

## Waste-Free NYC Gets Under Way

The evergreen trees twinkling with lights and ornaments that festoon New York City during the Christmas season — up to 300,000 of them — deserve a better fate than to be tossed into landfills and incinerators just a few weeks later. Yet that was where they were headed this year when budget cuts caused the Dept. of Sanitation to suspend its recycling program. Thanks to an innovative program directed by INFORM, however, neighborhood groups around the city stepped into the breach, providing more than a dozen tree-chipping sites for New Yorkers wishing to turn their trees into mulch for city parks and community gardens.



Joanna D. Underwood

Participants in a Don't Trash Your Tree! event line up to have their Christmas trees made into rich organic mulch.

All told, the 'Don't Trash Your Tree!' events diverted over 46 tons of holiday trees from the city's waste stream (additional trees were collected through the Parks Dept.'s Mulchfest program and other neighborhood efforts). "On average, each tree recycled this season meant almost 25 pounds less waste that the city — and taxpayers — had to pay to export," says Eve Martinez, INFORM's Director of New York City Waste Prevention Programs. Since 2001, when the city's last remaining landfill closed, 11,000 tons

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## Refuse Haulers Start to Forgo Diesel: INFORM Documents a Slow, Steady Shift to Natural Gas

The 179,000 refuse collection trucks, transfer vehicles, and dedicated recycling trucks that haul away America's garbage make up one of our largest vehicle fleets, yet they go largely unnoticed — as long as things are running smoothly. But when city residents start wondering about the connection between large numbers of waste transfer stations in their neighborhoods and respiratory problems among their children, or when new studies emerge on the impacts of diesel fuel, garbage trucks can suddenly appear in an unwelcome light. These vehicles perform an essential public service, but they are also among the oldest and most polluting on US roads.

The good news is that they don't have to be. In the first comprehensive study of the US garbage truck sector, entitled *Greening Garbage Trucks: New Technologies for Cleaner Air*, INFORM reports that cleaner fuels and engine technologies have the potential to revolutionize this vital vehicle fleet. In particular, natural gas-fueled trucks — 90% cleaner and quieter than their diesel-fueled counterparts — are commercially available now. And in 25 US cities, 26 waste collection agencies have already begun the switch from diesel with the deployment of 700 trucks powered by either compressed or liquefied natural gas. In the process, they are contributing to improved air quality, better health for sanitation workers and community residents, and reduced dependence on foreign oil.



James S. Cannon

Waste Management, Inc., the largest hauling and disposal company in the industry, is also the US leader in the use of natural gas garbage trucks.

### Cities at Risk

"Because garbage trucks are 91% diesel-fueled and mostly old, they have significant impacts on human health and the environment in cities coast to coast," says Juliet Burdelski, director of urban outreach for INFORM's Sustainable Transportation Program and a co-author of the study. "Vehicle emissions, including those from garbage trucks, are the source of most of the pollution blanketing our urban areas." Over 133 million Americans live in places that violate federal clean air standards, and a recent study found that residents of the most heavily polluted areas have a 12% higher risk of dying of lung cancer than residents of the least polluted areas. That risk increases to 50% for people regularly exposed to diesel exhaust, such as workers who spend their days in back of or inside garbage trucks.

Emissions from garbage trucks contain large quantities of gases, fine particulates, and dozens of toxic contaminants. They also generate very high levels of noise. In contrast, natural gas-powered trucks emit less of five out of six of the "criteria

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# Letter from the President

## Hydrogen for Transportation: Closer Than You Think



With the release of INFORM's new report, *Greening Garbage Trucks*, at year-end workshops in Fresno and Sacramento, our staff had the satisfaction of pointing to a big

new step that every city in the US can take toward healthier air and reduced dependence on foreign oil: converting these highly polluting vehicles from diesel fuel to much cleaner and domestically plentiful natural gas. It's also a step that takes us closer to the goal set by President Bush in his State of the Union address of shifting to pollution-free and secure hydrogen as the source of our nation's fuels and energy.

But what do the nation's 179,000 garbage trucks have to do with getting to hydrogen? Converting these vehicles from diesel to natural gas does more than make the air cleaner. Since natural gas vehicles rely on a fuel that is 80% hydrogen, their use means the refinement of new systems for transporting, storing, and delivering a gas fuel for vehicles. These gas management systems are essential not only for natural

gas use today but also for hydrogen use tomorrow.

In the past 15 years alone, more than 60 makes and models of natural gas vehicles have become commercially available, resulting in the population of 130,000 natural gas cars, taxis, transit and school buses, delivery trucks, and garbage trucks now running on US roads. As we expand natural gas refueling facilities, we also create facilities that can refuel the first generation of hydrogen fuel cell vehicles with the addition of relatively simple equipment to extract hydrogen from natural gas and compress it for fueling. While hydrogen can be extracted from other fuels such as gasoline and methanol, natural gas is widely recognized to be the most cost-effective source, and having this refueling option ready will eliminate the biggest hurdle to expanding fuel cell vehicle use — the lack of a refueling infrastructure. Natural gas can serve as an excellent primary hydrogen source until we can cost-effectively extract hydrogen from water using clean solar energy.

In his speech, Bush committed \$1.7 billion over the next five years for research in hydrogen production,

storage, and use technologies. But every American can help achieve the administration's hydrogen goal in several ways: (1) letting your municipal officials know that you want to see your community's truck, bus, and taxi fleets converted to natural gas, (2) letting your federal representatives know that you strongly support a hydrogen future and encourage economic incentives that will allow companies getting into this business to compete with established interests, and (3) making your next car either a natural gas or hybrid electric model. Expanded use of highly fuel-efficient hybrid electric cars can also bring us closer to the hydrogen era by expediting the refinement of the electronic systems crucial to fully commercial and reliable fuel cell vehicles.

With both natural gas and hybrid electric vehicles commercially available today, we have a win-win path toward hydrogen for transportation. In the near term, we get cleaner air with natural gas and more efficient gasoline use with hybrids. In the longer term, we are readying the fuel and engine systems of tomorrow's fuel cell vehicles.

The administration's goal is to reduce our dependence on foreign oil by 11 million barrels by 2040. But the progress we have made in less than two decades in commercializing alternatives to traditional oil-burning vehicles suggests that we can achieve the transition to alternative-fuel and hydrogen vehicles much sooner. With the support of millions of Americans, the hydrogen era can be closer than you think.

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# Waste-Free NYC (continued from page 1)

per day of residential and institutional waste have been shipped by truck and barge to landfills and incinerators in other states.

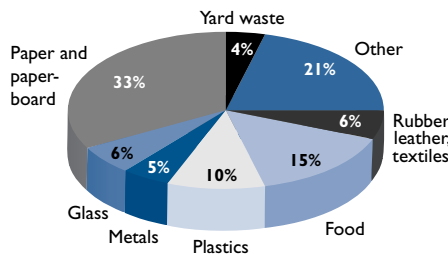
The tree-chipping initiative was the first in a series of Waste-Free NYC projects intended to reduce the amount of residential waste picked up at the curb. “INFORM has spent a decade identifying practical ways for businesses, schools, and communities to reduce waste at its source,” says Martinez. “With Waste-Free NYC, we have an opportunity to put those strategies to the test in New York. This program is a first step toward demonstrating that given the chance, residents and local businesses can reduce waste, and ultimately the sky-rocketing costs associated with exporting it, through prevention and recycling strategies tailored to specific neighborhoods.”

## Back to the Earth

Funded by the City Council through the Dept. of Sanitation, Waste-Free NYC consists of pilot projects run by community groups in all five boroughs. In Manhattan, for instance, the Lower East Side Ecology Center is targeting food waste — which represents 15% of the city’s residential waste stream — in high-rise apartment buildings. The center runs the city’s only “in-vessel” vermicomposting site and sells the reclaimed food waste to urban gardeners. In Staten Island, and in several Brooklyn neighborhoods dominated by single-family homes, the focus is on lawn clippings and yard waste, over 380 tons of which are generated per day in the city as a whole. Educational programs launched by the botanic gardens in both boroughs are promoting “leave it on the lawn” mowing practices, which not only eliminate the need to rake and dispose of cut grass, but also reduce the need for fertilizer and extra water by returning nitrogen and moisture to the soil.

Also in Brooklyn, the 6/15 Green Community Garden is assisting five other neighborhood gardens to begin on-site composting and encourage nearby residents to drop off their food scraps. The 200 families currently composting at 6/15 Green divert almost one ton of food scraps from the residential waste stream *every month*. Replicating this success story at five additional

**Waste Composition in NYC**



gardens would reduce the city’s waste stream by 60 tons per year, in addition to generating a modest amount of income for the gardens from sale of the compost.

## Back to the Marketplace

One of Waste-Free NYC’s main goals is to take advantage of materials for which a market exists and to strengthen (and encourage the formation of) businesses that reclaim them. In Queens, Astoria Residents Restoring Our World (ARROW) plans to open the city’s first residential construction and demolition emporium, which will accept rescued or deconstructed building materials such as usable toilets, doors, windows, mantles, molding, lumber, and sheetrock from buildings undergoing renovation or demolition. Drop off is free of charge and ARROW will sell the “debris” at reduced prices to contractors, do-it-yourselfers, and others. Similarly, in Brooklyn, St. Nicholas Neighborhood Preservation Corp. is targeting clear glass for resale. St. Nick’s will design local programs that collect the glass — such as pickle and baby food jars —

from the residential waste stream and market it to local manufacturers of architectural tiles and aquarium gravel.

Several Waste-Free NYC initiatives will also collect furniture, books, clothing, and textiles for reuse. “New Yorkers throw out great stuff that lots of people could use,” says Martinez. “We want to provide places where they can donate reusables, rather than putting them out at the curb where they’re considered garbage.” 6/15 Green Community Garden is taking an innovative approach to reclaiming these items, working with block associations to incorporate product take-back, swap shops, household hazardous waste collections, and other waste prevention activities into neighborhood events such as block parties.

## Electronics: A High-Priority Waste Stream

Computers, TVs, and wireless products like cell phones are especially important to keep out of incinerators and landfills because they contain highly toxic chemicals that persist in the environment and pose significant health hazards to humans and other organisms. Cell phones, in particular, are used for a very short time — 18 months, on average — before being replaced, and INFORM’s research suggests that about 130 million of them will be retired annually in the US by 2005. Sustainable South Bronx and Per Scholas will make a dent in New York’s electronics waste by collecting computers and TVs in apartment buildings citywide. At its state-of-the-art facility in the Bronx, Per Scholas refurbishes about 15% of the computers it collects and resells them at low cost to schools and after-school programs. Those that are too old or damaged for refurbishment are broken apart and the components responsibly recycled. Charitable Recycling, which focuses on cell phones, will also assist in the effort to increase electronics reuse. ❖

# Greening Garbage Trucks (continued from page 1)

pollutants” deemed by the US EPA to be harmful to human health. “Workers at many of the operations studied by INFORM cited the health benefits of natural gas trucks,” says Burdelski. “They also appreciated the reduction in engine noise, which can be hazardous to their hearing and make communication difficult.”

## Carrots & Sticks in California

The leader in addressing the impacts of conventional refuse vehicles is California, where regulations and incentives are driving the market for alternatives to conventional diesel-fueled trucks. In 2000, the South Coast Air Quality Management District enacted a regulation requiring all public and private refuse haulers owning more than 50 garbage trucks to stop using diesel and convert to cleaner-burning alternative fuels. Numerous clean-fuel garbage truck projects are now under way in the state, and these regulations are the main reason why. The use of natural gas refuse vehicles has also increased due to requirements in San Francisco and other California cities that private fleets bidding for waste hauling contracts use the cleanest technologies available.

Many California refuse haulers have been motivated to undertake clean-fuel programs by grants and tax incentives that allow them to offset the capital costs of acquiring natural gas trucks and installing the necessary fueling infrastructure. “By investing in clean-fuel technologies like natural gas, fleets can prevent current and future regulations from interrupting their business,” Burdelski observes. “By providing financial incentives for procurement, infrastructure development, and clean-fuel use, government at all levels can reward these forward-looking companies for making that investment.” Similar incentives available in New York and Texas have likewise resulted in clean-fuel programs in those states.

Legal action can also be effective. In Southern California, three supermarket chains agreed to deploy natural gas delivery trucks in the face of a lawsuit holding businesses responsible for the impact of their diesel fleets on residents’ health. In this environment, a number of waste haulers in the state have found that improving air quality by switching to natural gas is an effective way to address community concerns about diesel exhaust. And their programs do more than reduce pollution. Burdelski explains: “With garbage trucks consuming approximately 1 billion gallons of diesel each year — nearly 3% of total US annual consumption — every vehicle fueled by clean, domestically plentiful natural gas helps give this country greater energy security.”

## Stepping Up the Shift

*Greening Garbage Trucks* documents the growing number of municipal and private waste collection agencies that are adding natural gas trucks to their fleets — mainly in California but in other parts of the country as well. In the past four years, the population of these trucks has more than doubled, with nearly 700 in operation in the US today. By 2010, INFORM projects that over 2200 refuse vehicles fueled by natural gas — or 1.2% of the total US fleet — will have been deployed, displacing approximately 476,000 million barrels of oil annually. Says Burdelski: “If all the garbage trucks operating in the 21 dirtiest metropolitan areas ran on natural gas, an estimated 80 million Americans would breathe cleaner air. The challenge is to make this transition to a new generation of vehicles and fuels as quickly as possible.”❖

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# After Oil: Discussion on Energy Policy Draws a Crowd



Wallace Parker, Jr., president of KeySpan Energy Delivery in New York City

Nearly 250 INFORM supporters joined a discussion in December on “After Oil: the revolution to pollution-free, sustainable transportation.” The gathering

featured Dr. Howard Dean, former governor of Vermont (and a current presidential candidate), who spoke on the urgent need to abandon an energy policy dependent on oil and promote advances in alternative fuels and technologies. “We have to understand that renewable energy and the move away

from polluting fuels is not just about the environment,” he said, stressing the foreign policy risks of relying on the unstable Middle East for our fuel. Governor Dean called on the nation’s leaders to embrace progress in sustainable transportation as a top priority.

Wallace Parker Jr., president of KeySpan Energy Delivery, noted that expanded use of readily available technologies — especially natural gas — would go a long way toward weaning the US from its addiction to oil-derived fuels. Echoing Governor Dean’s comments, he said that leadership is needed to make conversion to alternative fuels a priority, especially in urban centers like New York. One way to encourage the use of cleaner vehicle technologies is providing financial incentives such as those contained in the federal

CLEAR ACT. Gil Sperling, INFORM’s senior energy policy strategist, described our crucial role last year in gaining endorsement for this legislation (which is part of the stalled energy bill) from over 80 engine and vehicle manufacturers, environmental organizations, and trade groups. This year, INFORM will continue to build awareness in Congress of natural gas vehicles and other commercially available transportation alternatives.❖



Dr. Howard Dean, former governor of Vermont

## Putting Green Cleaning to Work

Each year, federal, state, and local governments spend approximately one-fifth of this country’s gross domestic product on a great variety of goods and services. Because of this tremendous buying power, government agencies can exert a significant influence on the types of products offered for sale by manufacturers. Since the release last fall of *Cleaning for Health* — INFORM’s manual documenting the environmental and health risks of commonly used janitorial cleaning products and the availability of safer, high-quality alternatives — government agencies around the country (as well as businesses and other institutions) have been using our recommendations to purchase “greener” cleaners for their facilities.

- At the federal level, the EPA’s Office of Environmentally Preferable Purchasing is using *Cleaning for Health* to develop green janitorial supplies contracts for federal agencies, including the government’s central purchasing entity, the General Services Administration. Since the federal government is the single

largest purchaser of goods and services in the US, contracts incorporating health and environmental requirements can give manufacturers a big incentive to reformulate their products to be less toxic.

- At the state level, Massachusetts’ central purchasing agency has developed environmentally preferable contract language that addresses the presence of respiratory irritants in cleaning products, as well as such issues as toxicity and biodegradability. This puts companies wishing to do business with the state on notice that purchasers are concerned about the effects of cleaning chemicals on janitors and building occupants and will give preference to bidders that offer safer alternatives. INFORM is helping several states to implement a similar specification for environmentally preferable cleaners. Were such a uniform standard to gain sufficient backing from these large-volume purchasers, major manufacturers would be encouraged to start offering green janitorial products on a much larger scale.

- In the private sector, Citigroup’s review of *Cleaning for Health* led to a

“green cleaning” pilot project at its buildings in New York City, including the testing of products made by a local manufacturer of environmental cleaning supplies recommended by INFORM. This project may eventually be expanded to Citigroup offices worldwide.

- Schools and hospitals have a particularly compelling reason to switch to safer cleaners: the vulnerability of children and patients to the toxic chemicals contained in conventional products. In New England, the Western Massachusetts Coalition for Occupational Safety used INFORM’s analysis of two cleaning product lines to recommend products free of asthma-triggering agents to several public schools. And in response to strong interest in *Cleaning for Health* from nurses and other hospital staff, INFORM is partnering with Healthcare Without Harm and Hospitals for a Healthy Environment to prevent the overuse of disinfectants at health care facilities nationwide.❖

For more information, see INFORM’s *Cleaning for Health* hub at [http://www.informinc.org/cfh\\_00.php](http://www.informinc.org/cfh_00.php).

# Four Join INFORM's Board of Directors

INFORM recently welcomed four new members to its board of directors.

## Cynthia Adler

As one of the top voiceover artists and narrators in the United States, Cynthia Adler is the voice of Revlon, American Airlines, Swanson,



and many other companies. She was personally trained by Jim Henson and Frank Oz to create voices and characters for The Muppet Show, and is one of the top documentary narrators for HBO, Lifetime, Court TV, and PBS. In addition to her extensive accomplishments in film, television, and theater, Ms. Adler is a strong environmental advocate, having served for seven years as Environment Committee co-chair for The Creative Coalition, an arts and entertainment organization dedicated to public education, arts advocacy, and First Amendment rights. Ms. Adler is especially interested in INFORM's work on the dangers of janitorial cleaning chemicals and other consumer products and their long-term effects on women and children.

## Joan Crystal Pearlman

Joan Crystal Pearlman is an instructor in folk art history at the New School University. She is the



author of several books, films, and articles on subjects ranging from African-American quilts to food in the arts, and has curated exhibits and lectured throughout the US and Europe. Ms. Pearlman was previously director of continuing education for

women at the University of Missouri in St. Louis, coordinator of the program in neuroscience at Harvard Medical School, and director of multiculturalism for the International Junior Leagues. Ms. Pearlman is a member of the board of the Marine Biological Laboratories Associates in Woods Hole, Mass. She received an MEd degree from Washington University and an MA from New York University.

## James Periconi

James Periconi is a partner at the law firm of Windels Marx Lane & Mitten-



dorf LLP, where he focuses on environmental litigation and regulation. His distinguished career in environmental law includes two appointments as a federal court Special Master in Clean Water Act cases; he also served as chief of the New York State Department of Environmental Conservation's Solid and Hazardous Waste Enforcement Bureau. As assistant attorney general in the New York State Department of Law's Environmental Protection Bureau, Mr. Periconi prosecuted the state's first hazardous waste felony case before a jury, as well as one of the earliest cases charging the US Environmental Protection Agency with violations of the Clean Air Act. He is a noted lecturer and writer on environmental law topics, and is serving this year as chair of the Environmental Law Section of the New York State Bar Association. As a member of our board of directors, he would like to help INFORM reach a wider audience for its research on waste prevention and efficient materials use. Mr. Periconi received a BA from Columbia University and a law degree from New York University.

## Robert C. Graham, Jr.

Robert (Robin) C. Graham, Jr., is chairman of James Graham & Sons, Inc., a New York City gallery special-



izing in American paintings and sculpture that has been run by his family for five generations. Mr. Graham has a longstanding interest in conservation and environmental issues and serves on the boards of the New York Landmarks Conservancy and the Martha's Vineyard Preservation Trust. His interest in sustainable development grew out of his work on the board of Middlebury College, whose Environmental Council, established in 1995, created a campuswide "green" program that came in first in a study of five green colleges in New England. Mr. Graham currently chairs Middlebury's Building and Grounds Committee, which has adopted environmentally sensitive planning principles and undertook the deconstruction of the college's old Science Center in 2001. This sustainable development project succeeded in recycling and reusing more than 90 percent of the building's construction materials. (For more about this project, please visit Middlebury's web site at [http://www.middlebury.edu/%7Epubaff/news\\_2001/latc1.html](http://www.middlebury.edu/%7Epubaff/news_2001/latc1.html).) Mr. Graham also serves on the boards of the Stamford Center for the Arts, the International Foundation for Art Research, the National Academy of Design, the Edith and Herbert Lehman Foundation, and The Overbrook Foundation, which was established by his grandparents in 1948 and is named after the family's Connecticut home, Overbrook Farm. The foundation supports a broad range of environmental and conservation initiatives. Mr. Graham received a BA from Middlebury College in 1963. ❖

# INFORMing Others

INFORM's recent activities and findings

## Preventing Waste on Campus

### New Jersey Colleges Get Greener

Like most businesses and institutions, colleges and universities buy and use hundreds of computers, printers, and copiers each year and disseminate untold numbers of printed documents. In the process, they generate large quantities of waste: about 2% of this country's total waste stream or more than 3.5 million tons a year, 40% to 60% of which is paper. But institutions of higher learning are also uniquely qualified to teach and demonstrate ways of doing business that conserve resources and prevent waste, thereby serving as models of environmental stewardship both on campus and in the larger community.

In New Jersey, INFORM is helping a network of more than 30 colleges and universities — members of the New Jersey Higher Education Partnership for Sustainability (NJHEPS) — reduce the amount and toxicity of the waste they generate by making “environmentally preferable purchasing” standard operating procedure for campus purchasers. Initial targets are remanufactured printer cartridges and paper with high recycled content, with INFORM providing information on products, prices, and suppliers. “Buying products that are reusable or that contain a lot of recycled material not only prevents waste and conserves resources,” explains Eric Most, director of Solid Waste Prevention at INFORM. “It also reduces disposal costs, builds the market for waste-reducing products, and helps bolster the local economy.” So far, our recommendations to NJHEPS have contributed to Drew University's decision to test 100% recycled paper (after using 30% recycled since 1996), Rutgers University's mandate that 30% recycled paper be used on all its campuses, and remanufactured printer cartridge pilot projects at Drew, Rutgers, and Middlesex College. “Eventually,” says Most, “we hope to extend these practices to other New Jersey campuses.”

At an NJHEPS workshop planned for early spring, INFORM will expand its focus to electronic products, encouraging members to incorporate manufacturer take-back requirements into their computer specifications. “Computers contain a lot of extremely toxic chemicals and are generally replaced after only two years, so keeping them out of landfills and incinerators is an urgent priority,” Most explains. “Through their buying power, large-volume purchasers like universities can send a message to manufacturers that taking responsibility for their products at end of life — and designing them to be more easily reused and recycled — not only helps the environment but makes good business sense as well. It also sets a good example for students, the environmental stewards of the future.”

## Working for Clean Cities

### Refuse Haulers Get the Good News

INFORM began presenting the findings of its new report, *Greening Garbage Trucks: New Technologies for Cleaner Air*, to key audiences in California this winter. At workshops in Fresno and Sacramento, over 100 municipal fleet managers and private waste haulers learned about the challenges, costs, and benefits of switching from polluting diesel fuel to cleaner alternative fuels and engine technologies. A primary focus of both events was the commercial availability of garbage trucks powered by clean, domestically plentiful compressed natural gas (CNG) or liquefied natural gas (LNG).

“In researching our report, we found that private refuse haulers and government agencies in 25 cities throughout the US have undertaken successful conversions from diesel to CNG or LNG,” says Juliet Burdelski, INFORM's director of urban outreach and a report co-author (see the lead story for more on the report's findings). “These fleets are at the leading edge of an evolving shift by some of the most polluting vehicles in the nation to 90% cleaner natural gas — a shift in which heavy-duty vehicle manufacturers and natural gas infrastructure providers now have an increasing stake.” The workshops (which were sponsored by Pacific Gas & Electric, the US Department of Energy, and the Clean Cities of Sacramento and the San Joaquin Valley) provided participants with the latest information on equipment and services available to refuse haulers, and on grants and tax incentives that can ease their transition to natural gas.

“After our Fresno meeting, a private waste company in Bakersfield that attended the workshop decided to start using LNG for trips to the landfill, and is considering installing an LNG station,” says Burdelski. “This is a good sign that INFORM's research is influencing the decision-making of refuse haulers thinking about switching to cleaner fuels.” Similar workshops are planned for later this year in San Francisco and southern California, as well as in Texas, New Mexico, and New York.

INFORM Senior Research Fellow **Bette Fishbein**, author of *Waste in the Wireless World: The Challenge of Cell Phones* (2002), will speak on product take-back and redesign as strategies for addressing the problem of wireless waste at Americana 2003, the Pan-American Environmental Technology Trade Show and Conference, in Montreal, March 19-21. Over 10,000 government, industry, and environmental leaders from nearly 100 countries are expected to attend the conference, which will address technical solutions to a broad range of environmental problems facing the international community. For more information, go to <http://www.americana.org>.

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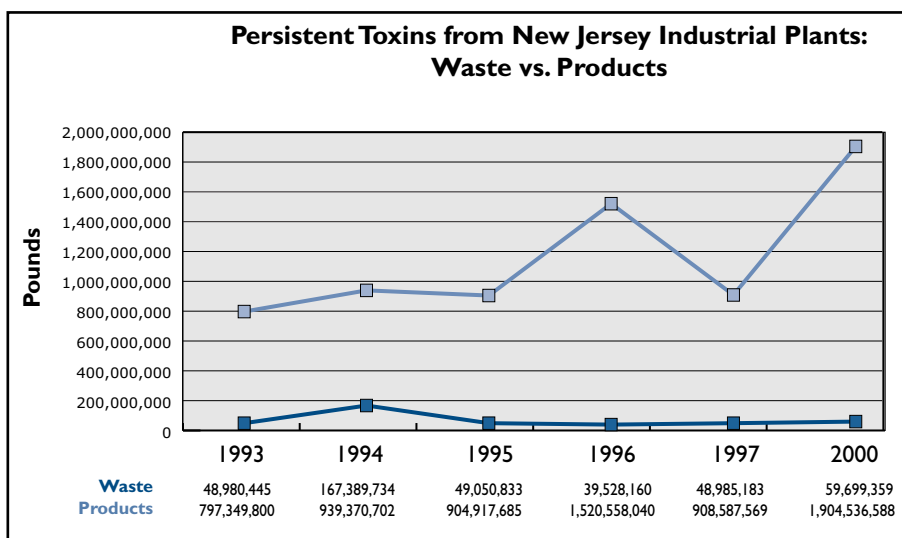
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## INFORMation Persistent Toxic Chemicals: They're in the Products

Government programs aimed at safeguarding public health from toxic chemicals generally focus on chemicals contained in the waste streams of industrial plants. But a less well-known risk is posed by products — including ones that we use every day — which INFORM's research has shown to contain much larger amounts of these substances. For instance, computers contain lead, a known neurotoxin, and children's toys may contain softeners called phthalates, which can cause problems of the liver, kidneys, and respiratory and reproductive systems. These chemicals are especially dangerous because once released to the air or water from products disposed of in landfills or incinerators, they persist in the environment and may accumulate in living organisms, posing long-term risks to fish, other wildlife, and the animals that consume them, including humans. In a study to be released later this year, INFORM reports that, of the persistent and toxic chemicals leaving manufacturing plants in New Jersey in 2000, approximately



1.9 billion pounds were incorporated into consumer and industrial products and only 60 million pounds were contained in waste — that's 97% in products versus 3% in waste. The study, entitled *Building Up to Danger*, describes how exposure to persistent

toxins can occur during the manufacture, use, disposal, and even recycling of the products that contain them, and presents policy recommendations to address the problems caused by the presence of these dangerous substances in consumer products.