definition of "municipal" in defining municipal sewer systems. Municipal systems are defined as conveyances that are owned or operated by a state, city, town, borough, county, parish, district, association, or other public body having jurisdiction of disposal of sewage, industrial wastes, storm water, or other wastes, including special districts under state law such as a sewer district, flood control district or drainage district, or other similar entity, or an Indian tribe or an authorized Indian tribal organization, or a designated and approved management agency under Section 208 of the CWA.

A third type of conveyance system—a municipal separate storm sewer system (MS4)—conveys storm water runoff directly to nearby waters rather than to a POTW.

Overall, POTWs are responsible for collecting, treating, analyzing, and discharging wastewater received from separate sanitary or combined sewer systems, as well as for disposing of sewage sludge, or "biosolids," generated during the treatment process. A POTW must comply with its NPDES permit, including requirements for industrial pretreatment, compliance monitoring, and proper use or disposal of biosolids. A POTW is also responsible for laboratory operations, chemical storage and hazardous materials management, and vehicle and equipment maintenance. Exhibit 3.7 presents common operations for wastewater management.

Exhibit 3-7. Wastewater Management



3.7.1 OPERATION AND MAINTENANCE OF SEWER SYSTEMS

What part of the sanitary sewer system is most likely to leak?

Sanitary sewer capacity is reduced by ground water seepage through leaky pipes and storm water flow through leaky and missing manhole covers and domestic and industrial roof drains. While much of the leakage occurs in main trunk sewers, more than 50 percent of groundwater seepage in certain areas may come from holes in pipes on private property.

The system through which water is conveyed can be one or more of three types, any or all of which a local government may be responsible for operating and maintaining. The three types are separate sanitary sewer systems, combined sewer systems, and municipal separate storm water systems. These systems may be regulated under the NPDES, pretreatment, or storm water provisions of the CWA.

3.7.1.1 Sanitary Sewer Systems

Local governments design, construct, operate, and maintain sanitary sewer systems to convey wastewater from homes and businesses to wastewater treatment plants. Local governments install new sewer lines, clean blocked lines, repair leaky lines, maintain root control, repair manholes, operate and maintain pump stations, and conduct all maintenance activities necessary to prevent overflows and ensure that wastewater is conveyed to the treatment plant.

Maintaining sanitary sewer systems is a significant responsibility for local governments. Leaks or the infiltration of wastewater into the sewer system can occur through cracks and improperly sealed pipe joints.

Overall, this "infiltration and inflow" (I/I) raises the volume of wastewater in sewers and lowers their capacity. During excess rainfall events, the sewer system cannot carry the excess wastewater, and flooding can occur. Diluted and untreated sewage can back up through manholes and into basements, spill into storm drains and creeks, and wash up onto public beaches. To ensure maximum system capacity and to prevent these "sanitary sewer overflows" (SSOs), local governments must undertake active monitoring and preventive maintenance programs to identify and repair leaky sewer lines, as well as conduct any major upgrades or restorations.

Local governments that operate POTWs are required to report all overflows and flooding from either sanitary or combined sewage systems so that repairs and preventive action can be taken to minimize the extent of environmental and human health impacts.

SSOs, whether caused by excessive I/I, inadequate capacity, blockages, or equipment failure, impact the environment through the discharge of raw sanitary sewage. These discharges often result in direct human exposure to raw sewage, as well as discharge of sewage to surface and ground waters. SSOs are unpermitted, illegal discharges under the CWA and may subject the local government to enforcement action by the regulatory authority.

3.7.1.2 Combined Sewer Systems

Approximately 950 communities, mostly in the Northeast and Great Lakes regions, have combined sewer systems (CSSs) that are designed to carry both sanitary sewage and storm water runoff to the POTW for treatment. In periods of heavy rainfall or snowmelt, the wastewater volume in a CSS can exceed the capacity of the system. CSSs, therefore, are designed to overflow occasionally and discharge excess wastewater directly to nearby water bodies. These discharges are called combined sewer overflows (CSOs).

Communities with CSSs have operation and maintenance responsibilities similar to those for separate sanitary sewer systems, such a installing new sewer lines, cleaning blocked lines, and inspecting for and fixing leaks and infiltration. Their most important activity, however, is controlling CSOs, which contain not only storm water but also untreated human and industrial waste, toxic materials, and debris.

EPA's CSO Control Policy describes numerous options available to communities with CSOs, recognizing that completely eliminating these discharges is neither necessary nor affordable in many cases. All CSO communities are expected to implement nine minimum controls, such as maximizing the use of the collection system for storage, controlling the discharge of solid and floatable materials, and eliminating CSOs during dry weather periods. CSO communities are also expected to develop long-term CSO control plans that identify which additional controls, including capital projects, will be developed to help meet water quality standards.

CSO control requirements are included as conditions in NPDES permits and enforcement orders. Due to the site-specific nature of CSO problems and the flexibility in the CSO Control Policy, local communities should coordinate actively with their permitting and water quality standards authorities to develop long-term control plans and permit requirements that will provide meaningful environmental benefits within the community's financial capability.

3.7.1.3 Municipal Separate Storm Sewer Systems

Local governments also are responsible for operating and maintaining separate storm sewers. MS4s are designed to convey storm water from impermeable areas to bodies of water. In conveying storm water directly to streams, rivers, and lakes, MS4s also transport oil, grease, pesticides, herbicides, dirt and grit, all of which have the potential to reduce water quality. Local government operations related to operating and maintaining storm sewer systems include clearing blocked sewer lines, preventing contaminants from entering the storm sewer system, constructing storm water controls, and sampling and analyzing storm water discharges. In addition, local governments reduce the volume of silt and solids being transported to the sewer systems and reduce water contamination by cleaning streets, removing wastes, and cleaning screens.

EPA's NPDES storm water regulations require local governments to apply for an NPDES storm water permit, characterize storm water discharges, implement management procedures to prevent contaminated storm water from discharging to waterways, and monitor storm water discharges.

3.7.1.4 Water Line Repair/Replacement

Separate, combined, and storm sewer systems require repair to eliminate conditions that interfere with their ability to convey sewage and storm water flows. Sewers and other collection system components, such as manholes, pump stations, and siphons, must be repaired or replaced to address structural failure, infiltration (leakage of groundwater into pipes), exfiltration (leakage of sewage out of pipes), and blockages. In combined sewers, regulators must be repaired when they fail to divert combined wastewater flows at the intended flow rates. Portions of a sewer system may need to be replaced to address inadequate capacity, which can result in separate sewer system overflows during periods of high flow. Repairs may involve replacing individual pipe sections, replacing entire sewer segments, or repairing existing sewers. Grouting leaking joints, lining existing sewers, and rebuilding or lining manholes and other structures all may be necessary.

Separate and combined sewer system repairs can impact the environment through the discharge of raw sewage that may occur as a result of the need to bypass sewage around the line or system component being repaired. Repairs of separate, combined, and storm sewers also can affect the environment through erosion and sedimentation, which take place as a result of excavation, stockpiling, and backfilling, or through the discharge of sediment-laden water from the repair

excavation. Guidance on sewer maintenance activities is often included in a local government POTW's NPDES permit.

3.7.2 Wastewater Treatment

Local governments may be responsible for the final system through which water is conveyed and treated. WWTPs are responsible for the treatment, analysis, and discharge of wastewater received from sanitary or combined sewer systems, and the disposal of sludge generated from the treatment process.

Activities at a WWTP may include:

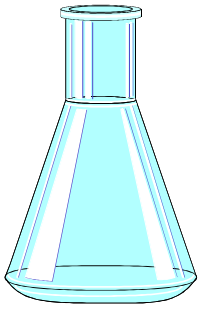
- Operating and maintaining the plant to ensure that discharges meet the facility's NPDES permit requirements and limitations
- Overseeing a pretreatment program to prevent industrial discharges from causing interference or pass through, sludge contamination, or the plant to violate its permit
- Sampling and analyzing wastewater and sludge prior to discharge or disposal to meet NPDES monitoring requirements
- Managing biosolids from the treatment processes by landfilling, land application, surface disposal, incineration, or composting
- Maintaining records and submitting discharge monitoring reports (DMRs).

Because these activities could affect the environment, they may be subject to environmental regulations as indicated in the following list.

- Wastewater treatment process—CAA
- NPDES permit compliance—CWA
- Laboratory operations—CWA and RCRA
- Pretreatment program—CWA

- Biosolids management and disposal—CWA, RCRA, and CAA
- Chemical storage/hazardous materials management—EPCRA, CERCLA, and CAA

3.7.2.1 Wastewater Treatment Process



Municipal wastewater (sewage) treatment is defined by the extent of pollutant removal and the mechanisms (physical, biological, or chemical) used for removal. Wastewater treatment is classified as primary, secondary, and tertiary treatment. Primary treatment consists primarily of physical processes (settling or skimming) that remove a significant percentage of the organic and inorganic solids from wastewater. Secondary treatment depends on biological action to remove fine suspended solids, dispersed solids, and dissolved organics by volatilization, biodegradation, and incorporation into sludge. In addition, secondary treatment satisfies much of the oxygen demand of the pollutant(s). Advanced wastewater treatment uses a variety of biological, physical, and chemical treatment approaches to reduce nutrients, organics, and pathogens.

Local governments can use "biogas," a product of anaerobic digestion, either offsite or within the plant to improve energy efficiency of wastewater treatment processes. Biogas, a gas composed of methane, carbon dioxide, hydrogen sulfide, and other minor gaseous compounds, has about 60 percent of the heat value of natural gas. If the gas is not reused, it can be flared, which may be regulated under the CAA.

3.7.2.2 NPDES Permit Compliance

Local governments are responsible for complying with federal regulations, for both wastewater plant operation and the collection system (sanitary or combined) that conveys wastewater to the WWTP. Proper operation and maintenance are critical for sewage collection and treatment because the environmental impacts from these processes can severely degrade water resources and, ultimately, human health. For these reasons, POTWs receive NPDES permits to ensure compliance with federal regulations.

NPDES permits, issued by either EPA or a delegated state (EPA has authorized 42 states to administer the NPDES program), establish effluent limits on the kinds and quantities of pollutants that POTWs can discharge and the pollutant monitoring, recordkeeping, and reporting requirements. Each POTW that intends to discharge into the nation's waters must obtain an NPDES permit prior to initiating its discharge.

To comply with the NPDES permit, local governments are responsible for implementing an NPDES monitoring program at their POTWs. To comply with the program, POTWs must collect samples of effluent discharges at the required frequencies and locations as specified in their permits and submit monitoring reports to the state or EPA. Sampling and analysis are conducted to verify that the amounts and types of pollutants discharged from wastewater treatment systems meet the NPDES permit limits. The NPDES permit specifies the parameters that must be monitored. These parameters vary by plant. The primary parameters in NPDES permits for POTWs include biochemical oxygen demand (BOD), pH, fecal coliform, residual chlorine, and suspended solids. An NPDES permit may include other parameters, such as bioassay toxicity tests and metals.

If a POTW meets the NPDES permit limits, the systems usually are operating properly. Failure to comply with these requirements can result in permit suspension, increased monitoring requirements, and/or issuance of fines or other penalties by EPA or the relevant state regulatory agency.

3.7.2.3 Laboratory Operations

Some POTWs analyze wastewater samples and sludge at onsite laboratories. Laboratory procedures must comply with approved methods and meet NPDES monitoring requirements. Chemicals used in the laboratory include acids (e.g., sulfuric, hydrochloric, nitric), bases (e.g., sodium hydroxide, potassium hydroxide, sodium azide solution), and others (e.g., chlorine, ferric salts, carbon disulfide, and benzene). The quantity of wastes generated depends on the number and types of tests performed. The storage and disposal of some wastes generated from laboratory activities may be regulated under the hazardous waste provisions of RCRA.

POTWs are responsible for operating the wastewater laboratory safely. To prevent laboratory accidents, chemicals should be stored in a properly ventilated and well lit room. All bottles and reagents should be clearly labeled and dated. Volatile liquids that can escape as a gas, such as ether, must be kept away from heat sources, sunlight, and electrical switches. Cylinders of gas being stored should also be capped and secured to prevent rolling or tipping.

3.7.2.4 Pretreatment Program

Under the pretreatment regulations (40 CFR 403), POTWs are required to develop and implement local pretreatment programs. Through this program, the POTW is directly

responsible for the regulation of certain industrial users discharging to the wastewater treatment system. See Section 3.11 for more information.

3.7.2.5 Biosolids Management and Disposal

Local governments are responsible for managing and disposing of sewage sludge (i.e., biosolids). Biosolids are a primary organic solid product produced by wastewater treatment processes that can be beneficially recycled. (The fact that biosolids can be recycled does not preclude their disposal.) Local governments must follow the federal sludge management program (40 CFR Part 503), which establishes requirements for the final use or disposal of biosolids when biosolids are:

> ***What are biosolids?***
> Biosolids (or sewage sludge) are defined as solid, semi-solid, or liquid residue generated during the treatment of domestic sewage in a treatment works.

- Applied to land to condition the soil or fertilize crops or other vegetation grown in the soil
- Placed on a surface disposal site for final disposal
- Fired in a biosolids incinerator.

A fourth disposal option is landfilling. If biosolids are placed in a municipal solid waste landfill, the local government is responsible for ensuring that the biosolids meet the provisions of 40 CFR Part 258.

For the most part, the requirements of 40 CFR Part 503 are self-implementing and must be followed even without issuance of a permit. In most cases, Part 503 requirements will be incorporated over time into NPDES permits issued to POTWs. The sludge program includes other facilities (e.g., sewage sludge incinerators, composting facilities, sewage sludge surface disposal sites) that have not been part of the NPDES program because they were not point sources of discharge to U.S. waters.

The following provides more information on final use and disposal options for biosolids:

- ***Land Application***. Land application, defined as the spreading of biosolids on or just below the surface of the land, is the most widely employed use of biosolids. Part 503 specifies the biosolids quality, pollution limits (metals), pathogen reduction and vector

attraction requirements, application rates, and environmental conditions under which land application is permitted. Representative samples of biosolids must be collected and analyzed for inorganic pollutants and pathogens according to methods specified in the Part 503 rule. In addition, the regulations specify recordkeeping requirements for land application facilities.

C ***Surface Disposal***. Surface disposal is defined in the Part 503 regulations as an area of land that contains one or more active biosolids units. A unit is an area of land on which only biosolids are placed for final disposal. Under the provisions of Part 503, facilities using surface disposal must comply with pollutant limits, management practices, and operational standard(s), as well as other requirements related to the frequency of monitoring, recordkeeping, and reporting. The regulation established limits for three inorganic pollutants (i.e., arsenic, chromium, and nickel) for active biosolids units that do not contain a liner and leachate collection system. In addition, site-specific limits can apply in certain situations.

When placing biosolids on a surface disposal site, local governments must follow management practices, some of which are given below:

- ***Threatened or Endangered Species***. Biosolids cannot be placed in a surface disposal site if it is likely to adversely affect a threatened or endangered species (under Section 4 of the ESA) or its designated critical habitat.

- ***Wetlands***. An active biosolids unit cannot be located in a wetland unless a permit is issued under Section 402 (NPDES permit) or Section 404 (dredge and fill permit) of the CWA. If the owner/operator of a surface disposal site suspects that all or some portion of an active biosolids unit is in a wetland, he or she should contact the local Corps of Engineers district office to request a wetland delineation.

- ***Methane Gas Concentrations***. Methane, an odorless and highly combustible gas, is generated at surface disposal sites. When biosolids are *covered by soil or other material either daily or at closure,* established limits on methane gas concentrations in air must be met because of the gas's explosive potential. The gas can migrate and be released into the environment. To protect site personnel and the public from risks of

explosions, air must be monitored for methane gas continuously within any structure on the site and at the property line of the surface disposal site.

- ***Incineration***. Incineration of municipal biosolids is regulated under the CAA. National ambient air quality standards apply to six pollutants, including total suspended particulates. Biosolids incinerators contribute primarily to ambient particulate loadings. Pathogens and toxic organic chemicals are destroyed during biosolids incineration. However, metals, such as cadmium and lead, are not destroyed during incineration and are associated with the ash and fine particulates in the stack emissions. The emission of mercury and beryllium from sludge incinerators and drying equipment is regulated under 40 CFR 61. This regulation rarely causes concern, however, since most biosolids have low concentrations of these elements.

  Incinerators constructed or significantly modified since June 11, 1973, are subject to additional regulation under the NSPS, which limit particulate discharges. These standards apply to any incinerator that burns more than 10 percent wastewater sludge at a rate of more than 1,000 kg per day (40 CFR 60). Usually, incinerators will have to use high-pressure scrubbers to meet these requirements, but some incinerators have been able to meet the standard solely through strict operating practices. SIPs may require a facility to demonstrate that air quality impacts will be within acceptable limits.

- ***Landfilling***. Landfilling is a biosolids disposal method in which sludge is deposited in a dedicated area alone or with solid waste and buried beneath a soil cover. Landfilling is primarily a disposal method, with no attempt to recover nutrients and only occasional attempts to recover energy from the biosolids. If biosolids are placed in a municipal solid waste landfill, the local government is responsible for ensuring that the biosolids meet the provisions of 40 CFR Part 258.

- ***Impact of Biosolids Composition on Disposal/Use Options***. The composition of biosolids can limit a local government's choice of biosolids use/disposal options or make certain options more appealing.

The most important constituents are the organic content, nutrients, pathogens, toxic organic chemicals, and metals. Biosolids may contain varying amounts of heavy metals and inorganic ions (e.g., cadmium, copper, lead, mercury, silver) that at high concentrations may be toxic to humans, animals, and plants. The metals concentrations in biosolids are among the foremost considerations in land application because of their potential to damage crops and, in the case of cadmium, to enter the human food chain. Metals may also be a concern in landfilling, if conditions are acidic and promote leaching of metals, and in incineration, if improper design or operating procedures result in the release of metals into the atmosphere.

Under the hazardous waste provisions of RCRA, biosolids from municipal wastewater treatment plants are neither excluded nor specifically listed as hazardous waste. Biosolids from POTWs with highly industrialized areas, however, may need to be evaluated for characteristics that would result in designation as hazardous waste. The test most appropriate for these biosolids is the toxicity characteristic leaching procedure (TCLP). If the biosolids fail the TCLP test, they must be handled as a hazardous waste according to the RCRA requirements.

3.7.2.6 Chemical Storage/Hazardous Materials Management

If storing or using *specified amounts* of certain hazardous chemicals, a local government may be subject to planning and reporting requirements of EPCRA and Section 112(r) of the CAA. Hazardous chemicals may be used in various wastewater collection and treatment operations, such as disinfection as part of the treatment process or cleaning and other maintenance activities. Specifically, chlorine and sulfur dioxide are commonly used in the disinfection (chlorination/dechlorination) process. Additional chemicals may be used in laboratory procedures to analyze wastewater samples. Facilities must submit hazardous chemical inventory and emergency release information as follows:

- **Emergency Release Notification (EPCRA Section 304).** A facility is required to notify the SERCs and LEPCs of a release equal to or exceeding a predetermined amount of certain hazardous chemicals. The chemicals covered by

Appendices A and B of 40 CFR Part 355 list EPCRA EHSs and 40 CFR Part 302 lists CERCLA hazardous substances.

this requirement include EPCRA extremely hazardous substances (EHSs), as well as hazardous substances identified in the CERCLA. The emergency release notification activates emergency plans and provides information to the SERCs and LEPCs, who will coordinate release response activity in order to prevent harmful effects to the public.

C **Hazardous Chemical Inventory and Reporting (EPCRA Sections 311 and 312)**. Under EPCRA, any facility that is required by OSHA's Hazardous Communication Standard to prepare or have available an MSDS for a hazardous chemical is subject to EPCRA Sections 311 and 312 requirements if the chemical is present onsite at any one time in excess of threshold levels.

MSDS Reporting. Under Section 311 of EPCRA, a facility must submit a *one-time notification* identifying the hazardous chemicals (including EPCRA EHSs and OSHA hazardous chemicals) present at the facility in amounts equal to or in excess of threshold quantities to the SERC, LEPC, and local fire department (40 CFR 370.21). To meet the notification requirement, a facility must submit either an MSDS (or copies of MSDSs) or a list of the EPCRA EHSs and OSHA hazardous chemicals. After initial reporting, if a facility finds that it has a hazardous chemical that is newly covered in amounts equal to or in excess of the threshold level or there has been significant new information on an already reported chemical, it must update the information reported under Section 311 within 3 months after discovery.

Tier Reporting. Under Section 312 of EPCRA, a facility must meet an annual reporting requirement for OSHA hazardous chemicals and EPCRA EHSs in amounts equal to or in excess of threshold levels. If equaling or exceeding the threshold levels at any time in the preceding year, a facility must submit to the SERC, LEPC, and local fire department an Emergency and Hazardous Chemical Inventory Form. This form must be submitted by March 1 of each year. EPA publishes two types of inventory forms, **Tier I** and **Tier II**, for reporting this information. While federal regulations require only the submission of a Tier I form, EPA encourages, and some states require, the use of the Tier II form.

LEPCs make this information available to the public, and fire departments and public health officials use the information to plan for and respond to emergencies.

- **Risk Management Planning (CAA Section 112(r))**. Under Section 112(r) of the amended CAA, facilities that have more than a threshold quantity of any of the 140 regulated substances in a single process are required to develop risk management programs and to summarize these programs in risk management plans by June 21, 1999 (40 CFR Part 68). Risk management plans, which are intended to prevent accidental releases of regulated substances and to reduce the severity of any releases that do occur, will be made available to state and local government agencies and the public. EPA has been working with industry groups to develop model risk management programs. To review the model program, refer to EPA's Chemical Accident Prevention and Risk Management Planning website at http://www.epa.gov/swercepp/acc-pre.htm#Model Plans/.

> At present, EPA has established a list of 140 substances that are regulated under the CAA. These substances were published in the *Federal Register* on January 31, 1994; EPA amended the list by rule, published on December 18, 1997. EPA may further amend the list in the future as needed.

3.7.3 Vehicle/Equipment Maintenance

Local governments are responsible for maintaining plant vehicles according to the operations described in Section 3.10, as well as for maintaining equipment (e.g., pumps, standby generators) at the POTWs. Equipment maintenance is necessary for optimal equipment operation, which helps ensure high performance at a plant. Most POTWs maintain an onsite spare parts inventory. Many large plants have fully equipped machine shops staffed by competent mechanics. Smaller plants often have to rely on machine shop facilities in the community. In addition, most pump manufacturers maintain pump repair departments where pumps can be fully reconditioned.

3.7.4 Other Operations That May Be Regulated

In addition, POTWs may be regulated for pesticide management. POTWs may use pesticides, particularly herbicides, onsite to control weed growth and maintain the plant site. Activities related to pesticide use and storage may be regulated under the provisions of FIFRA, EPCRA, or Section 112(r) of the CAA. See Section 3.4 for more information on pesticide management.

3.7.5 Pollution Prevention in Wastewater Management

A substantial amount of the pollution generated by the practices and processes used to collect and treat wastewater can be prevented. In preventing pollution, wastewater treatment plants can

serve as role models for their residential, commercial, and industrial customers and to help or require dischargers to reduce their own toxic discharges to sewers through education, on site assistance, and regulatory programs.

3.7.5.1 Typical Wastes Generated

Sewer line and wastewater treatment *operations and maintenance* is key to ensuring proper treatment of wastewater and protection of the environment. Losses include leaks from pipes, unintended discharges to water ways, and others.

The *wastewater treatment* process involves treating both the liquid and solid factions of waste water. In doing so, various chemicals may be added to either the solids or the liquids to produce an appropriate product meeting discharge requirements. Sample of losses include lab waste, methane flare, bar screen waste, and grit chamber material.

Other elements of a wastewater collection and treatment system may include such things as wetlands, storage tanks, pesticide and herbicide use, use of well water, and purchasing practices. Spills and leaks from containers or purchasing a hazardous chemical over an alternative non-toxic chemical, etc. contribute to losses that increase pollution in the environment.

The proper *maintenance of vehicles and equipment* is key to wastewater treatment. Potential wastes found in this area are emissions from vehicle use and spill/leaks/drips from equipment.

3.7.5.2 Top Pollution Prevention Opportunities

- Keep harmful chemicals out of the sewer lines and protect line workers, the plant, and the public's investment. Work closely with assistance programs at the local and state level, such as pollution prevention programs, economic development commissions and pretreatment programs.

- Institutionalize a preventative maintenance program to predict problems before they occur instead of reacting to them after their occurrence.

- Design, implement, and evaluate sewage acceptance procedures including provisions for spill prevention, discharge limitations, hauler performance guarantee, and enforcement or permit revocation.

- Explore, evaluate and implement alternatives to existing wastewater treatment processes, such as ultraviolet radiation or osmosis, to avoid toxic chemicals, such as chlorine and hypochlorite.

- Reuse or recycle solids (e.g., primary scum) and secondary screenings in areas such as landscaping. Check local and state regulations for any special requirements.

- Post and track statistical control tools to inform all employees of the plants target operating level and the actual operating level.

- Establish a screening mechanism for procuring chemicals that evaluates non-toxic alternatives, and reduces chemical dependence thereby lowering hazardous waste and the hazardous waste generator status.

- Be innovative in use and reuse of energy, such as fuel cells operating from methane, participating in DOE's Green Lights Program, using variable speed pumps, and using heating/air conditioning controls and room sensors in buildings.

- Create a gain share program whereby employees benefit from reduced pollution and for sharing ideas. (Labor unions embrace pollution prevention as a health and safety issue for their members.)

- Use alternative transportation, such as bicycles, at the facility. Offer transit subsidies, telework, and flex-schedules for employees.

3.7.6 Success Story

The City of Portland, Oregon's, Environmental Services operates and maintains the collection and treatment systems of two wastewater treatment facilities for 550,000 people in the greater Portland area. Columbia Boulevard Wastewater Treatment Plant's average annual day flow is 80 MGD, whereas Tryon Creek Wastewater Treatment Plant's average flow ranges from 5 to 17 MGD. Each facility provides primary and secondary treatment. Using self-directed work teams and participating in a Pollution Prevention Program field project, each facility has accomplished great results in prevention. These include:

C Implementing a chemical pre-screening program

- Participating in the Green Lights Program, thereby saving $28,465 per year in energy costs

- Testing a new fuel cell that converts methane and produces power for use by the treatment plant

- Reducing hazardous waste generator status from large quantity generator to conditionally exempt small quantity generator

- Reusing treated effluent to water facility grounds.

Resources

"Promoting Pollution Prevention Among Dischargers to POTWs," Lois N. Epstein and Steven A. Skavroneck, WEF conference, Miami, FL, October 25, 1995. Available from the Environmental Defense Fund, 1875 Connecticut Avenue NW, #1016, Washington, D.C. 20009.

For more information, contact Margaret Nover, Pollution Prevention Program, City of Portland, Oregon, Phone: 503-823-7623 Fax: 503-823-5565, E-mail: margaret@bes.ci.portland.or.us

3.8 WATER RESOURCES MANAGEMENT

Water resources include surface waters (i.e., coastal bays, lakes, rivers, and streams) and groundwater. These water resources may be used to supply drinking water, industrial process water, or water for recreational opportunities. For each of these uses, local governments are primarily responsible for ensuring that the water is safe and available in sufficient quantities to be used for its intended purpose. Activities related to water resources management include protecting and managing surface waters (including reservoirs), and protecting groundwater drinking supplies. Water resources management programs protect these waters from storm water runoff, direct wastewater discharges, and direct discharge of materials that can cause contamination. In contrast to the previously described local government operations, the implementation of water resources management activities has a minimal negative impact on the environment. Rather, the activities themselves are designed to reduce the environmental impact on water resources. For this reason, considering water resources management through land use planning is an important component of protecting the water supplies. Section 3.11 of this profile provides more information on land use planning.

Local governments may be responsible for managing the water resources within their borders as part of their efforts to meet requirements in their NPDES storm water or CSO control program permit conditions. While many water resource management activities will overlap these permit requirements, local governments may elect to develop water resources management programs whether or not they are required by regulations.

3.8.1 Surface Water Protection

Local governments may be responsible for protecting surface waters for designated uses including drinking water, habitat preservation, or recreation. Surface waters are generally protected through implementation of storm water management plans that include BMPs, effluent or watershed monitoring, and in some cases, reservoir management. These activities can reduce contamination of water sources and increase opportunities to use those sources for their intended purposes.

3.8.1.1 Best Management Practices

BMPs may be structural (e.g., storm water detention/retention ponds) or nonstructural (e.g., street sweeping) and may include managing existing sources or conduits of contamination such as roads, bridges, and storm water systems. These activities help a local government protect its water supply and comply with its storm water permit.

Structural BMPs are designed to prevent, inhibit, or slow the rate at which storm water runoff or spilled contaminants reach a body of water. BMP structures, including extended retention ponds, wet ponds, and constructed wetlands, prevent contaminants from reaching surface waters by capturing runoff and allowing it to filter through the soil or evaporate, rather than directly flowing to a water body. Additional filtering structures include sand filters, oil and grit separators, and infiltration basins. Containment structures may require periodic maintenance to remove accumulated sediment, while filtering structures may require maintenance to remove debris and ensure the filters are working efficiently. Each of these structures helps remove contaminants (sediment, oils and greases, pesticides, fertilizers, debris) from rain water to protect the surface water for its intended use.

3.8.1.2 Nonstructural BMPs

Nonstructural BMPs include various operational activities such as sweeping streets, and maintaining or preserving grassed swales, vegetative buffer areas, and wetlands.

While many local governments may sweep the streets to improve community aesthetics or as part of their NPDES combined sewer or storm water permits, street sweeping is also an effective tool in protecting water resources. Contaminants typically found on streets include the following:

- Particulates from local soil erosion
- Nitrogen and phosphorus from local plants and soils
- Phenolic compounds from wear of asphalt street surfaces
- Grease, petroleum, n-paraffin, and lead from vehicle leaks and spills
- Lead, zinc, and asbestos from tire wear
- Asbestos, lead, chromium, copper, and nickel from clutch and brake lining wear
- Chlorides from deicing compounds.

Street sweeping protects surface waters by removing such solids as sand, debris, and litter that would otherwise be transported to the surface water during a rain event. Street sweeping also prevents contaminants that may be absorbed by sand and debris from reaching surface water.

Vegetative buffer areas are physical active controls designed and maintained to filter and infiltrate pollutants thereby preventing them from reaching surface waters, and are essential in maintaining surface water quality. These areas complement passive control, such as land use or zoning laws, that prevent activities (e.g., paving, pesticide use) that could increase surface water contamination.

Wetlands are used to help break down contaminants before they reach open bodies of water. Local governments may actively manage marsh areas by adding new plants and removing accumulated sediment.

Watershed Monitoring. Watershed monitoring programs complement implementation of BMPs by providing the local government with a comprehensive tool to measure the effectiveness of the BMPs. Watershed monitoring programs include collection and observation of water, insects, aquatic plants, and fish from locations throughout the watershed. Chemical analysis is performed to determine whether specific contaminants have infiltrated a water body, and biological analysis is conducted to evaluate the impact of contaminants on various plant, animal, and insect species. Samples taken for chemical analysis (e.g., phosphorus, metals) are generally analyzed in a laboratory, while physical attributes (e.g., turbidity, temperature, color) are analyzed in the field. Biological monitoring evaluates the health of a water body by determining the number and type of plant, fish, and insect species found in the water body. Samples for biological analysis may be analyzed in the field or in a laboratory. By allowing local governments to measure the

effectiveness of various BMPs, and the relative health of a water body over time, watershed monitoring programs can promote the use of effective activities to protect surface waters. For communities that are unable to undertake comprehensive watershed monitoring programs, periodic monitoring of storm water discharges can provide useful information for developing controls for storm water and nonpoint pollution.

The following highlights some other types of monitoring that may be included in a watershed monitoring program:

Identification of Major Outfalls. Surveying and mapping all major storm water outfalls is vital for developing monitoring regimes for characterizing runoff and ambient water body conditions. Treatment or diversion of these outfalls may be necessary.

Detection of Illicit Discharges. Outfall identification is also imperative for determining if wastes or wastewater from non-storm water sources are being improperly discharged from a separate storm sewer system. Many of these discharges occur during dry weather and are often the result of improper connections into the storm system or via spills or infiltration at drains. A plan to detect and address these illicit discharges is vital to a storm water management program.

Public Outreach and Education. A concerted effort to inform the public of the hazards of improper waste disposal and illegal connections is also vital to a storm water management program. This effort could include storm drain stenciling, encouragement of citizen reporting of illicit discharges and improper waste disposal, and outreach programs covering potential contaminants like motor oil, antifreeze, fertilizers and pesticides/herbicides.

Reservoir Management. Protecting reservoirs is a key component to a local government's surface water protection program. Keeping reservoirs clean and free from contamination helps ensure a safe supply of drinking water. In addition, preventing debris, sedimentation, litter, chemicals or other pollutants from entering a reservoir reduces the amount of treatment necessary for the water to meet drinking water standards. While managing reservoirs includes many of the BMPs described previously, it also includes establishing security around the reservoir and creating buffer zones.

Reservoir security involves controls to prevent direct litter, dumping, or inappropriate use. Security measures may include fencing at the water line or fencing of a larger surrounding area. Dumping, litter, or inappropriate use of reservoirs can also be limited through indirect means, such as providing limited access roads or trails in the reservoir vicinity. While not preventing

contamination, limiting access roads and trails can prevent large-scale dumping, limiting pollution to litter or human waste, while allowing hiking or cycling opportunities for community residents.

Managing reservoirs also includes creation of buffer zones to prevent off site contamination from reaching the reservoir. While these buffer zones are similar to those used for protecting other surface waters, local governments may pay special attention to the zones of vegetation that filter or prevent off site spills and runoff from reaching the reservoir. These zones may be created by direct purchase and planting of vegetation on adjacent land, or through zoning laws that prohibit or limit development (thus using the land's natural existing vegetative filters). Buffer zones may also include structural controls such as storm water retention basins, which are discussed above.

***Pollution Prevention*.** In addition to the activities described previously, local governments may be responsible for implementing or overseeing pollution prevention activities designed to prevent surface water contamination. These activities include limits or prohibitions of certain activities in protected areas, requirements for new construction, and public education. These activities are useful for both surface water and groundwater protection, and are described in more detail below.

3.8.2 Groundwater (Wellhead) Protection

Local governments that provide or maintain underground drinking water supplies within their boundaries may be responsible for developing wellhead protection programs to prevent contamination of the supplies. Similar to surface water protection programs, wellhead protection programs generally involve implementation of management practices on government and private land. In contrast to surface water protection programs, wellhead protection programs often focus more on management practices and oversight by the local government, rather than building new structures. A local government may conduct some of the necessary activities for wellhead protection. Private landowners, however, participate in many of the protection activities, as well, under the direction of and in accordance with ordinances established by the local government. The following list highlights selected wellhead protection activities:

- Zoning and subdivision ordinances
- Site plan reviews
- Design standards for new construction and operating standards for ongoing land use activities
- Source prohibitions within protected areas
- Property or easement purchases
- Public education

- Groundwater monitoring
- Household hazardous waste collection.

Zoning and subdivision ordinances. Zoning and subdivision ordinances are designed to direct or limit development in a wellhead protection area. Zoning ordinances may also restrict or regulate land uses within the protected area. Subdivision ordinances are designed to limit the division of land for sale or development. By limiting the creation of new subdivisions, local governments can limit the number of potential sources of contamination.

Site plan reviews. Site plan reviews require developers to submit for approval plans for development occurring within a given area. Site plan reviews help minimize the impact on a protected area by requiring compliance with protection ordinances and giving the local government an opportunity to review and approve development activities prior to implementation.

Design and Operating Standards. Local governments can establish design standards for new construction and operating standards for ongoing land use activities. Design standards can ensure that new buildings or structures placed within a wellhead protection area do not pose a threat to the water supply. Operating standards minimize threats from ongoing activities, such as application of fertilizers and pesticides or storage and use of hazardous materials. These standards may also include prohibition of potential pollutant sources within protected areas.

Property or Easement Purchases. Local governments can purchase property or property easements on land within the protected areas. These purchases can prevent future development and give the local government land on which to maintain vegetative buffers to help prevent contaminants from reaching the protected area.

Public Education. Public education for wellhead protection programs is similar to educational programs that a local government may implement as part of a storm water pollution prevention plan or the combined sewer system nine minimum controls. Public education includes distributing press releases, newsletters, or brochures about wellhead protection activities; posting signs around protected areas; and establishing wellhead protection committees.

Household Hazardous Waste Collection. As part of their wellhead protection programs, local governments may establish household hazardous waste (HHW) collection programs. HHW collection programs provide an opportunity for safe disposal of oils, fertilizers, gasoline, or other household chemicals that residents might otherwise dispose of on the ground or in a landfill designed to accept only nonhazardous solid waste. By collecting and safely disposing of these

materials, local governments prevent them from potentially reaching underground drinking water supplies. Section 3.6 presents more information on operating HHW collection centers.

Groundwater Monitoring. As part of wellhead protection programs, local governments may monitor the groundwater within and leading to a drinking water aquifer. In addition, owners of businesses that have the potential to contaminate groundwater may be required to monitor groundwater as it leaves their property. EPA regulations may require monitoring in particular circumstances (e.g., underground storage tank monitoring), and local governments may request property owners who participate in particular activities (e.g., agricultural fertilizer application) to periodically monitor groundwater to determine whether it is becoming contaminated.

Activities associated with groundwater monitoring that could affect the environment include collecting samples, preserving samples, and analyzing samples. Collecting samples generally has a minimal impact on the environment; however, spilled sample preservation chemicals can contaminate an aquifer. In addition, if wells are improperly drilled and a contaminated aquifer is located above an uncontaminated aquifer, groundwater from the contaminated aquifer can seep into the uncontaminated aquifer.

3.8.3 Pollution Prevention and Water Resources Management

The best way to protect water quality is to avoid polluting the water in the first place. When pollution reaches surface or underground waterways, it can have many adverse effects, including impacts on drinking water sources. Water resource management approaches vary from community to community depending on various factors such as the source of water, size and population of the community, needs of the population, and the water supply system integrity. For example, water conservation may be a very high priority in some locales, while other areas may enjoy an abundance of source water. But in all cases, there is a need to protect and manage water resources wisely. Some water resource management entities have an opportunity to act as pollution prevention role models for others.

As with other local government activities, by incorporating pollution prevention criteria into the decision making processes, public policy makers and water resource managers can:

- Help prevent and reduce waste and pollution
- Prevent and reduce potentially harmful chemical exposures to employees and citizens
- Reduce risks of accidents and releases
- Prevent or reduce potential liabilities and regulatory compliance burdens while providing service delivery and cost savings to their organizations, customers and communities.

Programs that focus on municipal and industrial pollution prevention help prevent or reduce water pollution. Development of local source water management programs can help achieve CWA and SDWA goals.

3.8.3.1 Typical Wastes Generated or Losses Contributing to Pollution

Overall (affecting surface and ground water)

- Releases into storm water sewer systems of hazardous substances such as used oil or household or yard chemicals.
- Industrial site releases.
- Runoff of excessive pesticides, fertilizers, and herbicides.
- Lack of education, awareness, and participation (public and private sector) in local collection, recycling and disposal of household hazardous waste materials.
- Lack of education, awareness, and participation (public and private sector) in local water protection and conservation activities.

A***dditional Surface Water***

- Lack of residential and commercial development storm water management controls.
- Flood control projects that impair water quality.
- Soil runoff from construction and other sites.

3.8.4 Top Pollution Prevention Opportunities

3.8.4.1 Pollution Prevention Outreach and Promotion

Overall (surface and ground water)

- Develop local storm water management NPDES and pollution prevention programs.
- Develop local groundwater (wellhead) protection programs.

- Develop household hazardous waste collection initiatives.

- Require pollution prevention BMPs as a permit condition under the CWA. Agencies could design BMPs on a case-by-case basis or develop generic BMPs that would be applied to all facilities in a given industrial category.

- Set protective limits for reduction of discharges to wastewater treatment plants.

- Set protective limits for discharges of hazardous substances and petroleum storage.

- Adopt landscaping codes (e.g., institute irrigation restrictions, implement increasing block pricing or time of day pricing.)

- Investigate reduced water use projects (i.e., ultra-low flush "toilet voucher programs," low flow shower heads, sprinkler systems that are sensitive to rainfall, etc.)

- Establish low-income resident programs to conduct in-home water audits, leak repairs, and subsidized retrofits with water conserving fixtures.

Additional Surface Water

- Develop local surface water protection programs.
- Develop erosion and sediment control programs.
- Set protective discharge limits for storm water controls.

Additional Ground Water

- Develop groundwater monitoring programs.
- Limit or exclude industrial discharges to septic systems through design review.

3.8.4.2 Internal Local Government Operations

Overall (surface and ground water)

- Conduct leak detection programs.

- Perform plumbing fixture retrofits.

- Upgrade water meters to ensure accurate readings (use water inventory meter and retrofit programs).

- Develop BMPs for local government internal operations, in order to lead by example.

- Integrate water conservation into new facility design

- Set protective limits for reduction of internal discharges to wastewater treatment plants.

- Set protective limits for internal discharges of hazardous substances and petroleum storage.

- Limit or exclude internal discharges to septic systems.

- Investigate a new source water potential: water recycling for golf courses, parks, roadway landscaping, schools, firefighting, fountains, street sweeping, vehicle washing, and irrigation projects.

- Investigate U.S. EPA's Water Alliances for Voluntary Efficiency (WAVE) program which will soon be expanded to schools, hospitals, and other public facilities. EPA also encourages municipalities, local, and regional water resource boards; water districts; and water utilities to join the WAVE program as supporters.

Additional Surface Water

- Reconstruct or upgrade wastewater treatment plants.
- Investigate wetland mitigation banking opportunities.
- Set protective internal discharge limits for storm water controls.

Additional Ground Water

- Plug free-flowing Artesian wells.

3.8.5 Success Stories

*3.8.5.1 The City of New York/Multi-County Partnership, New York**

New York City, which operates as a city/county consolidated government, and the counties of Delaware, Greene, Schoharie, Sullivan, Ulster, Putnam, and Westchester in New York State, have signed a watershed protection agreement that will protect the source of these communities' drinking water supply. The partnership also includes the agricultural community, watershed municipalities, and the state and federal governments. Benefits to the City include a filtration waiver from the U.S. Environmental Protection Agency, saving billions of dollars in capital costs. Upstate communities benefit from higher property values resulting from environmentally sound agricultural practices and planned sustainable development.

Components of the Watershed Protection Agreement That Are Currently Under Way:

- Upgrading the nine City-owned upstate sewage treatment plants
- Rehabilitating and upgrading City-owned dams and water supply facilities in the watershed
- Implementing the Watershed Agricultural Program
- Constructing or upgrading public and privately owned wastewater infrastructure, including failing septic systems
- Acquiring hydrologically sensitive lands in high priority areas near reservoirs, streams and wetlands
- Establishing the Catskill Fund for the Future, an economic development bank to support responsible, environmentally sensitive projects in the watershed
- Extensively reviewing proposed developments and other projects to ensure compliance with watershed regulations and standards and the protection of water quality
- Monitoring water quality in streams, reservoirs, and the distribution system
- Forming the Watershed Protection and Partnership Council

- Establishing the Sportsmen's Advisory Councils to review and recommend possible public recreational uses of City-owned lands in the watershed.

* This case study contains excerpts from "Innovative City/County Partnership - A Report from the Joint Center for Sustainable Communities." For further information, contact Joel A. Miele, Sr., P.E., Commissioner, New York City Department of Environmental Protection, Phone: 718/595-6565.

3.8.5.2 Cincinnati Water Works Wellhead Protection

In April 1998, Judy Suzurikawa, a member of the Cincinnati Water Works Wellhead Protection Team, presented a paper at the "Source Water Assessment and Protection '98" conference in Dallas, Texas. Ms. Suzurikawa's paper, "Data base and Geographic Information System (GIS) for Management of a Multi-Jurisdictional Wellhead Protection Area," discussed various management tools, a geographic information system, and computer data bases used by the Hamilton to New Baltimore Groundwater Consortium to track water quality issues in the Great Miami Buried Valley aquifer. The Hamilton to New Baltimore Groundwater Consortium consists of Cincinnati Water Works and five other public and industrial water suppliers. The purpose of the Consortium is to monitor the quantity and quality of groundwater and to implement a comprehensive groundwater protection program. The Consortium's multi-jurisdictional Wellhead Protection Plan was fully endorsed by the Ohio EPA in January 1998. The Consortium has cost-effectively avoided duplication of effort by its members while promoting a unified, consistent groundwater management program for the region. The Consortium's web site, listed in the references below, describes the Consortium's purpose and programs. The web site also describes and illustrates examples of groundwater contamination and many preventive measures. The City of Cincinnati was designated a Groundwater Guardian Community at the end of 1997 by the Groundwater Foundation of Lincoln, Nebraska. Cincinnati Water Works has been actively involved since 1990 in the joint development of a Groundwater Protection Program for the Charles M. Bolton wellfield and adjacent wellfields in the Greater Hamilton/Fairfield area in Ohio.

Resources

"$mart Investments for City and County Managers: Energy, Environment and Community Development," U.S. Environmental Protection Agency, Office of Policy, Planning and Evaluation, EPA 231-R-98-004, April 1998.

"Preventing Pollution in Our Cities and Counties: A Compendium of Case Studies," NPPR, NACo, NACCHO and U.S. Conference of Mayors, 1995.

"Database and Geographic Information System (GIS) for Management of a Multi-Jurisdictional Wellhead Protection Area," Cincinnati Water Works, 1998, Proceedings, NWRI Source Water Assessment and Protection 98 Conference, Dallas, TX.

"When it Rains, It Drains-What Everyone Should Know About Storm Water," Michigan Department of Environmental Quality, Surface Water Quality Division.

"Innovative City/County Partnerships - A Report from the Joint Center for Sustainable Communities," The United States Conference of Mayors and National Association of Counties, 1998.

U.S. EPA Pollution Prevention Information Clearinghouse, 401 M Street, SW, Washington, D.C. 20460 (http:www.epa.gov/opptintr/p2home).

International City/County Management Association, Smart Growth Network (SGN): *http://www.smartgrowth.org*; 202/962-3591; email Noah A. Simon *nsimon@icma.org.*

"Drinking Water - The Safe Drinking Water Act vs. the Small Systems 'How Safe is Safe,'" EMGT 850, 1996.

"Building State and Local Pollution Prevention Programs," U.S. Environmental Protection Agency, Office of the Administrator, EPA-130-R-93-001, December 1992.

Local Government Environmental Assistance Network (LGEAN), contact: David George at International City and County Management Association (ICMA) at 202/962-3531; email *dgeorge@icma.org.*

Water Efficiency Program; San Jose/Santa Clara Valley Water District and Water Pollution Control Plant, 3025 Tuers Road, San Jose, CA 95121.

South Bay Water Recycling, 2540 North First Street, Suite 316, San Jose, CA 95131; 408/232-0832.

The U.S. EPA's WAVE Program: EPA Office of Water, Contact: John Flowers, WAVE Program Director, Phone: 202/260-7288; EPA's WAVE Technical Support Hotline: 800/993-WAVE.

The Hamilton to New Baltimore Groundwater Consortium's web site: *www.gwconsortium.org.*

"Beyond Delineation and Assessment: Community Action to Protect Source Water Using Farm*A*Syst\Home*A*Syst": *http://www.ctic.purdue.edu/Abstracts/Castelnuovo.html.*

"Cryptosporidium and Water" by the CDC Working Group on Waterborne Crypto, provides guidance on setting-up a local task force to deal with the threat to drinking water: *http://www.cdc.gov/ncidod/diseases/crypto/crypto.htm.*

The Lincoln-Lancaster Health Department (NE) developed a guide and checklist for septic and wells that was implemented through citizen volunteers. For information, contact the Lincoln Lancaster Health Department at 402/441-8000.

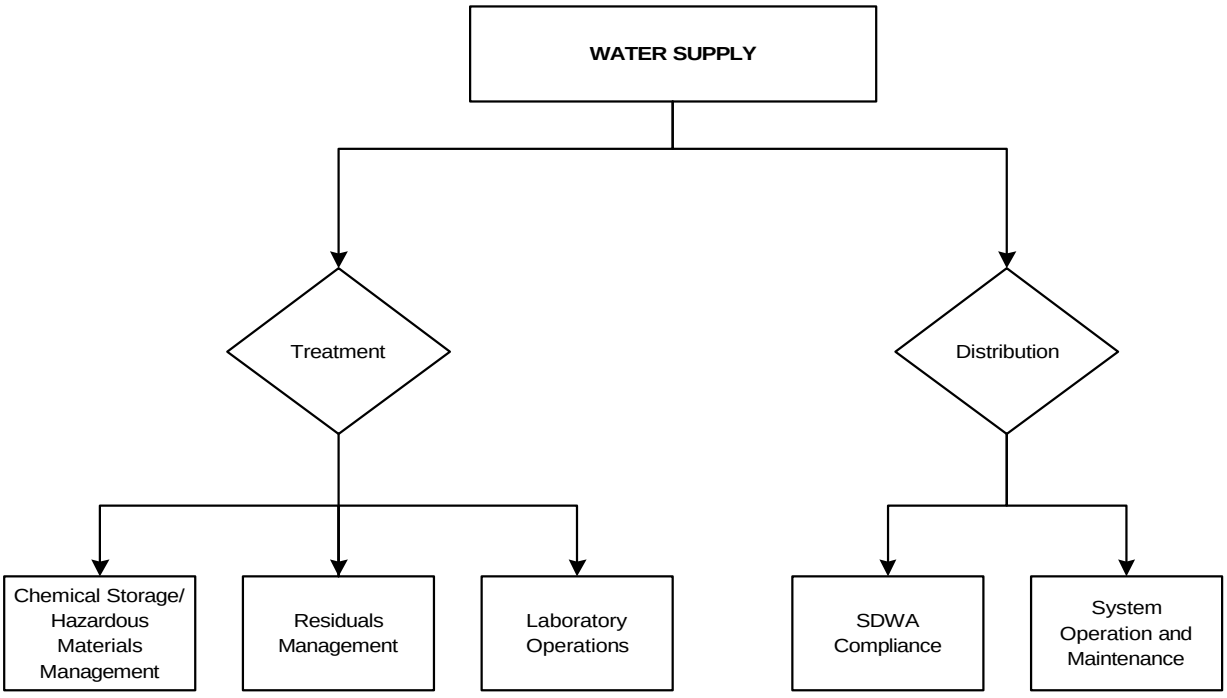
"Tools for Drinking Water Protection" Video Workshop - The League of Women Voters developed this excellent video on local government and citizen action on water quality issues. Their resources are listed on the web at *http://www.lwv.org/pubweb/resources.html*

For more information, contact: J. Bruce Suits, City of Cincinnati, Office of Environmental Management. Phone: 513/352-6270; Fax: 513/352-4970; E-mail: bruce.suits@cinems.rcc.org

3.9 WATER SUPPLY

Local governments may be responsible for operating public water systems. Public water systems are defined as the central systems or networks of facilities that supply drinking water to the public. Public water systems are designed to provide and maintain a reliable, high-quality water source (e.g., groundwater or surface water). The operations necessary to provide and maintain reliable drinking water include water treatment, residuals management, and water distribution. (See Exhibit 3-8)

Exhibit 3-8. Water Supply



Under the Safe Drinking Water Act (SDWA), EPA regulates chemical, physical, radiological, and bacteriological substances in drinking water that pose a health risk to the public. EPA develops drinking water regulations to protect public health and welfare, and individual states enforce the regulations for public water systems. Public water systems, therefore, must provide water treatment, as required; ensure drinking water quality through monitoring; and provide public notice of violations or possible contamination.

3.9.1 Water Treatment

Because water treatment operations include several activities that could affect the environment, they are regulated under U.S. environmental laws and regulations. These activities include the treatment process itself, laboratory operations, management of residuals, and storage of chemicals and hazardous materials management. Typical steps in the treatment process include:

- ***Screening and Presedimentation***. Screening captures large debris, such as leaves, logs, plastic bottles, sticks, and fish, at the intake where water is drawn into the treatment plant. Presedimentation allows removal of settleable solids in the water by gravity prior to additional treatment.

- ***Coagulation/Flocculation/Sedimentation***. These three processes commonly are used together to remove suspended solids, dissolved chemical substances, and impurities from raw water supplies. The removal of suspended solids and other substances improves the appearance and taste of drinking water and helps remove some of the chemical and microbiological contaminants that might be harmful to humans.

- ***Filtration***. Filtration is another commonly used step in removing solids and fine particles. In slow-sand filtration, source water passes through granular materials, such as sand, where particles are trapped and removed. In rapid-sand filtration, solids remaining after the coagulation/flocculation/sedimentation processes are removed.

- ***Disinfection***. Disinfection is the process by which pathogens in the water are inactivated or rendered harmless by the use of chemicals, such as chlorine and ozone.

- ***Softening***. Water softening is a process used to remove minerals (primarily calcium and magnesium) that cause hardness of water.

The SDWA regulates the treatment of drinking water. Specifically, SDWA regulations (40 CFR 141) require filtration and disinfection for water systems that use surface water as their source of water. In addition, other treatment activities, may be regulated under environmental laws and regulations, as indicated in the following list.

- Chemical storage/hazardous materials management—EPCRA, CERCLA, CAA, and CWA

- Laboratory operations—RCRA and CWA

- Residuals management—RCRA and CWA

More detail on the specific activities related to water treatment are provided below.

3.9.1.1 Chemical Storage/Hazardous Materials Management

If a local government stores or uses *specified amounts* of certain hazardous chemicals, it may be subject to planning and reporting requirements of EPCRA and Section 112(r) of the CAA. Hazardous chemicals may be used in various water treatment operations, such as disinfection, or other maintenance activities. Specifically, chlorine is commonly used in the disinfection process.

Additional chemicals are used for laboratory procedures used to analyze water samples. Facilities must submit hazardous chemical inventory and emergency release information as follows:

Emergency Release Notification (EPCRA Section 304). A facility is required to notify the SERCs and LEPCs of a release equal to or exceeding a predetermined amount of certain hazardous chemicals. The chemicals covered by this requirement include EPCRA EHSs, as well as hazardous substances identified in CERCLA. The emergency release notification activates emergency plans and provides information to the LEPCs and SERCs, who will coordinate release response activity in order to prevent harmful effects to the public.

The list of EPCRA EHSs can be found at 40 CFR Part 355, Appendices A and B; the list of CERCLA hazardous substances can be found at 40 CFR Part 302.

Hazardous Chemical Inventory And Reporting (EPCRA Sections 311 and 312). Under EPCRA, any facility that is required by the OSHA Hazardous Communication Standard (HCS) to prepare or have available an MSDS for a hazardous chemical is subject to EPCRA Sections 311 and 312 requirements if the chemical is present onsite at any one time in excess of threshold levels.

- ***MSDS Reporting***. Under Section 311 of EPCRA, a facility must submit a *one-time notification* identifying the hazardous chemicals (including EPCRA EHSs and OSHA hazardous chemicals) present at the facility in amounts equal to or in excess of threshold quantities to the SERC, LEPC, and local fire department (40 CFR 370.21). To meet the notification requirement, a facility must submit either an MSDS (or copies of MSDSs) or a list of the EPCRA EHSs and OSHA hazardous chemicals. After initial reporting, if a facility determines that it has a hazardous chemical that is newly covered in amounts equal to or in excess of the threshold level or there has been significant new information on an already reported chemical, it must update the information reported under Section 311 within 3 months after discovery.

- ***Tier Reporting***. Under Section 312 of EPCRA, a facility must meet an annual reporting requirement for OSHA hazardous chemicals and EPCRA EHSs in amounts equal to or in excess of threshold levels. If equaling or exceeding the threshold levels at any time in the preceding year, a facility must submit to the SERC, LEPC, and local fire department an "Emergency and Hazardous Chemical Inventory Form." This form must be submitted by March 1 of each year. EPA publishes two types of inventory forms, **Tier I** and **Tier II**,

for reporting this information. While federal regulations require only the submission on a Tier I form, EPA encourages, and some states require, the use of the Tier II form.

LEPCs make this information available to the public, and fire departments and public health officials use the information to plan for and respond to emergencies.

Risk Management Planning (CAA Section 112(r)). Under Section 112(r) of the amended CAA, facilities that have more than a threshold quantity of any of the 140 regulated substances in a single process are required to develop risk management programs and to summarize these programs in risk management plans by June 21, 1999 (40 CFR Part 68). Risk management plans, which are intended to prevent accidental releases of regulated substances and to reduce the severity of any releases that do occur, will be made available to state and local government agencies and the public. EPA has been working with industry groups to develop model risk management programs. To review the model program, refer to EPA's Chemical Accident Prevention and Risk Management Planning website at http://www.epa.gov/swercepp/acc-pre.htm#Model Plans.

At present, EPA has established a list of 140 substances that are regulated by the Risk Management Planning regulations of the CAA. These substances were published in the *Federal Register* on January 31, 1994; EPA amended the list by rule, published on December 18, 1997. EPA may further amend the list in the future as needed.

Exhibit 3-9 presents selected process chemicals used in water supply operations.

Exhibit 3-9. Chemicals Used in Water Supply Activities

Activity	Process Chemicals Utilized
Coagulation, flocculation, and sedimentation	Alum (aluminum sulfate), ferrous sulfate, ferric chloride, cationic polymers, calcium hydroxide, and sodium aluminate
Filtration	Cationic polymers, anionic polymers, calcium carbonate, and calcium hydroxide
Disinfection	Chlorine (gas or liquid), sodium hypochlorite, calcium hypochlorite, chloramines, chlorine dioxide, and ozone
Softening	Lime and calcium carbonate
Residuals management	Lime and calcium carbonate
Water main repair/replacement	Sodium hypochlorite, calcium hypochlorite, and liquid chlorine
Pump maintenance	Petroleum-based lubricants and grease

Water supply facilities are responsible for operating the laboratory safely. To prevent laboratory accidents, chemicals should be stored in a properly ventilated and well lit room. All bottles and reagents should be clearly labeled and dated. Volatile liquids that could escape as a gas, such as ether, must be kept away from heat sources, sunlight, and electrical switches. Cylinders of gas being stored should also be capped and secured to prevent rolling or tipping.

3.9.1.3 Residuals Management

Residuals management includes managing the wide variety of waste products generated from the treatment of drinking water using screening, presedimentation, coagulation/flocculation/ sedimentation, filtration, disinfection, and softening processes. The residuals may be organic and inorganic compounds in liquid, solid, and gaseous forms, depending on the source of raw water and the type of treatment processes. Key residuals include the following:

- Sludges from coagulation/flocculation/sedimentation operations
- Sludges from softening operations
- Sludges from iron and manganese removal operations
- Solids in rapid-sand filter backwash water
- Solids from screening and presedimentation, slow-sand filtering, and other processes.

The primary aspect of residuals that may impact the environment is solid materials that, if discharged to waterways, could lead to increased suspended sediment levels in the water column and deposition at the bottom. Additional aspects include metals and chemical residuals that attach to the solids. The environmental impacts of these depend on the management method, which include dewatering and landfilling, as well as discharge to a POTW.

Sludge that is dewatered and placed in a landfill or properly applied to land has minimal environmental impact. Excessive land application, however, can lead to sludge runoff during rain events, thereby increasing sedimentation in water bodies. Liquid sludge discharged to a wastewater treatment plant may affect the integrity of the sewer system through excessive buildup of solids in the system. Liquid sludge discharged to a water body can increase sedimentation in that water body. Land application or land disposal of sludge may be regulated under RCRA solid waste regulations or state guidelines; liquid disposal to a treatment plant or directly to a waterbody is regulated under the CWA pretreatment and NPDES programs respectively.

3.9.2 Water Distribution System Operation and Maintenance

The operation and maintenance of the water distribution system includes upkeep of the pipes, storage tanks, and pumps that convey water from the water treatment plant to the customers. Because activities could affect the environment, they are regulated under environmental laws and regulations, indicated in the following list.

- Water pipe flushing—CWA and EPCRA
- Water main repair/replacement—CWA, EPCRA and CAA
- Storage tank maintenance—RCRA and CAA
- Pump maintenance—RCRA

In addition, cross contamination and backflow can contaminate waste distribution systems and, therefore, are subject to various building codes and regulations.

3.9.2.1 Cross Connection Control and Backflow Prevention

Cross connection control and backflow prevention are operational programs that a public water system and its customers must implement to prevent contaminants and non-potable water (e.g., wastewater, storm water, process water) from being drawn into the public drinking water system. Cross connections are physical, piped connections between potable water and an unsafe or polluted water source. Cross connections can threaten water quality and public health through the backflow of such hazardous substances as antifreeze, boiler water, and sewage. Backflow is a reverse flow of water from the customer or service connection into the water distribution system. Backflow typically occurs when distribution system pressure drops due to a water main break or due to firefighting demands. Cross connection control programs consist of building codes and other regulations that prohibit cross connections and require backflow prevention devices on particularly high risk service connections (e.g., a wastewater treatment plant). Education, inspection, and enforcement are also necessary to ensure compliance with the building codes and regulations.

3.9.2.2 Water Pipe Flushing

Water pipe flushing is performed on distribution systems to remove any accumulated sediments or other impurities that have been deposited in the pipe. Water pipe flushing also improves the flow of water through the distribution system, allowing it to work at capacity. Flushing is performed by isolating sections of the distribution system and opening flushing valves or more

commonly fire hydrants to cause a large volume of flow to pass through the isolated pipeline and suspend the settled sediment. Water mains may also be mechanically cleaned through the use of swabs or pigs, which are pulled through a section of line to scrape the accumulated debris off the inside of the pipe. The major environmental aspect of water pipe flushing is the discharge of flushed water, which may be high in suspended solids and other contaminants that can harm water bodies. The negative impacts of the discharge may be minimized by discharging the flush water into a sanitary sewer with adequate capacity or by discharging the flush water into a separate storm sewer system with storm water management measures, such as a detention pond, where solids can settle before the water is discharged. The discharge of water from flushing may be regulated under an NPDES permit.

3.9.2.3 Water Main Repair/Replacement

Water main repair/replacement must be performed to water systems to replace or repair broken, corroded, or leaking sections of pipe. The broken pipe section is either replaced or, as is often the case, a repair sleeve is placed around the outside of the broken pipe section and clamped into place. Following the repair of the pipe, the line is typically flushed and then disinfected with a chlorine solution. The chlorine solution is usually mixed onsite with powdered calcium hypochlorite or sodium hypochlorite. Pipe repair and replacement could affect the environment through:

- Erosion and sedimentation, which take place as a result of excavation, stockpiling, and backfilling

- Discharge of sediment laden water in the excavated area from groundwater and rainfall

- Discharge of sediment laden flush water and highly chlorinated disinfecting solution.

These impacts can be minimized through control measures. Sediment and erosion control measures that can be implemented for the excavation of the trench include stockpiling the excavated soil on the uphill side of the trench or installing silt fences on the downhill side of the excavation. The impacts associated with discharges from trench dewatering, pipe flushing, and pipe disinfecting can be reduced by discharging into storm water management facilities, such as detention ponds, where solids can settle and chlorine compounds can dissolve. The discharge of water from these activities may be regulated by the facility's NPDES permit, and storage and use of chlorine may be regulated under EPCRA or the CAA.

3.9.2.4 Storage Tank Maintenance

This activity includes frequent inspection and may require occasional repairs. The most frequent types of repairs are repainting the tanks and replacing screens over vents and other points of access to insects, birds, and rodents. Most tanks are made of steel and, therefore, subject to corrosion. To prevent corrosion, the tanks are painted on a regular basis. Tank painting can generate sandblasting residue, which results from preparing the tank's surface for receiving paint. This impact can be minimized by containing the area to be sandblasted and collecting and recycling the sandblasting residue. Sandblasting activities may be regulated under the State Implementation Plans developed under the CAA. Disposal of paint chips and dust, if they are determined to be hazardous, may be regulated under RCRA.

3.9.2.5 Pump Maintenance

Pump maintenance must be performed to ensure that booster and other distribution system pumps stay in working order. Maintenance of the pumps involves checking the pumps regularly for excessive vibration or noise, providing grease and lubrication regularly, and checking the pump bearings and packing glands. Using and storing the necessary petroleum-based grease and lubricants could affect the environment through spills to water or land. Disposal of these products may be regulated under the RCRA used oil regulations. Spills of oil that reach waterways may be required to be reported under the SPCC regulations of the CWA.

3.9.2.6 Safe Drinking Water Act Compliance

Local governments are responsible for complying with SDWA regulations, both for water treatment and the distribution system. As part of those regulations, water supply facilities are required to sample and analyze the water for specific chemicals to ensure they do not exceed the maximum contaminant levels (MCLs) for those chemicals. If and when MCLs are exceeded, local governments must notify the state within 48 hours. In addition, local governments are required to provide public notice of the exceedance. All local government water supply facilities also must maintain records, including bacteriological and chemical analyses, actions taken to correct violations, sanitary surveys of the system, and variances or exemptions granted to the system.

3.9.3 Vehicle/Equipment Maintenance

Local governments are responsible for maintaining all vehicles associated with water supply activities according to the operations described in Section 3.10.

3.9.4 Pollution Prevention in Water Supply

The collection, treatment and distribution of water is one of the largest and most expensive tasks of local governments. Water supply systems vary from community to community depending on various factors such as the source of water, age and infrastructure integrity, size and population of the community, and the needs of the population. For example, water conservation may be a very high priority in some locales, while other areas may enjoy an abundance of source water; both have a need to protect their water sources. Moreover, while the various water supply, treatment, and distribution methods and their related operations have their clear health and economic benefits, these processes also bring the potential to pollute. Some municipal water supply facilities have an opportunity to act as pollution prevention role models for other private water facilities and for their residential, commercial, and industrial customers. As with other local government activities, incorporating pollution prevention criteria into their decision making process, public policy makers and water supply operations managers can help prevent and reduce waste and pollution. Preventing and reducing potentially harmful chemical exposures to employees and neighbors will reduce risks of accidents and releases, as well as prevent or reduce potential liabilities and regulatory compliance burdens.

3.9.4.1 Typical Wastes Associated with Water Supply

- Solvent cleaners and paints, mercury switches and lamps, lubricants and other wastes from operations, and facility maintenance activities.
- Disinfection by-products (e.g., trihalomethanes).
- Corrosion by-products
- Leaking or broken lead from service lines, goose neck or service connections.
- Radon in wells.

- Pesticides in rinse waters and containers.

- Industrial, commercial, and household chemical discharges.

3.9.4.2 Top Pollution Prevention Opportunities

- Investigate alternatives or reductions (e.g., GAC, ozone treatment, ultraviolet) to chlorine water disinfection.

- Investigate reduced risk storage and handling of chlorine and other chemicals.

- Install plant dehumidification systems to reduce rusting/corrosion of plant equipment.

- Use lead-free solder, retrofitting the service lines with PVC instead of metal.

- Know your waste stream in order to identify high priority (or "low hanging fruit") for source reduction, reuse or recycling opportunities.

- Strategically plan for SDWA compliance through source protection and source selection strategies, operational strategies, collaborative arrangements, purchased-water transactions, or institutional restructuring.

- Perform self-evaluations regularly.

- Install water conservation devices (e.g., low-flow showerheads, low-flush toilets, motion sensing faucets.)

- Implement water conservation strategies (e.g., use grey water for irrigation), consider xeriscape (i.e., native, low water requirement) landscaping, consider pervious material for walkways and driveways.

- Look for energy efficiency improvements in designing or re-designing water pumping and treatment systems.

- Use national and local events to promote the pollution prevention ethic to employees and the public.

- Connect with local, state, national or international organizations to share information, techniques and approaches to continuous improvement through pollution prevention.

- Perform consistent and proper monitoring.

3.9.4.3 Success Story

The Cincinnati (Ohio) Water Works, a municipally owned and operated utility, was purchased by the City of Cincinnati from a private owner in 1839. The service area of the Cincinnati Water Works has grown and now includes the entire City of Cincinnati, approximately 90 percent of the rest of Hamilton County and three additional service areas in the adjacent counties of Butler and Warren. The City of Cincinnati and the great majority of Hamilton County are served on a retail or metered basis. The City of Cincinnati is responsible for the complete administration, operation, maintenance, and capital planning for the entire service area. The Cincinnati Water Works now supplies approximately 46 billion gallons of water a year through 2,742 miles of water main to more than 221,028 residential and commercial accounts representing more than 900,000 consumers in the Greater Cincinnati area.

The City of Cincinnati and the Cincinnati Water Works have taken steps to prevent and reduce pollution. The City has recently implemented a Pollution Prevention Program which seeks to identify pollution before it occurs and substitute a non-polluting process or material for that which would pollute. In other words, prevent or eliminate the source or cause of pollution so the environment does not have to be cleaned up later. Cincinnati has the only granular activated carbon (GAC) filtration plant of its kind in the nation and one of largest such plants in the world. Ninety percent of the water supplied by the Cincinnati Water Works is filtered through carbon filters. The other 10 percent is provided from the Water Works' well-water treatment plant in Butler County. The GAC removes organic substances from Ohio River water, which is Cincinnati's primary water source. The state-of-the-art GAC treatment process, installed in 1992, ensures that customers will receive high quality water and is considered a pollution prevention technology because the facility uses only one third the amount of chlorine as would otherwise be used in the treatment of water. The process enables Cincinnati Water Works to be in compliance not only with present Ohio and federal safe drinking water regulations, but allows Cincinnati to be prepared for future regulations.

The Natural Resource Defense Council called the Cincinnati Water Works GAC facility the "crown jewel" of the utility's treatment process. The *Milwaukee Journal* describes the Cincinnati

Water Works as a "model" water utility because of its treatment processes and aggressive research to find additional ways to improve its water quality.

In another area of pollution prevention, as a "covered" facility that will need to meet the CAA 112(r) (Risk Management Planning) requirements by June 21, 1999, the construction of the California chlorination facility may be considered pollution prevention. This is because risk of release and exposure has been reduced significantly by the creation of a containment building and the modification from four 55-ton chlorine storage tanks to 48 1-ton tanks.

Additionally, Cincinnati Water Works recently identified three pilot projects that may help prevent pollution. They include use of electric power mowers to maintain grounds, use of biodegradable antifreeze for facility vehicles and use of environmentally friendly ice and snow removal techniques, such as sand and nontoxic chemicals.

Resources

"For Your Information - Message from the Cincinnati Water Works," Issue 1, 1996.

"Preventing Pollution in Our Cities and Counties: A Compendium of Case Studies," NPPR, NACo, NACCHO and U.S. Conference of Mayors, 1995.

U.S. EPA Pollution Prevention Information Clearinghouse, 401 M Street, SW, Washington, D.C. 20460 *(http://www.epa.gov/opptintr/p2home).*

Smart Growth Network: 202/260-2750; *http://www.smartgrowth.org*.

U.S. EPA Design for the Environment (DfE): 202/260-1678; *http://es.inel.gov/dfe.*

"Safe Water from Every Tap - Improving Water Service to Small Communities" National Academy Press, 1998.

DRAFT "Pollution Prevention in Enforcement - Village of South Charleston, Ohio" Office of Pollution Prevention, Ohio Environmental Protection Agency, 1998

"Conservation Improvement Projects through Soil and Water Conservation Districts," Cooperative Extension Service The Ohio State University.

Local Government Environmental Assistance Network (LGEAN) through the International County and City Managers Association; Contact: David George at 202/962-3531; email: dgeorge@icma.org.

"Setting Standards: Risk Assessment Issues," edited by, Frederick W. Pontius, Denver CO., AWWA Journal, July 1995, pp10-16, 114.

"Safe Drinking Water From Small System: Treatment Options," edited by, James A. Goodrich, Cincinnati, OH. , AWWA Journal, May 1992, pp.49-55.

"Tools for Drinking Water Protection" Video Workshop - The League of Women Voters developed this excellent video on local government and citizen action on water quality issues. Their resources are listed on the web at *http://www.lwv.org/pubweb/resources.html*

"Chemicals Versus Microbial in Drinking Water: A Decision Sciences Perspective," edited by, Susan W. Putman, Boston MA, AWWA Journal, March 1993 pp 57-61.

"Drinking water, Pollution Prevention and Public Health" (8pp) - EPA/742/F-97/004

"Incentives and Disincentives for Adoption of P2 Measures Under EPA's Water Program" (94pp) - EPA/742/R-94/006

American Water Works Association Small System Hotline

U.S. EPA Drinking Water Hotline/National Drinking Water Clearinghouse

National Rural Water Association

Rural Community Assistance Corporation

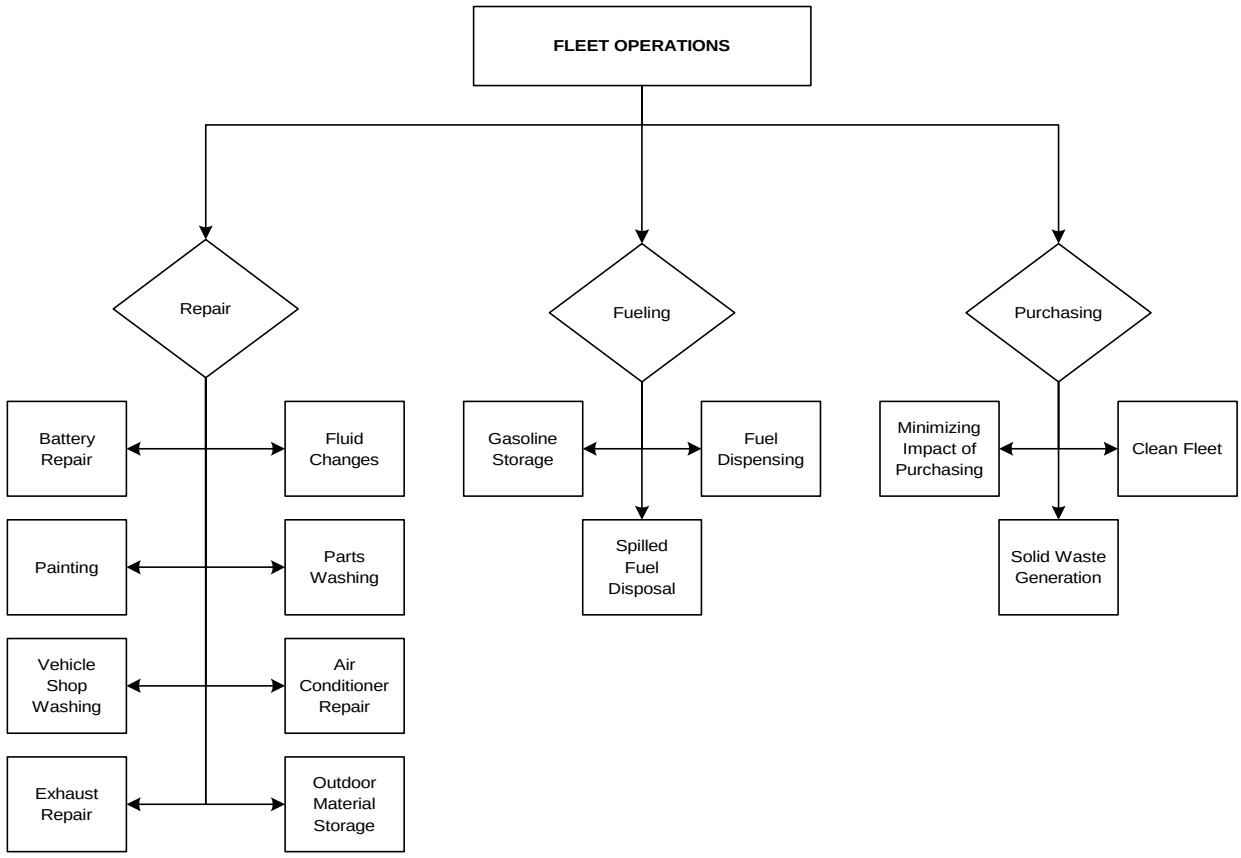
State Drinking Water Primacy Agency

For more information, contact J. Bruce Suits, City of Cincinnati, Office of Environmental Management Phone: 513/352-6270; Fax: 513/352-4970; E-mail: bruce.suits@cinems.rcc.org

3.10 VEHICLE/EQUIPMENT MAINTENANCE

Local governments are responsible for operating, maintaining, and purchasing motor vehicles and equipment to perform government services. Vehicles range from school buses, fire engines, snow plows, and heavy construction equipment to automobiles used by building inspectors, police departments, and government officials. Equipment may include pumps, tools, and boilers. As shown in Exhibit 3-10, local government fleet operations include vehicle repair shops, fueling stations, and purchasing operations. *(Note: While this section specifically discusses vehicle maintenance, many of the regulated activities apply to equipment maintenance.)*

Exhibit 3-10. Vehicle Maintenance Activities



3.10.1 Vehicle Repair Shops

Because vehicle repair shops conduct several activities that could affect the environment, these activities are regulated under environmental laws and regulations, as indicated in the following list.

- Fluid changes—RCRA and CWA
- Parts washing —RCRA, CAA, and CWA
- Battery maintenance—RCRA and CWA
- Air conditioner repair—CAA
- Vehicle and shop floor washing—CWA
- Exhaust system repair and replacement—CAA
- Painting—RCRA and CAA
- Outdoor material storage—CWA

Exhibit 3-11 illustrates some repair shop activities.

Exhibit 3-11. Vehicle Repair Shop Activities
(photo from CCAR-Greenlink)

3.10.1.1 Changing Vehicle Fluids

Changing vehicle fluids includes oil, transmission, and break lubrication, as well as antifreeze changes. Changing fluids also involves storing both new and waste fluids and managing or disposing of waste fluids. Fluids generally are drained from the vehicle to a pan or bucket placed below the vehicle. Full pans or buckets are then dumped into a larger container, such as a 55-gallon drum, UST, or aboveground storage tank, prior to off-site disposal. The potential environmental impacts from fluid changes are soil and water contamination from spills or improper disposal. Storage of new materials may be regulated under the SPCC provisions of the CWA, which require development of a spill prevention plan that generally includes providing secondary containment for all tanks and drums. Storage, recycling, and disposal of waste fluids are regulated under the used oil provisions of RCRA. The used oil provisions require used oil to be stored in structurally sound containers labeled with the words "used oil only" and ultimately recycled or burned for heat. Fluids disposed of or spilled in floor drains or surface drains or otherwise released from the facility property are regulated under the NPDES, pretreatment, or storm water provisions of the CWA. These provisions require notifying EPA, the state, or a local treatment plant, complying with permit provisions, and preventing untreated fluids from reaching surface waters. Fluids stored in underground tanks are regulated under the UST provisions of RCRA, which require that the tanks maintain spill prevention and leak detection devices and be made of specified structurally sound materials.

3.10.1.2 Washing Vehicle Parts

Washing vehicle parts consists of immersing the small parts, such as nuts, bolts, or carburetor pieces, into a solvent bath of chemical or water-based solvent or spraying them with a chemical or citrus-based solvent. Washing vehicle parts also may include spraying shop rags with solvent and rubbing the solvent on the part to clean it. Chemical solvent washers often consist of a metal sink attached to a 20-gallon drum of solvent. When the solvent is no longer usable, the drum is replaced. Water-based solvent washers consist of an enclosed bath with high pressure sprayers. The use of chemical solvent washers is regulated under the cold solvent bath section of the CAA, which requires sink lids to be kept closed and specifies additional practices to minimize the release of hazardous air pollutants. The disposal and recycling of used chemical solvent are regulated under RCRA, which specifies disposal methods. The disposal of wastewater from water-based solvent washers may be regulated under the pretreatment program or NPDES programs of the CWA. The disposal of solvent-contaminated rags may be regulated under RCRA.

3.10.1.3 Maintaining Vehicle Batteries

Maintaining vehicle batteries includes testing, changing, storing, and disposing of new and used vehicle batteries. The storage of batteries may be regulated under the NPDES storm water provisions of the CWA, which require that batteries be contained and covered to prevent potential leaks from coming in contact with storm water. Disposal of batteries may be regulated under RCRA, which requires that batteries either be returned to a supplier or recycler or meet stringent disposal requirements.

3.10.1.4 Repairing Air Conditioners

Repairing vehicle air conditioners includes adding, removing, and recycling CFC refrigerants, as well as performing general maintenance on vehicle air conditioners. These activities are regulated under the CAA, which is designed to prevent ozone depletion by requiring the capture and recovery of used refrigerants, the use of certified recycling equipment, and the training and certification of all operators.

3.10.1.5 Washing Vehicles and Shop Floors

Washing vehicles and shop floors includes spraying water and detergent on vehicles and floors and discharging the washwater through a drain to a septic tank, POTW, or waterway. Some facilities may dump used washwater on the ground outside of the facility. Washing vehicles and shop floors may be regulated under the pretreatment program or NPDES program of the CWA. These sections may require the facility to obtain permits, install oil and water separators, or comply with other provisions designed to prevent contaminated wastewater from reaching the environment.

3.10.1.6 Repairing or Replacing Exhaust Systems

Repairing or replacing exhaust systems consists of repairing or replacing catalytic converters. Any work that affects vehicle emissions is regulated under the CAA, which requires that records be kept of all converter repair and replacement, and specifies procedures for ensuring that removed converters are properly replaced.

3.10.1.7 Painting Vehicles

Vehicle painting includes overall body painting, touch up, paint and thinner mixing, and unusable paint and thinner disposal. Vehicle painting often is conducted in an enclosed room or booth that has positive pressure ventilation to ensure that paint fumes leave the room, rather than being inhaled by the painter. To minimize air pollution, air filters are placed in the vents and changed regularly. Vehicle painting also includes changing and disposing of these filters. If significant quantities of paints containing hazardous materials are used or if the local government is located in a designated geographic area, air emissions from painting operations may be regulated under the CAA, which may specify the type of ventilation system and the frequency for changing the filters. The disposal of air filters used to filter emissions from paints containing hazardous materials, disposal of many unusable paints, and disposal of spent thinners is regulated under RCRA. Preparing a vehicle for painting (e.g., stripping, sanding) may also be regulated under RCRA because such activities may result in a hazardous waste.

3.10.1.8 Storing Materials Outside

Due to space and safety concerns, many vehicle repair shops store drums of used and new fluids, hazardous materials, batteries, vehicle parts, or other wastes outside of the shop. The storage of any materials that could reach waterways through spills or storm water runoff are regulated under the NPDES direct discharge or storm water discharge provisions of the CWA, which require that the facility prevent these materials from coming in contact with storm water.

3.10.2 Fueling Stations

Local governments operate and maintain vehicle fueling stations to provide fuel to their vehicles. Because these activities could affect the environment, they are regulated under environmental laws and regulations, as indicated below.

- Fuel storage—CWA and RCRA
- Fuel dispensing—CAA
- Disposal of spilled unusable fuel—RCRA

3.10.2.1 Fuel Storage

Vehicle fuels, including gasoline, kerosene, and diesel fuel, are stored in underground or aboveground storage tanks that are connected by piping to the fuel dispensing unit. The

operation and maintenance of these tanks may be regulated under the SPCC section of the CWA which requires development and implementation of spill prevention plans and secondary containment for aboveground tanks and/or under the UST section of RCRA, which specifies structural, monitoring, and leak detection requirements for underground tanks.

3.10.2.2 Fuel Dispensing

Fuel dispensing units used at local government facilities are similar or identical to those used at retail service stations and could emit organic vapors to the atmosphere. In some areas, dispensing is regulated under the CAA which may require the dispensing units to have vapor recovery systems at the point of fueling and at the location where the aboveground or underground fuel storage tanks are filled. In addition, fuel dispensing units are required to dispense fuel at a prescribed gallons per minute rate to prevent spills.

3.10.2.3 Disposal of Unusable Fuel

In the course of fueling or fuel loading operations, fuel may be spilled. Fuel that cannot be dispensed into a vehicle for use must be disposed. The disposal of this fuel may be regulated under RCRA, which sets requirements for handling, storage, and ultimate disposal of hazardous wastes. A repair shop may be required to report any spill to local authorities.

3.10.3 Purchasing

Purchasing includes the acquisition of vehicles, equipment, and materials. The only purchasing activity that is regulated directly by environmental laws is the purchasing of clean fuel vehicles for local governments with large vehicle fleets, which is regulated under the CAA. Local governments that purchase new vehicles for certain size fleets are required to purchase a specified certain percentage of clean fuel vehicles each year that vehicles are purchased. Other purchasing decisions, such as the purchase of hazardous or water-based solvent, can directly impact whether the fleet operations are subject to additional environmental requirements.

3.10.4 Pollution Prevention in Vehicle/Equipment Maintenance

Pollution prevention opportunities abound in vehicle and equipment maintenance. Usually, three factors contribute to the level of success of a pollution prevention plan. The first factor involves auditing current procedures, researching pollution prevention opportunities, and committing to make appropriate and beneficial changes. This step requires researching alternative products and

funding equipment purchases. The second factor is funding. Generally, present funding can be reappropriated in a phased plan to purchase new equipment, products, and/or contract services. The third factor deals with the regulatory requirements and contract services available based on the facility's location. Some facilities base their decisions for a pollution prevention plan on the regulatory requirements contained in RCRA, OSHA, and/or local regulations. Pollution prevention technology implemented under this approach will enhance the safety of workers, improve regulatory compliance, and may lower the operating costs of the facility. There are many options for pollution prevention depending on the waste stream's characteristics and regulatory requirements. Some of the best ideas for pollution prevention can come from mechanics who peform the tasks every day, but changing old habits is the key to pollution prevention success. The most important item to remember is that pollution prevention can play an important role in any plan as long as appropriate research and planning are performed. The remainder of this section highlights pollution prevention options by waste stream.

3.10.4.1 Typical Wastes Generated

- Cleaning solvents
- Anti-freeze/coolant
- Used/soiled shop rags
- Unrecovered Freon from air conditioners
- Oil/lubricants
- Scrap metal

3.10.4.2 Parts Cleaning Systems

There are many different types of parts cleaning systems. Some utilize a pump to circulate cleaning solvent/solutions. These machines can be managed by the facility or contracted to a service that maintains the system and hauls away any generated wastes. The type of system and the solvent/solution (e.g., organic based, aqueous, citrus based) used in the system will determine the applicable regulatory management requirements and pollution prevention opportunities. Some systems have a distiller to clean the solvent and a reservoir tank to hold the waste that is "cooked" out, while others utilize filters to extract impurities. Protecting the integrity of the cleaning solvent/solution in order to extend its life and reduce disposal quantities is pollution prevention. For example, by managing your own system that utilizes filters, you can change the filters based on the system's use before they reach a regulated threshold and not because of a pre-set contracted service. Also, there are aqueous, semi-aqueous, and citrus-based systems that offer unique opportunities for pollution prevention. With any of these types of systems, it is

important not to introduce any non-compatible solvents/solutions into them that would cause them to become regulated hazardous waste.

Some Factors to Consider in a Filtered System

- Utilizes non-chlorinated solvents in the system.
- Has a high flash point solvent of more than 143 degrees.
- Can meet all regulatory requirements regarding disposal of filters.
- Has a closing lid for when the system is not being used to reduce evaporation and air emissions.
- Meets OSHA safety requirements.

Some Factors for Aqueous Solution Systems

- The system cleans to the standard required for the part to function properly.
- There will be minimal regulatory restrictions if disposal of the solution is required.
- A balance can be maintained for the bioremediation in the system to work properly.

Key Tips

Maintain the solution/solvent integrity to extend its life and increase frequency of filter replacement to reduce disposal costs of solvent/solution. Let the part sit in the wash basin and drip dry to reduce solvent "drag out" loss. Choosing aqueous systems may reduce regulatory requirements all together.

3.10.4.3 Pressurized/Aerosol Cleaners

Chlorinated solvents/solutions should not be used in any application to clean parts. Avoid using any aerosol cleaning products that are not RCRA approved. The use of these types of solvents/solutions can cross contaminate fluids and make them regulated under RCRA and increase OSHA requirements. Solvent/solutions purchased in bulk and applied with self-pressurizing applicators will reduce the use of the product and waste containers. Pre-cleaning with a putty knife and wire brush and utilizing recyclable shop rags will also reduce disposal cost and excess use of solvents/solutions. Verify compatibility of the solvent/solution with the parts washer's solvent/solution. Aqueous solutions may be the best option when utilized properly. There are pre-cleaning solvents/solutions that can affect the parts washing tank if, after use,

further cleaning of a part is required in that system. Eliminate overuse and set standards on the amount of cleaning required for the particular part to function properly.

Some Factors to Consider in a Self-pressurizing System

- Use of non-chlorinated solvents.
- Solvent/solution is compatible with the parts washer.
- Solvent/solution content affect on RCRA/OSHA regulatory requirements.
- Does the manufacturer/supplier offer system product support and/or training?

Key Tips. Utilizing a scraping device and/or wire brush, recyclable shop towels, and a non-regulated RCRA solvent/solution will reduce usage and hazardous waste regulatory requirements. Solvents/solutions with low VOC and low toxic contents produce less emissions that are harmful to the employee.

3.10.4.4 Anti-freeze/Coolant

Using manufacturer-specified antifreeze/coolant is required to maintain warranties and extend the life of the vehicle/equipment. Antifreeze/coolant can be recycled in various ways, to manufacture specifications and for reuse on site. The facility should verify that the vehicle/equipment warranty will be honored if this reused antifreeze/coolant is utilized. One method to recondition used antifreeze/coolant is to utilize a mobile service to perform onsite recycling at your facility. Verify that the service is licensed and has a neutral third party laboratory's test results to demonstrate the system works, and the service guarantees the system's product. Another approach is to purchase your own on-site recycling machine. This allows full management of the system's use and the quality of the product it produces. Either one of these will reduce new product purchases and associated RCRA disposal costs, as well as ensure a readily available product.

Some Factors to Consider in Choosing the Best Method for the Facility

- Verify warranty coverage of the vehicle/equipment for the system/service chosen.
- Verify disposal approval for filters generated from the recycling system.
- See if bulk containers for used/recycled anti-freeze are available and proper storage can be achieved.

Key Tip. Whatever method is chosen, make sure testing and warranties of the system's product is backed, and the manufacturer of the vehicle/equipment allows for the use of the reconditioned anti-freeze/coolant.

3.10.4.5 Shop Rags

Do not use disposable shop rags. Contract with a service to provide reusable rags for the facility as needed. Provide mechanics with a certain amount to perform the job. Require them to bring back and exchange used rags for new rags. Verify that the service selected has an approved method and facility for recycling the rags. The only exception to utilizing a service is if the facility's nonregulated waste is disposed of at a waste-to-energy plant that can incinerate waste rags. Remember, never use chlorinated solvents regardless of the recycling/disposal method.

Some Factors to Look for in Selecting a Service

- A regulatory approved method for the facility where the rags will be recycled.
- Will set a pick-up schedule for the used rags as required by your facility.
- Offers different rag selection based on the use for the facility.

Key Tip. Use as few rags as possible and always utilize a service to recycle rags at an approved facility.

3.10.4.6 Air Conditioning

There are several manufacturers that have different machines that will recover Freon from a system for off-site recycling. Other machines recover and recycle the Freon and then place the recycled Freon back into the repaired unit. These types of machines reduce new Freon purchases and disposal costs associated with the management requirements of the waste stream. If the repair of air conditioners is performed offsite, verify their practice for handling generated waste.

Some Factors to Look for in Selecting a Machine

- Is regulatory approved and registered.
- Is backed by third party test results verifying efficiency.
- Has factory warranty and supplier training.

3.10.4.7 Lubricating Oils

There are several types of lubricating oils in the various types of vehicles/equipment in use today. Changing these oils should be performed as determined by the use and not specific timed dates. If the vehicle/equipment is underutilized and/or is only needed for a specific task, changing the oils by a timed date is a waste of resources. Synthetic oils generally have a longer span of time for use before a change is required. When choosing the correct lubricant, verify warranty approval and track the miles/hours of use of the product in the vehicle/equipment. Check various options of disposal to see if refining of the waste oils is available over fuel blending for incineration. Keep non-compatible oils separate from one another to reduce possible cross contamination and increased disposal cost.

3.10.4.8 Metal Recycling

Most parts replaced are made of metal. Some metal parts must be exchanged for the new part when purchased. Many parts can be recycled, while saving the facility disposal costs. Lead tire weights, broken engine brackets, nuts and bolts, and body parts are just a few that have value for recycling. Set up places to store the recyclable metal, preferably out of the weather, and contract with a scrap dealer to pickup what is recycled at the facility on an as needed basis. Some scrap dealers will supply the container to the facility for the storage of the metal to be recycled. The scrap dealer may require separation of the different metal types.

3.10.4.9 Conclusion

Pollution prevention will have a positive effect on procedures/processes and regulated waste generated at the facility when the pollution prevention concept is initiated. When product use is decreased and/or eliminated, manufacturing, transporting, and handling are all affected. This decreases the need for energy and raw materials. Although the facility may not benefit entirely from this occurrence, the entire scope of pollution prevention for the industry does. Changing procedures and incorporating new technology to reduce or eliminate waste are true pollution prevention tactics and must be encouraged from top management to every employee. The key to incorporating a successful pollution prevention plan is to utilize current funds and available resources to implement the changes required in the plan. Inventory control, product research, operational procedures, and regulatory compliance requirements all must be evaluated before implementation occurs. Evaluate and document current product uses and procedures to verify the extent of the pollution prevention plan's success at the facility.

3.10.5 Success Story

The purpose of this case study was to evaluate and eliminate violations and the potential to violate RCRA at Lee County's Fleet Management Facility, to reduce associated liabilities regarding the facility's employees' health and safety, to implement and utilize BMPs, pollution prevention technologies and preferable purchasing techniques, where possible, and to perform research and institute recycling procedural requirements, where profitable.

The Fleet Management Facility maintains over 1,600 pieces of equipment from lawn mowers to heavy equipment utilized by various departments in Lee County. Several violations of RCRA were discovered in 1992 and Lee County was required by the Board of County Commissioners to fix the situation so violations did not occur again. A corrective plan was the first task, and later another operations plan was written to include pollution prevention, BMPs, and Reduce, Reuse, and Recycle (R3). The later plan initiated a three-year phased process that covered product substitution and/or elimination, equipment/chemical purchasing requirements, and employee training.

Some of the equipment purchased by Lee County to promote pollution prevention, BMPs, and R3 included:

- Parts washer with a multi-staged filter system that used a cleaner degreaser. Using this system allowed for the total elimination of hazardous waste that was being generated and then shipped off-site for disposal.

- Anti-freeze recycler used to filter impurities from used anti-freeze before chemically balanced to manufacturer specifications. This closed loop approach is the only way to ensure compliance is achieved and product integrity. As long as filters are changed appropriately, they do not accumulate regulated heavy metal amounts. Also, performing on-site recycling of the anti-freeze saved money required for new product purchases, testing to determine if it was a hazardous waste, and transportation/disposal.

- Air conditioning reclaimer/recycler, which cut the cost of freon purchases by 82 percent, with zero waste to dispose.

- Self-pressurizing solvent sprayer. In conjunction with recyclable rag service, there is no regulated hazardous waste. Also, changing to manual pressurizing dispensers eliminated use of chlorinated solvents.

The cost of hazardous waste disposal was reduced 100 percent for savings of $16,800 per year for an average year's cost. This includes solvent disposal contracts, anti-freeze disposal, and freon disposal. Recycling of fluids such as anti-freeze, used oil, parts cleaning solvent, and freon also reduced the facility's liability and saved in new product purchases. For more information, contact Dale Nottingham (see below).

References

Local, State, and National Vehicle Trade Associations

National Pollution Prevention Roundtable

State Pollution Prevention Roundtables

National Association of Counties

EPA Website

For more information, contact Dale L. Nottingham - Lee County Small Quantity Generator Program, 1500 Monroe Street, Fort Myers, FL 33901, Phone: (941) 479-8126, e-mail: nottindl@bocc.co.lee.fl.us.

3.11 LOCAL GOVERNMENT REGULATORY PROGRAMS

The preceding sections of this chapter present activities conducted by local governments in which the local government is the regulatee, (i.e., the one being regulated). There are some environmental programs at the local level, however, in which the local government is the regulator, (i.e., the one implementing and enforcing the program). This section discusses three distinct environmental programs in which the local government is the regulator.

It should be noted that in addition to the three programs discussed in this section any local government is also responsible for environmental programs and initiatives that may affect their populations. In their daily operations, for example, local governments must consider and address several high-profile EPA programs, including environmental justice, Brownfields, and the reduction of the exposure of children to lead-based paint or asbestos. Some of these programs, such as lead-based paint and asbestos, do have regulatory recourse on which the local government can rely. Others, however, do not have an explicit statutory basis and, as such, must

be developed and implemented by a local government through policies or standard operating procedures.

3.11.1 Pretreatment Program

Local governments are responsible for ensuring compliance with pretreatment program requirements. The national pretreatment program (CWA Section 307(b)) controls the indirect discharge of pollutants to POTWs by "industrial users." The goals of the pretreatment program are to protect municipal wastewater collection and treatment systems from adverse impacts resulting from the discharge of pollutants into the sewage system, prevent the pass through of pollutants to receiving waters, and protect the quality of the sludge.

EPA established the National Pretreatment Program and shares responsibilities for its implementation among the federal government, states, and local governments:

- EPA and the states are responsible for reviewing, approving, and overseeing local pretreatment programs and regulating discharges to POTWs that do not have local programs.

- Local governments are responsible for developing, implementing, and enforcing their local programs.

As part of their responsibilities, local governments conduct a variety of activities within the confines of the pretreatment program, including the following:

- Identifying industrial users that need to be regulated
- Reviewing permit applications from industrial users
- Drafting/writing permits
- Conducting sampling and inspections
- Evaluating the status of industrial user compliance (e.g., reviewing reports)
- Taking enforcement actions, as warranted.

Any POTW with a design flow of more than 5 million gallons per day is required to develop a pretreatment program. In addition, any POTW with a design flow of less than 5 million gallons per day may be required to develop a program if a potential exists for nondomestic wastes to cause POTW upsets, sludge contamination, violations of NPDES permit conditions, or exposure

of workers to hazardous chemicals or if their industrial users are subject to national pretreatment standards.

3.11.2 Air Pollution Control

Local governments are responsible for ensuring compliance with air program requirements to reduce the environmental impacts from other entities. Local governments usually are responsible for the following activities:

- Monitoring, including operating and overseeing maintenance of sampling stations
- Permitting, including issuing draft Title V permits, construction permits, and source registrations
- Conducting compliance and enforcement activities.

Local government responsibilities pertain primarily to stationary sources; states maintain control over mobile sources (e.g., vehicle inspections).

Local agencies conduct ambient air quality monitoring, which consists of collecting air samples to evaluate compliance with and/or progress toward meeting ambient air quality standards. Air quality monitoring programs are implemented by using state and local air monitoring stations (SLAMS) and/or special purpose monitoring stations (SPMS) to measure the criteria pollutants. Criteria pollutants are those that have documented effects on public health and the environment (e.g., carbon monoxide, lead, nitrogen dioxide, ozone, particulate matter, and sulfur dioxide.) Some states also monitor fine particulate matter.

In addition, local governments are responsible for issuing permits, primarily Title V and construction permits, and for overseeing facility compliance with the permits. A Title V permit is an operating permit required for individual facilities under Title V of the CAA. The Title V permit brings together all federal, state, and city air pollution control requirements for a given facility into one permit. This permit includes information on the types of pollutants being released, permissible emission levels, and methods for reducing or eliminating pollution, including plans for monitoring and reporting emissions. Construction permits indicate that construction-related equipment and facilities meet all applicable air quality standards or requirements. Permits for new or modified facilities must be obtained before construction starts.

3.11.3 Land Use Planning/Zoning

At the local government level, urban planning and community and rural development involve planning, administering, and researching the development of urban and rural areas. In general, land use management involves making decisions regarding how a particular site will be used. Once land is zoned or used for one purpose, it cannot be used for another purpose.

Along these lines, EPA has launched a national effort (campaign) to restore "Brownfields" (i.e., abandoned or under-utilized industrial and commercial sites that are environmentally contaminated from previous use). In many situations, restoration or remediation of these areas would contribute to the economic revitalization of an area or community.

Effective and comprehensive land use planning requires coordination by federal, state, and local experts. Federal and state objectives that reflect the needs and conditions of county and municipal governments are appropriate, because land use management typically occurs at the local level. State and federal governments often grant local governments the necessary authority to implement national and state land use requirements, as well as review land use plans, in a manner appropriate to individual communities.

Land use planning and zoning activities do not themselves cause environmental effects. The results of these activities -- the actual land use -- pose environmental impacts. Land use determines whether natural resources are conserved or depleted. Land set aside for open space or parks obviously will conserve the resource and cause less severe environmental impacts than land zoned for industrial purposes. Land set aside for open space, however, is at risk for later development. Land used for residential, commercial, or industrial purposes can affect air, land, and water resources. On the other hand, abandoned sites that are restored can revitalize an area and reduce environmental risks as the site is remediated.

3.11.4 Pollution Prevention in Air Pollution Programs and Pretreatment Programs

Both of these regulatory programs often exist at the local government level and provide many important functions. As a result, these programs interact with many different types of businesses and industries and, therefore, have a tremendous opportunity to encourage pollution prevention and waste reduction at these sources. It will be at the discretion of each individual program where it wants to focus its efforts; however, there are common aspects of these regulatory programs that offer the opportunity for integration of pollution prevention. In addition to working with prevalent industries in the region, programs can also target sources of emissions or

discharges, which lead to problems specific to that region, such as ozone or specific treatment plant upsets. Although the priorities of these programs are often in the areas of permits, inspections, compliance and enforcement, it is important to remember that these programs also have a responsibility to educate the regulated community. By educating pollution sources on the benefits of, and opportunities for, waste reduction and pollution prevention, a program can more effectively and efficiently accomplish its mission of environmental protection. The following section lists some examples of opportunities to incorporate pollution prevention into existing regulatory programs.

3.11.4.1 Top Pollution Prevention Strategies

The following list highlights selected pollution prevention strategies associated with air pollution and pretreatment programs:

- Incorporate pollution prevention into the permitting process. Examples of opportunities include:
  - Providing recommendations for pollution prevention and waste minimization during permit applications for new facilities
  - Including pollution prevention work standards, practices, or conditions in permits
  - Requiring formal pollution prevention/waste minimization plans from facilities as part of their operating permits
  - Providing a definition of pollution prevention and information on available services, assistance, and benefits in permit renewal letters.
- Train engineers and inspectors on pollution prevention technologies and opportunities and have them include information and technical assistance during inspections, as well as in the permit and plan review and approval stages.
- Provide compliance assistance and pollution prevention information through descriptive brochures, BMPs, and implementation documents associated with regulatory standards. These can be provided with permits, distributed by inspectors, or handed out at workshops or training events.

- Provide various incentives such as relaxing inspection periods or reducing permit fees for sources that implement pollution prevention practices.

- Utilize surcharge and impact fees to encourage water re-use, conservation, and pollutant reduction. These fees can be scaled and should be based on the quantities and the concentrations of pollutants discharged to avoid dilution.

- Utilize national events, such as Clean Air Month, Earth Day, and National Pollution Prevention Week, to publicize pollution prevention initiatives and target local issues, such as high ozone levels and acid rain. This is a good opportunity to educate local sources on EPA initiatives, including Climate Wise and Energy Star.

- Incorporate implementation of pollution prevention projects into enforcement and settlement agreements. If a program is willing to offset a portion of the fines for facilities that agree to implement pollution prevention projects, they provide a much greater incentive for facilities to utilize this option.

- Get involved with other national and international organizations, such as the State & Territorial Air Pollution Program Administrators and Association of Local Air Pollution Control Officials (STAPPA/ALAPCO), Association of Metropolitan Sewerage Agencies, and the National Pollution Prevention Roundtable.

3.11.4.2 Case Study

In February 1993, the U.S. EPA promulgated, in Final Rule, the Standards for the Use and Disposal of Sewage Sludge (40 CFR 503). In response to this, the Metropolitan Water Reclamation District of Greater Chicago (the District) initiated a comprehensive plan, the 503 Enforcement Initiative (503EI), to achieve two primary objectives: (1) to "substantially reduce the discharge of metals of concern from the regulated industrial community," and (2) ensure "that the District's Water Reclamation Plants produce high quality sludge, which maximizes the District's opportunities for beneficial reuse." The main components of the 503EI included "(a) optimization of the District's existing Pretreatment Program, (b) increased monitoring of industrial point source discharges into its sewerage system, and (c) innovative pollution prevention assistance to the industrial community."

In cooperation with several local and regional agencies, the District began providing pollution prevention training, outreach, and technical assistance to local businesses and also developed a

public recognition program for businesses successful in implementing pollution prevention measures. In addition, the District cooperated with local industry stakeholders to develop a cost recovery system for the Pretreatment Program, to help cover the additional costs incurred by the Program for the 503EI. This system "brought direct financial liability to industrial users who are regulated for the discharge of these metals" and created a further incentive for these users to reduce their discharges. The District has found that by linking compliance performance to financial liability, Pretreatment Program administrative costs are more equitably distributed amongst the industrial users and "in conjunction with pollution prevention assistance programs, offer greater leverage to influence SIU (Significant Industrial User) behavior at lesser cost to Control Authorities and the industrial community." Overall, this program resulted in a more than 33% reduction in heavy metal discharges to the sewerage system between the years of 1992 and 1996, and it is an illustrative example of the benefits of incorporating pollution prevention into existing regulatory programs.

(Source: Richard Sustich et al., "Chicago's 503 Enforcement Initiative: A Great Industrial Clean-Up Experience," Metropolitan Water Reclamation District of Greater Chicago, presented at the Water Environment Federation Technical Expo and Conference, Chicago, Illinois, October 1997.)

For more information, contact Mr. Richard Sustich at the Metropolitan Water Reclamation District of Greater Chicago, (312) 751-3050.

3.11.5 Pollution Prevention in Land Use Planning & Zoning and Brownfield Redevelopment

Although the connections may not be immediately evident, poor planning and zoning decisions can lead to environmental impacts, particularly through environmentally irresponsible development patterns. The country's development patterns of low density single family housing, separation of uses, dependence on the automobile, loss of habitat and greenfields, and urban sprawl have greatly contributed to overall environmental degradation. This can be counteracted by promoting construction to optimize energy efficiency, infill development, Brownfield redevelopment, mixed land use, and pedestrian and transit-oriented development (TOD). These smart growth initiatives can benefit a community economically, financially, and socially through improved environmental quality and improved quality of life. If planning, zoning, and development are done carefully and with foresight, energy, water and other resources can be conserved, aquifers and watersheds can be protected, neighborhoods can become more self-sufficient, vehicle miles traveled (VMTs) can be reduced (as well as the pollution associated with

vehicles), money and other resources can be conserved through avoidance of the need for additional infrastructure, declining areas can be revitalized, and overall environmental quality can be improved both locally and regionally. Therefore, it is important to consider many factors at the planning and zoning stage, including current and potential future uses of the land, existing infrastructure in the area, potential impacts to nearby watersheds and aquifers (please refer to Section 3.8 of this profile for more information), and the accessibility to, and feasibility of, residents and employees using alternative means of transportation, such as mass transit, biking, or walking. There are several areas associated with planning and zoning operations which offer excellent opportunities to implement innovative ideas and projects to help prevent pollution and support smart growth.

3.11.5.1 Top Pollution Prevention Strategies

The following list highlights pollution prevention strategies associated with planning and zoning operations:

- Establish steering committees with representatives from various departments involved in the planning and zoning process to research the feasibility and encourage the implementation of smart growth initiatives. For example, an Infill Task Force can be established to research and address the existing barriers to smart growth and to develop an infill strategy for the community.

- Establish policies identifying areas for environmental resource preservation or conservation and establish rules to protect such areas from incompatible land uses and management practices. Examples may include:

  - Incorporate watershed management plans into Comprehensive Development Master Plans

  - Establish protective zones around aquifers and other drinking water sources to limit certain land uses and operations

  - Restrict certain land uses and operations in those areas served only by septic tanks

  - Minimize impervious surfaces in a development through compact design and reduction of road width and parking lot size (to reduce storm water run-off)

- Locate watershed development with an eye for preserving the natural land near lakes, rivers, and streams.

C Create an urban design manual for developers to educate them on smart growth concepts and opportunities for incorporation into their plans and projects.

C Establish incentives for developers who incorporate smart growth initiatives into their plans and projects. These incentives could include expedited approval processes, decreased permit fees, decreased impact fees, and priority in the provision of services, facilities, and allocation of financial resources.

C Modify economic incentive packages for Brownfield developers based on how closely they follow recommendations for pollution prevention implementation. For example, increase the economic package if they are willing to implement more pollution prevention initiatives.

C Establish policies requiring BMPs for particular land uses and activities to achieve pollution reduction goals.

C Incorporate pollution prevention language into local Brownfield codes and ordinances.

C Provide education opportunities (workshops, booklets, pamphlets, etc.) to encourage smart growth initiatives and implementation of pollution prevention and BMPs. This may include:

- Education of financial institutions on the benefits to them of providing loans for pollution prevention projects and equipment.

- Education of target Brownfield communities on the benefits of the developer and future business utilizing pollution prevention. Since it is added insurance that the property will not become contaminated again this may help win the community's approval for location of a new facility in a Brownfield area.

- Education of residents and businesses located in areas served by septic tanks on the operation and proper maintenance of these systems to prevent ground and groundwater contamination.

- Review and amend zoning subdivision regulations and other regulations to encourage TOD principles. This may include maximizing the use of existing urbanized areas accessible to transit through infill and redevelopment, reinforcing transit through land use planning, or reducing VMTs by creating opportunities to walk, bike, and use mass transit.

3.11.5.2 Case Study

Since the 1970s the City of San Jose, California, has been committed to growth management and sustainability and has been establishing initiatives and policies to promote smart growth. This commitment came in response to tremendous growth and urban sprawl in the 1950s and 1960s, when the city discovered that the revenue generated by urban development on the City's fringe was insufficient to cover the costs of providing the infrastructure and services to this area. The City realized that it must take action to prevent this trend from continuing and began approving numerous initiatives within their General Plan in order to ensure a sustainable and profitable future for the area. With policies such as the Sustainable City Major Strategy, the Greenline/Urban Growth Boundary, and the Intensification Corridors Special Strategy, the City has been implementing smart growth development in a variety of ways. Some of these include directing urban development to infill sites which are already provided with urban infrastructure and services, promoting high density housing and supportive mixed uses in close proximity to public transit corridors, and enacting building and site design policies to improve energy and water use efficiency.

Overall, the City's goal is to "ensure that urban development in San Jose is designed and built in a form that enhances the City's ability to provide adequate levels of urban services and ensuring the efficient use of existing infrastructure and services while protecting the natural environment to the maximum extent feasible." Through proactive planning and building, the City is helping to ensure smart growth today while providing adequate resources for future generations.

(Source: International Council for Local Environmental Initiatives (ICLEI), U.S. Office, Cities for Climate Protection Campaign Case Studies, San Jose, California Growth Management Plan)

Portland, Oregon is another city which has implemented a very proactive smart growth plan. For more information on San Jose, California or Portland, Oregon contact the ICLEI, U.S. Office, Cities for Climate Protection Campaign, at (510) 540-8843.

Resources

AMSA: (202) 833-2672; *http://www.amsa-cleanwater.org*

Clean Air Technology Center (CATC): (919) 541-0800; *http://www.epa.gov/ttn/catcCenter*

Center for Technology Transfer and Pollution Prevention (CT2P2): *http://ingis.acn.purdue.edu:9999/cttpp/cttpp.html*

Energy Star Buildings/Green Lights: (202) 233-9178; *http://www.epa.gov/appdstar/buildings/* and *http://www.epa.gov/greenlights.html*

Florida Sustainable Communities Center: *http://sustainable.state.fl.us*

International Council for Local Environmental Initiatives (ICLEI), U.S. Office, Cities for Climate Protection Campaign: (510) 540-8843; *http://www.iclei.org*

National Pollution Prevention Roundtable: (202) 466-7272; *http://www.p2.org*

$mart Growth Network: (202) 260-2750; *http://www.smartgrowth.org*

STAPPA/ALAPCO: (202) 624-7863; *http://www.4cleanair.org*

U.S. EPA Design for the Environment (DfE): (202) 260-1678; *http://www.epa.gov/dfe*

For more information, contact Nichole Hefty, Dade County DERM, Florida; Phone: (305) 372-6825; Fax: (305) 372-6760; E-mail: heftyn@co.miami-dade.fl.us.

4. SUMMARY OF APPLICABLE FEDERAL STATUTES AND REGULATIONS

This chapter discusses the federal regulations that may apply to local governments. The purpose of this chapter is to highlight and briefly describe the applicable federal requirements and to provide citations for more detailed information. The descriptions within this chapter are intended solely for general information. Depending on the nature or scope of the local government activities, these summaries may or may not necessarily describe all applicable environmental requirements. Moreover, they do not constitute formal interpretations or clarifications of the statutes and regulations. This chapter also discusses proposed regulations that may affect local governments.

As a supplement to this chapter, Appendix D presents a detailed matrix of local government activities organized by the operations presented in Chapter 3. For each activity, the matrix identifies the federal environmental statutes that may regulate that specific activity. Local governments can use the matrix as a quick reference to determine which statutory programs may regulate specific activities.

4.1 CLEAN AIR ACT

The Clean Air Act (CAA) and its amendments, including the Clean Air Act Amendments (CAAA) of 1990, are designed to "protect and enhance the nation's air resources so as to promote the public health and welfare and the productive capacity of the population." The CAA consists of six sections, known as Titles, which direct EPA to establish national standards for ambient air quality and for EPA and the states to implement, maintain, and enforce these standards through a variety of mechanisms. Under the CAAA, many facilities will be required to obtain permits for the first time. State and local governments oversee, manage, and enforce many of the requirements of the CAAA. CAA regulations appear at 40 CFR Parts 50-99.

- **National Ambient Air Quality Standards.** Pursuant to Title I of the CAA, EPA has established national ambient air quality standards (NAAQSs) to limit levels of "criteria pollutants," including carbon monoxide, lead, nitrogen dioxide, particulate matter, ozone, and sulfur dioxide. Geographic areas that meet NAAQSs for a given pollutant are classified as attainment areas; those that do not meet NAAQSs are classified as non-attainment areas. Under Section 110 of the CAA, each State must develop a State Implementation Plan to

identify sources of air pollution and to determine what reductions are required to meet federal air quality standards.

- **New Source Performance Standards.** Title I also authorizes EPA to establish New Source Performance Standards (NSPSs), which are nationally uniform emission standards for new stationary sources falling within particular industrial categories. NSPSs are based on the pollution control technology available to that category of industrial source. New municipal waste combustors or sewage sludge incinerators may be subject to these standards.

- **National Emission Standards for Hazardous Air Pollutants.** Under Title I, EPA establishes and enforces National Emission Standards for Hazardous Air Pollutants (NESHAPs), which are nationally uniform standards oriented toward controlling particular hazardous air pollutants (HAPs). Title I, Section 112(c) of the CAA further directed EPA to develop a list of sources that emit any of 189 HAPs and to develop regulations for these categories of sources. To date, EPA has listed 174 categories and developed a schedule for the establishment of emission standards. The emission standards will be developed for both new and existing sources based on "maximum achievable control technology" (MACT). MACT is defined as the control technology achieving the maximum degree of reduction of HAP emissions, taking into account cost and other factors. Unless a local government operates a treatment, storage, and disposal facility or stores significant quantities of organic chemicals, it is not likely to be subject to the NESHAP requirements.

- **Mobile Sources.** Title II of the CAA pertains to mobile sources, such as cars, trucks, buses, and planes. EPA uses reformulated gasoline, automobile pollution control devices, and vapor recovery nozzles on gas pumps, among other mechanisms, to regulate mobile air emission sources. Local governments may be subject to these standards if they operate vehicles or large fleets of vehicles or if they conduct fueling operations.

C **Sulfur Dioxide/Nitrous Oxide Emissions.** Title IV of the CAA establishes a sulfur dioxide/nitrous oxide emissions program designed to reduce the formation of acid rain. Sulfur dioxide releases will be reduced by granting to certain sources limited emissions allowances, which are below previous levels of sulfur dioxide releases. Local governments that operate municipal waste combustors, sewage sludge incinerators, or large boilers/generators may be subject to these requirements.

C **Major Source Permit Program.** Title V of the CAAA of 1990 created a permit program for all "major sources" (and certain other sources) regulated under the CAA. One purpose of

the operating permit is to include in a single document all air emissions requirements that apply to a given facility. States are developing the permit programs in accordance with guidance and regulations from EPA. Once EPA approves a state program, that state will issue and monitor permits.

C **Stratospheric Ozone Protection.** Title VI of the CAA is intended to protect stratospheric ozone by phasing out the manufacture of ozone-depleting chemicals and restricting their use and distribution. The production of Class I substances, including 15 kinds of chlorofluorocarbons and chloroform, were phased out (except for essential uses) in 1996. Local governments that conduct vehicle or building air conditioner maintenance and repair are subject to these requirements.

- **Risk Management Planning.** Section 112(r) of the amended CAA mandates a new federal focus on the prevention of chemical accidents. The objective of Section 112(r) is to prevent serious chemical accidents that could affect public health and the environment. Under these requirements, industry is obligated to prevent accidents, operate safely, and manage hazardous chemicals in a safe and responsible way. Under the new CAA requirements, stationary sources (facilities) must identify and assess their chemical hazards and carry out certain activities designed to reduce the likelihood and severity of accidental chemical releases. Information summarizing these activities will be available to state and local governments, the public, and all other stakeholders. Using this information, citizens can work with industry to reduce risks to the community from chemical accidents.

  In the broadest sense, risk management planning relates to local emergency preparedness and response, to pollution prevention at facilities, and to worker safety. In a more focused sense, it forms one element of an integrated approach to safety and complements existing industry codes and standards. The risk management planning requirements build on the Occupational Safety and Health Administration's (OSHA) Process Safety Management Standard.

In general, large, urban local governments and governments near pristine areas, such as national parks and wilderness areas, will be subject to the most stringent CAA requirements. Appendix D contains a detailed matrix of activities and the specific statutes under which they are regulated.

The following proposed regulations under the CAA are currently in the development process:

- **New Source Performance Standard: Sewage Sludge Incinerators.** Section 129 of the CAAA requires the EPA Administrator to establish new source performance standards and

emission guidelines for new and existing solid waste incineration units, including units that incinerate municipal sewage sludge. The standards and guidelines are to specify numerical emission limitations for the following substances: particulate matter (total and fine), opacity (as appropriate), sulfur dioxide, hydrogen chloride, oxides of nitrogen, carbon monoxide, lead, cadmium, mercury, and dioxins and dibenzofurans. In addition, the standards and guidelines are to include requirements for emissions and parameter monitoring as well as provisions for operator training and certification. This final action is expected to be completed and published in May 2000.

- **National Emission Standards for Hazardous Air Pollutants: Publicly Owned Treatment Works.** Section 112 of the CAAA requires the EPA Administrator to regulate the emissions of HAPs from stationary sources by establishing national emission standards. The standards reflect the maximum degree of reduction in HAP emissions through application of a MACT. The proposed emission standards for Publicly Owned Treatment Works (POTWs) would require control for HAP emissions from each new or reconstructed POTW that is a major source of HAP. The standards would also require each existing and new POTW that treats specific industrial user waste streams from an individual user—for the purpose of allowing that industrial user to comply with another NESHAP—to meet the treatment and control requirements of the relevant NESHAP. EPA has specifically requested comments on pretreatment and wastewater collection systems to help determine the importance of their effect on HAP emissions from POTWs. The final rule is expected in May 1999.

4.2 CLEAN WATER ACT

The primary objective of the Federal Water Pollution Control Act, commonly referred to as the Clean Water Act (CWA), is to restore and maintain the chemical, physical, and biological integrity of the nation's surface waters. The CWA regulates "priority" pollutants, including various toxic pollutants; "conventional" pollutants, such as biochemical oxygen demand, total suspended solids, fecal coliform, oil and grease, and pH; and "non-conventional" pollutants, including any pollutant not identified as either conventional or priority.

- **NPDES Permits.** The CWA regulates both direct and indirect discharges. The National Pollutant Discharge Elimination System (NPDES) program (CWA Section 402) controls direct discharges into navigable waters. Direct discharges or "point source" discharges are from such sources as pipes and sewers. These include discharges of industrial and municipal wastewater, as well as storm water conveyed through a municipal separate storm water

system. NPDES permits, issued by either EPA or an authorized state (EPA has authorized 43 states and the U.S. Virgin Islands to administer the NPDES program), contain industry-specific, technology-based and/or water quality-based limits and establish pollutant monitoring requirements. Each municipal or industry facility that intends to discharge into the nation's waters must obtain a permit prior to initiating its discharge. A permit applicant must provide quantitative analytical data identifying the types of pollutants present in the facility's effluent. The permit then sets the conditions and effluent limitations on the facility discharges.

An NPDES permit may also include discharge limits based on federal or state water quality criteria or standards that were designed to protect designated uses of surface waters, such as supporting aquatic life or recreation. These standards, unlike the technological standards, generally do not take into account technological feasibility or costs. Water quality criteria and standards vary from state to state and from site to site, depending on the use classification of the receiving water body. Most states follow EPA guidelines, which propose aquatic life and human health criteria for many of the 126 priority pollutants.

Local governments that own and operate wastewater treatment plants are required to apply for and obtain an NPDES permit. These permits contain a variety of required elements, including discharge limits; monitoring, reporting, and recordkeeping requirements; and biosolids requirements.

- **Combined Sewer Systems Permit Provisions.** EPA's 1994 Combined Sewer Overflow (CSO) Control Policy provides recommended NPDES permit conditions for municipalities with combined sewer systems. These provisions, which are typically implemented by the permitting authority, include requirements for meeting the nine minimum controls to reduce the frequency and water quality impacts of CSO events and to establish a long-term control plan to address capital improvements to the system. Local governments that operate and maintain a combined collection system must abide by these requirements, which are included as part of the NPDES permit.

Defining "Municipal" Sewer Systems

EPA uses a broad definition of "municipal" in defining municipal sewer systems. Municipal systems are defined as conveyances that are owned or operated by a state, city, town, borough, county, parish, district, association, or other public body having jurisdiction of disposal of sewage, industrial wastes, storm water, or other wastes. This includes special districts under state law, such as a sewer district, flood control district or drainage district, or other similar entity; an Indian tribe or an authorized Indian tribal organization; or a designated and approved management agency under Section 208 of the CWA.

- **Storm Water Discharges.** In 1987, the CWA was amended to require EPA to establish a program to address storm water discharges. In response, EPA promulgated the NPDES storm water regulations. Implemented in two phases, the first phase requires local governments that operate large (serving a population greater than 250,000) or medium (serving a population from 100,000 to 250,000) municipal separate storm water systems to apply for and obtain an NPDES storm water permit. During phase 2 of the storm water program, local governments operating regulated small municipal separate storm water systems will be required to submit a Notice of Intent to EPA to be covered under a national general storm water permit.

  In addition to requiring storm water permits for collection systems, the CWA may also require industrial or local government operations to obtain or be covered by storm water permits. Such operations may include construction activities (e.g., roads, buildings) or storage of chemicals or hazardous materials.

- **Pretreatment Program.** The CWA also regulates discharges to POTWs. The national pretreatment program (CWA Section 307(b)) controls the indirect discharge of pollutants to POTWs by "industrial users." Facilities regulated under Section 307(b) must meet certain pretreatment standards. The goal of the pretreatment program is to protect municipal wastewater treatment plants from damage that may occur when hazardous, toxic, or other wastes are discharged into a sewer system and to protect the quality of sludge generated by these plants. Discharges to a POTW are regulated primarily by the POTW itself, rather than the state or EPA.

  EPA has developed technology-based standards for certain industrial users of POTWs. Different standards apply to existing and new sources within each category. EPA develops these "categorical" pretreatment standards applicable to an industry on a nationwide basis. In addition, a POTW develops another kind of pretreatment standard, "local limits," to assist the POTW in achieving the effluent limitations in its NPDES permit.

  Regardless of whether a state is authorized to implement either the NPDES or the pretreatment program, it may enforce requirements more stringent than federal standards.

  Local governments that own and operate POTWs must meet the requirements for a pretreatment program under the CWA. In such situations, the local government becomes the regulator and establishes limits that must be met by industries discharging to the POTW.

- **Sludge Management.** Section 503 of the CWA and the associated regulations govern land application and land disposal of sludge generated from municipal wastewater treatment. The Section 503 regulations establish provisions for sludge quality, application rates, and environmental conditions under which land application is permitted. The regulations also specify management methods, monitoring, and recordkeeping for both disposal and land application facilities. Local governments that produce sludge from their wastewater treatment operations are subject to the Section 503 regulations.

- **Spill Prevention, Control, and Countermeasure Plans.** The 1990 Oil Pollution Act requires facilities that could reasonably be expected to discharge oil in harmful quantities to prepare and implement more rigorous Spill Prevention, Control, and Countermeasure (SPCC) Plans required under the CWA (40 CFR Section112.7). The SPCC regulations also require specific management procedures for loading, unloading, and storing petroleum products. The regulations delineate criminal and civil penalties for deliberate or negligent spills of oil. Regulations covering response to oil discharges and contingency plans (40 CFR Part 300), as well as facility response plans to oil discharges (40 CFR Section112.20) and for PCB transformers and PCB-containing items, were revised and finalized in 1995. Local governments that maintain fueling operations must comply with the SPCC regulations.

Many local governments conduct operations that are directly regulated by the CWA. Appendix D contains a detailed matrix of activities and the specific statutes under which they are regulated.

The following proposed regulations are currently in the development process:

- **NPDES Comprehensive Storm Water Phase II Regulations.** Expected in 1999. See Section 4.2 for a description of the Storm Water Program.

C **NPDES Wastewater Permit Application Forms and Regulatory Revisions for Municipal Discharges and Sewage Sludge Use or Disposal**. The purpose of this action is to revise and consolidate existing application forms and requirements for POTWs and other treatment works treating domestic sewage, as well as to streamline the application process for these facilities. The Agency seeks to establish a unified process that minimizes the need for additional information from applicants while providing permit writers the necessary information, including toxics data, to ensure that permits adequately address concerns of permittees and environmental protection. The Agency seeks to allow the use of existing data and to avoid unnecessary reporting. The Agency is also considering how to utilize electronic data submission. Although these forms will increase the burden on permittees not already

required to submit these data, EPA is minimizing the need for information from small entities, including tribal facilities. The burden on states would be minimized because of improvements to the application forms. This final action is expected in 1999.

C **Revisions to NPDES Requirements for Compliance Reporting and Collection System Discharges**. EPA is proposing revisions to the NPDES regulations. The proposed revisions would clarify how standard noncompliance reporting requirements and prohibition/defense provisions in NPDES permits apply to discharges from sanitary sewer and combined sewer collection systems owned and operated by municipal entities. These proposed revisions respond to recommendations made by a FACA Subcommittee (under the Urban Wet Weather Federal Advisory Committee) that was convened by EPA to provide recommendations for improving NPDES program implementation efforts that address SSOs and sanitary sewer operation, management, and maintenance. The proposed revisions would address combined sewers, as well as separate sanitary sewers, to avoid confusion among the regulatory community. Failures in sewer collection systems can result in discharges of wastewater containing raw sewage to surface waters. Pathogens and other pollutants in these discharges can create significant health and environmental risks. The SSO FACA Subcommittee identified inconsistent application of several key NPDES provisions to SSOs as a major implementation problem. There is substantial agreement among the SSO FACA Subcommittee that EPA should modify the NPDES regulations to clarify how noncompliance reporting and prohibition/defense provisions apply to dischargers to waters of the U.S. from a sanitary sewer collection system. The proposed action is expected in 1999.

4.3 COASTAL ZONE ACT REAUTHORIZATION AMENDMENTS OF 1990

The Coastal Zone Management Act (CZMA) encourages states/tribes to preserve, protect, develop, and where possible, restore or enhance valuable natural coastal resources such as wetlands, floodplains, estuaries, beaches, dunes, barrier islands, and coral reefs, as well as the fish and wildlife using those habitats. It includes areas bordering the Atlantic, Pacific, and Arctic Oceans, Gulf of Mexico, Long Island Sound, and Great Lakes. A unique feature of this law is that participation by states/tribes is voluntary. To encourage states/tribes to participate, the act makes federal financial assistance available to any coastal state, tribe, or Territory, including those on the Great Lakes, that is willing to develop and implement a comprehensive coastal management program. Most eligible states/tribes are, or will be, participating in the program.

In its reauthorization of the Coastal Zone Management Act in 1990, Congress identified nonpoint source pollution as a major factor in the continuing degradation of coastal waters. Congress also recognized that effective solutions to nonpoint source pollution could be implemented at the state/tribe and local levels. Therefore, in the Coastal Zone Act Reauthorization Amendments of 1990 (CZARA), Congress added Section 6217, which calls upon states/tribes with federally-approved coastal zone management programs to develop and implement coastal nonpoint pollution control programs. The Section 6217 program is administered at the federal level jointly by EPA and the National Oceanic and Atmospheric Agency (NOAA).

Section 6217(g) of CZARA called for EPA, in consultation with other agencies, to develop guidance on "management measures" for sources of nonpoint source pollution in coastal waters. Under Section 6217 of CZARA, EPA is responsible for developing technical guidance to assist states/tribes in designing coastal nonpoint pollution control programs. On January 19, 1993, EPA issued its *Guidance Specifying Management Measures For Sources of Nonpoint Pollution in Coastal Waters*, which addresses five major source categories of nonpoint pollution: (1) urban runoff, (2) agriculture runoff, (3) forestry runoff, (4) marinas and recreational boating, and (5) hydromodification.

Depending on their geographical locations, local governments may be responsible for contributing to the above mentioned programs. Appendix D contains a detailed matrix of activities and the specific statutes under which they are regulated.

4.4 COMPREHENSIVE ENVIRONMENTAL RESPONSE, COMPENSATION, AND LIABILITY ACT

The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), a 1980 law known commonly as Superfund, authorizes EPA to respond to releases or threatened releases of hazardous substances that may endanger public health, welfare, or the environment. CERCLA also enables EPA to force parties responsible for environmental contamination to clean it up or to reimburse the Superfund for response costs (including remediation costs) incurred by EPA. The Superfund Amendments and Reauthorization Act (SARA) of 1986 revised various sections of CERCLA, extended the taxing authority for the Superfund, and creating a free-standing law, SARA Title III, also known as the Emergency Planning and Community Right-to-Know Act (EPCRA).

The CERCLA hazardous substance release reporting regulations (Section 103; 40 CFR Part 302) direct the person in charge of a facility to report to the National Response Center any environmental release of a hazardous substance that equals or exceeds a reportable quantity.

Reportable quantities are listed in 40 CFR Section 302.4. A release report may trigger a response by EPA or by one or more federal or state emergency response authorities.

EPA implements hazardous substance responses according to procedures outlined in the National Oil and Hazardous Substances Pollution Contingency Plan (NCP) (40 CFR Part 300). The NCP includes provisions for permanent cleanups, known as remedial actions, and other cleanups, referred to as removals. EPA generally takes remedial actions only at sites on the National Priorities List, which currently includes approximately 1,300 sites. Both EPA and states can act at sites; however, EPA provides responsible parties the opportunity to conduct removal and remedial actions and encourages community involvement throughout the Superfund response process.

Local governments are generally not involved with hazardous waste cleanup as part of normal operations. However, many local government operations have the potential to generate hazardous waste. In reviewing the requirements of CERCLA, it is important for local governments to assess the impacts of all their operations to minimize environmental impacts and to reduce the potential CERCLA liability. In particular, local governments should maintain tight controls on landfill and incinerator operations, vehicle maintenance operations, underground and above ground storage tanks, and any other activities or operations that could significantly affect the environment. Appendix D contains a detailed matrix of activities and the specific statutes under which they are regulated.

4.5 EMERGENCY PLANNING AND COMMUNITY RIGHT-TO-KNOW ACT

As mentioned previously, the SARA of 1986 created the Emergency Planning and Community Right-to-Know Act (EPCRA, also known as SARA Title III), a statute designed to improve community access to information about chemical hazards and to facilitate the development of chemical emergency response plans by state and local governments. EPCRA required the establishment of state emergency response commissions (SERCs), which are responsible for coordinating certain emergency response activities and for appointing local emergency planning committees (LEPCs).

EPCRA and its regulations (40 CFR Parts 350-372) establish four types of reporting obligations for facilities that store or manage specified chemicals:

- **EPCRA Section 302** requires facilities to notify the SERC and LEPC of the presence of any extremely hazardous substance (the list of such substances is in 40 CFR Part 355,

Appendices A and B) in excess of the substance's threshold planning quantity and directs the facility to appoint an emergency response coordinator.

- **EPCRA Section 304** requires the facility to notify the SERC and the LEPC in the event of a release equaling or exceeding the reportable quantity of a CERCLA hazardous substance or an EPCRA extremely hazardous substance.

- **EPCRA Sections 311 and 312** require a facility at which a hazardous chemical, as defined by the Occupational Safety and Health Act, is present in an amount exceeding a specified threshold to submit to the SERC, LEPC, and local fire department material safety data sheets (MSDSs) or lists of MSDSs and hazardous chemical inventory forms (also known as Tier I and II forms). This information helps the local government respond in the event of a spill or release of the chemical.

- **EPCRA Section 313** requires manufacturing facilities included in SIC codes 20 through 39, as well as SIC codes 10, 12, 4911, 4931, 4939, 4953, 5169, 5171, and 7389, that have 10 or more employees and that manufacture, process, or use specified chemicals in amounts greater than threshold quantities to submit an annual toxic chemical release report. This report, known commonly as Form R, covers releases and transfers of toxic chemicals to various facilities and environmental media and allows EPA to compile the national Toxic Release Inventory (TRI) data base.

  Since local governments do not have operations that fall within the identified SIC codes, they are not subject to Section 313 reporting requirements.

Hazardous chemicals may be used as refrigerants, for cleaning, for disinfecting, or for other maintenance activities. If a local government stores or uses specified amounts of certain chemicals, it may be subject to planning and reporting requirements of EPCRA. Appendix D contains a detailed matrix of activities and the specific statutes under which they are regulated.

4.6 ENDANGERED SPECIES ACT

The Endangered Species Act (ESA) establishes a program for conserving endangered and threatened species and their habitats. The ESA affords broad protection for species of fish, wildlife, and plants that are listed as endangered and threatened in the United States and elsewhere. Provisions are made for listing species, as well as for recovery plans and the designation of critical habitat for listed species. Anyone can petition the Fish and Wildlife

Service (FWS) to list a species. The ESA strives to conserve ecosystems both through federal action and through the establishment of state programs. The law outlines procedures for federal agencies to follow when taking actions that may jeopardize listed species or their habitats. The ESA is the enabling legislation for the Convention on International Trade in Endangered Species of Wild Fauna and Flora.

The ESA requires the Secretary of the Interior (Secretary), acting through the FWS, to list species as endangered or threatened when certain factors, including habitat destruction, overutilization, disease or predation, inadequacy of regulatory mechanisms, or other natural or manmade factors, warrant such a listing. In the case of marine plants, fish, or wildlife, the Secretary of Commerce, acting through the Marine Fisheries Service (MFS), determines whether to list a species or change the status of a species. When determining that a species is endangered or threatened, the Secretary must, to the maximum extent prudent and determinable, designate critical habitat. In addition, the Secretary must develop and implement recovery plans for the conservation and survival of endangered and threatened species.

Under the ESA, the Secretary must cooperate to the maximum extent practicable with states and may enter into management agreements with states for the administration of particular conservation areas. The Secretary is also authorized to enter into cooperative agreements with states that establish and maintain adequate and active programs for conservation of listed species. State laws or regulations may be more, but not less, restrictive than the ESA or its regulations.

When taking action, federal agencies must consult with the FWS or MFS to ensure that such action is not likely to jeopardize the continued existence of a listed species or result in destruction or adverse modification of a critical habitat of a species. If jeopardy or adverse modification is likely, the FWS or MFS must suggest reasonable and prudent alternatives to the agency and the applicant.

The ESA prohibits the taking, possession, import, export, sale, and transport of any listed fish or wildlife species. The term “take” includes harassing, harming, hunting, killing, capturing, and collecting. It is also unlawful to maliciously damage, destroy, or remove from any area under federal jurisdiction, damage or remove from any other area in knowing violation of state law, import, export, or trade any listed plant species. These prohibitions do not apply to species legally held in captivity or a controlled environment. In addition, the FWS or MFS may permit a prohibited act for scientific purposes, for the establishment and maintenance of experimental populations, or for the enhancement of the propagation and survival of an affected species. The FWS or MFS, by permit, may also allow a taking incidental to an otherwise lawful activity if the

applicant submits, and the FWS or MFS approves, a conservation plan addressing the impact of the taking, mitigation measures, funding, and alternative actions considered.

Requirements of the ESA may be triggered if local governments conduct activities along these guidelines. Appendix D contains a detailed matrix of activities and the specific statutes under which they are regulated.

4.7 FEDERAL INSECTICIDE, FUNGICIDE, AND RODENTICIDE ACT

The Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) is a comprehensive regulatory statute that addresses the sale, distribution, and labeling of pesticides, as well as the certification and training of pesticide applicators. FIFRA also imposes selected record keeping and reporting requirements on certified applicators of restricted use pesticides, as well as imposing storage, disposal, and transportation requirements on registrants and applicants for registration of pesticides.

The primary purpose of FIFRA is to regulate the labeling and the subsequent use of pesticides. Pesticide use is regulated through requirements to apply pesticides in a manner consistent with the label. The labeling requirements include directions for use, warnings, and cautions, along with the uses for which the pesticide is registered (i.e., pests and appropriate applications). The labeling requirements reflect regulatory program determinations made with respect to particular products. For example, the worker protection standard of FIFRA includes specific restrictions on the entry of workers into areas after pesticide applications, as well as requirements for the use of personal protective equipment. (40 CFR Part 170). Labeling requirements also include specific conditions for the application, mixture, storage, and time period for re-entry to fields following pesticide application, and when crops may be harvested after applications. If a pesticide is used in a manner contrary to its labeling, that use constitutes a violation of FIFRA.

FIFRA has an array of other requirements, including record keeping, storage, and handling, that are applicable to pesticide producers (registrants) and certified applicators. The intent of these requirements is to regulate the use and management of pesticides so these products do not pose an unreasonable risk to human health or the environment.

For example, FIFRA Section 136f(b), Inspections, contains requirements that apply to producers, distributors, carriers, dealers, and persons who sell or offer for sale pesticide devices. These groups or individuals are required to allow regulatory authorities to inspect records related to the delivery, movement, or holding of pesticides. These records include the quantity, date of

shipment, receipt, and name of the consignor and consignee. FIFRA Section 136i-1, Pesticide Record keeping, requires that certified applicators of restricted use pesticides (Section 136a(d)(1)(C)) maintain records regarding the product name, amount, approximate date of application, and location of application of each pesticide used for a 2-year period.

FIFRA Section 136q(a), Storage, Disposal, and Transportation, includes requirements for developing methods by registrants for safe storage, transportation, and disposal of excess quantities of pesticides, as well as the labeling to reflect this information. Registrants must also develop information on the procedures for transport, storage, and disposal of the pesticide, any container of the pesticide, and rinsate containing the pesticide, or any other material used to contain or collect excess or spilled quantities of the pesticide. Many of these requirements also extend to suspended/canceled pesticides. FIFRA Section136q(e), Container Design, presents requirements for containers used to hold pesticides, as well as procedures governing pesticide removal, including disposal of rinsates and residues.

In summary, FIFRA presents a complex regulatory program for the regulation of pesticide labeling and use. States are the primary enforcement authority for pesticide use violations; however, states may not enact more stringent labeling requirements than those specified under FIFRA. Once the federal authority has approved a particular label, a regulatory authority cannot alter or amend it. States are empowered to restrict the sale or use of a federally registered pesticide, but may not allow the sale or use of a federally prohibited product.

Local governments may use pesticides to maintain building appearance and prevent or eradicate disease-carrying vectors. These operations may be subject to regulation under FIFRA. Appendix D contains a detailed matrix of activities and the specific statutes under which they are regulated.

4.8 NATIONAL ENVIRONMENTAL POLICY ACT

The National Environmental Policy Act (NEPA) was one of the first laws written to establish the broad national framework for protecting our environment while bolstering the health and welfare of humankind. Congress, recognizing the profound impact of humankind's activity on the natural environment, declared it a policy for the federal government, in cooperation with state and local governments, to give proper consideration to the environment prior to undertaking any major federal action that could significantly affect the environment.

The most visible NEPA requirements are environmental assessments (EAs) and environmental impact statements (EISs). These studies are performed for any major federal action that could

significantly impact the environment and consider the likelihood of environmental impacts, alternatives to the proposed action, and the long-term effects the action could have on the environment, resources, and humankind. The policy requirements are invoked when airports, buildings, military complexes, highways, parkland purchases, and other federal activities are proposed. EAs and EISs are required from all federal agencies.

Some activities undertaken by local governments may require compliance with provisions of NEPA, including the preparation of an EA or EIS. Appendix D contains a detailed matrix of activities and the specific statutes under which they are regulated.

4.9 RESOURCE CONSERVATION AND RECOVERY ACT

The Resource Conservation and Recovery Act (RCRA) of 1976, which amended the Solid Waste Disposal Act, addresses nonhazardous (Subtitle D) and hazardous (Subtitle C) waste management activities. The Hazardous and Solid Waste Amendments (HSWA) of 1984 strengthened RCRA's waste management provisions and added Subtitle I, which governs underground storage tanks (USTs).

Regulations promulgated pursuant to Subtitle C of RCRA (40 CFR Parts 260-299) establish a "cradle-to-grave" system governing hazardous waste from the point of generation to disposal. RCRA hazardous wastes include the specific materials listed in the regulations (commercial chemical products designated with the code "P" or "U", hazardous wastes from specific industries/sources designated with the code "K", or hazardous wastes from non-specific sources, designated with the code "F") or materials that exhibit a hazardous waste characteristic (ignitability, corrosivity, reactivity, or toxicity and designated with the code "D").

Regulated entities that generate hazardous waste are subject to waste accumulation, manifesting, and record keeping standards. Facilities generally must obtain a permit either from EPA or from a state agency that EPA has authorized to implement the permitting program if they store hazardous wastes for more than 90 days before treatment or disposal. Facilities may treat less-than-90-day tanks or containers of hazardous wastes without a permit. Subtitle C permits contain general facility standards, such as contingency plans, emergency procedures, record keeping and reporting requirements, financial assurance mechanisms, and unit-specific standards. RCRA also contains provisions (40 CFR Part 264 Subpart S and Section 264.101) for conducting corrective actions that govern the cleanup of releases of hazardous waste or constituents from solid waste management units at RCRA treatment, storage, and disposal facilities.

Although RCRA is a federal statute, many states implement the RCRA program. Currently, EPA has delegated its authority to implement various provisions of RCRA to all states except Alaska, Hawaii, Iowa and two U.S. territories.

Most RCRA requirements are not industry specific but apply to any entity that generates, transports, treats, stores, or disposes of hazardous waste. The following are some important RCRA regulatory requirements:

C **Identification of Solid and Hazardous Wastes** (40 CFR Part 261) delineates the procedure every generator must follow in determining whether the material in question is considered a hazardous waste or solid waste or is exempted from regulation.

C **Standards for Generators of Hazardous Waste** (40 CFR Part 262) establish the responsibilities of hazardous waste generators. These include obtaining an EPA identification number, preparing a manifest, ensuring proper packaging and labeling, meeting standards for waste accumulation units, and meeting record keeping and reporting requirements. Providing they meet additional requirements described in 40 CFR 262.34, generators may accumulate hazardous waste for up to 90 days (or 180 or 270 days depending on the amount of waste generated and the distance the waste will be transported).

C **Land Disposal Restrictions** (LDRs) (40 CFR Part 268) are regulations prohibiting the disposal of hazardous waste on land without prior treatment. Under the LDR program, materials must meet LDR treatment standards prior to placement in a RCRA land disposal unit (landfill, land treatment unit, waste pile, or surface impoundment). Generators of waste subject to the LDR must provide notification of such to the designated TSD facility to ensure proper treatment prior to disposal.

C **Used Oil Management Standards** (40 CFR Part 279) impose management requirements affecting the storage, transportation, burning, processing, and re-refining of the used oil. For parties that merely generate used oil, regulations establish storage standards. For a party considered a used oil processor, re-refiner, burner, or marketer (one who generates and sells off-specification used oil directly to a used oil burner), additional tracking and paperwork requirements must be satisfied.

• **Tanks and Containers**, as well as any unit, used to store, treat, or dispose of hazardous waste, are regulated under RCRA. Tanks and containers used to store hazardous waste with a high volatile organic concentration must meet emission standards under RCRA.

Regulations (40 CFR Part 264-265, Subpart CC) require generators to test the waste to determine the concentration of the waste, to satisfy tank and container emissions standards, and to inspect and monitor regulated units. These regulations apply to all facilities that store such waste, including large quantity generators accumulating waste prior to shipment offsite.

C **Underground Storage Tanks** containing petroleum and hazardous substances are regulated under Subtitle I of RCRA. Subtitle I regulations (40 CFR Part 280) contain tank design and release detection requirements, as well as financial responsibility and corrective action standards for USTs. The UST program also includes upgrade requirements for existing tanks that must be met by December 22, 1998.

C **Boilers and Industrial Furnaces** (BIFs) that use or burn fuel containing hazardous waste must comply with design and operating standards. BIF regulations (40 CFR Part 266, Subpart H) address unit design, provide performance standards, require emissions monitoring, and restrict the type of waste that may be burned.

C **Solid Waste Management** (RCRA Subtitle D) regulations establish standards and guidelines for solid waste collection and disposal programs, as well as recycling programs. The regulations also establish criteria for design, operation, maintenance, and closure for municipal solid waste landfills. In addition, the regulations provide requirements for thermal processing (incineration) and resource recovery facilities.

Local governments may have numerous operations that result in the generation and management of different types of solid and hazardous waste. These operations may be subject to specific parts of RCRA, depending on the type of waste generated, its management (e.g., stored, transported), and its disposal. Appendix D contains a detailed matrix of activities and the specific statutes under which they are regulated.

The following proposed regulations under RCRA are currently in the development process:

- **Amendments to Municipal Solid Waste Landfills**. The purpose of this action is to develop standards for regulating emissions of non-methane organic compounds from new and modified municipal solid waste (MSW) landfills under Section 111(b). Section 111(d) requires states to develop emission standards for existing landfills based on EPA guidelines. The intended effect of the standards and guidelines is to require certain municipal solid waste landfills to control emissions to the level achievable by the best demonstrated system of continuous emission reduction, considering costs, non-air quality health, and

environmental and energy impacts. EPA has worked with landfill owners and operators, including local governments and private owners, to produce a regulation based on common-sense techniques, providing maximum flexibility for owners and operators, while achieving the desired emissions reductions in the most cost-effective way. The rule focuses on only the largest sources of emissions, thereby avoiding regulation of small landfills where controls would be inefficient and onerous. The rule also provides complete flexibility to design a control system based on the site-specific conditions at each landfill. The direct final rule was published June 16, 1998, at 63 FR 32743.

- **RCRA Subtitle D Solid Waste Facilities; State Permit Program -- Determination of Adequacy (State Implementation Rule)**. This rule will establish criteria and procedures for EPA to use in determining whether state MSW landfill permit programs and state permit programs relating to non-municipal, nonhazardous waste disposal units that receive conditionally exempt small quantity generator (CESQG) waste are adequate to ensure compliance with the federal revised criteria in 40 CFR Parts 258 and 257, Subpart B, respectively. While the federal revised criteria apply to all MSW landfills and non-municipal, nonhazardous waste disposal units receiving CESQG waste, states with permit programs deemed adequate under this rule can provide some flexibility on certain requirements to owners and operators who meet the revised criteria's performance standards. In providing this flexibility, this action offers an opportunity to reduce the regulatory burden on state and local governments and on landfill owners and operators. The final rule is scheduled for publication in 1999.

- **Hazardous Waste Management System; Modification of the Hazardous Waste Program; Mercury-Containing Lamps**. EPA is considering two deregulatory options for the management of spent mercury-containing lamps based on data that indicate these lamps may be safely managed outside of the RCRA hazardous waste system or with a reduced regulatory structure under RCRA. The options were proposed in a Notice of Proposed Rulemaking on July 27, 1994 (59 FR 38288). Either option selected would have positive impacts on small businesses and state, local, and tribal governments interested in collecting and managing lamps. The EPA Administrator is expected to sign the final action in 1999.

- **Modifications to RCRA Rules Associated with Solvent-Contaminated Shop Towels and Wipers.** This action would modify RCRA rules that affect the management of solvent-contaminated shop towels and wipers. Solvent-contaminated shop towels and wipers are used throughout industry for equipment cleaning and other related facility operations. Many times, the spent shop towels and wipers are considered a hazardous waste because the

solvent used is either a characteristic or a listed solvent. Examination of industry use and management practices reveals that many facilities use only small amounts of solvent on their disposable wipers and small numbers of wipers daily, suggesting that these materials, particularly if listed solvents are being used, pose little or no risk to human health and the environment if disposed of in municipal landfills. Similarly, situations exist where both disposable wipers and reusable shop towels are not being managed according to prescribed federal and states rules and policies. Problems with this issue have persisted since the late 1980s. The EPA Administrator is expected to sign this final action in 1999.

4.10 RIVERS AND HARBORS ACT

The Rivers and Harbors Act addresses harbor and river improvements, projects and activities in navigable waters. This Act provides a number of regulatory authorities, the implementation of which has evolved over time. Section 10 of the act prohibits the unauthorized obstruction or alteration of any navigable water of the United States. This section provides that the construction of any structure in or over any navigable water of the United States or the accomplishment of any other work affecting the course, location, condition, or physical capacity of such waters is unlawful unless the work has been recommended by the Chief of Engineers and authorized by the Secretary of the Army. The Secretary's approval authority has since been delegated to the Chief of Engineers. If a local government is conducting activities that may affect navigable waters, it may be subject to the Rivers and Harbors Act. Appendix D contains a detailed matrix of activities and the specific statutes under which they are regulated.

4.11 SAFE DRINKING WATER ACT

The Safe Drinking Water Act (SDWA) mandates that EPA establish regulations to protect human health from contaminants in drinking water. The law authorizes EPA to develop national drinking water standards and to create a joint federal-state system to ensure compliance with these standards. The SDWA also directs EPA to protect underground sources of drinking water through the control of underground injection of liquid wastes.

Local governments may be responsible for operating and maintaining drinking water systems and providing drinking water to communities and the public. Whether it is providing drinking water to a community or simply to visitors, the local government is responsible for providing safe drinkable water that meets EPA standards. These standards stem from the SDWA, which specifies standards for both community water systems and transient water systems. In addition, any municipal operation that provides water to the public (other than water that it receives from a

public water supply system [i.e., wells or other reservoirs]) may also be required to comply with safe drinking water requirements.

- **Drinking Water Standards.** EPA has developed primary and secondary drinking water standards under its SDWA authority. EPA and authorized states enforce the primary drinking water standards, which are contaminant-specific concentration limits that apply to certain public drinking water supplies. Primary drinking water standards consist of maximum contaminant level goals (MCLGs), which are non-enforceable health-based goals, and maximum contaminant levels (MCLs), which are enforceable limits set as close to MCLGs as possible, considering cost and feasibility of attainment.

  To assure these standards are maintained, SDWA regulations require sampling and monitoring for various contaminants, such as fecal coliform and metals. In addition, the SDWA regulations require specified disinfection and filtration activities, notification when certain contaminants exceed specified levels, and reporting of contaminant limit exceedences.

- **Underground Injection Control.** The SDWA Underground Injection Control (UIC) program (40 CFR Parts 144-148) is a permit program that protects underground sources of drinking water by regulating five classes of injection wells. UIC permits include design, operation, inspection, and monitoring requirements. Wells used to inject hazardous wastes must also comply with RCRA corrective action standards to be granted a RCRA permit, and must meet applicable RCRA land disposal restrictions standards. The UIC permit program is primarily state-enforced, since EPA has authorized all but a few states to administer the program.

- **Sole Source Aquifer Protection.** The SDWA provides for a federally implemented sole source aquifer protection program, which prohibits federal funds from being expended on projects that may contaminate the sole or principal source of drinking water for a given area, and for a state-implemented wellhead protection program, which is designed to protect drinking water wells and drinking water recharge areas.

Appendix D contains a detailed matrix of activities and the specific statutes under which they are regulated.

The following proposed regulations under the SDWA are currently in the development process:

C **Revision of Existing Variances and Exemptions Regulation to Comply with Requirements of the Safe Drinking Water Act**. This action will revise the existing regulations in accordance with the SDWA Amendments of 1996, regarding the issuance and availability of variances and exemptions (V&E) under the act. Mirroring the statutory language, a section specifically addressing variances for small public water systems will be added, and minor codification changes will be made elsewhere in the existing rule. EPA anticipates that the revisions will have beneficial impacts on small systems. The final rule is scheduled to be signed in 1999.

C **Public Water System Public Notification Regulation**. This action revises an existing regulation to incorporate the new public notification provisions in section 1414(c) of the SDWA. The basic requirement for public water systems with violations of drinking water standards to give public notification is not changed by the 1996 SDWA amendments. A public water system is required under Section 1414(c) of the SDWA to provide notification to its customers whenever: 1) a violation of certain drinking water regulations occurs (including MCL, treatment technique, and monitoring/reporting requirements); 2) a V&E to those regulations is in place or the conditions of the V&E are violated, or 3) results from unregulated contaminant monitoring required under Section 1445 of the SDWA are received. This statute requires the Administrator to prescribe by regulation the manner, frequency, form, and content for giving notice. The existing regulation is in 40 CFR Section 141.32.

The 1996 amendments significantly revise the public notification requirements. The amendments: 1) alter the timing of the notification for certain violations, 2) establish a specific requirement for EPA consultation with the states in issuing revised regulations, 3) allow the state to prescribe alternative notification requirements by rule with respect to the form and content of the notice, and 4) add a new requirement for the state to prepare an annual report on violations and for EPA to prepare a follow-on report summarizing states' reports and public notices submitted by public water systems serving Indian Tribes. One other new requirement—for public water systems to prepare an annual consumer confidence report—is being implemented under a separate regulatory action. The revised public notification regulations will streamline the existing requirements, provide quicker and more effective notification of violations that have a serious adverse effect, and better inform customers of public water systems of the quality of their drinking water and the risk to their health. The EPA Administrator is expected to sign this final action 1999.

4.12 TOXIC SUBSTANCES CONTROL ACT

The Toxic Substances Control Act (TSCA) granted EPA authority to create a regulatory framework to collect data on chemicals to evaluate, assess, mitigate, and control risks that may be posed by their manufacture, processing, and use. TSCA provides a variety of control methods to prevent chemicals from posing unreasonable risk.

TSCA standards may apply at any point during a chemical's life cycle. Under TSCA Section 5, EPA has established an inventory of chemical substances. If a chemical is not already on the inventory and has not been excluded by TSCA, a premanufacture notice (PMN) must be submitted to EPA prior to manufacture or import. The PMN must identify the chemical and provide available information on health and environmental effects. If available data are not sufficient to evaluate the chemicals effects, EPA can impose restrictions pending the development of information on its health and environmental effects. EPA can also restrict significant new uses of chemicals based upon various factors, such as the projected volume and use of the chemical.

Under TSCA Section 6, EPA can ban the manufacture or distribution in commerce, limit the use, require labeling, or place other restrictions on chemicals that pose unreasonable risks. Among the chemicals EPA regulates under Section 6 authority are asbestos, chlorofluorocarbons, and PCBs.

Local governments may handle asbestos, lead paint, and other toxic substances as part of overall operations, as part of building renovations or inspections, or as part of general maintenance of schools and housing units. TSCA regulates the management of and protection from toxic substances. Appendix D contains a detailed matrix of activities and the specific statutes under which they are regulated.

5. COMPLIANCE AND ENFORCEMENT HISTORY

Until recently, EPA has focused much of its attention on measuring compliance with specific environmental statutes. This approach allows the Agency to track compliance with the Clean Air Act, the Resource Conservation and Recovery Act, the Clean Water Act, and other environmental statutes. Within the last several years, the Agency has begun to supplement single-media compliance indicators with facility-specific, multimedia indicators of compliance. In doing so, EPA is in a better position to track compliance with all statutes at the facility level and within specific industrial sectors.

A major step in building the capacity to compile multimedia data for industrial sectors was the creation of EPA's Integrated Data for Enforcement Analysis (IDEA) system. IDEA has the capacity to "read into" the Agency's single-media databases, extract compliance records, and match the records to individual facilities. The IDEA system can match air, water, waste, toxics/pesticides/EPCRA, Toxics Release Inventory (TRI), and enforcement docket records for a given facility and generate a list of historical permit, inspection, and enforcement activity. IDEA also has the capability to analyze data by geographic area and corporate holder. As the capacity to generate multimedia compliance data improves, EPA will make available more in-depth compliance and enforcement information. Additionally, EPA is developing sector-specific measures of success for compliance assistance efforts.

This chapter uses inspection, violation, and enforcement data from the IDEA system, to provide information about the historical compliance and enforcement activity of the local government sector. While other sector notebooks have used Standard Industrial Classification (SIC) data from the Toxics Release Inventory System (TRIS) to define their data sampling universes, none of the SIC codes associated with local governments identifies facilities required to report to the TRI program. As such, sector-defining data have been provided from EPA data systems linked to EPA's Facility Indexing System (FINDS), which tracks facilities in all media databases. This chapter does not attempt to define the actual number of facilities that fall within each sector. Instead, the chapter portrays the records of a subset of facilities within the sector that are well defined within EPA databases.

As a check on the relative size of the full sector universe, most notebooks contain an estimated number of facilities within the sector according to the Bureau of Census. Census data were not used for the local government sectors because the SIC codes used to identify them are not unique to local government, and the aggregated Census data would not allow differentiation between public and private, or local versus state or federal, operations. A number of alternative sources

were evaluated before deciding to use the Dun and Bradstreet database as the primary reference, supplemented by data from the U. S. Department of Education where appropriate. Since these data sources are not aggregated, facility name and location data can be evaluated to help identify local government facilities. Since the local government sector consists of facilities not typically falling under environmental agency scrutiny (exceptions being water supply and waste/ wastewater treatment), the reporting universe within the EPA databases may be small compared to full universe data (in some cases, much smaller). However, the groups selected for inclusion in this data analysis chapter should be consistent with this sector's general makeup.

Before presenting the data, the next section defines general terms and the column heads used in the data tables. The data represent a retrospective summary of inspections and enforcement actions and solely reflect EPA, state, and local compliance assurance activities that have been entered into EPA databases. To identify trends, EPA ran data queries for the past 5 years (July 1, 1993 to June 30, 1998). Other sector notebooks have run both 1-year and 5-year analyses for comparative purposes. Again, because many of the SIC groups within the local government sector have not received much environmental scrutiny, data are not sufficient over a 1-year period to support a meaningful analysis.

The data illustrate the variations across EPA regions for certain sectors. This variation may be attributable to state/local data entry variations, specific geographic concentrations, proximity to population centers, sensitive ecosystems, highly toxic chemicals used in production, or historical noncompliance. Hence, the exhibited data do not rank regional performance or necessarily reflect which regions may have the most compliance problems.

5.1 COMPLIANCE AND ENFORCEMENT DATA DEFINITIONS

5.1.1 General Definitions

Below are the general definitions of terms used in the data tables:

- ***Facility Indexing System (FINDS)*** assigns a common facility number to EPA single-media permit records, establishing a *linkage* capability to the permit data. The FINDS identification number allows EPA to compile and review all permit, compliance, enforcement, and pollutant release data for any given regulated facility.

- ***Integrated Data for Enforcement Analysis (IDEA)*** is a data integration system that can retrieve information from the major EPA program office databases. IDEA uses the

FINDS identification number to link separate data records from EPA's databases. This allows retrieval of records from across media or statutes for any given facility, thus creating a "master list" of records for that facility. Some of the data systems accessible through IDEA are AFS (Air Facility Indexing and Retrieval System, Office of Air and Radiation), PCS (Permit Compliance System, Office of Water), RCRIS (Resource Conservation and Recovery Information System, Office of Solid Waste), NCDB (National Compliance Data Base, Office of Prevention, Pesticides, and Toxic Substances), CERCLIS (Comprehensive Environmental and Liability Information System, Superfund), and TRIS. IDEA also contains information from outside sources, such as Dun and Bradstreet (DUN) and the Occupational Safety and Health Administration. Most data queries displayed in this section were conducted using IDEA.

5.1.2 Data Table Column Heading Definitions

Below are the following general definitions of terms used in the data tables:

- ***Column A: Region***–Is the EPA Region for which data are summarized**.**

- ***Column B: Facilities in Universe***–Is based on an analysis of the Dun and Bradstreet Marketing Identifier (DMI) database within the listed SIC code range. The DMI tracks more than 11 million currently operating public and private business entities. Data records were retrieved by SIC code and then screened for business name keywords indicative of local government operations. The SIC code range selected for each search is defined by each notebook's selected SIC code coverage. While this method in no way provides exact sector universe numbers, it does allow for reasonable approximations from a uniform, verifiable source. The one exception to using DMI was in approximating the elementary and secondary schools universe (SIC code 8211) and public library universe (SIC code 8231). Data used for these sectors came from the 1995-1996 Public Elementary and Secondary School Universe and FY1994 Public Library Survey, as compiled by the U. S. Department of Education, National Center for Education Statistics.

- ***Column C: Facilities in Search***–Is based on the universe of FINDS-linked facilities within the listed SIC code range. SIC codes were tested from AFS, PCS, RCRIS, NCDB, and DUN, with a match from any one database qualifying the facility for

inclusion. This subset of facilities with links to Agency databases is used to derive the data in Columns D through K.

- ***Column D: Facilities Inspected***–Indicates the level of EPA and state agency inspections for the facilities in this data search. These values show what percentage of the facility universe is inspected in a 5-year period.

- ***Column E: Number of Inspections***–Measures the total number of inspections conducted in this sector. An inspection event is counted each time it is entered into a single media database.

- ***Column F: Average Time Between Inspections***–Provides an average length of time, expressed in months, between compliance inspections for all facilities within the defined universe.

- ***Column G: Facilities with One or More Enforcement Actions***--expresses the number of facilities that were the subject of at least one enforcement action within the defined time period. This category is broken down further into federal and state actions. Data are obtained for administrative, civil/judicial, and criminal enforcement actions. A facility with multiple enforcement actions is only counted once in this column (e.g., a facility with three enforcement actions counts as one facility).

- ***Column H: Total Enforcement Actions***–Describes the total number of enforcement actions identified for a sector across all environmental statutes within the defined time period. A facility with multiple enforcement actions is counted multiple times (e.g., a facility with three enforcement actions counts as three).

- ***Column I: State Lead Actions***–Shows what percentage of the total enforcement actions are taken by state and local environmental agencies. Varying levels of use by states of EPA data systems may limit the volume of actions recorded as state enforcement activity. Some states extensively report enforcement activities into EPA data systems, while other states may use their own data systems.

- ***Column J: Federal Lead Actions***–Shows what percentage of the total enforcement actions are taken by EPA. This value includes referrals from state agencies. Many of these actions result from coordinated or joint state/federal efforts.

- ***Column K: Enforcement to Inspection Rate–***Is a ratio of enforcement actions to inspections and is presented for comparative purposes only. This ratio is a rough indicator of the relationship between inspections and enforcement. It relates the number of enforcement actions and the number of inspections that occurred within the 5-year period. This ratio includes the inspections and enforcement actions reported under the CWA, CAA and RCRA. Inspections and actions from the TSCA/FIFRA/EPCRA database are not factored into this ratio because most of the actions taken under these programs are not the result of facility inspections. Also, this ratio does not account for enforcement actions arising from non-inspection compliance monitoring activities (e.g., self-reported water discharges) that can result in enforcement action.

5.2 LOCAL GOVERNMENT COMPLIANCE HISTORY

Exhibit 5-1 presents the 5-year inspection and enforcement summary by statute for local government SIC groups. This exhibit provides an overview of the reported compliance and enforcement data for SIC codes over the past 5 years (July 1993 to June 1998). As shown in the table, approximately 90 percent (79,725) of the 88,619 inspections conducted over the 5-year period were conducted under the Clean Water Act. From the total 88,619 inspections, EPA took 4,961 enforcement actions. A total 5.6 percent of all inspections conducted of local government operations resulted in an enforcement action. Nearly 80 percent (3,916) of all enforcement actions were taken under the Clean Water Act. Other points of interest include:

- Sewerage systems (SIC code 4952) have received the most inspections of any local government operation, with 67,444 inspections over the 5 years. This translates to each facility being inspected an average of seven to eight times over the 5-year period. Ninety-eight percent of these inspections were conducted under the Clean Water Act. From those 67,444 inspections, EPA took 4,037 enforcement actions. On average, 6 percent of all inspections resulted in an enforcement action. (It should be noted that this number could be lower since one facility may have had numerous enforcement actions taken against it within the 5-year period.)

- Elementary and secondary schools (SIC code 8211) received a total of 9,587 inspections over the 5 years, which is the second largest number of inspections across all SIC codes. These inspections were spread across the statutes, with more than half (53 percent) being conducted under the Clean Water Act. The 9,587 inspections resulted in 237 enforcement actions. On average, 2 percent of all inspections resulted in an

enforcement action. Sixty-eight percent of these enforcement actions were taken under the Clean Water Act.

Exhibits 5-2 through 5-17 present the compliance and enforcement data for each of the specific local government operation SIC codes over the same 5-year period. These data are also broken out by EPA region, thereby allowing geographical comparisons. Exhibit 5-18 presents the compliance and enforcement data specifically for public water systems owned by local governments. This information was taken from EPA's Safe Drinking Water Information System (SDWIS), which is not a part of the IDEA system. Like the exhibits that precede it, this exhibit displays the data by region to allow for geographical comparisons.

Exhibit 5-1. Five-Year Inspection and Enforcement Summary by Statute for Local Government SIC Groups

Industry Sector	Facilities Inspected	Total Inspections	Total Enforcement Actions	Clean Air Act		Clean Water Act		RARA		FIFRA/TSCA/ EPCRA/Other	
				% of Total Inspections	% of Total Actions	% of Total Inspections	% of Total Actions	% of Total Inspections	% of Total Actions	% of Total Inspections	% of Total Actions
Water Supply (1)	914	4,062	167	10%	12%	87%	82%	3%	3%	0%	3%
Sewerage Systems	8,744	67,444	4,037	2%	2%	98%	97%	0%	0%	0%	1%
Refuse Systems	474	2,607	197	34%	25%	53%	63%	12%	10%	1%	2%
Sanitary Systems, NEC	31	236	12	7%	0%	86%	92%	6%	8%	1%	0%
Amusement & Recreation Services, NEC	41	123	13	9%	0%	80%	100%	7%	0%	3%	0%
Elementary & Secondary Schools	4,410	9,587	237	19%	5%	53%	68%	3%	5%	24%	22%
Libraries	30	124	19	6%	0%	85%	100%	6%	0%	2%	0%
Police Protection	81	373	37	6%	0%	70%	97%	23%	3%	1%	0%
Fire Protection	68	305	29	6%	0%	80%	97%	14%	3%	0%	0%
Public Order & Safety, NEC	15	62	3	10%	67%	55%	0%	35%	33%	0%	0%
Administration of Education Programs	365	508	25	7%	8%	19%	40%	4%	0%	71%	52%
Air & Water Resource & Solid Waste Management	319	2,809	167	12%	13%	83%	82%	5%	4%	0%	1%
Land, Mineral, Wildlife, & Forest Conservation	39	179	6	1%	0%	89%	83%	10%	17%	1%	0%
Administration of Housing Programs	48	120	4	40%	25%	40%	0%	17%	75%	3%	0%
Administration of Urban Planning & Community & Rural Development	18	68	6	13%	0%	62%	33%	22%	67%	3%	0%
Regulation, Licensing, & Inspection of Miscellaneous Commercial Sites	2	12	2	0%	0%	92%	100%	8%	0%	0%	0%

(1) Exhibits 5-18 presents compliance and enforcement data under the Safe Drinking Water Act for public water systems is presented in Exhibit 5-18.

Exhibit 5-2. Five-Year Enforcement and Compliance Summary for the Local Government Sector
SIC Code 4941 - Water Supply

A	B	C	D	E	F	G	H	I	J	K
Region	Facilities in Universe	Facilities in Search	Facilities Inspected	Number of Inspections	Average Months Between Inspections	Facilities with 1 or More Enforcement Actions	Total Enforcement Actions	Percent State Lead Actions	Percent Federal Lead Actions	Enforcement to Inspection Rate
I	442	105	28	111	57	4	7	29%	71%	0.06
II	420	191	95	344	33	19	31	94%	6%	0.09
III	595	339	138	1,041	20	9	21	52%	48%	0.02
IV	1,510	547	278	1,094	30	37	46	89%	11%	0.04
V	851	615	160	713	52	16	20	95%	5%	0.03
VI	1,677	93	30	131	43	12	21	48%	52%	0.16
VII	405	113	55	176	39	3	3	100%	0%	0.02
VIII	344	105	42	184	34	2	3	100%	0%	0.02
IX	1,062	102	63	189	32	4	4	100%	0%	0.02
X	372	132	25	79	>60	8	11	100%	0%	0.14
TOTAL	7,678	2,342	914	4,062	35	114	167	80%	20%	0.04

Exhibit 5-3. Five-Year Enforcement and Compliance Summary for the Local Government Sector
SIC Code 4952 - Sewerage Systems

A	B	C	D	E	F	G	H	I	J	K
Region	Facilities in Universe	Facilities in Search	Facilities Inspected	Number of Inspections	Average Months Between Inspections	Facilities with 1 or More Enforcement Actions	Total Enforcement Actions	Percent State Lead Actions	Percent Federal Lead Actions	Enforcement to Inspection Rate
I	442	105	28	111	57	4	7	29%	71%	0.06
II	420	191	95	344	33	19	31	94%	6%	0.09
III	595	339	138	1,041	20	9	21	52%	48%	0.02
IV	1,510	547	278	1,094	30	37	46	89%	11%	0.04
V	851	615	160	713	52	16	20	95%	5%	0.03
VI	1,677	93	30	131	43	12	21	48%	52%	0.16
VII	405	113	55	176	39	3	3	100%	0%	0.02
VIII	344	105	42	184	34	2	3	100%	0%	0.02
IX	1,062	102	63	189	32	4	4	100%	0%	0.02
X	372	132	25	79	>60	8	11	100%	0%	0.14
TOTAL	28,964	13,142	8,744	67,444	12	2,181	4,037	55%	45%	0.06

Exhibit 5-4. Five-Year Enforcement and Compliance Summary for the Local Government Sector SIC Code 4953 - Refuse Systems

A	B	C	D	E	F	G	H	I	J	K
Region	Facilities in Universe	Facilities in Search	Facilities Inspected	Number of Inspections	Average Months Between Inspections	Facilities with 1 or More Enforcement Actions	Total Enforcement Actions	Percent State Lead Actions	Percent Federal Lead Actions	Enforcement to Inspection Rate
I	35	81	11	46	>60	2	3	0%	100%	0.07
II	128	79	36	307	15	20	71	85%	15%	0.23
III	97	145	78	746	12	15	28	68%	32%	0.04
IV	212	162	93	450	22	15	25	84%	16%	0.06
V	245	85	50	395	13	15	21	57%	43%	0.05
VI	112	87	34	138	38	8	25	20%	80%	0.18
VII	69	314	106	230	82	7	9	78%	22%	0.04
VIII	38	35	11	44	48	2	2	100%	0%	0.05
IX	68	40	32	122	20	4	6	100%	0%	0.05
X	44	69	23	129	32	6	7	71%	29%	0.05
TOTAL	1,048	1,097	474	2,607	25	94	197	70%	30%	0.08

Exhibit 5-5. Five-Year Enforcement and Compliance Summary for the Local Government Sector
SIC Code 4959 - Sanitary Services, not Elsewhere Classified

A	B	C	D	E	F	G	H	I	J	K
Region	Facilities in Universe	Facilities in Search	Facilities Inspected	Number of Inspections	Average Months Between Inspections	Facilities with 1 or More Enforcement Actions	Total Enforcement Actions	Percent State Lead Actions	Percent Federal Lead Actions	Enforcement to Inspection Rate
I	4	1	0	0	--	0	0	0%	0%	--
II	19	8	2	13	37	0	0	0%	0%	--
III	16	12	6	68	11	4	6	83%	17%	0.09
IV	30	6	3	24	15	0	0	0%	0%	--
V	42	35	13	100	21	5	6	83%	17%	0.06
VI	11	0	0	0	--	0	0	0%	0%	--
VII	9	5	1	17	18	0	0	0%	0%	--
VIII	8	5	1	1	>60	0	0	0%	0%	--
IX	17	9	5	13	42	0	0	0%	0%	--
X	4	6	0	0	--	0	0	0%	0%	--
TOTAL	160	87	31	236	22	9	12	83%	17%	0.05

Exhibit 5-6. Five-Year Enforcement and Compliance Summary for the Local Government Sector
SIC Code 7999 - Amusement and Recreation Services, not Elsewhere Classified

A	B	C	D	E	F	G	H	I	J	K
Region	Facilities in Universe	Facilities in Search	Facilities Inspected	Number of Inspections	Average Months Between Inspections	Facilities with 1 or More Enforcement Actions	Total Enforcement Actions	Percent State Lead Actions	Percent Federal Lead Actions	Enforcement to Inspection Rate
I	131	3	0	0	--	0	0	0%	0%	--
II	330	7	2	2	>60	0	0	0%	0%	--
III	485	14	5	20	42	1	2	100%	0%	0.10
IV	700	16	12	28	34	0	0	0%	0%	--
V	1,185	21	7	11	>60	0	0	0%	0%	--
VI	551	12	4	32	23	1	4	50%	50%	0.13
VII	356	14	4	10	>60	0	0	0%	0%	--
VIII	264	5	4	17	18	1	7	86%	14%	0.41
IX	433	5	1	1	>60	0	0	0%	0%	--
X	185	11	2	2	>60	0	0	0%	0%	--
TOTAL	4,620	108	41	123	53	3	13	77%	23%	0.11

Exhibit 5-7. Five-Year Enforcement and Compliance Summary for the Local Government Sector
SIC Code 8211 - Elementary and Secondary Schools

A	B	C	D	E	F	G	H	I	J	K
Region	Facilities in Universe	Facilities in Search	Facilities Inspected	Number of Inspections	Average Months Between Inspections	Facilities with 1 or More Enforcement Actions	Total Enforcement Actions	Percent State Lead Actions	Percent Federal Lead Actions	Enforcement to Inspection Rate
I	4,836	957	303	416	>60	4	7	29%	71%	0.02
II	8,098	1,070	330	609	>60	67	53	60%	40%	0.09
III	7,644	3,192	1,323	3,222	59	13	15	33%	67%	0.00
IV	13,027	1,543	745	2,680	35	63	72	90%	10%	0.03
V	18,150	2,052	594	1,252	>60	49	51	39%	61%	0.04
VI	11,877	666	317	386	>60	15	27	56%	44%	0.07
VII	6,812	789	402	549	>60	7	6	17%	83%	0.01
VIII	5,218	357	151	211	>60	2	2	50%	50%	0.01
IX	9,814	589	49	50	>60	2	2	50%	50%	0.04
X	3,881	671	196	212	>60	1	2	100%	0%	0.01
TOTAL	89,357	11,886	4,410	9,587	>60	223	237	61%	39%	0.02

Exhibit 5-8. Five-Year Enforcement and Compliance Summary for the Local Government Sector SIC Code 8231 - Libraries

A	B	C	D	E	F	G	H	I	J	K
Region	Facilities in Universe	Facilities in Search	Facilities Inspected	Number of Inspections	Average Months Between Inspections	Facilities with 1 or More Enforcement Actions	Total Enforcement Actions	Percent State Lead Actions	Percent Federal Lead Actions	Enforcement to Inspection Rate
I	1,300	6	1	5	>60	1	1	100%	0%	0.20
II	1,578	17	4	4	>60	0	0	0%	0%	--
III	1,493	30	3	22	>60	1	1	100%	0%	0.05
IV	2,297	10	9	32	19	2	5	40%	60%	0.16
V	3,340	17	5	37	28	0	0	0%	0%	--
VI	1,584	7	4	13	32	3	12	0%	100%	0.92
VII	1,377	9	1	1	>60	0	0	0%	0%	--
VIII	667	3	3	10	18	0	0	0%	0%	--
IX	1,372	41	0	0	--	0	0	0%	0%	--
X	779	0	0	0	--	0	0	0%	0%	--
TOTAL	15,787	140	30	124	>60	7	19	21%	79%	0.15

Exhibit 5-9. Five-Year Enforcement and Compliance Summary for the Local Government Sector
SIC Code 9221 - Police Protection

A	B	C	D	E	F	G	H	I	J	K
Region	Facilities in Universe	Facilities in Search	Facilities Inspected	Number of Inspections	Average Months Between Inspections	Facilities with 1 or More Enforcement Actions	Total Enforcement Actions	Percent State Lead Actions	Percent Federal Lead Actions	Enforcement to Inspection Rate
I	615	7	1	10	45	0	0	0%	0%	--
II	717	12	6	29	25	1	1	100%	0%	0.03
III	633	47	12	54	52	0	0	0%	0%	--
IV	1,243	25	19	107	14	1	1	100%	0%	0.01
V	1,483	24	7	35	41	0	0	0%	0%	--
VI	1,107	25	15	71	21	9	28	0%	100%	0.39
VII	488	13	5	12	>60	1	1	100%	0%	0.08
VIII	286	12	6	23	31	2	4	100%	0%	0.17
IX	563	14	4	17	49	2	2	100%	0%	0.12
X	268	11	6	15	44	0	0	0%	0%	--
TOTAL	7,403	190	81	373	31	16	37	24%	76%	0.10

Exhibit 5-10. Five-Year Enforcement and Compliance Summary for the Local Government Sector
SIC Code 9224 - Fire Protection

A	B	C	D	E	F	G	H	I	J	K
Region	Facilities in Universe	Facilities in Search	Facilities Inspected	Number of Inspections	Average Months Between Inspections	Facilities with 1 or More Enforcement Actions	Total Enforcement Actions	Percent State Lead Actions	Percent Federal Lead Actions	Enforcement to Inspection Rate
I	795	14	2	11	>60	0	0	0%	0%	--
II	1,534	32	8	50	38	0	0	0%	0%	--
III	1,787	35	6	15	>60	0	0	0%	0%	--
IV	2,368	22	14	71	19	2	2	100%	0%	0.03
V	1,748	24	7	27	53	1	1	100%	0%	0.04
VI	1,158	23	14	72	19	6	20	0%	100%	0.28
VII	380	10	3	10	60	1	1	100%	0%	0.10
VIII	333	6	3	11	33	1	3	100%	0%	0.27
IX	712	13	4	15	52	1	1	100%	0%	0.07
X	478	25	7	23	>60	1	1	0%	100%	0.04
TOTAL	11,293	204	68	305	40	13	29	28%	72%	0.10

Exhibit 5-11. Five-Year Enforcement and Compliance Summary for the Local Government Sector
SIC Code 9229 - Public Order and Safety, not Elsewhere Classified

A	B	C	D	E	F	G	H	I	J	K
Region	Facilities in Universe	Facilities in Search	Facilities Inspected	Number of Inspections	Average Months Between Inspections	Facilities with 1 or More Enforcement Actions	Total Enforcement Actions	Percent State Lead Actions	Percent Federal Lead Actions	Enforcement to Inspection Rate
I	18	21	2	4	>60	3	3	100%	0%	0.75
II	52	4	1	2	>60	0	0	0%	0%	--
III	42	6	5	26	14	0	0	0%	0%	--
IV	95	5	3	25	12	0	0	0%	0%	--
V	96	2	1	1	>60	0	0	0%	0%	--
VI	65	2	0	0	--	0	0	0%	0%	--
VII	29	1	1	2	30	0	0	0%	0%	--
VIII	13	1	1	1	60	0	0	0%	0%	--
IX	41	1	1	1	60	0	0	0%	0%	--
X	19	4	0	0	--	0	0	0%	0%	--
TOTAL	470	47	15	62	45	3	3	100%	0%	0.05

Exhibit 5-12. Five-Year Enforcement and Compliance Summary for the Local Government Sector SIC Code 9411 - Administration of Education Programs

A	B	C	D	E	F	G	H	I	J	K
Region	Facilities in Universe	Facilities in Search	Facilities Inspected	Number of Inspections	Average Months Between Inspections	Facilities with 1 or More Enforcement Actions	Total Enforcement Actions	Percent State Lead Actions	Percent Federal Lead Actions	Enforcement to Inspection Rate
I	400	29	12	22	>60	1	3	0%	100%	0.14
II	265	62	21	66	56	3	9	89%	11%	0.14
III	194	44	26	80	33	1	1	0%	100%	0.01
IV	373	42	32	37	>60	0	0	0%	0%	--
V	972	143	56	65	>60	9	9	0%	100%	0.14
VI	602	108	57	59	>60	0	0	0%	0%	--
VII	732	134	90	99	>60	2	2	0%	100%	0.02
VIII	495	43	21	22	>60	0	0	0%	0%	--
IX	483	53	16	21	>60	1	1	100%	0%	0.05
X	304	74	34	37	>60	0	0	0%	0%	--
TOTAL	4,820	732	365	508	>60	17	25	36%	64%	0.05

Exhibit 5-13. Five-Year Enforcement and Compliance Summary for the Local Government Sector SIC Code 9511 - Air and Water Resource and Solid Waste Management

A	B	C	D	E	F	G	H	I	J	K
Region	Facilities in Universe	Facilities in Search	Facilities Inspected	Number of Inspections	Average Months Between Inspections	Facilities with 1 or More Enforcement Actions	Total Enforcement Actions	Percent State Lead Actions	Percent Federal Lead Actions	Enforcement to Inspection Rate
I	195	66	40	420	9	17	33	15%	85%	0.08
II	284	54	40	366	9	17	44	55%	45%	0.12
III	466	65	54	690	6	7	9	67%	33%	0.01
IV	540	56	40	294	11	8	14	86%	14%	0.05
V	483	67	54	457	9	13	20	55%	45%	0.04
VI	393	32	15	69	28	10	22	5%	95%	0.32
VII	176	19	11	88	13	1	1	100%	0%	0.01
VIII	160	30	20	117	15	5	9	78%	22%	0.08
IX	381	54	38	228	14	9	10	70%	30%	0.04
X	129	41	7	80	31	2	5	100%	0%	0.06
TOTAL	3,207	484	319	2,809	10	89	167	47%	53%	0.06

Exhibit 5-14. Five-Year Enforcement and Compliance Summary for the Local Government Sector SIC Code 9512 - Land, Mineral, Wildlife, and Forest Conservation

A	B	C	D	E	F	G	H	I	J	K
Region	Facilities in Universe	Facilities in Search	Facilities Inspected	Number of Inspections	Average Months Between Inspections	Facilities with 1 or More Enforcement Actions	Total Enforcement Actions	Percent State Lead Actions	Percent Federal Lead Actions	Enforcement to Inspection Rate
I	220	1	0	0	--	0	0	0%	0%	--
II	285	13	8	27	29	1	1	100%	0%	0.04
III	99	3	0	0	--	0	0	0%	0%	--
IV	154	12	9	51	14	2	3	100%	0%	0.06
V	428	22	12	56	24	0	0	0%	0%	--
VI	118	3	1	9	20	0	0	0%	0%	--
VII	90	8	1	2	>60	0	0	0%	0%	--
VIII	94	5	5	29	10	1	1	100%	0%	0.03
IX	114	4	2	3	>60	1	1	100%	0%	0.33
X	45	2	1	2	60	0	0	0%	0%	--
TOTAL	1,647	73	39	179	24	5	6	100%	0%	0.03

Exhibit 5-15. Five-Year Enforcement and Compliance Summary for the Local Government Sector
SIC Code 9531 - Administration of Housing Program

A	B	C	D	E	F	G	H	I	J	K
Region	Facilities in Universe	Facilities in Search	Facilities Inspected	Number of Inspections	Average Months Between Inspections	Facilities with 1 or More Enforcement Actions	Total Enforcement Actions	Percent State Lead Actions	Percent Federal Lead Actions	Enforcement to Inspection Rate
I	354	70	6	10	>60	0	0	0%	0%	--
II	480	35	6	6	>60	0	0	0%	0%	--
III	263	15	11	55	16	1	1	100%	0%	0.02
IV	645	45	15	23	>60	1	2	100%	0%	0.09
V	466	18	5	18	60	0	0	0%	0%	--
VI	484	4	3	3	>60	0	0	0%	0%	--
VII	152	3	1	4	45	1	1	0%	100%	0.25
VIII	89	3	1	1	>60	0	0	0%	0%	--
IX	167	3	0	0	--	0	0	0%	0%	--
X	86	11	0	0	--	0	0	0%	0%	--
TOTAL	3,186	207	48	120	>60	3	4	75%	25%	0.03

Exhibit 5-16. Five-Year Enforcement and Compliance Summary for the Local Government Sector
SIC Code 9532 - Administration of Urban Planning and Community and Rural Development

A	B	C	D	E	F	G	H	I	J	K
Region	Facilities in Universe	Facilities in Search	Facilities Inspected	Number of Inspections	Average Months Between Inspections	Facilities with 1 or More Enforcement Actions	Total Enforcement Actions	Percent State Lead Actions	Percent Federal Lead Actions	Enforcement to Inspection Rate
I	154	1	0	0	--	0	0	0%	0%	--
II	232	5	1	1	>60	1	1	100%	0%	1.00
III	182	8	3	11	44	1	1	100%	0%	0.09
IV	278	18	6	23	47	1	2	50%	50%	0.09
V	228	5	1	4	>60	0	0	0%	0%	--
VI	144	1	1	5	12	0	0	0%	0%	--
VII	49	1	0	0	--	0	0	0%	0%	--
VIII	93	3	2	2	>60	0	0	0%	0%	--
IX	129	5	3	13	23	1	1	100%	0%	0.08
X	48	17	1	9	>60	1	1	100%	0%	0.11
TOTAL	1,537	64	18	68	>60	5	6	83%	17%	0.09

Exhibit 5-17. Five-Year Enforcement and Compliance Summary for the Local Government Sector
SIC Code 9651 - Regulation, Licensing, and Inspection of Miscellaneous Commercial Sites

A	B	C	D	E	F	G	H	I	J	K
Region	Facilities in Universe	Facilities in Search	Facilities Inspected	Number of Inspections	Average Months Between Inspections	Facilities with 1 or More Enforcement Actions	Total Enforcement Actions	Percent State Lead Actions	Percent Federal Lead Actions	Enforcement to Inspection Rate
I	8	0	0	0	--	0	0	0%	0%	--
II	21	0	0	0	--	0	0	0%	0%	--
III	35	1	1	7	9	0	0	0%	0%	--
IV	46	0	0	0	--	0	0	0%	0%	--
V	43	0	0	0	--	0	0	0%	0%	--
VI	26	1	1	5	12	1	2	0%	100%	0.40
VII	13	0	0	0	--	0	0	0%	0%	--
VIII	8	0	0	0	--	0	0	0%	0%	--
IX	23	2	0	0	--	0	0	0%	0%	--
X	5	0	0	0	--	0	0	0%	0%	--
TOTAL	228	4	2	12	20	1	2	0%	100%	0.17

Exhibit 5-18 . SDWIS Enforcement and Compliance Summary Information Reported for Local Government-Owned Public Water Systems

Region	Facilities in Universe	Facilities in Search	Number of Visits *	Total Enforcement Actions **	% State Lead	% Federal Lead
I	22,499	2,083	722	3,897	99%	1%
II	36,155	3,669	1,891	4,521	95%	5%
III	38,443	4,778	535	9,575	98%	2%
IV	57,558	6,939	3,672	14,863	97%	3%
V	106,252	10,865	6,060	27,908	98%	2%
VI	28,233	5,715	638	8,138	95%	5%
VII	12,979	4,447	1,620	13,459	99%	1%
VIII	13,623	2,056	836	6,277	97%	3%
IX	20,139	2,444	251	1,591	76%	24%
X	20,607	3,184	267	4,313	97%	3%

* Number of visits is not a required field in SDWIS; much of the data are not reported by the states.

** Number of enforcement actions is a required field in SDWIS; therefore, there is no relationship between number of visits and number of enforcement actions.

6. REVIEW OF MAJOR LEGAL ACTIONS

This chapter summarizes major cases that have affected the local government sector and contains information on supplemental environmental projects (SEPs) negotiated in some cases. As indicated in EPA' s Enforcement and Compliance Assurance Accomplishments Reports from 1992 to 1997, many significant enforcement actions were resolved involving the local government sector. Appendix E presents examples of environment related law violations and enforcement cases against local governments. As shown in Appendix E, the 147 cases can be categorized as follows:

- CAA–8 cases
- CERCLA–31 cases
- CWA–67 cases
- SDWA–12 cases
- Ocean Dumping Ban Act and Marine Protective Research and Sanctuaries Act–4 cases
- RCRA–7 cases
- TSCA/FIFRA/EPCRA–14 cases
- Multimedia–4 cases.

6.1 SELECTED ENFORCEMENT CASES

This section features 12 examples of enforcement cases resolved between 1992 and 1997 involving the local government sector. One case involves CAA violations, three involve CWA violations, two involve SDWA violations, one involves a RCRA violation, three involve CERCLA violations, and two involve TSCA violations. Nine of the 12 cases resulted in the assessment of a penalty. Penalties ranged from $5,500 to $2.8 million. In the CWA case *U.S. v. City of Hoboken, NJ* (1994), the Hoboken, Union City, Weehawken Sewerage Authority agreed to pay stipulated penalties in the amount of $2.8 million for its violations of a January 1991 consent decree. This $2.8 million includes a

payment of $1,152,000 that will be made to EPA, $850,000 to the New Jersey Department of Environmental Protection, and the remainder to the Interstate Sanitation Commission.

Some of the settlements required defendants to initiate cleanup projects for the remedial action.

In *U.S. v. School District of Philadelphia, PA* (1997): a complaint and consent decree was filed that seeks the cleanup and disposal of PCBs that are in 29 transformers located at 12 schools. The school district must also comply with the PCB rule and implement a PCB management plan. The plan would provide for the repair, inspection, cleanup, and proper disposal of PCB-contaminated materials. The school district must remove or upgrade all of the PCB transformers within 3 years and submit bimonthly progress reports to EPA to facilitate monitoring of the school district' s cleanup efforts.

U.S. v. Kansas Bureau of Water (1995) involved the Kansas' Bureau of Water issuing 25 wastewater treatment orders against various municipalities and trailer courts in Kansas. The consent orders to cities, including Lawrence, Topeka, and Leavenworth, initiate projects to eliminate the discharge of water treatment sludge to streams. The orders to trailer courts in Pittsburg, Kansas, have resulted in ongoing efforts to form sewer districts that will be connected to the Pittsburg wastewater treatment plant. These sewer districts will help eliminate sewage discharges into abandoned mine shafts.

In *U.S. v. City and County of Denver, CO* (1995), violations included an exceedence of performance standards by air emissions from the treatment plant on two occasions, failure to notify EPA and the Colorado Department of Public Health and Environment, failure to recycle vapor-phase carbon units and implement change-out procedures, and failure to submit a schedule for proposed corrective measures. The city will pay a penalty of $79,550.

In *U.S. v. City of San Diego, CA* (1997), a stipulated final order settled an enforcement action that addressed deficiencies with San Diego' s sewage treatment facilities. The order calls for the city to continue work on infrastructure projects, replace 200 miles of decaying concrete sewers, audit pump stations and force mains, increase efforts to reduce grease loadings to the system, and upgrade its data collection and modeling capabilities. The order also requires $60 to $200 million for projects.

In the 1996 CWA case of *U.S. v. City of Blackhawk, CO*, the city allowed the illegal construction of a water supply pump station on Clear Creek (without a U.S. Army Corps of Engineers CWA permit), including excavation and backfilling of about 1,800 square feet of river bed on the north fork of Clear

Creek. The result was a temporary loss of wetlands and destruction of aquatic life. The penalty payment was $61,515.

In *U.S. v. Town of Hempstead, NY* (1997), the town had two violations: an unpermitted discharge into an underground injection well and the endangerment of a Department of Highways facility in Roosevelt. An administrative/consent order was issued that required the town to implement a compliance/closure plan, pay a $5,500 penalty, perform a facility audit, and provide employee training. The town will: 1) inventory and address facilities where there may be Class V injection wells, 2) test for pesticides, and 3) keep the public informed of the status of closure implementation at the Roosevelt facility.

In *U.S. v. City of New York Department of Transportation, NY* (1995 and 1997), the city generated hazardous paint chips during bridge repainting operations without a RCRA identification number or manifests, and stored wastes without a permit or authorization. A joint penalty (with contractor) of $25,000 was assessed and an administrative consent agreement/consent order (CACO) issued. The city drafted a lead-based paint removal protocol, the implementation of which will cost the city more than $5 million. The city must pay a civil penalty of $145,000.

In the CERCLA case *U.S. v. City of Algoma, Algoma Municipal Landfill, WI,* settled in 1992, a consent decree was issued requiring the city and eight potentially responsible parties to implement the remedy selected by the record of decision. Defendants will reimburse EPA and the state for their future oversight costs and pay 90 percent of EPA' s past oversight costs. Settlement is for $1.3 million. Monitoring detected an exceedance of the maximum contaminant levels for cadmium, iron, and manganese.

The case of *U.S. v. City of Jacksonville, AR* (1994), involved two consent decrees that were lodged for the Jacksonville and Rogers Road Municipal Landfill Superfund Sites. Both sites have soils contaminated with dioxin that was produced by a herbicide manufacturer. An estimated 800 cubic yards of soil is contaminated. The city agreed to pay $100,000 in past costs.

In *U.S. v. Montgomery County Solid Waste District (MCSWD), Moraine, OH* (1996), excess waste from an incinerator operated by the MCSWD was sent to a municipal landfill. Thirty-one municipalities are members of the MCSWD. The landfilled waste included commercial or industrial waste containing hazardous substances. The defendants will pay $60,000 for previous oversight costs and 50 percent of remaining oversight costs.

U.S. v. New York City, NY Board of Education, which was settled in 1996, involved an allegation that the head of the board' s Asbestos Task Force knowingly submitted false information on 375 Asbestos Hazards Emergency Response Act (AHERA) management plans. A CACO was issued under AHERA that requires a payment of $1.5 million, systematic reinspection of each of the 1,069 schools for asbestos, and the preparation of new management plans to ensure that all buildings are in compliance.

6.2 SUPPLEMENTAL ENVIRONMENTAL PROJECTS

SEPs are compliance agreements that reduce a facility' s stipulated penalty in return for an environmental project that exceeds the value of the reduction. Often, these projects fund pollution prevention activities that can significantly reduce the future pollutant loadings of a facility. Exhibit 6-1 presents examples of SEPs negotiated as part of case settlements with local governments. It should be noted that the information contained in Exhibit 6-1 is not comprehensive and provides only a sample of the types of SEPs developed for local governments.

Exhibit 6-1. Examples of Supplemental Environmental Projects – Local Government Sector

Case Name	EPA Region	Statute/ Type of Action	Type of SEP	Estimated Cost	Expected Environmental Benefits	Final Assessed Penalty	Final Penalty After Mitigation
City of Haverhill, MA	1	RCRA	Pollution Prevention and Reduction	$100,000	Construction of a permanent household hazardous waste collection facility and quarterly household waste collections.	$176,735	$17,708
New Jersey Transit Bus Operations, NJ	2	RCRA	Pollution Prevention	$184,300	Removal and disposal of asbestos insulation from two locations.	$322,704	$130,000
Jefferson County/Cahaba River, AL	4	CWA	Environmental Restoration and Protection	$30 million	Acquisition and maintenance of protected areas; restoration, protection, and enhancement of the water quality; reduction and prevention of erosion and nonpoint source pollution of the Cahaba and Black Warrior Rivers.	unknown	$750,000
Memphis-Shelby County Airport Authority, TN	4	EPCRA	Pollution Reduction	unknown	Purchase of equipment used to de-ice runways will reduce the amount of the de-icing fluid, ethylene glycol, that is needed.	$60,000	$9,000
City and County of Honolulu	9	CWA	Public Health, Pollution Reduction and Other Program Specific SEPs	$42 million	Treatment and reuse of wastewater and sludge. By the year 2001, Honolulu will recycle 10 million gallons of wastewater per day.	unknown	$950,000

7. COMPLIANCE ASSURANCE ACTIVITIES AND INITIATIVES

During the 1990s, many regulatory agencies, including EPA, have focused on designing programs that help industry comply with environmental requirements. One of the sectors to benefit from such programs is local governments. This chapter highlights the activities and initiatives designed by EPA and the U.S. Department of Agriculture (USDA) to improve and facilitate local government compliance with environmental statutes and regulations. The chapter concludes with information on various associations and organizations relevant to local governments.

7.1 EPA INITIATIVES AND VOLUNTARY PROGRAMS

National Small Flows Clearinghouse

Funded by EPA, the National Small Flows Clearinghouse (NSFC) provides information about innovative, low-cost wastewater treatments for small communities (i.e., communities with populations less than 10,000). Emphasis is placed on finding practical, alternative solutions for "small flows" wastewater problems. A "small flows" system is one that has 1 million gallons or less of wastewater flowing through it each day, ranging from septic systems to small sewage treatment plants. NSFC helps homeowners, renters, citizens' groups, local industry leaders, research scientists, educators, local and state government officials, and related professionals. The program addresses a range of wastewater-related topics, including treatment technologies, design and monitoring information, planning strategies, regulations, and education. (Contact: NSFC at (800) 624-8301, email at webmaster@estd.wvu.edu, or visit NSFC's website at http://names.nsfc.wvu.edu/nsfc/.)

Project XL for Communities

Project XL was initiated in March 1995 as part of President Clinton's *Reinventing Environmental Regulation* initiative. This project seeks to achieve cost-effective environmental benefits by providing participants regulatory flexibility on the condition that they produce greater environmental benefits. EPA and program participants negotiate and sign a final project agreement that details specific environmental objectives that the regulated entity shall satisfy. EPA provides regulatory flexibility as an incentive for the participant's superior environmental performance. Participants are encouraged to seek stakeholder support from local governments,

businesses, and environmental groups. EPA hopes to implement 50 pilot projects in four categories, including industrial facilities, communities, and government facilities regulated by EPA. Applications will be accepted on a rolling basis. For additional information regarding XL projects, including application procedures and criteria, see the April 23, 1997 Federal Register Notice. (Contact: Fax-on-Demand Hotline at (202) 260-8590, Web: http://yosemite.epa.gov/xl/xl_home.nsf/all/homepage or http://www.epa.gov/ProjectXL, or Christopher Knopes at EPA's Office of Policy, Planning and Evaluation at (202) 260-9298.)

Brownfields Economic Redevelopment Initiative

EPA's Brownfields Economic Redevelopment Initiative is designed to empower states, communities, and other stakeholders in economic redevelopment to work together in a timely manner to prevent, assess, safely clean up, and sustainably reuse Brownfields. A Brownfield is a site, or portion thereof, that has actual or perceived contamination and an active potential for redevelopment or reuse. EPA's Brownfields Initiative strategies include funding pilot programs and other research efforts, clarifying liability issues, entering into partnerships, conducting outreach activities, developing job training programs, and addressing environmental justice concerns. (Contact: Linda Garczynski at (202) 260-4039 or visit the EPA Brownfields website at http://www.epa.gov/brownfields.)

Catalog of Federal Funding Sources for Watershed Protection

EPA's Office of Water has developed a *Catalog of Federal Funding Sources for Watershed Protection* to inform watershed partners of federal money that may be available to fund a variety of watershed protection projects. The information presented reflects sources available as of September 1997. The Office of Water plans to update the catalog periodically. (Contact: This catalog can be viewed at http://www.epa.gov/owow/watershed/wacademy/fund.html.)

The Watershed Academy

Public and private organizations, academic institutions, and citizens and their governments in thousands of communities across the nation are forming partnerships and learning new ways to manage their watersheds together. EPA's Office of Water established the Watershed Academy to provide training for watershed managers based on local, state, tribal, and federal experiences in implementing watershed approaches throughout the past decade. The Watershed Academy provides technical watershed information and outreach through live training courses, the Internet, and published documents. The academy also maintains a training catalog listing information

regarding more advanced training. (Contact: Email the Watershed Academy at public-access@epamail.epa.gov or visit the website at http://www.epa.gov/owow/watershed/wacademy.htm.)

Climate Wise Program

In October 1993, President Clinton unveiled the Climate Change Action Plan (CCAP) in honor of the United States' commitment to reducing its greenhouse gas emissions to 1990 levels by the year 2000. Climate Wise, a project jointly sponsored by the U.S. Department of Energy and EPA, is one of the projects initiated under CCAP.

Climate Wise is a partnership between government and industry that offers companies a nonregulatory approach to reducing greenhouse gas emissions. Climate Wise state and local government "allies" work with U.S. industries to develop flexible, comprehensive strategies for achieving energy efficiency and pollution prevention. They help local business identify and implement projects that often require little capital investment, but promise a high rate of return. Companies that become Climate Wise partners receive technical assistance and financing information to help them develop and implement cost-effective changes. (Contact: Climate Wise Clearinghouse at (301) 230-4736 or visit the Climate Wise website at http://www.epa.gov/climatewise/allies.htm or http://www.epa.gov/climatewise/index.htm.)

State and Local Outreach Program

EPA's State and Local Outreach Program was created in 1989 and incorporated into the CCAP in 1993 to reduce greenhouse gas emissions to 1990 levels by the year 2000. This program forms partnerships with state and local governments to help them increase their understanding of the impacts of climate change and reduce their emissions of greenhouse gases. State and local authorities are critical players in the effort to reduce these emissions, because they have jurisdiction over activities that create direct and indirect impacts, including land use, transportation, building codes, and waste management. Moreover, states and localities account for a significant percentage of global emissions of greenhouse gases. The mission of the program is to empower decision makers at the state and local level to reduce greenhouse gas emissions by providing them with specialized products and services.

Cities and counties become partners in the State and Local Outreach Program through initiatives coordinated by the International Council for Local Environmental Initiatives (ICLEI). ICLEI organizes campaigns that provide incentives for local governments to conduct energy audits and

emissions inventories, reduce energy consumption, and increase public awareness. The State and Local Outreach Program supports energy and innovative ideas of states and localities by providing a host of activities and services. These include technical and financial assistance workshops and training, guidance documents, software tools, analytic models, and opportunities for recognition and profile. (Contact: State and Local Outreach Program Website at http://es.epa.gov/partners/ stateloc/stateloc.html.)

Small Community Outreach Project for Environmental Issues (SCOPe)

The Small Community Outreach Project for Environmental Issues (SCOPe) seeks to help small communities obtain optimal environmental quality and public health while minimizing the financial burdens of compliance by increasing the quantity and quality of local government participation in the development of environmental regulations. SCOPe's mission is to minimize the effects of environmental regulations on small entities by conveying the communities' concerns and values to EPA at an early stage of the rulemaking process. SCOPe focuses on those governments with populations under 50,000 that will be affected by a particular potential regulation. SCOPe is funded through a cooperative agreement with EPA and is coordinated by the National Association of Schools of Public Affairs and Administration (NASPAA). NASPAA is a nationwide network of 240 graduate schools of public affairs and administration and university-based centers of governmental affairs. University faculty conduct the outreach discussions and meet at least twice with local government officials to get their input into how a potential environmental regulation might affect their community. Currently, SCOPe is limited to small communities in the Southeast United States; however, NASPAA expects future expansion of the program to other regions. (Contact: Deborah Rosenbloom of NASPAA at 202-628-8965 or visit the SCOPe website at www.naspaa.org.)

Transportation Partners

The Transportation Partners program was initiated as part of the CCAP, which directed EPA to develop an innovative, non-regulatory approach to reduce carbon dioxide emissions from the transportation sector. The program was started in 1995 to support the voluntary efforts of local officials, citizens, and businesses to improve the efficiency of transportation systems and reduce the demand for vehicle travel. The goal of the Transportation Partners program is to reduce carbon dioxide emissions from the transportation sector by voluntarily reducing vehicle miles traveled. Effective measures include telecommuting, transit- and pedestrian-oriented community design, and market-based reforms. These measures have significant side benefits, such as reducing traffic congestion, increasing worker productivity, making neighborhoods safer and

more livable, and generating revenues that can reduce the funding for transportation infrastructure without increasing general taxes.

The Transportation Partners program has partnerships with approximately 100 local governments and citizens' organizations. The program provides members with technical and outreach support to assist them in implementing transportation measures that they have decided are appropriate for their communities. The program also provides members with public recognition of their efforts to reduce carbon dioxide emissions. (Contact: View the Transportation Partners' website at http://es.epa.gov/partners/transp/tranpart.html.)

Local Government Advisory Committee

The Local Government Advisory Committee is chartered under the Federal Advisory Committee Act. The purpose of the committee is to advise, consult with, and make recommendations to the Administrator of EPA on matters related to the implementation of federal environmental requirements by local governments. The committee's activities include changes in the regulatory planning and development process to involve local governments more effectively; changes needed to allow flexibility to accommodate local needs without compromising environmental performance, accountability, or fairness; and ways EPA and states can help local governments deal with the challenge of financing environmental protection, identify ways to encourage innovation and explore ways to speed dissemination of new environmental protection techniques and technologies. (Contact: EPA's Office of Congressional and Intergovernmental Relations website: http://www.epa.gov/regional/lgac.htm.)

Small Community Advisory Committee

The Small Community Advisory Committee is a subcommittee of the Local Government Advisory Committee. The purpose of the subcommittee is to be a standing advisory group to aid small towns with environmental issues by improving and protecting the environment in which they live. The committee is made up of 16 members from small towns across the country. The members consist of elected local government officials, appointed officials, technical officials, representatives from small water districts, and citizen activists. The objectives of the committee include: changing how EPA and state agencies develop regulations; informing legislative bodies of the cost of providing environmental protection to small towns; and advising EPA of the range of technical service available to help. The Small Community Advisory Committee oversees the implementation of the Small Town Task Force Report. The report was created by EPA in 1992 as mandated by Congress. The purpose of the task force was to advise EPA on how to work

better with small communities to improve compliance with environmental regulations. (Contact: Steve Wilson, EPA Small Community Coordinator at (202) 260-2294, or Small Town Task Force website: http://www.epa.gov/regional/small1.htm.)

Local Government Environmental Assistance Network

The Local Government Environmental Assistance Network (LGEAN) is a forum and clearinghouse of environmental information for local governments. LGEAN provides environmental management, planning, and regulatory information for local government elected and appointed officials, managers, and staff. LGEAN enables local officials to interact with their peers and others on-line. In an effort to reach all local governments, LGEAN publishes a quarterly newsletter, *SCAN*, and manages both a toll-free and fax-on-demand service. EPA is a partner in LGEAN and has provided technical and financial resources. (Contact: View the website: http://www.lgean.org, or call toll-free 877-TO-LGEAN.)

Municipal Environmental Management Systems

EPA's Office of Wastewater Management and Office of Compliance have sponsored a two-year project to assist small and medium-sized public sector organizations in developing and implementing an ISO 14001 Environmental Management System (EMS). At the end of the two-year project EPA expects that each of the participants will have all of the elements of an ISO 14001 EMS. Additional goals for this project include: evaluating the effect of the ISO 14001 EMS on the management of environmental issues; tracking costs, staff commitment, benefits, hurdles, environmental performance, interested stakeholder involvement, and pollution prevention activities; and communicating results and lessons learned across the public and private sector. EPA selected the Global Environment & Technology Foundation to lead the Municipalities Initiative and to provide on-going training, technical assistance, and EMS coaching to each of the municipal organizations throughout the project. (Contact: EPA's website http://www.epa.gov/ owmitnet/impiso.htm, or visit GlobeNet http://www.iso14000.net.)

The Mayors Desk

The Mayors Desk is an EPA-sponsored program started in August 1998. The purpose of this program is to provide information dealing with environmental issues to mayors across the country. The goal of providing such information is to improve the mayors' access to the policy development process. An appointed EPA liaison operates the desk, acts as the Agency's point of contact, and serves as an information resource who channels mayors to those people in the

program offices who are working on specific issues and projects. (Contact: Richard Dickerson of EPA at (202) 260-6029.)

Energy Star® Buildings and Green Lights® Partnership

In 1991, EPA introduced Green Lights®, a program designed for businesses and organizations to proactively combat pollution by installing energy-efficient lighting technologies in their commercial and industrial buildings. In April 1995, Green Lights® expanded into Energy Star® Buildings—a strategy that optimizes whole-building energy-efficiency opportunities.

The energy needed to run commercial and industrial buildings in the United States produces 19 percent of U.S. carbon dioxide emissions, 12 percent of nitrogen oxides, and 25 percent of sulfur dioxide, at a cost of $110 billion a year. If implemented in every U.S. commercial and industrial building, Energy Star® Buildings' upgrade approach could prevent up to 35 percent of the emissions associated with these buildings and cut the nation's energy bill by up to $25 billion annually.

The more than 2,500 participants include corporations, small businesses, universities, health care facilities, nonprofit organizations, school districts, and federal and local governments. As of January 1, 1998, Energy Star®Buildings and Green Lights® Program participants have reduced their annual energy use by 7 billion kilowatt hours and annually save more than $517 million. By joining, participants agree to upgrade 90 percent of their owned facilities with energy-efficient lighting and 50 percent of their owned facilities with whole-building upgrades, where profitable, over a seven-year period. Energy Star® participants first reduce their energy loads with the Green Lights® approach to building tune-ups, then focus on "right sizing" their heating and cooling equipment to match their new energy needs. EPA predicts this strategy will prevent more than 5.5 MMTCE of carbon dioxide by the year 2000. EPA's Office of Air and Radiation is responsible for operating the Energy Star® Buildings and Green Lights® Program. (Contact: Energy Star Hotline, 1-888-STAR-YES (1-888-872-7937) or Maria Tikoff Vargas, Co-Director at (202) 564-9178 or visit the website at http://www.epa.gov/buildings.)

Indoor Environments Program

The Indoor Environments Program was formed in 1995 to increase the public's understanding of indoor air quality (IAQ) and its effect on public health. IAQ is widely recognized as among the highest environmental risks people face on a day-to-day basis. To address this issue, the Agency uses voluntary relationships with public and private organizations, as well as the general public,

to inform individuals and institutions about simple and low-cost steps they can take to reduce risks. Using the best science available, the Indoor Environments Program develops and disseminates information, guidance, and solution-based technologies. The program serves as a catalyst for action by guiding research, using innovative and creative risk communication tools, and building public/private partnerships. (Contact: View the Indoor Environments Program's website at http://es.epa.gov/partners/indoor/indoor.html.)

WasteWi$e Program

The WasteWi$e Program was started in 1994 by EPA's Office of Solid Waste and Emergency Response. The program is aimed at reducing municipal solid wastes by promoting waste prevention, recycling collection, and the manufacturing and purchase of recycled products. As of 1998, the program had about 700 business, government, and institutional partners. Partners agree to identify and implement actions to reduce their solid wastes by setting waste reduction goals and providing EPA with yearly progress reports for a three-year period. EPA, in turn, provides partners with technical assistance, publications, networking opportunities, and national and regional recognition. (Contact: WasteWi$e Hotline at (800) 372-9473 or Joanne Oxley, EPA Program Manager, (703) 308-0199.)

NICE^3

The U.S. Department of Energy sponsors a grant program called National Industrial Competitiveness through Energy, Environment, and Economics (NICE^3). The NICE^3 program provides funding to state and industry partnerships (large and small businesses) for projects demonstrating advances in energy efficiency and clean production technologies. The goal of the NICE^3 program is to demonstrate the performance and economics of innovative technologies in the U.S., leading to the commercialization of improved industrial manufacturing processes. These processes should conserve energy, reduce waste, and improve industrial cost-competitiveness. Industry applicants must submit project proposals through a state energy, pollution prevention, or business development office. Awardees receive a one-time, three-year grant of up to $400,000, representing up to 50 percent of a project's total cost. In addition, up to $25,000 is available to support the state applicant's cost share. (Contact: View the website at http//www.oit.doe.gov/Access/nice3; Steve Blazek, DOE, (303) 75-4723; or Eric Hass, DOE, (303) 275-4728.)

Design for the Environment

The Design for the Environment (DfE) is working with several industries to identify cost-effective pollution prevention strategies that reduce risks to workers and the environment. DfE helps businesses compare and evaluate the performance, cost, pollution prevention benefits, and human health and environmental risks associated with existing and alternative technologies. The goal of these projects is to encourage businesses to consider and use cleaner products, processes, and technologies. For more information about the DfE Program, call (202) 260-1678. (Contact: EPA's Pollution Prevention Information Clearinghouse at (202) 260-1023 or visit the DfE Website at http://www.epa.gov/dfe.)

Clean Water Action Plan

In 1998, EPA and the USDA were charged with developing a Clean Water Action Plan designed to speed the restoration of the nation's waterways. This plan aims to achieve clean water by strengthening public health protections, targeting community-based watershed protection efforts at high priority areas, and providing communities with new resources to control polluted runoff. This action plan is being built around four key tools: 1) watershed approaches, 2) strong federal and state standards, 3) natural resource stewardship, and 4) informed citizens and officials. (Contact: View the Clean Water Action Plan website at http://www.epa.gov/cleanwater/action/overview.html.)

7.2 U.S. Department of Agriculture Initiatives and Voluntary Programs

National Drinking Water Clearinghouse

The National Drinking Water Clearinghouse (NDWC) was established in 1991 at West Virginia University to develop and maintain services and information related to small community drinking water systems. Funded by the Department of Agriculture's Rural Utilities Service, the NDWC is an extension of that organization's commitment to provide technical assistance to America's rural water facilities. NDWC assists small communities (fewer than 10,000) by collecting, developing, and providing timely information relevant to drinking water issues. Two quarterly newsletters (*On Tap* and *Water Sense*) are available to help small communities with their drinking water needs. NDWC also offers approximately 200 free or low-cost educational products, including brochures, videotapes, and government publications, on topics ranging from drinking water regulations to financial management. Furthermore, NDWC's databases offer a variety of drinking water information relating to groundwater protection, water system design,

water treatment processes, water conservation, and drinking water regulations. Technical assistants are available to conduct a search to help individuals find answers to questions or refer individuals to the appropriate organization. (Contact: Call NDWC at (800) 624-8301 or visit NDWC's website at http://names.nsfc.wvu.edu/ndwc/.)

Empowerment Zone and Enterprise Community

The Empowerment Zone and Enterprise Community (EZ/EC) program is designed to afford communities real opportunities for growth and revitalization. The framework of the program addresses four key principles: economic opportunities (e.g., create jobs within the community and throughout the region), sustainable community development, community-based partnerships (e.g., partnerships with local governments, community groups, health and social service groups, and environmental groups), and strategic vision for change (e.g., what the community will become). This program is designed to empower people and communities all across the nation by inspiring Americans to work together to create jobs and opportunity. (Contact: EZ/EC Team at (800) 645-4712, email to ezec@rurdev.gov, or view EZ/EC's website at http://www.ezec.gov.)

National Rural Development Partnership

The National Rural Development Partnership, through 37 State Rural Development Councils and a National Rural Development Council, brings together federal, state, local, and tribal governments, as well as the private for-profit and non-profit sectors, to work in partnership for the improvement of rural America's communities. Through an information-based, learning-while-doing approach, the National Rural Development Partnership addresses complex rural problems in new ways: building crucial intergovernmental and intragovernmental relations; promoting strategic development; conducting partnership activities; making better use of existing resources; intervening in a problem-solving role; addressing regulatory and administrative impediments; and representing a new model of governance. (Contact: National Rural Development Partnership at (202) 690-2394, or view the website at http://www.rurdev.usda.gov/nrdp.)

7.3 SUMMARY OF NATIONAL ASSOCIATIONS

International City/County Management Association

777 North Capitol Street, NE
Suite 500
Washington, DC 20002
Phone: (202) 289-4262
Fax: (202) 962-3500
Website: http://www.icma.org/

Founded in 1914, the International City/County Management Association is the professional and educational association for more than 8,000 appointed administrators and assistant administrators serving cities, counties, other local governments, and regional entities around the world.

National Association of County & City Health Officials

1100 17th Street, Second Floor
Washington, DC 20036
Phone: (202) 783-5550
Fax: (202) 783-1583
Email: info@NACCHO.org
Website: http://www.naccho.org/

In July 1994, the National Association of County Health Officials and the U.S. Conference of Local Health Officers combined to form a unified organization representing local public health. NACCHO is a nonprofit membership organization serving all of nearly 3,000 local health departments nationwide–in cities, counties, townships, and districts. NACCHO provides education, information, research, and technical assistance to local health departments and facilitates partnerships among local, state, and federal agencies to promote and strengthen public health.

National Association of Counties

440 1st Street, NW
Washington, DC 20001
Phone: (202) 393-6226
Fax: (202) 393-2630
Website: http://www.naco.org/

The National Association of Counties (NACo) was created in 1935 when county officials wanted to have a strong voice in the nation's capital. NACo's membership totals nearly 1,800 counties, representing more than 85 percent of the nation's population. NACo, the only national organization that represents county governments in the United States, continues to follow the traditions established by those early county officials. NACo provides an extensive line of services, including legislative, research, and technical, as well as public affairs. The association acts as a liaison with other levels of government, works to improve public understanding of counties, serves as a national advocate for counties, and provides them with resources to help them find innovative methods to meet the challenges they face. NACo is involved in a number of special projects that deal with such issues as the environment, sustainable communities, volunteerism, and intergenerational studies.

National Association of Towns and Townships

444 N. Capitol Street, NW, Suite 208
Washington, DC 20001-1202
Phone: (202) 624-3550
Fax: (202) 624-3554
Website: http://natat.org/

The purpose of the National Association of Towns and Townships (NATaT) is to strengthen the effectiveness of town and township governments. It does so by educating lawmakers and public policy officials about how small town governments operate and by advocating policies on their behalf in Washington, DC. NATaT works to assure smaller local governments equal access to vital federal resources.

National Center for Small Communities

444 N. Capitol Street, NW, Suite 208
Washington, DC 20001-1202
Phone: (202) 624-3550
Fax: (202) 624-3554
Website: http://natat.org/

The National Center for Small Communities (NCSC) is the only national, nonprofit organization devoted to serving the leaders of America's smaller communities. The mission of NCSC is to provide small town decision makers with the tools to govern effectively and the skills to expand local economies, protect natural resources, and preserve community character.

National Environmental Training Association

3020 East Camelback Road, Suite 399
Phoenix, AZ 85016
Phone: (602) 956-6099
Fax: (602) 956-6399
Website: http://www.envirotraining.org/

Founded in 1977 with support from EPA, the National Environmental Training Association (NETA) is an international nonprofit educational and professional society dedicated to promoting competency and excellence in environmental and safety and health training. With 1,600 members worldwide, NETA is the network for academic, government, industrial, utility, and consulting trainers and training managers responsible for protecting public health, workers, and the environment. NETA's programs and services include a certified environmental trainer program; annual conference and workshops; environmental, health, and safety training skills workshops; development of standards in environmental occupations; Internet trainers forum; and a newsletter.

National League of Cities

1301 Pennsylvania Avenue, NW
Washington, DC 20004
Phone: (202) 626-3000
Fax: (202) 626-3043
Website: http://www.nlc.org/

The National League of Cities (NLC) is the country's largest and most representative organization serving municipal governments. Founded in 1924 by 10 state municipal leagues, today its direct members include 49 state municipal leagues and 1,500 communities of all sizes. Through the membership of the state municipal leagues, NLC represents more than 18,000 municipalities. Acting on behalf of local governments, NLC's goals include influencing national policy and building understanding and support for cities and towns. Through a wide range of programs and services, NLC assists local leaders in their jobs as policy makers and public servants.

The National Pollution Prevention Roundtable

2000 P Street NW, Suite 708
Washington, DC 20036
Phone: (202) 466-7272
Fax: (202) 466-7964
Website: http://www.p2.org/

The National Pollution Prevention Roundtable (the Roundtable) is the largest membership organization in the United States devoted solely to pollution prevention. The Roundtable provides a national forum for promoting the development, implementation, and evaluation of efforts to avoid, eliminate, or reduce pollution at the source. The Roundtable's voting membership includes state, local, and tribal government pollution prevention programs. Affiliate members include representatives from federal agencies, non-profit organizations, trade associations, academic institutions, and private industry. Public sector members located in every state and internationally operate programs that provide pollution prevention information and technical assistance to thousands of industrial, commercial, and agricultural facilities each year. This information helps many of these facilities reduce the cost of both production and environmental compliance. The result is improved efficiency, increased competitiveness and a better environment.

National Rural Water Association

2915 S. 13th Street
Duncan, OK 73533
Phone: (580) 252-0629
Fax: (580) 255-4476
Website: http://www.nrwa.org

The National Rural Water Association (NRWA) is a federation of 45 state rural water associations. These state associations represent more than 18,000 water and wastewater utilities across America, making NRWA the largest utility membership organization in the nation. In cooperation with state associations, NRWA is constantly working to improve the quality of utility services for rural Americans, while protecting natural resources.

Public Technology, Inc.

1301 Pennsylvania Avenue., NW
Washington, DC 20004
Phone: (800) 852-4934
Fax: (202) 626-2498
Website: http://www.pti.nw.dc.us/

Public Technology, Inc. (PTI), is the nonprofit technology research, development, and commercialization organization for all cities and counties in the United States. The National League of Cities, the National Association of Counties, and the International City/County Management Association provide PTI with its policy direction, while a select group of city and county members conduct applied R&D and technology transfer functions.

State and Territorial Air Pollution Program Administrators and the Association of Local Air Pollution Control Officials

444 North Capitol Street, NW, Suite 307
Washington, DC 20001
Phone: (202) 624-7864
Fax: (202) 624-7863
Email: 4clair@sso.org
Website: http://www.4cleanair.org/

The State and Territorial Air Pollution Program Administrators (STAPPA) and the Association of Local Air Pollution Control Officials (ALAPCO) are the two national associations representing air pollution control agencies in the 54 states and territories and more than 150 major metropolitan areas across the United States. State and local air pollution control officials formed STAPPA and ALAPCO over 25 years ago to improve their effectiveness as managers of air quality programs. The associations encourage the exchange of information among air pollution control officials; enhance communication and cooperation among federal, state, and local regulatory agencies; and promote good management of air resources.

Water Environment Federation

601 Wythe Street
Alexandria, VA 22314
Phone: (703) 684-2400
Fax: (703) 684-2492
Website: http://www.wef.org

The Water Environment Federation (WEF) is a federation of local educational and technical associations, including some specific to wastewater operations. WEF guides technical developments in water quality and provides the public with the latest information on wastewater treatment and water quality protection. WEF also participates in the development and review of government policies on water and environmental issues. WEF is involved in nonpoint source pollution, hazardous waste, biosolid recycling, and groundwater contamination.

CSO Partnership

P.O. Box 26505
Richmond, VA 23261
Phone: (804) 780-5293
Fax: (804) 649-9661
Email: CSOInfo@csop.com
Website: http://www.csop.com

CSO Partnership is a nationwide coalition of small and medium-sized communities with combined sewer systems. The Partnership provides its members, and on a more limited basis, members of the public, with critical information on all aspects of CSO regulation and control.

American Public Works Association

2345 Grand Blvd., Suite 500
Kansas City, MO 64108
Telephone: (202)393-2792
Email: apwa@bbs.pubworks.org
Website: http://www.pubworks.org

The American Public Works Association (APWA) provides manuals and technical information on municipal management and regulations. Its Internet site provides general information on emergency management, public buildings, solid waste, and water, as well as contacts for acquiring additional information.

American Water Works Association

6666 West Quincy Avenue
Denver, CO 80235
Telephone: (303) 794-7711
Fax: (303) 795-1440
Website: http://www.awwa.org

American Water Works Association's (AWWA) educational service provides teleconferences, conferences, workshops, and seminars on various topics relating to water resources and management, technical support on water issues, and Internet access. The small utility network is a free service designed for water systems serving fewer than 3,300 people in the United States and Canada.

International Conference of Building Officials

5360 Workman Mill Road
Whittier, CA 90601-2290
Telephone: (800) 284-4406
Fax: (562) 692-3853
Website: http://www.icbo.org

The International Conference of Building Officials (ICBO) provides building service codes, guidelines for new buildings, and assistance and education in building and managing municipal facilities. The ICBO Internet site provides building standards, a building resource guide, and links to related sites.

National Association of Local Government Environmental Professionals

1350 New York Avenue, NW
Suite 1100
Washington, DC 200005-4798
Telephone: (202) 879-4093
Website: http://www.nalgep.org

The National Association of Local Government Environmental Professionals (NALGEP) works to meet the training and information needs of professionals responsible for environmental compliance and policy at the local level.

National Association of Regional Councils

1700 K Street, Suite 1300
Washington, DC 20006
Telephone: (202) 437-0710
Website address: http://www.narc.org

The National Association of Regional Councils (NARC) is a membership organization of regional councils that offers technical assistance, educational services, and public policy support to regional government officials. Topics include economic development, water quality, water supply, air quality, aging, housing, workforce training, and solid waste.

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Appendix A
Statistical Overview of Local Governments

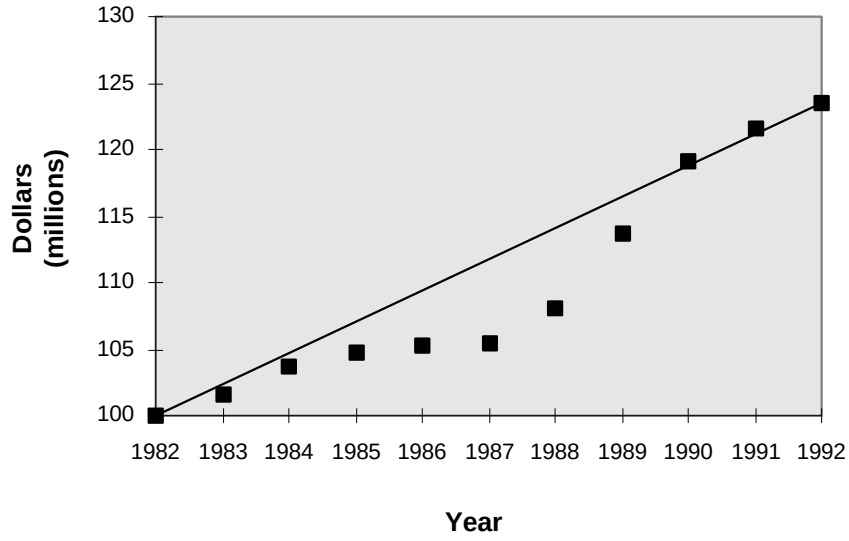
*[**Note**: Because direct education services constitute the overwhelming majority of a school district's budget (i.e. school districts do not usually perform services such as wastewater treatment, air quality monitoring) and have limited responsibility for managing environmental issues, the discussion of local governments in this appendix does not include school district-only data/ information. However, when data/information are provided for "total local governments," it does include school districts.]*

The majority of data used in this appendix were obtained from the U.S. Census Bureau. In all instances, the most recent data available were used; however, because different data are collected and published at different times, the dates may vary. That is, for one statistical category the most recent data may be from 1992. For other categories, the most recent data may be from 1993.

The historic data presented in this chapter are in actual dollars and do not consider inflation. During the 10-year period between 1982 and 1992, the consumer price index rose 25 percent (see Exhibit A-1). Most of the data presented indicate that revenues, expenses and other variables increased significantly more than this inflation rate.

While data in this document do not provide definitive cause for these increases, general increases may be due to increases in local government responsibility for environment-related activities that previously may have been managed by the state, increased regulatory requirements, or increases in population. For example, many local governments saw their responsibilities for landfill upgrades significantly increase in the late 1980s and early 1990s in preparation for the implementation of new federal landfill standards in 1991. Wastewater treatment budgets also increased significantly during this time in efforts to upgrade deteriorating systems and meet new CWA requirements. This section highlights some of the details of these increasing budgets.

Exhibit A-1. The Real Value of $100 Million: 1982-1992



A.1 TYPES OF LOCAL GOVERNMENTS

The three types of local governments discussed in this document are counties, subcounties, and special districts. The following sections define each of these types of local government and present information on the various structures and management systems that are typical of each. It should be noted that while examples are included in each of the sections, the specifics of each local government may vary. The organization, structure, and responsibilities of each local government are dependent on the specific characteristics of that local government, including size, location, and demographics.

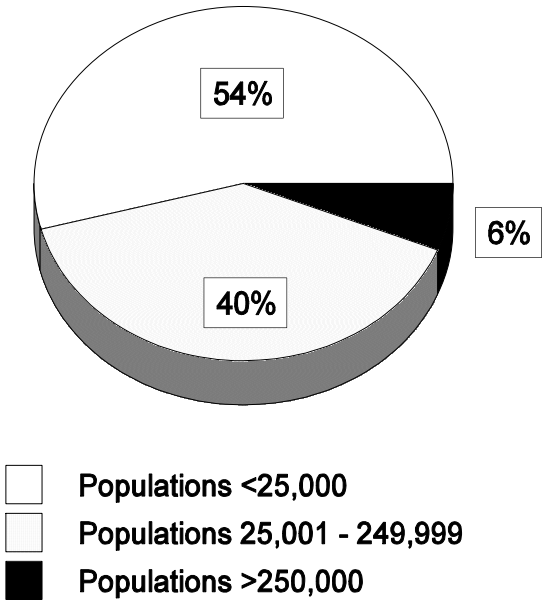
A.1.1 Counties

A county government is a unit of local government established to implement state and county policies, programs, and services. Counties can be distinguished from other local governments in that they are the only local government entity established as a formal arm of the state government. In most states[1], counties were originally established to implement state services so that citizens would not have to travel to the state capital. They may perform functions such as

[1] In New England states, counties have only a minor role, and towns (townships) are used to implement state government services. *(Managing local government: public administration in practice.* Richard Bingham et al. 1991.)

budgeting and tax collection, and provide services such as wastewater treatment, water supply, solid waste management, police and fire protection, and housing. Many counties provide services such as centralized recordkeeping (county clerk's office) and highway maintenance, and play an important role in education, transportation, and health services. Typically, larger counties provide a wider range of services.

Exhibit A-2. Populations of U.S. Counties in 1992

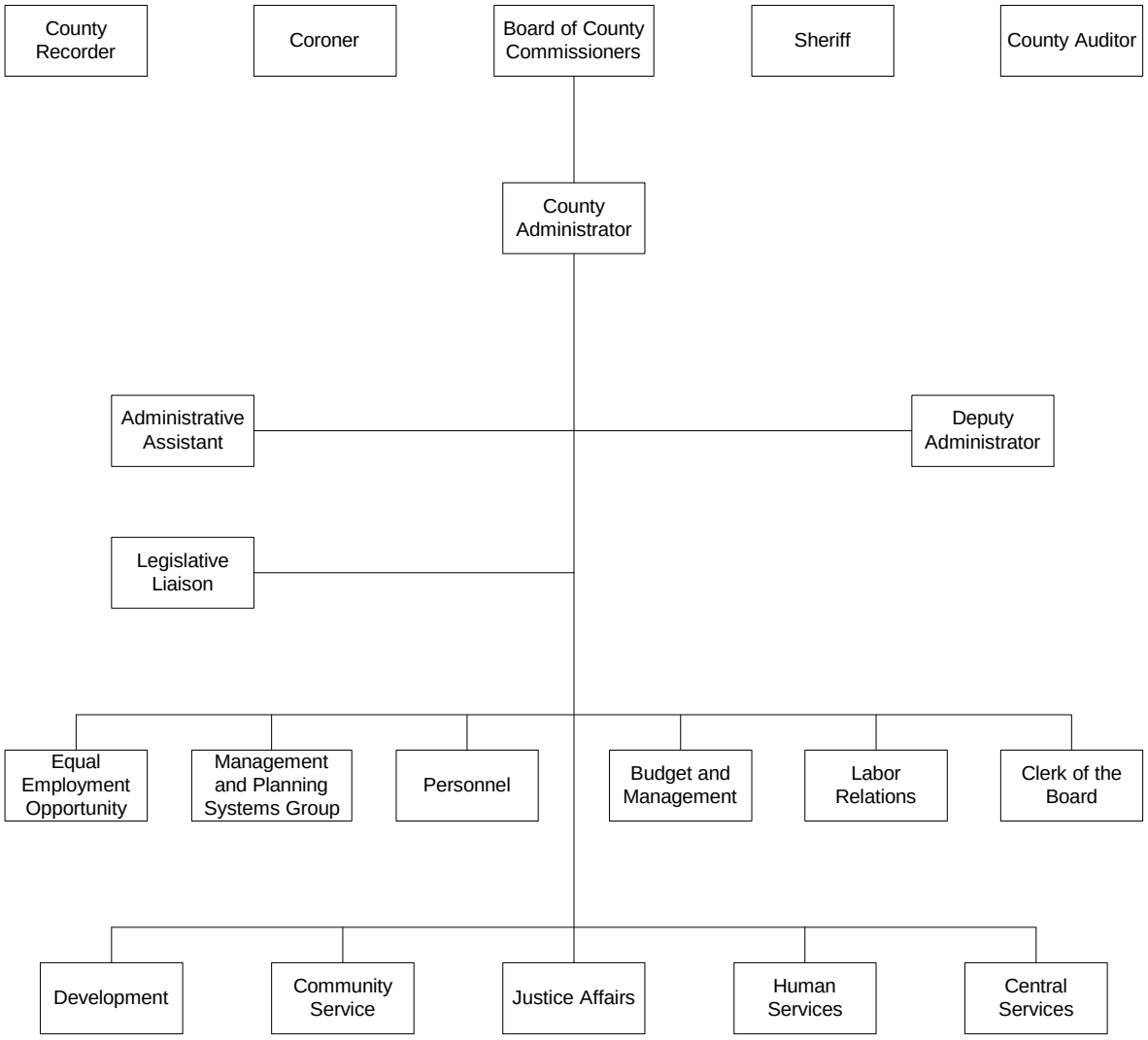


Counties generally have higher populations than subcounties or special districts. Nevertheless, most counties are small. As shown in Exhibit A-2, more than half (54 percent) of the 3,043 counties in the U.S. had a population of less than 25,000. Conversely, 6 percent had populations greater than 250,000.

While county government structures can vary, usually the principal governing body is the county board, also known as the board of county commissioners or county commission. County boards vary in size and method of election. Boards will often have members representing a specific portion of the county, as well as those elected at large. The chair of the board is appointed by the board members or elected by the voters. This board performs administrative functions, oversees general administration of county services and functions, and conducts legislative functions such as approving county budgets or local ordinances. While the county board may oversee many county operations, counties will often have some departments, such as the sheriff, treasurers, or school board, whose heads are elected directly by county residents.

The county board often appoints a county administrator, or manager, to implement board policies, and direct and supervise the administrative functions of county government. County manager responsibilities may include appointing county officials, supervising all county offices and departments, executing regulations, and submitting an annual budget to the board. Exhibit A-3 presents the structure of Johnson County, Kansas, which is typical of a county management structure.

Exhibit A-3. County Government Structure
(Johnson County, KS)



Bingham, Richard D. et al. *Managing Local Government: Public Administration in Practice.* SAGE Publications, Inc.: California, 1991, p. 42.

A.1.2 Subcounties

Subcounties include two specific types of governments: 1) municipalities and 2) townships. Municipalities and townships have the same definition, but are distinguished by the historical circumstances regarding their incorporation. Both are organized local governments authorized in state constitutions and statutes and established to provide direct general government for those living a defined area.

Perhaps the most distinguishing characteristic of municipalities is that they are generally defined by population. Municipalities can take several forms, but are most commonly organized as cities, boroughs (except in Alaska), villages, and towns (except in Massachusetts, Connecticut, Rhode Island, New Hampshire, Vermont, Maine, Minnesota, New York and Wisconsin).[2] In a typical state, those municipalities that have the largest populations and areas are classified as cities, while smaller municipalities are classified as towns or villages. The classifications are important because they often determine the nature of certain municipal boards or commissions. However, these classifications are not permanent and can change as a municipality's population increases or decreases.

Township governments (which include "towns" in Connecticut, Maine (including organized plantations), Massachusetts, Minnesota, New Hampshire (including organized locations), New York, Rhode Island, Vermont, and Wisconsin) are also organized by their state constitutions. In contrast to municipal governments, townships are defined without regard to population. Townships typically include a central urban area and its surrounding rural area(s). Townships are typically subdivisions of a county covering a predetermined land area, as a result of the Congressional township system of identifying land, with the exception of New England towns, where township size varies considerably. Township functions are almost identical to those of municipalities. Some towns or townships permit voters to make policy through direct participation in local meetings. Other towns perform few formal functions, relying on county or state governments, or private organizations for public services.

Approximately 96 percent of all subcounty governments had populations of less than 25,000. Those same subcounty governments, however, accounted for 40 percent of the total population of all subcounties. As shown in Exhibit A-4 and Exhibit A-5, the 53 subcounties with more than 300,000 people represented more than 20 percent of the population, but less than 1 percent of total subcounty governments.

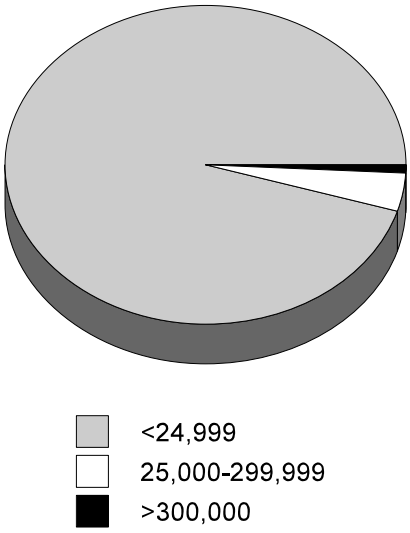
[2] For the purposes of U.S. Census Bureau data and this document, municipalities include certain cities that are completely or substantially consolidated with their county governments, operate outside the geographic limits of any county, or for other reasons have no organized county government operations within their boundaries. The following cities are included in this group: Anaconda (MT), Anchorage (AK), Athens (GA), Baltimore (MD), Baton Rouge (LA), Boston (MA), Butte (MT), Carson City (NV), Columbus (GA), Denver (CO), Honolulu (HI), Houma (LA), Indianapolis (IN), Jacksonville (FL), Juneau (AK), Lexington (KY), Lynchburg (TN), Nashville (TN), New Orleans (LA), New York (NY), Philadelphia (PA), St. Louis (MO), Sitka (AK), San Francisco (CA), and Washington, DC, as well as the "independent cities" in Virginia.

Exhibit A-4. Subcounty Governments by Population Size, 1992

Size (based on population)	Number of Subcounty Governments	Percent of Total Subcounty Governments	Population (in millions)	Percent of Total Population
<24,999	34505	96	82150	39.7
25,000 - 299,999	1977	3.8	81979	39.6
>300,000	53	0.0015	42,748	20.7
Totals	**35,935**	**100.0**	**206,877**	**100**

Source: 1992 Census of Governments. Government Organization, Volume 1, Number 4, Tables 7 and 8.

Exhibit A-5. Percent of Total Subcounty Governments by Population, 1992

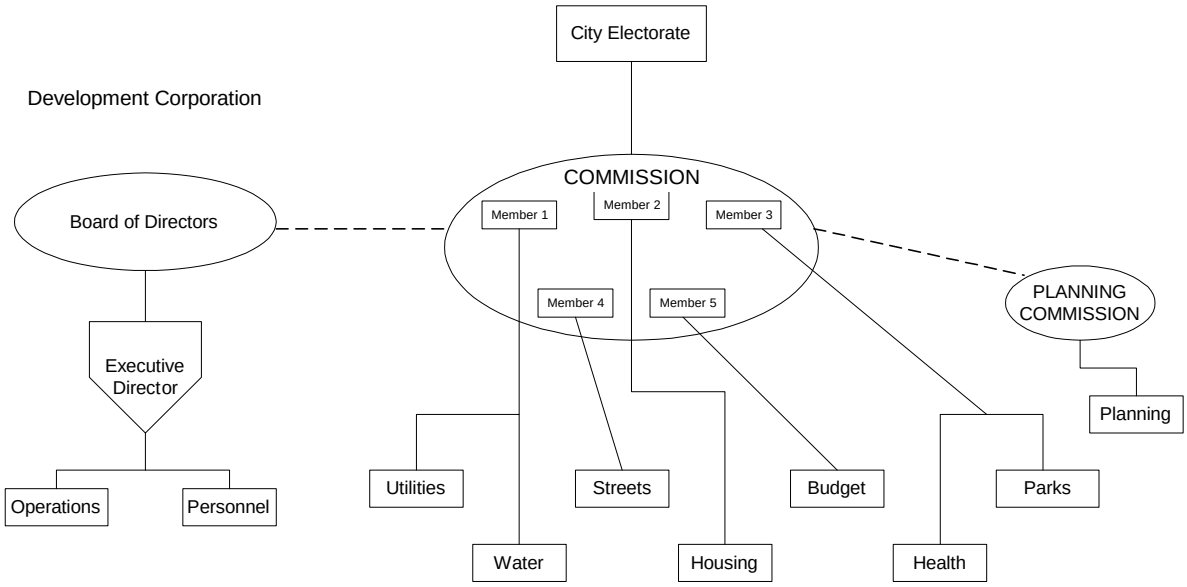


At the subcounty level, there can be a variety of potential government structures. The three most common are:

- Commission
- Council-mayor
- Council-manager.

In the ***commission*** structure (see Exhibit A-6), a group of elected commissioners oversee the city's executive departments, with each commissioner heading a different specific department. Though commission forms of government may vary widely, all share several characteristics, including small boards, at-large elections, and legislative and executive powers. The commission possesses the authority to enact ordinances and establish spending (budget) priorities; the commissioner is empowered to supervise administrative/executive departments (public works, for example); and the mayor is elected from the ranks of the city council but has few if any formal powers. The commission form of government gives both legislative and administrative (executive) powers to one body. One drawback of this form is that commissioners tend to become advocates of the departments they head, and that commissioners might not be interested in issues that are not directly related to their specific department.

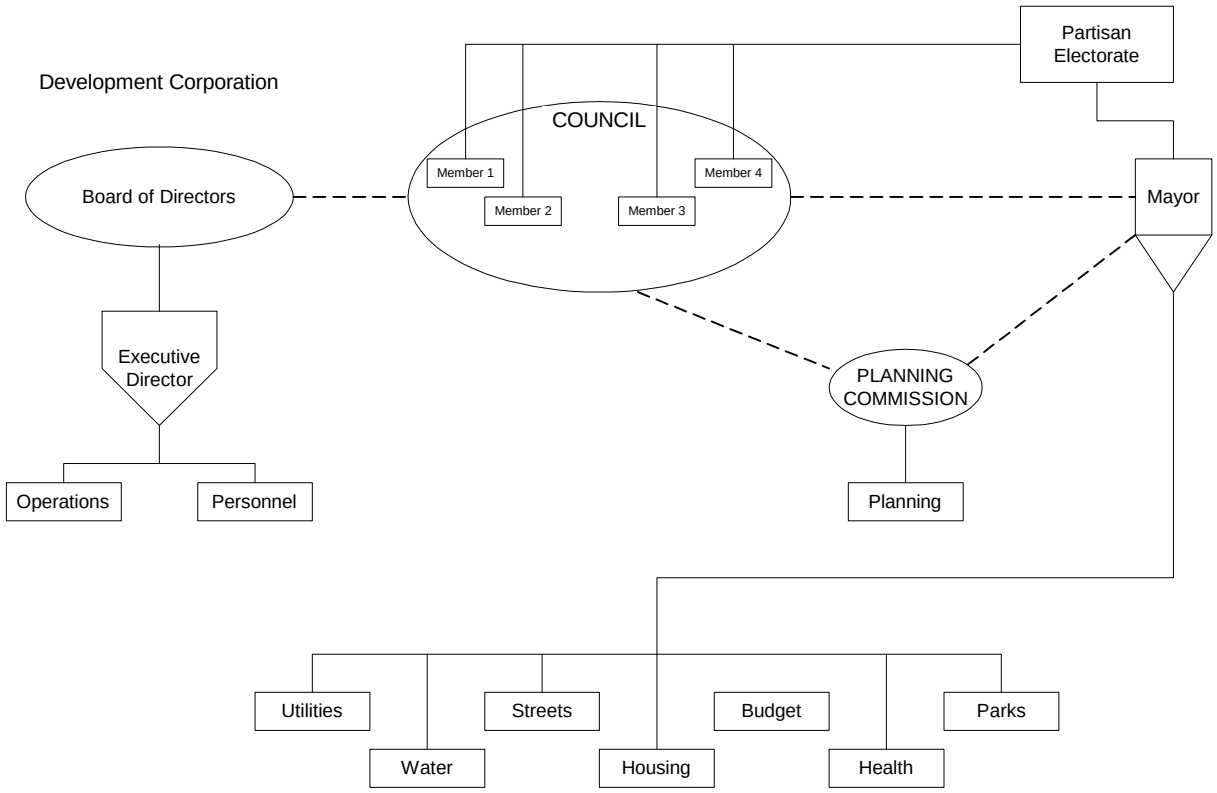
Exhibit A-6. Commission Form of Subcounty Government



As shown in Exhibit A-7, in the ***council-mayor*** form of subcounty government, the mayor is the chief executive or leader. Both the councilmen and the mayor typically are elected. The mayor -- as the administrative/executive chief of the city -- is directly responsible for overseeing the various city departments. The board of directors has the same responsibilities and links to the council as in the other forms of subcounty government. Most mayors serve two- or four-year terms and exercise a wide range of formal and informal powers. They have influence over city

council, oversee executive departments, enforce the law, resolve crises, and process citizen complaints. Mayors that are selected by a city council typically exercise less power than an elected mayor.

Exhibit A-7. Council-Mayor Form of Subcounty Government
(Madison, WI)



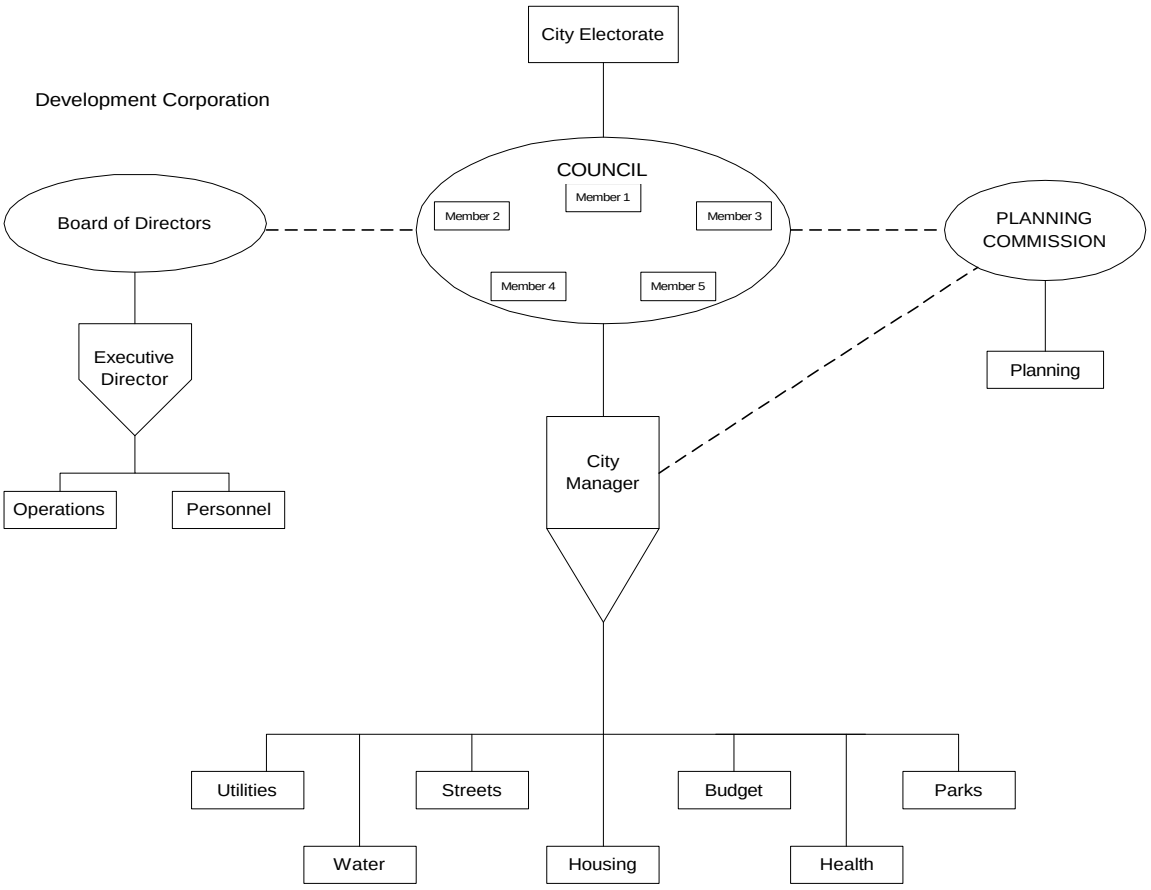
Bingham, Richard D. et al. *Managing Local Government: Public Administration in Practice.* SAGE Publications, Inc.: California, 1991, p. 41.

Finally, in the ***council-manager*** structure shown in Exhibit A-8, the elected city council has policymaking/legislative responsibilities, and the city manager—a professional administrator—is responsible for administrative (executive) functions. The city manager is appointed by the city council to act as chief executive. In this manner, legislative and executive functions are conducted by separate bodies. That is, the council develops policy, while the city manager implements council initiatives and supervises personnel.

In this form of government, the mayor may be elected, or selected from within the city council, but has few executive responsibilities. This form of government is one of the most popular,

particularly for small- and medium-sized cities and for suburban cities. However, few large cities implement this form. This form is useful because it offers functional simplicity, clear lines of authority, and utilizes professional experts.

Exhibit A-8. Council-Manager Form of Subcounty Government
(City of Rockville, MD)



Bingham, Richard D. et al. *Managing Local Government: Public Administration in Practice.* SAGE Publications, Inc.: California, 1991, p. 43.

A.1.3 Special Districts

Special district are local government units that perform one or more specific services that are not being supplied by other government units. Special districts are known by a variety of titles, including districts, authorities, boards, and commissions. A majority of special districts are established to perform a single function, but some have been given authority to provide several, usually related large-scale services such as water supply, wastewater treatment, or solid waste management. They may exist within the boundaries of a single city, across city and county

boundaries, or across state lines. Special districts have been formed for a wide variety of purposes, including:

- Sewer districts
- Water districts
- Irrigation districts
- Storm water management districts
- Regional solid waste authorities
- Water resource authorities
- Regional port authorities
- Regional air quality management districts
- Fire protection
- Vector control.

Examples of special districts include the Tennessee Valley Authority, which provides water, electricity, and flood control services in the southeast, the Port Authority of New York/New Jersey, which provides transportation services in New York and New Jersey, and the Sanitary District of Decatur, which manages the sanitary sewer system in parts of several local governments in Illinois. Exhibit A-9 presents the structure of the Sanitary District of Decator; Exhibit A-10 presents the structure of the South Coast Air Quality Management District of California, which is responsible for all aspects of air pollution control in four counties.

Special districts are the fastest growing local government unit in the United States, comprising more than 35 percent of all local government units in 1992, compared to 10 percent in 1952. This growth can be attributed to the benefits that other local governments see in developing special districts as an alternative to the local government providing public services. Special districts can often provide a service more efficiently, as their boundaries can be tailored to provide services where they are specifically required. In addition, they are independent financial entities, and thus are able to levy user fees or special assessments, rather than relying on taxes or municipal bonds to fund their services.

While the Census Bureau does not provide population data for special districts, it does provide data for the types of special districts. Special districts may be either a single-function or a multiple-function district. A single-function district has been established to provide only one service, such as sewerage or water supply, to the population it serves. More than 90 percent (29,036) of all special districts are single-function in nature. The

Exhibit A-9. Structure of the Sanitary District of Decatur, Illinois

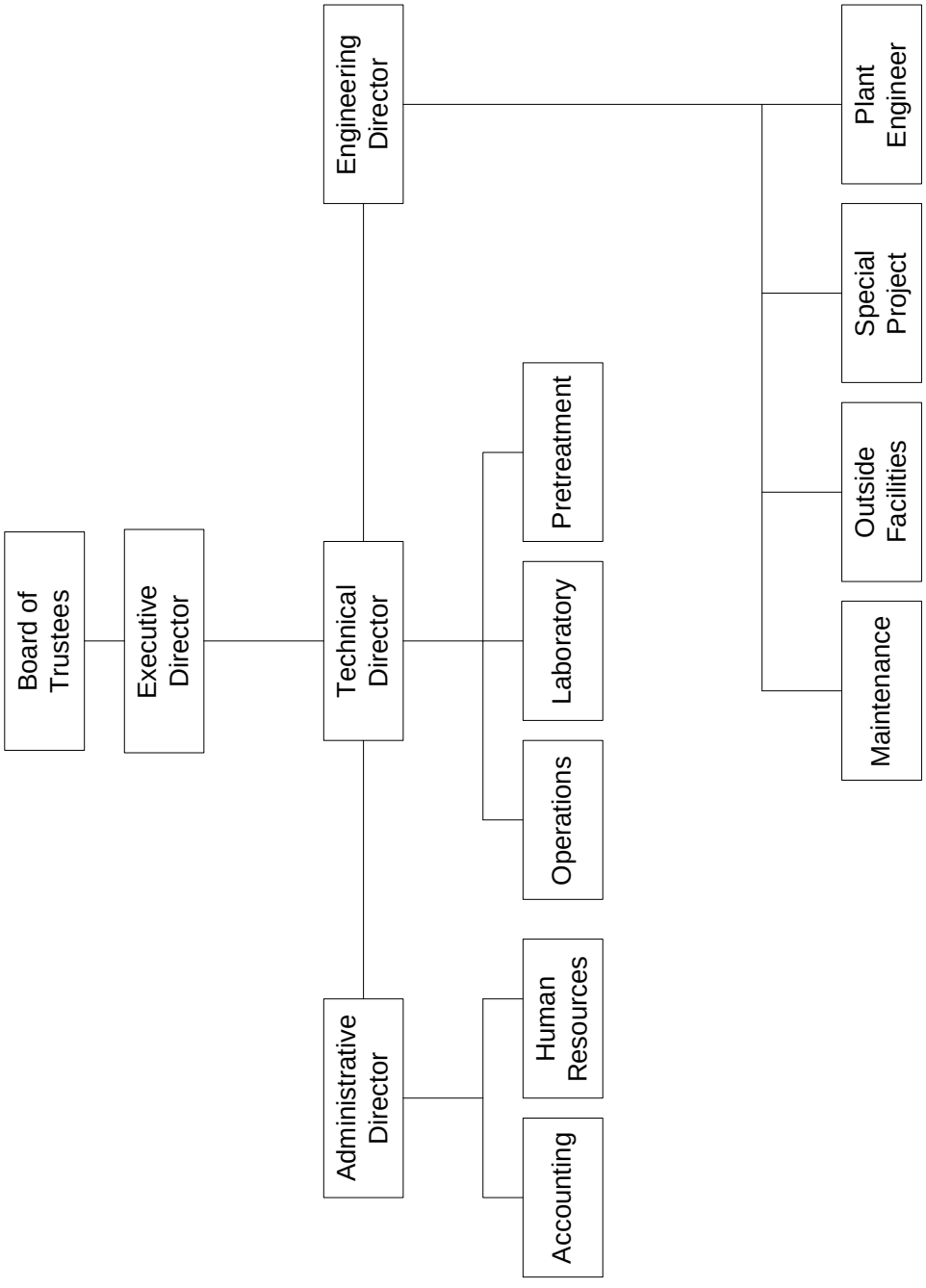
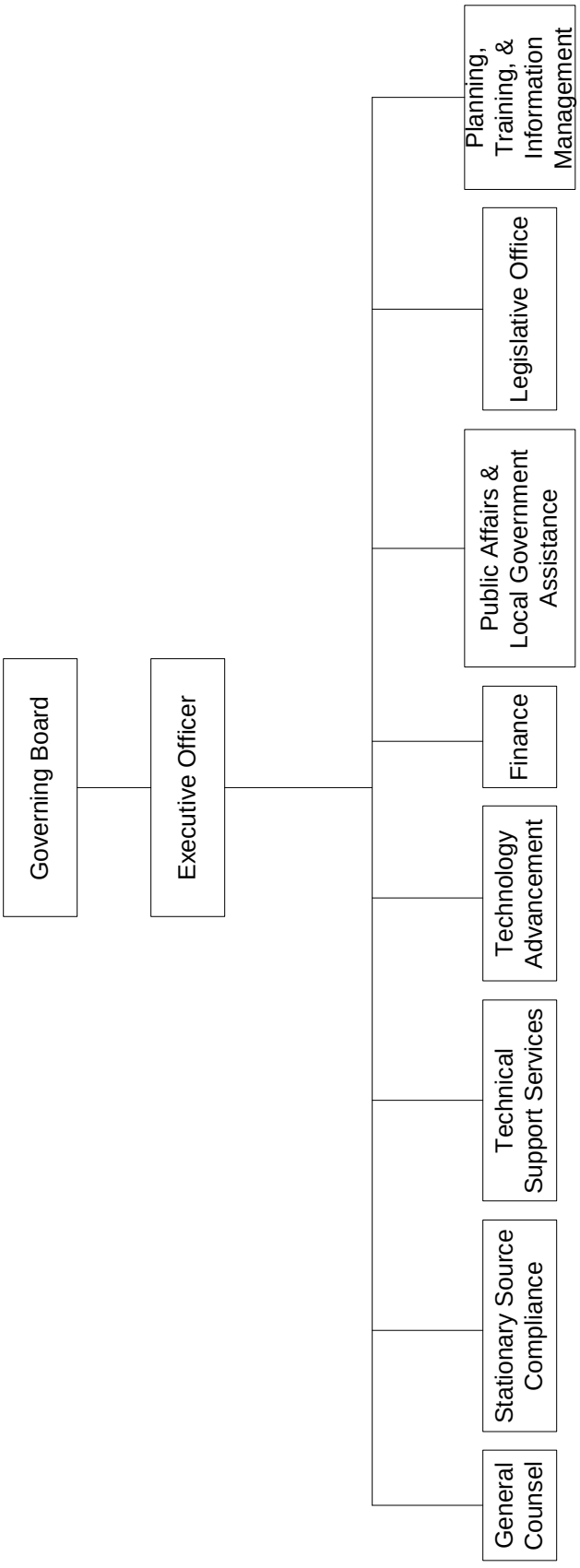
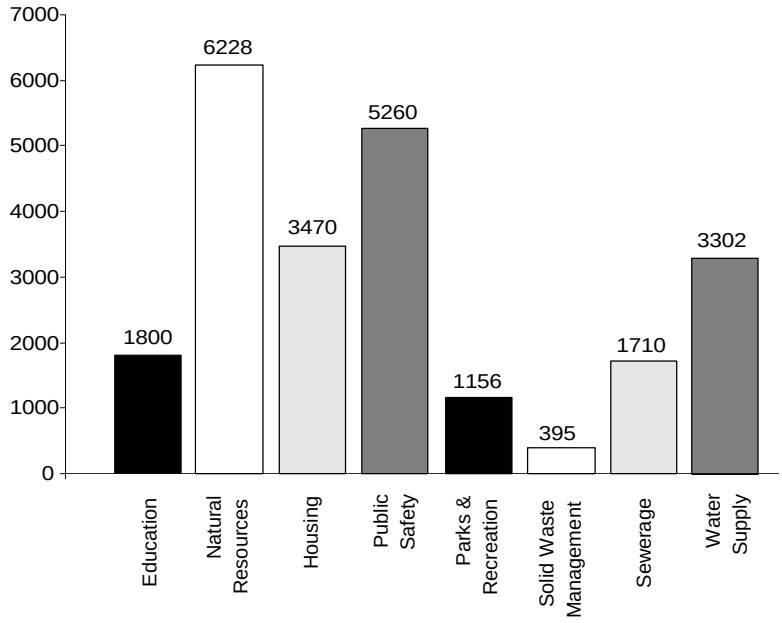


Exhibit A-10. Structure of Special District
(South Coast Air Quality Management District - California)



remaining special districts are multiple-function in that they provide a combination of services to their populations. Exhibit A-11 presents data regarding the type and number of single-function districts, as well as their percent of the total.

Exhibit A-11. Types of Single-Function Special Districts



A.2 THE LOCAL GOVERNMENT BUDGET PROCESS

Local governments, like the federal and state governments, operate on a 1-year budget cycle. During that one year, it is the absolute responsibility of the local government to manage its resources and, for the most part, determine how and when the budget is spent. The specific budget can be developed by several different parties, depending on the structure of the local government. Basically, there are two types of budget processes: 1) executive and 2) legislative. These processes are named for the party who develops the actual budget. Under the executive process, the local government executive proposes a budget, which is then sent to the legislative body for approval. This is the process used by the federal government. In the legislative process, the local legislative body is responsible for proposing and approving the budget. In the cases of local governments, the legislative body is usually the council or commission. This process is practiced primarily by small local governments with a city (or similar) council.

As with any entity that operates on a budget, the local government is tasked with balancing its incoming money (revenues) with its outgoing money (expenditures). To accomplish this task, a local government may use one of three types of budgeting:

- ***Incremental budgeting*** - This is a process of setting annual appropriations based on the previous year's budget, with small changes, usually reflecting the rate of inflation.

- ***Line-item budgeting*** - This process lists annual agency expenditures for items such as salaries, equipment, supplies, maintenance, and contractual services. This most resembles a traditional budget because it lists the item and cost of each item. This is the type of budget employed by most local governments.

- ***Planning-Programming-Budgeting System (PPBS)*** - PPBS is a tool that requires agencies to submit objectives and the most cost-effective manner to meet these objectives. It is predicated on concepts such as cost-benefit analysis, program budgeting, systems analysis, and cost effectiveness. Although not popular on the federal level, PPBS may be practiced in the local level because of its efficiency. It has generated more success in agencies that deal in material benefits rather than social benefits.

A.3 REVENUE GENERATION

Local government revenue includes all the money it receives for use in providing services to its population. These revenues are generated through several mechanisms, including:

- Taxes
- User fees
- Bond offerings
- Intergovernmental revenues
- Local government-owned utilities
- Employee retirement programs.

A.3.1 Taxes

Collecting taxes is the most common form of revenue generation associated with government at all levels. The primary source of revenue for local governments is the assessment and collection of property taxes. Property tax is a local levy on real or personal, tangible or intangible, property

(such as cars or real estate) collected once per year. Property taxes typically range from $.05 to $4.50 per $100 of assessed value of the property. Sales tax is another major producer of revenues for local governments. Sales tax is a levy on goods and services, derived as a percentage of the price at the point of sale. The sales tax usually ranges from less than one percent to five percent and can apply to most retail items and services. Local governments may also implement local use taxes on hotels, automobile rentals or other items that are not purchased. Use taxes are typically in the same percentage range as sales taxes. Local wage and income taxes are another important source of local tax revenue. Income tax includes levies on salaries, rents, interests, dividends, commissions, royalties, business profits, and other income. A severance tax is sometimes levied on natural resources (e.g., minerals) extracted from the land. Severance taxes are mostly used in the West, Southwest, and South for revenue and conservation.

A.3.2 User Fees

User fees are levied on individuals and businesses who use various public services and are frequently used to fund the specific service for which the fee was collected. The implementation of user fees has increased in recent years as local governments have been forced to reduce their reliance on property taxes as a major revenue source. User fees have also increased because they help local governments track the fiscal efficiency of each operation or service. Examples of user fees include the following:

- Sewage - Sewer system fees, including local hookup, maintenance, and use fees
- Drinking water - Fees based on water use, connection fees, and system development changes
- Other sanitation - Trash collection fees and industrial waste charges
- Education - School lunches, adult education tuition, municipal college tuition, charges for books, gymnasium uniforms or equipment
- Transportation - Road and bridge tolls, airport fees, water transportation fees, and parking
- Health and hospitals - Hospital charges (including per diem rates and service charges), ambulance charges, and inoculation charges

- Parks and recreation - Parking charges, concession rental, golf course greens fees, softball league enrollment fees, tennis class charges, day camp charges, admission charges to municipal swimming pools, zoos, and museums

- Housing/community development - Rent from public housing, street light installation charges, and convention center charges

- Electricity and natural gas usage.

A.3.3 Bond Offerings

A local government may also raise revenue through bond offerings. Bonds are basically an "IOU" issued by the local government for a specific amount. Holders or "buyers" of the bonds are promised full repayment of the IOU plus interest. Local government can offer both 1) general obligation bonds, and 2) revenue bonds. General obligation bonds, often referred to as guaranteed bonds, are backed by the local government, and as such, are deemed to involve less risk to the bond holder. The lower risk to the bond holder allows the local government to pay lower interest rates. Issuing general obligation bonds are the least costly method of borrowing for the local government, but are usually subject to a voter referendum to approve a tax increase to pay the interest on and fulfill the obligations of the bond.

A revenue bond is backed by the specific project it was issued to support. For example, if a local government issued bonds to build a wastewater treatment plant, revenue generated from operating the wastewater treatment plant (i.e., sewer use fees) would be used to pay the interest on and fulfill the obligations of the bond. Similarly, revenue bonds may be issued for construction of a landfill with the intention that tipping fees will generate revenue to repay the bondholders. Because these bonds are not guaranteed by the local government, they involve a higher risk, but pay higher interest rates. A voter referendum is usually not required to issue revenue bonds. Such bonds may be either short or long term.

User Fees and Privatization

Contracting solid waste management services to private entities is becoming increasingly popular with local governments. Approximately 30% of the solid waste management operations are contracted out by local governments. Depending on the contract or privatization agreement, user fees may be collected by the local government, or directly by the privatized entity.

It should be noted that many state constitutions and laws impose, or have the ability to impose, restrictions on a local government's debt limit. These limits are usually calculated as a percentage of the total assessed

value of real estate within the local government's boundaries. The debt limit generally ranges from 5 to 10 percent.

A.3.4 Intergovernmental Revenue

For sewer and wastewater projects, most local governments depend on local revenue bonds or State Revolving Fund (SRF) loans as their major sources of capital funding, while relying on user fees to fund annual operating expenses.

Three forms of intergovernmental revenue can be provided to local governments by government entities at the state and federal level: 1) categorical grants, 2) block grants, and 3) revenue sharing.

Categorical grants are tied to a specific program that the federal government initiated. They allow little flexibility or discretion on the part of the recipient (i.e., local government). The state revolving fund for wastewater treatment plant upgrades is an example of a categorical grant. A block grant, or discretionary grant is under direction of a national administrator. Block grants are available to local governments for a number of projects within broad guidelines. An example of a block grant is the federal Community Development Block Grant program, which can be used for almost any infrastructure improvement program.

In revenue sharing programs, local governments may receive a percentage of fees collected by another government entity, such as state liquor revenues. Revenue sharing may also include formula grants, where the recipient is allowed to receive and budget expenditures for assistance based on an established formula. Often, these formula grants are awarded on the basis that the funds must be matched (i.e., if the local government puts up $1,000 for a project, the state government will provide an additional $1,000) by the recipient government. Federal and state agencies will often provide formula grants for road construction or environmental projects that benefit more than one local government.

Local Government-Owned Utilities

Many local government operations pay for environment-related services such as water supply and solid waste disposal as a utility, funding them through user fees set to cover to the costs of the operation. Rather than operating out of general funds, solid waste disposal facilities may be operated with the goal of paying its own way or making a profit. Fees may be collected for residential pickup, with surcharges for non-citizens, commercial entities, and industrial disposers. In some local landfills, citizens are allowed to dispose of any nonhazardous or hazardous waste without charge, while commercial entities are required to pay a fee.

With each of these intergovernmental revenue sources, the funding can be front-end funded or funded through reimbursement. In front-end funding, the donor gives assistance as soon as the spending plan is approved. Funding through reimbursement allows for more control by the donor government because funds are not given by the donor until the project is nearly complete.

A.3.5 Utilities and Liquor

Utility and liquor revenue includes revenue generated through user fees or other revenues generated by a government-owned water supply, electric light and power, gas supply, transit system, or liquor store. It does not include other revenues, such as those generated by utilities owned by the local government, but leased to other governments or persons, or other commercial-type activities such a sport facilities, airports, housing projects, radio stations, steam plants, ferries, or similar activities that are considered "general government activities." Its also excludes any revenue from taxes (including excise or liquor taxes), special assessments, and intergovernmental revenue**.**

A.3.6 Employee Retirement Revenue

Employee retirement revenue includes contributions required of employees for financing government administered employee-retirement systems (e.g., social security), earnings on investments held for such systems, and the receipts of state payments for employees covered by government systems.

A.3.7 Use of Various Funding Sources

Few projects will use only a single revenue source. Capital or construction projects such as building wastewater treatment plants or adding capacity to a water supply system are often funded by debt or grants, while operating, maintenance, and employee costs are generally funded through taxes or user fees. It should be noted that although bond offerings are a major revenue generator, they are not included in the data presented in this appendix. They are included as debt and discussed later in the appendix.

Revenue generation varies not only by type of government, but also by government size. Smaller local governments may depend heavily on one or two revenue sources, while larger local governments may have more diverse sources. Funding also varies among environment-related projects. Based on a

Throughout this appendix, the term ***environment-related*** is used to describe categories of both revenues and expenditures. While nearly all operations conducted by local governments have environmental aspects and impacts, the ones identified below are considered environment-related for the purposes of this statistical overview:

C Natural resources
C Parks and recreation
C Sewerage
C Solid waste management
C Water supply (*Note: The Census Bureau does not break out data for water supply for counties and subcounties; it does, however, provide data for special districts*.)

survey of small local governments conducted by EPA, it appears taxes are the most commonly used method for funding storm water management, UST and AST programs, while water supply, wastewater treatment systems, and solid waste handling and disposal are most often funded by user fees. For more detail on local government financing of various environment-related activities, see *Results of the 1994 EPA Survey of Small Local Governments*, EPA Publication 270-R-97-001, 1997.

In 1992 alone, local governments generated $679.4 billion in revenues. Of that amount, only 4 percent was generated through environment-related operations (Exhibits A-12). When examining the environment-related revenues, approximately 60 percent was generated by solid waste management.

Exhibit A-12. Environment-Related Revenues for Local Governments: 1992-1993

Category of Revenue	Revenues (thousands of dollars)
Natural resources	$495,014
Parks and recreation	$3,193,308
Sewerage	$6,913,062
Solid waste management	$15,829,079
Total environment-related	**$26,430,463**
Non-environment-related	$652,998,192
Total local government revenues	**$679,428,655**

Source: United States Total State and Local Government Finances by Level of Governments: 1992-1993.

Local governments will use a combination of funding sources for most of their operations and services. Exhibits A-13, A-14, and A-15 provide examples of revenue generation for solid waste management operations, special projects, and wastewater treatment operations. Note that within each operation, individual activities may be funded by different sources. In particular, capital projects are often funded through general obligation bonds, revenue bonds, or grants, while day-to-day operations are often funded through taxes and user fees.

Exhibit A-13. Funding Municipal Solid Waste Operations

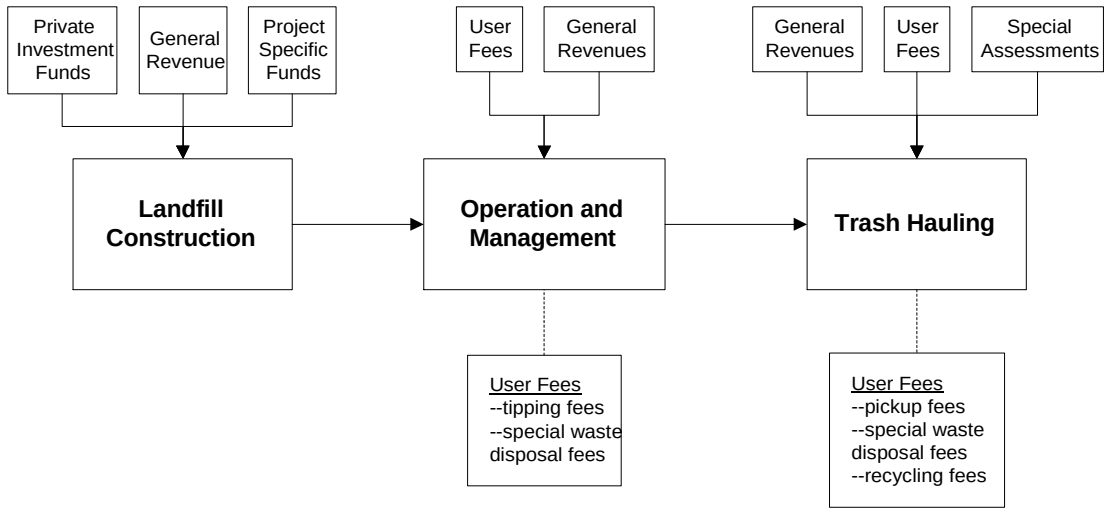


Exhibit A-14. Funding Special Projects

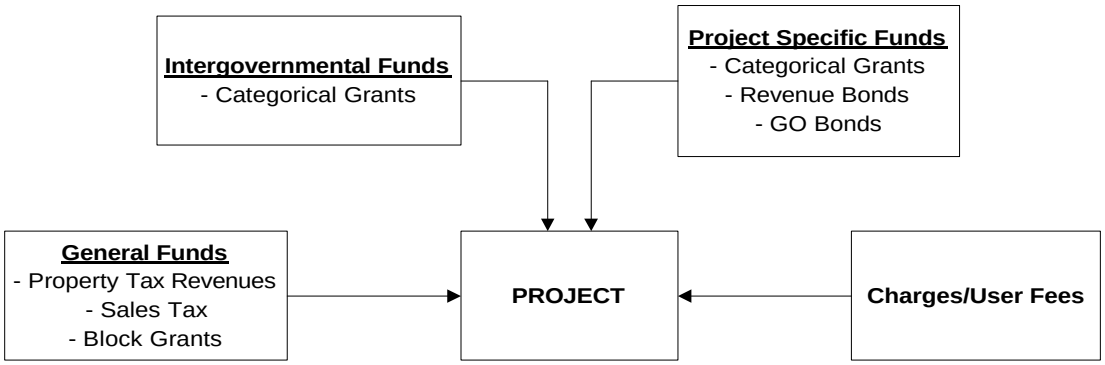
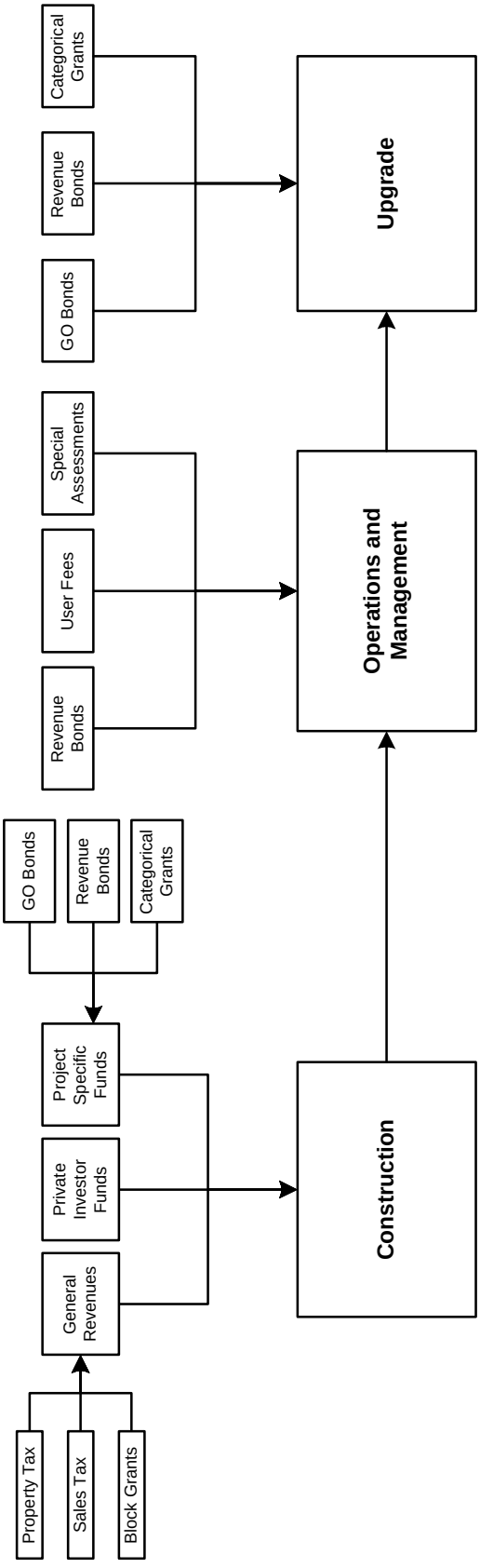


Exhibit A-15. Funding Wastewater Treatment Plant Operations



A.3.7.1 County Government Revenue Generation

County government revenues increased by more than 130 percent from 1982 to 1992, or over five times the rate of inflation. The most common methods of generating revenue are taxes and intergovernmental revenue. These two financing methods provided more than 70 percent of the $155 billion in total county government revenues in 1992. As indicated in Exhibits A-16 and A-17, county governments have used each of the revenue sources in nearly the same proportions for each of the periods shown.

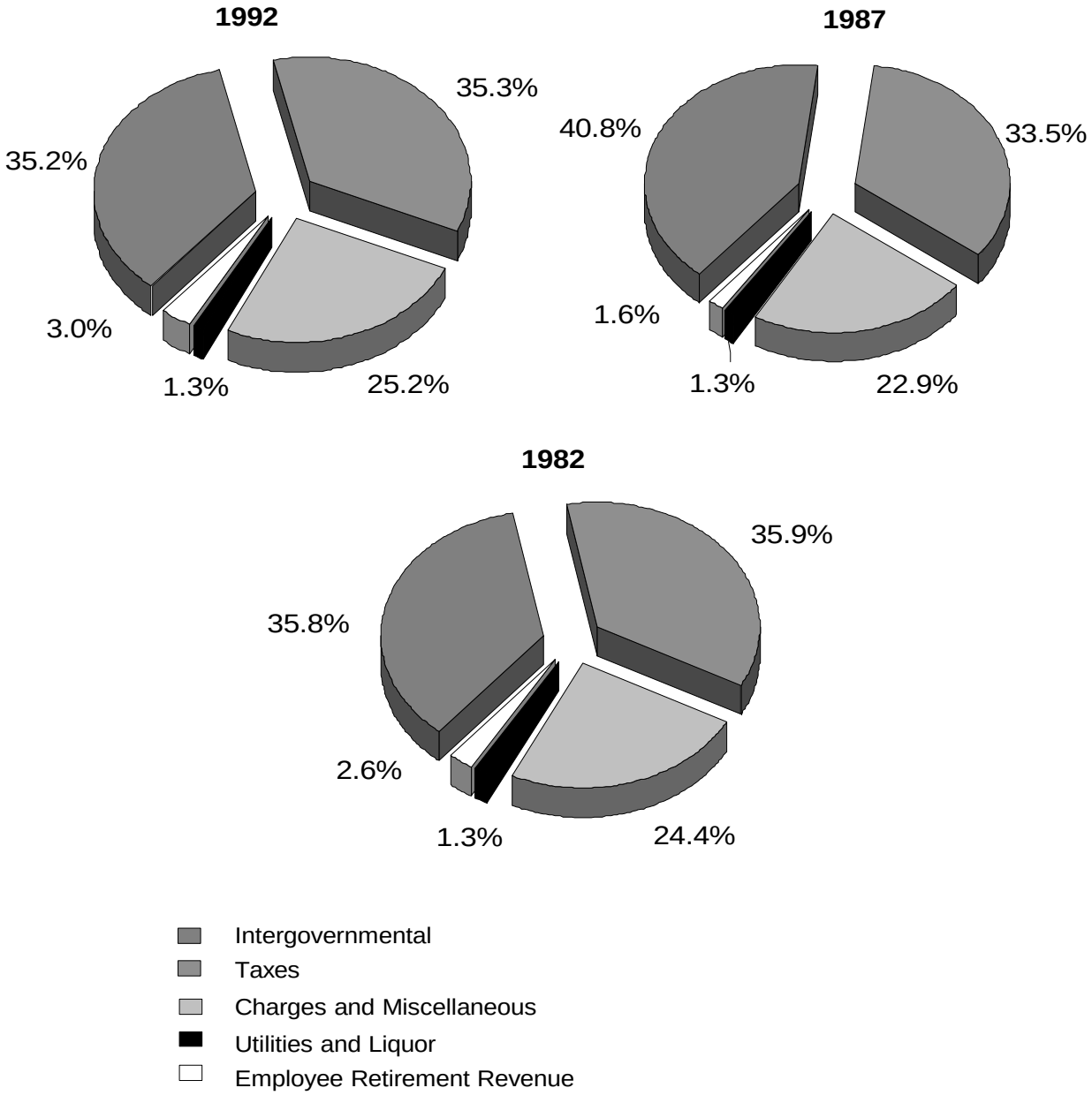
Exhibit A-16. Revenues of County Governments (in millions of $)

Category of Expenditure	1991-1992	1986-1987	1981-1982
Intergovernmental	55,292	37,268	28,002
Taxes	55,463	37,341	22,970
Charges and miscellaneous	37,612	26,681	15,682
Utilities and liquor	2,025	1,426	874
Employee retirement revenue	4,027	3,159	1,092
Total county revenues	**154,419**	**105,875**	**68,620**

Source: 1992 Census of Governments, Volume 4, Number 2, Table 1

Exhibit A-17. Revenue Sources for County Governments

1992, 1987, 1982



A.3.7.2 Subcounty Revenue Generation

Subcounty revenue generation increased slightly less than 100 percent between 1982 and 1992, or nearly four times the rate of inflation. Subcounty revenue generation was spread more broadly among the available methods than was county revenue generation. The three most commonly used methods--intergovernmental revenues, taxes and user fees--accounted for 80 percent of all revenues. As shown in Exhibits A-18 and A-19, taxes were the most common revenue source, followed by intergovernmental revenues and user fees.

Exhibit A-18. Revenues of Subcounty Governments (in millions of $)

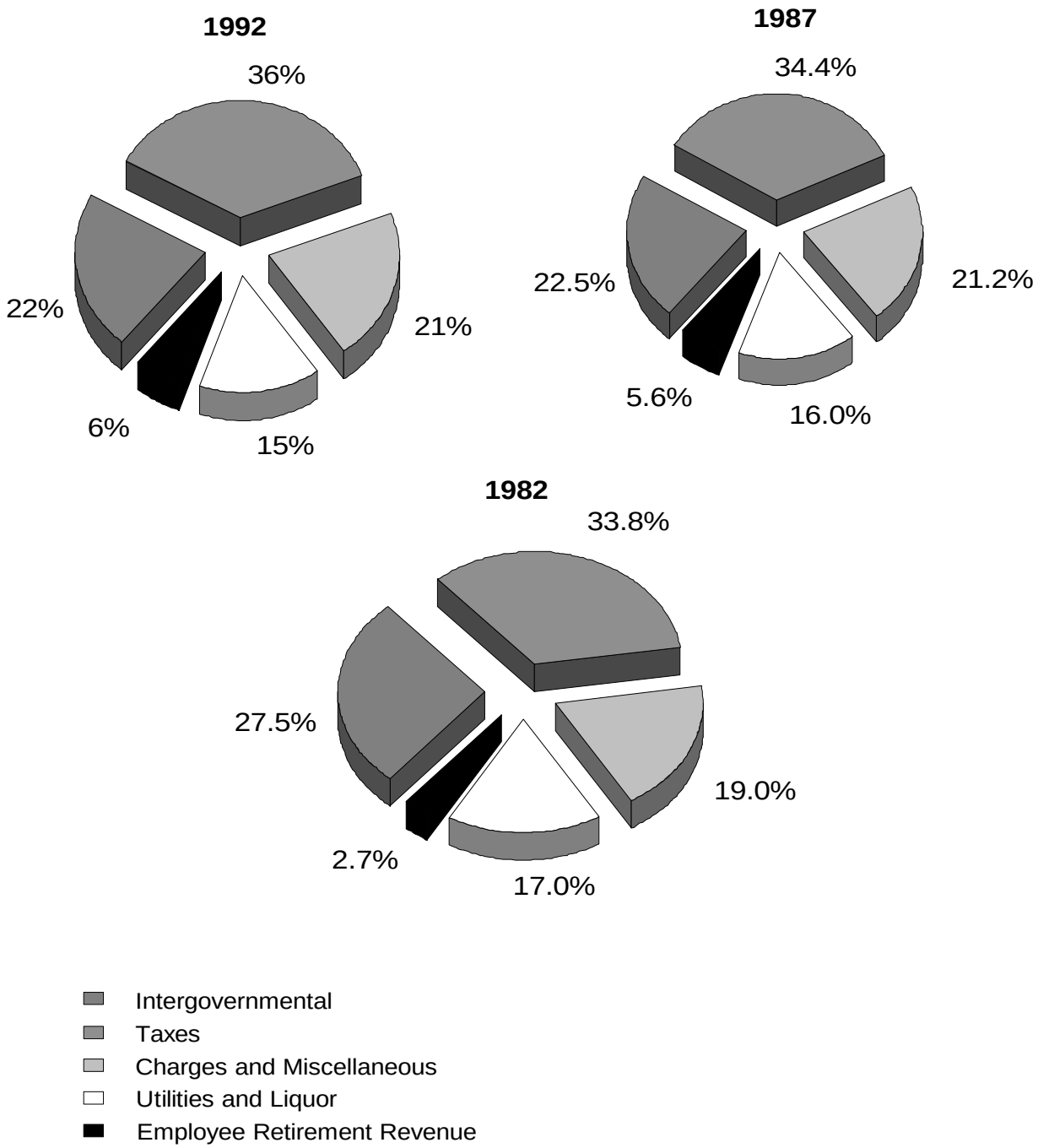
Category of Expenditure	1991-1992	1986-1987	1981-1982
Intergovernmental	54,476	41,735	34,519
Taxes	88,801	63,675	42,427
Charges and miscellaneous	52,462	39,267	23,933
Utilities and liquor	37,021	29,839	21,286
Employee retirement revenue	14,121	10,529	3,483
Total subcounty revenues	**246,881**	**185,045**	**125,648**

Source: 1992 Census of Governments, Volume 4, Number 4, Tables 1 and 14

.

Exhibit A-19. Revenue Sources for Subcounty Governments

1992, 1987, 1982



A.3.7.3 Special District Revenue Generation

As with other local governments, a special district may generate revenue through any of the mechanisms described above, as legislated in the special district's charter.[3] As shown in Exhibits A-20 and A-21, charges and miscellaneous revenues (i.e., user fees) accounted for the largest percentage of revenues for special districts in all three years shown.

Exhibit A-20. Revenues of Special Districts (in millions of $)

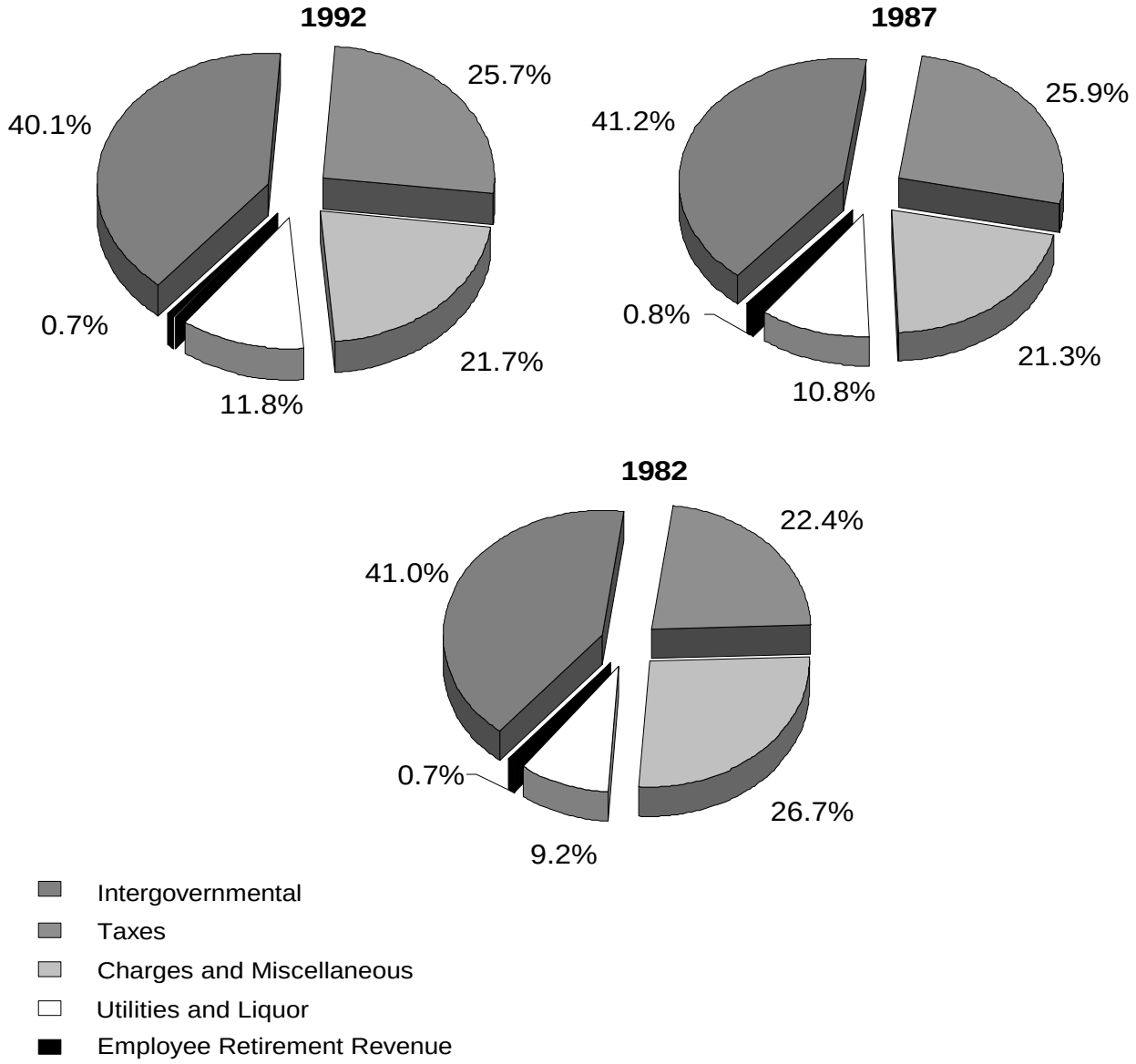
Category of Revenue	1991-1992	1986-1987	1981-1982
Intergovernmental	14,843	10,783	8,271
Taxes	8,087	5,491	2,846
Charges and miscellaneous	27,502	20,847	12,687
Utilities and liquor	17,626	13,115	6,940
Employee retirement revenue	490	416	217
Total special district revenues	**68,548**	**50,652**	**30,961**

Source: 1992 Census of Governments, Volume 4, Number 2, Table 1

[1] Note that the "Utilities" category, while separate from "Charges and Miscellaneous," also includes user fees, such as water fees that are based on water use. If these fees were included, the total for user fees/charges would be closer to 50 percent.

Exhibit A-21. Revenue Sources for Special Districts

1992, 1987, 1982



Special districts often collect user fees to generate revenue from the operation of water supply or solid waste management systems. For example, 86 percent of the revenues to operate and maintain publicly owned water systems are generated directly from the sale of water to customers. Water systems also generate revenue through other types of water-related user fees such as connection fees, inspection fees, and interest earnings. Exhibit A-22 illustrates the significance of user fees in providing drinking water. Note that approximately two thirds of all water supply districts generate revenue through user fees.[4]

Exhibit A-22 . Revenue Sources for Water Utility Special Districts*

Revenue Source	No. of Special Districts
Total number of water utility special districts	3302
Charges/User fees	
Service charges and sales	2260
Special assessments	644
Taxes	
District-wide property taxes	1475
Other taxes (sales, payroll, etc.) imposed by the district	99
Intergovernmental revenues	
Grants, shared taxes, rentals, and reimbursements from other governments	861

* The number of special districts in each revenue category will not add up to the total since reporting districts may have more than one revenue source.

Source: 1992 Census of Governments, Volume 1, Number 1, Table 19

The 395 solid waste management special districts obtain nearly half of their revenues through special assessments and service charges and sales. The remaining revenues for these special districts come from district-wide property taxes, other taxes (sales, payroll, etc.) imposed by the district, and grants, shared taxes, rentals, and reimbursements from other governments.

[4] As presented in EPA's *Community Water System Survey Volume 1: Overview* (from all sources, total annual revenues for publicly owned water supply are $22.2 billion).

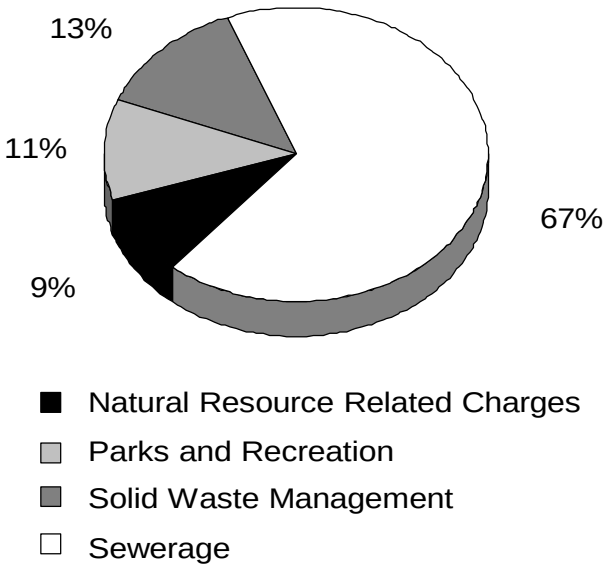
In addition to being a significant revenue source for environmental projects, user fees from environmental projects represent a significant source of revenue for the special district as a whole. In 1992, as shown in Exhibit A-23, environment related user fees (not including utilities) accounted for nearly $4.7 billion, or approximately 17 percent of the $27.5 billion total revenues collected through charges and user fees, and 7 percent of $68.5 billion total revenues collected. Wastewater or sewerage fees accounted for the largest percentage of this revenue (see Exhibit A-24).

Exhibit A-23. Environment-Related User Fee Collected by Special Districts, 1992

Type of User Fee	Revenue (in thousands of dollars)
Natural resource related charges	417,000
Parks and recreation	516,000
Solid waste management	599,000
Sewerage	3,147,000
Total user fees collected	**4,679,000**

Source: 1992 Census of Governments, Volume 1, Number 1, Table 19

Exhibit A-24. Revenues Collected Through Environment-Related User Fees Collected By Special Districts, 1992



A.4 EXPENDITURES

The expenditures incurred by a local government are those dollars it spends to provide services to its population. Such expenditures can includes salaries for local government employees, operation of facilities (e.g., wastewater treatment plants, libraries, schools), maintenance of roads and sewer systems, social service programs, or debt on outstanding loans. Except in the case of categorical grants or block grants that limit a local government's discretion, it is the decision of the local government how and when it expends its budget to the extent it is authorized under state law.

In 1992 alone, local governments expended approximately $685.3 billion. Of those expenditures, approximately seven percent was spent on environment-related operations (see Exhibit A-25). Within the environment-related expenditures, approximately 44 percent was spent on sewerage.

Exhibit A-25. Environment-Related Expenditures of Local Governments: 1992-1993

Category of Expenditure	Amount (thousands of dollars)
Natural Resources	2,653,440
Parks and Recreation	13,321,667
Sewerage	21,594,594
Solid Waste Management	11,412,627
Total environment-related	**48,982,328**
Non-environment-related	636,332,492
Total expenditures	**685,314,820**

Source: United States Total State and Local Government Finances by Level of Governments: 1992-1993.

A.4.1 County Government Expenditures

Counties expended more than $155 billion in 1991-1992. Of this, slightly more than 6 percent, or $9.5 billion, was directed toward environment-related operations (see Exhibits A-26 and A-27). This percentage was only a slight increase from 1981-82, when environment-related operations accounted for just less than 6 percent of all expenditures. The largest increase in expenses was for solid waste management, which increased nearly 400 percent between 1982 and 1992, or sixteen times the rate of inflation (note that the consumer price index increased 25 percent during this time period). Expenditures for natural resources and parks and recreation increased by more than 100 percent, while expenditures for sewerage/wastewater treatment increased by 80 percent.

Per capita data enable comparisons of expenditures across counties of different sizes. Exhibit A-28 presents per capita data for environment-related expenditures, based on population size.

Exhibit A-26. Environment-Related Expenditures of County Governments (in millions of $)

Category of Expenditure	1991-1992	1986-1987	1981-1982
Natural Resources	1,562	1,203	666
Parks and Recreation	2,810	1,770	1,242
Sewerage	2,406	1,951	1,333
Solid Waste Management	2,711	1,356	680
Total Environment-related	**9,489**	**6,280**	**3,921**
Non-environment-related	145,825	96,959	63,186
Total County Expenditures	**155,314**	**103,239**	**67,107**

Source: 1992 Census of Governments, Volume 4, Number 3, Table 1

Exhibit A-27. Environment-Related Expenditures by Counties

1992, 1987, 1982

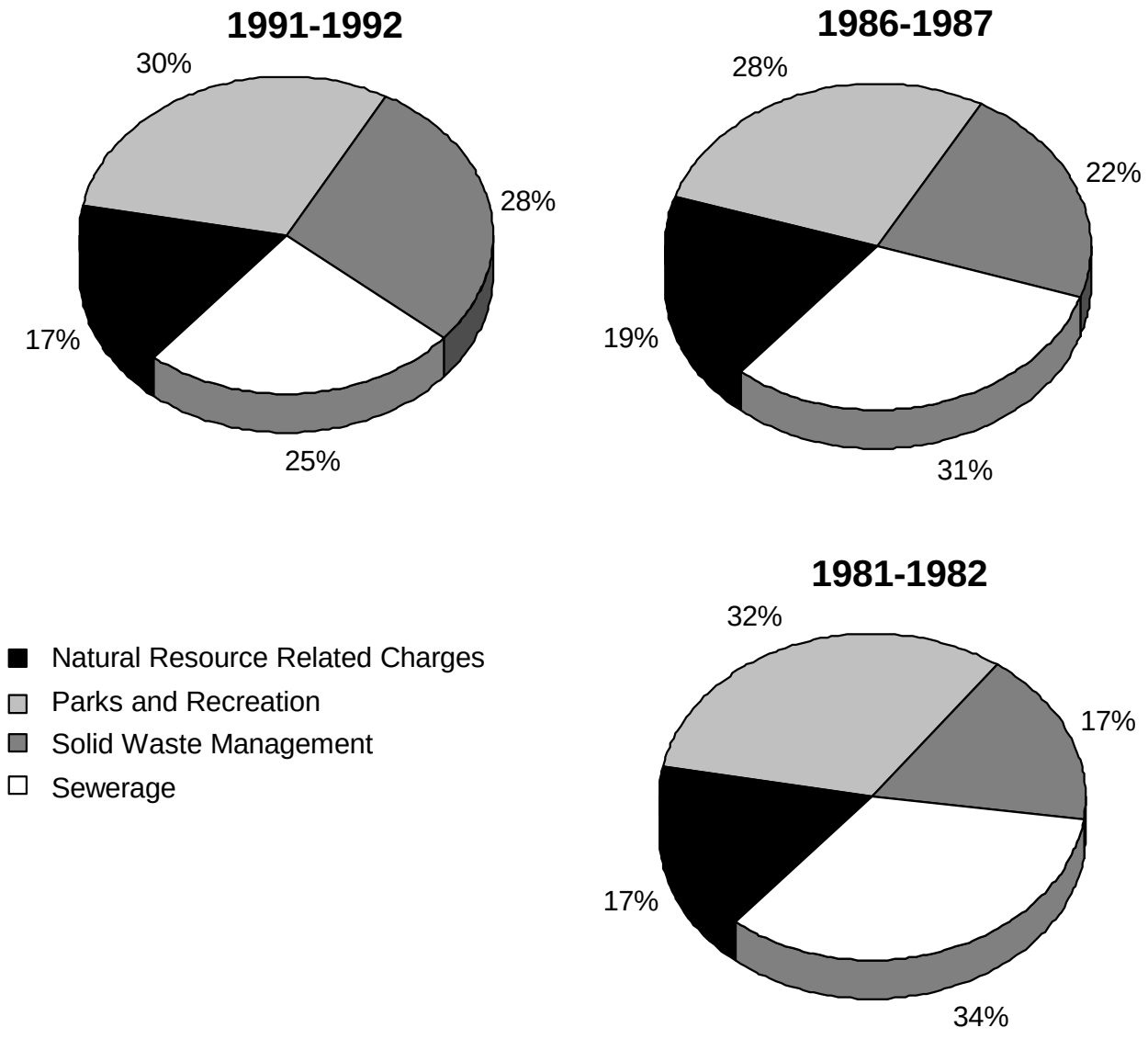


Exhibit A-28. Per Capita Environment-Related Expenditures of Counties (in dollars) for 1991-1992, by Population

Population	Expenditures			
	Natural Resources	Parks and Recreation	Sewerage	Solid Waste Management
Average for all counties	6.95	12.49	10.70	12.05
<10,000	13.32	7.49	3.55	11.38
10,000 - 24,999	6.41	5.17	1.81	9.73
25,000 - 49,999	6.16	4.69	2.57	10.77
50,000 - 99,999	4.43	5.92	4.95	11.36
100,000 -149,999	3.60	7.88	9.81	11.86
150,000 -249,999	3.82	10.31	9.74	9.97
250,000 -499,999	4.20	13.65	12.13	12.27
>500,000	10.08	18.83	16.12	13.44

Source: 1992 Census of Government, Government Finances, Finances of County Governments, Volume 4, Number 3, Table 12

A.4.2 Subcounty Expenditures

In 1992, subcounty governments (which include both municipalities and townships, unless otherwise noted) expended more than $246 billion. Of this, 13 percent was spent on environment-related expenditures. Exhibit A-29 provides historic environment-related expenditures for subcounties. It should be noted that by percent, environment-related expenditures did not change significantly in comparison to total expenditures over the 10-year period examined. As for the percentages of specific environment-related expenditures, they did not change over the 10-year period either. It should also be noted that data for natural resources were not available for subcounties. It was, however, available for municipalities only, and is presented on the following page.

Exhibit A-29. Environment-Related Expenditures of Subcounty Governments 1992, 1987, and 1982 (in millions of dollars)

Category of Expenditure	1991-1992	1986-1987	1981-1982
Parks and Recreation	9,032	6,343	4,342
Sewerage	15,439	9,803	6,906
Solid Waste Management	7,808	4,970	3,424
Environment-related	**32,279**	**21,116**	**14,672**
Non-environment-related	214,396	157,643	108,298
Total Subcounty Expenditures	**246,675**	**178,759**	**122,970**

Source: 1992 Census of Governments. Government Organization, Volume 1, Number 4, Tables 1 and 14

A.4.3 Municipal Government Expenditures

In 1992, municipalities expended $224.3 billion. Environment-related expenditures, which are broken out below, accounted for 12 percent ($27.6 billion) of those expenditures. Specifically:

- Sewerage expenditures totaled $12.4 billion, which is 45 percent of the environment-related expenditures, and 5.5 percent of total municipality expenditures

- Expenditures for parks and recreation totaled $8.4 billion, or 30 percent of environment-related expenditures, and 3.7 percent of total municipality expenditures

- Solid waste management expenditures accounted for $6.6 billion or 24 percent of environment-related expenditures, and 2.9 percent of total municipality expenditures

- Natural resources expenditures totaled $196 million, or just 0.1 percent of all environment-related expenditures and .01 percent of total municipality expenditures for 1992.

Water supply expenditures, which are not included in the above numbers, totaled $15 billion. This amount represents 7 percent of the total municipality expenditures for the year.

Exhibit A-30 presents per capita data for environment-related expenditures, based on population size. It is generally noted that as population increased, so did the cost of environment-related

services per person. For a comparison of expenditures of some geographically and demographically diverse municipalities, Exhibit A-31 presents the total environment-related expenditures, as well as per capita data, for five municipalities in various locations around the United States.

Exhibit A-30. Per Capita Environment-Related Expenditures of Municipalities (in dollars) for 1991-1992, by Population

Population	Expenditures			
	Natural Resources	Parks and Recreation	Sewerage	Solid Waste Management
Average for all municipalities	1.28	54.67	80.69	42.89
<10,000	0.64	29.35	68.28	32.94
10,000 - 24,999	0.53	42.28	73.46	38.96
25,000 - 49,999	1.17	51.36	74.66	36.99
50,000 - 99,999	1.54	57.71	63.16	34.26
100,000 -199,999	1.35	60.93	69.10	41.42
200,000 -299,999	1.83	82.67	78.99	51.95
>300,000	1.94	70.99	108.46	57.76

Source: 1992 Census of Government, Government Finances, Finances of Municipal and Township Governments, Volume 4, Number 4, Table 13

Exhibit A-31. Environment-Related Expenditures of Selected Municipalities, 1991-1992

Municipality	Population (1990)	Parks and Recreation		Sewerage and Solid Waste Management	
		Expenditures (in thousand $)	Per Capita	Expenditures (in thousands $)	Per Capita
City of El Paso, TX	515,342	21,427	41.57	55,890	108.45
Santa Barbara, CA	85,571	8,019	93.71	6,242	72.95
Seattle, WA	516,259	112,370	217.66	162,440	314.65
Homestead, FL	26,866	8,241	306.74	2,180	81.14
New York City, NY	7,322,564	360,889	49.28	1,608,624	219.68

Sources: United States City Governments Having 500,000 Population or more: 1993-1994; and 1992 Census of Governments, Government Finances, Finances of Municipal and Township Governments, Volume 4, Number 4, Table 18.

A.4.4 Special District Expenditures

Exhibit A-32 presents special district environment-related expenditures. Since 1982, environment-related expenditures have accounted for approximately 20 percent of the total expenditures for special districts, compared to 13 percent for subcounties and 7 percent for counties. Exhibit A-33 provides additional detail on the environment-related expenditures for 1992, while Exhibit A-34 provides data on the purpose of the special district expenditures.

It should be noted that environment-related expenditures are considered differently for special districts than they are for counties and subcounties. Since most special districts are single function, their budget goes to providing for that one function only (e.g., sewerage). As such, the comparison of environment-related expenditures to total expenditures basically provides a comparison of environment-related special districts to total special districts.

Exhibit A-32. Expenditures of Special Districts 1992, 1987, and 1982 (in millions of $)

Category of Expenditure	*Number of Single-function Special Districts*	1991-1992	1986-1987	1981-1982
Natural Resources	*6,288*	1,169	1,291	707
Parks and Recreation	*1,156*	1,624	1,138	670
Sewerage	*1,710*	5,375	3,695	2,634
Solid Waste Management	*395*	724	221	63
Water Supply	*3,302*	6,852	4,821	2,523
Environment-related	***12,851***	**15,744**	**11,166**	**6,597**
Non-environment-related	*16,185*	55,187	41,273	28,224
Total Special District Expenditures	***29,036***	**70,931**	**52,439**	**34,821**

Source: 1992 Census of Governments, Volume 4, Number 2, Table 1

Exhibit A-33. Environment-Related Expenditures of Special District

1992, 1987, 1982

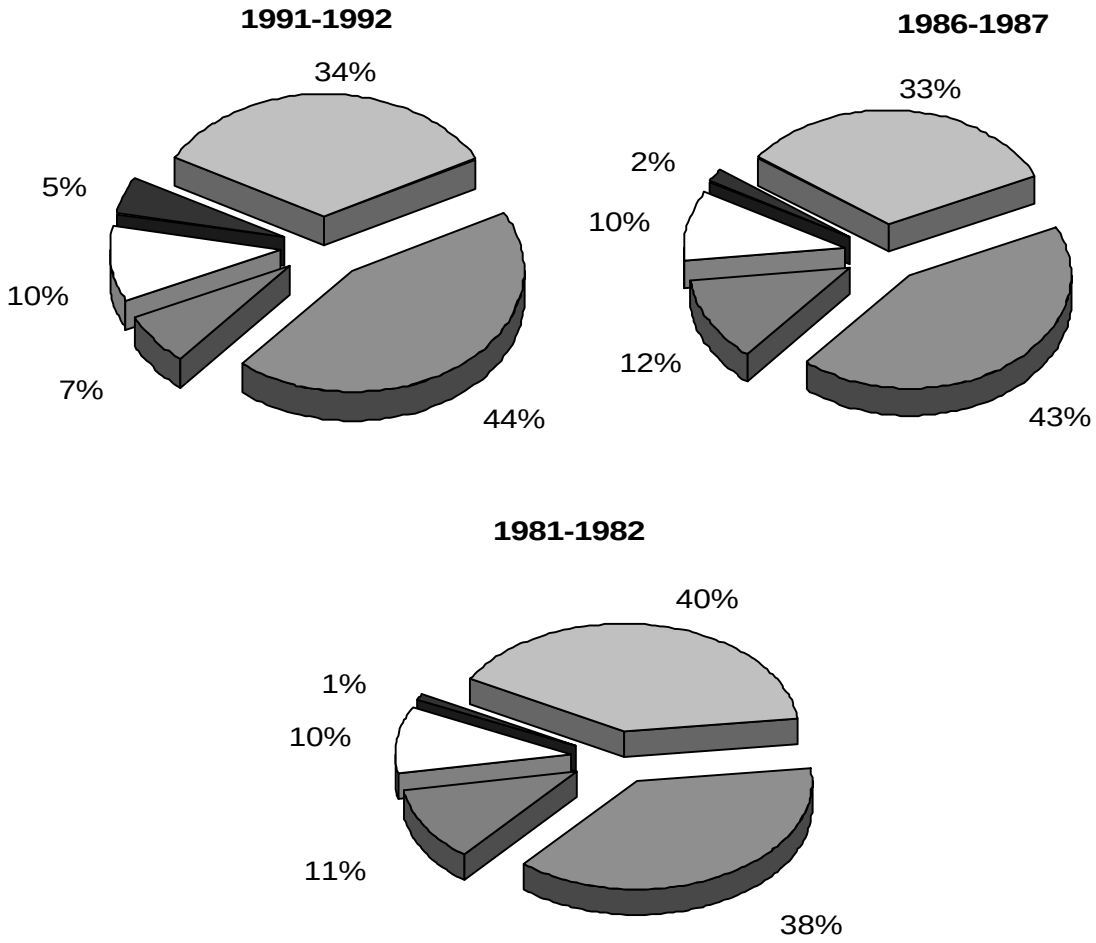


Exhibit A-34. Purpose of Special District Expenditures, 1992

Expenditure	Percent of Expenditures			
	Operation	Construction	Other Capital Outlays	Interest on Debt
Natural Resources	80%	16%	4%	-
Parks and Recreation	77%	18%	5%	-
Sewerage	53%	45%	2%	-
Solid Waste Management	77%	17%	6%	-
Water Supply	50%	34%	2%	14%

Source: 1992 Census of Governments, Volume 4, Number 2, Table 6

B.5 CASH AND DEBT TRANSACTIONS

To meet the daily financial demands of operation and, when necessary, replace or expand infrastructure, it is necessary for local governments to have immediate access to cash or securities that can easily be converted to cash. Cash is defined as funds that can be used for immediate cash disbursements, such as a checking account or actual currency. It is held by local governments for a variety of reasons, including:

- Daily transactions, such as paying suppliers or creditors
- Maintaining credit ratings
- Meeting unexpected cash needs.

Securities are defined as governmental or private stocks, bonds, notes, or mortgages that can be sold on short notice without loss of principal or original investment. Investing in securities is generally thought of "as temporarily putting cash balances to work," since the securities provide a higher rate of return than do checking or savings accounts. Local governments may hold securities to:

- Pay for employee benefit programs, such as unemployment compensation, employee retirement, and worker's compensation

- Finance seasonal or cyclical operations
- Meet known financial requirements.

Debt represents the amount of money a local government owes another entity, such as a bank, individual, corporation, or other government unit. It is defined by the Census Bureau as all long-term credit obligations and all interest-bearing short-term credit obligations. Short-term debt is defined as any liability originally scheduled for repayment within one year; it is generally incurred in the course of normal operations. Types of short-term debt include:

- Accruals, which are defined as recurring costs of operations, such as wages and taxes
- Accounts payable (i.e., money owed for materials, resources, etc.)
- Bank loans, such as a line of credit or loan.

Long-term debt, defined as any liability with a repayment period greater than one year, can generally be divided into two distinct groups--guaranteed and non-guaranteed. Guaranteed debt has the "full faith and credit" of the local government, which means it is virtually risk free to the entity who holds the debt paper. Types of guaranteed debt include mortgages, notes, and general obligation bonds. Non-guaranteed debt does not have the "full faith and credit" of the local government unit and is usually issued in the form of revenue bonds that have been offered for capital improvements or construction. These types of bonds are paid back based on the ultimate financial success of the specific project for which the bonds were issued.

Data on both local government cash and security holdings and debt are presented in Exhibits A-35 and A-36.

Exhibit A-35 Cash and Security Holdings of Local Governments

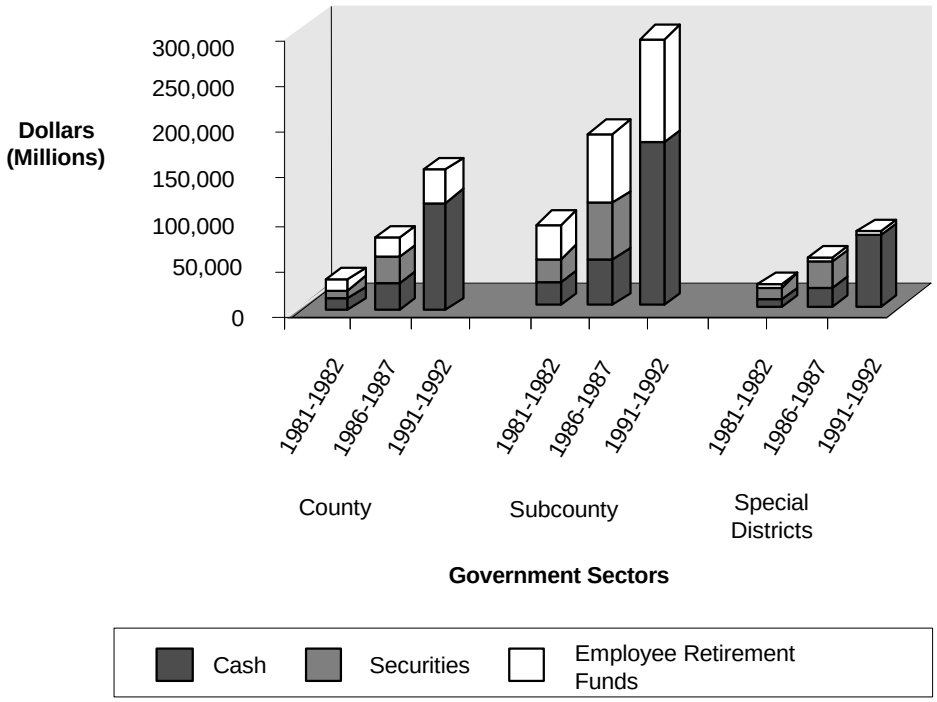
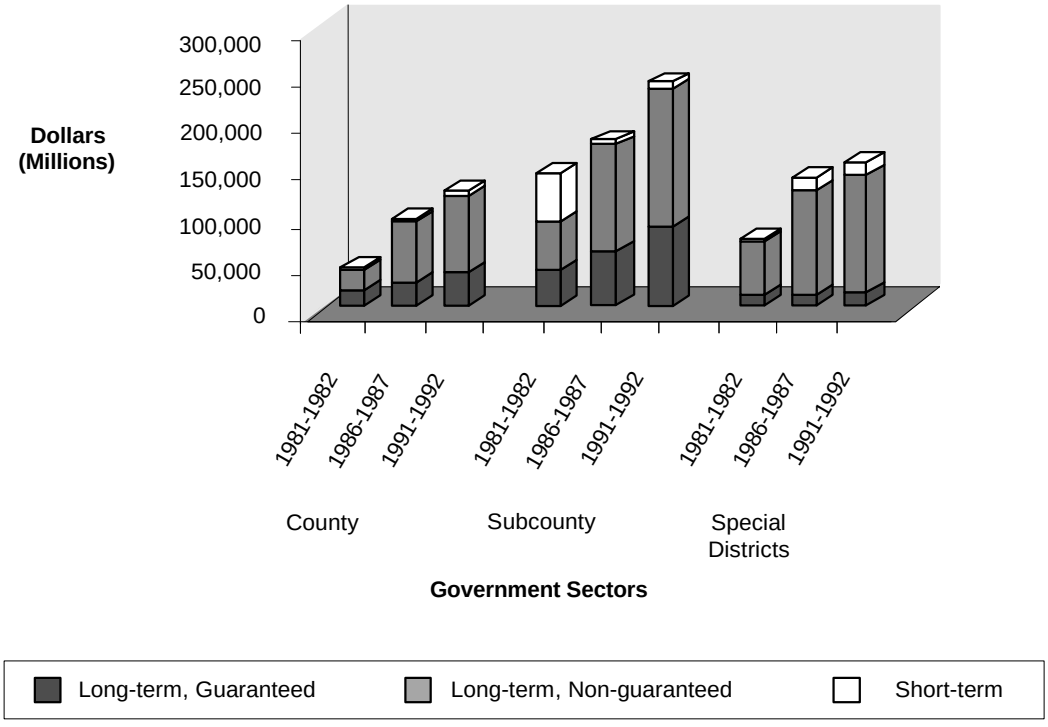


Exhibit A-36. Debt of Local Governments



APPENDIX B
OPPORTUNITIES FOR PUBLIC PARTICIPATION

Public participation is a critical component of local government environmental compliance in that it adds a layer of accountability to the performance of the local government. Public participation ensures that citizens are informed of environmental issues affecting them and that citizens are involved in decision-making processes from the outset, to avoid conflicts, misunderstandings, and any consequent potential delays in municipal operations. Opportunities for public participation involve a variety of activities that can be divided into two basic categories: public outreach and education, and public involvement. Public outreach and education tools are designed to increase the public's awareness, in this case, of environmental issues pertaining to municipal operations. Public involvement tools are designed not only to inform the public, but also (as is implicit) to encourage activism and involve the public in decision-making processes. Public involvement also is important to foster good relationships and open communication between citizens, operators of municipal facilities, local governments, and other stakeholders. Tools that fall under each of these categories are described in greater detail below.

B.1 PUBLIC OUTREACH AND EDUCATIONAL TOOLS

Public outreach and educational tools are designed to gather and disseminate information and increase awareness among the public. They are usually conducted through a variety of methods, including:

- Electronic access to environmental information
- Training sessions
- Public service announcements
- Educational materials
- Public surveys
- Publications.

The following sections describe the various mechanisms used to facilitate public participation and provide specific examples of each mechanism.

B.1.1 Access to Environmental Information

Citizens, local governments, and industry can access environmental information in many different ways. Hotlines, clearinghouses (accessible electronically or in-person), bulletin board systems, and networks all exist to facilitate access to environmental information.

For example, the Pollution Prevention Information Clearinghouse operated by and located at EPA's Headquarters in Washington, D.C. provides information on a wide range of national, state and local pollution prevention and environmental management topics geared toward a variety of audiences. EPA also provides telephone hotlines on a variety of topics including safe drinking water and related regulations/compliance/protection measures. The National Pollution Prevention Center for Higher Education at the University of Michigan collects, develops and disseminates educational materials on pollution prevention, primarily for industry, academia, government and non-profit organizations.

EnviroLink claims to be the largest on-line environmental information resource "on the planet." The EnviroLink Library contains a comprehensive listing of organizations, publications, government agencies, and more on almost 200 environmental topics, organized by environmental medium. The Sustainable Earth Electronic Library serves as a clearinghouse for environmental related publications. EnviroLink's Environmental Education Network is a clearinghouse of environmental education materials. See www.envirolink.org for more details.

The Committee for the National Institute for the Environment operates an online National Library for the Environment, which can be accessed at: www.cnie.org/nle. For the Chesapeake Bay Program, the Chesapeake Regional Information Service (CRIS) furnishes a hotline that thousands of citizens, students and teachers have used to find publications, fact sheets, technical reports, referrals, and personal assistance to learn more about the Bay. The hotline can be accessed by calling: 1-800-662-CRIS.

The Great Lakes Information Network links data, information, and individuals in the Great Lakes region via the Internet. Linked information providers include the Great Lakes Commission, Great Lakes Environmental Research Laboratory/NOAA, Federal Reserve Bank of Chicago, Michigan State University, and many others on topics, such as the environment and natural resources; commerce, industry, and the economy; and education. The Network provides fact sheets, newsletters, draft documents for review, current events, and more.

B.1.2 Training Sessions

Training can be provided to a variety of audiences including teachers, municipal and/or industry representatives and the general public. Training can be presented through workshops, seminars, or conferences. Increasingly, training courses are provided to a select group of local trainers who then train others and thereby create on-going, sustainable education programs. This latter format is known as "training-the-trainer."

In 1995, the National Environmental Education and Training Foundation, in conjunction with five other federal agencies, held a workshop entitled "Sustaining Healthy Ecosystems: Building Partnerships for the Future." This workshop brought together representatives from public and private organizations to work toward the design of an ecosystem management education program for various target audiences. Workshop participants reviewed critical ecosystem concepts for environmental education, defined target audiences, identified existing materials, and determined strategies for teaching ecosystem management educational concepts and programs. This workshop was designed to develop a strategy to teach ecosystem management; the products of this workshop could include training sessions that teach these concepts to public citizens, and private, public and non-profit organizations.

One Chesapeake Bay Program activity involved four workshops for residents of the Susquehanna watershed entitled "Into the Susquehanna, Into the Chesapeake." These workshops were designed to educate residents on the impacts of their pollution not only for the Susquehanna River, but often ultimately for the Chesapeake Bay. The workshops identified the variety of general sources of pollution; exposed pollutant pathways from a typical home to these water bodies; and the impacts of such pollutants on these water bodies, particularly on water quality and on wildlife. A major activity of the workshops was a "hands-on" project of painting the sewers and drains with "Chesapeake Bay Drainage" stencils as a constant reminder to area residents of the final destination of their pollution.

Other examples of actual training programs already in existence are as follows. In Michigan, for instance, the Department for Environmental Quality's Environmental Assistance Division provides outreach and training activities to Michigan municipalities, institutions, businesses, and the general public on topics such as technical compliance, pollution prevention, waste reduction, clean air, innovative technology and site redevelopment. The Illinois Department of Energy and Natural Resources sponsored a major conference on energy-efficient residential construction. The conference was cosponsored by ENR and the Energy Resources Center of the University of Illinois at Chicago. For more information contact: Jan Halford, (217) 785-3412.

B.1.3 Public Service Announcements

Public service announcements are designed to inform the public about events that have occurred or will occur, and promote these upcoming events and/or products, using the various media (radio, television, press). In Washington, the Department of Ecology produced 30-second public service announcements for local radio stations across the state to inform the public about Earth Day and related events, and thereby promote environmental awareness and encourage public participation in environmental activities. The message asked listeners, "during April, try one new way to help the environment." The Department of Ecology also discussed television coverage with local television stations. Press releases were distributed to media statewide. In addition, county/city coordinators sent Earth Day packets in response to 1-800-RECYCLE requests from citizens in their area.

As another example, to follow up on a number of television newscasts on energy efficiency, the North Carolina Energy Division decided to expand its energy awareness program through television programming. In October, the Division began a television series on various energy-related issues affecting state residents. The first one-hour show gave viewers an understanding of the energy regulatory process in North Carolina. Another show had a "how-to" format that provided a wide variety of measures that homeowners and businesses can take to save energy and reduce their energy bills. The second show was timed to encourage energy conservation measures before the onset of winter. Other TV shows slated for the future include discussions on day lighting, renewables, energy efficiency on the farm and another how-to show. The shows are done through the North Carolina Agency for Public Telecommunications, which is a state agency.

B.1.4 Educational Materials

Dissemination of educational materials means distribution of these materials. Dissemination can occur at the federal, state, and local levels on a variety of environmental topics pertaining to all environmental media. Dissemination of information on any topic or issue facilitates access to information on that subject. Information dissemination thereby heightens awareness of the target audience -- in this case, the public/local audiences, encourages public involvement and, in some cases, promotes behavior change. Dissemination can occur electronically via the Internet; through physical distribution of pamphlets and brochures (e.g., via mail); and through local businesses or organizations that serve as distribution centers, (e.g., libraries, grocery stores, utilities, and environmental organizations).

One outreach program, the "Planet Protection Program," is run by EPA's Atlanta office and the National Retail Hardware Association. EPA's local office provides (i.e., disseminates) educational materials and point-of-purchase displays to 46,000 hardware stores and home centers to encourage consumers to buy energy-efficient home products.

Similarly, municipal facilities (e.g., utilities) can disseminate information to consumers to promote energy conservation and environmental protection. Electric utilities, for example, often include information that is mailed along with monthly billing statements regarding installation of compact flourescent lighting (CFLs) to save energy, and ultimately save on electric bills and the cost of replacement bulbs. Utilities will often conduct free home audits to identify measures such as this one that will reduce energy use and save money. Other measures include use of newer, energy-efficient refrigerators. Home/office insulation improvements can be made to reduce heating costs and energy loss.

The Water Environment Federation sells bill stuffers (mailers) that utilities can include with monthly billing statements on topics such as groundwater protection, water recycling, disposal of household hazardous wastes, and more. WEF also publishes brochures, magazines, and other outreach and educational materials. Over one million copies of the brochure, "Nature's Way: How Wastewater Treatment Works For You," have been distributed to municipalities, corporations, and consultants who want to provide consumers with an overview of the wastewater treatment process.

B.1.5 Public Surveys

A survey or poll is one method of collecting information directly from people about people usually through the use of a written questionnaire or an in-person or telephone interview. Information obtained through surveys provides descriptions of individuals' ideas and feelings regarding a particular issue; knowledge of an issue; beliefs; social, education, and economic background; and plans for the future.

The Chesapeake Bay Attitudes Survey identified a difference between the public perception of the Bay's problems and the realities. The public identified industrial pollution as the primary source of the Bay's contamination; in reality, nutrient pollution poses the greatest risk to the Bay. Using the results of this survey, the Bay Program can educate the public to rectify this misconception, heighten awareness, and encourage greater involvement in restoring the estuary and preventing further pollution.

B.1.6 Publications (newspaper articles/newsletters/journals)

Countless publications, articles, and magazines contain articles on the environment as a forum for informing the public about items ranging from regulations to events/conferences, environmental degradation, remediation efforts, and sustainable development efforts. EPA's Landfill Methane Outreach Program is designed to recover methane from landfills to use the methane for energy and reduce greenhouse gas emissions (GHGs). EPA recognizes program participants and increases public awareness of state, utility and industry efforts to reduce GHGs, while developing an alternative energy source, through newsletters, articles**,** media events, and public service advertisements.

For example, *Pollution Prevention Northwest* is a newsletter published bimonthly by the Pacific Northwest Pollution Prevention Research Center (PPRC). This newsletter regularly contains the following sections: *Featured Topics* (up to three each month), which contains in-depth articles on selected topics; *Pacific Northwest Government Newswatch* - summaries of pollution prevention related activities occurring in the government agencies of the Pacific Northwest; *Pollution Prevention Digest* - short bits of interesting information on pollution prevention from around the country; a *P2 Calendar* - listing of some major meetings and conferences related to pollution prevention; and *About the PPRC* - a brief introduction to the PPRC, including contact information.

The International Council for Local Environmental Initiatives (ICLEI) is the international environmental agency for local governments. ICLEI was established in 1990 through a partnership of the United Nations Environment Programme, the International Union of Local Authorities, and the Center for Innovative Diplomacy.[1] ICLEI publishes a newsletter, *Initiatives***,** that disseminates information to its members and to the general public.

B.2 PUBLIC INVOLVEMENT TOOLS

Public involvement tools differ from public outreach in that they actually give citizens an opportunity to take part in decision-making and information gathering. Such mechanisms for public involvement include:

[1] ICLEI is designed to serve as an international clearinghouse on sustainable development and environmental protection policies, programs, and techniques being implemented at the local level; to initiate joint projects or campaigns among groups of local governments; to organize training programs and publish reports and technical manuals on state of the art environmental management practices; and to serve as an advocate for local government before national and international governments, agencies and organizations to increase their understanding and support of local environmental protection and sustainable development activities.

- Public meetings
- Community visioning/brainstorming
- Citizen/volunteer monitoring
- Citizen advisory groups/committees
- Referenda.

The remainder of this section discusses each of the above public involvement tools and provides specific examples of each.

B.2.1 Public Meetings

Public meetings provide a forum for citizens and members of different agencies, groups, and associations to come together to share information and voice opinions regarding a particular issue and address the issue at hand using an organized, inclusive approach. For example, the Southern Appalachian region is experiencing degradation of environmental resources, due to human development pressures. An assessment was conducted to acquire information on the ecosystems, determine the actual extent of environmental damage, and examine development trends. Public meetings were held to solicit public concerns regarding terrestrial health, atmospheric quality, aquatic environments, and social/cultural/economic issues. Citizens and members of national, state, and local agencies cooperated to create a vision to manage resources in the region in a sustainable, balanced manner. Based on the concerns raised and on this vision, technical teams were established to address individual issue areas and promote sustainable ecosystem management.

An EPA Region 5 "Gateway" initiative has resulted in a consent decree with Trade Waste Incinerator (TWI) (Sauget, Illinois), which included a $200,000 allocation for the disposal of tires and other garbage that have accumulated in vacant lots and abandoned housing. Fly-dumping (the unauthorized disposal of construction and household waste material) is one of the Gateway community's highest concerns. Town meetings will be held to enable community members to provide input as to where TWI will place large disposal containers within East St. Louis, Alorton and Washington Park.

B.2.2 Community Visioning/Brainstorming

Community visioning involves uniting stakeholders (public, private, and civic) from across a community to create a vision for the future, define short and long term goals, and, in most cases, establish plans or a strategy for action. Community visioning may also be referred to as strategic

planning, because visioning projects inherently are planning projects (rather than implementation). Community visioning/planning is based on a form of group dialogue that relies on conflict resolution facilitation that attempts to build on decisions and ideas that are reached by group consensus. Community visions are designed to reflect the full range of values of the community's members, as well as a community's social, physical, and economic strengths and needs. (Note that visions will include impacts (e.g., physical) that are both positive and negative.) In certain instances, visioning/planning initiatives may be comprehensive, in terms of including planning and implementation.

Chattanooga, Tennessee, was voted as the city with the worst air pollution in the United States in 1969. Its residents also faced deep problems of job layoffs, a deteriorating city infrastructure, racial tensions and social division. Recognizing these recurring and deeply impacting problems, several community leaders, including people from the Chamber of Commerce and the City's Planning Commission, created Chattanooga Venture - a nonprofit organization with the goal of using city-wide planning, with the full participation of the community, to restore the City's air quality and develop a model of environmental, economic, and social maintainability.

Chattanooga Venture's first monumental task was to design and implement a project called "Vision 2000," which brought together more than 1700 people, to take part in city planning over a four-month period in 1984. During a series of meetings led by involved community members trained in facilitation, strategic visioning, and nominal group technique processes, community members were encouraged to dream about the way they wanted their city to be, and to organize these dreams and ideas into a formal list of shared ideals. The community participants collectively set goals and established priorities for improving their city. Diverse groups of community members brainstormed, debated, categorized and organized their concerns. The result of the many community meetings was a set of 40 goals for the city to achieve by the year 2000. These goals fell under the categories of future alternatives, places, people, work, play and government. The goals ranged from creating a distribution and transportation center to strengthening the downtown area to solving air, water, toxic waste and noise pollution problems. Today, many of these original goals have been realized.

The action from the goals led to 223 projects and programs with an investment in the community of more than $800 million, and the creation of 1,381 jobs and 7,300 temporary construction jobs. Because of the success of this visioning process, it is currently being modeled in cities throughout the United States as well as internationally. Chattanooga Venture has compiled a step-by-step guide for community groups to assist them with brainstorming, visioning,

developing plans, and making choices. The projects that have resulted are varied in scope, but all work to create a more sustainable community - as defined by the people who live there.

Environmental problems, the impetus for this community-wide action, led to the creation of the Environmental City project, which is working for the expansion or relocation of "clean industry" (unpolluting) to the area, the retention of environmentally sound businesses, and the creation of environmental awareness throughout the city. Public/private partnerships have proven extremely successful in the Environmental City project. The Chattanooga Environmental Initiative, another project, strives to have the city become the nationwide center for environmental information and business and is complemented by clean air work to maintain EPA standards (which have been met since 1988) and create a zero emissions industrial park; electric bus technology, which has led to the creation of the largest fleet of free, electric buses in the U.S. and free public parking downtown; and the Greenways Planning Project, which is creating a network of protected areas of open space and linear parkways through eight counties.

Information communication has been paramount to all of these projects. The Chattanooga News Bureau serves as a central source of information for the community projects and is remarkably active in initiating, coordinating, and facilitating regional, national and international news coverage on stories from Chattanooga and the surrounding area. Nearly a hundred cities from around the world have solicited information on economic development and urban design, the Chattanooga Neighborhood Enterprise, the electric buses, community visioning and citizen involvement. There is also an initiative to create a Chattanooga Community Link, which would share information online for all interested community members and further provide the essential local-global link to the many sustainable community initiatives in Chattanooga.

Another example involves communities in Hawaii that are developing proactive visions and strategic initiatives aimed at a sustainable future (i.e., one that promotes development of local economies while protecting resources). These communities are using a new communications structure (i.e., consensus-based) and modern technology to transfer information within and among communities across the globe to help achieve such visions. Promoting sustainable tourism would be one method for achieving sustainable development in Hawaii.

B.2.3 Citizen/Volunteer Monitoring

Citizen monitoring involves citizens in environmental compliance by having them participate in monitoring programs and activities, such as water quality monitoring, ground water protection, environmental cleanup activities, or even voluntary environmental audits.

The Chesapeake Bay Program encourages citizen/volunteer monitoring through a variety of activities. One project, conducted in Quarryville, PA, aimed to demonstrate the value of establishing erosion control measures along streams flowing into the Chesapeake Bay, and procedures for preserving and increasing aquatic life through various stream bank conservation control measures. A significant component of this project involved teaching high school students the importance of stream monitoring and development of water sampling protocols. Once stream bank conservation control measures had been implemented, the students took water samples every two weeks and tested for nitrates, phosphates, pH, dissolved oxygen, water and air temperature, and established a baseline for chemical and physical parameters for the site. The sustenance of invertebrates indicated the stream was capable of supporting all forms of aquatic life and provided an ideal marine freshwater habitat.

Audits are assessments or site visits that are conducted to identify areas where environmental improvements or conservation measures can be undertaken. Increasingly, audits are designed to use a holistic approach to environmental management, and beyond that, to incorporate environmental management into overall business management procedures and decision-making processes. The Pennsylvania Department of Environmental Protection, for example, encourages companies, local governments and individuals to diagnose and remedy environmental problems by voluntarily conducting environmental compliance audits. Problems disclosed and corrected are not penalized.

B.2.4 Citizen Advisory Groups/Committees

A citizen's advisory committee serves as a forum for a municipal entity or business to interact and work cooperatively with the surrounding community. The Ohio Prevention First is a voluntary planning initiative for business, industry, municipalities, and citizens to help reduce the amount of pollution generated throughout Ohio. The goal of the Ohio Prevention First initiative is to reduce pollution in Ohio by 50 percent by the year 2000. One effort that can be undertaken to achieve this goal involves the formation of citizen advisory committees to work cooperatively with local government or industry on environmental action plans or pollution prevention/pollution reduction programs that address one or more types of pollution.

The goal of the Chesapeake Bay Agreement is to reduce the nutrients, nitrogen and phosphorus entering the Chesapeake Bay as part of an overall program to restore and protect this estuary (and its resources). A local government advisory committee was formed to communicate information about the ongoing and evolving Chesapeake Bay Program activities to local governments. The committee also is responsible for communicating the opinions, concerns, and recommendations

of local governments to the Chesapeake Executive Council. In addition, the committee provides comments on strategies and other documents, giving a local perspective on Bay issues. The committee also provides a forum for the Executive Council to disseminate information to local governments.

B.2.5 Referenda

Initiatives or referenda are binding laws that are initiated by, or *referred to*, the public for approval or rejection, usually by petition or popular vote. The Washington Department of Ecology and the U.S. Bureau of Reclamation announced they will spend $700,000 this year to begin the Yakima River Basin Water Enhancement Project. This is the first expenditure in an effort that could cost $185 million over the next ten years to improve water supply for irrigation and increase flows for fish. Voters approved a referendum for state funding ($50 million bond) for initial improvements in irrigation water systems.

As shown throughout this chapter, public outreach/education and public involvement tools can be used for the different types of municipal operations discussed in this document. Most of these tools can be tailored to a variety of these operations and are useful in a variety of settings. A range of tools is provided here, so that the most appropriate tool(s) can be selected for each specific situation and for each type of operation.

APPENDIX C
EXAMPLES OF LOCAL GOVERNMENT POLLUTION PREVENTION AND PURCHASING PROJECTS

C.1 CITY AND COUNTY OF SAN FRANCISCO, CALIFORNIA

The City and County of San Francisco employs an active pollution prevention program focused on reducing the amount of hazardous waste generated, as well as decreasing the amount of pollutants that enters the City's sewer system. The Office of the Chief Administrative Officer's Hazardous Waste Management Program started pollution prevention activities in 1988 in response to passage of a 1986 state law that authorized counties to develop County hazardous waste management plans for the reduction and management of hazardous waste to the year 2000. The program was initially established to target specific small businesses that had the potential to significantly reduce waste, to minimize illegal disposal, and to achieve the year 2000 goal of 10 to 40 percent waste reduction. (In San Francisco, small quantity generators generate most of the hazardous waste.) The program now also focuses on larger businesses extending its on-site assessments and information to all businesses in the City and County. It also addresses hazardous waste generated by City agencies and households through multimedia pollution prevention information.

The Department of Public Work's Bureau of Environmental Regulation and Management created a Water Pollution Prevention Program (WPPP) in 1990 as a result of criteria outlined in the City's "Best Management Practices Implementation Plan," which was required by the City's Oceanside NPDES permit requirements. The WPPP was charged with qualifying and quantifying the City's pollutants of concern, identifying the pollutants, developing and implementing source reduction/pollution prevention strategies, and initiating evaluation methodologies to determine the effectiveness of the program. Its activities target business, industry, and residential sectors through educational and technical assistance materials.

D.2 BROWARD COUNTY DEPARTMENT OF NATURAL RESOURCE PROTECTION, FLORIDA

The Broward County Department of Natural Resource Protection established its Pollution Prevention Section of the Pollution Prevention and Remediation Programs Division in 1992 as a non-regulatory program with the mission of encouraging businesses to operate more efficiently, comply with regulations, and prevent pollution at the source. This multi-pronged program focuses its pollution prevention efforts on both the business community and County facilities.

The section's program approaches pollution prevention from two angles: 1) collaborate with regulated business and the industrial community, and 2) set an example by examining pollution prevention opportunities in County buildings and operations. The department hopes to accomplish environmental protection through voluntary pollution prevention and increased regulatory compliance. Through its Pollution Prevention in County Operations Program and Pollution Prevention and Best Management Practices (P2-BMP), which is a collaborative approach to regulatory compliance and pollution prevention in the regulated community, the pollution prevention section hopes to help the County achieve its goals. The program has three P2-BMP programs in place: 1) the marine facilities P2-BMP, 2) the metal finishing facilities P2-BMP, and the automobile salvage yards P2-BMP.

C.3 LINCOLN-LANCASTER COUNTY HEALTH DEPARTMENT, NEBRASKA

The Lincoln-Lancaster County Health Department (LLCHD) runs a pollution prevention program that integrates pollution prevention into all of its media programs, thereby moving up the waste management hierarchy to prevent the generation of waste. The program evolved from a waste disposal permitting program that began in 1986. The program stemmed from a recommendation of their local Hazardous Pollutants Advisory Committee to define public concerns and issues dealing with threats to environmental health. As a result, LLCHD has formed the following programs to infuse pollution prevention into all its activities.

The department has a pollution prevention program that increases public awareness of chemical toxicity in relation to decisions made on product purchase, use, handling, storage, and disposal. LLCHD has also integrated pollution prevention into the following programs: special waste program (regulatory and toxics use on-site assistance); household hazardous waste program (identification and reduction of public chemical consumption); outdoor air quality program (small business technical assistance on multimedia pollution prevention information to improve air quality); water-wastewater program (pollution prevention in planning new subdivisions and sewer extensions); wellhead protection program (identification of potential contamination sources and on-site farm pollution prevention assessments); clean community system (education displays on non-point source water pollution for schools, citizen groups, and neighborhoods); and special recognition program.

C.4 CITY OF SANTA MONICA, CALIFORNIA

The City of Santa Monica, California, transformed its purchasing practices to promote environmentally-friendly products without compromising performance standards or budgetary

requirements. As a result, Santa Monica has reduced its annual use of chemicals considered to be hazardous or toxic by 3,200 pounds and has proven the City's commitment to provide a safe and healthy environment for its employees and the public. Other accomplishments include:

- Replaced cleaning products with less toxic or nontoxic alternatives in 15 or 17 product categories, reducing spending on custodial products by approximately 5 percent
- Reduced pesticide use by developing an effective integrated pest management system covering all City facilities, saving 30 percent in pest management costs
- Purchasing re-refined motor oil, which costs up to 25 percent less than virgin motor oil, for all vehicles maintained by the fleet maintenance division and using less-toxic, water-based brake cleaners and parts washers
- Powering 20 percent of its 585-vehicle fleet with less-polluting alternative fuels, including compressed natural gas, electricity, and propane
- Purchasing a wide range of recycled products, including office paper, recycled paint, trash can liners, and retread tires.

For more information about Santa Monica's environmental purchasing efforts, including specifications for Integrated Pest Management and custodial products, contact Deborah Raphael of the Environmental Programs Division at 310-458-2255. To receive a copy of the Santa Monica Environmental Purchasing Case Study, contact the U.S. EPA Pollution Prevention Information Clearinghouse at 202-260-1023 or E-mail: ppic@epamail.epa.gov To learn more about local government environmental purchasing, contact the National Association of Counties (NACo) Environmental Purchasing Project, 202-393-6226 or www.naco.org/programs/environ/purchase.cfm

NACo's Environmental Purchasing Project assists counties with environmental purchasing initiatives and is developing a clearinghouse of information including model purchasing resolutions, sample product specifications, case studies, environmental criteria, and product resources.

Resources

"Preventing Pollution in our Cities and Counties: A Compendium of Case Studies," NPPR, NACo, NACCHO and U.S. Conference of Mayors, 1995.

U.S. EPA Pollution Prevention Information Clearinghouse, 401 M Street, SW (7409), Washington, DC 20460 (http://www.epa.gov/opptintr/p2home)

Enviroene, U.S. EPA Operations Research Development Division, 401 M Street, SW (MC-8722R), Washington, DC 20460 (http://www.epa.gov/envirosense)

National Pollution Prevention Roundtable, 2000 P Street NW, Suite 708, Washington, DC 20036 (http://www.p2.org)

National Association of Counties, 440 First Street, NW, Washington, DC 20001 (http://www.naco.org)

National Association of City and County Health Departments, 440 First Street NW, Suite 450, Washington, DC 20001

U.S. Conference of Mayors, 1620 I Street, NW, Washington, DC 20006 (http://www.usmayors.org/uscm)

American Council for an Energy Efficient Economy, 1001 Connecticut Avenue, NW, Suite 801, Washington, DC 20036 (http://aceee.org)

APPENDIX D
STATUTORY MATRIX OF LOCAL GOVERNMENT OPERATIONS AND ASSOCIATED ACTIVITIES[1]

OPERATION	ENVIRONMENTAL STATUTES[2]										
	CWA	CAA	CERCLA	EPCRA	FIFRA	RCRA	TSCA	SDWA	NEPA	ESA	RHA
3.3 CONSTRUCTION/PROPERTY MANAGEMENT											
3.3.1 General Activities											
1. Zoning issues 2. Coordination of activities (e.g., BMPs) across local governments 3. Planning and design (apply EMS concept) 4. Monitoring contractors	*Although there are no specific federal requirements, these activities can affect the significance of the environmental impacts associated with local government operations. When conducting these activities, the local government should consider the potential environmental impacts.*										
3.3.2 Roads/Bridges/ Tunnels	**U**	**U**	**U**	**U**		**U**			**U**	**U**	**U**
3.3.2.1 New Construction	**U**	**U**							**U**	**U**	**U**
Clearing and grading activities	**U**									**U**	**U**
Storm water management (e.g., stream stabilization) Erosion and sediment (E&S) control	**U**										
Dredging (wetlands)	**U**										
Road spoils/debris disposal (if hazardous)						**U**					
Redoing utility (power, gas, sewer) lines (in wetlands)	**U**										
New construction (roads)		**U**				**U**					
Fly ash in concrete (hazardous wastes mixed in asphalt/ concrete)						**U**					
Laying asphalt		**U**									
Recycling asphalt (make up mineral content by adding shredded glass, slag); VOCs from asphalt		**U**									

[1] This matrix may include some activities that are not specifically discussed in Chapter 3.

[2] This table indicates whether federal requirements may apply. Even if federal requirements do not apply, state requirements may apply. The local government needs to be aware of state requirements.

OPERATION	ENVIRONMENTAL STATUTES[2]										
	CWA	CAA	CERCLA	EPCRA	FIFRA	RCRA	TSCA	SDWA	NEPA	ESA	RHA
New construction (curbs and sidewalks)		U	U	U							
Concrete laying Chemicals used to harden sidewalks		U	U	U							
Noise abatement	*No specific federal regulatory requirements.*										
Dust control						U					
3.3.2.2 Maintenance and Renovation	U	U				U					
Street sweeping	U										
Maintaining storm sewers and impoundments	U	*See Section 3.7—Wastewater Management.*									
Salt application and removing snow	U										
Painting (e.g., guardrails) Removing and disposing of lead-based paints		U				U					
3.3.2.3 Traffic Management Design (e.g., painting, speed bumps, yield signs preferable to stop signs)		U[3]				U					
Modeling air pollution		U[3]									
Traffic boxes Old batteries (e.g., replace Pb batteries with solar packs)						U					
3.3.3 Buildings	U	U	U	U	U	U	U				
3.3.3.1 New Construction	*See New Construction under Section 3.3.2—Roads/Bridges/Tunnels.*										
3.3.3.2 Maintenance and Repair	U	U	U	U	U	U					
Monitoring indoor air quality	*No specific federal regulatory requirements.*										
Boiler operations (hazardous waste fuels, used oil for fuel)	U	U	U	U		U					
Cooling systems/CFCs		U	U	U							
Pesticide application	*See Section 3.4—Pesticide/Vector Management.*										
Energy conservation issues	*No specific federal regulatory requirements.*										

[3] Under State Implementation Plan.

OPERATION	ENVIRONMENTAL STATUTES[2]										
	CWA	CAA	CERCLA	EPCRA	FIFRA	RCRA	TSCA	SDWA	NEPA	ESA	RHA
Fluorescent bulbs	*No specific federal regulatory requirements.*										
Mercury-containing bulbs						**U**					
Mercury-thermostat (covered under Universal Waste rule)						**U**					
Parking lots/storm water management	**U**										
Chemical storage/hazardous materials management (e.g., paints, solvents)		**U**	**U**	**U**							
Management of generated wastes	**U**					**U**					
Food wastes (school cafeterias)	**U**										
Laboratory/medical wastes (schools, coroner's office, police department)	**U**					**U**					
Laundry (jails)	**U**					**U**					
Furniture finishing (jails)	**U**					**U**					
3.3.3.3 Renovation and Demolition	**U**	**U**				**U**	**U**				
Building dewatering/ contaminated groundwater	**U**										
Demolition wastes Pressure-treated wood						**U**					
Asbestos		**U**					**U**				
Lead-based paint		**U**				**U**					
3.3.4 Outdoor Recreation Facilities (including stadiums and golf course)	**U**	**U**	**U**	**U**	**U**	**U**	**U**				
3.3.4.1 New Construction	*See New Construction under Section 3.3.2—Roads/Bridges/Tunnels.*										
3.3.4.2 Facility Maintenance and Renovation	**U**	**U**	**U**	**U**	**U**	**U**	**U**				

OPERATION	ENVIRONMENTAL STATUTES[2]										
	CWA	CAA	CERCLA	EPCRA	FIFRA	RCRA	TSCA	SDWA	NEPA	ESA	RHA
Swimming pool Adjusting ozone, chlorine, and chemical composition Testing for and adjusting pH Maintaining and repairing filter systems, recirculation pipes, valves, fittings, and pumps (welding, brazing, fabricating) Operation of electrical and heating systems Solid waste management Backwashing filters, circulating water, and filter water Installing, maintaining, and repairing electronic control systems and timers Drainage issues (pretreatment program) Chemical storage/ hazardous materials management (e.g., chlorine) Parking lots (storm water management)	**U**	**U**	**U**	**U**		**U**					
Stadium, playing field, and golf course Field maintenance Watering, fertilizing, resodding, pesticide spraying, mowing, aerification, soil sampling, overseeding, weed control Planting, pruning trees and shrubs Mowing fields, operating hydraulic mowers, lawn sweepers, forklifts, skiploaders, small tractors, self-propelled roller compactors, renovators, verticutters, top dressers, paint sprayers, aerifiers, sod cutters, rototillers, dump trucks, and motor sweepers Grading land and moving soil Pesticide management/ IPM Landscaping/xeriscape Bio-retention facilities	**U**	**U**	**U**	**U**	**U**	**U**	**U**				

OPERATION	ENVIRONMENTAL STATUTES[2]										
	CWA	CAA	CERCLA	EPCRA	FIFRA	RCRA	TSCA	SDWA	NEPA	ESA	RHA
Stadium, playing field, and golf course continued Food preparation and disposal Parking lots (storm water management) WWTP (used only on weekends) Cleaning stadium, buildings, and grounds Using cleaning chemicals Solid waste management	**U**	**U**	**U**	**U**	**U**	**U**	**U**				
3.3.5 Vehicle/Equipment Maintenance	*See Section 3.10—Vehicle/Equipment Maintenance.*										
3.4 PESTICIDE/VECTOR MANAGEMENT											
3.4.1 Purchasing Pesticides Purchasing proper amounts Selecting appropriate pesticides Determining shelf life	*No specific federal regulatory requirements.*										
3.4.2 Applying Pesticides	**U**				**U**					**U**	
Mixing pesticides					**U**						
3.4.2.1 Applying Pesticides Indoors					**U**						
3.4.2.2 Applying Pesticides Outdoors Helicopters/tractor drives Maintaining green ways - herbicides/round up for right of way wild flowers	**U**				**U**					**U**	
3.4.2.3 Cleaning Application Equipment					**U**						
3.4.2.4 Certifying Applicators					**U**						
3.4.2.5 Keeping Records					**U**						
3.4.3 Storing Pesticides		**U**	**U**	**U**	**U**						
3.4.3.1 Risk Management Planning (CAA Section 112(r))		**U**		**U**							
3.4.3.2 Notification of a Canceled or Suspended Pesticide					**U**						

OPERATION	ENVIRONMENTAL STATUTES[2]										
	CWA	CAA	CERCLA	EPCRA	FIFRA	RCRA	TSCA	SDWA	NEPA	ESA	RHA
3.4.4 Disposing of pesticides	**U**				**U**	**U**					
3.4.5 Vehicle/Equipment Maintenance	*See Section 3.10—Vehicle/Equipment Maintenance.*										
3.5 PUBLIC SAFETY											
3.5.1 Emergency Planning				**U**							
3.5.1.1 Planning Catastrophic events Flooded rivers (e.g., flood control)/debris management Solid waste debris management from catastrophes	*No specific federal regulatory requirements, but local governments participate in planning for and responding to these types of events. Check with the Federal Emergency Management Agency (http://www.fema.gov).*										
3.5.1.2 Providing Chemical Information to the Public				**U**							
3.5.2 Fire Protection and Emergency Response	**U**	**U**		**U**		**U**					
3.5.2.1 Fire Protection	**U**	**U**		**U**		**U**					
3.5.2.2 Emergency Planning	*See Section 3.5.1—Emergency Planning.*										
3.5.2.3 Fire Response and Suppression Practicing Firefighting		**U**		**U**							
3.5.2.4 Hazardous Materials Response Generation of hazardous wastes Management and disposal of contaminated media	**U**					**U**					
3.5.3 Police Protection	**U**	**U**	**U**	**U**		**U**					
3.5.3.1 Photoprocessing	**U**	**U**				**U**					
3.5.3.2 Firing Ranges			**U**	**U**		**U**					
3.5.3.3 Laboratory Operations (forensics, fingerprinting)	**U**		**U**	**U**		**U**					
3.5.4 Vehicle/Equipment Maintenance	*See Section 3.10—Vehicle/Equipment Maintenance.*										

OPERATION	ENVIRONMENTAL STATUTES[2]										
	CWA	CAA	CERCLA	EPCRA	FIFRA	RCRA	TSCA	SDWA	NEPA	ESA	RHA
3.6 SOLID WASTE MANAGEMENT											
3.6.1 Collecting and Storing Municipal Solid Waste	**U**										
3.6.1.1 Collection Yard materials, batteries, large appliances	*Federal guidelines, but no specific federal regulatory requirement.*										
3.6.1.2 Storage Operation of Transfer Stations Truck wash areas (e.g., spray units to clean bottom of trucks)	**U**										
3.6.2 Recycling and Composting		**U**	**U**	**U**							
3.6.2.1 Recycling	*No specific federal regulatory requirements.*										
3.6.2.2 Composting		**U**	**U**	**U**							
3.6.3 Source Reduction Pollution prevention/ waste minimization programs	*No specific federal regulatory requirements.*										
3.6.4 Disposal	**U**	**U**				**U**					
3.6.4.1 Landfill Operation	**U**	**U**				**U**					
Waste analysis						**U**					
Leachate collection	**U**					**U**					
Methane gas collection						**U**					
Daily cover						**U**					
Pesticide application	*See Section 3.4—Pesticide/Vector Management.*										
Disposal practices						**U**					
3.6.4.2 Municipal Waste Combustion		**U**				**U**					
Monitoring (air quality issues)		**U**									
Disposal of residual ash						**U**					
3.6.5 Household Hazardous Waste Collection and Storage	*No specific federal regulatory requirements.*										
3.6.6 Vehicle/Equipment Maintenance	*See Section 3.10—Vehicle/Equipment Maintenance.*										

OPERATION	ENVIRONMENTAL STATUTES[2]										
	CWA	CAA	CERCLA	EPCRA	FIFRA	RCRA	TSCA	SDWA	NEPA	ESA	RHA
3.7 WASTEWATER MANAGEMENT											
Construction of lines/planning design	*See Section 3.3—Construction/Property Management.*										
Construction of wastewater treatment plant Upgrades for additional capacity	*See Section 3.3—Construction/Property Management.*										
3.7.1 Operation and Maintenance of Sewer Systems	**U**										
3.7.1.1 Sanitary Sewer Systems	**U**										
3.7.1.2 Combined Sewer Systems	**U**										
3.7.1.3 Municipal Separate Storm Sewer Systems	**U**										
3.7.1.4 Water Line Repair/Replacement	**U**										
3.7.2 Wastewater Treatment	**U**	**U**	**U**	**U**	**U**	**U**	**U**				
3.7.2.1 Wastewater Treatment Process	**U**	**U**	**U**	**U**		**U**	**U**				
Air emissions (MACT standard)	**U**										
Nuisance odor control	*Generally regulated under local ordinance.*										
Pesticide/vector control	*See Section 3.4—Pesticide/Vector Management.*										
Digester operation and maintenance (methane burners, scrubbers)	**U**	**U**									
Painting		**U**				**U**					
Debris (e.g., grit) management (if hazardous)						**U**					
Stand-by generators Diesel spills	*See Section 3.10—Vehicle/Equipment Maintenance.*										
Transformers-PCBs							**U**				
Vehicle maintenance	*See Section 3.10—Vehicle/Equipment Maintenance.*										
3.7.2.2 NPDES Permit Compliance	**U**										
Beach monitoring (CSOs)	**U**										
Nontraditional treatment systems	**U**										

OPERATION	ENVIRONMENTAL STATUTES[2]										
	CWA	CAA	CERCLA	EPCRA	FIFRA	RCRA	TSCA	SDWA	NEPA	ESA	RHA
Artificial wetlands	U										
Groundwater monitoring in NPDES permit application	U										
Surface applications	U										
Point/nonpoint pollution trading	*No specific federal regulatory requirements.*										
3.7.2.3 Laboratory Operations	U					U					
Toxicity evaluation reduction	U										
3.7.2.4 Pretreatment Program	U										
Source control to improve compliance, biosolids reuse	U										
Hauled wastes/manifest/ waste characterization	U										
3.7.2.5 Biosolids Management and Disposal (land application, surface disposal, incineration, landfilling)	U	U				U					
3.7.2.6 Chemical Storage/Hazardous Materials Management (e.g., solvents for building maintenance, chlorination, chemicals to control erosion)		U	U	U							
3.7.3 Vehicle/Equipment Maintenance	*See Section 3.10—Vehicle/Equipment Maintenance.*										
3.8 WATER RESOURCES MANAGEMENT											
3.8.1 Surface Water Protection											
3.8.1.1 Best Management Practices	*No specific federal regulatory requirements, but local governments are encouraged to develop surface water protection programs.*										
3.8.1.2 Nonstructural BMPs Street sweeping Vegetative buffer areas Marsh vegetation Watershed monitoring Reservoir management Pollution prevention	*No specific federal regulatory requirements, but local governments are encouraged to develop surface water protection programs.*										
3.8.2 Groundwater (Wellhead) Protection											

OPERATION	ENVIRONMENTAL STATUTES[2]										
	CWA	CAA	CERCLA	EPCRA	FIFRA	RCRA	TSCA	SDWA	NEPA	ESA	RHA
Zoning and subdivision ordinances Site plan reviews Design and operating standards Property or easement purchases Public education Household hazardous waste collection Groundwater monitoring	*States must develop their own wellhead protection programs. No specific federal regulatory requirements, but local governments are encouraged to become involved in wellhead protection programs.*										
Dams, canals, levees New construction Design issues (NEPA)	*See Section 3.3—Construction/Property Management.*										
Flood control/ management (e.g., flood walls) Storm water channeling Dam decommissioning/ demolition Erosion and sediment control	**U**										
3.9 WATER SUPPLY											
3.9.1 Water Treatment	**U**	**U**	**U**	**U**		**U**		**U**			
Treating water								**U**			
3.9.1.1 Chemical Storage/Hazardous Materials Management	**U**	**U**	**U**	**U**							
3.9.1.2 Laboratory Operations	**U**					**U**					
3.9.1.3 Residual Management	**U**					**U**					
3.9.2 Water Distribution System Operation and Maintenance	**U**	**U**		**U**		**U**		**U**			
3.9.2.1 Cross Connection Control and Backflow Prevention	*No specific federal regulatory requirements.*										
3.9.2.2 Water Pipe Flushing	**U**										
3.9.2.3 Water Main Repair/ Replacement Lead pipes Lost water through old or broken pipes	**U**	**U**		**U**				**U**			
3.9.2.4 Storage Tank Maintenance (painting)		**U**				**U**					
3.9.2.5 Pump Maintenance	*See Section 3.10—Vehicle/Equipment Maintenance.*										

OPERATION	ENVIRONMENTAL STATUTES[2]										
	CWA	CAA	CERCLA	EPCRA	FIFRA	RCRA	TSCA	SDWA	NEPA	ESA	RHA
3.9.2.6 SDWA Compliance								**U**			
Water reuse Water conservation	*No specific federal regulatory requirements.*										
3.9.3 Vehicle/Equipment Maintenance	*See Section 3.10—Vehicle/Equipment Maintenance.*										
3.10 VEHICLE/EQUIPMENT MAINTENANCE											
3.10.1 Vehicle Repair Shops	**U**	**U**				**U**	**U**				
3.10.1.1 Changing Vehicle Fluids (hydraulic fluids, used oil, use coolants, radiator fluid)	**U**					**U**					
3.10.1.2 Washing Vehicle Parts	**U**	**U**				**U**					
3.10.1.3 Maintaining Vehicle Batteries	**U**					**U**					
3.10.1.4 Repairing Air Conditioners		**U**									
3.10.1.5 Washing Vehicles and Shop Floors	**U**										
3.10.1.6 Repairing or Replacing Exhaust Systems		**U**									
3.10.1.7 Painting Vehicles		**U**				**U**					
3.10.1.8 Storing Materials Outside Storm water management	**U**										
Used asbestos brake pads							**U**				
Used tires	*No specific federal regulatory requirements.*										
3.10.2 Fueling Stations	**U**	**U**				**U**					
3.10.2.1 Fuel Storage	**U**					**U**					
3.10.2.2 Fuel Dispensing		**U**									
3.10.2.3 Disposing of Unused Fuel						**U**					
3.10.2.4 Storm Water Management	**U**										
3.10.3 Purchasing (e.g., vehicles, chemicals)		**U**									

APPENDIX E
EXAMPLES OF LOCAL GOVERNMENT VIOLATIONS OF ENVIRONMENTAL LAWS (1992-1997)

Local Government	Summary of Violation/enforcement Action
CLEAN AIR ACT	
Township of North Brunswick, NJ (1992)	An intentional disabling of catalytic converters on eight township-owned police vehicles was found. The Township agreed to a $16,000 penalty.
City of Vero Beach (Indian River County, FL) (1993)	The recorder for a continuous opacity monitoring system had been removed. Subsequent reports were submitted, and the City failed to mention downtime of the recorder. The City chose an in-kind penalty option to pay $71,528 to be used in construction of a wet lab for a learning center.
New York City Board of Education, NY (1993)	A complaint was filed against the Board of Education and seven contractors for failure to notify EPA of renovations involving asbestos removal in City schools. The defendants violated EPA's asbestos "notification rule." The City is to pay $200,000 in civil penalties.
New York City, NY (1993)	Of the over 300 gasoline dispensing stations leased and/or operated by the City, approximately 55 of the facilities were not equipped with Stage I and /or Stage II vapor collection systems. The City is to award contracts to construction managers who will provide enforceable work schedules to bring the facilities into compliance. The City is to pay $200,000 in civil penalties.
Columbus Solid Waste Reduction Plant, Office of Regulatory Enforcement, OH (1994)	Columbus agreed to shut down the Columbus Solid Waste Reduction Plant in response to an administrative order and community concerns about dioxin emissions. The order required the facility to design systems to achieve lowest dioxin emissions. The City decided to authorize closure of facility.
City and County of Denver, CO (1995)	Violations included: an exceedance of performance standards by air emissions from the treatment plant on two occasions; failure to notify EPA and Colorado Department of Public Health and Environment; failure to recycle vapor-phase carbon units and implement changeout procedures; and failure to submit a schedule for proposed corrective measures. The City will pay $79,550.
City of Providence, Central High School, (1995)	The City failed to meet opacity emissions limits, to operate opacity monitors in accordance with regulations, and to combust fuel with the required sulfur dioxide content under federal regulations. The City agreed to pay a $91,000 penalty, purchase fuel with the required sulfur dioxide content, and to operate its opacity monitor as required by regulations.
Allegheny County Department of Aviation, PA (1997)	Demolition activities at the airport resulted in a disturbance of asbestos materials. CAA NESHAP regulations were violated. The facility was cleaned up and a work plan was developed.
CLEAN WATER ACT	
City of Adrian, MI (1992)	The City must pay a civil penalty of $25,000. The City will: (1) install a dechlorination system at the wastewater treatment facility [$15,000]; (2) perform a water quality study of the South Branch of the River Raisin [$38,937]; and (3) perform a comprehensive study of the Pho-Strip process [$61,000].

Local Government	Summary of Violation/enforcement Action
City of Altamonte Springs, FL (1992)	A settlement included a civil penalty of $55,000 and the construction of a distribution system for reuse of the City's wastewater treatment plant effluent. Construction activities are valued at $3,300,000.
City of Beaumont, TX (1992)	The City will pay a civil penalty of $400,000 for failing to implement an industrial pretreatment program.
Clifton Water District, CO (1992)	Clifton Water District will pay a $20,000 penalty for constructing a municipal water supply diversion structure in the Colorado River in violation of §404 of CWA. The discharges affected the reach of river inhabited by the Colorado Squawfish and the razorback sucker.
Escambia Counties Utilities Authority (ECUA), Pensacola, FL (1992)	Violation of NPDES permit limits of fecal coliform and total residual chlorine at the Main Street wastewater treatment facility, discharging to Pensacola Bay were found. The Authority must pay a civil penalty of $26,000 and be involved in an eighteen-month water quality data collection effort in Pensacola Bay and parts of contiguous water bodies. The effort is valued at $50,000.
Township of Franklin Sewerage Authority (1992)	The Township of Woodbridge, the Borough of Carteret and the City of Perth Amboy are to pay a collective civil penalty of $950,000 for past violations of CWA at sewage treatment plants.
Village of Sauget, IL (1992)	The Village failed to develop an approvable pretreatment program and exceeded NPDES effluent limits for BOD, iron, mercury, TSS and zinc. The Village also failed to demonstrate compliance with the whole effluent toxicity limit. A penalty of $750,000 was assessed. The Village must also make a payment to EPA of $50,000 for at least one year that will be used to hire an independent consultant to act as on-site "observer" of the implementation of Sauget's Pretreatment Program.
Washington City, UT (1992)	The City will pay $70,000 in administrative penalties for unauthorized fill in wetlands. The discharges of fill material affected nearly six acres of spring-fed desert wetlands that contained the uncommon wetland plant Yerba Mansa. The City performed wetland restoration and mitigation work on site.
City of Bossier, LA and State of Louisiana (1993)	The City failed to properly operate and maintain a publicly owned treatment works, to comply with effluent limitations of a NPDES permit, and to fully implement its industrial pretreatment program. The City agreed to pay a civil penalty of $200,000 and conduct a SEP that will promote EPA's policy of providing beneficial use of municipal wastewater sludge. As part of the SEP, the City will also install sludge treatment facilities that will produce a reusable final product. The cost is estimated at $375,000.
City of Cocoa, FL (1993)	The City violated §301(a) of the CWA for failure to monitor pH on continuous basis and for exceeding other NPDES permit limitations at various times. The City is to pay $32,593 and implement SEPs valued at $1,963,600. The SEPs involve the installation of 5,000 feet of storm water swales; expansion of the City's wastewater reuse; restoration of a 300,000 gallon storage tank and accelerated compliance with the Florida Indian River Lagoon Act.
City of Reading, PA (1993)	The Reading Sewage Treatment Plant had mercury seal trickling filters at the plant for years that have leaked, resulting in an estimated 5 tons of mercury released. DER's policy was changed to prohibit the use of mercury seal filters in any sewage treatment plant in PA. The City is to have the Academy of Natural Science perform a study of the Schuylkill River to determine the effects on fish and to determine the fate of mercury released. The City will replace the mercury seal filters with mechanical seal filters.

Local Government	Summary of Violation/enforcement Action
City of Rock Springs, WY (1993)	The City was cited on failure to properly implement and enforce federal pretreatment regulations. An order was issued to correct deficiencies of its pretreatment program and comply with the NPDES permit. A civil penalty of $45,000 is required. The development of a household hazardous waste program, on-site assistance program for small communities, and workshop on pollution prevention assessment and waste minimization for WY pretreatment coordinators is required. The cost is estimated at $41,000.
City of Starke, FL (1993)	The City had numerous violations of permit limits for BOD, TSS, TN, TRC, pH and fecal coliform, and schedule and reporting violations. The City must pay a penalty of $10,300. A land application/reuse project to reduce discharge to Alligator Creek by 40% at an estimated cost of $1.6 million is required.
Easton, PA (1993)	The Easton Area Joint Sewer Authority is to pay a civil penalty of $389,000 for past violations of the NPDES permit. The Authority is also required to maintain compliance and to implement a pretreatment program. The Authority will pay $120,000 to the Coalition of Religious and Civic Organizations, Inc. The City is required to pay a $45,000 penalty for permit effluent and pretreatment violations.
New Albany, IN (1993)	The City violated effluent limits of the NPDES permit, bypassed wastewater, failed to implement and enforce a pretreatment program, failed to provide an adequate alternative power source and violated an administrative order issued by EPA. The city will pay a penalty of $140,000 to the U.S. Treasury and $35,000 to Indiana, and will conduct extensive work on the publicly owned treatment works and sewer system at a cost of $17 million.
Port of Portland, OR (1993)	The Port of Portland had unpermitted toxic discharges posing a potential hazard to human health and the marine environment. A penalty of $92,000 is required. Port of Portland must also conduct analysis and removal of contaminated sediments by studying priority pollutants in sediments near storm water drains. Costs are estimated at $58,000.
Town of Fort Gay, WV (1993)	Violations included: numerous effluent limitation violations, failure to submit timely discharge monitoring reports, failure to report bypasses and CSO discharges, and operation and maintenance problems. The town is required to pay a $10,000 fine.
Town of Taos, NM (1993)	The town failed to adequately treat land-applied sludge with a process to significantly reduce pathogens. The town must pay a civil penalty of $125,000 and is required to immediately install a temporary means of treating sludge.
Wells County Water Resources District, ND (1993)	The Wells County Water Resources District drained 2,400 acres of prairie pothole wetlands without the necessary authorizations. The County will restore drained wetlands on an acre-for-acre basis.
City and County of Honolulu, HI (1994)	The City and County had poor maintenance of the sewer system, which resulted in over 300 spills of raw or partially-treated sewage, and failed to implement an adequate pretreatment program to regulate the discharge of toxics from industries into the sewer system. Under a consent agreement, the City and County will pay $1.2 million and improve the operation and maintenance of its sewer system. The City and County agreed to spend $30 million on SEPs for treating and reusing wastewater and sludge.
City of Bossier, LA and State of Louisiana (LA) (1994)	The City agreed to pay $200,000 and to conduct a SEP. The City violated the CWA by failing to properly operate and maintain its POTW, failing to comply with its NPDES permit, and failing to implement an industrial pretreatment program. The project cost of the SEP was $375,000.

Local Government	Summary of Violation/enforcement Action
City of Hoboken, NJ (1994)	The Hoboken, Union City, Weehawken Sewerage Authority (HUCWSA) agreed to pay stipulated penalties in the amount of $2.8 million for its violations of a January 1991 consent decree. This $2.8 million includes a payment of $1,152,000 that will be made to EPA, $850,000 to the New Jersey Department of Environmental Protection, and the remainder to the Interstate Sanitation Commission.
City of Kenner, LA and State of Louisiana (LA) (1994)	The City violated its NPDES permit, including failure to adequately implement an approved pretreatment program, which caused an unpermitted discharge of pollutants. The City agreed to pay a civil penalty of $215,000.
City of Middletown, OH (1994)	The City failed to adequately carry out an approved pretreatment program, had past NPDES effluent limit violations, and filled in the river channel of the Great Miami River. A civil penalty of $288,000 was assessed by the consent decree.
City of Ocean Shores, WA (1994)	The City placed fill in interdunal wetlands adjacent to the Pacific Ocean. After negotiations, the City removed the unauthorized fill, replanted the site, and restored the adjacent site. The compliance action resulted in a net gain of wetlands functions and values.
City of Philadelphia, PA (1994)	The City intentionally pumped raw sewage into the Pennpack Creek. A consent decree required payment of $225,000 in civil penalties (evenly divided between the United States and Pennsylvania) and injunctive relief necessary to prevent future violations.
City of Port St. Joe, FL (1994)	St. Joe Forest Products Company violated pretreatment prohibitions by contributing pollutants in excessive quantities that caused interference and pass through of the City facility which caused the City to violate its NPDES permit. A consent decree provided a civil penalty of $25,000 by the City and a $325,000 civil penalty by the Company.
City of Sioux Falls, SD (1994)	The City agreed to pay $26,250 as a civil penalty and to undertake a SEP. The City violated the CWA, its NPDES permit and General Pretreatment regulations. The SEP involves a household hazardous waste recycling program between $150,000 to $200,000.
City of Tacoma, WA (1994)	Secondary treatment violations were cited. The City agreed to pay a $525,000 penalty. In addition, a SEP valued at $100,000 for the sewage treatment plant hookup of low income housing that discharges untreated wastewater directly to Commencement Bay is required.
County Sanitation Districts of Los Angeles County (CSDLAC), CA (1994)	CSDLAC is required to pay a civil penalty of $300,000 to the U.S. and $200,000 to the state, to complete a program to promote the beneficial reuse of its wastewater, and to implement a household hazardous waste collection program at an estimated cost of $1.2 million.
Delaware County Regional Water Quality Authority (DELCORA), PA (1994)	A consent decree required the construction of an additional secondary clarifier at its wastewater treatment plant which will cost $3.5 million and a civil penalty of $350,000.
Jacksonville Beach, FL (1994)	The City agreed to pay a Class I administrative penalty of $3,500 for failure to submit a timely and complete storm water permit application for the City's municipal storm water system.
Manatee County, FL (1994)	The County agreed to pay a Class II administrative penalty of $60,000 for discharging from its wastewater treatment plant into the receiving stream.

Local Government	Summary of Violation/enforcement Action
Metropolitan Dade County, et. al., FL (1994)	The County entered a consent decree to address an emergency claim, contingency plans and short term measures due to concern of the structural integrity of sewage pipelines under the Biscayne Bay. A grand jury investigation concluded that the aged and corroded sewer system presented the greatest threat to the health of the river. Claims also addressed system-wide unpermitted discharges, improper operation and maintenance, and reporting violations.
Municipality of Penn Hills, PA (1994)	The municipality was sentenced to 5 years probation and a $150,000 fine for illegally disposing sewage sludge and other pollutants from three of five sewage treatment plants.
Polk County, FL (1994)	Discharges occurred from the Wilson Acres wastewater treatment plant without an NPDES permit. The County agreed to pay a $100,000 penalty under the consent agreement and order. $15,000 will be credited to the County if the Wilson Acres WWTP connected to the City of Auburndale collection system.
Wayne County-Wyandotte, MI (1993 and 1994)	Wayne County and 13 tributary communities that illegally discharged untreated wastewater into Detroit River and Lake Erie will pay a civil penalty of $413,000. The injunctive relief involves rehabilitation of the sewer system, plant improvements, and the construction of a tunnel storage system to hold rain water during storms at an estimated $230 million. The implemented project plan will expand carrying capacity of the sewer collection system and increase capacity of the Wyandotte POTW.
City of Akron, OH (1995)	The City must pay a civil penalty of $290,000 for violations of the CWA related to the discharge of inadequately treated wastewater to Cuyahoga River, and the discharge of raw sewage from the City's separate sanitary sewer during storm events. The City must improve its wastewater treatment facility to meet NPDES permit limits. The City will perform a $1.5 million SEP to eliminate septic tank systems by providing connections to sanitary sewers.
Clay County, FL (1995)	Several violations of NPDES permit conditions and the discharge of 2 million gallons of wastewater from a break in an onsite pond berm were found. Settlement included a $12,000 penalty and completion of a SEP. The SEP was to construct a force main from the Ridaught Landing WWTP to a nearby re-use facility to eliminate discharge to the Little Black Creek. After tax net, the present value of the project is $1.879 million with a capital outlay of $2.149 million.
Metropolitan Dade County, et. al., FL (1995)	The deteriorated condition of a large sewage pipeline running under the Biscayne Bay, as well as chronic and widespread overflows of raw sewage into homes, streets, businesses and public waterways, including the Biscayne Bay and the Miami River were cited. Short-term preventative measures are required in addition to a cash penalty of $2 million. The County is expected to pay more than $800 million rehabilitating its system to prevent chronic overflows of sewage. A water reuse and conservation SEP totaling at least $5 million is required.
City of Fort Morgan, CO (1995)	There was a failure to implement a pretreatment program to the degree that one of its industrial users caused the City to violate its own discharge permit. The penalty includes payment of $268,000 in civil penalties in addition to taking significant steps to achieve compliance with federal pretreatment regulations under the CWA. A payment of $110,000 to the Colorado Department of Public Health and Environment is also required.

Local Government	Summary of Violation/enforcement Action
City of Lynn, MA (1995)	Combined sewer overflows occurred near a shellfish bed and onto a public beach. An agreement was reached to add a schedule for the construction of combined sewer overflow controls, at a cost of approximately $50 million, to an existing consent decree.
City of New Bedford, MA (1995)	The City refused to construct the secondary treatment plant that was required in an earlier consent decree. The City must construct the secondary treatment plant, pay a $51,000 penalty to the United States, and pay $51,000 to the Commonwealth of Massachusetts. The payment to the Commonwealth of Massachusetts could be waived if New Bedford complies with certain terms of the modified consent decree.
City of Pensacola, FL (1995)	City failed to submit a complete NPDES Part II storm water permit application. The settlement was for $35,000.
City of Watertown, SD (1995)	As the result of a consent agree, the City agreed to come into full compliance with the terms of its permit by December 31, 1997. Costs in excess of $17.3 million were estimated for a new POTW. The City agreed to properly staff, operate and maintain the facility; adopt legal authority to enforce requirements of Sections 307 and 402 of CWA; implement its industrial pretreatment program as approved by EPA; issue permits to all SIUs providing for the payment of not less than $500 per day per violation for any noncomplying SIU; and conduct and document inspections and independent compliance monitoring of all its SIUs.
Kiski Valley Water Pollution Control Authority, PA (1995)	The Authority failed to conduct sampling visits to its significant industrial users (SIUs) during 1992 and failed to adequately enforce violations of one of its categorical SIUs. The POTW also violated its NPDES permit effluent limitations for suspended solids, BOD_5, and flow.
Town of Brookline, MA (1995)	Illicit connections of sewer lines to storm drains resulted in discharges of sewage into the Muddy River in violation of the CWA. A consent agreement was to locate and remove all such connections by 1997, and undertake a variety of storm water management practices. The town will pay a $25,000 penalty if it does not comply with the schedule.
City of Blackhawk, CO (1996)	The City allowed the illegal construction of a water supply pump station on Clear Creek (without an U.S. Army Corps of Engineers Clean Water Act permit), including excavation and backfilling of about 1,800 square feet of river bed on the north fork of Clear Creek. The result was a temporary loss of wetlands and destruction of aquatic life. The penalty payment is $61,515.
Cobb County Department of Community Development, GA (1996)	Failure to adequately implement and/or maintain erosion and sedimentation control devices for a road widening project resulted in erosion of road fill into tributaries of Willeo Creek, degrading stream water quality and resulting in sediment deposition in downstream lakes. Payment of $10,000 and training for its employees and road contractors for land disturbing activities is required.
Jefferson County Commission, AL (1996)	The Commission had effluent violations of NPDES permits, intentional bypass of treatment works resulting in discharges of untreated sanitary sewage into the Cahaba and Black Warrior Rivers, and discharge without a NPDES permit. A penalty of $750,000 is required. The Commission will also undertake a $30,000,000 Greenway project to acquire and maintain protected areas along designated rivers and streams. A three-phase approach to improve and correct infiltration/inflow problems will be used. A sewer system evaluation will also be initiated.

Local Government	Summary of Violation/enforcement Action
New Orleans Sewerage & Water Board, LO (1996)	Unpermitted discharges of contaminated water to surface waters due to the poor condition of sanitary sewer and collection system of New Orleans was found. An alternative dispute resolution for technical dispute was used. Non-binding mediation was unsuccessful. The case was settled in FY 1998.
Town of Essex, MA (1996)	Septic system problems (i.e., failing systems and illegal connections to town storm drains) resulted in bacterial contamination of the Essex Bay estuary and local clam flats. The town must initiate a comprehensive program to inspect and correct septic system and illegal connection problems and institute a town-wide oversight and management program.
Borough of Naugatuck, CT (1997)	An administrative complaint was for violations of effluent limits contained in an NPDES permit for a publicly owned treatment plant. The penalty was for $70,000.
City of Erie and Erie Coke Corp., PA (1997)	Erie Coke, a significant industrial user of a sewer system, violated national pretreatment categorical standards for iron and steel and the city of Erie local pretreatment limits. A consent decree requires a $450,000 cash penalty and the installation of pretreatment technology that meets discharge limits. This technology will cost over $2 million.
City of San Diego, CA (1997)	A stipulated final order settled an enforcement action that addressed deficiencies with San Diego's sewage treatment facilities. The order calls for the City to continue work on infrastructure projects, replace 200 miles of decaying concrete sewers, audit pump stations and force mains, increase efforts to reduce grease loadings to the system and upgrade its data collection and modeling capabilities. The order also requires $60-$200 million for projects.
City of Sedalia, MO (1997)	Administrative orders for compliance and complaint were issued due to the City's failure to develop and implement an enforcement response plan; failure to implement procedures to ensure that industrial users are in compliance with pretreatment standards and requirements; failure to issue permits or other mechanisms containing correct discharge limits for two industrial users; and failure to perform local limit analyses for two pretreatment plants. The City must correct the violations and pay a penalty of $50,000.
City of Watertown, SD (1997)	The discharge of pollutants from the City's wastewater treatment plant exceeded acceptable levels. A consent decree required the City to pay a penalty of $550,000.
Crook Creek Farms, Inc., City of Destin, and the Niceville, Valparaiso, Okaloosa County Regional Sewer Board, Inc., FL (1997)	APOs were issued to a land application site operating company and two municipalities that transport their biosolids to the land application site for disposal. Violations of vector/pathogen attraction, operational standards and recordkeeping were found. Penalties ranged from $6,000-$16,466.
Onondaga County, NY (1997)	A consent agree requires a 15-year plan for the POTW upgrade, combined sewer overflow elimination and other measures in the range of $300-$400 million to ensure that water quality standards are met for Lake Onondaga. The County must pay a penalty of $50,000 and SEPs worth at least $387,500 to control non-point source pollution to the lake.
Puerto Rico Aqueduct and Sewer Authority, PR (1997)	CACOs issued require a $200,000 SEP to install telemetry equipment at 20 pump stations in the San Juan Region that will allow for the monitoring of equipment at the pump stations and will detect malfunctions. Equipment will help to reduce the instances of bypasses and discharges of inadequately treated sewage. The Authority must pay a penalty of $35,000.

Local Government	Summary of Violation/enforcement Action
Puerto Rico Aqueduct and Sewer Authority, PR (1997)	A CACO required a penalty of $10,000 and the completion of $30,000 SEP. Under the SEP, the Authority will conduct workshops to inform industrial users of pretreatment requirements and methods to comply.
Puerto Rico Aqueduct and Sewer Authority, PR (1997)	The Authority violated its permit by discharging 10 million gallons per day of primary level treated sewage from the Mayaguez Regional Wastewater Treatment Plant. A consent decree was for $150,000 in civil penalties and $400,000 to the Mayaguez Watershed Initiative. The Authority must construct facilities to bring the plant into compliance.
Puerto Rico Aqueduct and Sewer Authority, PR (1997)	A payment of $375,000 represents a settlement of uncontested and contested dollar amounts requested as penalties as identified in 27 quarterly motions to enforce 1985 and 1988 orders. The Authority must pay $83,800 in stipulated penalties for violations of a 1985 court order and $251,400 for violations of the pump station stipulation entered in 1995.
Puerto Rico Aqueduct and Sewer Authority, PR (1997)	An administrative penalty complaint was issued for the Arecibo sewage treatment plant. Violation of effluent limits in the NPDES permit and instances of improper operation and maintenance of the plant were found. The complaint seeks a penalty of $100,000.
Puerto Rico Aqueduct and Sewer Authority, PR (1997)	An administrative penalty complaint was issued for the Lares sewage treatment plant. Violation of effluent limits in the NPDES permit and instances of improper operation and maintenance of the plant were found. The complaint seeks a penalty of $125,000.
Virgin Islands Department of Public Works, VI (1997)	An amended 1996 consent decree set a compliance schedule for the DPW to construct improvements at eleven existing POTWs, construct two new POTWs, and pay $675,000 in stipulated penalties for violations of a prior court order. The estimated cost of the injunctive relief is expected to cost between $35 and $40 million.
SAFE DRINKING WATER ACT	
City of North Adams, MA (1992)	The City violated maximum contaminant levels for turbidity and coliform and for violating monitoring requirements. The City must pay a civil penalty of $67,200. An order requires the City to construct a water filtration plant and achieve compliance with SDWA and implement significant interim measures to ensure delivery of safe water until the treatment plant is operational.
Bethlehem Village District, NH (1993)	The district voted not to provide necessary funding to comply with the Surface Water Treatment Rule, but now has voted to comply with state and federal regulators. Approximately $2.5 million will be spent on a filtration plant and other system improvements to comply. The district agreed to pay a civil penalty.
Selleck Water System, WA (1993)	An injunctive relief against Selleck Water System was to remedy an imminent and substantial endangerment to public health caused by the fecal contamination of drinking water provided to 150 people, including a day-care facility. An emergency administrative order directed Selleck to properly operate and maintain a treatment system, advise users to boil water, and submit a corrective action plan. Selleck refused to comply and court action followed.
Virgin Islands Housing Authority (VIHA) (1993)	Under an amended decree, VIHA was to undertake capital and O&M improvements at six of its housing projects encompassing over 60 public water supplies and imposed a monitoring program for various contaminants subject to MCLs. VIHA is to pay a $12,000 penalty from original decree.

Local Government	Summary of Violation/enforcement Action
Town of Meeteetse, WY (1994)	An administrative order was issued to the town when tests indicated a presence of Giardia in finished drinking water. The test, after the order was issued, detected Cryptosporidium in finished water. An emergency order required the town to: provide an alternate source of potable water; provide public notice; issue a boil water notice; perform an evaluation of the system; and submit quarterly reports on progress.
Cities of Abilene, Axtell, Attica, Beverly, Kirwin, Osborne, Portis, Preston, and Raymond, KS (1995)	Exceedances of nitrate maximum contaminant level of 10 mg/L were found in the public water supply. Within a 24-month period, the cities must undertake tasks to achieve compliance such as provision of alternate water supply to pregnant woman and children aged six months or less and public notification for each prior violation of the Act.
City of Marianna, FL (1995)	The City failed to comply with the monitoring and reporting requirements of the lead and copper rule. A payment of $50,000 in civil penalties is required.
Fort Thompson Water System, Fort Thompson, SD and Lower Brule Water System, Lower, SD (1995)	Filtration systems at both sites are ineffective. EPA Region 8 issued emergency administrative orders under Section 1431 of the SDWA.
Kansas Bureau of Water (1995)	The Kansas' Bureau of Water issued 25 wastewater treatment orders against various municipalities and trailer courts in Kansas. The consent orders to cities, including Lawrence, Topeka and Leavenworth, initiate projects to eliminate the discharge of water treatment sludge to streams. The orders to trailer courts in Pittsburg, KS, have resulted in ongoing efforts to form sewer districts that will be connected to the Pittsburg wastewater treatment plant. The sewer districts will help to eliminate sewage discharges into abandoned mine shafts.
Town of Cushman, AR (1995)	The town violated the state order to install a filtration treatment system to treat unprotected spring water prior to consumer use. The penalty was for $15,000 and agreement to install a filtration system and hire a state certified operator.
City of New York, NY (1997)	In 1992, the City entered into an administrative stipulation that provided that the City would construct and operate necessary filtration facilities for the City's Croton Water Supply by 2000. Construction is not expected to be finished by 2000. The government is seeking a schedule for the construction of a filtration plant, interim watershed protection measures, and an expeditious penalty.
Town of Hempstead, NY (1997)	The town had violations of unpermitted discharge into an underground injection well and the endangerment of a Department of Highways facility in Roosevelt. An AOC was issued that requires the town to implement a compliance/closure plan, pay a $5,500 penalty, perform a facility audit, and provide employee training. The town will inventory and address facilities where there may be Class V injection wells, test for pesticides, and keep the public informed of the status of closure implementation at the Roosevelt facility.

Local Government	Summary of Violation/enforcement Action
OCEAN DUMPING BAN ACT AND MARINE PROTECTION RESEARCH AND SANCTUARIES ACT	
Port Authority of New York and New Jersey (1993)	The Port Authority had a permit to dredge dioxin-contaminated material from the New York Bay, ocean-dispose of it at a specific site, and cap it with clean material. Authority contractors dredged material and disposed 5000 cubic yards worth in the wrong location and capped it with 30,000 cubic yards of clean fill. The Authority must pay a penalty of $35,000 and perform a SEP. The SEP involves providing a $15,000 grant to a private, non-profit organization for the purpose of purchasing and preserving wetlands in the New York Harbor area.
Westchester County, NY (1995)	The County must achieve long-term compliance through implementation of a beneficial use sludge management program. Payment of $200,000 in penalties evenly divided between the United States and New York is required.
Bergen County Utilities Authority, NJ (1993 and 1997)	Bergen County Utilities Authority was ordered to pay a penalty of $55,000 in one order. A second order required a penalty of $500,000, and to deposit $780,000 into an escrow account, to be returned if it complies with the consent decree. A third action was brought for violations of a long term schedule for alternative sludge disposal, which required New York City to pay $1.5 million into an escrow account to be recovered if it commences construction of Phase II facilities, pay $250,000 to the U.S., and $750,000 to an escrow account to purchase wetlands or open space in New York City. A stipulation and order required all sludge to be available for beneficial use by composting. In 1997, a stipulated penalty of $75,000 was assessed for violations of the earlier consent decree that required that sludge be available for beneficial use.
Port Authority of New York and New Jersey (1997)	Administrative penalties were for violations of a dredge material disposal permit. The Authority disposed of material at unspecified locations and failed to report improper disposal. Civil penalties totaled $125,000.
RESOURCE CONSERVATION AND RECOVERY ACT	
City of Columbus, OH, and Solid Waste Authority of Central Ohio (SWACO) (1994)	An administrative order was issued to the City and SWACO to conduct measures to abate a potentially imminent threat to public health and the environment posed by emissions of dioxin as a result of the burning of trash in an incinerator.
Westchester County, Sportsmen's Center, NY (1994)	Under an administrative order, the County was required to assess the contamination (predominantly lead) from shooting activities at the Sportsmen's Center. The County was required to design and implement a plan for the remediation of the contamination and to devise a plan to prevent re-contamination.
City of New York Department of Transportation, NY (1995 and 1997)	During bridge repainting operations, the City generated and transported hazardous paint chips without a RCRA identification number and manifests, and stored wastes without a permit or authorization. A joint penalty (with contractor) of $25,000 was assessed. An administrative CACO was issued. The City drafted a lead-based paint removal protocol, the implementation of which will cost the City over $5 million. The City must pay a civil penalty of $145,000.
Land Authority of Puerto Rico, PR (1997)	The Authority failed to provide leak detection for underground storage tanks and failed to permanently close a tank. An administrative complaint requires penalty of $165,310.

Local Government	Summary of Violation/enforcement Action
New Jersey Transit Corp., NJ (1997)	The Transit Corp. failed to properly close underground storage tank systems in accordance with applicable rules; failed to satisfy release detection requirements for underground storage tanks and associated piping; and failed to use spill and overfill equipment. An administrative CACO required a civil penalty of $130,000 and completion of two SEPs at a cost of $190,000. The SEPs will involve the removal and disposal of asbestos insulation at two facilities.
Puerto Rico Aqueduct and Sewer Authority, PR (1997)	An administrative complaint was for failure to comply with underground storage tank requirements at 19 facilities. The complaint seeks a civil penalty of $305,297.
COMPREHENSIVE ENVIRONMENTAL RESPONSE, COMPENSATION, AND LIABILITY ACT	
City of Algoma, Algoma Municipal Landfill, WI (1992)	The consent decree requires the City of Algoma Municipal Landfill for the City and eight PRPs to implement the remedy selected by ROD. Defendants will reimburse EPA and the state for their future oversight costs and pay 90% of EPA's past oversight costs. Settlement is for $1.3 million. Monitoring detected an exceedance of MCLs for cadmium, iron, and manganese.
City of Jacksonville, FL et. al., Pickettville Road Landfill Site, FL (1992)	Thirteen defendants, including the City of Jacksonville, agreed to undertake implementation of a remedy valued at $9 million at the Pickettville Road Landfill Site and to pay the U.S. 100% (roughly $400,000) of its remaining unreimbursed costs.
Elkhart, Indiana (Main Street Well Field Site) (1992)	UAO's were issued to 9 PRPs to conduct remedial activities including soil vapor extraction, installation of interceptor wells, and continued operation and maintenance of an air stripper. Costs were estimated at $1.5 million in construction costs plus $130,000 in annual operation and maintenance costs.
Lexington County, SC (1992)	The County accepted hazardous wastes at the Lexington County Landfill. The County will perform an RI/FS and pay all of EPA's past costs totaling approximately $174,233, as well as future oversight costs.
Municipal Landfill, Dover, NH (1992)	A RD/RA action consent decree for the Dover Municipal Landfill is for 24 PRPs to perform cleanup activities at the site and reimburse EPA response costs.
Washington and Ramsey Counties, MN (1992)	A UAO requires Washington and Ramsey counties to continue operating a pump-and-treat system at Washington County Landfill to prevent contamination from moving toward drinking water wells offsite.
Augusta/Hyde Park (Augusta, GA) (1993)	EPA Region 4 expended $1 million to address groundwater contamination in the area of the Park and the surrounding area that is a lower income and predominantly African-American neighborhood. Over 1,000 samples of surface soils, surface water, groundwater and sediments were taken in 18 industrial sites within the neighborhood that tested for up to 176 constituents.
AVX Corporation, et. al. (1993)	The City of Bedford owned and operated the dump for local industrial waste and solid waste. The City agreed to perform a remedy along with 15 entities with varying degrees of involvement. AVX agreed to perform all work consisting of remedial action plus operations and maintenance. The City agreed to perform specific portions of remedial action and secure access and institutional controls. The settlement required PRPs to excavate an ecologically sensitive marsh, where sediments are to be disposed of beneath a cap to be constructed at the first operable unit.

Local Government	Summary of Violation/enforcement Action
City of Newport, et. al., KY (1993)	Two civil consent decrees representing partial settlement of CERCLA cost recovery litigation for the Newport Dump Superfund site, Wilder, Kentucky, involved five of six PRPs named in the original complaint. Settlement provides for recovery of $2.4 million, representing 50% of total past costs and for performance of operation and maintenance activities.
Town of Bedford, MA (1993)	Six defendants agreed to pay a penalty assessed by a consent decree of $1.17 million in the settlement of past costs incurred at the Katonah Well Superfund site, which settled an action filed in 1990. The town performed remedial design pursuant to a 1988 EPA consent decree and completed remedial action construction under the terms of an earlier consent decree. Other defendants had previously declined to participate in clean up work at the site.
City of Cedartown, Polk County, GA (1994)	A UAO issued to the City, County, and 12 companies required them to maintain existing landfill cover, repair seeps, maintain institutional controls, and monitor groundwater quality.
City of Clinton, IA (1994)	The City has held title to the Chemplex Superfund Site since 1967 as part of an industrial development bond sale-leaseback arrangement. There was no evidence the City had any involvement with the site other than nominal title holder. The City is required to provide site access to EPA and other PRPs, and comply with deed restrictions; in exchange, the City received a covenant not to sue and contributions protection.
City of Jacksonville, AR (1994)	Two consent decrees were lodged for the Jacksonville and Rogers Road Municipal Landfill Superfund Sites. Both sites have soils that are contaminated with dioxin that was produced by a herbicide manufacturer. An estimated 800 cubic yards of soil are contaminated. The City agreed to pay $100,000 in past costs.
Town of North Hempstead, NY (1994)	The town recovered $2.64 million in past EPA cleanup costs incurred at the Port Washington Landfill. The town undertook the remedial work at the landfill at an estimated cost of $45 million.
City and County of Denver, CO - Lowry Landfill Site (1995)	A UAO was issued for the landfill site based on the refusal of Denver and other parties to implement a remedy selected in the ROD and pay more than 76% of the US's past response costs. Most of the 31 *de maximus* PRPs have been sued by Denver and other parties in private cost recovery litigation and have settled with those parties.
City of Cedartown and Polk County, GA (1995)	The City and County, with eight industrial generator PRPs, agreed to pay $668,302 for past remedy costs at a municipal landfill site.
City of Wichita, KS (1995)	A state de-listing pilot project was based on the state and city agreeing to address the contamination at the 29th and Mead Superfund Site. The city is to take responsibility for clean-up activities at the site with the Kansas Department of Health and Environment.
City of Wilmington and New Hanover County, NC (1995)	Reimbursement, by three responsible parties, of $545,723 plus interest of $19,269 to EPA and Department of Justice is required.
Lexington County Landfill Site, SC (1995)	A UAO was issued for the landfill site. Selected remedies include: consolidation/containment/gas recovery/groundwater extraction and treatment and disposal at the POTW/monitoring.
Mason City, IA (1995)	The City agreed, jointly with another non-performing respondent, to contribute money towards the cost of the response action and payment of EPA's costs to conduct a non-time critical removal action of buried coal tar.

Local Government	Summary of Violation/enforcement Action
Pike County Drum Site, MS (1995)	Cost recovery agreement for the reimbursement of $198,292 to Superfund by responsible parties is required.
Board of County Commissioners for Cecil County, (1996)	A consent order called for a $6 million cost recovery regarding the Woodlawn Landfill. Payment of $4.75 million plus interest in installments over 5 years is required.
City of Burbank, CA (1996)	A consent decree is for the City to co-construct and/or fund the capital portions of Burbank Operable Unit interim remedy. This requires the extraction of 12,000 gpm, blending to reduce nitrate concentrations, and delivery of treated water to the City of Burbank water supply system for 20 years.
City of Marianna, FL (1996)	A consent decree is for the payment of $500,000 towards past response costs for the incineration of pesticide-contaminated soil removed from one of the City's municipal airport runways (S&S Flying Service site).
City of Memphis, TN (1996)	A consent decree is for cost recovery incurred at the City-operated North Hollywood Dump for the dumping of toxic wastes. The ROD requires a number of remedial measures, including the solidification and/or removal of contaminated sediments in the surface impoundments and the installation of a permanent cap on the landfill.
City of Somersworth et. al., NH (1996)	A consent decree is for the remedial design and action at a landfill Superfund site.
Montgomery County Solid Waste District (MCSWD), Moraine, OH (1996)	Excess waste from an MCSWD-operated incinerator was sent to a municipal landfill. Thirty-one municipalities are members of MCSWD. The landfilled waste contained commercial or industrial waste containing hazardous substances. The defendants will pay $60,000 for previous oversight costs and 50% of remaining oversight costs.
North Facility Soils/Wastewater Treatment Plant, Magna, UT (1996)	An AO on consent to conduct a non-time critical response action at the Kennecott North Facility Soils/Wastewater Treatment Plant was issued.
Davie Landfill Site, FL (1997)	The site was used as a disposal site for sludge from a municipal wastewater treatment plant and other wastes. A consent decree settled the case against Broward County, FL. $66,368 was recovered in past response costs incurred and $65,000 for 1995. In addition, $25,000 was recovered for 1996 and subsequent years.
North Hollywood Operable Unit, CA (1997)	A consent decree recovered $4.8 million in site costs. The costs are attributable to construction and operation of the North Hollywood Operable Unit interim remedy groundwater extraction and treatment system. The unit is operated through a cooperative agreement with the State of California and the Los Angeles Department of Water and Power.
Puerto Rico Electric Power Authority, PR (1997)	An analysis of soil and sediment samples collected at the Palo Seco Ward Plant Site revealed the presence of hazardous substances at elevated concentrations. A UAO was issued requiring a remedial investigation and feasibility study. The study is designed to determine: (1) nature and extent of contamination and threat caused by release or threatened release and (2) alternatives for remediation or control of release or threatened release.

Local Government	Summary of Violation/enforcement Action
TOXIC SUBSTANCES CONTROL ACT/ FEDERAL INSECTICIDE, FUNGICIDE, AND RODENTICIDE ACT/ EMERGENCY PLANNING AND COMMUNITY RIGHT-TO-KNOW ACT	
City of Garland, TX (1992)	A TSCA PCB administrative order was issued to the City of Garland. The order required expenditures of $500,000 and a 10% case penalty of $14,200. The City must implement a PCB identification program which identifies through sampling and laboratory testing and label inspection all transformers that contain PCBs at 2 ppm or greater.
The Housing Authority of New Haven, Connecticut (1993)	The Authority was cited for failing to properly dispose of PCBs, failing to maintain records concerning PCBs, and failing to properly mark and store PCB transformers. The Authority is required to spend $112,000 on an environmental compliance program to protect public housing residents from future environmental risks.
City of Boston, Boston City Hospital, MA (1994)	Failure to comply with the marking and recordkeeping requirements pertaining to PCB transformers was found. The City agreed to pay $117,300 in civil penalties from a consent decree and final order. The removal of ten underground storage tanks located throughout the City is estimated to cost over $80,000.
Town of Wallingford, CT (1994)	The town agreed to pay $40,050, test all town-owned transformers for PCBs at a cost of over $1 million, and remove all that were previously improperly disposed.
Memphis/Shelby County Airport Authority, TN (1995)	Payment of $9,000 to resolve past violations of EPCRA Section 304 and CERCLA Section 103 is required. Implementation of a $475,000 pollution prevention SEP that involves the purchase of equipment that will assist in the de-icing of runways is also required.
City of Hearne, TX (1996)	A violation of PCB regulations was found. The City must identify all existing oil-filled electrical equipment within the City of Hearne electrical system. The City must also remove and dispose of all PCBs and PCB equipment that contain PCBs at 50 ppm or greater within 2 years. The estimated cost is $99,000.
City of Providence, KY (1996)	An AOC was issued for past removal costs at the Gray PCB site. Settlement, based on Ability to Pay Determinations, of $25,000 in two payments of $12,500 was required.
City of Wrangell, AL (1996)	The City must pay a penalty of $1,359 and spend $2,258 to remove and properly dispose of three large high voltage capacitors containing 257 pounds of PCBs.
New York City, NY Board of Education (1995 and 1996)	The case involved an allegation that the head of the Board's Asbestos Task Force knowingly submitted false information on 375 AHERA management plans. A CA/CO was issued under AHERA. It requires a payment of $1,500,000, systematically reinspecting each of 1,069 schools for asbestos, and preparing new management plans to ensure that all buildings are in compliance.
Bill Anskis Company, Inc. and the Panther Valley School District, PA (1997)	Violations of Asbestos NESHAP and AHERA occurred while renovation work was performed in the district. An administrative action assessed a penalty of $77,000.

Local Government	Summary of Violation/enforcement Action
New Jersey Sports and Exposition Authority and Atlantic City Convention Center Authority, NJ (1996 and 1997)	The Authority failed to comply with TSCA regulations concerning the management of PCBs and equipment containing PCBs. With respect to certain PCB containing equipment, the Authority failed to take the following actions: compile annual documents; conduct quarterly and annual inspections; register with the fire department; mark PCB capacitors; and store PCBs for disposal in an appropriate storage area. A CACO was issued in settlement of TSCA administrative proceeding. PCBs are to be removed from the Convention Center. The complaint seeks a civil penalty of $98,000.
Puerto Rico Department of Education, PR (1997)	A CACO was issued for failure to affix PCB mark, register the PCBs with the fire department, maintain records of quarterly inspections and maintenance history, compile and maintain annual documents and dispose of PCBs in a proper manner. The Department must pay a civil penalty of $15,000 and perform a SEP costing more than $95,000. The SEP involved the removal of PCB transformers at locations where violations occurred.
School District of Philadelphia, PA (1997)	A complaint and consent decree was filed that seeks to demand the cleanup and disposal of PCBs that are in 29 transformers located at 12 schools. The school must also comply with the PCB Rule and implement a PCB Management Plan. The Plan would provide for the repair, inspection, cleanup, and proper disposal of PCB contaminated materials. The school district must remove or upgrade all of the PCB transformers within three years. Bi-monthly progress reports must be submitted to EPA which will provide for the monitoring of the school districts cleanup efforts.
MULTIMEDIA	
City of Gary, IN (1992 and 1993)	The Court issued an order entering a Second Modified Consent Decree in this case, that involves both CWA and TSCA claims regarding the POTW. Gary is to undertake and complete capital and operational improvements at its wastewater treatment plant, adequately fund operations and maintenance, and pay a civil penalty of $1.25 million. The City must (1) repair, rehabilitate, and maintain the wastewater treatment plant and sewer system pursuant to a schedule; (2) implement a pretreatment program to control industrial discharges; and (3) remediate a PCB-containing sludge lagoon. Due to previous violation of settlements, the County will appoint a Special Administrator to oversee compliance with the Decree. A SEP, at an estimated cost of $1.7 million, for the study and development and implementation of remedial plan for sediments in Grand Calumet River, covering area of submerged lands, must be completed.
City of Independence, MO (1996)	CWA/RCRA violation of special terms of the City's NPDES permit, which allowed the City to accept for treatment trucked-in hazardous and other wastes at its POTW plant, was found. RCRA violations of permit-by-rule provisions and storage of drums of hazardous wastes without a permit and failure to have interim status for POTW were also found. A payment of a civil penalty is required. In addition, the City must make available a household hazardous waste program to City residents.
City of Haverhill, MA (1997)	Violations of RCRA included storing or disposing of hazardous waste without a license and land disposal restrictions. Violations of CWA included failure to have a SPCC plan in violation of Oil Pollution Prevention regulations. A consent agreement and final order required a $17,000 penalty and a minimum of $104,580 as a SEP. The SEP includes building a permanent household hazardous waste collection facility and conducting quarterly household hazardous waste collections.

Local Government	Summary of Violation/enforcement Action
Puerto Rico Electric Power Authority, PR (1997)	Violations of CAA, CWA, UST requirements of RCRA, EPCRA, SPCC requirements of CWA and notice of provisions of CERCLA were found at five facilities throughout Puerto Rico. A consent decree issued requires a payment of a $1.5 million civil penalty, Land Conservation Acquisition for $3.4 million and HazMat Training for a local fire department for $100,000. The Authority is required to spend over $1 million on an environmental review contractor to oversee compliance with the consent decree. The Authority must conduct an overhaul of compliance programs where violations occurred.