

Recommendations for Improving Solid Waste Management

South Carolina has made significant progress in solid waste management in the past 20-plus years. The state has developed a solid waste management system that: 1) requires facilities that handle solid waste to be properly designed and operated to protect human health and the environment; and 2) promotes waste reduction and recycling.

Recycling has been an integral part of that progress. (See “A Message from the Director” on page 1.) The state’s municipal solid waste (MSW) recycling rate increased for the third straight year to 29.5 percent in fiscal year (FY) 2012 (July 1, 2011 to June 30, 2012). The fact remains, however, that 70.5 percent of the MSW generated in the state was disposed of in landfills.

In short, South Carolina continues to dispose of material that has significant value and could be recycled. The disposal of this material is a lost economic opportunity – not only the cost to throw it away, but the potential revenue from the sale of the material. If recovered, this material would grow and sustain recycling markets and create jobs.

Beyond an economic opportunity, recycling offers an environmental opportunity. The recycling of this

material has many significant environmental benefits including conserving natural resources, saving energy, reducing greenhouse gas emissions, preventing pollution and reducing the need to build landfills.

The S.C. Solid Waste Policy and Management Act (Act) – S.C. Code of Laws § 44-96-60 – requires the S.C. Department of Health and Environmental Control (DHEC) to make recommendations on how to improve solid waste management in the state.

As a foundation for a successful solid waste management program, the state should continue and improve efforts to:

- reduce the amount of waste it generates and disposes of;
- recycle more material;
- promote the best use of recycled material; and
- buy more products made from recycled-content material.

The recommendations that follow are specific strategies to help South Carolina build on that foundation.

Review planning and measurement.

Smart planning at both the state and local level will allow South Carolina to make short- and long-term policy decisions that promote cost-effective, efficient and environmentally responsible solid waste management. These efforts also will help to achieve the state’s recycling and per capita disposal goals.

DHEC recommends the following strategies.

- Revise the S.C. Solid Waste Management Plan. The plan should include an updated characterization (i.e., type and amount of waste generated) as well as new commodities,

technologies, terminologies, strategies and practices.

- Evaluate current strategies to measure progress in regards to recycling and disposal reduction. Encourage improved reporting through the S.C. Smart Business Recycling Program and Green Hospitality Program. Also encourage local governments to gather data from business that recycle. Consider new ways to measure and account for that progress (e.g., diversion rates, beneficial reuse).
- Evaluate the process local governments use to measure the true cost of solid waste services and develop options (e.g., new methodology, training) that would result in more consistent and meaningful data collection.

Recover more organics.

Food scraps, yard trimmings and wood comprise about one third of the nation's MSW stream. Applying that percentage to South Carolina's MSW stream, the state generated an estimated 1.4 million tons of these organics in FY12. Of that amount, 275,464 tons (or 20 percent) were recovered.

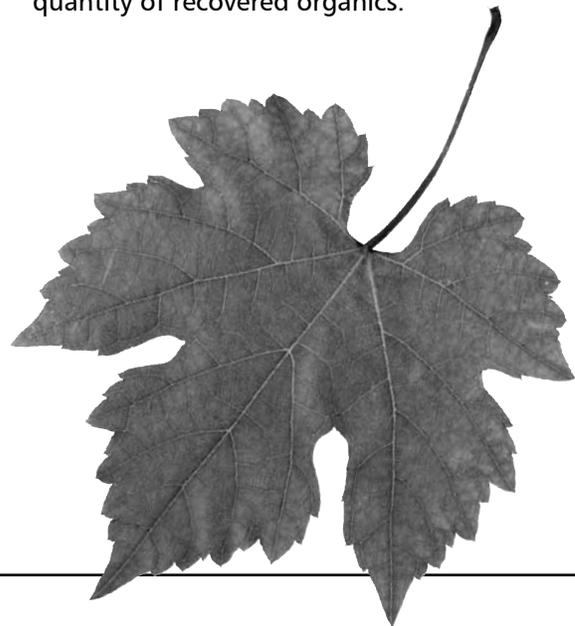
It is clear that any significant increase to South Carolina's MSW recycling rate or decrease in per capita disposal must include a concentrated effort to recover more organics. In addition, the recovery of this material has economic and environmental benefits including conserving resources, creating valuable soil amendments, reducing greenhouse gases and creating jobs.

The recovery of organics should be encouraged from the backyard to large-scale composting. DHEC recommends the following strategies to accomplish this goal.

- DHEC is revising the compost regulations (R.61-107.4). The Notice of Drafting was issued on November 23, 2012. The revisions will: allow the expansion of allowable feedstock; establish allowable exemptions; and develop testing standards. Final

regulations also should help to develop markets for the material and remove hurdles to large-scale investment in new facilities.

- Recommit efforts to promote grasscycling and backyard composting at homes and businesses. This strategy includes working closely with local governments, developing partnerships and offering outreach programs.
- Encourage school composting programs. Develop and provide technical assistance and grant funding where possible to help schools create on-site recovery programs.
- Work with all stakeholders to provide efficient and environmentally responsible recovery, strengthen programs and improve infrastructure to increase the quality and quantity of recovered organics.



Maximize food recovery opportunities.

Food scraps comprised about 35 million tons of the nation's municipal solid waste generation in 2010, according to the U.S. Environmental Protection Agency (EPA). Of that amount, 97 percent (about 34 million tons) was thrown away. This, despite the fact that in 2009 more than 14 percent of the nation's households were food insecure (did not know the source of their next

meal). Much of this waste is not waste at all, but safe food that potentially could feed millions of Americans.

In addition to the social impact, there are several economic and environmental benefits. Businesses participating in food recovery programs should have lower disposal costs. Once recognizing and confirming the type and amount of food that is recovered, businesses can reduce or eliminate unnecessary purchases. Businesses that donate food also may be able to claim tax benefits.

Excess food, leftovers and scraps that are not fit for donation and consumption can be composted into a nutrient-rich soil amendment. Donation and composting combined would result in a significant drop in the amount of material being disposed of in landfills. Finally, recovering food scraps also prevents the waste of resources used to grow, manufacture and transport food.

South Carolina should do its part to minimize food waste. DHEC recommends the following strategies to improve the recovery of excess food.

- Food recovery should be encouraged, promoted and supported at the state and local government level to all stakeholders (e.g., restaurants, grocery stores, food banks and other appropriate non-profit organizations, colleges/universities, schools, military installations, hospitals, prisons, stadiums and other athletic venues).
- Clearly defined policies and best management practices should be developed that help stakeholders who want to participate in food recovery programs to provide safe food for those in need.

Increase construction and demolition debris recycling.

Construction and demolition (C&D) debris comprises 20-30 percent of the solid waste generated according to several recent studies.

Applying the 20 percent to the total solid waste generated in South Carolina, about 2.6 million tons are estimated to be C&D debris. Of that amount, 366,016 tons of the material were recovered, resulting in an estimated 14 percent recycling rate.

The disposal of C&D debris represents lost opportunities. Reducing and recycling C&D debris conserves natural resources, saves landfill space, reduces the environmental impact of producing new material, creates jobs as well as reduces building project expenses through avoided purchase and disposal costs. South Carolina, like other states, faces two stubborn obstacles to increased recovery – low disposal costs and lack of markets. Currently there are limited markets in the state for C&D debris and even more limited markets for specific material such as shingles and gypsum wallboard. In addition, it is often less expensive for contractors and builders to dispose of the material than take the time to separate, store and find a market.

Strategies that may increase C&D debris recovery include: building awareness of the issue; providing guidance; increasing recycling; enhancing infrastructure; and improving markets. The following are strategies to increase the recovery of C&D debris.

- Develop a Web-based C&D debris clearinghouse that includes markets, tools, guidance documents and links that support the recovery, use and availability of material for stakeholders (e.g., recyclers, contractors, local governments, associations). Encourage the use of the S.C. Materials Exchange, the Green Resource Index, the S.C. Green Building Directory and the S.C. Department of Commerce's Recycling Directory.
- Develop a statewide campaign to provide information to contractors about the economic and environmental benefits of recycling C&D debris. As part of this strategy, develop and offer job-site training programs.
- Encourage and assist local governments to incorporate C&D debris recovery into building projects and add recycling requirements to building permits.
- Encourage and assist C&D debris generators to recycle and help facilitate contact with recoverers and/or markets.
- Encourage source separation of material at building sites to improve the marketability of C&D debris.
- Develop guidance documents and best management practices to promote and assist C&D debris recyclers to operate within the established regulatory framework.
- Encourage waste haulers to increase diversion of C&D debris.
- Support and encourage C&D debris market development with stakeholders including the S.C. Recycling Market Development Program.

Prevent illegal waste tire dumping.

South Carolinians discard about 4.5 million tires every year. When tires are managed inappropriately – that is, dumped or stored illegally – they can become a health hazard by holding water and attracting mosquitoes as well as creating potential fire hazards and unsightly nuisances. But when managed properly, tires can be used in construction activities and to create new products as well as burned for energy recovery in manufacturing.

Most waste tires generated in South Carolina are chipped for use as tire-derived fuel and burned in

place of other fuels (e.g., coal). They also are used frequently as a substitute for gravel or other aggregates in septic tank drain fields or other drainage applications.

Because waste tire management (e.g., recycling or legal disposal) costs the generator, a struggling economy unfortunately increases the chance that tires will be illegally dumped or stored. Over the past year, the state has continued to see numerous new examples of illegal dumping and is working to identify responsible parties and to require illegally dumped tires to be removed and managed properly. But remediation of existing piles is not enough. Preventing the creation of new tire piles is critical to the success of any waste tire management program.

In the past year, DHEC has developed new strategies to prevent illegal tire dumping. These strategies will continue to be implemented in an effort to better help waste tire generators (e.g., tire retailers, businesses, local governments) in securing lawful recycling options for their waste

tires and in verifying delivery of waste tires to appropriate destinations.

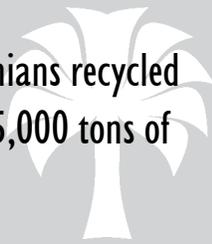
DHEC has begun and should complete implementation of two process revisions:

1. an improved waste tire hauler registration process; and
2. a tire manifest to document legal transport and delivery of waste tires.

In addition, DHEC should continue efforts to prevent illegal tire dumping with the following activities.

- Provide guidance to counties and regions to promote the development of comprehensive waste tire management plans for inclusion in their Solid Waste Management Plan updates.
- Develop a Web-based clearinghouse that may include data, tools and guidance documents to support the efficient and environmentally responsible recovery of waste tires as well as the highest end use that is possible.
- Promote market development activities that encourage new and expanded uses for recycled tire products.
- Implement outreach and education programs that encourage the purchase of products made from recycled tires.
- Develop strategies for assisting waste tire processors to remain compliant with their permits.
- Provide technical assistance to help local governments implement successful waste tire management programs.

South Carolinians recycled more than 45,000 tons of tires in FY12.



Improve and develop recycling markets.

Recycling does not work without markets. Markets are indispensable to sustainable, cost-effective recycling programs.

South Carolina and the Southeast are fortunate to have many regional markets – particularly for

cardboard and other paper products as well as plastic and scrap metal. But just having a market does not ensure success. Often there are many obstacles to overcome – including cost of collection, lack of infrastructure, price of the material and distance to the market – to make recycling work.

State government has the potential to be a key player in market development. State government should lead by example by maximizing recycling efforts wherever possible to help increase the amount of material collected. Beyond that, state government should use its collective purchasing power to buy recycled-content products. In addition, state government should place recycled-content products on state contract.

Overall, the state's recycling industry is comprised of about 450 companies that provide about 20,000 jobs.



Additional strategies to further support existing markets and develop markets are listed below.

- Develop a Web-based market clearinghouse that may include information on commodities, material recyclers, recycling vendors, haulers, processors, end users and remanufacturers.
- Evaluate ways to promote and coordinate existing databases (e.g., the Green Resource Index, the S.C. Green Building Directory and other recycling directories) into a one-stop, consistent and more user-friendly tool.
- Focus market development on hard-to-recycle material and less mature markets such as glass, C&D debris, organics and additional types of plastic beyond bottles.
- Develop a statewide campaign to promote the recycling industry and the important role it plays in South Carolina's economy. Conduct a new economic impact study.
- Encourage and assist local governments to take a more active role in coordinating recycling efforts with local, state and regional markets to maximize not only the amount and quality of material collected, but also revenue received for that material.
- Encourage and assist local governments to develop partnerships with other governments, businesses and end users to improve collection and recycling infrastructure.

Consider pay-as-you-throw programs.

Traditionally, residents pay for waste collection through property taxes or a fixed fee regardless of how much or how little waste they generate.

Pay-as-you-throw (PAYT) programs break that tradition by treating waste collection just like electricity, gas and other utilities – residents are charged for the collection of solid waste based on the amount of waste they throw away. This creates a direct economic incentive to recycle more and throw away less.

PAYT programs work. Many communities with PAYT programs have reported significant increases in recycling. In addition, PAYT programs often have proven to be an effective way for local governments to meet increased solid waste management costs.

Setting up a PAYT program is not without its difficulties and will require careful consideration and planning as well as time and commitment. But just accepting the traditional methods of managing waste can no longer be afforded.

Local governments should review and evaluate their programs and consider a PAYT program.

Expand and improve education, outreach and technical assistance.

From elementary school students to local government decision makers, education and outreach are key strategies to help South Carolinians better understand the significant benefits that waste reduction and recycling have on the state’s environment and economy and the role all of us have in making it work. It will require changes in the behavior and practices of residents, students, business and industry, colleges/universities, schools and government to reach recycling, disposal and other associated goals. Education and outreach – which include technical assistance – are the pathways to achieving these goals.

DHEC recommends the following strategies that may help achieve the goals outlined above.

- Encourage more teachers and schools to participate in the “Action for a cleaner tomorrow” curriculum supplement program that includes training for K-12 teachers and classroom presentations to elementary, middle and high school students.
- Encourage and assist local governments to continually educate residents on community recycling options and to look for partnerships to promote recycling.
- Encourage more businesses to reduce waste, recycle and use the resources provided by the S.C. Smart Business Recycling Program.
- Encourage hotels, motels, restaurants and bars to reduce their environmental impact and take advantage of the resources from the S.C. Green Hospitality Program.
- Expand public-private partnership efforts to promote recycling at public places (e.g., airports, state parks, welcome centers).
- Expand comprehensive technical assistance to state agencies, local governments, businesses, organizations, colleges and universities, schools and recycling markets.
- Identify opportunities to promote the importance and economic benefits of recycling to local decision makers (e.g., councils, mayors) and key associations.

Local governments must improve solid waste programs.

Local government programs are the front line of managing the solid waste recycled and disposed of by residents and, in some cases, businesses and others.

It is a service that represents a significant cost to a community. It also is a service that

Recycling can have a considerable impact on the local and state economy.



is often underappreciated in what it does to protect human health and the environment. Part of that service – recycling – also can have a considerable impact on the economy. In short, it is critical that local governments continually evaluate and look for ways to improve their solid waste management programs.

DHEC recommends that local governments review their programs and consider the following strategies.

- Maintain an up-to-date solid waste plan that minimizes the amount of material that is disposed of in landfills.
- Maximize revenue from the sale of all recyclables.
- Identify opportunities to promote the environmental and economic benefits of recycling to community decision makers (e.g., council members, mayors) in an effort to make solid waste management programs a higher priority when making budget and staff decisions.
- Encourage more businesses, organizations and others to reduce waste, recycle and report their recycling activities.
- Add and/or support composting programs for all audiences (e.g., residents, schools and businesses). See recommendation “Recover more organics” on page 12.
- Encourage food scrap recovery where appropriate. See recommendation “Maximize food recovery opportunities” on page 12.

State government should lead by example – recycle and buy recycled.

State government should lead by example with waste reduction and recycling programs that provide material for South Carolina's recycling markets. Recycling, however, will not work unless products made from recycled material are purchased. State (as well as local and federal) government also has the unique opportunity to use its purchasing power to buy recycled-content products and influence the marketplace.

The Act – S.C. Code of Laws § 44-96-140 – requires the General Assembly, Governor's Office and Judiciary as well as state agencies and state-supported colleges/universities to have waste reduction and recycling programs and report those recycling activities annually to DHEC.

The Act also outlines specific objectives for state government and state-supported colleges/universities on buying recycled-content products. Those objectives include a buy-recycled goal (25 percent of purchases should be recycled-content products) as well as tracking and reporting those purchases to DHEC. In addition to the Act, South

Carolina established an Environmentally Preferred Purchasing Policy (EPPP) in 2009 that provides additional information, standards, guidance and tools for state agencies, colleges/universities. This valuable tool can help achieve the goals outlined in the Act.

DHEC recommends the following strategies for state agencies and state-supported colleges/universities.

- Renew and improve the commitment to waste reduction, recycling, composting and buying recycled by reviewing and developing internal policies and guidelines.
- Implement innovative materials management strategies that reduce waste and maximize the amount of material that can be recycled or composted.
- Implement the 7.5 percent price preference to encourage the purchase of recycled-content products outlined in the Act.
- Develop a system to track and report recycled-content purchases.
- Implement the state's EPPP and understand what recycled-content products are available including those on state contract.