

Survey of Waste Prevention Programs in Major U.S. Cities, States and Counties

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BWPRR Overview

This report is one of a number of waste prevention reports prepared under a long-term contract by consultant Science Applications International Corporation, and issued at contract conclusion. The reports are listed below. The New York City Department of Sanitation (DOS, or the Department), Bureau of Waste Prevention, Reuse and Recycling (BWPRR), the sponsor, has issued a Foreword to the studies; it acknowledges the many contributors and frames a position based on its considerable efforts to review, practice, and measure waste prevention. The Foreword appears at the beginning of the first report in the series, *Measuring Waste Prevention in New York City*. Interested readers are strongly encouraged to access the material through the Department's web site at: www.ci.nyc.ny.us/strongest Print or electronic versions are available through BWPRR.

In this background report, 13 cities of 31 geographic entities provided information on waste prevention programs (1/3 of those classify their waste prevention activities as part of recycling) and, in some cases, on program costs. Waste prevention program impacts are not measured.

Of the 13 cities, most share program elements, doing some or all of the same things that New York City is doing – providing citizens with information about how to reduce unwanted mail and to shop carefully, support for reuse programs and product exchanges, encouraging backyard composting and leaving grass clippings on the lawn, and providing commercial information and waste audits. Waste prevention programs not in place in New York City include outright bans of grass collection, and some food composting. Unusual programs, as reported here, include one single government office building pilot called Zero Trash (San Diego), and a county program to provide discounts for products that create less waste than alternative products (WasteFree Fridays, in King County/Seattle, Washington).

Waste Prevention Reports:

- *Measuring Waste Prevention in New York City*
- *Survey of Waste Prevention Programs in Major Cities, States and Countries*
- *Procurement Strategies Pursued by Federal Agencies and Jurisdictions Beyond NYC for Waste Prevention and Recycled Products*
- *Inter-Agency Task Force Action Plan to Encourage the Use of Recycled-Content Building Materials*
- *Materials Exchange Research Report*
- *Characterization of NYC's Solid Waste Stream*
- *Life Span Costing Analysis Case Studies*
- *Packaging Restrictions Research: Targeting Packaging for Reduction, Reuse and Recycled Content*
- *NYCitySen\$e Summary Report*
- *NYC WasteLe\$\$ Summary Report*

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Executive Summary

In June 1997, a waste prevention survey was conducted for the New York City Department of Sanitation's Bureau of Waste Prevention, Reuse, and Recycling (BWPRR), and updated during 1998, with the assistance of a contracted consultant — Science Applications International Corporation (SAIC). The survey was intended to obtain information on waste prevention efforts of large cities throughout the United States. Surveys also targeted two states and three counties that were known to have pursued ambitious waste prevention initiatives.

It was anticipated that the results of the survey would enable the Department of Sanitation to learn about progressive policies and programs that may be adapted by New York City. The results also were expected to enable the Department of Sanitation to determine the extent to which large cities, which might face challenges similar to New York City, have succeeded in establishing effective waste prevention efforts so that the Department of Sanitation might learn from the experiences of these other jurisdictions.

Thirty-one surveys were distributed, with numerous follow-up phone calls and e-mails in an effort to obtain as many responses as possible. Excluding New York City, Los Angeles, and Houston, surveys were sent to the other seventeen of the twenty largest cities in the country. The survey staff were unable to recruit a contact person to survey from Los Angeles or Houston. Additional cities were surveyed because they have well-known recycling and waste prevention programs (e.g., Seattle) or because they are cities with more similar housing stock to New York (e.g., Cleveland, St. Louis, Pittsburgh) than sunbelt cities. A list of contacts who were sent a survey is provided in Exhibit 1.

Fourteen cities, three counties and two states responded to BWPRR's request for information, providing information on their waste prevention programs. Thirteen of the responding cities currently have some waste prevention initiatives, have implemented waste prevention programs in the past, or are planning to implement a waste prevention program in the near future. The City of Pittsburgh (not included in the report) has not yet initiated any waste prevention programs, although its staff is interested in establishing a program at some future date.

The BWPRR survey requested that each city provide information about:

- Program Administration;
- Program Implementation;
- Residential waste prevention program content;
- Commercial waste prevention program content;
- Government Agency waste prevention program content; and
- Other, related programs.

Some jurisdictions consider recycling a component of their waste reduction strategy. These programs may include both recycling and waste prevention strategies in the services offered. Therefore, some information on recycling is included in this report. However, BWPRR adheres to a definition of waste prevention that excludes recycling. The definition follows:

“Waste prevention” means eliminating or reducing the amount of toxicity of waste. It includes purchasing items that are more durable, reusable and/or repairable, or diverting such items for beneficial reuse. In addition, waste prevention includes using items that have less packaging and/or are less toxic than alternative products and packaging. Waste prevention does not refer to using items that are recyclable or contain recycled material, nor to the diversion and collection of recyclables for processing.

BWPRR made a significant effort to verify the accuracy of the information cited in this report. However, there may be omissions or factual inaccuracies due to some difficulties in verifying all information from every jurisdiction contacted. The information was gathered primarily during the summer of 1997, and clarified/verified through extensive follow-up conducted through the spring of 1998. Therefore, program changes may have occurred since then and budget figures may have changed. Some program sponsors updated information when contacted by BWPRR to verify their text; others did not.

Where detailed information is provided, it represents the information provided by the program contact. The brevity or length of the description of a jurisdiction's initiatives is not intended to focus attention on any one jurisdiction's accomplishments over another. The report is organized alphabetically and by grouping the same types of entities together (e.g. municipal, state, and county).

I. Municipal Waste Prevention Programs

A. Program Administration

Five municipalities, Milwaukee, Seattle, San Jose, Sacramento, and San Antonio, have initiated waste prevention programs separate and distinct from recycling. San Diego is in the process of developing a program that focuses on composting and grasscycling. The City of Denver is creating a pollution prevention and waste minimization plan for government-owned facilities. San Francisco has implemented several waste prevention programs. Various cities have budgets for backyard composting bins.

Seven cities have separate budgets for waste prevention programs and initiatives. City budgets range from \$9,000 for Denver's program to a high of \$750,000 for the waste prevention program in Seattle. Funding for waste prevention programs in other municipalities is usually included in the city's solid waste management or recycling budget.

Some of the cities surveyed are implementing programs mandated or encouraged by state or local waste prevention laws. The California Integrated Waste Management Act (1989) requires all California jurisdictions to establish a plan to divert 50% of their waste, based on a 1990 baseline, from landfill disposal by the year 2000. Each City's plan and goal is submitted in a Source Reduction and Recycling Element Plan to the California Integrated Waste Management Board (CIWMB) which provides both review and enforcement. In 1989, the State of Washington also passed legislation requiring the development of comprehensive local waste management plans that include waste prevention programs.

Seven cities, Milwaukee, San Jose, Seattle, San Diego, Sacramento, Denver, and Memphis, use contractors to set up and/or implement waste prevention programs. The City of San Jose collaborates with contractors on four projects: a reusable mug campaign, home composting, a City employee mug distribution, and a smart shopping campaign. The total cost for these projects is in excess of \$130,000. San Diego's contractors are collectively paid about \$156,000 for both recycling and waste prevention initiatives, which include community outreach, information materials and a hotline. Memphis spends roughly \$50,000 on contractor produced public relations materials for composting and recycling programs, while Milwaukee, Sacramento, and Denver have smaller budgets for contractor support. Seattle uses contractors for a number of its waste prevention programs.

B. Program Implementation

Cities throughout the United States are working to address some of the obstacles to initiating waste prevention programs. One issue is that funding and public support may be difficult to secure, as quantifiable data on the benefits of waste prevention programs is difficult to obtain.

For those cities that have overcome institutional barriers and have implemented a program, funding is derived from a variety of sources. For example, the City of Milwaukee participates in a regional Be SMART waste reduction campaign that receives state funding and is matched by all participating municipalities through in-kind costs. Funding for waste prevention in both

Seattle and San Jose comes from residential garbage collection revenues, although Seattle also receives some money through a state grant.

Recycling revenues and grants provide the approximately \$0.73 per household spent on Sacramento's waste prevention program. The City of San Diego has established local partnerships with organizations such as the electrical and utility companies and the San Diego Zoological Society, as a means to obtain funding for waste prevention programs. Both the City of San Antonio and the local water board support San Antonio's household hazardous waste prevention program.

San Jose, San Diego, Seattle, and Milwaukee reported that they have measured the impact of waste prevention programs. San Jose, San Diego and Seattle all have performed residential surveys to determine participation rates and consumer reactions. San Jose residents were surveyed to determine the waste reduction participation rate, where individuals listed a wide variety of waste reducing activities that they engaged in. In addition to surveying residents, San Diego plans to measure the success of the City's composting program by the participant pool, surveys, and the number of telephone inquiries.

The City of San Jose conducted focus groups concerning perceptions of waste prevention and altered its programs in response. Participants related better to the terminology of waste reduction rather than waste prevention, and City outreach has been adjusted accordingly. Milwaukee has sought to measure the impact of the City's waste prevention programs by comparing the amount of waste generated historically to both average and present tonnages. However, this approach does not account for numerous variables, and Milwaukee's DPW indicates that it does not believe that its waste prevention educational efforts have been well-received by the general public. For example, its Be Smart waste prevention campaign generated little interest. Milwaukee did not provide information on how much waste prevention it attributes to its programs. Denver is beginning to develop a mechanism that can be used to track the waste prevention impact of its \$9,000-budgeted pollution prevention and waste minimization program for city-owned and operated facilities, however, the program focuses largely on energy conservation and office paper recycling.

San Diego also is pursuing many projects relating to waste prevention. Composting bins were sold at a reduced price to residents in 1997 with great success, and the City plans to hold a more extensive program sometime during 1998. In San Diego's Greenery Curbside Pilot Program, residential yard waste was transported to a landfill for mulching to determine the effectiveness of grinding and screening equipment in increasing the demand for mulch. Researchers at the University of California, working with the City of San Diego, recently discovered that the use of mulch reduces the occurrence of a disease commonly found in avocado and citrus trees. This discovery may substantially increase the demand for this product. San Antonio diverts as much as 25% of the brush collected. Shredded brush is given away to residents as mulch. The other shredded brush is provided to the waste water treatment plant to be mixed with sludge to create compost. The compost is now available to the public at minimal cost.

Seattle has conducted evaluations of many of its programs, ranging from participant satisfaction to stated behavior change to actual measured diversion for food waste composting.

C. Commercial Waste Prevention Program Content

Most of the cities surveyed provided waste prevention information or services targeting the commercial sector. For example, the City of Milwaukee supports a business waste prevention program including business waste prevention kits, industry specific fact sheets, business brochures, commercial waste audits, and a regional BeSMART BusinessLine, as well as an on-line service for the commercial sector, and educational materials for restaurants and hotels. Sacramento provides services and publications such as business brochures, an audit program that focuses on corrugated cardboard and office paper recycling, and commercial waste prevention kits.

Philadelphia provided funding to a pilot program established with a Philadelphia non-profit environmental organization, the Clean Air Council. The Council created a commercial waste assessment program for local businesses and organizations.

Phoenix Clean and Beautiful oversees most of the commercial waste prevention programs in the City. These include waste assessments, paper use reduction and packaging reduction strategies, as well as a material exchange for local businesses. When San Diego establishes its program, it will include a fairly extensive commercial waste prevention component. The City already has formed a network among hotels, universities, and hospitals, and it plans to offer commercial paper use reduction strategies, a waste reduction awards/recognition program, a business alliance, and guides targeting the commercial sector.

In Seattle, business waste prevention is within the Business and Industry Recycling Venture (BIRV) budget, a consultant program funded by the City but operated by the Greater Seattle Chamber of Commerce. BIRV projects include a Construction, Demolition and Land Use (CDL) initiative which focuses on recycling, waste reduction and the use of recycled products in construction. A Waste Wise Packaging Data Base (separate from EPA's WasteWi\$e Program) is intended to create a listing of companies, consultants and vendors who adhere to Waste Wise guidelines, which would promote durability, greater reuse, and may include recycled content. BIRV also works with the City of Seattle and the Seattle Direct Marketing Association on direct mail and marketing issues.

D. Residential Waste Prevention Program Content

Many of the cities surveyed have implemented various residential waste prevention efforts, including outreach programs and/or outreach materials, collection programs, or advertisements. The City of Seattle participates in a WasteFree Friday program, pioneered by King County, Washington. This program also was replicated in Hamilton County, Ohio, in partnership with private businesses and a regional utility. The WasteFree Friday approach partners public entities with a different company during each program segment to provide discounts related to waste reducing products and behaviors. The program encourages companies and customers to engage in waste reducing activities, and also increases business for the participating firms.

In addition, Seattle's waste reduction programs include a host of workshops and seminars, as well as a household hazardous waste program including a substantial amount of waste

prevention education. Seattle's composting education program has been in existence for eleven years; residential composting bin distribution was implemented seven years ago. The program features composting workshops and seminars, as well as a hotline for City residents. In 1990, composting focus groups helped the City determine the type of composting bin to use. These efforts have created a successful backyard composting program. In 1996, a survey revealed that 43% of single-family homes practiced yard or food waste composting.

Atlanta and San Diego also have distributed composting bins to residents. In a successful pilot program last year, San Diego sold reduced price composting bins to residents and it plans to hold a more heavily-advertised program again sometime this year. The cities of San Jose, Sacramento, and San Francisco hold regular composting workshops or seminars for residents. In past years, San Antonio has had a unique residential outreach program, where door hangers are distributed to approximately one million individuals three times a year. The door hanger promotes composting and leaving grass clippings on the lawn, and informs residents of the City's curbside brush pickup schedule. This method has been effective as a mechanism to inform residents of waste reducing practices and collection schedules. Now, San Antonio is mailing brush collection notices. San Antonio staff also host an "Earth Matters" community awareness show on the government access channel. The show focuses on local environmental issues. In addition, the local newspaper sponsored and has published environmental guides.

Many municipalities are cautious about implementing quantity-based user fees, however, BWPRR identified several jurisdictions that have instituted user fees. The programs generally require residents to pay a fee dependent upon the amount of garbage set-out for curbside pickup. GRASP, a non-profit environmental group in Philadelphia, conducted a study in 1996 and found that instituting quantity-based user fees is effective in limiting the generation of residential trash. The study revealed that the study group using quantity-based user fees produced 40% less trash than the flat-fee group. The impact of this study on public policy was not determined.

Cities such as Seattle, Memphis, San Francisco, and San Jose, have administered quantity based user fees for their residents. In Seattle, residents receive a bi-monthly garbage bill based on the volume of garbage that is placed at the curbside. With the exception of San Jose, these programs do not address residents in high-rise apartment buildings. San Jose has devised a way for quantity-based user fees to include multiple family dwelling units. In this system, landlords are charged according to the volume and quantity of dumpsters at their building. In theory, the fee is divided among the residents and is reflected in their rent.

Ten of the municipal respondents surveyed have instituted at least one residential collection program, most commonly for clothing or household hazardous waste. For example, Milwaukee, San Jose, San Diego, Sacramento, Phoenix, San Antonio, Memphis, and Seattle have household hazardous waste collection programs for city residents. San Antonio has a permanent site. Seattle has established two permanent sites in the City, which provide greater access for residents to properly dispose of their hazardous materials. Clothing collection programs have been implemented in Milwaukee, San Jose, Denver, San Antonio, and in Philadelphia where a nonprofit agency runs the program. In San Jose's curbside clothing collection program,

residents bag unwanted clothing and place the bags in a curbside mixed recyclables container. The bagged clothing is then picked up by the City and sorted at one of two facilities.

The City of Phoenix sponsors a voluntary bicycle collection, where old bikes are either donated or salvaged from the trash. The bicycles are repaired and provided to the Human Services Department, which donates the bikes to those in need.

San Antonio has an extensive residential collection program. It sponsors household hazardous waste collections four times a year, clothing collections twice a year, and a toy collection two times a year. During twice yearly city-wide clean ups, residents can bring old bicycles, television sets, old toys, and used tires to designated drop-off locations around the city. The City of San Antonio has teamed up with the Goodwill, the Salvation Army, and the Disabled American Veterans, who collect these items and donate them to others. Approximately \$100,000 per year is allocated for these two collection days.

E. Government Agency Waste Prevention Program Content

Waste prevention programs and initiatives by the jurisdictions responding to the survey have not been implemented as extensively in the government sector as in the commercial and residential sectors. Very limited efforts were identified whereby municipalities promote waste prevention within government agencies. Rather, programs reported to BWPRR generally focus on buying products containing recycled material, recycling, and energy conservation.

Both San Antonio and the City of San Diego have established a government Recycled Product Procurement Policy, which sets a 10% price preference for recycled content products. A Zero Trash Program in San Diego has also been implemented in one government facility. Employees are required to dispose of their garbage in a central bin, their recyclables in a central recycling container, and their food waste in one of six vermicomposters located throughout the building.

Denver has implemented a few waste reduction programs for local government, such as:

- promoting office paper recycling in government-owned office buildings,
- encouraging City buildings to increase their electrical efficiency by switching from incandescent to fluorescent lights, and
- encouraging City businesses to replace low efficiency materials with more productive and cost-effective methods.

Seattle has established an Environmental Management Initiative to promote in-house conservation activities. Seattle appears to be the only city seeking to incorporate the concept of downshifting, or simplifying one's life to require less material goods, in order to encourage government waste prevention. This concept is fairly new and the City has conducted one round of lunchtime study circles for employees.

San Francisco, according to 1994 information, has established a Resource Conservation Ordinance that requires every city department to initiate an in-house waste reduction program and purchase products containing recycled material.

In Milwaukee, individual municipal bureaus have been networked with E-mail; and use of the electronic medium to reduce paper waste is encouraged.

In San Jose, the City is purchasing reusable mugs to distribute to its 8,500 employees as part of its reuse campaign. The City also has a surplus program for its office supplies and furniture. Outdated computers are refurbished and donated to schools. Staff returns laser toner cartridges to the manufacturer, purchases re-manufactured cartridges and collects discarded library books. Quarterly book giveaways are organized for the public.

II. County Waste Prevention Programs

The waste prevention programs of King County, Washington and Tompkins County, New York also were examined in this survey. The information about King County's program was obtained from various sources, including fact sheets and its website. Tompkins County has instituted some waste prevention measures, although their reuse program is currently in the planning stages. Tompkins County established a budget of \$64,000 for waste reduction programs.

A. Commercial Waste Prevention Program Content

Both counties have established waste prevention programs targeting the commercial sector. Through the efforts of King County, the National Waste Prevention Coalition (NWPC) has been established to promote waste prevention nationwide. To date, NWPC has implemented a direct mail reduction campaign/awards program, and a model cleaners program to promote reduced quantity and toxicity of waste generated by the activities of dry cleaners.

King County has implemented the Green Works Business Recycling Program, which provides strategies to businesses on how to establish a waste reduction and recycling plan in the office. This program offers on-site waste assessments, a business phone line, a newsletter, and a business recognition program. King County also has funded a unique program entitled Dollars for Data, in which businesses and organizations are given financial assistance to test various waste reduction strategies. Businesses from the area submitted proposals, which were then evaluated; one finalist was chosen to pursue research.

Over the past few years, several innovative projects have been funded. However, because relatively few businesses were interested, the program was discontinued in 1997. Other programs offered by King County include technical assistance to businesses dealing with construction, demolition, and land clearing material; a recognition program for those companies who handle hazardous waste particularly effectively; and a wide variety of commercial sector publications.

Tompkins County, an entity much smaller in population, has developed fact sheets for offices that include a list of vendors who accept others' unwanted material, as well as fact sheets for the hospitality sector and retail establishments. Training courses on waste prevention strategies were offered to several business sectors.

B. Residential Waste Prevention Program Content

Residential outreach and education programs have been a main focus for King County's waste prevention program. A Master Recycler/Composter Program was implemented a few years ago to encourage community support and assistance for waste prevention, recycling, backyard composting, and household hazardous waste programs. A Home Resource Kit, equipped with waste prevention information; the WasteFree Friday program, where businesses partner with the County to sponsor a particular waste prevention action; radio advertisements; and many publications have encouraged residents to participate in county reduction efforts. An extensive education program, spanning kindergarten through high school students, has been successfully implemented in many King County school districts. The efforts put forth by King County to inform residents, from children to adults, on the importance of waste prevention has led to an extensive and successful residential program.

In the past, Tompkins County provided a one day teacher training course, using materials developed by Cornell University, called *Trash Goes to School*; produced public service announcements, and supplied a Salvation Army drop-off spot for used textiles. The County provides a brochure on how to stop unwanted direct mail. A "pay as you throw" program was initiated in 1991 for Tompkins County residents. A year later, however, the county divided costs programmatically by instituting an annual fee to cover recycling and landfill costs and a disposal fee to pay for disposal, trucking, and hauling of waste.

C. Government Agency Waste Prevention Program Content

The King County Department of Natural Resources recently joined the U.S. Environmental Protection Agency's Waste Wise program to increase waste reduction, recycling, and purchases of recycled materials in-house. In Tompkins County, the County Board adopted a price preference to encourage purchasing of recycled products.

III. State Waste Prevention Programs

The waste prevention programs in California and Minnesota also were surveyed because these states have established extensive waste prevention programs reaching the residential, commercial, and government sectors.

The State of Minnesota has implemented waste reduction laws (including recycling) that affect both the entire state and certain districts. The Solid Waste Reduction and Recycling Act is designed to develop a statewide campaign to educate citizens about source reduction, recycling, and household hazardous waste. The Greater Minnesota County Solid Waste Management Act requires 80 counties to implement waste management programs. Minnesota's State Chapter 473 regulates solid waste in the seven-county Metropolitan area.

The regulatory basis for California's waste prevention program is AB939, which requires the California Integrated Waste Management Board (CIWMB) to prepare both a report on source reduction and a Statewide Waste Prevention Plan. Each city and county is required to divert

25% of its solid waste from landfills by January 1995 and to divert 50% by the year 2000, through waste prevention, recycling, and composting efforts.

A. Commercial Waste Prevention Program Content

Minnesota and California have implemented extensive programs targeting the commercial sector. The State of Minnesota has published brochures that provide suggestions on how businesses can reduce waste. Technical assistance is available through the OEA's Minnesota Technical Assistance Program and the OEA's Business Environmental Resource Center. Minnesota also has developed a Materials Exchange Alliance. An award is given annually to businesses that make an exemplary effort to limit their waste. A Partnership program established in cooperation with the Minnesota Chamber of Commerce to help businesses reduce waste has over 800 members.

The CIWMB conducts business workshops and seminars, set up an information exchange on the Internet, and has established a Public Private Partnership Program, where the public and private sectors team up to advertise and promote waste reducing activities. Materials such as a business waste prevention kit, construction and demolition waste prevention information, and a California Materials Exchange Program, CALMAX, have all been established. A Waste Reduction Awards Program (WRAP) rewards outstanding business waste prevention programs, satisfying the requirements of AB939.

B. Residential Waste Prevention Program Content

California has established an extensive waste prevention program for its residents. Partnerships have recently been formed with the League of California Cities and the California State Association of Counties to provide financial support and technical assistance to jurisdictions throughout the State in the area of waste prevention. In 1996, the Bay area conducted a state-supported Shop Smart campaign. The in-store outreach advocating waste prevention and buying products containing recycled material was very successful.

Minnesota offers important outreach materials and information on waste prevention to its residents. A Pollution Prevention Week encourages residents to prevent waste; workshops focus on a different prevention method each day. Children are educated on the importance of waste prevention through the State's What-a-Waste Curriculum, an environmental education program featuring waste prevention, composting, and litter prevention information. A SMART Shopping campaign launched in Minnesota investigated the quantity and cost of grocery store shopping bags at various stores throughout Minnesota.

C. Government Agency Waste Prevention Program Content

An executive order was issued in Minnesota in 1991 that requires state agencies to give pollution prevention priority consideration and encourages them to engage in waste prevention activities. This order prompted the establishment of an Interagency Pollution Prevention Advisory Team. Agencies submit annual reports regarding their waste prevention activities. Several publications are available to government employees.

The State of California established a grasscycling demonstration site at the State Capitol. The demonstration project removed approximately eight tons of clippings from the waste stream. The State has reduced the amount of time, labor, water, and fertilizer needed to maintain and manage the lawns. The project has continued and the State has begun replacing traditional lawnmowers with mulching mowers. California also offers waste prevention training to local governments and encourages the establishment of in-house government agency waste prevention plans.

IV. Conclusions

This report intends to inform New York City's planning efforts by summarizing programs that have been implemented, and the obstacles encountered, in other jurisdictions. It also serves as an indicator on the progress of waste prevention programs in the United States, particularly in urban communities, complementing studies conducted by the National Recycling Coalition with National Association of Counties, INFORM, and other organizations. However, since the survey unearthed few efforts not already examined, under development, or implemented in some form in New York City, the Department of Sanitation will need to continue to look elsewhere, and/or identify opportunities from within, for practical ideas to expand its waste prevention efforts.

Municipal Programs

ATLANTA, GEORGIA

Contact: Linda Disney, *Recycling Coordinator*
City of Atlanta
Department of Public Works - Solid Waste Services
68 Mitchell St., S.W.
Atlanta, Georgia 30335
phone: (404) 330-6776 fax: (404) 658-7704

I. Program Summary

The City of Atlanta has not yet implemented a separate waste prevention program distinct from recycling. Recycling is considered a waste reduction effort, in line with the City's planning goals which are governed by the State of Georgia goal of a 25% reduction in waste statewide by 1996. The City is still conforming to this target. Curbside recycling combined with the City's composting of yard trimmings has yielded a municipal waste reduction of 12%.

Atlanta provides weekly collection of yard trimmings. Three products (compost, mulch, and wood chips) are returned to an urban garden project as well as neighborhood beautification projects. Back yard composting instruction is available and participation is encouraged. The City has begun handing out wire fencing to those residents interested in constructing a backyard compost pile. However, the primary emphasis is on curbside collection of compostables. Education for composting includes: television, radio, educational videos, neighborhood presentations, and newsletters. There is a full-time composting hotline staffed during business hours. The City also sponsors special events, including a planned compost giveaway.

The City of Atlanta sponsors a Materials for the Arts (MFA) program, in cooperation with the Department of Parks, Recreation, and Cultural Affairs. The Department of Public Works supports the MFA through publicity and endorsing grant proposals. MFA is a material exchange program which provides materials, donated by private entities and individuals, to nonprofit agencies, cultural organizations, and schools.

DENVER, COLORADO

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I. Program Administration

The City of Denver is developing a pollution prevention and waste minimization program for city-owned and operated facilities. The budget for this program is \$9,000. No state or local waste prevention laws have been established to date. The City has one full-time contractor who works exclusively on waste prevention and one part-time staff member who handles regulatory compliance.

II. Program Implementation

Program implementation was difficult for Denver because of many institutional barriers. The City currently is developing tracking methods for programs in City-owned facilities.

III. Commercial Waste Prevention Program Content

The sole program focus for Denver is waste from commercial generators. The City, itself, has not implemented a waste prevention program specifically for commercial waste, although there is a private materials exchange program (*Rocky Mountain Materials Exchange*) for businesses, and a business alliance, implemented roughly six months ago, which provides Internet listings specifying materials that businesses are willing to either buy or sell to others.

IV. Residential Waste Prevention Program Content

Denver's residential waste prevention plan includes: public outreach/education programs, guides/brochures featuring topics such as leaving grass clippings on the lawn and composting, and a City-sponsored clothing collection program. To educate the public on the importance of waste prevention, Denver provides speakers to neighborhood organizations and civic groups, and utilizes press releases and advertisements to promote their waste reduction and reuse, recycling, and "buy recycled" programs.

V. Government Agency Waste Prevention Program Content

While the City has implemented Executive Order #108 on *Reducing, Reusing, and Recycling*, there is no mandatory waste prevention included in its legal requirements. Within the City of Denver, there have been several waste reduction programs initiated for the local government. These programs include: promoting office paper recycling in City office buildings, a *Green Fleets Program*, a *Green Lights Program*, and an *Energy Star Buildings Program*.

The *Green Fleets* program promotes the use of alternative fuels, the recycling and reuse of automotive fluids as well as the downsizing of the City fleet. The *Green Lights Program*, overseen by USEPA, encourages City buildings to increase their electrical efficiency by switching from incandescent to fluorescent lights.

The *Energy Star Buildings Program*, implemented four years ago, encourages City agencies to replace low efficiency materials, such as poor insulation, roofing, cooling and heating systems, with more effective systems. The goal of this project is to upgrade 50% of the allocated space in five years, although the City anticipates reaching this goal within the year. The *Green Lights*

and Energy Star building programs reduce waste by decreasing the amount of energy and natural resources consumed, which results in financial savings for the City.

VI. Other Programs

Denver has started a project to assess the factors that affect participation in the City's residential recycling program. Results of the study will be used to develop and implement a public education campaign to promote participation and customer satisfaction with the City's curbside recycling program. Denver also plans to identify and secure funding for a household chemical waste collection in 1999.

MEMPHIS, TENNESSEE

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I. Program Administration

The City of Memphis does not have a separate waste prevention program distinct from recycling. Its annual recycling budget is \$1.7 million, which also finances composting collection services. Public relations support is provided by a contractor; the budget is \$115,200.

II. Program Implementation

The City currently receives \$200,000 a year from the State of Tennessee, Department of Environment and Conservation to use in purchasing equipment, educational programs, and other related services that pertain to reducing the amount of waste that goes to the landfill. A City fundraising effort recently raised \$200,000 from local companies to promote recycling and composting.

III. Commercial Waste Prevention Program Content

By 1998, Memphis is scheduled to offer guides, brochures, and on-line services for businesses. Topics include recycling collection, landfill information, and tire collection.

IV. Residential Waste Prevention Program Content

The City has a major composting initiative, composting 60,000 tons a year from residents and businesses. The program is organized as a curbside collection, with loose material collected at the curb, and is funded out of the total recycling budget of \$1.7 million. Composting is promoted through press releases, advertising, and educational materials distributed to the residents; the outreach program is funded in part through private sector contributions.

A public outreach program targets Memphis residents. Every household receives one free 90-gallon cart and one 18-gallon recycling bin for curbside waste collection; additional carts cost \$50. The monthly fee for the collection of the cart, bin, and yard waste (collection is once a week) is \$6.50.

MILWAUKEE, WISCONSIN

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Be SMART BusinessLine: (414) 272-3334
Be SMART website: www.bsmart.org

I. Program Administration

The City of Milwaukee participates in a regional waste prevention program, called the *BeSmart* initiative. The program funds a business waste prevention program, public outreach and education, as well as school scholarship programs, such as science fairs, which provide funds for students whose projects reduce waste. In addition, the City earmarks \$32,000 of funding it receives from a state grant to cover printing expenses.

A City ordinance provides enforcement authority to the City of Milwaukee. However, Milwaukee is not currently pursuing any legislative initiatives relating to waste prevention. The City works in conjunction with the *Southeast Wisconsin Waste Reduction Coalition (SWWRC)* which employs one full-time staff person who works exclusively on waste prevention.

II. Program Implementation

The implementation of a program has been troublesome for Milwaukee because quantifying the benefits of waste prevention is an arduous process. A state grant of \$150,000 is given to the *Southeast Wisconsin Waste Reduction Coalition (SWWRC)*. A condition of this grant is that it must be matched through in-kind contributions from the involved communities. The impacts of Milwaukee's waste prevention programs are measured by comparing the amount of waste generated historically to both average and present tonnages. SWWRC is performing waste stream composition studies in conjunction with its *Be SMART* program (described below) to

determine the quantity and composition of the waste stream. "Residents don't seem to give reduction a high value, because convenience is a top priority when shopping," says Englebart, which has made the implementation of a waste prevention program difficult. The effort, however, has been aided by the commercial sector, which does see a bottom line benefit to implementing waste-preventing programs.

III. Commercial Waste Prevention Program Content

Certain specific industry sectors, including restaurants and hotels, receive individual educational materials that outline particular waste prevention techniques. Milwaukee does offer a variety of waste prevention initiatives geared specifically toward businesses, including: business waste reduction/prevention kits, guides/brochures, industry-specific fact sheets, and online information services. Business mentors also offer technical assistance to other businesses seeking waste prevention advice through the *Be SMART Business Line*, which is a regional operation, in part supported by cities that benefit from it. Assessment training and waste audits are available to businesses from the University of Wisconsin Extension Services.

IV. Residential Waste Prevention Program Content

The City offers public outreach/education programs, annual workshops, and seminars to residents of Milwaukee. Guides, brochures, and fact sheets concerning issues such as reducing unwanted mail, leaving grass clippings on the lawn, composting, reusing, and a shopping guide are distributed to the residential population. The guides are available at libraries and other municipal buildings, as well as at participating retail stores. A post-distribution evaluation of the impact of the guides is planned for 1998. A City mandate was passed a few years ago prohibiting yard and lawn waste from entering landfills after January 1, 1993. In response to this ordinance, Milwaukee published a residential brochure about leaving grass clippings on the lawn, "*Cutting Yard Waste Now Benefits All Of Us - Just Say Mow*," which featured tips on how to establish a backyard composting program.

A *Be SMART* (Save Money and Reduce Trash) program began in the fall of 1995. A coalition of regional and municipal entities set out to create waste reduction awareness among businesses and consumers. This program began with a \$160,000 *Be Smart* grant awarded to the Southeast Wisconsin Waste Reduction Coalition.

This Southeast Wisconsin program has been awarded a two year matching grant by the State of Wisconsin. Roughly \$279,000 has been allocated for the two year program, \$148,000 of which will be matched by the state. Municipalities are providing in-kind contributions. According to Karen Fiedler, this money will be used "to expand a regional waste reduction coalition and help develop a state waste reduction network, design a model retail store, plan special events, target audience outreach programs that demonstrate waste reduction, maintain and promote electronic means of reducing waste via the Internet, and evaluate the program's effectiveness." A public relations consultant has predicted that roughly \$190,000, a little more than 50% of the available funds, will be spent on the program in 1997. The program has increased its budget through business donations, none of which are included in the budget figures.

A consumer information hotline featuring general information about reducing unwanted mail, household hazardous waste, yard waste, and other waste reduction data also is available. Information for this service was made available by the Department of Natural Resources, *Keep Greater Milwaukee Beautiful* (a non-profit organization), and other local environmental groups, as well as the participating municipalities. Callers' questions are answered either by a part-time intern or a recorded message. Other fact sheets and waste prevention tips also can be accessed via the Internet.

The campaign developed a *Waste Reduction Week* a year and a half ago that targets consumers. A local grocery store printed *Be SMART*'s logo and a phone number where residents could obtain information and have their waste prevention questions answered. While the precise impact of this campaign has not yet been measured, the City does not anticipate that the results will be beneficial because *Be SMART* did not receive many phone calls in response to this program.

They have placed radio ads, public service announcements, and press releases about waste prevention, and are currently researching other *SMART Shopping* alternatives, such as installing an Internet site with coupons for low waste-generating products or a card which, when scanned, provides a print-out of available store product coupons. The program also established a *Be SMART Business Line* to help businesses obtain information concerning waste reduction.

The City has entered into an agreement with *Keep Greater Milwaukee Beautiful*, a non-profit environmental organization that helps run the *Be SMART* program.

Businesses searching for waste reduction tips in their industry can either log on to a website or receive information via fax. While the fax line has received only about 100 inquiries, the web site has been much more successful. This business assistance service has been publicized through print advertising, city-wide distribution of 6,500 postcards, and a business trade show display and flier. The effectiveness and impact of the *Be SMART* campaign will be measured sometime in 1998.

The City of Milwaukee also sponsors clothing collection programs and has established a partnership with Goodwill Industries, who will be placing textile recycling centers at each of the City's self-help centers. Goodwill will either resell or recycle the clothing it collects.

Direct mail and public service announcements also provide Milwaukee citizens with useful tips and information concerning waste prevention issues. The budget for two direct mailings a year to all City residents is about \$80,000.

V. Government Agency Waste Prevention Program Content

The Office of Public Works is now networked with E-mail and is using electronic communication to reduce paper waste. There is also an effort to put all City agencies on line and increase electronic communications city-wide.

Milwaukee has not initiated an established program for state or local government. The *Department of Natural Resources* does, however, offer waste audits for other public agencies.

There has been minimal government agency response, however, to any waste prevention programs initiated by the City.

VI. Other Programs

The City has distributed a household hazardous waste management guide featuring tips on how to properly dispose of and reduce the hazardous waste generated at home.

MINNEAPOLIS, MINNESOTA

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Information concerning Minneapolis has not been verified. Minneapolis' waste prevention program distributed a brochure to all City residents a few years ago. The brochure contained tips and recommendations on various waste prevention techniques. Minneapolis also has created a web site, which generally focuses on information and developments in recycling.

PHILADELPHIA, PENNSYLVANIA

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I. Program Administration

The Philadelphia Solid Waste Advisory Committee, empowered by the City's Recycling Law 1251A (established in 1987), advised that the City set a goal of an 8% decrease in municipal solid waste by the year 2,000 through waste prevention programs. The Philadelphia Recycling Office has maintained that, while the waste prevention concept is valid, charitably funded organizations, as well as governmental policy planners, need to find ways to justify significant financial commitments to these education programs, until the measurement of the effects of the programs can be proven.

The City of Philadelphia does not currently have a waste prevention program, although it has made attempts to develop and quantify the concept. In 1994, The City embarked on an effort to quantify the benefits of waste reduction programs with Pennsylvania's oldest environmental organization, the Pennsylvania Resources Council . Together, PRC and the City initiated a grass-roots-based program that sent representatives door-to-door to teach waste reduction techniques to inner-city residents. Program support also was provided by Bell Atlantic. The basic premise was to set up a means to measure the results quantitatively through pre-and post-waste audits of the neighborhood. The programs was instructive in the sense that grassroots- based education was found to be the most effective means of outreach in the inner city.

In 1996, the City supported the efforts of the Clean Air Council, a nonprofit organization that has established a pollution prevention and waste reduction program, known as P3, by providing a \$5,000 matching grant. Additional funding for P3 comes from the U.S. Environmental Protection Agency. The goal of P3 is to develop simple, creative ways for businesses, organizations, agencies, and residents to voluntarily reduce the amount of waste they generate on site. Its primary targets have been small businesses and nonprofit organizations.

II. Other Programs

Philadelphia emphasizes recycling because a mandate has established that 25% of the waste must be recycled in the City by 1997, in accordance with the State's Recycling Law, Act 101. Philadelphia did conduct focus groups concerning their residential recycling program and implemented more cost effective and environmentally beneficial practices.

A Philadelphia vintage thrift shop, *New Threads*, has joined forces with the P3 program in an effort to reduce waste. This store sells used clothing and new items that contain recycled materials. *New Threads* has become involved with collecting old clothing from recycling sites located throughout Philadelphia and participates in a door-to-door neighborhood clothing collection. The materials collected through this program are taken to a factory where formerly homeless or unemployed women sort through the clothing and determine what is to be exported, resold in thrift stores, or reprocessed.

PHOENIX, ARIZONA

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I. Program Administration

The City of Phoenix does not have a separate waste prevention initiative distinct from recycling. The \$45 million solid waste budget includes recycling and waste prevention programs. Two full-time staff members in the solid waste education office spend part of their time on waste prevention issues and programs. Classroom curricula include information on reducing, reusing, and recycling.

II. Program Implementation

A budget of \$100,000, which is included in the recycling funds, has been allocated for school programs. These were predominantly recycling education programs. While the City was eager to pursue other initiatives, like a consumer education-buy recycled program, industry was not enthusiastic and lobbied against this.

III. Commercial Waste Prevention Program Content

Phoenix has a business waste reduction kit, which was produced as a collaborative effort between the State, the City's Chamber of Commerce, the Building Owners and Management Association, and the City of Phoenix Public Works Department.

While the City of Phoenix itself does not offer waste reduction and assessment training for businesses, *Phoenix Clean and Beautiful*, the City's *Keep America Beautiful* affiliate, does provide these programs for the commercial sector. On an annual basis, the City of Phoenix provides about \$25,000 to this group, as well as in kind support. Some of the programs provided by *Phoenix Clean and Beautiful* include: paper use reduction and packaging reduction strategies, and a materials exchange for businesses.

IV. Residential Waste Prevention Program Content

Phoenix offers public outreach/education programs and workshops when there is a demand for them. The topics include: reducing, reusing, recycling, household hazardous waste, and illegal dumping. Informational residential guides have been distributed to the public and include reducing unwanted mail, leaving grass clippings on the lawn, composting, and buying reusable products.

Phoenix also sponsors a bike collection program, which was started by Public Works and is now a collaborative effort with the City's Human Services Department. Old bikes are either donated by residents or collected from the landfill. The City has designated drop-off locations in fire and police stations for residents to deposit their bicycles. The bikes are repaired by a volunteer and then donated to the Human Services Department, who provides the bikes to those in need throughout the year and especially during the winter holidays. Public Works collects and stores the bicycles.

Phoenix has not instituted quantity-based user fees, although it is interested in this program and would like to see results from a successful approach. While it has undertaken surveys relating to waste prevention, it was too difficult to receive accurate input from residents.

V. Government Agency Waste Prevention Content

There is not a separate executive order or regulatory requirement for government waste prevention. However, the City Council approved in 1991, and the City Manager mandates, an *Office Paper Recycling Program* for all 13,000 City employees at 200 locations throughout Phoenix. An informal survey conducted by Arizona State University indicated that a 20% reduction (by weight) occurred as a result of this program. The annual budget for the *Office Paper Recycling Program* has been established at \$5,000.

VI. Other Programs

A grant of \$150,000 for 1997 from the State of Arizona enables the City of Phoenix to collect household hazardous wastes.

Phoenix has conducted focus groups to ascertain residents' perceptions of its recycling program. The City has not altered any of its programs to a substantial degree as a result of this information.

SACRAMENTO, CALIFORNIA

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I. Program Administration

The City of Sacramento's waste prevention program focuses on public education regarding the City's composting, household hazardous waste, and recycling programs. The City's annual Solid Waste budget of \$31,570,200 includes both recycling and waste prevention programs. The local law regulating the programs implemented in Sacramento is the State's AB 939, which is outlined in the City's recycling goals. Six full-time staff persons work exclusively on waste prevention, including two waste reduction coordinators, three composters, and one planning superintendent. One part-time employee, whose main duty is compiling curbside data, spends less than one percent of his/her time on waste prevention issues. The City receives contract support for public relations, totaling \$18,500.

II. Program Implementation

Residents pay \$5.22 per household per month for the composting, household hazardous waste and recycling programs. Additional funding for programs comes from State grants, California redemption values and scrap values from recycled materials.

The current fiscal year solid waste budget is divided as follows:

salaries	\$10,546,200	radio/tv ads	\$500
print ads	\$18,500	school prg.	\$18,000
pub.ed.	\$15,000	training	\$12,600
tech. assis.	\$1,055,100	other	\$12,394,600
printing/dist.	\$54,900	tools/eqpt.	\$259,500
		rental	\$7,195,300

The funds available for residential waste prevention materials are found within the public ads, public education, printing/distribution, radio/tv ads, and school programs categories, although these figures could not be broken down into specific initiatives.

III. Commercial Waste Prevention Program Content

Sacramento offers waste reduction/prevention kits, guides/brochures, and technical assistance to local businesses. Staff perform business waste audits and provide various waste reduction and cost saving techniques.

IV. Residential Waste Prevention Program Content

Sacramento offers public outreach/education programs and bi-weekly workshops/seminars concerning composting for city residents. Guides and brochures also are distributed to residents and feature topics such as leaving grass clippings on the lawn, composting, and buying reusable products. The City sponsors a city-wide advertising program that encourages residents to prevent waste.

V. Government Agency Waste Prevention Program Content

Sacramento does not have a separate waste prevention program targeting the government sector.

VI. Other Programs

Commercial waste technical assistance has focused on corrugated cardboard and office paper recycling, a service which now can be provided by the City. A live theater presentation, featuring recycling issues, has become a part of the City's school program and is performed for kindergarten through sixth grade students. Sacramento provides residential information on household hazardous waste and recycling.

SAN ANTONIO, TEXAS

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I. Program Administration

San Antonio participates in the state-wide "Texas Clean Cities 2,000" initiative. Through public recognition and other non-monetary incentives, this program encourages cities to minimize waste and divert waste from landfills, primarily through recycling.

The City of San Antonio has encouraged citizens to participate in yard waste prevention programs such as *Backyard Composting* and *Don't Bag It*, through local government cable tv, and an innovative door hanger publicity campaign (see residential section). The City also partially funds *Keep San Antonio Beautiful*, which manages extensive solid waste reduction education programs. San Antonio's annual budget for recycling and waste prevention

is \$3.4 million: \$3.1 million is allocated for curbside recycling; \$200,000 is budgeted for a *Household Hazardous Waste Program*; and \$50,000 is for education, which includes waste reduction. Currently, the State of Texas only has waste reduction goals, although storm water guidelines instituted by USEPA require the establishment of a household hazardous waste prevention program. Waste prevention strategies, programs, and reporting requirements are not mandated and an enforcement authority has not been established to date. San Antonio has conducted surveys relating to household hazardous waste and waste prevention.

II. Program Implementation

The *Household Hazardous Waste Program* acquired \$180,000 through grant funding and in-kind services from the City and the local water board. San Antonio also received a grant of \$90,000 to purchase brush shredders for cutting up grass clippings, brush, and leaves. Each fiscal year, \$20,000 is allocated to *Keep San Antonio Beautiful, Inc.* In addition, in-kind contributions cover \$9,000 for office space and office equipment. The telephone hotline costs \$600.

III. Commercial Waste Prevention Content

San Antonio does not offer a waste prevention program specifically for the commercial sector. As a member of the Corporate Recycling Council, San Antonio encourages recycling and waste prevention strategies in the private sector. San Antonio also has an Air Quality task force made up of City, business, and other government agency personnel.

IV. Residential Waste Prevention Program Content

The City's residential waste prevention program includes informational guides and brochures informing residents about leaving grass clippings on the lawn, composting, and reusing items. A program last year included placing door hangers at individuals' households three times a year promoting composting and *Don't Bag It* programs, and informing residents of its curbside brush pickup schedule. The City is now informing residents about the brush pick up program through the mail.

The budget for the residential door hanger program is approximately \$12,000. San Antonio has not instituted residential quantity-based user fees, so the number of curbside garbage bags permitted per household is essentially unlimited. San Antonio's residential collection programs include household hazardous waste (four times a year), toys (annually), and a twice yearly clothing collection that will commence in November 1997.

Currently, once a year, the City of San Antonio sponsors a city wide clean-up, where residents can bring bicycles, working television sets, useable tires, old toys, etc. to sites around the city. San Antonio has designated two sites in each council district across the city, such as schools, churches, parks etc., which serve as residential drop-off sites for two days during the year. This project was established in conjunction with Goodwill, the Salvation Army, and other charitable groups, who collect individuals' unwanted items and donate them to those in need. It is estimated that each collection costs \$55,000, which includes the costs of publication for any printed material, workers' overtime fees, and transportation fees.

V. Government Agency Waste Prevention Program Content

The City of San Antonio has not initiated a waste prevention program in any of the state or local government agencies.

SAN DIEGO, CALIFORNIA

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San Diego, California 92123-1636
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Rene Keprielian
phone: (619) 627-3303

I. Program Administration

Although San Diego does not currently have a distinct waste prevention program, it is in the process of developing a comprehensive plan that focuses on organic waste reduction through composting, grass cycling, and xeriscaping. The City also intends to distribute information regarding third class mail reduction and proper product packaging. An annual budget has not been approved, although the City is planning on a budget of \$50,000 to \$60,000. A *California Integrated Waste Management Act (AB939)* was adopted in 1989, requiring all jurisdictions in the state to divert 50% of their landfilled waste by the year 2000. San Diego must file a *Source Reduction and Recycling Element plan (SRRE)* with the *California Integrated Waste Management Board*. This plan must describe efforts being put forth to achieve the goals established in AB939 such as: "diversion rates based upon the annual disposal rate, diversion tonnages for recycling or waste reduction programs funded by the City, and updated progress on implementing the SRRE," said one San Diego employee. An enforcement authority has been established through the *California Integrated Waste Management Board*, which regulates the handling of solid waste and is given the authority to levy \$10,000 in fines each day if AB939 has not been met.

The City has one full-time staff person who works on waste prevention, although it is not the individual's sole duty. Other tasks include: program development, budgeting, coordination with partner agencies, brochure and publication development and training. The City also employs one intern to work 20 hours per week on waste prevention program development. Programs such as public education for recycling and waste prevention, promotional material development, community presentations, and the telephone hotline are all under contract support. The annual budget for both recycling and waste prevention contracted programs is \$156,000.

II. Program Implementation

The City had some difficulty obtaining funds for waste prevention because quantified results are "nearly impossible to get," stated Todd Anderson. Other monetary (including in-kind funding),

staffing, labor, and material support were acquired through partnerships with other organizations. The City has held workshops with local utility and electricity companies in order to educate San Diego businesses on waste reduction techniques. It also is working with the San Diego Zoological Society, which has a vested interest in environmental conservation issues, particularly in regards to the City's developing composting program. While the City is not currently measuring the impact of any waste prevention programs, it plans to track the composting program's success by measuring the program participant pool, number of phone calls received on this issue, and residential survey reactions. Composting bins were sold at a reduced rate to residents in December with great success; approximately 300 bins were sold, despite the fact that the City only advertised on a small scale in local newspapers. This summer they hope to sell 2000 bins, which they believe can be achieved by advertising more.

San Diego also has a *Greenery Curbside Pilot Program*, where residential yard waste is collected and transported to a landfill for mulching. A recent study performed by the University of California at Riverside discovered that mulch deters the occurrence of a disease commonly found under avocado and citrus trees in California, a finding with potentially profound effects for the farming community.

III. Commercial Waste Prevention Program Content

San Diego is establishing a network between the City and its local hotels, universities, and hospitals through waste prevention workshops. It is also recommending that San Diego enact commercial mandates, although this is in the very preliminary stages of development. Technical assistance and assessment training, provided by City staff, is offered to businesses on request. The City has an awards program for businesses that have taken a leadership role in waste reduction and recycling.

Other business-oriented initiatives in the planning stage include: paper use reduction strategies, a waste prevention business alliance, and guides/brochures featuring source reduction. Waste prevention is promoted to the commercial sector as a cost-effective strategy for businesses. Publications are currently distributed at business trade shows and association gatherings. While no budget has been established for these proposed programs, the City has employed one staff member to handle them.

IV. Residential Waste Prevention Program Content

San Diego offers residential public outreach/education programs and guides on composting and a *Smart Shopping* program and brochure. The City has contracted with a non-profit organization, I Love A Clean San Diego, Inc. to provide outreach programs such as school and community presentations, which are conducted by volunteers. There is a waste prevention component to the outreach program.

Brochures contain tips on reducing the amount of unwanted mail, leaving grass clippings on the lawn, and reuse. Advertising and public service announcements will be available to residents beginning fiscal year 1998. San Diego has not implemented quantity-based user fees because all residential trash is picked up free of charge.

V. Government Agency Waste Prevention Program Content

A *Zero Trash* pilot program has been established in the Environmental Services Department Office, where employees are required to properly dispose of their own trash, recyclables, and food waste. Six vermicomposters have been set-up in the building’s composting garden, allowing employees to recycle their food scraps. This program was established several months ago, solely for the Environmental Services building. Rene Keprielian stated that he has been generating less waste as a result of this program, and he believes that this is true for the entire building as well. He also anticipates a cost savings over time due to decreased custodial expenditures.

VI. Other Programs

San Diego does already offer some recycling assistance to businesses as well as information on purchasing recycled products. The City of San Diego’s Recycled Product Procurement Policy for government waste prevention provides a 10% price preferential for recycled products purchased by government. The City of San Diego also sponsors a household hazardous waste collection program.

SAN JOSE, CALIFORNIA

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I. Program Administration

The City of San Jose has a small waste prevention program, whose budget is allocated as follows:

- commercial programs, \$30,000;
- residential programs, \$180,00; and
- civic (government facilities), \$20,000.

The California waste prevention law, AB939, requires the City to create a *Source Reduction and Recycling Element (SRRE)*, explaining how San Jose will reach the specified diversion percentages. The *California Integrated Waste Management Board (CIWMB)* is the established enforcement authority for the *SRRE*. A few individuals dedicate part of their time to the outreach and compost programs. This is nearly equivalent to one full-time waste prevention staff member. A variety of projects are implemented by contractors or other organizations:

- “mug shots” (use a mug campaign): pr firm \$50,000
- shop smart: regional campaign contribution \$ 5,000
- home composting program: San Jose Conservation Corps \$47,000

II. Program Implementation

Funding for the waste prevention program is derived from residential garbage and recycling revenues, which is derived from bills sent to service recipients (owners and tenants).

In the previous fiscal year (1996) the budget was allocated as follows:

salaries & benefits:	\$56,800	printing/distrib:	\$55,000
publications:	\$55,000	radio/TV ads:	\$55,000
print ads:	\$55,000	school programs:	\$10,000
research:	\$3,000		

Approximately \$0.27 per capita is spent on the waste prevention program. The impact of San Jose's programs has been measured through both random telephone surveys to see how frequently residents practice waste reduction (most residents said that they did something to help reduce their waste, although the results were difficult to quantify). Questions were asked to elicit responses pertaining to various waste prevention messages, such as "Bring Your Own Bag," "Buy the Largest Size You Can Use," and "Buy Reusable Products", and information was obtained about shopping habits, waste prevention definitions, and waste prevention behaviors.

III. Commercial Waste Prevention Program Content

San Jose's commercial program offers waste assessments and a website. A waste assessment, performed by City staff members, can be provided to businesses at their facilities. Basic paper reduction strategies are provided to businesses during an assessment. San Jose businesses also participate in the state's business materials exchange, called *CalMAX*. The City has also participated in the Santa Clara County Paperless campaign, which encourages small to medium sized paper-generating firms to reduce their paper usage. In addition, the City has sent letters to businesses, encouraging them to limit the number of phone books. Another mailing is in the planning stages.

The City conducted a focus group to ascertain commercial waste generators' perceptions on waste prevention. It discovered that for the commercial sector, garbage costs are "not a priority," therefore, waste reduction does not take precedence.

IV. Residential Waste Prevention Program Content

Public outreach/education programs are planned to commence sometime during the fall of 1997. San Jose contracted with the *San Jose Conservation Corps* to conduct weekly workshops on home composting. Various residential guides are offered; these include topics such as: reducing unwanted direct mail, composting, reusing, and a shopping guide. Residential waste prevention is also encouraged through advertisements and public service announcements.

San Jose has a "pay as you throw" program for both single and multiple family dwellings, which is considered a motivator to prevent waste. The rate charged for citizens who live in multiple

family dwellings is based on the size of the building's dumpster used for trash collection. All individuals inhabiting the building, therefore, pay the same fee, which is included in their rent. The rates for single family homes depend on the size of the garbage cart that they use for curbside collection. The amount of recyclables permitted for residential curbside collection is unlimited.

Input from residents who participated in 1996 focus groups caused some changes in San Jose's residential waste prevention program such as: changing the terminology from *waste prevention* to *waste reduction* and limiting the focus of the residential program to a few items.

V. Government Agency Waste Prevention Program Content

There is no separate executive order or regulatory requirement for government waste prevention. San Jose City employees' 5-gallon waste receptacles have been replaced with smaller 3.5 quart covered pails, and larger deskside recycling containers were provided. Each person is required to take their garbage and recyclables to one central drop-off location. "It is believed that this may actually reduce the amount of waste produced, in addition to increasing the amount being recycled," says Cami Kloster. The mini-can discourages employees from throwing their paper away since the cans are too small to hold much paper.

The City is purchasing reusable mugs to distribute to its 8,500 employees as part of its reuse campaign. In addition, it has a surplus program for its office supplies and furniture. Outdated computers are refurbished and donated to schools. Laser toner cartridges are returned to the manufacturer and re-manufactured cartridges are purchases, and library book discards are collected. Quarterly book giveaways are organized for the public.

VI. Other Programs

San Jose also sponsors a curbside clothing program and a household hazardous waste program. Residents bag their unwanted clothing and place it in a mixed recyclables container, which is then collected and sorted at one of two recycling facilities in the City. At this point, it is up to the discretion of the recycling facility as to where it sells the material.

SEATTLE, WASHINGTON

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I. Program Administration

Seattle has a waste prevention program that is distinct from the recycling program. The 1997 budget for waste prevention in FY97 is \$750,000.

Specific program allocations include:

- Backyard composting, \$275,000;
 - Grass Cycling promotion, \$65,000
 (Note: this is part of a larger program called the *Natural Lawn Care Program*, which combines solid waste, water conservation and surface water management into one program);
 - *Waste Free Fridays*, \$30,000
 (King County is the lead on this);
 - *Building Materials for Reuse Promotion*, \$10,000;
 - *Natural Lawns*, \$35,000;
 - *Business and Industry Recycling Venture*, waste \$70,000;
- prevention budget is about

- The total budget is about \$235,000;
- *Less is More Grants*, \$85,000,
 which provides grants to community groups and individuals to carry out waste prevention projects of up to \$15,000 per grantee;
 - *Green Cleaning Kits*, \$85,000,
 which were distributed for six years, first to individual residents, then to school classrooms, providing examples of alternatives to hazardous products (the program will likely be dropped as it served its useful life and is expensive to operate); and
 - *EcoTeam*, \$15,000.

The regulatory basis for Seattle’s waste prevention program is the *Waste Not Washington Act*, codified in RCW70.95, enabling legislation passed in 1989. The legislation requires a comprehensive plan that includes waste prevention be developed at the local level. The State must adopt a local plan, however, the details of how this will be accomplished are not dictated. There are no legislative initiatives relating to waste prevention being pursued at this time.

Carl Woestwin is the full-time, permanent waste reduction staff. A temporary staff person also works full-time on program research and implementation. Another individual works half-time overseeing the “*Less is More Grants*” and the “*Green Cleaning Kits*.” In addition, Mr. Woestwin indicated that waste prevention occupies “bits of other people’s time.” About six to seven people are involved with “*Less is More Grants*” as project “mentors” for each of the community based projects. In addition, a newsletter, developed for the community from the public information office, and within its budget, includes waste prevention information (the percentage of time spent on this was not available). As an approximation of time, three people might spend about 10% of their time on waste prevention, in addition to the core staff, and the six to seven project mentors about 1% of their time on waste prevention activities.

Most of the programs cited in the budget section have consultant contracts. They are:

- *Backyard Composting*; an entirely consultant project
- *Waste Free Fridays*: all outsourced to the media by an ad agency used by King County
- *Green Gardening*: all consultant contracts
- *Community Building*: program is in conceptual stage, a portion of it may be outsourced
- *Promotion Reuse*: program is in conceptual stage, may require all media time and signage by graphic designer: an RFP must be written
- *Natural Lawn Care Program*: funding is partly spent on temporary employee; part of funding may be spent on consultant; includes purchase of media time for GrassCycling Promotion;
- *Business and Industry & Recycling Venture*: consultant contract
- *Green Cleaning Kits*: consultant contracts.

II. Program Implementation

Some programs, like back yard composting, are easy to implement because they are garden related, hands on, and people are interested in them, according to Woestwin. On the other hand, *Shop Smart*, an earlier program, was a tougher sell because people didn't want to be educated when they shopped, Woestwin noted. They were more interested in convenience, so this didn't tie in with enjoyable activities.

Mr. Woestwin noted that there is increasing emphasis in Seattle and the West in general regarding the notion of doing more with less, an idea known as voluntary simplicity and down shifting — i.e. working less. If residents are concerned about these issues, they are buying less and creating less waste.

The difficulties inherent in waste prevention measurement make it harder to fund programs, Woestwin said. Recycling has overshadowed waste prevention, but that's changing, according to Woestwin. There's more interest in waste prevention, as people understand the limits of recycling and that waste generation continues to increase even though communities are recycling.

Waste collection in Seattle is accomplished by the Solid Waste Utility, a rate-based entity, which contracts for collection services. The individual household pays user fees. Residents receive a monthly garbage bill based on the volume of garbage that is placed at the curbside (12 gallon, 19 gallon, 30 gallon, 60 gallon, etc.). Mr. Woestwin noted that people pay directly for the collection of the garbage; the costs of this service are not hidden within the tax structure. The Solid Waste Utility finances most of their programs. They also apply for and receive some non-competitive state grants.

Figures on the percentage of the annual budget targeted for waste prevention in the commercial, residential, and government sectors were not available, nor were they available for each sector in the last fiscal year. A small amount of the budget is spent on government waste prevention, called "Walk Our Talk," an in-house program. City-wide conservation efforts

are increasing as a result of the City's new Environmental Management Initiative (EMI) office. Business/waste prevention is contained within the *Business and Industry Recycling Venture* budget, a consultant program funded by the City but operated by the *Greater Seattle Chamber of Commerce*.

Almost every program includes an evaluation component.

Projects are examined in terms of:

- how many people attended a sponsored event;
- how many people became involved in the program as a result of attending an event;
- what did attendees say they would change as a result of their participation in the program;
- what did they actually do; and
- what is the end result.

Surveys are sometimes conducted. With backyard composting, for example, Seattle sought to determine what people did with the bins they were given: did they use the bin? If not, why not? If they are using the bin, are they happy with it? The program managers tried to quantify how much material they actually diverted. For example, they asked residents how many times they filled the bin, and whether they filled it in the past year. This is a "mushy number," according to Woestwin, but they calculate it so they have an idea of the quantity of waste diverted — which is the approximate number of times residents filled the bin. The local Cooperative Extension staff evaluated this program using the "Bennet" system— a multi-dimensional measurement of a program that includes behavioral components.

Susan Ensdorff, a part-time employee with an engineering background, has some responsibility for waste prevention evaluation. She works with project managers at the beginning of every program to determine what the objectives are, how they envision accomplishing them, if tools will be provided, and how the information will be taught or presented. She indicated that they developed surveys to determine participant views on what was accomplished.

In 1990, focus groups were conducted on backyard composting. They concentrated on determining the type of bin residents prefer, which subsequently helped the Utility select a user-friendly bin.

A 1995 field survey determined that 43% of single-family households said that they were engaged in yard or food waste composting. The municipality has been conducting compost education for 11 years, and distributing bins for seven. To date, 45,000 compost bins have been distributed for yard and food waste. A number of residents were apparently composting before the City became involved in the project. It is not clear how many would compost without municipal assistance, as there has been a great deal of outreach into the community through a Master Composters Program and a residential compost hotline.

Workshops and seminars are components of many of the programs, such as backyard composting, green gardening, and natural lawn care. Most of these seminars are landscape related.

A random survey of 400 households was conducted in 1990 and 1991. A different survey was used each time and a different set of households was surveyed so the results could only be partially compared. The findings were grouped into residents' understanding of waste reduction versus recycling, their attitudes on waste prevention, and their actual practices. Many residents did not know the distinction, however, attitudes toward waste prevention were more positive than individual behaviors.

The surveys provided the municipality with ideas of areas to pursue, particularly in terms of reuse, which eventually led to the reuse guide that was previously published. Last year, Seattle conducted a study on reuse, primarily focused on building materials.

Their framework is the Cooperative Extension approach (the Bennett model mentioned earlier) although consultants also evaluate the programs. They examine inputs (such as time and labor), activities, residents' involvement, residents' reactions, how many individuals reported a change in attitude, knowledge or behavior as a result of their involvement, as well as whether there were quantifiable reductions in the waste stream.

As part of the consultant contract, a residential telephone survey was conducted about backyard composting. Questions included: do you use the compost bin you received from the City, and how many times do you fill the bin per year. While this is a "soft" number, Woestwin said, this is the closest the Utility came to quantifying the information.

According to Woestwin, many people are not aware that the municipality has waste prevention programs, although they have been in existence for some time. A survey of residents revealed that only a fraction of those contacted were aware of the Compost Hotline, although it's been in existence for 11 years.

The *Business and Industry Recycling Venture Council* receives about 100 phone calls per month. The BIRV surveys a select, random number of callers (who are tracked) who obtained assistance (primarily in the area of recycling assistance). The Compost Hotline has received as many as 12,000 calls in one year. The volume has stabilized at 5,000 calls per year in the past two years.

III. Commercial Waste Prevention Program Content

BUSINESS AND INDUSTRY RECYCLING VENTURE (BIRV):

This program, which provides technical assistance to businesses, is housed within the Greater Seattle Chamber of Commerce and funded by the Seattle Public Utilities. Four individuals staff the organization, a director, two project coordinators, and an administrative assistant. Roughly 15-20% of their time is spent with waste prevention. The annual budget fluctuates between \$175,000 and \$235,000, and is currently around \$225,000. While the core of the program is recycling, there is some focus on recycled products as well as waste prevention in response to customer calls. A specific budget amount is not earmarked for waste prevention.

BIRV projects include:

- *Construction, Demolition and Land Use (CDL)* initiative which focuses on recycling, waste reduction and the use of recycled products in construction. Contractors and other firms who contact them obtain assistance on recycling and waste prevention options, and the initiative helps architects and contractors use fewer materials in construction. Above and beyond salary and equipment rentals, the budget for the CDL project is about \$25,000 for printing, design, postage, etc.
- *Waste Wise Packaging Data Base* (separate from EPA's WasteWi\$e Program): BIRV is looking at developing a WasteWise packaging data base. The idea is to create a listing of companies, consultants and vendors who adhere to wastewise guidelines, which would promote durability, greater reuse, and may include recycled content. Companies would then contact the BIRV for information on service providers.
- BIRV also worked with the *Law Firm Waste Reduction Network*, and provided technical assistance in the development of the guide, "*The Case for Waste Prevention By and For Legal Professionals*," financed by a City of Seattle "Less is More" grant. The guide received excellent reviews, although its impact has not been measured.
- BIRV produces fact sheets on waste prevention for businesses, specifically hospital waste prevention and waste prevention within group health cooperatives. It also produced "*What is Waste Prevention*," company case studies, "*Preventing Waste in the First Place*," and a check list of what companies can do to prevent waste. They also promote the *Industrial Materials Exchange (IMEX)*, which is run by the Seattle/King County Health Department.
- BIRV also is working with the City of Seattle and the Seattle Direct Marketing Association regarding the direct mail program noted above, which is researching ideas that permit businesses to offer more choices to suppress mail. This program, whose aim is to get more businesses to offer more choices to businesses and residents, may get started in six or more months. The initiative would be county wide.

Business Waste Reduction/Prevention Kits also are produced by the BIRV. There is discussion about an online information service. "*A Business Guide to Wastewise Packaging*" was produced by the Seattle Solid Waste Utility (now the Seattle Public Utilities). The Utility also produced "*Tame the Paper Tiger*" for business waste reduction purposes.

Technical assistance is not provided to businesses directly by *Seattle Public Utilities* but by the BIRV. There is no specific waste reduction and assessment training for businesses.

IV. Residential Waste Prevention Program Content

Seattle offers many public outreach programs, such as *Backyard Composting*, *Green Gardening*, *Natural Lawns*, and *WasteFree Fridays*. The *Backyard Composting* program does not ban grass clippings, although this was considered, and the program distributes bins. The program also

includes Master Composter volunteer training, a Compost Hotline, and Compost Demonstration sites.

The *Green Gardening Program* offers education on alternatives to pesticides. Up until this year, the Solid Waste Utility (now the Seattle Public Utilities) conducted garden tours each summer, as well as workshops for gardening and neighborhood groups. This program also produced brochures and slide shows, and conducted nursery staff training, educating them through job site training sessions and informative educational materials.

The *Natural Lawns* program, began in 1997, provides education on and promotion of lawn care that includes grasscycling, reduced use of pesticides through Integrated Pest Management (IPM) and decreased use of fertilizers and water. To raise awareness, there is a radio and tv campaign which involves buying media time. They also produced a brochure. In addition, Mr. Woestwin's agency plans to work with the local landscaper industry representatives to create a certification program for individuals working on natural lawn care; they'd provide the certification and the City would publicize program.

King County took the lead in developing the *WasteFree Fridays* program, in which the City participated, which provides discounts on waste reducing products with the promotion of different products in each quarter. For example, if customers bring a coffee mug to participating stores on a Friday, they may receive free or discounted coffee. In one quarter, Toro discounted mulching mowers. The County worked with Kinkos on discounts for double sided copies in another quarter. Participating retailers also agreed to promote the program in their advertising. The County provides in-store promotional materials. According to Woestwin, the bottom line for participating firms is increased business and an enhanced business reputation.

The municipality has produced brochures on reducing unwanted mail, leaving grass clippings on the lawn, composting, and purchasing reusable products. The "*Use It Again Seattle Directory*" was produced for five consecutive years with three print runs. The directory will be updated and put on the Utility's web site this year. A shopping guide for waste prevention and a packaging waste reduction guide were produced but are no longer in circulation. There are also brochures available on mulching (including a shopper's guide for purchasing mulching mowers), grass cycling, composting food and yard waste (with instructions for creating composting bins), green cleaning, and green gardening.

The municipality advertises to encourage residential waste prevention for its landscape programs, and produced public service announcements for grass cycling (which cost \$1,000).

V. Government Agency Waste Prevention Program Content

There is no separate executive order or regulatory requirement for government waste prevention. The City's Environmental Initiative office was set up by the Mayor to monitor all aspects of the City's conservation activities and to assure that the City employees "walk the talk" of waste prevention.

In January 1997, the Solid Waste Utility was reorganized into Seattle Public Utilities, along with the former water and wastewater departments. Now that the agency has grown from a department of 160 to over 1,000 individuals, support from the new director of the agency, resources, and staff time are all required for in-house waste prevention efforts.

VI. Other Programs

Seattle also has a household hazardous waste program, with two permanent collection sites in the City.

SAN FRANCISCO, CALIFORNIA

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I. Residential Waste Prevention Program Content

Curbside and apartment service is paid for by residential garbage ratepayers. The net cost is about \$7 million or \$21 per household per year. However, all revenue from the sale of recyclables above a designated annual floor (\$2,800,000 as of 1997) is refunded to ratepayers. This rebate program resulted in a rebate of \$1.6 million in 1994, \$3.7 million in 1995, and \$600,000 in 1996. The net cost per ton of recyclables collected in 1995 was about \$70. For 1996, the cost increased to \$126 per ton. Increases in net cost are due to market value fluctuations for recyclables. It is still significantly less expensive than landfilling, which costs about \$150 per ton.

Since prevention is the best solution to wastefulness, the San Francisco Recycling Program makes waste prevention education a priority. In January of 1996, the Recycling Program coordinated the Shop Smart campaign, a region-wide waste prevention effort involving 103 cities and counties to bring waste prevention messages to consumers through displays in 225 supermarkets in the Bay Area, including 23 in San Francisco. Shoppers were educated through shelf tags, posters, display units with literature and a media campaign. The media campaign included 780 waste prevention television ads on 11 TV stations, more than 1,600 radio ads on more than 60 radio stations and full-page newspaper ads. Product tracking and exit polls showed that sales of well packaged (less waste or recycled content) products increased by almost 20% during the campaign and almost 60% of residents remembered campaign elements.

The Shop Smart campaign won a number of national and state awards, including the 1996 National Recycling Coalition's Beth Boettner Award for best public education program in the United States, the 1996 National Association of Counties Achievement Award for Environmental Protection, the 1996 Waste Prevention Award by the California Resource

Recovery Association and the Award of Excellence by the California Waste Education Partnership.

The 1997 Shop Smart campaign was expanded to include 47 supermarkets in San Francisco. A major change took place in the 1998 campaign was the name change from "Shop Smart" to "Save Money and the Environment Too." The new name also became the campaign's main message. The campaign combined the efforts of 110 cities and counties in a 10-county Bay Area region with more than 400 supermarkets to bring shoppers message about the importance of waste prevention and buying reusable products. The primary outreach mechanism for the 1998 campaign was switched to media advertising. In addition, a full page length comic wrap was delivered with the Sunday comic section in 7 newspapers to more than 3,375,000 households.

The Recycling Program has also supported waste prevention through educational materials and by providing grant funding to organizations, including grants to Sustainable City and the ECOTEAM Project to provide workshops on waste prevention to San Francisco residents.

The San Francisco Recycling Program has a multi-pronged strategy for diverting organic material from the landfills including: reuse, on-site composting/mulching, and centralized collection and processing for composting.

Reuse of organic material (e.g. food and wood) puts the material to its highest and best use. The San Francisco Recycling Program promotes food redistribution by providing grants to non-profit agencies, such as Food Bank and Food Runners, who collect unsellable food from wholesalers, food processors, supermarkets, and restaurants. More than 2,000 tons of food per year are redistributed to those in need through these programs. The Food Bank removes the non-edible produce, which is collected and used as animal feed. Wood items such as pallets are collected, repaired, and resold by various businesses. Other clean wood waste is collected and remanufactured into new lumber, such as particle board.

On-site composting/mulching programs can be the most efficient way to recycle organic materials. The San Francisco Recycling Program, in partnership with the San Francisco League of Urban Gardeners (SLUG), promotes and implements a home composting program. It includes a Community Composter Training Program; distribution of discounted compost bins; free workshops; and hotline consultations. Over 3,000 tons of organic material was diverted from the landfill by home composters in 1997. In addition, many schools and universities have on-site programs that range from small and large worm bins to a \$65,000 "in-vessel" composting system that can handle 1,000 lbs of food and yard trimmings per day. The Food Bank also has received funding to salvage and distribute edible food.

An annual holiday waste prevention campaign focuses on how to reduce waste during the holidays. The program distributes thousands of Eco Holiday Guides, and sets up an Eco Holiday display at City Hall featuring live trees decorated with ornaments from discarded materials made by San Francisco elementary school students.

The San Francisco Recycling Program supports reuse primarily through grants to organizations. These have included providing funding to MAGIK, Inc. to establish a computerized exchange system for equipment, furniture and other reusable materials; The Children's Book Project to accept and re-distribute reading material to schools, shelters, prisons and families in need, and to Philanthropy by Design for collecting, designing and installing used furniture and office materials for community service organizations.

Funding has also been provided to the RACORSE Network to solicit donations of medical equipment and supplies that are no longer needed and to distribute them to organizations such as hospitals, AIDS support networks, senior centers and nursing homes. This project will ensure that items such as crutches and wheelchairs will be reused by community service organizations instead of being discarded when they are no longer needed.

The program supports the Scrounger's Center For Reusable Art Parts (SCRAP), which collects materials from businesses and makes them available at low cost to teachers and schools. Grant funding has also been provided for Building REsources, a reuse center for building materials operated by San Francisco Community Recyclers and to Carr Pallets, for pallet reuse and repair.

In 1995 Sunset Scavenger began using two new large capacity trucks that run on natural gas. These trucks are more fuel efficient and, as a result of not having to drop off recyclables as frequently, will help improve local air quality.

II. School Education Waste Prevention Program Content

The School Education Program's goal is to promote school wide recycling while fostering increased awareness of waste prevention, reuse, recycling, resource conservation, and composting. The program serves 107 public schools and 143 private schools in San Francisco by providing technical assistance, educational materials, assemblies and field trips, a semi-annual newsletter, and other special projects. Educational materials include: Tina's Journal, a video appropriate for grades 6-12; supplementary brochures and lessons; a resource library; and K-5 curricular materials and middle and high school curriculum entitled *Resource Cycles*. All curricular materials are science-based and aligned with the State of California Science Framework Guideline.

Assemblies and field trips are free to San Francisco schools. Fifty assembly performances are offered to elementary schools each spring. Approximately 70 field trips educate 3,000 students every year. Teachers have a choice of three destinations: Sanitary Fill Company's recycling and garbage transfer station, the San Francisco League of Urban Gardener's Garden for the Environment, and the Scrounger's Center for Reusable Art Parts. Classroom presentations and faculty workshops are also available.

III. Commercial Waste Prevention Program Content

The San Francisco Recycling Program provides free information, assistance, referrals, and a range of other services to businesses. Advisory and educational services provided include phone consultations to help develop or expand waste prevention and recycling programs;

referrals and trouble-shooting advice; on-site technical assistance; workshops, seminars and presentations; peer-match referrals to link businesses with other local companies facing similar recycling challenges; and referrals to state and national organizations on recycling issues.

Resource materials available free of charge to San Francisco businesses include cardboard recycling bins, upright or tray-style; *Waste Reduction at Work*, a comprehensive guide for developing and implementing effective waste reduction programs; *Beyond Office Recycling*, tips on waste reduction and procurement in an office environment; *Food For Thought*, the San Francisco guide for waste reduction and recycling in restaurants (available in Spanish and Chinese as well); *No Room For Waste*, a custom-tailored waste reduction and recycling guide for San Francisco hotels; and case studies.

In addition, the program provides directories of recycling service providers for the following materials: Office Paper, Office Equipment, Construction & Demolition Debris, Pallets, Plastics, Toner Cartridges, and Wood. Reuse options, and a directory of buyback and drop-off centers are also available.

The commercial recycling program just completed a two-year grant program to provide seed money to businesses for establishing model waste prevention/reuse and recycling projects.

The San Francisco recycling program, in partnership with Sunset Scavengers, is collecting produce, floral waste, and waxed cardboard boxes from over 100 businesses as of February 1998 and diverting more than 4,000 tons per year. There is also a residential pilot yard and vegetative material and food collection program in 9 areas of the city servicing 6,000 households. More than 200 tons were diverted in the first 5 months of the program. The annual Christmas tree recycling program collected more than 750 tons of trees in early 1998. Meat, bones, fat, and grease are collected by various businesses and processed by "rendering" into animal feed and other products.

IV. City Government Waste Prevention Program Content:

The City and County of San Francisco is the largest employer in San Francisco, with more than 32,000 employees. The San Francisco Recycling Program works with City departments to expand and improve recycling programs. More than 17,000 City employees in 115 locations participate in the City's Office Paper Recycling Program and City departments recycled more than 53,000 tons of material in 1997, almost half of which was construction and demolition debris. The program provides technical assistance, presentations and educational materials on waste prevention, recycling and procurement of recycled products to City departments.

Departments are subject to the City's Resource Conservation Ordinance, passed in 1992, which requires waste reduction and the purchase of recycled products. City departments purchased more than \$3 million worth of recycled products in 1996.

Waste prevention and recycling programs save City departments thousands of dollars each year. For example, the Recreation and Parks Department saves more than \$200,000 a year by chipping its own logs rather than buying wood chips.

V. Program Financing

The entire Solid Waste Management Program, of which the Recycling Program is a part, is funded through a surcharge on the garbage rates. The fee is deposited by the collection companies into the Solid Waste Impound Fund. About \$5 million per year is used for the Solid Waste Management Program, including Solid Waste, Recycling and Hazardous Waste Programs. This also covers programs for City departments.

The City sets the rate that the private haulers charge residents. The City Administrator, who is responsible for the Solid Waste Management Program, also sits on the rate review board. This system creates a flexible source of funds that is not tied into other City budgetary needs, and allows the program budget to meet program needs.

VI. Future Activities

In addition to focusing on promoting existing programs and waste prevention, much of the focus in the future will be on the commercial sector and organics, which represent the major potential for increased diversion. Sixty-five percent of the City's discard stream is commercial or industrial waste.

The initial focus for expanding organics recycling will include setting up off-site composting facilities. The City is looking at closed military bases as potential sites that could be converted to civilian use.

County Waste Prevention Programs

HAMILTON COUNTY, OHIO

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I. Program Administration/Implementation

Hamilton County serves 48 communities, including Cincinnati.

A 1988 yard waste ban adopted by the state legislature was supposed to go into effect in 1993. However, the state regulators realized there would be difficulty enforcing the ban. Hamilton County is committed to keeping yard waste out of the landfill, but how this is done is up to the individual political subdivisions.

II. Commercial Waste Prevention Content

The County operates a solid waste materials exchange for businesses. Four times a year a publication goes out to 3,500 businesses; it lists materials available and materials wanted. The County spends about \$8,000 a year on the publication, and one staff person allocates about 40% of her time to the project. In 1997, the County also promoted a Waste Free Friday program, modeled after King County's program, but adapted to the local needs of the Hamilton County.

III. Residential Waste Prevention Content

The County has two programs, one focuses on yard waste and the other on back yard composting. A *Just Mow It* campaign was launched in 1994. *The Backyard Composting* campaign began in 1994. These two campaigns teach homeowners how to reduce yard waste on their own property, and how to compost. They are promotional education campaigns; about \$20,000 a year is spent on advertising for both programs. About 20% of one person's time is spent on these two campaigns, and an informational brochure is available to homeowners.

Of 48 political subdivisions, two communities have instituted quantity based user fees within the last three years. In these two communities, a household is allowed one can of garbage for free per week. Beyond this, each household pays \$1.00 per extra can.

KING COUNTY, WASHINGTON

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Information from King County was drawn from fact sheets summarizing the County's waste prevention programs and from the website address: <http://www.metrokc.gov/dnr/swd/greenwrk>

I. Residential Waste Prevention Program Content

King County provides many residential waste prevention programs. The *Master Recycler/Composter Program*, implemented in 1989, accesses volunteers who encourage community involvement through outreach efforts involving waste prevention, recycling, backyard composting, and household hazardous waste management. Outreach displays have been developed on how to reduce unwanted direct mail and to promote paper reuse. The *Residential Curbside Recycling Program* encourages waste prevention and recycling through radio and busboard advertising. The county ran a radio advertisement during the 1995 winter holidays that provided tips on how to reduce waste during the holiday season. Since June 1995, new homeowners have received a *Home Resource Kit* that includes home waste prevention information and postcards on eliminating unwanted direct mail. As a result of the *Home Resource Kit*, 40% of the recipients reported that they took some sort of waste prevention action.

The County became involved in the *Waste Free Fridays* program in January 1996. Each quarter, a different business partners with the County to sponsor a particular waste prevention action. In the First Quarter, Bruegger's Bagels offered free coffee to any customer who brought in a refillable mug on Fridays. Mulching mowers were discounted at Toro on Fridays during the Second Quarter. Kinkos offered discounts on double-sided copying on Fridays in the Third Quarter, and Ticketmaster provided discounts on selected performances on Fridays during the Fourth Quarter. *Waste Free Fridays* is sponsored by KBSG Radio and Northwest Cable Advertising and is co-sponsored by the City of Seattle. The fact sheet states that the program is also promoted by media relations, signs in participating stores, buttons and t-shirts for store clerks, and inclusion in the business partners' advertising.

Programs in Vashon Island and Snoqualmie Valley were funded through the King County Solid Waste Division grant program, which provides financial support to developing programs trying to implement waste prevention activities. A materials exchange program has been developed for Vashon Island residents and businesses through the Vashon Audubon Recycling committee. This program was developed to provide alternatives, other than landfilling, for household hazardous wastes along with providing on-island sources. A free waste exchange catalog is made available twice a year at the County library, in a local newspaper, and at the Chamber of

Commerce office. Residents of Snoqualmie Valley have received Division grant funds to establish a yard waste reduction program, including a chipping program and home composting bin distribution.

The County also offers a wide variety of school and youth programs featuring both recycling and waste prevention issues. A children's book, *Tikli's Nose*, uses troll characters to describe how to reduce waste and recycle, and also includes a teacher lesson plan. Approximately three to five school districts in the County are assembling a *Recycling Action Committee*, which will devise a waste reduction and recycling plan. Elementary school performances are used as a tool to teach children the importance of reducing waste. Topics include: Becoming A Green Team (comprised of students, teachers, staff members, and parent volunteers who conduct a project to reduce waste in their classroom or school), Hands-On Reuse Activities, Identifying Wasteful Packaging, Starting And Maintaining A Worm Bin, and Household Hazardous Waste - Reading Labels/Safer Substitutes.

Classroom laboratory exercises teach middle and high school students about waste prevention and recycling concepts. High school teachers also receive a curriculum guide featuring information on waste prevention and recycling, and book covers illustrated with waste prevention facts are distributed to the student body twice a year.

Some household hazardous waste educational programs exist in King County, along with the Wastemobile, a traveling collection facility for household hazardous wastes.

Some residential waste prevention brochures and fact sheets have been published, including:

- *Home Waste Guide*: residential reduction and recycling information; includes a "Home Waste Quiz," a resource catalog, and a Waste Reducer's Checklist
- *Grass Cycling*: flyer that provides information on grass cycling
- *Guide to Recycling Major Appliances in King County*: a list of businesses and charities that accept used appliances
- *Hazards on the Homefront*: provides alternatives to hazardous household products
- *How to Reduce Junk Mail*: an information card about how to get off unwanted direct mailing lists
- *Paint Yourself Out of a Corner*: provides information on selecting the appropriate kind and quantity of paint and how to dispose of it properly
- *Wood Recycling and Reuse*: list of area recyclers and information on how to reuse and recycle wood
- *The Waste Zone*: a video from the County Middle School Education Program, featuring Bill Nye the Science Guy; features topics such as reducing waste, recycling, and reusing
- *The Wiz Kids' Go Green*: a 1993 King County assembly program that discusses reducing excessive packaging waste, shopping smart, and using vermicomposting for fruits and vegetables

II. Commercial Waste Prevention Program Content

The County has implemented a *Green Works Business Recycling Program*, which provides businesses with plans on how to begin both waste reduction and recycling programs in the office. The program offers: suggestions and strategies on how to reduce the organizations' volume of garbage, resources for recycling uncommon materials, tactics for preventing waste, and information on items made with recycled content. A free assistance website can be reached at: www.metrokc.gov/dnr/swd/greenwrk/assist.htm.

This program consists of the following components:

1. *BRP Information Phone Line*: for businesses to use for receiving information on reducing waste, recycling, and buying products manufactured from recyclable materials.
2. *On-Site Consultations*: for larger businesses (+25 employees); a *waste reduction and recycling specialist* visits the business, performs a waste audit, and makes recommendations on how to reduce waste.
3. *Recycling Works Newsletter*: distributed to approximately 29,000 businesses throughout King County each quarter; contains information on County programs, waste reduction ideas and opportunities, examples of business recycling programs, and the most recent information on products made from recycled materials.
4. *Green Works Business Recognition Program*: recognizes businesses that have initiated efforts to reduce waste, recycle, and purchase recycled products at the workplace. Goals of this program include: recycling 40% of the waste stream, implementing three waste prevention strategies and using three recycled products. The Solid Waste Division evaluates the applications to establish if the businesses have met the criteria.

The County also present the "*Business in the Green*" awards at both basic and distinguished levels. The businesses that receive this award are seen as waste prevention role models for the business community. Distinguished Green Works members are invited to become partners with the Solid Waste Division to help educate other businesses on waste prevention, recycling, and recycled products. "These organizations commit to work with their customers, vendors, and the community to promote recycling, waste reduction, and the use of recycled products," according to information received from King County. A billboard, stating that their particular organization is "Skilled in the Art of Recycling," is placed at any location of the organization's choice for one month. A *Green Works Member Directory* was published in 1996.

In 1995, the program worked with:

- Larry's Markets (carried material on how to become a *Green Works* member on its shopping bags and managed an educational campaign);
- Centerplex Property Management (held an open house that showed their waste prevention and resource conservation methods); and
- Foot Zone (teamed up with other tenants located in the Bear Creek ShoppingCenter, Redmond, to begin implementing a waste reduction, recycling, and recycled product procurement policy).

In 1996, the program worked with :

- Richard E. Jacobs Group (hosted an Earth Day event and recruited 33 other tenants to become members); and
- Bruegger's Bagel Bakery (helped all of their stores obtain *Green Works* status, printed a *Green Works* waste prevention message on its napkins, and became involved in the *Waste Free Friday* program).

The rewards of becoming a *Green Works* member are having the organization mentioned on the radio; in local newspapers; in trade journals; in the *Green Works Member Directory*; in the County's *Recycling Works* newsletter; and in Seattle's *Recycler*, a publication of the Business and Industry Recycling Venture; along with receiving invitations to all *Green Works* educational events and forums.

Another program geared toward businesses was *Dollars for Data*, which provided financial assistance to businesses and institutions to test waste reduction strategies. This program ended in 1997. The 1995-1996 winning proposal was the *Wine Bottle Collection and Reuse Project*, submitted by The Institute for Washington's Future. The Institute received \$9,900 to implement a method to decrease the quantity of glass requiring recycling or landfilling. One goal of the project was to establish a permanent washing facility in Seattle, which was not possible, but the project did prove the feasibility of collecting wine bottles from restaurants and bars.

In 1994-95, two projects were funded for a total of \$22,800. *Washington Citizens for Recycling* joined with five restaurants and seafood distributors to deliver seafood in a reusable plastic container, rather than the previously used wax-coated box. By using this container, which can be reused approximately 30 times, they anticipated that at least 1,650 boxes would be diverted from the landfill. In the second project, the *Un, Deux, Trois* French bistro and caterer provides the option for customers to purchase a durable dish for their take-out orders. Customers pay a small deposit for the dish and receive a full refund when it is returned. From this project, the *Bistro* anticipated that 1,800 disposable containers would be diverted from the landfill.

The 1993 *Dollars for Data* projects were: a returnable dry cleaner bag program developed by the Washington State Dry Cleaners Association and a program developed by Rowley Enterprises to recover any materials and equipment discarded on their properties. The *Construction, Demolition, and Landclearing (CDL) Material Program* provides technical assistance on waste prevention programs. They also offer:

- the *Contractor's Guide to Handling Waste - Save Money, Manage Resources*: a publication offering information on how to prevent waste and recycle CDL material, and listings for recycling services. The guide is a joint project between King County and the City of Seattle Solid Waste Utility;
- a 1995 case study with the Circuit City construction site;
- *CDL Dollars for Data Program*: proposals were accepted and one construction firm was awarded \$9,900 for a job site with a waste reduction program; and
- *CDL Regional Coordinators Group*: a group conducted by local governments that helps coordinate technical assistance among CDL programs.

The Washington State Department of Ecology's solid waste financial assistance program was developed to devise ways to prevent pollution through reducing waste and recycling, while encouraging local governments to implement these types of programs.

An *Envirostar* program (telephone: 206-296-3976) was developed to recognize the efforts of King County businesses who properly manage and handle small quantities of hazardous materials. King County produces many types of publications for the commercial sector, including:

1. *Business Waste Reduction and Recycling Handbook*: information on how to design a waste reduction and recycling plan in the workplace;
2. *Your Business Can Profit By Producing Less*: describes waste prevention and recycling assistance provided through the King County Business Recycling Program, (includes case studies);
3. *Waste Reduction and Recycling Communications Kit*: a booklet to help you establish a recycling and waste prevention program in the office; includes sample memos, news clippings, and other materials to help businesses establish a successful program;
4. *Waste Reduction and Recycling Services in King County*: list of recycling services in the area; available to King County businesses and organizations only;
5. *Business Waste Line* (phone: 206-296-3976): provides answers to questions or concerns about the recycling or disposal of small quantities of hazardous materials in the County;
6. *Recipes to Prevent Waste in the Restaurant*: a guide featuring cost-effective waste prevention strategies for restaurants;
7. *Contractor's Guide to Handling Waste - Save Money, Manage Resources*: information on how to prevent waste and how to recycle CDL material;
8. *Waste Reduction~Profit More By Doing Less*: provides waste reduction strategies for offices, shipping/receiving areas, restaurants, outdoor areas and food waste, equipment, industrial products, and retailers;
9. *Recycling Has Its Rewards~Green Works*: provides information to businesses about this program;
10. *It All Adds Up*: a video showing how small businesses can reduce their waste, featuring *Green Works* businesses;
11. *In the Work Place*: fact sheet providing tips on how to reduce waste at the office;
12. *In the Real Estate Industry*: fact sheet on how to reduce waste; specific to the real estate industry;
13. *Materials Exchange*: fact sheet on how to establish a trade of reusable materials between tenants in multi-tenant properties to save on disposal costs;
14. *Industrial Materials Exchange (IMEX)*: a catalog featuring a list of businesses' unwanted materials; available in hard copy (phone: 206-296-4899) or over the Internet;
15. *Recycling Works*: a newsletter that provides reduction and reuse strategies; includes case studies from businesses using successful waste reduction practices;
16. *The Essential Guide to Recycled Office Products*: a guide to help businesses purchase office products that contain recycled material;

17. *King County Commission for Marketing Recyclable Materials*: (phone: 206-296-4439) helps businesses, government agencies, and consumers find out about new products containing recycled content;
18. *Waste Reduction Ideas for King County Parks Division Vendors*: lists waste reduction ideas for purchasing, and for production and service areas;
19. *King County Model Recycled Product Procurement Policy: Implementation Guide for Small Organizations and Governments*: a guide for organizations with tips on developing procurement policies to increase the use of recycled, reused, and durable products;
20. Business waste prevention case study fact sheets.

III. Government Agency Waste Prevention Program Content

The King County Department of Natural Resources recently joined the U.S. Environmental Protection Agency's Wa\$te Wise program to increase waste reduction, recycling, and purchases of recycled materials in-house.

TOMPKINS COUNTY, NEW YORK

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I. Program Administration

Currently, Tompkins County, with a population of 94,000, has a reuse program in the very early planning stages. Staff also is looking at ways to divert more materials from their MRF. They are considering allowing local entrepreneurs to pick up some materials under contract, having residents drop off items at the Salvation Army or another reuse outlet, or setting up a "drop and swap" at the MRF facility itself.

The County is funding a home composting program through Cornell Cooperative Extension, which is training volunteers as "master composters" who in turn donate a certain number of hours of service to the community.

From 1993-1995, the County had a commercial waste prevention grant from NYSERDA to conduct waste assessments in three sectors: hospitality (including restaurants, eating establishments, and hotels), retail, and office sector (including financial, real estate, and insurance firms). The County wanted to pick sectors that were reasonably well represented in both Tompkins County and the State. Through this grant, the County hired and trained four waste technicians for temporary positions to do waste audits and waste characterization. These individuals also weighed and sorted trash for 45 businesses.

The project involved five demonstration sites. The idea was that these businesses would implement waste prevention measures which the County could follow for six months. Some businesses measured waste reductions while others did not, and some already had measurements in place. The results were extremely mixed. Cornell produced a report "*Waste Prevention Tools at Work*," which is a workbook and video that is designed with two-day training on audits, characterization, and some computer training on data base management. (BWPRR has this manual and tape). Once the project was completed, the program was terminated as funding was no longer available.

The County performed waste assessments before it received the grant. Recourse Systems trained County staff who then conducted approximately 120 assessments throughout the county with many small and large businesses. At the time there were about 2.5 individuals on staff who would go out in teams to conduct waste assessments about once a week. The County lost staff and demands for the service went down. Businesses were interested in recycling rather than waste reduction, and many were primarily interested in complying with County regulations.

Tompkins County has a "*pay as you throw*" program, which was initiated in 1990. It became clear as they were searching for new landfill space and starting recycling programs that public costs were going to increase significantly. The appropriation required would be so high it could not be borne out of the county property tax. Therefore, county legislators decided that solid waste programs would be funded "up front".

By 1992, all disposal costs were loaded up front, and they increased to \$145 a ton (they are currently about \$60 a ton). At this point, the County decided to split the fees programmatically. One fee initiated was an annual fee (see below in Section II) to defray the costs of the County's Solid Waste Program, exclusive of garbage disposal (this covered recycling, waste reduction, debt service, landfill closures, and monitoring). It also instituted a disposal fee, which pays for disposal, trucking, and hauling. Trash tags cost about \$3.50 for thirty pounds. This fee structure has served as a waste reduction tool. While the County didn't measure total discards, anecdotally it heard people were changing their shopping and disposal patterns.

The 1998 budget for recycling and waste prevention is \$1,750,000 (primarily for recycling). Waste reduction is budgeted at \$64,000, \$24,000 of which is for home composting, with the remainder for the recycling specialist's salary and whatever hard costs they have for waste reduction education, such as printing.

The statutory/regulatory basis for the County's waste prevention programs is the *New York State Solid Waste Management Act*. There are no local laws (like landfill bans of leaves etc.) The County simply has mandatory recycling. There are no other mandated programs, and no legislative initiatives for waste prevention are being pursued.

There is no full-time staff person working on waste prevention. Lynn works part-time; about 75% of her time is on waste reduction/reuse, and 25% includes education (PSAs, flyers, public outreach, which can also include recycling).

In terms of contractor support: there is one consulting job, which involves technical assistance for planning the reuse program (\$5,000 for 1998).

II. Program Implementation

As far as obstacles to program implementation, Lynn said it would be difficult to talk about them at this juncture, since the County has not been active in waste prevention for a while. She said that there's little money for waste prevention. Recycling and waste disposal take up everyone's time and are a huge portion of everyone's budget. The public relation staff position was eliminated and Lynn's position was cut in half. Public interest is "sort of there," although they need to sell the idea of waste prevention, which requires time. Apparently, there is interest among the County Board of Representatives.

The waste prevention budget of \$64,000 is derived from the "annual fee" assessed on every household, business, nonprofit, and educational institution (which pays for recycling, waste prevention/reduction, and staff related to these programs, as well as paying for monitoring of a landfill that is closed). It is a flat fee of \$53 a year for a single family household, including mobile homes. The fee is based on a formula related to how many families typically live in a single family house and data on waste generation per square foot.

Budget information includes the following:

FY 98, Salaries:	\$25,000
Publications:	
for a reuse guide for Tompkins County	\$ 3,500
Public Education	
master composting program	\$30,000

Per capita County spending for the waste prevention program is \$1.40, based on a population of 94,000. With the exception of the work completed under the NYSERDA grant, there is no official tracking or measurement of waste prevention. According to Ms. Leopold, waste prevention is not a well-understood concept. It is hard to promote in a convenience driven society, she noted.

Ms. Leopold indicated, however, that the County's services are sought after. In fact, the office receives many calls about what to do with materials from individuals who do not want to throw them away, particularly in regard to the disposing of household hazardous waste.

She noted that businesses have been more interested in how to comply with recycling, and are also interested in finding outlets for disposing of materials (such as local reuse outlets for packaging) and other goods.

Residents also call the County, but most calls relate to recycling collection.

III. Commercial Waste Prevention Program Content

The County has produced waste prevention fact sheets for offices, the hospitality sector, and retail establishments. Topics include office paper reduction, landscape waste reduction strategies, and materials exchanges. The fact sheets include a glossary of terms about waste and a list of vendors and outlets for management of special wastes such as batteries, ballasts, and fluorescent tubes.

As part of the NYSERDA grant, the County offered a two day training for business representatives, educators, state recycling coordinators and anyone else interested in reducing waste in the business sector.

IV. Residential Waste Prevention Program Content

There is presently no organized residential waste prevention program. Rather, small programs target specific materials. In addition, school groups come to the four facilities to see what actually happens to materials. The County has just been planning for a major reuse initiative as part of a waste reduction program that may include facilitating the development of a community reuse center and expanding existing reuse activities.

Cooperative Extension materials on home composting are provided as handouts, as is the County's *Trash Lite*, an environmental shoppers guide. The County has published a reuse guide, the "Re- Directory," as well as a brochure on junk mail.

The County offers a space at the Recycling and Solid Waste Center for residents to drop off household textiles, which are collected by a textile broker who pays the County \$100 per ton.

The County has placed waste reduction public service announcements on radio, particularly around holidays. It had a column in the local paper about recycling and waste reduction, and a local reporter worked with the County office to develop topics. The column has since been discontinued.

V. Government Waste Prevention Program Content

Not applicable.

VI. Other Programs

The County plans a permanent household hazardous waste drop off facility which will be on line in 1999 with a licensed hazardous waste hauler. As currently planned, the center will offer a drop-and-swap area for good, usable household products. There will also be a household hazardous waste (HHW) reduction educational component to the program.

A Cornell student conducted a formal survey of residents regarding the trash tag program for the County; results are available, if requested.

State Programs

MINNESOTA

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I. Program Administration

The Minnesota Office of Environmental Assistance (OEA), a non-regulatory agency that coordinates various waste management and pollution prevention programs, has a \$1.7 million dollar annual budget for its waste prevention and market development unit: \$1.1 million is obtained from general funds and \$0.6 million is collected from TRI taxes. Minnesota integrates pollution prevention and solid waste source reduction programs.

There are a few state waste prevention laws including: a 1989 *Solid Waste Reduction and Recycling Act*; *Minnesota State Statute 115A.072 (1992)*, which is designed to “protect Minnesota’s land, air, and other natural resources by improving waste management, and to foster an integrated waste management system that combines reduction, composting, and reuse” by developing a statewide campaign to educate citizens about waste management and source reduction. There is also the *Waste Management Act of 1980 (Minn. Statute 115A)*, which requires 80 counties to implement and enforce waste management programs and *Minn. Statute Chapter 473*, which regulates solid waste management in the seven-county Minneapolis/St. Paul area.

The Toxic Pollution Act, 1990, State Statute 115 D.12 guides programs concerning pollution prevention efforts. Approximately, \$900,000 of the total budget funds OEA’s Pollution Prevention Program, the Minnesota Technical Assistance Program or MnTAP.

A mandate has been established for both the state and local governments to achieve a ten percent reduction in solid waste generation per capita by the year 2000, using 1993 as a base line. Counties throughout the state are responsible for initiating their own solid waste management plans.

Fifteen full-time employees at the Minnesota Office of Environmental Assistance’s Business Assistance Unit, three full-time employees in the OEA’s local government Solid Waste Assistance Unit, and some summer interns dedicate their time to waste reduction programs and initiatives. Time is divided between source reduction and recycling outreach. At any given time, approximately seven full-time equivalent positions are working on waste prevention and pollution prevention issues.

II. Program Implementation

Waste prevention assistance is partially funded by the Office of Environmental Assistance's grant program for research, development, and implementation of waste prevention activities. In 1995, \$430,550 in grant money was divided among 25 grantees, and in 1996, \$280,050 was divided among eight grantees. The Office of Environmental Assistance also distributes \$15 million annually in block grants to all Minnesota counties for waste prevention, yard waste, recycling, and problem materials management.

III. Commercial Waste Prevention Program Content

Minnesota publishes business guides/brochures/fact sheets to help businesses use resources more efficiently, generate less waste, and save money on materials. The following is a list of waste reduction information available to businesses:

1. *Waste Wise Guidebook*: An outreach effort in partnership with the Minnesota Chamber of Commerce aids businesses in constructing an effective waste reduction plan by educating employees, quantifying waste volumes, and making environmentally beneficial purchasing decisions.
2. *Source Reduction Now*: a training manual and video about reducing waste featuring case studies.
3. *Source*: a quarterly newsletter on waste reduction techniques.
4. *Minnesota Guide to Pollution Prevention Planning*: outlines how to write a pollution prevention plan.
5. *The Reusable Transport Packaging Directory*: list of businesses that supply reusable cartons, bags, and other packaging.
6. *Saving Money & Reducing Waste Through Source Reduction & Reusable Transport Packaging*: video of some small businesses' experience with reusable packaging
7. *Waste Not Book*: waste reduction guide and video for hospitals.

The OEA offers technical assistance to businesses through:

1. *Minnesota Technical Assistance Program (MnTAP)*: a program, located at the University of Minnesota, that provides technical assistance for pollution and waste prevention for the commercial sector. It is funded by an \$875,000 annual grant from OEA. A computerized library of technical reports, articles, conference proceedings, books, videos, and literature is made available to businesses. This program aids businesses with telephone assistance, site visits, workshops and presentations, and facilitates a materials exchange. A staff of fourteen members along with some interns, work on pollution prevention at the University of Minnesota. The Minnesota Department of Administration also worked with MnTAP to help encourage pollution prevention in maintenance activities including deliveries, vehicle maintenance, and painting.
2. *Business Environmental Resource Center*: the Office of Environmental Assistance unit offers waste reduction and market development recommendations, such as using resources more effectively, generating less waste, and saving money on materials purchased.

3. *Minnesota Waste Wise*: sponsored by the Minnesota Office of Environmental Assistance and the Minnesota Chamber of Commerce helps businesses implement more cost-effective, efficient, and waste preventing practices. The program gives annual awards that honor the waste prevention achievements of certain businesses based on their performance.

Minnesota offers paper and packaging reduction strategies, a materials exchange program, and a waste prevention alliance for county governments to better serve businesses. It publishes a quarterly *Materials Exchange Catalog*, which provides a list of businesses' unwanted materials available to others as raw material. The *Minnesota Materials Exchange Alliance* was created in 1993 to facilitate the exchange of hazardous and solid wastes, and is also available on the Internet (www.mnexchange.org). Minnesota also has established a *Governor's Award* for excellence in pollution prevention, which includes recognition for solid waste source reduction. The 1994-95 awards were given to 13 facilities that together reported an annual savings of \$2.75 million. In 1997, awards were given to 8 facilities for a total annual savings of \$2.09 million.

IV. Residential Waste Prevention Program Content

A *Pollution Prevention Week* focuses on workshops and promotions to encourage Minnesota residents and businesses to prevent waste. Each day, the presentation focuses on a different prevention method. The state's *What-a-Waste Curriculum* is an environmental education program that includes teacher workshops on issues such as waste reduction, composting, and litter prevention. The state of Minnesota distributes guides featuring information on reducing unwanted mail, composting, and *SMART* shopping, a consumer education campaign to reduce purchasing waste. Minnesota also offers a household hazardous waste program, advertisements, and public service announcements to encourage residential hazardous waste prevention and proper management.

V. Government Agency Waste Prevention Program Content

A few notable government pollution prevention activities have included: establishing local programs that promote waste prevention and encouraging waste prevention by county governments, by providing a 3% credit toward a county's recycling goal if specified source reduction activities are implemented.

A 1991 State Executive Order (91-17):

- Establishes an *Interagency Pollution Prevention Advisory Team (IPPAT)* of representatives of various departments from 16 state agencies which meets quarterly. Representatives include state agencies, metropolitan government, state colleges and universities, the Metropolitan Airports Commission, the Metropolitan Mosquito Control District, and the Department of Military Affairs.
- IPPAT has been working for seven years to encourage pollution prevention initiatives within the respective member agencies. The team meets monthly to share information on pollution prevention strategies, including such issues as paint removal, chemical

redistribution, and parts washing. Pollution prevention is a state priority, as it offers both environmental and economic benefits for the state.

- The Order directs agencies to draft summary reports of their current and proposed waste prevention activities on an annual basis. These are intended to include: "policy statements, summaries of pollution prevention progress, and descriptions of planned pollution prevention activities and approximated gains." The *Interagency Pollution Prevention Advisory Team* recommends that state agencies provide annual reports of their waste prevention activities and promotes commercial and industrial prevention undertakings. The reports focus primarily on pollution prevention.
- The Order encourages state agencies to work with the Department of Administration to engage in waste prevention activities through the modification of purchasing and specification requirements.
- The Order requires OEA to provide technical assistance on reducing waste to state agencies by providing workshops and educational materials.

MN GREAT! is an awards program that was created by IPPAT. *MnGREAT!* awards for 1997 include the State's Department of Administration, which employs new technology to minimize printing extra copies within its printing communications and media division; and the Moorhead State University for installing low-flow shower heads and other energy management control systems in 19 buildings.

Waste prevention workshops have been developed for both pollution prevention and waste prevention by OEA. They have included "Environmentally Responsible Purchasing for Minnesota Public Agencies."

CALIFORNIA

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I. Program Administration

Note: In March 1998, the CIWMB reorganized its Waste Prevention and Market Development Division. The Waste Prevention and Business Education and Assistance Branch is now the Organics and Resource Efficiency Branch. It is still located in the Waste Prevention and Market

Development Division. This change in branch name reflects the CIWMB strategy to focus on organics and promote waste prevention as a form of resource efficiency. The term "resource efficiency" draws attention to the benefits of waste prevention, which may include: cost savings from reduced storage, labor, purchasing, avoided disposal costs, etc. — all of which speak to the primary interests of our customers. The state's interest in reducing solid waste will be achieved as well. The staffing and budget for waste prevention remains essentially the same.

The description below is prior to March 1998.

Waste Prevention and Business Education and Assistance Branch is the umbrella branch. In this branch are two sections: the Waste Prevention Program Development Section and the Business and Assistance Section. The majority of the 14 employees in the Waste Prevention and Business Education and Assistance Branch are full time; they include one support staff person and one manager, as well as two supervisors. Six full-time employees work in program development and six full-time work in the business and assistance branch.

The Waste Prevention Program Development Section works full-time, exclusively on source reduction topics. The Waste Prevention and Business Education and Assistance Branch's purpose is to focus on developing waste prevention programs with a special emphasis on waste reduction, which also includes recycling. Business Assistance staff spend approximately 25% of their time on waste prevention.

Most job titles are "Integrated Waste Management Specialist." This title requires a science background (30 units at minimum) and some economics for the entry level. The next step is the journey level: the title is still the same but the individuals work more independently. The subsequent level is the "supervising integrated waste management specialist," which is followed by the branch level position, and then the deputy director level.

The Public Education & Schools Branch also works on waste prevention. In the Materials Analysis Branch, there are three individuals who work on composting.

The budget is not split by sections, but rather by branch. The Waste Prevention and Business Education and Assistance Branch budget was \$1,563,900 for FY96-97, including staff, office, expenses, and travel. Including school waste prevention and additional composting activity implemented in other sections, the funding for waste prevention would increase by about \$1 million. Currently, about \$75,000 a year is contracted out for waste prevention. A breakout of the figures by program subcategory was not possible. CalMAX, the materials exchange program — namely catalog printing and distribution — continues to be contracted out at the rate of approximately \$50,000 annually. Staff performs a majority of the remaining program functions, such as database management and promotion, within the CIWMB.

In the Waste Prevention Program Development section staff have various program area responsibilities: One specializes in backyard home composting; two work on grass cycling; one works on the waste prevention information exchange; two staff work on the materials exchange; and a new staff member works on resource efficiency and integrating that into a business materials exchange, as well as a focused effort on transport packaging.

The Waste Prevention Program Development Section's mission is to develop waste prevention programs for residents and business, and to work in a team effort with other CIWMB Sections to implement them. They work very closely with the Business Education and Assistance Section. They also work with the Section that specializes in public education on a few projects.

Legislation/Reporting

The statutory/regulatory basis for the waste prevention program is AB939, passed in 1989. It can be ordered for a fee from the hotline, 800-553-2962 (in state only) or 916-255-2326 (contact Jill Jones). AB939 had requirements that the CIWMB Board prepare a report on source reduction and a Statewide Waste Prevention Plan. The Plan sets goals rather than precise mandates or deadlines for carrying out these activities.

AB939 requires every city and county to divert 25% of its solid waste from landfills by January 1995 and to divert 50% by the year 2,000, from a 1990 base line. This target must be met through a combination of waste prevention, recycling, and composting.

This mandate also requires all counties and cities to develop and implement programs to meet these goals, with assistance and oversight from the CIWMB. The CIWMB is required to develop public information and education programs on a statewide basis to gain public support for and also to increase participation in the goals of the Act. AB939 also required planning by the local governments to identify the components of the waste stream and to develop plans to divert waste to meet the target goals. It did not tell them specifically how to do it, besides following the integrated waste management hierarchy. Initially, the law was fairly stringent: if the solid waste targets were not met, fines of \$10,000 per day were to be levied, but these were never imposed. AB939 has subsequently been amended to include good faith provisions: if jurisdictions have developed good plans and are attempting to implement them, the CIWMB can take this into account in reviewing the achievements and goals of a local government. However, fines will still be levied and four jurisdictions were recently fined for failure to meet planning requirements.

The law initially called for local governments to measure their waste generation annually, which proved to be very time consuming and cost and labor intensive. Currently, the only data point required is baseline waste generation for 1990. Now it is up to cities and counties to inform the Board of the annual quantity of solid waste that they are disposing in the landfill. Therefore, source reduction measurement is based on disposal data. On a yearly basis, adjustments to the base disposal figures of 1990 are made; these account for changes in the economy and population. However, when the state shifted to the disposal based counting methodology, the CIWMB lost some ability to measure the impact of waste prevention/ reduction programs.

There are reporting requirements in California. All cities and counties must submit a series of planning documents describing how they intend to reduce and manage their solid waste as well as their household hazardous waste. Counties have additional responsibilities, such as facility siting. In addition, Counties must report ever year on their progress in achieving their diversion goals.

Statewide Waste Prevention Plan:

According to the "Waste Prevention Progress Report," issued in spring 1997 by the CIWMB, the CIWMB developed a statewide strategy, the *Statewide Waste Prevention Plan* [Public Resources Code Section 40507(f)], in 1993 to facilitate waste prevention activities throughout California and to direct future activities. The plan identifies more than 40 waste prevention activities and was the culmination of research, including literature and program reviews, surveys, interviews, and two symposia. It serves as a statewide action plan for waste prevention and identifies program barriers and possible state actions.

Its Mission and Goals

The *Statewide Waste Prevention Plan* provides guidance on how to foster waste prevention and how to create a statewide infrastructure to reduce the generation and toxicity of solid waste. This effort is intended to conserve natural resources and promote a sustainable economy for the state of California. According to the CIWMB's Waste Prevention Progress Report, the six key goals of the plan are to:

1. create awareness and encourage individuals to incorporate waste prevention practices into daily activities;
2. acquire basic information about the effectiveness of waste prevention approaches needed to initiate efforts;
3. build or expand communication networks within and across the CIWMB, other state agencies, local governments, educational institutions, and commercial and industrial facilities;
4. assist local governments in achieving waste diversion mandates through waste prevention;
5. encourage waste prevention within organizations including state and local governments, institutions, universities and schools, and businesses; and
6. develop incentives and assistance to encourage design, manufacture, distribution, sales, and reuse of products or packaging that decrease the amount or toxicity of waste generated.

Program Development

According to the Report cited above, the CIWMB has developed programs to implement both the *Statewide Waste Prevention Plan* and the *Construction and Demolition Debris Management Plan*. These two elements form a comprehensive waste prevention plan directed toward encouraging individuals, state and local governments, and businesses to not only think about waste prevention but to take action.

Enforcement Authority:

There is no enforcement authority established, with the exception of the Rigid Plastic Packaging Container (RPPC) Program which became effective on January 1, 1995, and

requires manufacturers using plastic containers to package their products to meet one of four compliance options:

- (1) be comprised of 25 percent post-consumer resin,
- (2) be source reduced by 10 percent,
- (3) be reused or refilled at least five times, or
- (4) meet one of three recycling rates.

Two bills passed by the California legislature and signed by Governor Wilson modified the RPPC Program, effective January 1, 1997. The first, SB 1155, exempts all food and cosmetic containers from the program, although these containers will continue to be included in the State's annual recycling rate calculations. The second, AB 2508, allows an additional compliance option for floral preservative containers which are reused by the floral industry for at least two years.

There are also some current legislative initiatives related to waste prevention. One relates to the "Digital Signature Act," a bill passed in the State legislature in 1997, which enables electronic commerce in the State of California and uses electronic signatures to eliminate paper. Currently, electronic communication is restrained by the inability to transmit legally binding signatures on electronically transmitted documents. Once regulations are developed for the Act, this limitation on electronic communication will no longer exist for public entities in California. The Act pertains to public and private organizations that state agencies do business with, as well as private individuals and businesses, whose electronic signatures would be considered valid in electronic transactions. (Contact Lorna Gragg at (916)-255-1398 for more information, or at lgragg@ciwmb.ca.gov.)

Contracted Services:

CalMAX —The California Materials Exchange:

CIWMB contracts out limited aspects of CalMAX, its Materials Exchange program, which has been operating for about six years. The average cost of contracting for this program has been \$100,000 to \$150,000 year, though it is currently approximately \$50,000.

Phase Three Environmental Management is the current contractor: in the past CIWMB contracted with the Local Government Commission for data base management, conducting outreach to local governments and business communities, and establishing a network of supporters and local material exchanges operated at the local level (Minimaxes). It also managed the CalMAX data base and the data base of subscribers that receive the catalogue (about 15,000). However, now CIWMB is trying to convert to a Web based system, which will save labor and printing dollars, and the catalogue has gone from bi-monthly to quarterly listings.

CIWMB is using Phase Three to transition the program back in-house. The contractor has trained staff to manage a majority of the program. This includes managing the data base, developing the format and publishing the catalogues, tracking listings and subscribers, and program promotion. There are two in-house staff and one student assistant working on CalMAX at this time. CIWMB has allocated approximately \$50,000 annually in contract funds to cover printing,

postage and outreach for the next three years. The management of the data base will be an in-house function for the foreseeable future. Contact Jeff Hunt at (916)-255-2492 for more information.

II. Program Implementation

The source of funding for the waste prevention program comes from a portion of tipping fees, and currently is \$1.34 per ton of trash.

Measuring and Impact of Waste Prevention Programs:

The California Statewide Waste Prevention Plan requires a methodology for quantifying waste prevention under the section: *Conduct Primary Research, Including a Methodology for Quantifying Waste Prevention.*

In the Waste Prevention Progress Report issued in the spring by the CIWMB, the following is discussed regarding measurement:

"Measuring waste prevention programs answers the basic question, 'Do waste prevention programs make a difference?' The lack of measurement methods makes it difficult to estimate potential program success and gain necessary support to implement waste prevention programs. To alleviate this problem, the CIWMB undertook two efforts:

- (1) Waste Prevention Measurement Methodology, and
- (2) Waste Prevention Community Audit Program.

Dr. Eugene Tseng of the University of California, Los Angeles, volunteered his assistance to help the CIWMB develop measurement methodologies. Under his guidance, students identified methods for measuring the impacts of several types of waste prevention programs including yard waste prevention (grass cycling, home composting, xeriscaping), consumer shopping campaigns, reusable grocery bags, and office paper reduction. The measurement methods emphasize practical approaches and necessary formulas for making calculations. Local governments can use these methodologies to measure the effectiveness of their programs. (Copies of the reports are available through the Waste Prevention Information Exchange (916-255-INFO).

"Complementing this effort, the CIWMB's Community Audit Pilot Program measured the effectiveness of waste prevention education efforts (see the Public Education Progress Report)

The following four communities implemented programs and measured their impact :

- City of Albany, junk mail public-education campaign
- City of Berkeley, worm composting education in schools.
- City of Glendale, green waste source reduction.
- Westside Cities Waste Management Committee, hotel waste reduction.

However, additional waste prevention measurement projects are not being funded (Note: the Alameda solid waste management authority just issued a report on source reduction measurement, contact Tom Padia, (510) 614-1699 for a copy).

Waste Prevention Research:

No research projects are currently being conducted.

Effectiveness of Programs/ Perception by Public:

The Board has a hotline, and deals with requests from the general public referred from Public Affairs. Businesses call to obtain business kits. Recycling coordinators benefit from their services and are big users. CIWMB puts together packets that coordinators can customize for their audience. They also are users of the CIWMB website.

Tracking Requests:

CIWMB has an Information Exchange, which facilitates the exchange of news, ideas, fact sheets, business case studies, sample guide books, reports, and videos among governments, businesses, nonprofits and other interested parties. The exchange has a resource center and staff able to conduct limited research. Its database is available on the World Wide Web at <http://www.ciwmb.ca.gov/> (select Waste Management Programs, Waste Prevention World) or by calling (916)-255-INFO. It is a on-line technical assistance service primarily focused on waste prevention for local governments and recycling coordinators, but also available to the general public on line. The CIWMB can see how many "hits" or what people search for. There are about 300 searches conducted on the on-line database each month. This service has been in existence since November 1996. The service has been in existence since November, and is working up to expectations.

The CIWMB also tracks information about who requests their business kits.

Advertising/Publicity:

There is a small advertising budget for the statewide grass cycling campaign. Thousands of posters were made for a cost of seven thousand dollars. In general, the CIWMB now focuses more on publicity and uses staff to appear on television/radio shows to publicize programs. As a result, it relies less on paid advertising. The waste prevention staff works with public affairs to create media events (for example, for the grass cycling campaign). Additionally, the CIWMB has developed a guide for local governments on how to work with the media.

III. Commercial Waste Prevention Program Content

One of the Goals of the Statewide Waste Prevention Plan is to "*Establish a Waste Prevention Task Force with Representatives from Target Audiences.*"

According to the CIWMB's Spring 1997 Waste Prevention Progress Report, the CIWMB is working with nonprofit organizations and business groups on various initiatives. The report noted that "one is the Transport Packaging Initiative that sets forth an agenda to encourage companies to purchase and use transport packaging that conserves resources and saves

money. Other materials will be examined in terms of product design, the reuse industry, and compost-related issues.”

The Transport Packaging Initiative was renamed the *Shipping and Distribution Partnership*. The goal of the partnership was to identify approaches for improving shipping and distribution efficiency, which will result in less packaging going to landfills. An open meeting of the interested stakeholders was conducted to determine how staff should expand CIWMB activities in this direction. The CIWMB has developed a good cross section of interested parties, including waste haulers and manufacturers, retailers, packaging manufacturers, and customers of packaging (which may or not be product manufacturers and retailers). They came together for a workshop in October 1997. Follow up activities will include a web site of shipping and distribution information and new educational materials.

The CIWMB also conducts workshops and training seminars, which is another goal of the statewide Waste Prevention Plan. In addition, it provides business waste reduction publications to local government recycling coordinators and coordinates with local government organizations regarding business waste prevention. The CIWMB also developed a training curriculum for local and private organizations, as well as a training manual. They held “train-the-trainer” sessions for CIWMB and local government representatives. (These manuals are available on the CIWMB web site).

Targeting Business

The CIWMB produced a 40-page landscaper's guide to reducing yard waste entitled *Keeping Green: A Landscaper's Guide to Reducing Yard Waste*. According to the Board's recent Waste Prevention Report, the guide was publicized through an extensive advertising campaign and distributed to local governments. “The campaign uses a poster/ad image of “landscape heroes” that highlights yard waste reduction as a responsibility and unique ability of the landscaping industry. Advertising ran in several landscape trade magazines, while posters were placed in major home improvement/garden centers throughout the state.”

The Report noted that further “cooperation with the private sector took the form of the Public Private Partnership Program (PPPP) with professional associations within the landscape industry and major mower manufacturers. Given California's size, population, and the magnitude of the solid waste challenge, this innovative approach allows collective resources to be pooled.

The PPPP has teamed up with retailers Ace Hardware, Home Base, Orchard Supply Hardware, and True Value Hardware, as well as the Toro Company, a major mower manufacturer. All have been assisting the CIWMB in distributing brochures and advertising the message of yard waste prevention.

Also, the CIWMB continues exhibiting at trade shows throughout the state, soliciting speaking engagements, placing notices within the popular media, and publishing articles carrying the theme of yard waste prevention.”

A new grass cycling poster was created in 1997 entitled "My Neighbors are Green with Envy." This poster stresses the timesaving aspects of grasscycling. Virtually all California-based WalMarts, K-Marts, Ace, and True Value Hardware Stores (more than 1000 stores in all) received the poster along with a substantial supply of grasscycling and composting brochures.

A. Business Kit

The CIWMB developed the "Business Kit," which consists over 30 items, including business guide to waste reduction, fact sheets geared for specific types of businesses, booklets, brochures, and information lists. Fact sheets, clip art, posters, and other guides were created to help organizations developing office paper reduction campaigns. Local governments also can order publications and use them to educate businesses in their jurisdictions.

B. Construction and Demolition (C&D) Materials Program

CIWMB staff developed a collection of materials that focus on the waste prevention for C&D waste. Staff completed fact sheets on *Urban Wood Waste, Lumber, Job Site Source Separation, Recycled Aggregate, Asphalt Pavement, Carpet, and Waste Exchanges*. These fact sheets are being distributed at conferences and workshops, as well as through mailings.

CIWMB staff also attended meetings with base-closure groups and local recycling coordinators to promote C&D material reuse and recycling, and to identify base-closure groups' needs to effect maximum C&D recycling.

C. Expand Materials Exchange and Reuse Through CalMAX

The CIWMB developed the CalMAX program (California Materials Exchange Program) in 1991 to help find alternative uses for nonhazardous discards. CIWMB's Spring Waste Prevention Report noted that "through this program, businesses, industry, and other organizations can find markets for unwanted materials, reduce disposal costs, and provide free or inexpensive materials to others. CalMAX distributes a free bimonthly catalog that contains available and wanted materials listings, information on CIWMB activities, innovative CalMAX matches, creative reuse ideas, and other reuse programs.

"CalMAX is now available on the World Wide Web at:

<http://www.ciwmb.ca.gov/mrt/CalMAX/CalMAX.htm>

The web site is accessible 24 hours a day, it is updated weekly, and users can post their own materials listings."

The Report also noted that "CalMAX encourages local material exchange programs ("Minimaxes"). Staff contacts local jurisdictions and other organizations about starting local programs. This year a local materials exchange was established in the Monterey Bay area, called PROMAX. To better publicize CalMAX services, the program conducted a promotional campaign targeting several industries including electronics, construction and demolition, and organic wastes. These activities are in line with the program's expansion plan, adopted by the CIWMB in 1994, to decentralize the program and allow information to be accessed by alternative means."

According to the Board's recent Waste Prevention Report, to help establish new exchanges in California, the CIWMB contracted with the Local Government Commission to produce a video and conduct two workshops. The video explains how to set up a materials exchange facility. The purpose of the workshops is to share information on how to develop material exchange facilities."

D. Waste Reduction Award and Other Programs:

The CIWMB also works to educate top business management, and provides assistance to businesses on how to development environmental policy statements and other issues related to motivating and educating staff.

The Waste Reduction Awards Program gives awards to outstanding waste prevention programs, which satisfies a goal set in AB939 (The Waste Reduction Awards Program (WRAP) [Public Resources Code Section 42600(a)]. WRAP was established in 1993; successful applicants receive an award certificate from the State of California along with a camera-ready WRAP WINNER logo, which can be used on products, advertising and education materials. To date, nearly 1,000 businesses have been selected to receive a WRAP award. While a contract is issued annually for an outside contractor to oversee and promote the program, develop and circulate applications, and select award recipients, a staff person is dedicated to the management of the program to ensure quality and consistency.

IV. Residential Waste Prevention Program Content

AB939 requires that the State develop Outreach Materials for the General Public [Public Resources Code Section 42600(a)-(f)] and Conduct a Statewide Waste Prevention Education and Outreach Campaign [Public Resources Code Sections 42600 and 42601]. To accomplish this, various partnerships have been developed to provide one-on-one services to cities and counties statewide.

According to the CIWMB's June 1996 Report, two major partnerships with the League of California Cities (LOCC) and the California State Association of Counties were designed to provide one-on-one service to cities and counties statewide. LOCC and CSAC were authorized to give both financial support and technical assistance to all interested jurisdictions.

The Report noted that after surveying nearly 100% of the State's cities and counties, the LOCC and CSAC consultants began providing consultative services and approving grant funding. This one-on-one assistance gave jurisdictions an opportunity to conduct projects, expand and enhance existing programs and collaborate with neighboring jurisdictions for regionally based activities.

The types of activities pursued by cities and counties included the following, as discussed in the Report:

- Junk Mail Reduction Campaigns
- Waste Prevention Week Proclamations
- Reuse and Repair Directories
- Store Floor Display Units

- Store Shelf Talkers
- Book Covers
- Waste Evaluations and Assessments
- Worm Composting Projects
- Backyard Composting Training, Bin Sales and Brochures
- Radio, Television and Print Advertisements/Articles
- Reusable Bag Distributions
- Environmental Fairs
- Art Contests
- Truck Signs

The Report noted projects that were accomplished under the waste prevention partnership contracts that include:

- Waste prevention clip art and articles that jurisdictions can request for printing in local papers, newsletters and other publications.
- Training classes for jurisdictions on the topics of: "Providing Effective Waste Prevention Assistance to Businesses"; "Effective Media and Public Communication Skills"; and "How To Vermicompost."
- Spanish language public service announcements and novellas for jurisdictions to air on local radio stations.
- Scripted slide show for presentation to Boards of Supervisors and City Councils on the topic of waste prevention.
- Exhibit displays for loaning to jurisdictions on the topics of yard waste and waste prevention techniques.
- "California's Materials Exchange Facilities", a 96-page guidebook and video.
- Pollution Prevention Week assistance and materials development.
- City representative "Peer Match" database for use by interested parties to either provide help or receive help in a variety of waste prevention public education areas.

The Report noted that although jurisdictions were allowed to receive independent assistance, whenever possible collaborative endeavors were encouraged. One of the most successful efforts was the Bay Area's *Smart Shop Campaign*. This campaign combined in-store materials with a major media promotion to advocate waste prevention and buying products made from recycled materials. This partnership with 103 Bay Area jurisdictions, 225 supermarkets, state government, and private industry garnered significant impact, as shown by the post-campaign evaluations, according to the Report.

Exit polls showed 43% of shoppers remembered one or more elements from the campaign, thereby reaching more than one million shoppers. There was a 19.4% increase in sales of well-packaged products (minimal packaging, recycled content) and a 36% decline in sales of excessively packaged products.

Because of the success of the 1996 Shop Smart campaign, the project team has recommended, and is going forward with, a 1997 campaign. A comprehensive report on the 1996 Bay Area Shop Smart campaign is available from the CIWMB.

V. Government Agency Waste Prevention Program Content

The Statewide Plan mandates assistance to local governments and calls for setting up demonstration/pilot programs. In meeting both goals, the following is one initiative that addressed government agency waste prevention.

Grasscycling Demonstration at State Capitol

According to the CIWMB's Spring 1996 Progress Report, Californians traditionally have been bagging grass clippings for disposal. This practice takes time, creates waste, and squanders valuable resources. Grass cycling is the rediscovered practice of leaving clippings on the lawn after mowing.

To gather firsthand information, the CIWMB and the Department of General Service's Office of Buildings and Grounds (DGS/OBG) initiated a demonstration site at the State Capitol in September 1993. The demonstration area encompasses the fountain area on the west side of the Capitol and the lawns on the immediate east side of the building. A 37-inch recycling mower, donated by the Toro Company, has been used to cut the one acre of demonstration turf.

The demonstration has apparently been very successful. The associated benefits include saving time, labor, water, and fertilizer, and reducing waste. On a yearly basis, about eight tons of grass clippings no longer need disposal, resulting in a total waste reduction of approximately 30 percent. DGS/OBG staff saved time, since lawn mowing activity was no longer interrupted by the need to empty the grass catcher bags. Additionally, the costs of landfill transportation and disposal of grass clippings were avoided. According to the CIWMB's Spring 1996 Progress Report, the demonstration lawns are healthy and attractive, and the DGS/OBG have now expanded grass cycling to all 42 acres of Capitol Park and have begun converting the mower fleet to recycling mowers. As the demonstration continues, both the CIWMB and Californians learn more about this time- and cost-effective practice.

Training to Local Governments:

As discussed under commercial waste prevention, a train-the-trainer program was targeted to recycling coordinators, and training and business waste reduction materials are made available to local governments to increase their capacity to conduct business waste prevention.

Other In-House Plans

There were also Model Waste Prevention Programs developed in agencies, which is a goal of the state Waste Prevention Plan. One was the CIWMB In-House Waste Prevention program that reduced office waste by 25% in the first nine months. The CIWMB produced the guide, *You can Do It Too: Preventing Office Waste at the CIWMB*. In addition, two state agencies have been targeted for comprehensive waste reduction programs, which is a combined effort of the Waste Reduction Training Program, and the application of the CIWMB's in-house waste prevention effort to other state government agencies. The effort will be coordinated between the Waste Prevention Program Development Section and Project Recycle, another program the CIWMB administers.

VI. Other Programs

CIWMB has an Information Exchange, which facilitates the exchange of news, ideas, fact sheets, business case studies, sample guide books, reports, tips on public education campaigns that promote waste reduction, and videos, among governments, businesses, non-profits and other interested parties. The exchange has a resource center and staff able to conduct limited research. It's database is available on the World Wide Web at <http://www.ciwmb.ca.gov/> (select Waste Prevention World) or by calling in state 916-255-INFO.

The Information Exchange is primarily focused on local governments and recycling coordinators for waste prevention, but available to the general public. It was set up for use on line, and referral to the appropriate source of information. Callers then contact the source directly. Some questions are posed on the CIWMB web site and are answered. By and large, they are quick answers. The Waste Prevention Information Exchange data base allows the reader to search by topic or keyword on subjects as diverse as air dryers, mattresses, and xeriscaping

Waste Prevention World on the website offers many business waste prevention topics. These include fact sheets, a business waste reduction guide, sample environmental policies, and outreach materials. Business kits also can be customized to meet the needs of local recycling coordinators. Also accessible is information on waste prevention assessment training.

The CIWMB collects educational reports and information on waste prevention, and keeps it on file. More and more activity is now posted on line, and the CIWMB can see how many "hits" or what people search for. In May 1997, there were 350 "hits," which is an increase from about 50 a month. The service has been in existence since November, and is working up to expectations.

The overall CIWMB website is extremely comprehensive. A listing of CIWMB Board publications (topics range from Business Assistance to Waste Prevention/Reduction) is available through a website table of contents. Some publications must be ordered while others can be downloaded while on the Internet.

Residents can also access information on preventing waste at home, including topics that they can search regarding grass cycling, home composting, reducing junk mail, worm composting, and xeriscaping.

-EXHIBIT 1-**Waste Prevention Contact List For Jurisdictions That Were Sent Surveys**

CITY	CONTACT	ADDRESS	PHONE/FAX
Atlanta, Georgia	Linda Disney <i>Recycling Coordinator</i>	City of Atlanta Department of Public Works Solid Waste Services 68 Mitchell St., SW Atlanta, GA 30335 p:	p: (404) 330-6776 f: (404) 658-7704
Baltimore, Maryland	Dale Thompson <i>Recycling Coordinator</i>	Office of Recycling Bureau of Solid Waste, Dept. Of Public Works City of Baltimore 201 Abel Wolman Municipal Bldg. Baltimore, MD 21202	p: (410) 396-5918 f: (410) 396-2964
Boston, Massachusetts	Susan Cascino <i>Recycling Director</i>	Public Works Dept. City Hall, Rm. 714 Boston, MA 02201	p: (617) 635-3142 f: (617) 635-3247
Chicago, Illinois	Brian Loll <i>Recycling Coordinator</i>	City of Chicago Department of Environment 30 North LaSalle St. Chicago, IL 60602	p: (312) 744-5721 f: (312) 744-6451
Cincinnati, Ohio	Karen Luken <i>Solid Waste Manager</i>	Hamilton County Dept. of Environmental Services 1632 Central Parkway Cincinnati, OH 45210	p: (513) 333-4719 f: (513) 651-9528
Cleveland, Ohio	Morris Edwards <i>Assistant Commissioner</i>	City of Cleveland Division of Waste Collection 5600 Carnegie Cleveland, OH 44103	p: (216) 664-3717 f: (216) 664-2655
Columbus, Ohio	Carolyn Able <i>Recycling Coordinator</i>	Keep Columbus Beautiful City of Columbus, Div. of Refuse 2100 Alum Creek Drive Columbus, OH 43207	p: (614) 645-8027 f: (614) 645-7747
Dallas, Texas	Brunswick Morton <i>Assist. Dir. Sanitation</i>	City of Dallas 3112 Canton Street Dallas, Texas 75226	p: (214) 670-4954 f: (214) 670-4488
Denver, Colorado	Cindy Boscow <i>Recycling Senior Analyst</i>	City of Denver Denver Recycles 1390 DeCatur Street Denver, CO 80204	p: (303) 640-2902 f: (303) 640-3616
Detroit, Michigan	Michael Breinker <i>General Manager</i>	Greater Detroit Resource Recovery Authority 570 Russell Detroit, MI 48211-2545	p: (313) 876-0140 f: (313) 876-0457

-EXHIBIT 1-(continued)**Waste Prevention Contact List For Jurisdictions That Were Sent Surveys**

Hamilton County, Ohio	Karen Luken <i>Solid Waste Program Manager</i>	Hamilton County Dept. of Environmental Services 1632 Central Parkway Cincinnati, Ohio 45210	p: (513) 333-4179 f: (513) 651-9528
Jacksonville, Florida	Jackie Eldridge <i>Recycling Coordinator</i>	515 N. Laura Street 6th Floor Jacksonville, FL 32202	p: (904) 632-4732 f: (904) 632-4471
King County, Washington	Tom Watson <i>Waste Prevention Specialist</i>	King County Solid Waste Division Department of Natural Resources 400 Yesler Way, #600 Seattle, WA 98104	p: (206) 296-4481 f: (206) 296-0197
Indianapolis, Indiana	George Miller	City of Indianapolis Engineering Building DPW/ERMD 2700 Belmont Ave. Indianapolis, IN 46221	p: (317) 327-2288 f: (317) 327-2289
Memphis, Tennessee	Andy Ashford <i>Recycling/Compost Director</i>	Bur. Solid Waste Management Recycling and Composting Dept. 125 N Main Street Room 628 Memphis, TN 38013	p: (901) 576-6868 f: (901) 576-6879
Milwaukee, Wisconsin	Mike Engelbart	City of Milwaukee DWP/Sanitation Bureau 841 N. Broadway Room 504 Milwaukee, WI 53202	p: (414) 286-2355 f: (414) 286-3344
	Karen Fiedler <i>Chairperson</i>	Waukesha County, Dept Parks and Land Use 1320 Pewaukee Road Room 260 Waukesha, WI 53188	p: (414) 896-8300 f: (414) 286-3344
Miami, Florida	Henry Jackson <i>Assistant Director</i>	City of Miami Department of Solid Waste 1290 Northwest 20th St Miami, FL 33142	p: (305) 575-5106 f: (305) 326-1114
Philadelphia, Pennsylvania	Ron Bennett <i>Dir. Education & Promotion</i>	Streets Department Sanitation Division Recycling Unit 780 Municipal Services Building Philadelphia, PA 19102-1664	p: (215) 686-5449 f: (215) 686-5455
Phoenix, Arizona	Terrence Gellenbeck <i>Solid Waste Administrative Analyst I</i>	City of Phoenix Public Works Department Solid Waste Field Services 101 South Central Phoenix, AZ 85004	p: (602) 256-5607 f: (602) 534-9864

-EXHIBIT 1-(continued)**Waste Prevention Contact List For Jurisdictions That Were Sent Surveys**

Pittsburgh, Pennsylvania	Lamar Barnes <i>Assistant Director</i>	Department of Public Works, Bureau of Environmental Services 3001 Railroad Street Pittsburgh, PA 15201	p: (412) 255-2780 f: (412) 255-2452
Sacramento, California	Jon Souza <i>Waste Reduction Coordinator II</i>	City of Sacramento Solid Waste Division 921 10th Street, Suite 500 Sacramento, CA 95814	p: (916) 264-5557 f: (916) 264-7771
San Antonio, Texas	Priscilla Rosales <i>Planner II</i>	City of San Antonio Solid Waste Division Public Works Dept. 1940 Grandstand San Antonio, TX 78238	p: (210) 522-8826 f: (210) 522-8820
San Diego, California	Todd Anderson <i>Recycling Specialist</i>	Environmental Services Dept. Environmental Programs Division 9601 Ridgehaven Court Mail Station 89 San Diego, CA	p: (619) 627-3309 f: (619) 492-5089
San Francisco, California	David Assmann <i>Senior Administrator</i>	City and County of San Francisco Solid Waste Management Program 1145 Market St. Suite 401 San Francisco, CA 94103	p: (415) 554-3409 f: (415) 554-3426
San Jose, California	Cami Kloster <i>Environmental Specialist</i>	Environmental Services Dept, 777 North 1st Street Suite 450 San Jose, CA 95112	p: (408) 277-5533 f: (408) 277-3669
St. Louis, Missouri	Randy Breitenfeld <i>Deputy Refuse Commissioner</i>	City of St. Louis Refuse Division 4100 South First St. St. Louis, MO 63118	p: (314) 353-8877 f: (314) 352-5627
Tompkins County, NY	Lynn Leopold <i>Recycling Specialist</i>	Tompkins County Solid Waste Div. Public Works Department 122 Commercial Ave. Ithaca, NY 14850	p: (607) 273-5700 f: (607) 275-0000
Washington, DC	Joan Rohlfs <i>Chief of Air Quality & Solid Waste</i>	Metropolitan Washington Council of Governments 777 N. Capitol St, NE Washington, DC 2002-4234	p: (202) 962-3358
California	Kathy Frevert <i>Waste Prevention InfoExchange</i>	California Integrated Waste Management Board 8800 Cal Center Drive Sacramento, CA 95826	p: (916) 255-2493 f: (916) 255-4580
Minnesota	Kenneth Brown <i>Senior Planner Waste Prevention</i>	Minnesota Office of Environmental Assistance 520 Lafayette Road North St. Paul, MN 55155-4100	p: (612) 215-0241 f: (612) 215-0246