



EPA

Illegal Dumping Prevention Guidebook



Illegal Dumping Prevention Guidebook

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INTRODUCTION

Illegal dumping, also known as “fly dumping,” “midnight dumping,” or “wildcat dumping,” is a major problem in many communities throughout the United States. It raises significant concerns regarding public health and safety, property values, and quality of life. An effective illegal dumping prevention program must be customized to address the factors contributing to the problem in a given community. This guidebook contains general information about illegal dumping and guidance for developing a prevention program. A “toolkit” of practices that have proven effective in combating illegal dumping is included along with case studies detailing successful implementation of these practices.

This guidebook is intended for use by

- State, tribal, county, and local government authorities
- Community groups and civic organizations
- Industry
- Utilities (such as railroads and power companies)

The information presented in this guidebook is based on a study conducted to characterize illegal dumping in urban and rural areas throughout the upper Midwest. The study included tours of neighborhoods and interviews with local government officials, community groups, and industry representatives. In addition, a literature and Internet search was conducted to gather information on successful illegal dumping prevention programs. Over 50 individuals from communities, non-profit organizations, corporations, and government agencies peer-reviewed this guidebook and provided invaluable suggestions for its content. This guidebook can be found on the World Wide Web at <http://www.epa.gov/region5> and will be updated as new information on innovative prevention programs is discovered.

NATURE OF THE PROBLEM

What is illegal dumping?

Illegal dumping is disposal of waste in an unpermitted area. It is also referred to as “open dumping,” “fly dumping,” and “midnight dumping” because materials are often dumped in open areas, from vehicles along roadsides, and late at night. Illegally dumped wastes are primarily nonhazardous materials that are dumped to avoid either disposal fees or the time and effort required for proper disposal. These materials typically include

- Construction and demolition waste such as drywall, roofing shingles, lumber, bricks, concrete, and siding
- Abandoned automobiles, auto parts, and scrap tires

- Appliances or “white goods”
- Furniture
- Yard waste
- Household trash
- Medical waste

Wastes such as scrap tires, bulky items, and yard waste may be illegally dumped because they are banned from landfills and their proper management can be costly.

Residential and commercial wastes may be illegally dumped in areas that lack or have costly pickup service.



Tires and demolition debris illegally dumped at a vacant industrial site

Sites used for illegal dumping vary but may include abandoned industrial, residential, or commercial buildings; vacant lots on public or private property; and infrequently used alleys or roadways. Because of their accessibility and poor lighting, areas along rural roads and railways are particularly vulnerable. Illegal dumping can occur at any time of day but is more common at night or in the early morning hours during warmer months.

If not addressed, illegal dumps often attract more waste, potentially including hazardous wastes such as asbestos, household chemicals and paints, automotive fluids, and commercial or industrial wastes.

Who illegally dumps waste?

It is difficult to profile a “typical” illegal dumper.

However, offenders can include

- Construction, demolition, remodeling, roofing, or landscaping contractors
- Waste management companies or general hauling contractors
- Operators of transfer stations or junkyards
- Automobile repair or tire shops
- Scrap collectors
- Local residents and “do-it-yourselfers”



Drums of industrial waste at an illegal dump site

An individual may claim to be operating a transfer station or recycling business and accept waste at an unpermitted facility, only to abandon the facility when it reaches capacity. A resident may dump wastes that did not get picked up by local waste haulers, such as bulky items, carpeting, or household hazardous wastes. In many cases, illegal dumpers are breaking other laws relating to vehicle licensing, insurance, drug possession, or theft.



Abandoned, unpermitted recycling facility

Why is illegal dumping a problem?

The **health risks** associated with illegal dumping are significant. Areas used for illegal dumping may be easily accessible to people, especially children, who are vulnerable to the physical (protruding nails or sharp edges) and chemical (harmful fluids or dust) **hazards** posed by wastes. Rodents, insects, and other vermin attracted to dump sites may also pose health risks. Dump sites with scrap tires provide an ideal breeding ground for mosquitoes, which can multiply 100 times faster than normal in the warm, stagnant water standing in scrap tire casings. Severe illnesses, including encephalitis and dengue fever, have been attributed to **disease-carrying mosquitoes** originating from scrap tire piles. In addition, countless neighborhoods have been evacuated and property damage has been significant because of dump sites that caught **fire**, either by **spontaneous combustion** or, more commonly, by **arson**. Illegal dumping can impact proper drainage of runoff, making areas more susceptible to **flooding** when wastes block ravines, creeks, culverts, and drainage basins. In rural areas, open burning at dump sites can cause forest fires and **severe erosion** as fires burn away trees and undergrowth. Dumping activities in such areas can also have a negative impact on plants and wildlife. Additionally, runoff from dump sites containing chemicals may **contaminate wells and surface water** used as sources of drinking water.



Illegally dumped tires along a creek

Dump sites serve as magnets for additional dumping and other criminal activities. As a result of illegal dumping, **property values decrease** and the community becomes unattractive to commercial and residential developers. Without the tax revenues that accompany development, the funding available to establish and maintain effective illegal dumping prevention programs is limited. Ultimately, it is the development of areas susceptible to illegal dumping that eradicates the problem.

Finally, the **costs** to local government and industry associated with continuous clearing of illegally dumped waste materials are significant. Some urban areas have reported spending several million dollars per year on cleanup, hauling, and disposal activities associated with illegal dump sites. These costs may be passed along to residents in the form of higher service fees or property taxes.

What factors contribute to the problem?

Demographics

Communities subject to illegal dumping are typically areas with limited access to convenient, affordable waste disposal facilities or services and recycling programs. In lower-income areas, residents may have difficulty affording trash pickup and disposal fees. These areas may also have gang- or drug-related activities and high crime rates, which often result in illegal dumping being given a low priority by law enforcement officials and prosecutors. The problem tends to be worse in areas with a high population of renters who have less stake in the community or absentee property owners who do not respond to problems. Residents in rural areas, where illegal dumping is a common, long-time practice, may not be aware of applicable laws or understand its harmful impacts.

Physical Characteristics

Unsecured properties, including undeveloped lots, abandoned structures, unused industrial facilities, and remote spaces, are inviting to illegal dumpers. Areas with vacant properties tend to have a higher incidence of illegal dumping because of the reduced potential for dumpers to be sighted. Other areas, including poorly lit access roads, property along railways, highways and alleys, charity drop box locations, and construction sites or public areas with waste containers are prime targets for illegal dumping.

Forest preserves, wooded sites, and farms (especially those near heavily populated areas) are often targets for illegal dumping because they are sparsely populated and dark. The borders of cities and counties tend to have a higher incidence of illegal dumping because of a lack of police presence.



Roofing shingles dumped on a rural road

Illegal dumping occurs near junkyards, active or closed landfills, solid waste transfer stations, and temporary dump areas at construction sites when dumpers want to avoid disposal fees or find that a site is closed or refuses to accept waste. Also, the presence of illegally dumped materials attracts additional dumping.

Natural disasters, particularly flooding, result in damaged appliances, wrecked furniture, and demolition debris that may lead to widespread illegal dumping. EPA's "Planning for Disaster Debris" document (EPA530-K-95-010) is available to help plan for and address these situations.

Lack of Alternative Waste Disposal and Recycling Programs

Areas without routine or affordable pickup service for trash and recyclables tend to experience a higher incidence of household and yard waste dumping. Also, landfills and transfer stations that have high disposal fees, are not conveniently located, have minimum tipping fees, or do not accept small loads encourage dumping. Materials prohibited from landfilling, such as yard waste, scrap tires, freon-containing appliances, and car batteries, may be illegally dumped unless alternate management programs are available, affordable, and well known to the public. EPA's "Decision-Maker's Guide to Solid Waste Management" (EPA530-R-95-023) is available to assist local governments in establishing comprehensive waste management programs.



Illegally dumped tires in and around an abandoned warehouse

Communities lacking a contract with a waste hauler and standardized billing (by which waste removal is integrated into a water or sewer charge) may have problems with residents who refuse to pay a waste hauler for service on their own. EPA's document titled "Solid Waste Contract Negotiation Handbook" (EPA220-B-92-004) provides suggestions for establishing contracts with waste management companies, and a "Pay-as-You-Throw Toolkit" (EPA530-R-96-013) is available for communities considering volume-based disposal programs.

Preliminary research shows that communities with "pay-as-you-throw" or unit-based disposal programs do not experience continuing dumping problems. Although such a community may initially experience increased illegal dumping when new programs are launched, once the public understands the system, the problem diminishes. Maintaining educational programs is important to avoid an ongoing problem.

Lack of Solid Waste Codes and Ordinances

Illegal dumping is a problem in many areas because of a lack of effective legal codes or ordinances prohibiting open dumping or burning of wastes. Both activities are prohibited by federal and most state laws, but enforcement by local authorities is typically done under local codes, which may be less stringent.

In some cases, the fines for a dumping offense are less than the costs for proper waste disposal, and offenders consider the fines to be simply a cost of doing business. Furthermore, failure to appropriately regulate waste haulers and disposal operations invites illegal dumping.

DEVELOPING A PREVENTION PROGRAM

Any illegal dumping prevention program must address the contributing factors in the area where it is implemented. However, successful programs are founded on

- Leadership and support by local officials
- Cooperation among authorities, communities, and industry
- An integrated approach
- Publicizing success

Leadership and Support by Local Officials

Local politicians and high-level officials must make prevention programs a priority and support them with adequate funding, access to equipment, and labor resources. In addition, department staff must work with available resources to carry out the program and report accomplishments back to high-level authorities.

Local ordinances and state laws may already exist or can be developed to discourage illegal dumping. However, ordinances and laws are ineffective without a commitment from high-level authorities for enforcement. For example, police officers must have the support of their command, and the police department must have the support of the court system. In addition, if illegal dumping is not viewed as a priority and little action is taken, residents become frustrated and stop contacting police or local officials to report problems. Residents must be encouraged to persist in contacting different local, county, and state agencies until they find an individual who is responsive to their concerns.

Cooperation Among Authorities, Communities, and Industry

Local authorities such as police, health, environment, public works, and sanitation departments must work together and with local communities. Such coordination allows sharing of resources and helps avoid duplication of effort. For example, a typical coordination effort involves establishment of an “illegal dumping task force” made up of representatives from each local department with the authority or resources to address the problem. Including discussion of dumping issues in community-oriented police “beat meetings” is an example of coordination with communities. Community organizations must work together by sharing information and presenting a unified voice to authorities.

An Integrated Approach

An effective illegal dumping prevention approach requires integration of several strategies that complement one another, including

- Site maintenance and controls
- Community outreach and involvement
- Targeted enforcement
- Program measurement

Integration of these strategies and cooperation of partners from government, communities, and industry are needed to plan, implement, and sustain a successful prevention program. Each of these strategies is described in detail in the “toolkit” at the end of this guidebook along with case studies demonstrating their successful implementation.

Publicizing Success

Publicizing program results is necessary to obtain continued support from high-level authorities and to maintain cooperation between authorities and community groups. Prevention programs must be recognized as cooperative efforts, and successes need to be shared with all parties involved to validate their participation, gain additional support, and allow others to benefit from lessons learned.

Tracking program impacts such as arrests, fines, vehicle impoundments, cleaned-up sites, and avoided costs is integral to the continuation of illegal dumping prevention efforts. Evaluating program efforts provides data for cost-benefit analyses, publicity efforts, budget hearings, and grant program accountability.

AVAILABLE RESOURCES

Specific resources needed for illegal dumping prevention programs include

- **Funding** from grants, private donations, operating budgets, special appropriations, and fees assessed on waste management operations
- **Services** such as landfilling, shredding, hauling, and training
- **Equipment** such as cameras, radios, vehicles, and heavy machinery
- **Supplies** such as dumpsters, bags, and tools as well as educational and training materials
- **Human Resources**, including personnel to conduct cleanup, enforcement, surveillance, inspection, and outreach activities

All these resources are locally available in some form. Obtaining necessary resources for a new or expanded program requires research, creativity, and persistence. Cooperation and communication among the various parties involved are important not only to avoid duplication of effort but also to effectively identify, access, and contribute resources. Certain partners may be eligible or better suited to provide resources than others. For example,

- A community group may be able to apply for a grant for which a local government is ineligible
- A civic organization may be better suited to approach a potential industry partner for assistance and cooperation than an enforcement agency
- A local government official may have a special contact within a local or state agency who can provide a quicker response than a resident could obtain through a general inquiry

Many different types of resources have been applied in innovative ways to implement illegal dumping prevention programs. Grant funding resources are presented below. Both the table on page 9 and the “toolkit” at the end of this guidebook present examples of how illegal dumping prevention programs have been able to access needed funding and other resources. The EPA documents cited throughout this guidebook as well as other EPA publications can be ordered by telephone at (800) 490-9198 or on-line at <http://www.epa.gov/ncepihom/>.

GRANT FUNDING

Grant funding is available from county, state and federal environmental agencies as well as private foundations, typically in the form of environmental education, special project, or demonstration funding. Information on grant resources is available on the Internet, which may be accessed at most public libraries and schools. Helpful web sites include the following:

- ❖ The Nonprofit Gateway - <http://www.nonprofit.gov>
- ❖ Grant Resources for Solid Waste Activity in Indian Country - <http://www.epa.gov/tribalmsw/finance.htm>
- ❖ Summary of EPA Grant Programs - <http://www.epa.gov/epahome/finance.htm>
- ❖ Environmental Grantmaking Foundations - <http://www.environmentalgrants.com>
- ❖ Grant Getters Guide to the Internet - <http://web.calstatela.edu/academic/orsp/grantguide.html>

EXAMPLES OF RESOURCE ACQUISITION FOR ILLEGAL DUMPING PROGRAMS

PROGRAM DESCRIPTION	RESOURCES					
	Funding			Services	Equipment and Supplies	Human Resources
	Government Grants	Local Government Funds	Private Donations			
Trash Cop Program. The Central Oklahoma Trash Cop Program, which consists of environmental officers hired to catch and prosecute litterers and illegal dumpers in four counties, was begun with \$160,000 obtained through fundraising efforts by a local community group, Oklahoma City Beautiful. The program will be sustained by fines collected from offenders.		✓	✓			✓
Community Involvement. Phillapride, a community group in Philadelphia, Pennsylvania, promotes neighborhood participation in cleanup and enforcement activities. The program is funded primarily by corporations that have had dumping problems on their properties, such as the Conrail Corporation, which contributes up to \$25,000 each year.			✓			✓
Industry-Funded Efforts. The Amoco Foundation supports local efforts to improve the community in northwest Indiana. The foundation also provides supplies and volunteers for community cleanup events and nature projects.			✓	✓	✓	✓
Educational Activities and Materials. Lake County, Indiana, received a grant from the state to prepare videos and outreach materials on illegal dumping for residents and elected officials.	✓			✓		
Scrap Tire Cleanup. A community group in Detroit, Michigan, uses a county grant to pay residents to bring illegally dumped tires to drop-off locations. A local waste hauler donates services to transport the tires to a tire shredder, which shreds them at no charge. A local bank donates money to cover disposal costs.	✓		✓	✓	✓	✓
Flooded Property Restoration. The Federal Emergency Management Agency purchased sections of property in and around St. Louis, Missouri, that flooded in 1993 and attracted illegal dumping. Some of the property reverted to county control after abandoned homes were demolished, waste was removed, and areas were regraded.	✓					
Scrap Tire Disposal. The City of Hammond, Indiana, has an agreement with a local junkyard under which the junkyard donates tire shredding and disposal services in exchange for the city's scrap metal.				✓	✓	
Cooperative Cleanup Effort. Cook County led a cooperative cleanup in Chicago Heights, Illinois, that involved the sheriff's work assistance program as well as trucks and heavy equipment from the highway department and forest preserve.				✓	✓	✓
Dumpsters for Cleanups. A community organization in East St. Louis, Illinois, used 550 dumpsters provided by a local waste management company under a supplemental environmental project related to an enforcement action.					✓	
City-Sponsored Neighborhood Cleanups. The Cities of Chicago, Illinois, and Detroit, Michigan, sponsor neighborhood cleanup days on which storage yards are opened to community groups that use tools, garbage bags, and other materials to clean up vacant lots. Both cities also provide waste transportation and disposal support.		✓		✓	✓	✓

USING THE TOOLKIT

An effective illegal dumping prevention program involves local government, industry, and community stakeholders working together to address the problem in a defined area. The following steps have proven successful for establishing and implementing a customized prevention program:

1. Identify and assemble stakeholders to establish interest in working together
2. Define the boundaries of a specific target area
3. Conduct a thorough assessment of the problem (see page 11)
4. Clearly define goals
5. Select program components from the “toolkit” to develop an integrated program
6. Develop a written description of the overall program design, existing resources, and needs
7. Use the written description to seek resources
8. Assign specific responsibilities and delegate roles
9. Monitor program implementation and evaluate program impacts
10. Publicize qualitative and quantitative impacts of the program

An integrated approach can be effective if the appropriate tools are used. The second part of this guidebook contains a “toolkit” that outlines and describes practices that have proven to be effective in combating illegal dumping. Case studies are provided that describe successful applications of the practices and identify contacts for further information. In addition, the “toolkit” identifies specific resources that can be used to support local implementation of an illegal dumping prevention program.

ASSESSING THE PROBLEM

The following topics should be examined when an illegal dumping problem is assessed for a given target area:

✓ **The Nature of the Problem**

- ❖ Locations of persistent illegal dumping problems
- ❖ Commonalities of illegal dumping areas, including demographics and types of waste
- ❖ Commonalities of illegal dumping incidents, such as the source of the waste, dumping incident characteristics, and the profile of illegal dumpers
- ❖ Possible driving forces behind illegal dumping, such as user fees, restrictions on curbside trash pickup, or lack of effective recycling programs

✓ **The Players Involved**

- ❖ Departments or agencies responsible for enforcing laws, ordinances, or regulations
- ❖ Other organizations involved, such as community groups or local industry
- ❖ Level of coordination and communication among involved organizations
- ❖ Amount of information-sharing with other geographic areas

✓ **Past and Ongoing Efforts**

- ❖ Local laws, ordinances, or regulations that address illegal dumping
- ❖ Existing programs or previous efforts to prevent illegal dumping
- ❖ Methods used to monitor or measure illegal dumping and any trends observed
- ❖ Previous or ongoing cleanup efforts, such as community volunteer cleanup days
- ❖ Communication of illegal dumping prevention efforts to the community
- ❖ Efforts that have been successful or unsuccessful and why

✓ **Resources**

- ❖ Sources of funding for previous or existing efforts to address illegal dumping
- ❖ Additional resources needed to adequately address illegal dumping problems

ILLEGAL DUMPING PREVENTION TOOLKIT



SITE MAINTENANCE AND CONTROLS

Cleanup Efforts
Keeping Sites Clean



COMMUNITY OUTREACH AND INVOLVEMENT

Community Programs
Effective Outreach and Education



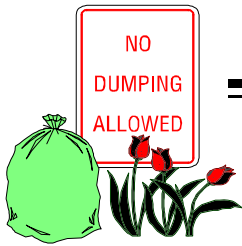
TARGETED ENFORCEMENT

Ordinances
Dedicated Enforcement and Prosecution
Field Operations



PROGRAM MEASUREMENT

Tracking and Evaluation



CLEANUP EFFORTS

Cleanup projects require a coordinated planning, resource acquisition, and implementation effort. Necessary resources include labor, equipment, and funding. Labor resources can be sought from community and youth groups, local government organizations, corporations, or state or county corrections programs. Equipment such as containers, rakes, bags, gloves, shovels, heavy equipment, and trucks can be provided by public works or highway agencies and private companies. Funding for waste disposal may be provided by government agencies or through corporate donations. In some cases, removed materials such as brick and concrete can be used in a local fill project, thus reducing disposal costs.

Local industry and community groups can assist in landscaping and improving the physical appearance of areas. Such beautification efforts can ward off potential dumpers.

Sites must be cleaned up before a threat to public health and safety develops. State and federal cleanup programs, such as Superfund, may support urgent projects where a defined health or environmental threat exists.

A plan must be developed to remove any dumped materials and keep sites clean. Such a plan should be developed before a cleanup to ensure that the effort is not wasted.

Case Studies

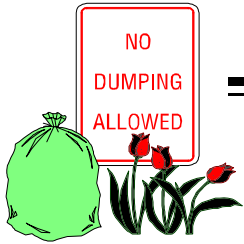
- **East St. Louis, Illinois.** New Spirit, an organization representing over 30 neighborhoods, coordinates Community Cleanup Days. The events have resulted in removal of over 166,000 tons of waste from inner city areas. New Spirit obtained 550 dumpsters from a local waste management company as part of a supplemental environmental project mandated by EPA.

In addition, New Spirit uses volunteers from neighborhood organizations for trash pickups and tire sweeps. *Contact New Spirit, (618) 874-0312.*

- **Barberton, Ohio.** The city health department presented certified cleanup orders to owners of an illegal dump site. The vacant 2-acre site, which was located in a heavily wooded area near a residence, contained 15-foot-high piles of household waste and scrap tires. Several drums of hazardous waste were discovered during the cleanup. The city forced the owners to hire a contractor to clean up the site and authorized funding to cover about half the cost, in order to accelerate the cleanup. The entire cost of the cleanup, estimated at \$80,000, was recovered from the owners. *Contact Mike Meusel, Health Department, (330) 745-6067.*



Drums discovered and secured during cleanup activities

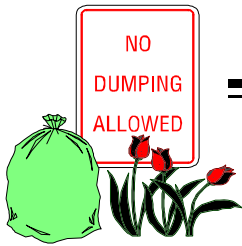


CLEANUP EFFORTS

- **Pennsylvania.** Pennsylvania CleanWays is a nonprofit organization that helps communities clean up illegal dump sites in rural areas. As a condition to providing assistance, before a cleanup Pennsylvania CleanWays works with everyone involved to develop a plan to remove any materials dumped after the cleanup. The “subsequent dump” team is made up of residents, law enforcement officials, businesses, trash haulers, and landfill operators. Residents are taught what evidence to look for, who the responsible enforcement officials are, how to contact them, and how to remove trash if necessary. Residents bag and pile trash to make it easy for those who have agreed to haul it away. To date, the program has cleaned up over 40 rural sites and 500 truckloads of waste. *Contact Sue Wiseman, Pennsylvania CleanWays, (412) 836-4121.*
- **Cook County, Illinois.** The Department of Environmental Control, Sheriff’s Department, Highway Department, and Forest Preserve District partner with communities to clean up and maintain problem dump sites. Labor is provided by the Sheriff’s work assistance program, and heavy equipment is provided by the Forest Preserve District. Waste is transported for proper disposal and sites are secured with concrete barriers by the Highway Department. *Contact Charles Lagges, Department of Environmental Control, (708) 865-6165.*
- **Detroit, Michigan.** The city, the Michigan Department of Environmental Quality, and EPA targeted an abandoned factory being used for illegal dumping for cleanup and demolition. The 11-acre site had 21 buildings and was the site of several tire fires. Over 100,000 tires, 180 drums, and 30 truckloads of trash were removed from the site before demolition of the buildings. The area was fenced off and remains free of trash. The Redevelopment of Urban Sites team was established to address such sites. *Contact Sarah Lile, Environmental Affairs Department, (313) 237-3090.*



A former dump site that has been cleaned up and remains clean



KEEPING SITES CLEAN

Many illegal dumping areas continue to experience problems after being cleaned up. Signs, lighting, and barriers can reduce or eliminate continued dumping in a given area. In addition, a plan needs to be in place to maintain the area and to promptly remove any materials that are dumped.

Cleaned-up sites can be converted to clean areas that no longer attract illegal dumping. Residents benefit from the availability of attractive space and improved property values.

Signs

Some residents may be unaware that dumping is illegal and punishable by fines or prosecution. Use of “No Dumping” signs can be effective in preventing dumping and creating awareness of ordinances. Signs placed in a high-incidence area can specify fines and penalties or indicate that the area is under surveillance. The area around such signs must be kept clear of debris.



Sign prohibiting illegal dumping under a city ordinance

Lighting

Lighting can be an effective preventive measure in poorly lit or remote areas that experience “midnight dumping.” Lighting increases the visibility of the crime and the chances of the offender’s being caught. Installing lighting requires an investment in electrical service and equipment.

Barriers

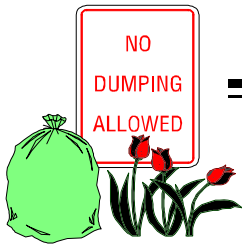
Barriers that limit access are critical for reducing and eliminating dumping in areas with a single point of entry. Fences, posts, berms, and concrete highway dividers prevent vehicle access. However, such barriers must not limit legal or emergency access to residences or buildings. In some cases, offenders may continue to dump at or over barriers instead of inside the restricted area.



Concrete barriers preventing access along railroad right-of-way

Landscaping and Beautification

Landscaping and beautification efforts range from simply cutting grass and pulling weeds to establishing parks with benches, walkways, trees, picnic tables, grills, or



KEEPING SITES CLEAN

playgrounds. Other efforts include painting murals, establishing gardens and flowerbeds, or converting sites into natural areas. Local schools and university cooperative extension services can assist at urban gardening sites or in projects involving establishment of plants requiring little or no maintenance. Communities where residents have limited access to public areas are ideal for such projects.

Case Studies

- **Chicago, Illinois.** The city conducts a program in which vacant lots are secured to prevent additional dumping. Vertical, steel I-beams protruding a few feet above the ground have proven to be the most effective barrier at over 500 locations. The city places “No Dumping” signs that also clearly identify the penalties for dumping. The signs have been effective in creating an awareness that illegal dumping is not tolerated. *Contact Alexandra Holt, Department of Environment, (312) 744-3172.*
- **Boston, Massachusetts.** Boston’s beautification initiatives focus on arranging partnerships, maintenance agreements, and adoption of space resulting in cleanups, paintings, and plantings. The Youth Clean-Up Corps Red Shirts program sent over 2,300 youths into neighborhoods for 38 days, resulting in cleanup of 3,722 sites and removal of 136,709 bags of trash weighing over 850 tons. The Broom to Bloom initiative involves distribution of planters and hanging flower baskets along selected roadways. *Contact the Environmental Services Cabinet, (617) 635-3425.*
- **Los Angeles, California.** The Nuisance Alley Conversion Project is a joint venture between neighborhoods, the City Council, and the Department of Public Works. The project involves fencing off

“nuisance alleys and signing them over to residents for use as parks. Over 13 alley conversions have taken place at an average cost of \$12,000 each. *Contact the Environmental Hotline, (626) 458-3561.*

- **Whiting, Indiana.** The Amoco Corporation cleaned up a 10-acre property located between residences and a tank farm. Beyond reintroducing native grasses, building bird boxes, eliminating invasive plant species, and clearing pathways for trails, the Wildlife Enhancement Council provided guidance on using community outreach and involvement to sustain the effort. The “Lost Marsh” is now home to 23 bird and 59 plant species. Roadways bordering the tank farm were beautified by planting flowerbeds, lawns, and trees. The project generated a renewed sense of environmental stewardship and community pride, and it reawakened various stakeholders to the value of small parcels of underdeveloped land. *Contact Kevin Sprague, Amoco Corporation, (219) 473-3148.*



Signs posted in Amoco Corporation's Lost Marsh area



COMMUNITY PROGRAMS

Community programs established to organize special waste cleanup events and support community-oriented policing have proven effective in addressing illegal dumping problems.

The focus of any community involvement effort should be to teach residents what can be done to prevent illegal dumping, how and why they should get involved, and who to contact for assistance or to report an incident. In some areas, organized community groups serve as the main catalyst for information exchange and involvement among residents.

Community Events

Organized events to collect and properly dispose of illegally dumped materials, such as tire collections, “Clean Sweeps,” and cleanup days, often involve resources provided by government or industry and the efforts of local residents.

Case Studies

- **Phoenix, Arizona.** The city established an illegal dumping prevention program in 1990 that involves public education, citizen involvement, dedicated local prosecution, convenient waste drop-off sites, and free disposal for small residential waste loads. Project HALT (Help Attack Littering and Trashing) uses citizen volunteers to monitor high-frequency dumping areas and aid in reporting and prosecuting illegal dumpers. In 1996 and 1997, the program cleaned up over 15,000 tons of waste, and officers issued over 165 citations. *Contact Juan Martin, Public Works Department, (602) 256-5600.*
- **Tupelo, Mississippi.** Upon request, the city will drop off a truck for use over a weekend by residents to dispose of wastes generated during home improvements or community cleanup projects. Although this program does not allow for disposal of tires or industrial and household hazardous wastes, the city sponsors separate events for those materials. The city covers the cost of waste transportation and disposal. *Contact Boyd Yarbrough, Department of Public Works, (601) 841-6435.*
- **Clifton, New Jersey.** The city’s Clean Communities Program consists of events and programs intended to clean up and maintain areas subject to dumping or littering. The program is funded by a state grant program that receives money from a tax on businesses that sell 15 types of products that often end up as litter. Over 150 businesses; all the city’s schools; and civic, youth, and neighborhood organizations contribute to the program. Clifton’s program has had a significant, visible impact on the cleanliness of city streets, parks, and neighborhoods. In 1991 and 1992, the amount of litter collected decreased from 422 to 358 tons, and over 3,000 miles of streets and 175 acres of parkland were cleaned up. *Contact Alfred DuBois, Department of Public Works, (973) 470-2239.*
- **Detroit, Michigan.** The “Tire Roundup” sponsored by the Southwest Detroit Environmental Visions (SDEV) community organization encourages local residents to get involved in cleaning up scrap tire piles. Using a grant from Wayne County, SDEV pays local residents to bring illegally dumped tires to designated drop-off locations. In 1995, SDEV offered 25 cents per tire, and over 8,000 tires were collected. A waste hauler transported tires from drop-off locations to a tire shredder that processed the tires at no charge. A local bank donates \$3,000 to cover the cost of disposal. *Contact Kathy Milberg, SDEV, (313) 842-1961.*

Community-Oriented Policing

Community-oriented policing involves joint efforts of residents and police to identify, analyze, and develop solutions to crime-related problems, including illegal dumping. Although the implementation strategy depends on conditions within local law enforcement agencies and the community, the following core components are common:

- Open communication and cooperation
- Receptiveness to change
- Commitment
- Trust



COMMUNITY PROGRAMS

Effective community-oriented policing requires officers to (1) communicate how residents can assist in crime prevention and (2) develop cooperative relationships with residents. Police can create such interaction by holding “beat meetings,” speaking to neighborhood groups, participating in business and civic events, and conducting educational programs for school children. Residents in turn voice their concerns about neighborhood crime. They also assist police by reporting crimes and identifying offenders whenever possible, participating in police-sponsored programs, and soliciting police involvement at community functions. Over 10,000 cities in the United States have established community policing programs.

For information on grants to establish community policing programs, contact

United States Department of Justice
Office of Community Policing Services
1100 Vermont Avenue, N.W.
Washington, D.C. 20530
(202) 514-2058
<http://www.usdoj.gov/cops>

Case Studies

- **Chicago, Illinois.** The police department's community policing program employs a community-based approach. Police officers and residents meet monthly at “beat meetings” to identify neighborhood crime issues and develop strategies. The information provided to the police helps officers to identify patterns of illegal dumping and prioritize surveillance operations. Department of Environment staff participate by providing information specific to illegal dumping at the meetings. Wallet cards and refrigerator magnets are distributed that display a hotline number to call in order to report illegal dumping crimes. *Contact Alexandra Holt, Department of Environment, (312) 744-3172.*
- **Chattanooga, Tennessee.** The Citizens Task Force on Neighborhoods reviewed city policies on illegal dumping and made recommendations to improve community

policing, strengthen penalties, wage a public relations campaign to market properties subject to dumping, and establish drop-off sites for bulk waste items. As a result, the city provides “Sparkle Wagons” to residents free of charge to haul loads of waste to a landfill. Several other recommendations were implemented by the City Council, including forming a special team of nine officers to attend neighborhood meetings and visit schools to speak with students. *Contact the Department of Public Works, (423) 757-5300.*

- **Crimestoppers.** Several communities with persistent illegal dumping problems choose to highlight a particular dumping incident as the “Crime of the Week” in local Crimestoppers programs. The case is highlighted on television, radio, and the Internet, providing pertinent details about the crime and asking the public for help in identifying suspects or vehicles that may have been involved. A toll-free number is provided, and callers can remain anonymous. If a tip leads to an arrest, the caller providing the information is eligible for a cash reward. Hundreds of Crimestoppers programs exist throughout the United States, and regional directories of local programs are available. *Contact Crimestoppers International, Inc., P.O. Box 30413, Albuquerque, New Mexico, 87190-0413 or <http://www.c-s-i.org>.*



Promotional materials for community policing program



EFFECTIVE OUTREACH AND EDUCATION

Many argue that the most important component of a successful illegal dumping prevention program is public education. However, outreach and education programs are only effective when the behavior of a target audience changes or is sustained. In this regard, designing and implementing effective outreach and education programs for illegal dumping prevention are similar to marketing campaigns for consumer products or services.

Target Audience

Identification of a target audience that needs to change or sustain its behavior is the first step. It is important to begin by designing an approach tailored to the specific characteristics of the target audience. An audience assessment can determine which information media are appropriate and the best ways to explain concepts as well as the need for multilingual information. Involving members of the target audience greatly assists in development of outreach materials.

A Simple Message

A clear, simple message to which the target audience can relate must be developed. The message can be as simple as “No Dumping,” “Nail A Dumper,” or “Keep It Clean.” The message can then be supported with information convincing the audience to comply, including

- Listing fines and penalties
- Indicating that areas are under surveillance
- Showing photographs of dump sites
- Quantifying the costs of cleaning up sites and the resulting impacts on local taxes
- Listing proper disposal sites and practices.

Communication

Use of various methods to disseminate information will ensure that the message is received by the target audience. Media that can be used include newspapers, magazines, flyers, billboards, posters, television, radio, the Internet, wallet cards, and refrigerator magnets. An integrated approach involving different media can maximize the impact of the message.

Confirmation

Soliciting feedback on outreach and education efforts assists in continuation of current programs and development of future efforts. For example, callers to a 24-hour hotline can be asked how they heard about the system. The responses can be documented and evaluated to determine which advertising methods are reaching residents.

Available Resources

If communication service providers are made aware of the purpose of a community outreach project, they may be willing to donate printing services, graphics services, air time, supplies, or equipment. In addition, employees of local industries may offer their time and talents to support awareness and prevention programs.

Keep America Beautiful, Inc., helps communities to prevent littering, encourage community beautification, and generate ongoing support for integrated waste management.

Keep America Beautiful, Inc.
1010 Washington Boulevard
Stamford, CT 06901
(203) 323-8987
<http://www.kab.org>



EFFECTIVE OUTREACH AND EDUCATION

In addition, inexpensive labor to develop and conduct community outreach efforts can be found at local universities. The Environmental Careers Organization and the AmeriCorps program provide low-cost student interns involved in environmental studies for projects.

The Environmental Careers Organization
179 South Street
Boston, MA 02111
(617) 426-4375
<http://www.eco.org>

AmeriCorps/VISTA Program
Corporation for National Service
1201 New York Avenue, N.W.
Washington, DC 20525
(800) 942-2677
<http://www.cns.gov>

Case Studies

- **Philadelphia, Pennsylvania.** Phillapride uses a multimedia approach to publicize illegal dumping prevention and enforcement activities. A booklet titled "Organizing Your Community Against Illegal Dumping" that outlines methods for building teams to combat illegal dumping was developed and distributed. Television and radio spots are used to announce ways for local residents to prevent and report dumping, such as calling a 24-hour hotline. In addition, information specifically targeting children is published, including an educational comic book series for schools called "The Untrashables." *Contact Mark Vigiano, Phillapride, (215) 575-2210.*
- **North-Central Texas.** The Council of Governments established a comprehensive awareness campaign under a grant from the Texas Natural Resource Conservation Commission. A toll-free, 24-hour hotline is used to forward citizen complaints to local law enforcement officials for response. Complaints can also be submitted electronically via the Internet. The program's slogan is "If You See It, Report It," and the program has several educational aspects, including law enforcement training and a "Top Ten Most Least Wanted" list of illegal dump sites. *Contact Heather Lauden, Council of Governments, (817) 695-9239.*
- **Akron, Ohio.** Keep Akron Beautiful solicits the involvement and support of local industry for illegal dumping prevention and awareness programs. Members of the "Clean Team" visit businesses to distribute anti-littering information and educational materials. In addition, "Seals of Approval" are presented to businesses that demonstrate exemplary environmental stewardship. The program encourages individual resident involvement in littering prevention. *Contact Paula Davis, Keep Akron Beautiful, Inc., (330) 375-2116.*
- **Franklin County, Ohio.** The Solid Waste Authority of Central Ohio's "Nail a Dumper" program has a 24-hour hotline, a dedicated investigation team, a strong prosecution record, and effective outreach efforts. Over 5,000 complaints have been received, with nearly 8 percent resulting in criminal charges being filed, and over 1,000 cases have been prosecuted. The program's extensive education efforts and cleanup projects are effective in involving schoolchildren, residents, and companies. An Environmental Investigations Workshop for other law enforcement agencies in Ohio was developed based on actual experiences of the county prosecutor and sheriff. The "Nail a Dumper" program involves cooperation among the Franklin County Prosecuting Attorney's Office, Sheriff's Department, Board of Health, and City of Columbus Refuse Department. *Contact Mitzi Kline, Franklin County Board of Health, (614) 462-3160.*



ORDINANCES

The “backbone” of effective enforcement consists of ordinances that regulate waste management and prohibit illegal dumping.

Ordinances can require permitting or licensing of waste management activities, prohibit open burning and dumping on private and public property, or require owners of rental properties to contract for waste pickup services for renters. Effective ordinances include clear definitions of key terms to avoid “gray” areas.

In addition, ordinances can impose penalties, including

- Fines
- Incarceration
- Vehicle impoundment
- Cost recovery for site cleanup or security
- Liens on property
- Revocation of licenses or permits
- Community service

Creative use of penalties can contribute to a prevention program. For example, fines can generate program funding (if collection systems are adequate) or can be transferred to an account from which citizen rewards can be paid. Community service requirements can be directed toward cleanup and beautification projects.

Permitting of transfer stations and recycling facilities allows regulators to monitor waste loads via receipts, load tickets, or manifests. In addition, enforcement officials and residents can more easily recognize unlicensed waste haulers if licensing placards or stickers are required. Similar controls can be used to monitor disposal of waste generated by demolition projects.

Ordinances, permits, and licenses are effective only to the extent that they are enforced and offenders are

prosecuted. Ordinances require the following to be effective:

- Sufficient resources
- Trained enforcement officials
- Clear lines of authority
- Timely prosecution
- Support of the judicial system

Effective ordinances must be tailored to meet specific needs. However, the following components are recommended to support a comprehensive prevention program:

Effective Ordinance Components

- ❖ *Definition of key terms*
- ❖ *Authority for inspections and enforcement*
- ❖ *Authority for vehicle impoundment*
- ❖ *Permitting and application requirements*
- ❖ *Permit renewal, transfer, and revocation provisions*
- ❖ *Collection and hauling requirements*
- ❖ *Storage and processing requirements*
- ❖ *Fee collection*
- ❖ *Prohibited activities and violations*
- ❖ *Litter prevention*
- ❖ *Owner responsibilities*
- ❖ *Penalty clauses*
- ❖ *Liability clauses*
- ❖ *Severability clauses*
- ❖ *Prosecution procedures*
- ❖ *Authority for emergency abatement activities*
- ❖ *Cost recovery*



ORDINANCES

Case Studies

- **New York, New York.** The city defines illegal dumping as the action of “any person, their agent, employee, or any person under their control to suffer or permit any dirt, sand, gravel, clay, stone, rocks, rubbish, building rubbish, sawdust, shavings or trade or household waste, refuse, ashes, manure, garbage, rubbish or debris of any sort, or any other organic or nonorganic material, or other offensive matter being transported in a dump truck or other vehicle to be dumped, deposited or otherwise disposed of in or upon any street, lot, park, public place or other area whether publicly or privately owned.” Vehicle owners or drivers are liable, and fines range from \$600 to \$1,500. *Section 16-119, Administrative Code, City of New York.*
- **Chicago, Illinois.** City penalties for dumping without a permit can include fines up to \$2,000; 6 months in jail; and up to 200 hours of community service. Violators are liable for up to three times the cost of cleaning up a site, and city contracts can be terminated. Vehicles are subject to seizure and impoundment, with the owner of record liable for a \$500 fine in addition to towing and storage fees. Finally, owners or occupants of any unimproved parcel of real estate must remove any abandoned or derelict motor vehicle, garbage, debris, refuse, litter, or miscellaneous waste. Violations can result in fines of \$200 to \$1,000 per day. *Ordinances 7-28-440 and 7-28-450, Municipal Code, City of Chicago.*
- **Hammond, Indiana.** Permits and fees are required for inspection of waste-hauling vehicles. A \$250 per vehicle fee is required for vehicles, including pickup trucks, that haul waste. Permits are not required for any federally, state, county, or municipally owned and operated waste-hauling vehicles. At the time of payment for the permit, a numbered sticker is issued that must be attached to the regulated waste-hauling vehicle in a conspicuous location. *Article 94.41, Administrative Code, City of Hammond.*
- **State of Michigan.** The Natural Resources and Environmental Protection Act regulates transportation, storage, and disposal of scrap tires. Tire retailers must maintain records indicating the number of scrap tires removed and their final destination. Haulers must maintain records of each load of scrap tires transported on an approved manifest form. A copy of the form must be provided to the person contracting for removal of scrap tires and the registered collection site or licensed landfill where the tires are delivered. Haulers and collection site owners must display registration numbers and renew their registrations annually. The state partners with local law enforcement to enforce the provisions of the act. *Public Act 451, Part 169.*



DEDICATED ENFORCEMENT AND PROSECUTION

Dedicated enforcement and prosecution personnel are valuable contributors to an illegal dumping prevention program.

Enforcement

Dedicating officers to illegal dumping prevention and enforcement is an example of how high-level authorities can support prevention efforts. Law enforcement officers assigned to illegal dumping must have knowledge of applicable laws and ordinances. In addition, they must have the authority to issue citations, make arrests, impound vehicles, and conduct surveillance. Officers from local police or sheriff's departments are ideal candidates for assignment. Off-duty officers can supplement on-duty staff during warm-weather months, when dumping activity peaks. In many cases, investigating dumping cases provides officers with the opportunity to further investigate suspects or premises for other crimes.



Trash task force arresting an environmental offender

Other government agencies (such as health, sewer, or environmental departments) can also dedicate personnel to illegal dumping cases, but they must have either appropriate authority or easy access to law enforcement officers. The latter requires an efficient means of communication and, more importantly, a commitment by officers with authority to provide timely backup.

A dedicated task force can be formed that consists of enforcement officials from different departments or agencies with the authority or responsibility for illegal dumping prevention. Such collaborative efforts encourage cooperation and reduce the burden on individual organizations. Task forces with representatives from different levels of government (city, county, state, or federal) can be effective in working together to apply the strongest ordinance or law to an offender.

Case Studies

- **Detroit, Michigan.** The Detroit Environmental Enforcement Project (DEEP) Task Force consists of officials from the law, fire, police, public works, water, environmental affairs, communications, and planning departments. In the pilot phase, seven police officers, two firefighters, and four state conservation officers conducted surveillance and investigated illegal dumping in two target precincts. Driving unmarked cars (donated by a local auto manufacturer) and wearing plain clothes, this team attempted to catch dumpers in the act. A toll-free complaint hotline was established, and reported cases are electronically tracked. The program has resulted in nearly 100 arrests. Task force activities were expanded to involve all 12 police precincts. *Contact Gregory Moore, Environmental Affairs Department, (313) 237-3095.*
- **St. Louis, Missouri.** The Trash Task Force consists of off-duty police officers who use personal vehicles to conduct surveillance and enforce illegal dumping ordinances. Task force members are carefully chosen and must be former detectives with experience investigating environmental crimes. The officers sign independent contracts to cover the 20 hours per week they spend on task force activities. They make arrests and contact on-duty officers using cellular phones to obtain backup or transport offenders. The task force also responds to citizen complaints received through the Citizens Service Bureau, which acts as a



DEDICATED ENFORCEMENT AND PROSECUTION

clearinghouse for illegal dumping questions and complaints. In 1996 and 1997, the task force made over 100 arrests; towed 21 vehicles; and made over 1,600 investigations. *Contact Jeff Towers, Trash Task Force, (314) 622-4628.*



Trash task force members holding sign describing reward program

- **Los Angeles, California.** The Bureau of Street Maintenance was spending over \$4 million annually to clean up illegally dumped material. In partnership with the police department and City Council, a task force consisting of two police officers and 16 reserve officers (police-trained volunteers) was created. The reserve officers survey locations frequented by dumpers to catch violators in the act. Over 100 arrests were made and 60 vehicles were impounded between 1995 and 1997. The program realized police salary savings of \$112,000 by using reserve officers; local businesses were retained, and citizens became more active in reporting crimes. *Contact Officer Jeff Churchill, Police Department, (213) 846-6521.*

Prosecution

The enforcement process can be further enhanced by dedicating a local prosecuting attorney to dumping cases. Such an approach can help ensure that cases are processed in a timely and consistent manner. A dedicated

prosecutor can be a valuable resource for officers investigating, gathering evidence for, and developing cases. With knowledge of the court system and case precedents, a dedicated prosecutor can help ensure that cases are prepared properly and have the best chance of a favorable ruling.

Another option is to limit the focus of a court session to environmental cases. This approach, especially when cases are heard by a dedicated judge or hearing officer, provides for consistency in case disposition and penalties.

Case Studies

- **Charlotte, North Carolina.** The city and county established an environmental court for violations of local and county environmental laws. The court is limited to prosecuting misdemeanors involving dumping of less than 500 pounds of waste. A related work group includes federal; county; state; and local fire, sewer, and police department officials involved in enforcement. Anyone convicted is required to run a full-page advertisement in a newspaper apologizing for the violation. The City does no further business with contractors convicted of environmental crimes. *Contact C. Nicks Williams, U.S. Attorney's Office, (704) 344-6222.*
- **St. Clair County, Illinois.** The Illinois Environmental Protection Agency works closely with the local State's Attorney's Office to prosecute environmental cases. About 20 percent of the state's attorney's time is dedicated to illegal dumping, greatly enhancing prosecution of environmental cases and allowing for collection of penalties and site cleanups. The program's reputation serves as a deterrent to illegal dumping and has led to the cleanup of many sites. In addition, the state's attorney serves as an advisor to local enforcement officials on solving environmental problems. *Contact Penni Livingston, State's Attorney's Office, (618) 277-3892.*



FIELD OPERATIONS

Field operations targeting illegal dumping require appropriate officer training, authority, equipment, and surveillance strategies.

Training

Law enforcement officers assigned to illegal dumping prevention must have knowledge of applicable laws and ordinances to be effective in the field. Training materials can include “pocket” or “short charge” cards outlining relevant ordinances, sample tickets, or training bulletins and manuals. Short videotapes can be played at roll call, or environmental issues can be integrated into academy training programs.

Several organizations provide training program development assistance:

EPA - National Enforcement Training Institute
(800) 372-6384 or <http://www.epa.gov/oeca/eti>

Midwest Environmental Enforcement Association
Training Programs Coordinator, (847) 742-1249

Southern Environmental Enforcement Network
Training Coordinator, (334) 242-7369

Northeast Environmental Enforcement Project
Training Program Manager, (609) 292-0987

Western States Project
Training Services Coordinator, (602) 542-8514

Case Study

- **Northern Illinois.** The Illinois Environmental Crimes Investigators Network was established by the state Attorney General's Office. The network offers basic awareness seminars that simplify key provisions in environmental crime statutes, teach basic investigative techniques, and demonstrate how available state resources can be assessed. Instructors from several different organizations participate, including the EPA, state Attorney General's Office, Illinois EPA, state police, and Cook County State's Attorney's Office. In

1996 and 1997, the seminars were attended by over 500 police and fire officers. *Contact the Environmental Crimes Bureau, (312) 814-3918.*

Authority

Officials must have the proper authority to conduct surveillance, inspections, and investigations. In many instances, local, state, and federal officials all have some level of authority and involvement in illegal dumping. This can lead to incorrect assumptions that another party will address problems. In areas where authorities overlap, clear definition of jurisdictions prevents duplication of effort and increases the effectiveness of limited resources.

In other cases, officials with insufficient resources and authority may have primary responsibility, resulting in an inadequate response. Although a municipal agency may be better situated to respond to an incident than the state, the agency may lack the resources to adequately prosecute cases under the appropriate laws.

If authority is delegated to a local entity by the state or county, a written delegation agreement can be established to transfer authority and clearly define responsibilities. Once jurisdictions are defined, continuous communication and coordination between stakeholders are essential.

Case Study

- **Southwestern Illinois.** The Illinois Delegation Agreement between Illinois EPA and St. Clair and Madison Counties, delegates illegal dumping surveillance and enforcement authorities under the Illinois Environmental Protection Act. Coordination has increased between the state and local agencies, such as local sheriff's departments, as a result of the agreement. In St. Clair County, health and sheriff's department officials often conduct surveillance and enforcement activities together. In addition, training programs addressing environmental crime have been held for local police departments. *Contact Ken Mensing, Illinois EPA, (618) 346-5120.*



FIELD OPERATIONS

Equipment

Proper equipment is needed to support field operations, including

- Radios, cellular telephones, or pagers
- Spotlights or night-vision gear
- Polaroid, 35-mm, or digital cameras
- Notebooks or tape recorders
- Citation books
- Checklists summarizing laws and ordinances

This equipment is available from the tactical or investigation units of local, county, and state police agencies. As agencies obtain new equipment, old equipment may be acquired at a reduced price or may be available on loan for illegal dumping prevention.

Surveillance

Various surveillance methods and techniques exist to identify illegal dumpers and support their prosecution, including

- Stake-outs
- Video monitoring
- Patrols
- Community assistance

At known dump sites, stake-outs using unmarked vehicles or structures and night-vision equipment must take place during peak dumping hours, typically during the late evening or early morning. Video cameras can be more cost-effective than stake-outs because limited manpower is required. If cameras are purchased, capital, maintenance, and operator training costs must be considered. Contracting with a surveillance company to provide, install, and maintain cameras can minimize costs, particularly for short-term or sporadic activity. Enforcement officials should confirm the admissibility of video evidence in court before initiating a video surveillance program.

Patrolling areas where dumping is likely to occur may lead to catching illegal dumpers in the act, thus increasing the likelihood of their successful prosecution. A licensing

system requiring placards or other identification for waste haulers can assist in identifying potential dumpers. Also, rising smoke is a potential indicator of illegal dumping because open burning may also be taking place.

Residents may be willing to assist in surveillance by communicating their observations to enforcement officials. In addition, local properties can be used for stake-outs or installation of video cameras. Citizens must be aware of what constitutes illegal activity and must understand what information is needed about an illegal dumper (such as a vehicle description and license number). A hotline for notifying authorities combined with a reward system for information leading to a conviction encourages community involvement.

Case Studies

- **St. Clair County, Illinois.** A deputy from the county Sheriff's Department is assigned solely to environmental crime enforcement activities in rural areas. Using a standard squad car, the deputy patrols the areas seeking to catch illegal dumpers in the act and watches for rising smoke from open burning from a high vantage point. Citations are commonly issued for open dumping and open burning of refuse and tires. *Contact Lt. Steve Saunders, County Sheriff's Department, (618) 277-3505, extension 757.*
- **New York, New York.** Under the "Illegal Dumping Award Program," a citizen observing dumping and completing an affidavit leading to a conviction is eligible for a reward of 50 percent of the collected fine. The citizen must appear at a hearing if the respondent challenges the charges. Under the "Illegal Dumping Tip Program," a citizen providing information leading to a dumper being caught in the act is eligible for a reward of 50 percent of the collected fine. The citizen is not required to appear at a hearing, and his or her identity remains confidential. *Contact Richard DiPietro, Sanitation Action Center, (212) 219-8090.*



TRACKING AND EVALUATION

Tracking and evaluation methods should be used to measure the impact of illegal dumping prevention efforts and determine whether goals are being met. Baseline figures must be established for indicators such as annual cleanup costs, facility compliance, arrests, convictions, fine collection, complaints, and numbers of problem sites.

Tracking

Electronic mapping systems use computerized maps and overlays. A map of a particular area is used as a base, and overlays are created for each type of information being tracked. Such information can include common dumping locations, facilities, inspection or violation histories, surveillance reports, or police districts. Individual program elements can be independently observed or viewed together so that relationships and trends can be identified. For example, by viewing the locations of problem areas together with the locations of permitted facilities, a connection may be identified. In addition, a particular dump site can be immediately referenced to determine the date of the last inspection and whether a citation was written.

Several mapping techniques can be used to electronically map illegal dumping information. Geographic information systems (GIS) such as ArcView® and Landview®, and public domain mapping programs such as Citimap and TIGER® are commonly used. The Census Bureau provides mapping services online at <http://www.census.gov>. In addition, much of the same information that is tracked electronically can be simply hand-drawn on maps.

The status of ongoing and pending enforcement activities (such as violations, fines collected, and the status of court cases), cleanup activities, and inspection and surveillance reports can be entered into a computer database. Printouts can display up-to-date data concerning the status of individual cases or an overall prevention program. Use of a digital camera to document site activities can support enforcement cases.

Evaluation

Evaluation of information being tracked allows for identification of needed adjustments and allocation of resources to improve the effort. Information gathered for a defined period can be compared to baseline figures in order to assess program performance. Arrest records or violations can be evaluated to adjust surveillance schedules or target audiences for outreach and education efforts. Court records can be evaluated to determine the typical disposition of cases, which may lead to a different approach in dealing with offenders. Finally, periodic meetings of field personnel to discuss observations and trends can lead to continuous program improvement.

Case Studies

- **Chicago, Illinois.** The city established a GIS using the city's "911" emergency map as a base. Individual overlays are maintained for vehicle impoundment records, enforcement cases, locations of permitted facilities such as transfer stations and recyclers, complaints, inspection and surveillance locations, police districts, community groups, and demographics. The system successfully tracks the status of enforcement activities throughout the city. *Contact Alexandra Holt, Department of Environment, (312) 744-3172.*
- **St. Louis, Missouri.** The Trash Task Force tracks and monitors illegal dumping enforcement cases using a comprehensive table that lists arrest dates, suspect names, rewards, arraignment dates, trial dates, continuation dates, dispositions, docket numbers, and arresting officers. Thus, the task force always has up-to-date data available to monitor the status of individual cases as well as the enforcement program's overall progress. *Contact Jeff Towers, Trash Task Force, (314) 622-4628.*



TRACKING AND EVALUATION

- **East St. Louis, Illinois.** New Spirit, a community organization, uses hand-drawn maps of individual neighborhoods to compile information on scrap tire piles, abandoned housing or vehicles, and buildings requiring demolition. Such areas tend to attract illegal dumping. Community members use the maps to obtain funding for demolition, coordinate cleanup and prevention efforts, and raise awareness among residents and government officials. *Contact New Spirit, (618) 874-0312.*



Community map identifying illegal dumping areas and structures that are vacant or should be demolished



Legend for community map identifying illegal dumping areas

- **Detroit, Michigan.** Illegal dumping data from police files and court records was evaluated. Arrest records revealed that 72 percent of the dumping arrests occurred between 5:00 p.m. and 12:00 midnight, 57 percent of the dumping arrests took place on Tuesdays and Wednesdays, 66 percent of the vehicles used were pickup trucks, and 90 percent of the offenders resided within the city. The data was used to make adjustments in surveillance schedules and tactics. Court records revealed that 62 percent of offenders did not pay fines imposed and were issued lien warrants. *Contact Gregory Moore, Environmental Affairs Department, (313) 237-3095.*