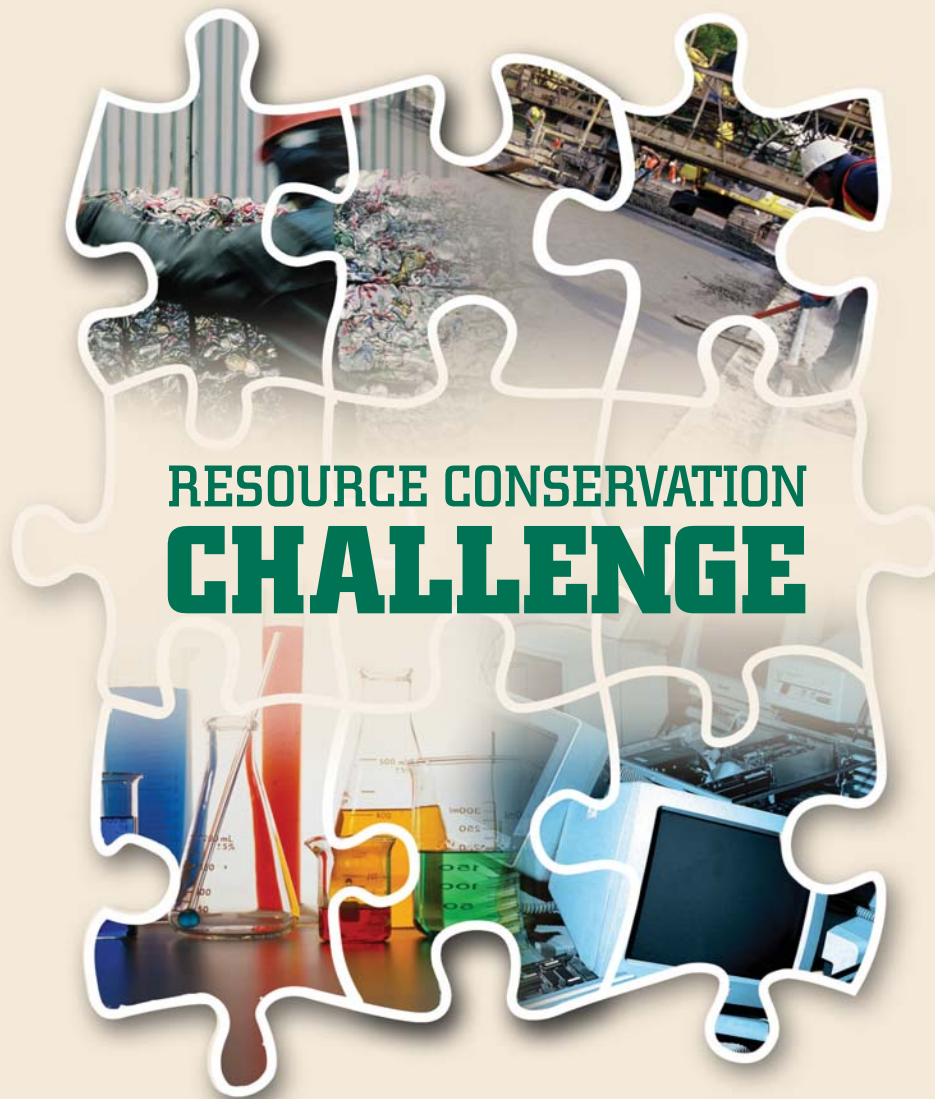




Progress Report 2005



RESOURCE CONSERVATION **CHALLENGE**



Printed on paper containing at least 30 percent postconsumer recovered fiber.

Contents

Introduction	1
RCC's National Priority Areas	2
Municipal Solid Waste–Recycling	2
Reusing and Recycling Industrial Materials	13
Priority and Toxic Chemical Reduction	17
Green Initiatives–Electronics	20
Progress	26

The Resource Conservation Challenge (RCC) is now in its fourth year. During our first two years, the RCC built on the Environmental Protection Agency's (EPA's) tradition of collaboration and partnerships to achieve common environmental goals—reuse, recycling, toxics reduction, and resource and energy conservation. Through this effort, we are advancing environmental stewardship, fostering cradle-to-cradle management of materials, and conserving energy and resources. This progress report highlights the RCC's achievements, recognizes new areas of interest and collaboration, and lays the framework for the future work of the RCC.

Among other things, we identified four priority areas on which to focus: 1) municipal solid waste recycling, 2) reusing and recycling industrial materials, 3) priority and toxic chemical reductions, and 4) green initiatives—electronics. We welcomed new partners and existing partners fulfilled commitments from past years. We celebrated new successes, issued new challenges, and created new programs in areas that were ready to move forward. These programs will continue to be a core part of the RCC.

The RCC on the Move

Since 2003, we have made significant progress toward our goals and we have laid out ambitious new agendas for the future.

We are focused on four national priority areas. For each area, we developed specific action plans that set forth specific projects and measures of success to meet RCC goals.

The RCC is working to move the nation's current waste-handling system toward a more effective materials management system. This shift in approach requires an increased focus on reusing and recycling materials. At the same time, it requires a closer look at the beginning of a product's life cycle, when waste can be prevented by designing products to be more durable, recyclable, and less toxic.

These RCC materials management goals have been incorporated into the Agency's Strategic Plan, the Resource Conservation and Recovery Act's (RCRA's) 2020 Vision, and Pollution Prevention (P²) programs. By working with business and industry, state and local governments, and the public, the RCC seeks to reduce waste, to reuse and recycle more products, to promote the purchase of recycled and recyclable products, and to reduce toxic chemicals in waste and in the environment.

Goals of the RCC

- Prevent pollution and promote reuse and recycling.
- Reduce priority and toxic chemicals in products and waste.
- Conserve energy and materials.

RCC's National Priority Areas

The RCC's four focus areas were selected based on several important factors: they address some of the largest and most significant waste streams; they have potential economic incentives that dovetail with environmental improvements; they meet current and future Agency goals; and they represent significant opportunities for partnerships in resource conservation. The RCC, a dynamic program, encompasses additional programs and goals, including energy conservation.

- **Municipal Solid Waste–Recycling** – Focuses on three key municipal waste streams: paper, organics, and packaging and containers; includes a strategy to meet our 2008 Agency goal of increasing the recycling rate to 35 percent.
- **Reusing and Recycling Industrial Materials** – Focuses on three key industrial nonhazardous waste streams: coal combustion ash, foundry sands, and construction and demolition materials; identifies targets and measures for safe beneficial use of these materials.
- **Priority and Toxic Chemical Reduction** – Explains our plan to reach the Agency goal of reducing the use of priority chemicals by 10 percent by 2008; identifies efforts to reduce the use or releases of other toxic chemicals of national concern.
- **Green Initiatives–Electronics** – Addresses the entire life cycle of electronics, including design, operation, reuse, recycling, and disposal of electronics with a focus on computers, cell phones, and televisions.

In May 2005, EPA published the *RCC Action Plan*, which describes our specific goals and objectives. The *Action Plan* is posted at: <www.epa.gov/rcc>. In this report, we showcase a sampling of new initiatives and completed programs to illustrate the RCC in action.

Municipal Solid Waste–Recycling

Municipal solid waste is part of everyone's daily life. Just think about how much waste material you generate every day—the cardboard from your cereal box, the paper from your home office, the can or bottle from your lunch. The RCC is about changing our behavior so that we learn to reuse and recycle these materials more often.

We have set a national goal to recycle 35 percent of America's municipal solid waste by 2008. Reaching this goal has proven tougher than once thought. As more products become readily available and our society is constantly on the go, we must make it easier and more convenient to collect, recycle, or reuse commodities now considered waste.

By focusing on these large waste streams—paper, organics (food and yard waste), beverage containers, and packaging—we can develop specific strategies and partnerships specifically tailored to recycle and/or reuse these materials. Following are several examples of successful partnerships that are in place.

Paper

Paper and paper products are produced and used in large quantities throughout the world. In the United States, paper makes up 35 percent, or a little over one-third, of the municipal solid waste stream and provides great opportunities for change. The RCC is focused on minimizing waste and increasing recycling by developing partnerships between communities, industry, and government. We are committed to finding creative ways to increase collection, recycling, and markets for recycled paper, and to reduce the use of virgin paper.

In pursuit of this commitment, we convened a series of scoping meetings and a national stakeholder meeting to increase the recovery of paper and the use of recycled paper products. Stakeholders included: federal, state, and local governments; paper industry trade associations; paper mills; waste paper haulers and dealers; environmental interest groups; paper market experts; and recycling industry trade associations. Some potential actions that emerged from the scoping and stakeholder meetings include:

- Identifying and linking information resources for recycling program coordinators and recycling officials;
- Evaluating the current distinction between recovered papers (post-consumer vs. pre-consumer) to determine whether it creates barriers for using certain recovered fiber in paper products; and
- Evaluating the supply and demand of recoverable paper.

RecycleMania

The RecycleMania Intercollegiate Recycling Competition was started in 2001 by recycling coordinators at Ohio University and Miami University of Ohio. Private and state colleges and universities nationwide compete against each other for the recycling crown. Participation in the competition has grown significantly each year as many colleges and universities across the country find it to be a successful strategy for generating excitement about recycling on campus. In fact, RecycleMania won the National Recycling Coalition's Outstanding Recycling Innovation Award in 2004.

RecycleMania collaborated with our WasteWise program in 2005. WasteWise provides technical support by tracking data, providing conversion metrics, fostering the exchange of innovative ideas, and assisting with recruitment. This collaboration has been a resounding success, as RecycleMania 2005 saw record participation with 47 schools and 198,000 students, up from 17 schools and 83,000 students in 2004. Students collected 10 million pounds of basic recyclables, which achieved a reduction of about 4,406 million metric tons of carbon equivalent (MMTCE). Reducing greenhouse gas emissions by this amount is the same as removing 3,484 passenger cars from the road for one year.

RCC Paper Goal by 2008:

Increase the recovery of paper and paperboard products from 36.7 million tons in 2001 to 44.1 million tons in 2008.

RESOURCE CONSERVATION

National



Municipal Solid Waste—Recycling

- WasteWise
- Greenscapes
- America's Marketplace Recycles
- Paper
- Packaging
- Food Waste
- Power of Change Outreach Campaign
- Make a Difference Schools Campaign



Priority and Toxic Chemical Reduction

- National Partnerships for Environmental Priorities
- Schools Chemical Cleanout Campaign
- Hospitals for a Healthy Environment
- Green Chemistry
- Design for the Environment
- Recycling Bullets

INNOVATION CHALLENGE

Priorities



Reusing and Recycling Industrial Materials

- Coal Combustion Products Partnership
- Construction and Demolition Debris
- Foundry Sands



Green Initiatives—Electronics

- Plug-In To eCycling
- Federal Electronics Challenge
- EPEAT Tool
- Greening the Government

Goal by 2008

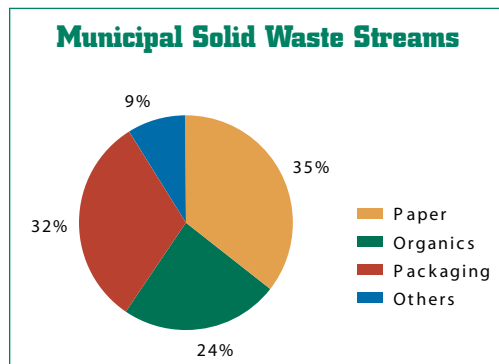
Increase the recovery/diversion of yard waste from 15.8 million tons in 2001 to 16.8 million tons in 2008.

RecycleMania 2005 saw Miami University of Ohio triumph in the Per Capita Classic, a contest measuring pounds collected per student. California State University San Marcos took the trophy for the Recycling Rate competition, a measure of the campus's overall recycling percentage. The winners of RecycleMania 2005 are recognized at WasteWise's Annual Meeting. For more information about the RecycleMania program, or for registration information, please refer to <www.recyclemaniacs.org>.

Organics: Food and Yard Waste

Organic municipal solid waste includes both yard and food waste and constitutes 24 percent, or almost one-quarter, of the current waste stream. Most of this waste can be recycled in beneficial ways, such as composting.

RCC partners are working to increase the amount of organic material diverted from landfills, to improve the current markets for composted material, and to identify future markets where these materials can be used.



GreenScapes

Waste reduction, water conservation, and natural resource conservation are just a few of the benefits of GreenScapes. Launched in the fall of 2003, GreenScapes had a target of enrolling 25 new members by the end of 2004. The endeavor has exceeded its target by over 200 percent, adding 60 new partners outside the Agency and two new internal partners: the Office of Water and the Office of Pesticides. The GreenScapes program provides information and technical assistance on "green landscaping," recruits partners, and recognizes outstanding achievers. A GreenScapes partner commits to any number of resource-saving efforts, such as composting yard waste; turning tree waste into mulch; using native plants to reduce water and pesticide use; or using recycled materials in landscaping.

More Jungle, Less Waste

Parrot Jungle is on an island off the coast of Miami, Florida, that works to conserve the native plants and animals of the area. It employs environmentally friendly practices and offers a unique opportunity for tourists to see animals in their natural habitat. As a GreenScapes partner, the jungle created an 18-acre garden that was designed with the environment in mind. The design includes:

- Composting 100 percent of its organic waste;
- Using mulch derived from tree trimmings and selective pruning practices;
- Using integrated pest management with biological controls and little pesticide use;
- Using indigenous soil and native plants; and
- Using specially designed sprinklers that make large water droplets for less water use.

As a result, 30 cubic yards of green material and 60 cubic yards of tree trimming materials are diverted from landfills each week and used as compost or mulch, diverting about 530 tons of tree trimmings and green material each year. Using the compost as a soil amendment and tree trimmings as mulch also saves money and water, creates a greener environment, and makes the island's gardens flourish.

For more information regarding this project or GreenScapes, please refer to www.epa.gov/greenscapes.

Organic material also includes food residue material or food waste. Food waste is generated by handling, storing, selling, preparing, cooking, or serving food. Food waste constitutes 11 percent of the organic waste stream and approximately 3 percent of the entire municipal waste stream, which is equivalent to 25 million tons. Therefore, the RCC has targeted food waste as a priority focus area. It is ripe for new partnerships, pilots, and projects to divert this waste from our municipal landfills. Massachusetts has been a leader in this area.

Supermarkets Make Compost

As a result of a WasteWise campaign, Massachusetts developed a pilot program in 2003 to encourage supermarkets to recycle their organic waste material and send it for composting. The pilot consisted of 14 stores from four large supermarket chains. At the conclusion of the pilot in 2004, the Massachusetts

Department of Environmental Protection developed a step-by-step guide and marketing publication to support the growth of the program.

This pilot was scaled up and membership reached 55 stores representing six Massachusetts supermarket chains. These supermarket chains represent 80 percent of the grocery industry in that state. As a result of this program, 6,600 tons of food waste were composted and 20,500 tons of cardboard were recycled. The compost was sold as commercial compost or used on the composter's property.

RCC Food Waste Goal by 2008:

Increase recycling to 5 percent from the current baseline of 2.8 percent.

If this goal is met, 287,000 MMTCE will be diverted, the equivalent of 228,000 passenger cars being taken off the road for one year.

2005 Progress: Building the Food Waste and Composting Infrastructure in Massachusetts

This program will provide a variety of technical assistance methods to enable supermarkets and other large generators of food waste to: (1) cost-effectively divert food waste from disposal to composting operations; and (2) assist compost operations located on farms and municipal and state lands by helping them to improve management practices and increase the cost-effectiveness of their composting operations.

Building on this accomplishment, a new goal was set for the future of this program. We hope to enroll 35 more stores and two new supermarket chains within a year. Ultimately, our goal is to include all supermarket stores in New England in a voluntary program to divert organics from their stores by 2008.

For more information on this program and a copy of the step-by-step guide, please refer to <www.wastecap.org/wastecap/Programs/sroi/sroimain.htm>.

Packaging and Beverage Containers

Packaging materials and beverage containers make up approximately one-third of the municipal solid waste stream. This stream con-

tains plastic, glass, and metal beverage containers, corrugated cardboard, and wood. To reduce this large waste stream, we drafted a plan to work with industry, coalitions, and think tanks to foster development of sustainable packaging, including material standards, recycling strategies, secondary markets, and innovative design.

Cradle-to-Cradle Packaging Design Challenge Winners.

In 2004 the winners were announced from the RCC/McDonough Braungart Design Chemistry partnership challenge. The design challenge focused on e-commerce packaging and shipping design. The goal of this challenge was to encourage industrial designers, design students, and packaging professionals to use cradle-to-cradle principles to design environmentally sound packaging and to develop the systems needed for product recovery.

This design challenge has had a positive effect on the shipping industry. The winning professional design has been adopted by the company that designed it and is currently in use. Other companies are also working to develop a cradle-to-cradle packaging envelope that will work with their existing processes.

RCC Packaging Goals by 2008

Paper folding cartons: Increase the recovery/diversion of paper folding cartons from 0.48 million tons in 2001 to 0.8 million tons in 2008 (an increase from 8.7 percent to 14.0 percent). These figures are included in the paper and paperboard figures.

Wood packaging: Increase the recovery/diversion of wood packaging from 1.25 million tons in 2001 to 2.0 million tons in 2008, a 9.0 percent increase from current rates.

Plastic wraps: Increase the recovery/diversion of plastic wraps from 0.17 million tons in 2001 to 0.5 million tons in 2008, a 12.0 percent increase from current rates.

Beverage containers: Increase the recovery/diversion of beverage containers from 2.93 million tons in 2001 to 4.36 million tons in 2008, a 13.0 percent increase from current rates.



Professional Winner: The Bevelo

The Bevelo is a reusable packaging envelope. The key feature in the design of the Bevelo is the 'bevels' that help the package expand to accommodate products with different thicknesses. A few cleverly placed scores creating the bevels make it possible to adjust the Bevelo's thickness to accommodate the slimmest paperback book, a molded DVD case, or a very thick manual. Made out of 100 percent recycled material and biodegradable ink, the Bevelo can be both reused and composted at the end of its useful life. In addition, the Bevelo is lightweight, reducing costs to the user.

Student Winner: Keep It Nature Friendly

The winning design used Japanese cloth as a flexible way of wrapping and transporting goods. The cloth is wrapped around the package using strong paper corner protectors to guard against damage. These corner guards, made of the kenaf plant, are versatile in that they can accommodate any number or size of books. The entire assembly is then wrapped to secure the items in one parcel using a gelatin-based adhesive.

After the customer receives the package, the wrapping materials are given a second life. The customer can choose to assemble the protective corners and use it as a germinator and plant pot. A bookmark that contains kenaf seeds and instructions to convert the corner protectors into a pot for growing them is included with the ordered goods. All components are safely and easily compostable.

For more information, please refer to the 2005 RCC Action Plan posted at <www.epa.gov/rcc>.



Broader Municipal Solid Waste Efforts

The RCC has a number of other overarching programs that are working to reduce the volume of municipal waste. These include voluntary programs and education and outreach programs.

Reducing Waste Reduces Greenhouse Gases

A number of the most successful programs under the RCC not only measure what they divert from the waste stream, but also track



the impact that diverted waste has on the environment. WasteWise is one such program.

WasteWise is a voluntary partnership in which members reduce municipal solid waste and select industrial wastes through carefully designing their own waste reduction programs. WasteWise targets the reduction of municipal solid waste, such as office paper and corrugated containers, by providing their partners with management support, waste assessments, employee education, measurement, and reporting and program maintenance. WasteWise partners include large corporations; small- and medium-sized businesses; schools; colleges; universities; hospitals; state and local governments; tribes; and other institutions.

More than 1,600 organizations are WasteWise partners. In 2004, these partners diverted nearly 5 million tons of waste from landfills, which equals a reduction in greenhouse gas emissions of about 4 million metric tons of carbon equivalent, the equivalent of removing over 3 million passenger cars from the roads for one year.

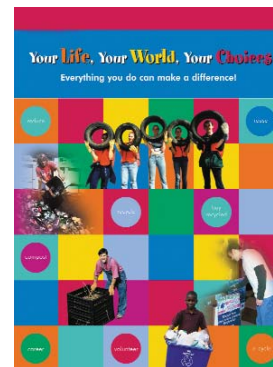
For more information, please refer to www.epa.gov/wastewise.

Education and Outreach Programs

To be successful, recycling initiatives need full public participation. The RCC has created a number of outreach campaigns to educate the public about how they can play a role in conserving resources in their own communities.

Making a Difference in Schools

Our “Make a Difference” campaign was launched in 2003 to help middle-school-aged kids understand their relationship with, and impact on, the environment. Since then, we have brought this important environmental message into more than 10,000 classrooms with our “Make a Difference” kit, called *Your Life, Your World, Your Choices*.



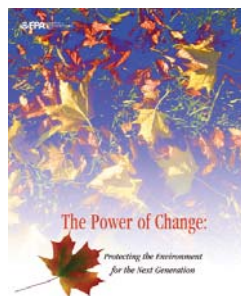
In May 2004, EPA joined with the Mechanicsburg (Pennsylvania) Middle School to sponsor an “Environmental Challenge Day.” We joined more than 300 students, teachers, and parent volunteers who participated in this all-day event. Through these activities, students learned about reducing, reusing, and recycling waste as a way to conserve natural resources. We continue to promote the “Make a Difference” campaign at national conferences, through educational organizations and associations and on the Web.

To get copies of this material, please refer to www.epa.gov/epaoswer/education.

Helping Older Americans Conserve Resources

For the first time, the RCC targeted older or retired Americans with a campaign called “The Power of Change.” The campaign helps older Americans learn more about waste in the environment, and how they can use their “power” to change their lifestyles in order to preserve the environment now and for future generations. The cornerstone of the crusade is a free kit, which contains a number of innovative resources explaining how to make simple, everyday changes to reduce waste, conserve our natural resources, and save energy. It includes educational material to help people make better environmental decisions when they move, travel, or use home health products. It also contains information to help community leaders organize or get more involved in local conservation or waste reduction projects.

The “Power to Change” campaign was announced in San Francisco at the 2004 Joint Conference of the American Society on Aging and the National Coalition on Aging. Since then, we have distributed nearly 100,000 kits. More information about the “Power to Change” is available at: <www.epa.gov/epaoswer/aging/index.htm>.



Erik Estrada Reaches Hispanic Listeners

In 2004, the RCC developed a public service announcement (PSA) to complement the Hispanic Used Motor Oil campaign and to reach a broader audience. Erik Estrada, who gained fame as a motorcycle cop in the 1970s television series *CHiPs*, worked with us to produce two PSAs aired in some of the country’s largest Spanish-language radio markets. The ads were recorded in both Spanish and English. We estimate the printed campaign and the radio messages reached about 14 million listeners and 144,000 readers.

The Hispanic Used Motor Oil campaign is part of the National Hispanic Outreach Strategy and is directed toward members of the Hispanic community who own service stations or automotive repair shops, or who change their own oil. The campaign helps to enhance awareness of, and participation in, environmental issues. The specific goal of this program is to improve management of used oil and reduce hazardous waste contamination of our land and water. The bilingual materials in the “You Dump It, You Drink It,” campaign are successfully spreading the message of proper management of used motor oil to the Hispanic population.



Potential Benefits of the Hispanic Used Motor Oil Campaign

Benefits from this campaign are based on two estimates—amount of used oil disposed of improperly and number of people being reached by the campaign. Estimates show that 25 percent of people who change their own oil dispose of it improperly. Potential benefits include the following:

- Recovery of 709,000 gallons of used motor oil;
- Reduction of 585 pounds of wastewater emissions; and
- Conservation of nearly 15 million gallons of crude oil when replaced by the recycled used oil.

On Earth Day 2005, we launched a program with Advance Auto Parts® called “Bring Every Quart Back.” This program targets do-it-yourselfers who change their own oil, and specifically aims to keep oil out of the Potomac River Basin. Advance Auto Parts® spreads the message through internal communication channels and when they sell oil to customers. The partnership plans to produce a media kit, posters, and public service announcements in both Spanish and English.

For more information on the Hispanic Used Motor Oil Campaign, please refer to <www.epa.gov/epaoswer/hazwaste/usedoil/index.htm>.



America's Marketplace Recycles

An exciting new program, America's Marketplace Recycles targets recycling at shopping centers. Shopping centers represent an ideal venue to reach a wide range of suppliers, owners, and consumers all at the same time. The challenge is aimed at reducing waste materials such as corrugated cardboard packaging, wood pallets, plastics packaging, paper, and food court and landscape wastes by targeting the shopping center's management, retail tenants, and visitors. The challenge also promotes the recycling message to consumers, whether at home or on the go. The goals of the challenge are to:

- Promote recycling at shopping centers;
- Promote and energize the recycling message; and
- Encourage waste reduction in packaging.

Shopping centers across the country are taking part. To help them reach our goal, the RCC prepared a guide to help retailers easily identify opportunities to reduce waste and increase recycling. The shopping centers with successful recycling programs received achievement awards in recognition of Earth Day 2005. Award categories ranged from best new recycling program to most innovative program for both small and large shopping centers. Winners included:

- The Fair Lakes Promenade in Fairfax, Virginia won the “Best Community Partnership for Small Shopping Centers” award for collecting 72,000 pounds of electronics in a single day.
- Target won the “Recycler of the Year” award. Its 1,300 stores and distribution centers recycled 700 million pounds of material. In addition, the retail chain either recycled or refurbished 44,000 shopping carts in one year.

For more information on the shopping center challenge, please refer to <www.epa.gov/rcc/amr.htm>. The guide can be found at <www.epa.gov/epaoswer/osw/conserv/amrguide/amrguide.pdf>.

Reusing and Recycling Industrial Materials

Industrial waste is one category of waste residuals that holds a number of unexplored opportunities. Millions of tons of secondary materials, which can be safely and effectively reused, are sent for disposal every year. The RCC has developed partnerships with industries that produce coal ash, foundry sands, and construction and demolition debris. These materials are generated in large volumes and readily lend themselves to reuse and recycling.

Industrial Materials

The reuse and recycling of industrial materials can result in environmental benefits such as less use of virgin products, reduced greenhouse gas emissions, less energy and water use, and less waste. To meet these goals, the RCC is working with industry partners.

Coal Combustion Products Partnership

In 2004, the American Coal Ash Association estimated a 3 million ton increase in the use of coal ash in cement and other products. The use of coal ash in construction products reduced greenhouse gas emissions by 670,000 metric tons of carbon equivalent (MTCE). The Coal Combustion Products Partnership (C²P²) is responsible for these changes. C²P² is a cooperative partnership between the RCC, the American Coal Ash Association, the Utility Solid Waste Activities Group, the Federal Highway Administration, and the U.S. Department of Energy.

This partnership looks for ways to increase the safe use of coal ash in building and manufacturing materials or other applications. Using coal ash not only eliminates a waste, but also increases the durability of concrete, saves energy, decreases greenhouse gas emissions from cement production, and decreases the use of virgin resources. As a first step in promoting the safe use of coal ash, the RCC published *Using Coal Ash in Highway Construction: A Guide to Benefits and Impacts*. This report explains the potential benefits of the use of coal ash in highway projects and provides guidance to ensure that the material is used safely.

C²P² partners were recognized for their achievements in April 2005. The "Overall Achievement" award went to WE Energies for its leadership in expanding markets for coal combustion products and for reusing 98 percent of its coal ash. The "Enhanced Utilization" award went to the Lower Colorado River Authority for its Fayette Power Project, which resulted in all of its current coal combustion products being recycled and the use of old stockpiles to satisfy the needs of their customers.

For more information, please refer to: www.epa.gov/epaoswer/osw/conserve/c2p2/index.htm.



Goals of the C²P² Program:

- Increase the use of coal ash in concrete from 12 million metric tons in 2001 to 20 million metric tons in 2010; and
- Increase the overall use of coal combustion products to 45 percent by 2008.

Waste Turns into Road

Originally built in the 1920s, Wacker Drive is a major two-level viaduct in downtown Chicago that had to be rebuilt because of heavy use and deterioration. To provide increased strength, improved workability, and extra resistance against future corrosion, 10,000 tons of fly ash were added to the concrete used in the new cast-in-place roadway. This type of concrete can double the life of roads compared to conventional pavements. By using fly ash instead of Portland cement, 19,000 barrels of crude oil were saved. Additional benefits of using fly ash include producing less greenhouse gas emissions, preserving virgin resources, conserving landfill space, and creating a more durable roadway with a service life of 75 to 100 years.

For more information and to obtain a copy of the guide, please refer to www.epa.gov/epaoswer/osw/conserv/c2p2/index.htm.

Construction and Demolition Debris

By reusing materials from construction and demolition (C&D) projects, we conserve materials, reduce the environmental impacts from manufacturing new products, and save landfill space. Plus, we have the added benefit of reducing building costs by reusing products that would have otherwise been waste. As a result of these benefits, C&D is another area of focus for the RCC.

Providing Assistance and Measuring Success

Through an EPA grant, the Construction Material Recycling Association provides technical assistance, education, and training to public and private institutions, corporations, and companies to help them implement C&D recycling. Three WasteWise Building Challenge participants were selected to serve as models for the benefits of diverting C&D debris from landfills and taking advantage of the existing markets for recycled C&D materials:

- City of Claremont, California – Village Expansion
- Target Stores – Eureka and Southbay, California
- New Jersey Public Schools, Newark, New Jersey – Newark First Avenue School warehouse demolition.

Based on actual tonnage recycled and disposed of by these Building Challenge Projects, over 17,000 tons of materials were, or will be, diverted from landfills—about an 87 percent diversion rate, which is well above the targeted rate of 75 percent. In addition, the grantee prepared a set of master specifications for C&D recycling, which are available free of charge to individuals and organizations requesting them for future projects. A guide is available at: www.epa.gov/epaoswer/non-hw/muncpl/pubs/combined.pdf.

From Rubble Comes New Material

The U.S. Army estimates it will generate 23 million tons of C&D debris over the next 15 years. To reduce the environmental impacts, we have been working with the Army Corp of Engineers' Construction Engineering Research Laboratory and the University of Florida Center for Construction and Environment to conduct training for the Army in C&D recycling. The training was site-specific with an emphasis on deconstruction techniques to increase reuse and recycling of demolition debris. Workshops were conducted at Fort Lewis, Washington; Fort Hood, Texas; and Fort Bragg, North Carolina.

Implementation of the training is an integral component of this project. Fort Lewis is now initiating a six-building deconstruction pilot project. Fort Hood is developing a deconstruction strategy for roughly 100 World War II buildings and is incorporating deconstruction

C&D Workshops included:

- **Assessment of buildings to be removed;**
- **Deconstruction processes: techniques, and management;**
- **Conditions for successfully implementing deconstruction;**
- **Regulatory and policy constraints;**
- **Action plan to implement deconstruction on a pilot basis; and**
- **Diversion of lumber and organic material from landfills and displacing virgin lumber.**

into their Residential Communities Initiative (RCI) program. Similar results are anticipated at Fort Bragg.

For more information, please refer to <www.epa.gov/epaoswer/non-hw/debris-new/index.htm>.

Reusing and Recycling Tires

Tires pose significant public health and environmental risks if not disposed of properly.

When tires are stockpiled, they can become breeding grounds for a variety of pests, including mosquitoes that can carry dangerous viruses. Tire stockpiles can ignite, creating fires that are difficult to extinguish and can burn for months, generating unhealthy smoke and toxic oils. The environmental impacts of a stockpile fire can be far-reaching and the aftermath frequently includes costly cleanups.

Markets exist for approximately 80 percent of the roughly 300 million scrap tires discarded annually. Challenging national goals have been set and action plans developed by the RCC Scrap Tire Workgroup to increase the usage of tires in different markets and to reduce tire piles. This Workgroup is composed of 51 members from states, industry, and EPA who are focused on increasing the reuse, recycling, and energy recovery of scrap tires.

Market development and support is critical to diverting tires from stockpiles and landfills.

Tire Reuse and Recycling Goals

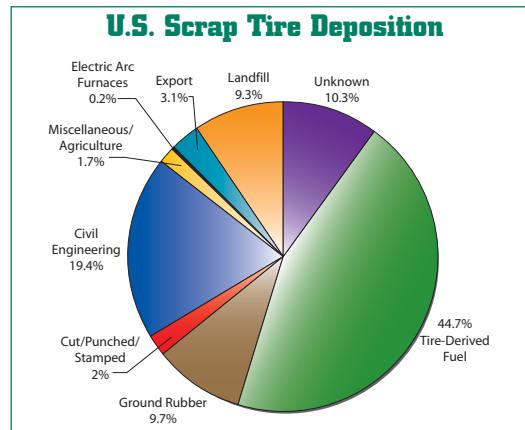
- **Divert 85 percent of newly generated scrap tires to reuse, recycling, or energy recovery by the end of 2008; and**
- **Reduce by 55 percent the number of tires in existing stockpiles by the end of 2008.**

Recalled Tires Put to Use

Recently, Ford Motor Company replaced 13 million tires on its automobiles. Ford has ground over 6.5 million of these tires into 125 million pounds of crumb rubber product. Crumb rubber is used for playground surfaces and rubberized asphalt in roadways. To date, it has distributed the crumb rubber to 130 projects in 27 U.S. states and three Canadian provinces.

These markets include rubberized asphalt for highways, surfaces for playgrounds and other sports facilities, rubber mats, new tires, mold-ed/extruded products, sealants, and septic tank drainage fields. Since tires produce the same amount of energy as oil and have 25 per-cent more energy than coal, tires can also be used as fuel when appropriate air controls are in place. EPA has recognized this as a viable alternative to the use of fossil fuels, particularly because it results in lower nitrogen oxide emis-sions when compared to many U.S. coals, par-ticularly the high-sulfur coals. The tire-derived fuel policy was an important accomplishment of EPA this year and can be found at: <www.epa.gov/epaoswer/non-hw/muncpl/tires/tdf-fs.pdf>.

Innovative alternatives to disposal are being explored and used by EPA, states, and the scrap tire industry.



For more information, please refer to <www.epa.gov/epaoswer/non-hw/muncpl/tires/index.htm>.

Energy Conservation and Recovery

Under the RCC, we are pursuing numerous projects that produce energy directly from wastes or industrial byproducts. By using these wastes as fuel, we reduce reliance on foreign and domestic natural resources (e.g., coal, oil). Additionally, many RCC efforts conserve energy by using waste materials as a substitute for raw materials or industrial products. In these cases, the replacement of virgin raw materials with a material that would otherwise be considered a waste can save a tremendous amount of energy.

Landfill Gas Recovery

As of December 2004, approximately 380 landfill gas energy projects were operating in the United States, with another 600 landfills being likely candidates for bioreactor projects. If 928 landfills converted to gas energy projects, 10 percent of the energy we capture from them would produce 500 megawatts of energy, preventing the equivalent of 85,000 rail cars full of coal from being burned.

Currently, the 380 projects generate 9 billion kilowatts of energy per year. We continue to work to increase this number with EPA's

Landfill Methane Outreach Program, a voluntary assistance and partnership program that promotes the use of landfill gas as a renewable, green energy source. For more information, please refer to <www.epa.gov/lmop/proj/>.

Priority and Toxic Chemical Reduction

Toxic chemicals make up a small, but troublesome, portion of the nation's waste stream. The RCC's priority chemical reduction priority area focuses on toxic and persistent chemicals, minimizing their use throughout a product's life cycle—during manufacture, in products, and as waste—to better protect human health and the environment. By substituting and, in some cases, eliminating certain chemicals, companies produce less waste and lower their production costs. The RCC's chemicals work focuses on the 31 most persistent, bioaccumulative, and toxic chemicals. In addition, the RCC is working to set criteria that will help identify other toxic chemicals of national importance. The National Partnership for Environmental Priorities (NPEP) is one of the premier programs that the RCC has in place to achieve priority chemical reductions.

National Partnership for Environmental Priorities

NPEP uses voluntary partnerships to reduce the use and release of priority chemicals.

This program has enabled the United States to make significant progress in reducing the release of priority chemicals. Partners commit to reduction goals that they set and they are formally recognized for meeting those goals. NPEP partners

have reduced or eliminated nearly 3 million pounds of priority chemicals such as lead, mercury, naphthalene, and dioxins. Nearly 100 companies are now NPEP partners.

Getting the Lead Out

A number of NPEP partners are working toward or have reached their first reduction goals this year.

- Bowling Green State University set an NPEP partnership program goal to collect and reclaim uncontaminated sources of elemental mercury at a rate of 3,000 pounds over a three-year period. The university selected mercury because of its potential adverse health effects if released into the environment. Since its launch in 2004, Bowling Green has already removed over 4,150 pounds of elemental mercury for recycling.
- Wirerope Works, Inc. manufactures rope, structural strand, and related products for use in lifting and stabilizing applications. It has reengineered its production process and thus reduced its annual use of lead by 27,000 pounds.

For more information on the NPEP program, please refer to: <www.epa.gov/epaoswer/hazwaste/minimize/partnership.htm>.



Getting the Lead Out

International Truck and Engine Corporation, a manufacturer of school buses and medium and heavy trucks, initiated an award-winning program to eliminate lead. The company changed processes and increased recycling to reduce toxic chemicals in its manufacturing and painting process.

The result:

- **Over 100,000 pounds of lead use reduced to less than 200 pounds a year—a 98 percent reduction.**
- **New processes saved over \$125,000 a year.**

Other Priority and Toxic Chemical Reduction Efforts

Schools Chemical Cleanout Campaign

Every year, hundreds of thousands of dollars are spent on school incidents involving chemical spills and fires. These incidents involve potentially dangerous chemicals that, in some cases, had been unused for decades. In addition to the potential health dangers and clean-up costs, these spills also cause school closures that result in a loss of valuable education time.

The Schools Chemical Cleanout Campaign (SC³) addresses this issue by cleaning out excess,

legacy, unused, and improperly stored chemicals and implementing preventive measures in schools. Thoughtful chemical purchasing and proper chemical use and management (storage, labeling, and disposal) are critical for reducing chemical exposures and costly accidents that ultimately affect student learning and attendance.

In 2004, we launched SC³ to facilitate implementation of programs that promote removal of existing stocks of dangerous chemicals from schools, encourage safe chemical management, and raise national awareness. Ten pilot

projects were implemented across the country. Through these programs, over 75,000 pounds of dangerous chemicals were safely removed and properly disposed of, thus, creating an environmentally safe learning environment for over 400,000 students.



For more information, please refer to <www.epa.gov/sc3>.

Hospitals for a Healthy Environment

EPA and the American Hospital Association have a Memorandum of Understanding (MOU) for pollution prevention in health care facilities. The objectives of this MOU are to do the following:

- Virtually eliminate mercury-containing waste from health care facilities' waste streams;
- Reduce the overall volume of waste (both regulated and non-regulated waste) by 33 percent by 2005, and 50 percent by 2010; and
- Identify hazardous substances for pollution prevention and waste reduction opportunities, including hazardous chemicals and persistent bioaccumulation and toxic (PBT) chemicals.



Old Car Battery Roundup

On Earth Day, the Automobile Association of America held its second annual Great Battery Roundup and collected 7,600 car batteries.

Each car battery contains approximately 21 pounds of lead that can be recycled for use in another vehicle—resulting in 160,000 pounds of lead being recycled. The roundup is designed to educate and encourage motorists to recycle old car batteries for reuse.

As of June 2005, the Hospitals for a Healthy Environment program had enrolled 1,027 partners representing 4,337 facilities, including hospitals, clinics, and nursing homes. Of the enrolled partners, 56 of them have indicated that their facilities are now mercury-free.

With the end of 2005 in sight, Hospitals for a Healthy Environment is working to tally its results from its partners to confirm that their goals were met. One partner that has made great strides is St. Elizabeth's Medical Center in Edgewood, Kentucky, which stopped using ethylene oxide in its sterilization process due to its carcinogenic risk to human health. The facility switched to a closed-system sterilization process that takes less time and operates at a lower temperature to sterilize medical devices—reducing both human exposures and energy use.

In addition, the 2005 Environmental Leader Award was given to a hospital that collected over 125 pounds of mercury in one facility

alone; saved 480,000 gallons of water; recycled or diverted 3,295 tons of waste; and saved over \$323,000 in waste disposal and other costs.

For more information, please refer to: <www.h2e-online.org>.

The RCC seeks to increase solid waste reduction, reuse, and recycling through Hospitals for a Health Environment, focusing on mercury, paper, packaging, electronic equipment, food scraps, and yard trimmings.

Developing More Environmentally Friendly Products



Design for the Environment and Green Chemistry

These two EPA programs are complementary approaches to pollution prevention. More than a decade ago, manufacturers started thinking of “design for” qualities or traits in their products and processes. At the same time, views on risk management began shifting from regulatory to voluntary efforts that promote risk reduction through pollution prevention and source reduction.

Product designers make many important decisions about the environmental impacts of the products they design. Our Design for the Environment Program has partnered with the Industrial Designers Society of America (IDSA) to educate designers and students about how to create more environmentally responsible products and to award designs that demonstrate superior environmental performance. Designers are involved in the creation of every product that people use in their homes, at work, and in their daily lives, such as electronic equipment, tools, lighting systems, household fixtures, toys, apparel, vehicles, and furniture. Throughout its life cycle, every product creates different amounts and various kinds of environmental impacts. The choices designers make influence the type and magnitude of these impacts.



To help designers make the best environmental choices, IDSA organized a partnership program to support the creation of more ecologically friendly products. This partnership:

- Educates design students and practicing designers about improving the ecological performance of products;
- Identifies and provides ecodesign information that is most needed by product designers; and
- Rewards green product design via the BusinessWeek Industrial Design Excellence Awards (IDEA).

Educators and ecodesign strategists developed a curriculum for students of product design. The curriculum is organized into four areas of study: 1) understanding environmental impacts, 2) ecodesign strategies to generate new designs, 3) impact assessment, and 4) professional practice. This curriculum has been disseminated to more than 40 product design schools in North America. Additionally, the IDEA Partnership Team is developing materials for practicing designers. The materials will be available by the end of 2005.

The partnership also improved the ecodesign criteria used to judge the annual IDEA program. The new process places increasing emphasis on environmental impacts as a vital aspect of a successful design solution. In addition, they provide “Dos & Don’ts” in the entry instructions of

things to consider when providing ecodesign documentation. To better recognize and promote efforts being made in the design field, a new ecodesign category has been approved for launch in the 2006 IDEA competition. Information about submissions to the Ecodesign category will be posted with the IDEA requirements for 2006.

For more information, please refer to: www.idsa.org/whatsnew/sections/ecosection/.

Green Initiatives— Electronics

The National Safety Council predicts that by 2010, 250 million computers will be obsolete (see www.nsc.org/ehc/epr2/baseline.htm). In 2005, Americans discarded about 130 million cell phones, which translates to 65,000 tons of trash. The main challenge for this priority area is to get industry, consumers, and state and local governments to work together to create a future plan for electronics. These plans include reducing the amount of toxic chemicals used in electronics, reducing the amount of e-waste produced every year, and providing a future infrastructure for reuse and recycling. By targeting all phases of electronic equipment’s life cycle, the RCC is:

- Creating relationships with equipment manufacturers;
- Educating the consumer population;
- Working with state and local governments to support their efforts; and

Green Alley at Digital Edge Expo

September 2004 – At the NBC-4 Digital Edge Expo in Washington, DC, EPA’s partner Best Buy collected 144,000 pounds of electronic materials for recycling. This one collection event has the potential to save 300 cubic feet of landfill space.

- Harnessing the purchasing power of the federal government to increase the use and acquisition of more environmentally sustainable electronics.

These four goals are being met through some of the efforts described below.

Plug-In To eCycling

Plug-In To eCycling has had success in attracting new partners to help provide opportunities to safely, conveniently, and affordably recycle old electronics equipment. This program also promotes safe recycling practices that minimize impacts on the environment. Reusing or recycling old electronics conserves natural resources by prolonging the useful life of products or recovering valuable material. Plug-In To eCycling currently has 20 partners, with Good Guys, Office Depot, Samsung, Philips, Pioneer, eBay's Rethink Initiative, and NEC joining in 2004.



Plug-In To eCycling has made significant strides in recycling electronics this year. In 2004, members conducted pilot programs and workshops to collect and recycle used electronics. In each of the pilot programs, tons of electronics were collected.

- Office Depot and Hewlett Packard's pilot program collected and recycled approximately 10.5 million pounds of obsolete electronics, saving 36,350 cubic feet of landfill space.
- Good Guys, one of the largest domestic specialty retailers of high-end entertain-

ment electronics, collected and safely recycled over 4,000 TVs, diverting 16,000 pounds of lead away from landfills.

- AT&T Wireless collected 450,000 pounds of cell phones, batteries, and PDAs for reuse and resale.
- Dell collected 3 million pounds of unwanted computer equipment for safe recycling.
- Hewlett Packard recycled 9 million pounds of products per month.
- Lexmark collected 5,800 pounds of old electronics from their own employees.
- Panasonic diverted 5.6 million end-of-life products from landfills.

EPEAT—How Green Are Your Electronics?

One example of how we evaluate the environmental performance of electronic products is through the Electronics Product Environmental Assessment Tool (EPEAT). Large institutions can use EPEAT to rate how green their electronic purchases are.

The tool grants the equipment a point range depending on how environmentally friendly the product is. Based on the total number of points, the product qualifies for a bronze, silver, or gold rating. The tool, which was developed through a multi-stakeholder process, promotes continuous improvement in products, addresses the entire product life cycle, and aims to provide market advantage for green electronic products. We are currently identifying an organization to conduct a public review of the draft criteria and manage this

new tool. For more information, please refer to: <www.epa.gov/epaoswer/hazwaste/recycle/cycling/index.htm>.

The Federal Electronic Challenge (FEC)

The FEC is a voluntary effort by federal agencies to buy greener electronics and to manage used electronics in an environmentally responsible way.

On November 15, 2004, 11 federal agencies and the Executive Office of the President made a formal commitment to join this challenge and improve their life cycle electronics stewardship.

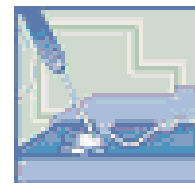
The program plans to complete a baseline survey, set goals, and implement an action plan to improve management of electronic assets in three areas—acquisition and procurement, maintenance and operation, and disposal. The FEC will provide member federal agencies with tools and technical assistance to implement activities and help them achieve bronze-, silver-, or gold-level recognition. To help federal agencies properly dispose of and recycle old or excess equipment to meet their FEC commitments, we awarded contracts for Recycling

Electronics and Asset Disposition (READ). READ will provide federal agencies with a way to safely recycle and, if necessary, dispose of outdated equipment to meet their commitments.

For more information, please refer to: <www.federalelectronicschallenge.net> and <www.epa.gov/oamhpod1/admin_placement/0300115/fact.htm>.

EPA's Design for the Environment Assessment: Switching to Lead-Free Alternatives

The electronics industry is facing legislative and market pressure to phase out the use of tin/lead (SnPb) solders and switch to lead-free alternatives. Due to these pressures, industry representatives



approached the Design for the Environment (DfE) Program for assistance. In 2002 alone, estimates of SnPb solder used worldwide were over 176 million pounds.

The DfE Lead-Free Solder Partnership conducted a study of life-cycle environmental impacts of SnPb and several lead-free solder alternatives. The study provided an objective analysis of the life-cycle environmental impacts of leading candidate alternatives and identified environmental concerns along with the traditionally evaluated parameters of cost and performance. This assessment describes ways to redirect efforts towards products and processes that reduce solders' environmental footprint, including energy consumption, releases of toxic chemicals, and potential risks

FEC Federal Partners

The Executive Office of the President; the Departments of Agriculture, Defense, Energy, Health and Human Services, Homeland Security, Interior, Justice, Transportation, and Veterans Affairs; the Environmental Protection Agency, and the General Services Administration.

to human health and the environment. For more information on this study please visit: <www.epa.gov/dfe/pubs/solder/lca/index.htm>. To view this project or to order the summary booklet, please refer to: <www.epa.gov/dfe>.

Other Key Green Initiatives

Greening the Government

Though electronics has been targeted as a national priority area under the RCC umbrella, a number of other initiatives are very important to reach the goals of the RCC. For example, the Greening the Government initiative provides a vision for our role in implementing future waste prevention, recycling, and federal acquisition programs across the federal government, and the Green Buildings program is working to reduce the environmental footprint of buildings across our nation.

The goal of this initiative is to establish a federal program that brings together all green programs into one—green procurement of products and services, green building and landscaping, and waste prevention and recycling. The joint impact of federal agency activities will enable the government to exercise greater influence over market development for green products and services.

Government Purchases Environmentally Preferable Products

“Green” procurement is the acquisition of products or services that have a lesser or reduced effect on human health and the environment when compared with competing products or services that serve the same purpose. This

includes products that are made with recycled content, are energy efficient, or have other environmentally preferable attributes, such as ease of recycling or reduced toxicity. The purchase of products made with recycled content is promoted through the Comprehensive Procurement Guidelines (CPG) program.

Comprehensive Procurement Guidelines

Comprehensive Procurement Guidelines were created to encourage the use of materials recovered from the solid waste stream and thereby help to conserve resources, reduce energy usage, and reduce the amount of waste disposed in landfills or incinerators. Section 6002 of the Resource Conservation and Recovery Act (RCRA) requires EPA to designate products that can be made with recovered materials and to recommend practices for buying the products. It also requires federal agencies to purchase these designated items. Procuring agencies include all federal agencies and any state or local agency or government contractor that uses appropriated funds.

Through CPG, we have designated 61 items, including seven designated on April 30, 2004. The seven items designated were bike racks,



Federal agencies continue to purchase millions of dollars worth of products containing recycled content. Over the last decade, the federal government has purchased more than \$3.6 billion of such products. Procuring agencies now buy more than 60 types of products made with recycled materials designated by the U.S. Environmental Protection Agency.

blasting grit, modular threshold ramps, non-pressure pipe, rebuilt vehicular parts, office furniture, and roofing materials. To view our recommended recycled content products and a supplier's database, please refer to: www.epa.gov/epaoswer/non-hw/procure/products.htm.

Green Purchasing at EPA

For the first time, our employees can purchase environmentally preferable office products. Through green purchasing, we are making our air and water cleaner and healthier, diverting tons of materials from landfills, and saving large amounts of energy. This pilot program is educating office supply vendors as well as other public and private entities about promoting and increasing the sale and purchase of recycled-content and environmentally preferable products.



EPA "LEED"s on Green Buildings

To serve as a model with healthy workplaces that minimize environmental impacts, we strive to make all of our buildings as energy efficient and sustainable as possible. Using the Leadership Energy and Environmental Design (LEED) Green Building Rating System, we require our newly constructed buildings to achieve at least a LEED Silver certification. LEED is a voluntary, national standard for developing high-performance, sustainable buildings. In 2004, we began constructing four new green buildings that will have at least a LEED Silver rating.

LEED ratings range from Bronze to Gold and are based on a rating system where points are given for sustainable and environmentally friendly design. Examples of some of the rating criteria are public transportation access, water efficient landscaping, renewable energy, green power, and C&D debris reuse.

For more information, please refer to:
<www.epa.gov/rcc/element/design.html> and
<www.epa.gov/opptintr/greenbuilding>.

Federal Green Construction Guide

Collaborating with the Office of the Federal Environmental Executive and the Whole Building Design Guide, EPA has drafted the Draft Federal Guide for Green Construction Specs to assist federal agencies in greening their buildings. The draft guide is available at:
<www.wbdg.org/design/greenspec.php>.

Covering over 60 building materials and methods, the online tool is being developed to allow federal building professionals to "cut and paste" their way to greener office, residential, laboratory, and other buildings. Specifically, the draft guide, organized according to the Construction Specifications Institute's MasterFormat™, will help agencies meet their project-specific environmental goals and mandates.

Headquarters, Arlington, VA: In May 2004, GSA signed a lease for a 422,000 square-foot building that will house programs located in Crystal City. The building will have a minimum of a LEED Silver rating, but hopes to achieve an environmental performance rating of Gold. The developer is pursuing the use of 30-35 percent slag cement (an industrial byproduct) below grade, and the architectural finishes will comply with CPG. The building should be completed in 2006 and will achieve the Energy Star Building label, using 22 percent less energy than the industry baseline.

Cincinnati Annex #2: We are designing an addition to the AWBERC facility in Cincinnati. The addition will be at a minimum LEED Silver and achieve an Energy Star Building label with energy use 30-35 percent below industry baseline. Construction start is expected in late FY 2005.

Boston Regional Office: In July 2004, EPA met with GSA to discuss the restoration of the McCormack Court House and Post Office Building. We will occupy the building when renovations are complete in 2007/2008. We requested that GSA make the building LEED Silver, at a minimum, and achieve an Energy Star Building label.

Denver Regional Office: In June 2004, we met to discuss the new Denver Regional Office. The building will be at least LEED Silver, and we expect the design to result in an LEED Gold building. The building will have energy use 39 percent below the industry standard.

EPA will continue to work with its current partners and identify new partners who will assist us in achieving the program's goals and targets. We will document progress, sharpen our focus, and reward success. As we advance toward our goals, we will refine them and set new targets that better reflect the ongoing work of the RCC.

Within each national priority area, we will continue to identify projects that can, and should, be scaled up to the national level, with each region being given an opportunity to expand the program further. We will continue, through the RCC, to work and gather the necessary data, so that benefits of the program can be clearly articulated and communicated. As always, we will continue to report the programs successes and identify how they relate to the set goals.

The RCC will continue to communicate with the public broadly about its areas of focus. We will continue to provide, develop, and seek out new tools that can help us achieve our goals. Building expertise and providing technical assistance will continue to be a strong element of the RCC.

Finally, we will continue to educate the American people about the impacts of purchasing decisions on the environment. With everyone working together, material and resource conservation will become the norm for all of us, not the exception.





Office of Solid Waste and Emergency
Response
1200 Pennsylvania Avenue, NW
(5305W)
Washington, DC 20460

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