

Municipal
Solid Waste
Recycling
Task Force

COMMERCIAL SECTOR RECYCLING REFERENCE SHEETS

Municipal Solid Waste Recycling can be divided into two main types: Residential and Commercial. Although Residential Recycling is not without its own difficulties, the ASTSWMO Municipal Solid Waste (MSW) Recycling Task Force (Task Force) has initially assigned itself the preparation of a Commercial Sector Recycling reference document for State, local and national recycling coordinators/managers, as well as solid waste and sustainability managers, in the various sectors which the Task Force has addressed.

Commercial Recycling can be divided into sectors, each with its own barriers to recycling and waste stream composition. In an effort to summarize the major initiatives taking place across the country for the recycling of these commercial sectors, the Task Force has put together a series of reference sheets giving concise reviews of the available literature. The information in this document was gathered during 2009-2010. Statistics cited are from the individual research conducted by Task Force members. The web sites contained in this document are strictly for informational purposes.

These reference sheets will be reviewed and updated on a semi-annual basis as new information becomes available. Additional sectors may also be added to this document.

State recycling coordinators/managers can update their State information, and/or propose additional sectors for inclusion, by sending an e-mail to Kerry Callahan in the ASTSWMO office at kerryc@astswmo.org.

TABLE OF CONTENTS

CLICK TO JUMP

AIRPORTS..... 3
AGRICULTURE..... 4
CONSTRUCTION..... 6
DRY CLEANERS 8
HOSPITALS AND THE HEALTHCARE INDUSTRY 10
K-12, COLLEGES AND UNIVERSITIES RECYCLING 12
 K-12 12
 COLLEGES AND UNIVERSITIES 14
MASS TRANSIT..... 15
MULTI-FAMILY HOUSING..... 16
OFFICES OR FINANCIAL INSTITUTIONS..... 18
RECYCLING AT PUBLIC VENUES AND SPACES 19
RETAIL 21
SMALL BUSINESS RECYCLING 22

AIRPORTS

Introduction

One study put out by the Natural Resources Defense Council (NRDC) shows that, on average, 75% of the waste stream generated at airports is consistently recyclable. Airports are a unique environment where a captive audience generates increasing amounts of waste and where security issues call for innovative ways to capture the recyclables in the waste stream.



Resources

▪ State and Local:

This CalRecycle website offers information on [airport recycling](#).

In April 2007, the Sacramento International Airport initiated a program to collect newspapers, magazines, white and colored paper, cardboard, aluminum cans, glass, and plastic bottles.

▪ U.S. Environmental Protection Agency (USEPA):

USEPA has issued a report “[How to Start a Recycling Program at Your Airport](#)”. This report covers how to start a program, types of collection bins, [types of recyclables](#) and how to manage them, waste audits, and has several case studies listed below.

▪ Other Organizations:

The [Natural Resources Defense Council](#) (NRDC) is an international nonprofit environmental organization working to protect the world’s natural resources, public health, and the environment. They have a report entitled “[Trash Landings](#)” that is available in print or online. This report presents the findings from NRDC's yearlong study of the airline industry and outlines clear steps that airlines and airports -- and other large municipal operations -- can take to put effective recycling initiatives into place.

Case Studies

USEPA offers the following [four case studies](#):

1. [Baltimore/Washington International Thurgood Marshall Airport](#). Recycling here has increased from less than 5% in 2004 to 28% in 2006.
2. [Salt Lake City Department of Airports](#). Many tons of a wide variety of materials are recycled annually. Materials are generated by the flying public as well as all in-house and behind the scenes departments.
3. The [San Diego International Airport](#) has received recycling awards from the city and recyclables captured has gone from 107 tons in 2002 to 362 tons in 2006. A link is provided to a [handbook on recycling](#) at the airport.

4. Seattle-Tacoma (Sea-Tac) International Airport. [Learn how Sea-Tac Airport improved recycling for Seattle air travelers \(PDF\)](#)

AGRICULTURE

Introduction

There are a multitude of plastic derived products used for agriculture, including: mulch film, drip irrigation tape, row covers, tunnel film, box liners, greenhouse film, peat moss bags, haylage bale stretch-wraps, “Super Sacks”, plastic twine, silage bags, bunker covers, buckets, barrels, drums, nursery pots and trays, and irrigation pipe. Though these products have helped farmers around the world, they also are adding to the ever-increasing problem of plastics disposal.



Two common practices for agriculture (AG) plastics disposal are burning or sending to landfills. Both create problems. Burning plastic (especially at smoldering temperatures) releases highly toxic vinyl chloride and other potentially cancer-causing chemicals (i.e., dioxins and furans) into the air; this pollution also aggravates asthma and emphysema and can increase the risk of heart disease in susceptible people. Residue from burning contaminates the soil and groundwater and can enter the human and livestock food chain by settling on crops and in waterways.

Sending AG plastics to landfills is costly and adds further to the escalating problem of solid waste management. It is estimated that plastics take 100 to 400 years to break down in landfills. The “[Great Pacific Garbage Patch](#)” in the Pacific Ocean between northern California and Hawaii, is an oceanic gyre twice the size of Texas filled with plastic trash; it is a constant reminder that we need to reduce our use and disposal of plastic.

A decade ago it was estimated that nationwide 66% of AG plastics by weight were nursery containers; 5%, pesticide containers; and 30%, various types of films (mulch, fumigation, bale wrap) and irrigation tubing. Current anecdotal evidence indicates that plastic use in dairy farming has increased considerably since the early 1990s. Milk is the leading agricultural product nationwide; we estimate that 3% -- or 1,678 million lbs -- of plastics of the resin types used in agriculture are used in agricultural production.

Resources

▪ State and Local

New Jersey Department of Agriculture (NJDA) Plastic Pesticide Container Recycling site contains information on [New Jersey’s mandatory Agricultural Recycling Program](#).

California Department of Resources Recycling and Recovery's (CalRecycle) page contains information on sustainable agriculture demonstration projects, including erosion control projects, and links to agricultural organizations that support and promote sustainable practices. [Sustainable agriculture](#) involves practices that sustain natural resources and biodiversity, while still being economically viable.

Though it is dated (2006), CalRecycle lead a cooperative initiative, beginning in 2005, to increase [plastic film recycling](#) in California. Local governments, companies, organizations, and individuals involved in plastic film manufacture, sale, use, and recycling were invited to participate in this initiative by joining one of the two [workgroups](#), and/or by committing to begin or expand activities involving film recycling.

The [Franklin County NY](#) website on recycling dairy plastics gives some best management practices for AG plastics.

Washington State University has a whole webpage dedicated to "[plasticulture](#)", or the broad and general use of plastics in agriculture.

▪ **Other Organizations**

The [Northeast Waste Management Officials Association](#) (NEWMOA), through a grant from the U.S. Department of Agriculture, Rural Utilities Service, conducted training and provided technical assistance to promote recycling of agricultural plastics in rural areas of Maine, New Hampshire, New York, and Vermont during 2008 and 2009.

There are currently nine dairy farms, with one about to begin, and one duck farm conducting [anaerobic digestion of manure in New York State](#). Anaerobic digestion produces methane gas that may be used for heating purposes and/or to generate electricity. It produces essentially pathogen-free solids that may be used as fertilizer and animal bedding.

EPA Region 2's Pollution Prevention Program has issued two grants to the State University of New York (SUNY) College of Agriculture and Life Sciences at Cornell University for an agricultural plastics recycling project. The projects promote life-cycle stewardship and extended producer responsibility (EPR) for AG plastic films to prevent the pollution generated when these products are disposed in open fires on-farm. For more information on these projects, visit the [Recycling Ag Plastics Project \(RAPP\)](#).

[Northwest Ag Plastics, Inc.](#) is contracted to collect and granulate plastic pesticide containers for the agricultural industry in Washington, Idaho, and Oregon. Sub-contractors in Oregon and Idaho help carry out this program. In Oregon, Agri-Plas, Inc., based in Brooks, Oregon, services Western and Central Oregon. In Idaho, the Idaho Department of Agriculture carries out the program.

[US Ag Recycling](#) collects plastic containers in many States throughout the south and eastern coast line. It offers three collection options; public collection, collection centers, or private collection.

The Ag Container Recycling Council, [ACRC recycling](#) program is one of the most successful and innovative in the country, bringing both the public and private sectors together to promote environmental stewardship.

Case Studies

This 2005 presentation by the Cornell University Environmental Risk Analysis Program looks at reducing dioxin emissions by [recycling agriculture plastic](#).

Recycling Process for Poultry Litter: [Recycling reactors](#) based on this technology are easily adapted for permanent. Related technologies are being commercialized for recycling scrap plastics and electronic, aircraft, and automotive parts.

This model describes sustainable long-term [recycling of saline agricultural](#) drainage water (type in “agriculture” recycling under advanced search).

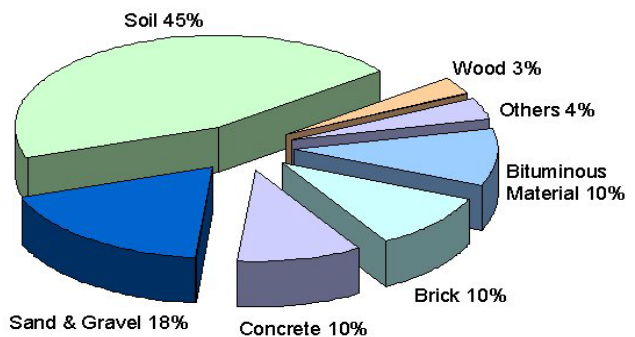
Plas2Fuel: This website describes [turning plastics into fuel](#). A privately-held alternative energy company converts mixed waste plastics into synthetic crude oil and other valuable petrochemical products.

[Modeling Agricultural Recycling Systems for System Size and Economic Potential](#): The purpose of this research is to examine an *agricultural recycling* system.

CONSTRUCTION

Introduction

On a national scale, total building-related construction and demolition (C&D) waste is estimated to be 135.5 million tons. This figure represents 30 percent of the *largest single source* in the waste stream.



Resources

▪ State and Local

This site contains [C&D debris recycling tools](#) put out by the Department of Resources Recycling and Recovery (CalRecycle), including [tools for architects, builders, local governments, and C&D processors](#), a sample ordinance, specifications, etc.

Calculate your [construction waste reduction potential](#) with this tool by the Extension Service at Montana State University.

Resource that transforms [waste into resources](#), by WasteCap Wisconsin.

This website has tools from [King County](#), WA, to learn how to obtain the highest diversion rates possible.

The Connecticut Department of Environmental Protection (CT DEP) has a webpage on [C & D Materials Management](#).

▪ **U.S. Environmental Protection Agency (USEPA)**

[Basic Information](#) on C&D Materials

[Regional and State](#) C&D materials programs

▪ **Other Organizations**

[Construction Recycling Materials Association](#)

[National Association of Home Builders](#) (NAHB) Research Center: Reports on the most comprehensive sources of data on residential building materials usage available. Information on [construction waste management](#) in the homebuilding industry, including materials recycling and reuse, can be found at this National Association of Home Builders Research Center web page.

This is an [instructional video](#) on how to salvage materials for a deconstruction project, by StopWaste.Org, which is the Alameda County (CA) Waste Authority and Alameda County Source Reduction and Recycling Board operating as one public agency.

You can find articles on [Construction & Demolition Recycling](#) from The Free Library.

Case Studies

The City of Chicago, IL provides a construction and demolition [Best Management Practices](#) guide for C&D operations. This guide includes case studies and strategies for meeting the C&D recycling requirements.

Another Midwestern web site, from [Wastecap Wisconsin](#), provides excellent information on C&D recycling. It's particularly strong on case studies and links to additional resources.

Online Materials Exchanges

Northwest Exchange: [Visit BoneyardNW.com](#)



DRY CLEANERS

Introduction

Most Dry Cleaners are small businesses and can utilize the information provided in this

document for small businesses regarding normal solid waste reduction, reuse and recycling opportunities. There are, however, a number of specific items that dry cleaners use/provide to their customers that become waste and are normally used only once before disposal by their customers. More progressive, environmentally friendly and cost savvy dry cleaners have instituted these types of efforts and programs to be more environmentally sensitive.

Resources

There are very few waste reduction, reuse and recycling resources available specifically for Dry Cleaners to assist them in establishing a comprehensive solid waste reduction, reuse and recycling program. As stated above, the small business recycling fact sheets can be used.

The following organizations provide some additional advice:

The [USEPA](#) does maintain a comprehensive set of webpages to assist Dry Cleaners. It includes information regarding the dry-cleaning industry processes and pollution issues. In addition, EPA administers the Design for the Environment Garment and Textile Care Partnership Program, which is committed to promoting environmentally benign alternative technologies for garment and textile care.

The [Drycleaning & Laundry Institute International](#) (DLI) has been a leading international trade association for garment care professionals since 1883 and represents over ten thousand retail dry cleaning facilities in the United States alone. Some specific [recycling advice](#) is provided on DLI's website.

While there is little general solid waste reduction, reuse and recycling information, there is information available regarding some specific items and materials used by this sector that can be considered. See below:

Hangers

Most dry cleaners provide either wire or plastic hangers along with plastic cover bags. If wire hangers are provided, some Dry Cleaners also provide paperboard covers over the wire to prevent wrinkling or staining.

It has been reported that the costs to purchase these supplies are rising along with all other commodities. While not a waste reduction strategy for the dry cleaner, one of the major cost reduction strategies that dry cleaners can institute is some form of hanger take-back program. One dry cleaner reported a 40% savings in new hanger costs. That can be a significant cost reduction for a small business. Customers can be encouraged to bring back only undamaged hangers; this would be a waste reduction strategy for customers.

Additionally, if the hangers are damaged wire hangers, they are easily recyclable and can be included in almost any metal recycling program.

According to National Cleaners Association (NCA), if a wire hanger is returned to a dry cleaner in poor condition then that cleaner could send them to a scrap metal dealer or give them back to the supplier who may have other methods of recycling/disposal. The NCA also suggests that people concerned about this issue could make it a community project; organizing a wire hanger drive or identifying a place where residents/neighbors can gather them up and pass along to a scrap metal dealer.

Even if dry cleaning businesses do not offer a take-back program, they can encourage customers to reuse them or give them to other organizations that will, such as Goodwill and the Salvation Army. Some dry cleaners have offered specialty type hangers that are made of recyclable or compostable paper but this is not very common.

Plastic Bag Covers

Plastic bag covers are useful for preventing wrinkles and protecting pressed clothes from getting wet or stained before use. However, the amount of plastic that is eventually disposed of from this use is staggering. Hundreds of thousands of tons of this material end up as solid waste to be disposed of in landfills or incinerators.

A number of environmentally aware dry cleaners provide take-back services to collect these bags for recycling. And since the bags collected are so clean and uncontaminated they are usually a marketable commodity instead of a waste in need of disposal.

Home Delivery/Pickup

Home delivery and pickup can be cost-effective and greener for the environment as well. If a company offers this service it will obviously save the customer time and energy in dropping off and picking up their garments. Additionally, by making use of efficiently planned routes and using energy efficient vehicles, this can reduce the overall environmental foot print of the required transportation for the dry cleaner as well.

Case Studies

Two dry cleaner businesses were featured on the DLI website and reported the following:

Puritan cleaners is a 20-location, three-route company, based in Richmond, Virginia. They are able to put 80,000 hangers back into their system each month according to owner Gary Glover. Mr. Glover indicates that the store provides this program to do a good turn for the Earth (and to help defray operating costs).

A Cleaner World, based in High Point, North Carolina, has placed a penny per returned hanger into an escrow account. Over the years that money, \$50,000, has been donated to purchase trees to be planted in the area the company serves. That's over 5 million hangers. Not only does the effort help the community by saving space in landfills, it also helps keep customers. As president Chris Edwards states, "Our community relations projects bring in business. We feel it's our duty to give back to the community that supports us. We feel that we get customer goodwill by being a good corporate citizen.

HOSPITALS AND THE HEALTHCARE INDUSTRY

Introduction

It has been reported that American hospitals generate approximately 6,600 tons of waste per day. As much as 85% of that is non-hazardous solid waste, such as paper, cardboard, food waste, metal, glass, and plastics. An integrated waste reduction and recycling strategy will help better manage a facility's waste stream. Therefore, there is a substantial economic incentive for implementing programs to reduce waste, including reduced disposal costs and, possibly, income generated from recycling.



Resources

▪ State and Local

The California Department of Resources Recycling and Recovery's (CalRecycle) mission is to ensure that waste materials are managed, reduced, reused, recycled, and disposed of properly in order to protect the public health and the environment. CalRecycle has many assistance programs, from business waste reduction, material exchange, used oil and e-waste management, to recycling and environmentally preferable purchasing. The [California State Department of Toxics Substances Control](#) targets hazardous wastes from industrial chemicals to computer monitors.

CalRecycle also has a Health Care Waste Team dedicated to waste management related efforts. Its goal is to help establish a State-wide infrastructure of sustainable waste reduction, reuse, and recycling programs in the health care industry. CalRecycle information regarding [Health Care Industry Waste Reduction and Recycling](#) can be found at this site.

The Mississippi Department of Environmental Quality (MS DEQ) provides guidance on materials to recycle, collection or storage containers needed, and equipment needed to operate a [hospital recycling program](#) as well as how to process and market recyclable materials, how to educate participants in a recycling program, and where cost savings can be realized from establishing a hospital recycling program.

The Pennsylvania Department of Environmental Protection (PA DEP) also provides tips for recycling materials found in the hospital waste stream: [Recycling Works Tip Sheet: Hospitals and Health Care Institutions](#)

• Other Organizations

[Practice Greenhealth](#) is a national membership and networking organization for institutions in the healthcare community that are committed to sustainable, eco-friendly practices. Members include hospitals, healthcare systems, businesses and other stakeholders engaged in the greening of healthcare to improve the health of patients, staff and the environment. More specific web information on Recycling can be found [here](#). They also have excellent information and guidance on [Waste Reduction](#), and on [Waste Management](#).

There are also several other areas on this website that deal with pharmaceutical waste management, chemical management, composting, recycling, donation in [Food Services](#) and waste prevention in [Environmentally Preferable Purchasing](#).

Case Studies

The Practice Greenhealth program website offers the following success stories:

In 1992, the Itasca Medical Center in Grand Rapids, Minnesota, was a 108-bed community hospital with an attached 35-bed convalescent nursing care facility. “As a result of reduction actions alone, the hospital personnel is preventing 238 cubic yards and over 10,700 pounds of waste. Not including the savings from avoided disposal fees, these actions result in an \$11,030 yearly cost savings for the hospital.”

“St Joseph’s Medical Center in California reduced the amount of solid waste going to the landfill by 52 tons in 2004, and recycled more than 128 tons of waste – largely paper, but also pallets, cardboard, and green waste recycling – approximately 21% of the system’s total waste stream.”

“St Elizabeth Medical Center in Edgewood, Kentucky, reduced paper usage by thousands of sheets through placement of all Administrative, Human Resources, and Nursing Policies and Procedures, as well as their Safety and Infection Control Manual and over 4000 MSDS sheets, on their intranet system instead of making paper copies for multiple binders in numerous departments.”

K-12, COLLEGES AND UNIVERSITIES RECYCLING

Introduction

From paper and electronics to food scraps and yard waste, our educational facilities generate tons of waste each year. This material is not only a waste in terms of natural resources, but also in terms of overall operational efficiency and expenditure. However, by incorporating recycling, composting, and waste reduction strategies into a facility's overall business process,



all types of schools can benefit from:

- reduced purchasing costs for new materials,
- reduced waste hauling and disposal costs,
- potential revenue from collected recyclables, and
- increased efficiency of operations.

The following resources are provided to facilitate the waste reduction and resource conservation efforts within K-12 schools, colleges and universities. This information includes guidance documents, planning tools, case studies, models, templates and other tools to institutionalize resource conservation best management practices within campus operations.

General Information

Schools, including K-12, colleges, and universities, and offices typically generate significant volumes of recyclable paper, including white paper, mixed paper, corrugated cardboard, magazines and journals, and newspaper. As part of its focus on increased [paper recycling](#), the [USEPA offers paper recycling resources](#) tailored to K-12 Schools and Colleges and Universities interested in setting up paper recycling programs.

USEPA also offers [tips for a waste-less school year](#) and [paper recycling best management practices](#) for K-12 and colleges and universities.

Resources

▪ State and Local

A number of States have excellent resources designed to facilitate recycling at K-12 education institutions:

- The [Sustainable Oregon Schools Initiative](#) is a long-term, comprehensive, State-wide program to help interested districts and schools integrate sustainability into their operations and classrooms. Sustainability includes all aspects of school operations, teaching and culture. This site offers resources to help Oregon's K-12 schools and districts on their journey toward sustainability.
- The [California Division of the State Architect Sustainable Schools Website](#) provides a diverse collection of sustainable building resources including the numerous benefits, guidelines, programs, case studies, relevant publications, funding options/incentives, and

plenty more! The site is geared toward those interested and involved in designing, developing, and constructing high performance schools, such as school administrators and board officials, developers, architects, planners, researchers, teachers, parents, and others. Please visit their [introduction page](#) to take the first steps to learn more about sustainability or click on the surrounding images to learn to integrate sustainable design into your school.

- The California Department of Resources Recycling and Recovery (CalRecycle) also provides [information on programs that can be implemented](#) to reduce the solid waste generated in all areas of a school district (e.g., administration, maintenance and operations, purchasing, food service, classrooms, etc.) that, when properly implemented, create hands-on learning experiences for students and result in district-wide waste reduction! This site also provides:
 - Information regarding the environmental, economic, and educational benefits of implementing waste reduction programs.
 - School waste composition information.
 - Results from CalRecycle's school district survey regarding waste reduction program implementation.
 - Information regarding [school waste diversion programs in other States](#)
 - States that have instituted waste reduction programs for their school waste stream.
- All [schools in Connecticut](#) are required by State law to recycle [ten mandated items](#).
- [North Carolina law](#) supports the participation of schools in recycling programs and provides many useful related resources (e.g., guidelines, success stories, waste assessment tools, frequently asked questions).

▪ U.S. Environmental Protection Agency (USEPA)

USEPA hosts a number of useful resources related to developing and sustaining K-12 recycling programs:

- USEPA's [Tools to Reduce Waste in Schools](#) publication is designed to help schools and school districts to reduce the amount of waste they generate. It includes information on how to start a waste reduction program or expand an existing one. The guide illustrates how programs can benefit the school, community, and the environment by reducing, reusing, and recycling school waste. In addition to identifying 10 steps for becoming waste-free, *Tools to Reduce Waste in Schools* provides many easy-to-implement waste reduction activities and a variety of resources that can be accessed for additional information and support.
- Did you know that every school lunch creates an average of 67 pounds of trash per school year? Learn how to reduce the number of items in your lunch that must be thrown out at the [USEPA's Waste-Free Lunch](#) web page. This resource offers a waste free lunch poster designed to help students learn how to reduce, reuse, and recycle items in their school lunches. Also learn how to get parents involved and to share your success. This site also includes a number of valuable web resources for further research.
- [USEPA Waste Wise Program](#) offers industry sector resources, including those relating to [K-12 waste reduction](#).

COLLEGES AND UNIVERSITIES

Introduction

Many requirements for State-wide recycling and other waste reduction efforts are specific to State agencies, which by definition can include colleges and universities. The following are examples of just a few.



Resources

▪ State and Local

[California's State Agency Model Integrated Waste Management Act](#) requires that State agencies develop and implement an integrated waste management plan to divert at least 50 percent of their solid waste from disposal facilities. The State agency must also submit an annual report summarizing its yearly progress in implementing waste diversion programs. By definition, State agencies include every office, department, division, board, commission, or other agency of the State of California, including the California Community Colleges and the California State University. The Regents of the University of California are encouraged to implement this division.

The South Carolina Solid Waste Policy and Management Act of 1991 calls for each county, State agency and publicly funded college and university to [report annually the amount of material it recycles](#).

In Connecticut, "Recycling...It's the Law!" This means that everyone must recycle including all [public and private colleges and universities](#).

▪ U.S. Environmental Protection Agency (USEPA)

[USEPA's Healthy School Environments](#) web portal provides a vast array of information on environmental issues affecting schools. The site includes links to topics such as school design and construction, energy efficiency, environmental education and waste reduction.

▪ Other Organizations

The goal of the [GrassRoots Recycling Network Campus ZeroWaste](#) web resources is to help students and other campus community members tap into the wealth of web-accessible information that is available on waste reduction and recycling. These pages outline recycling and waste reduction web resources for colleges and universities, opportunities to take action in waste reduction campaigns, list zero waste campuses and useful web resources for creating sustainable or "green" campuses.

[Healthy Schools Network, Inc.](#) hosts a web site with many links to resources related to school environmental issues ranging from health concerns to conservation.

Case Studies/Success Stories

[WasteWise](#) is a free EPA program through which organizations—including schools—eliminate costly municipal solid waste and select industrial wastes, benefiting their bottom line and the environment. WasteWise is a flexible program, allowing partners to design their own waste reduction programs tailored to their needs and offering partners free technical assistance and recognition opportunities.

[RecycleMania](#) is a friendly competition and benchmarking tool for college and university recycling programs to promote waste reduction activities to their campus communities. Over a 10-week period, schools report recycling and trash data which are then ranked according to who collects [the largest amount of recyclables per capita](#), [the largest amount of total recyclables](#), [the least amount of trash per capita](#), or have the [highest recycling rate](#). With each week's reports and rankings, participating schools watch how their results fluctuate against other schools and use this to rally participation.



MASS TRANSIT

Introduction

Surface public mass transit includes buses, trains, trolleys, subways and boats. Each day, millions of travelers use some form of mass transit to get to work, school, shop, or other reasons including recreation. The primary recyclable at these venues is newspaper. Plastic bottles are a secondary recoverable commodity.

Resources

▪ **U.S. Environmental Protection Agency (USEPA)**

This [USEPA](#) link has some information on the importance of education. Signage as well as bin placement and design can be critical.

Case Studies

USEPA offers the following two case studies at the above website:

The [Chicago Transit Authority](#) recycles on an average day 6,227 pounds of newspapers from 113 of its rail stations. This link will provide additional information and a listing of quantities collected.

The [Massachusetts Bay Transportation Authority](#) (MBTA) developed a recycling program that includes the availability of 65 recycling bins at many of its stations. In less than one year, the MBTA and its customers recycled nearly 1 million pounds of newspapers.

MULTIFAMILY HOUSING



Introduction

As efforts to reach or exceed USEPA's goal of a national MSW recycling rate of 35% continue, increased multi-family recycling remains a key component to success. The following information is intended to promote the implementation of new, and to improve the effectiveness of existing, multifamily recycling nationwide.

The best place to start and make a difference with respect to waste reduction and recycling is right in our own homes. There are numerous ways in which we can achieve this depending on where we live and the local recycling options available to us. One of the most common residential recycling programs is curbside recycling, a municipal program operated to pick up a specific set of recyclable materials, usually weekly. Typically, most residential recycling collection programs are designed for single family residences. With the growth in multifamily housing on the rise nationally, there is increasing demand for multi-family recycling programs.

Most often, residents in multi-family dwellings are not able to sign up for individual recycling service. Generally, the manager of the multi-family residential complex makes such arrangements for the entire facility by contacting the local solid waste management service provider. If there is no recycling at the complex, residents can also encourage the management to establish a recycling program by letting them know it is important.

Frequently, multi-family residences are not served by the local residential curbside recycling collection program because such programs were not designed to serve multifamily complexes with respect to space, collection, routing, billing, etc. Additionally, multi-family residences can be classified as commercial properties and thus offered commercial recycling programs, which, as such, are not geared to the unique characteristics of these properties.

Because multi-family residences have district program needs that are not necessarily met with traditional residential or commercial recycling programs, the following information is provided to facilitate the implementation of new programs as well as to enhance the effectiveness of existing multi-family recycling programs.

Resources

▪ State and Local

The Massachusetts Department of Environmental Protection developed a [fact sheet](#) regarding planning and implementing a successful recycling program in an apartment or multi-family complex.

CalRecycle's Division of Recycling awarded \$15 million in grant funds in FY 2008/2009 to establish beverage container recycling collection programs placing source-separated beverage container [recycling receptacles in multifamily housing communities](#) in California. Grants were awarded on a competitive basis. Although specific program details are not provided, the list of awardees is provided and offers a peer matching opportunity.

With funding from the agency formerly known as the Minnesota Office of Environmental Assistance, Eureka Recycling created the ["Exploring Multifamily Recycling"](#) toolkit highlighting best multi-family practices in the country. This toolkit provides tools for recycling program coordinators to assess their multi-family programs and improve them using the best practices in multi-family recycling.

▪ **U.S. Environmental Protection Agency (USEPA)**

USEPA has a number of useful publications that address the general topic of multi-family recycling, including:

- [Complex Recycling Issues: Strategies for Record-Setting Waste Reduction in Multifamily Dwellings](#): This fact sheet packet is oriented toward recycling coordinators, building managers and owners, and highlights record setting multi-family dwelling waste reduction programs.
- [Multifamily Recycling: A Golden Opportunity for Solid Waste Reduction](#): This fact sheet explains the diversion rates, costs, and common elements of high performing multifamily recycling programs across the United States, based on the experience of communities like your own. This information is drawn from the results of a national study that compared single-family and multifamily recycling services.
- [Multifamily Recycling: A National Study](#): This report is the result of the first national study of multifamily recycling programs.

USEPA offers an overview of addressing the economic incentive [Pay as You Throw](#) when implementing multi-family residential recycling.

Case Studies/Success Stories

In addition to the case studies and success stories included in the above references, the following information also demonstrates the value of such programs:

[Wisconsin's Waste Reduction and Recycling law](#) and local ordinances require the owners of all multi-family buildings and facilities to: provide separate containers for the materials banned from landfills and incinerators; notify residents in writing about the recycling program at the time of renting or purchasing and at least semi-annually thereafter; arrange for the collection and transportation of recyclables to a recycling or processing facility; educate residents about the three Rs (Reduce, Reuse and Recycle) and other waste reduction strategies; and obey local recycling ordinance requirements.

In recognition that multifamily recycling programs are important for California's continued success in waste reduction and recycling, CalRecycle assembled information to assist local jurisdictions in their efforts to develop successful [multifamily diversion programs](#). This information includes results of pilot programs, success stories and other supporting resources.

[Multifamily Dwelling Recycling Evaluation Report](#): This report serves as an overview and evaluation of multi-family dwelling recycling programs in Alameda County, California (December 10, 2008).

OFFICES OR FINANCIAL INSTITUTIONS

Introduction

Typical business offices generate about 1.5 pounds of waste paper per employee each day. Financial businesses generate more than two pounds per employee daily. Nearly half of typical office paper waste is high grade office paper. Eliminating office paper from the office and financial sectors' waste stream may reduce their waste bill by as much as 50%.

Resources

▪ State and Local

This [CalRecycle](#) website presents an outline of how waste-conscious businesses manage their offices.

This page from [Fairfax County, Virginia](#) summarizes the steps to implementing a recycling program for an office.

[Willistown Township](#) put out this fact sheet which combines instructions for starting a recycling program in office or financial institutions, and includes looking at other areas besides paper, such as food service.

▪ U.S. Environmental Protection Agency (USEPA)

This page from USEPA details how to [start or expand a recycling program](#) in general terms for all commercial entities.

Case Studies

This USEPA [Waste Wise](#) case study looks at Bank of America and the steps they took to close the recycling loop when carpeting a new office building. Bank of America also worked on a "Make it Second Nature" campaign to educate their employees about the need to purchase products with recycled content.



The [City of New York](#), NY has posted a brief case study which discusses starting a recycling problem in a multi-tenant office building.

RECYCLING AT PUBLIC VENUES AND SPACES

Introduction

Recycling is not just for home, work and school anymore. More and more opportunities to recycle are available at parks, airports, transportation hubs, stadiums, convention centers, shopping malls and other venues as well as special events.



Often ignored at these places and spaces is the waste - tons of it – that is created. That is changing. More and more, people who recycle are looking for the same opportunity when they are playing, shopping and traveling as they have when they are at home, work or school.

Recycling, of course, has many well-known benefits including conserving natural resources, reducing pollution, saving energy and promoting environmental stewardship.

For public venues, recycling has additional benefits. Recycling reduces litter and helps keep public spaces cleaner as well as potentially saves money by reducing waste management costs. The recyclables collected also may generate revenue – further reducing costs. Finally, recycling programs at public places also reinforce recycling behavior elsewhere.

Unfortunately, stubborn obstacles remain for setting up a successful, sustainable recycling program in many public venues. But recycling on the go opportunities are growing nationwide. Event recycling is required at more and more locations. Wisconsin and Washington, in fact, have State-wide requirements.

Given all of the above, it is little surprise that there is a wide range of information available on how to set up programs in public places – from simple tips on how to set up a recycling program at a small-town event to best management practices for large venues.

Resources

▪ State and Local

Wisconsin requires, by State and local laws and ordinances, the recycling of certain material at special events whether at public or private locations or facilities. Aluminum cans, plastic bottles, glass bottles and jars, newspaper, cardboard and office paper must be collected for recycling. Other material also may be required to be recycled depending on the community. [The Wisconsin](#)

[Department of Natural Resources](#) offers comprehensive information, recommendations and links to more information on special events recycling.

Event recycling also is required in Washington. The State passed legislation in 2007 that requires a recycling program at every official gathering (e.g., concerts, fairs, sporting events, festivals, tournaments) and sports facility where recycling services are available to businesses. To learn more about the law and how to set up a successful recycling program visit the [Washington State Department of Ecology](#).

The CalRecycle web site provides information on [reducing waste at venues and events](#).

The [S.C. Green Hospitality Program](#) offers best management practices, tips and recommendations for hotels, motels, restaurants, bars and other hospitality venues.

The [City of New York](#), NY also has extensive information, recommendations and tips on how to set up recycling programs in public spaces.

“Recycling at Events: [A Guide to Reducing Waste at any Event](#)” provides organizers ways to plan for recycling programs and other green practices to make events environmentally friendly. The publication was developed by three partners including the city of Portland, Oregon.

▪ **U.S. Environmental Protection Agency (USEPA)**

[USEPA](#) provides in-depth information, tips, resources and success stories with its Recycle on the Go initiative.

Case Studies/Success Stories

[USEPA’s Recycle on the Go](#) initiative provides success stories for stadiums, parks, transportation hubs, special events, shopping centers and convention centers. Of particular interest may be Wisconsin’s Rest Area Recycling Program, Delaware’s State Fair Recycling Initiative, Recycling at Penn State’s Beaver Stadium, Yellowstone National Park Recycling Program and King County’s Marymoor Park Turns Up the Volume on Recycling.

[USEPA’s Retail Industry Portal](#) provides a comprehensive overview of resources to help prevent or resolve environmental issues at retail establishments. Two types of resources are available – compliance and sustainability. One of the key latter resources is

“[America’s Marketplace Recycles: A Guide to Waste Reduction at Shopping Centers](#)”: This guide serves as a resource for local and State recycling coordinators and contains numerous case studies from shopping centers and retailers who are leaders in waste prevention and recycling.

RETAIL

Introduction

According to the EPA, Americans visit shopping centers an average of 2.5 times per month. This could be an untapped resource for recycling. Should the industry choose not to supply recycling bins for its customers, it still has the potential to recycle plastic film and packaging supplies for its entire inventory. The first “Green Mall” specializing in environmentally responsible and socially conscious businesses opened in Chicago, IL, in 2008.



Resources

▪ State

The Pennsylvania Department of Environmental Protection produced [this short tip sheet](#) for starting a recycling program for retailers

▪ U.S. Environmental Protection Agency (USEPA)

This [USEPA](#) website encourages shopping centers to institute a recycling program to improve the bottom line. It also includes information on how to start a program.

As noted above, the [Retail Industry Portal](#) provides access to the many programs and resources available to help prevent and resolve environmental issues at retail establishments. As described on the website, two types of resources are available:

- Compliance Resources: to assist in meeting current regulatory obligations. In addition to Federal regulations, State regulations may also apply to your business activities. Not complying with regulatory obligations can result in enforcement actions.
- Sustainability Resources: to assist with voluntarily going beyond regulatory obligations to protect the environment.

▪ Other Organizations

The Eco-Efficiency Centre, a non-profit, non-government educational and environmental management support centre for small and medium-sized enterprises in Nova Scotia, prepared [this fact sheet](#). Even though it is Canadian, the information still applies to American retailers.

Case Studies

USEPA's [Waste Wise](#) has highlighted three retailers that have successfully implemented recycling and waste reduction programs.

A case study on USEPA's website discusses how [Wal-Mart and Sam's Club](#) implemented a program wherein plastic film was sandwiched between cardboard and baled. This allowed for easier recycling of plastic film.

SMALL BUSINESS RECYCLING

Introduction

Recycling is good for the environment – and the economy.

While the environmental benefits of recycling are well known, that recycling plays an integral role in the nation's economy is less known. By turning waste into valuable raw materials, recycling creates jobs, builds more competitive manufacturing industries and stimulates the development of green technology.

Clearly, recycling is good business. Recycling also is good for your business.

Why should a business recycle? To begin with, businesses and industry create as much as 35-45 percent of the nation's waste stream according to the U.S. Environmental Protection Agency (EPA). Recycling can save businesses money in avoided disposal costs. Recycling also may generate revenue through the sale of recyclables. Finally, recycling conserves natural resources and saves energy.



Businesses can do their part and buy recycled-content products. There are more than 4,500 recycled-content products available, and this number continues to grow.

No matter what type or size of business – manufacturing, health care, retail, wholesale, food service, professional services and construction – it can benefit from recycling.

Resources

▪ State and Local

The Connecticut Department of Environmental Protection offers comprehensive waste reduction and recycling information targeting businesses, including beneficial reuse of solid waste, buying recycled, market information, ReUse Centers and Material Exchanges. Of particular value may be this publication: "[Setting up a Recycling Program at Your Small Business](#)".

The Minnesota Pollution Control Agency offers the [Minnesota Office Products Guide](#). While it is customized, featuring recycled-content products made in Minnesota, the listing shows the wide range of products and services that are available.

[The South Carolina Department of Health and Environmental Control](#) (SC DHEC) provides a variety of tips and best management practices (BMPs) for businesses through its S.C. Smart Business Recycling Program. The simple, easy-to-follow BMPs include setting up a recycling program as well as recycling of cardboard, pallets, office paper, fluorescent bulbs and beverage containers.

[Horry County](#) (South Carolina) offers an excellent example of a local government offering business recycling.

[King County](#) (Washington) offers several programs that can help reduce waste and promote recycling at a business.

[The City of Arlington](#) (Virginia) provides guides and brochures as well as sample signs and posters targeting business recycling.

[Miami-Dade County](#) (Florida) offers a free, on-line service that helps businesses create a customized profile of their waste stream as well as waste reduction and recycling options.

▪ **U.S. Environmental Protection Agency (USEPA)**

[USEPA's WasteWise Program](#) is designed to help its member partners (including businesses and industry) preserve resources and prevent waste. Benefits of the free program include:

- a toll-free help line for technical assistance;
- outreach and educational material;
- an annual climate profile describing greenhouse gas reductions;
- networking opportunities, recognition in WasteWise publications, case studies and meetings; and
- an opportunity to receive national recognition for outstanding achievement.

USEPA provides comprehensive information on buying [recycled content products](#).

USEPA provides an overview on how all organizations – including businesses - can [reduce waste](#).

Case Studies/Success Stories

[The S.C. Smart Business Recycling Program](#), discussed previously, lists business recycling success stories.

[Charleston County](#) (South Carolina) Business Recycling Program lists success stories.

As noted elsewhere in this document, [USEPA's Retail Industry Portal](#) provides a comprehensive overview of resources to help prevent or resolve environmental issues at retail establishments. Two types of resources are available – compliance and sustainability. One of the key latter resources that was previously cited is

[“America's Marketplace Recycles: A Guide to Waste Reduction at Shopping Centers.”](#) This guide serves as a resource for local and State recycling coordinators and contains numerous case examples from shopping centers and retailers who are leaders in waste prevention and recycling.