



# LOCAL GOVERNMENT CASE STUDY: BRUNSWICK COUNTY - MOBILE HOME RECYCLING

Jurisdiction:	Brunswick County
Best Management Practice:	Mobile Homes Recycling Program
Purpose:	County officials wanted to establish a system to help clean up the county and recover materials from a waste stream that historically has not received intermediate processing. Given the ordinance to discontinue junkyards, this program provides an inexpensive, environmentally preferable option for residents and junkyard owners to dispose of dilapidated mobile homes.
Ordinance:	Planning Ordinance - <a href="http://www.brunsko.net/downloads/zoning_ordinance_060203.pdf">http://www.brunsko.net/downloads/zoning_ordinance_060203.pdf</a> Section 6.2., G
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## DESCRIPTION

Brunswick County has operated its Mobile Home Recycling Program since February 2000. The program was initiated by the county planning department in response to the development of a zoning ordinance that required the discontinuance of all non-conforming junkyards.

The Planning Department approached the Department of Solid Waste with the idea of establishing a mobile home disposal and recycling program for Brunswick residents. The program's main intent is to demolish dilapidated mobile homes and separate out recyclable materials that would otherwise be part of the waste stream. Under this program, Brunswick County recycles the metal structural components of mobile homes along with metal fixtures and appliances that remain inside the home.

When the program initially started, citizens were responsible for delivering the mobile homes on their own to the landfill site for demolition and recycling. However, to help tourism and clean up the county, the county manager and planning coordinator initiated the Appearance and Code Enforcement (ACE) program, which includes the free removal and recycling of "junked items" (such as dilapidated mobile homes and other housing structures, junk vehicles, etc). Under the ACE program, residents contact the solid waste department to request pickup. The solid waste department handles the demolition, transportation of materials to the landfill, disposal and recycling of the mobile homes at no expense to the citizen.

## IMPLEMENTATION

Initially, the recycling program began in February 2000 and required residents to handle the transportation of mobile homes to the landfill site. However, at the end of 2001, upon initiation of the Appearance and Code Enforcement (ACE) program, the free removal and disposal of certain junk items, including mobile homes, was included. This free (temporary) service was originally supposed to last only six months, but given its high demand, has continued for the last eighteen months. The solid waste department advertised the recycling program in the county's two major newspapers, on the main cable access channel, and in the April 2000 Spring Clean-up Advertisements. In addition, the county advertised for the ACE program and free removal of mobile homes by mailing notices to the individuals previously identified by the planning department as possessing "junked item(s)."

The solid waste department has handled the recycling of all mobile homes and other junked items, including those removed through the ACE program, using in-house staff and equipment. The equipment required to demolish and recycle a mobile home that is delivered to the landfill includes a tractor or track loader, one excavator and one dump truck. In addition, two operators are required to complete the process. Mobile homes delivered to the landfill site take approximately 30 minutes to recycle, with an in-house cost of about \$65 for the demolition and recycling of one mobile home. This cost includes two operators, one excavator and one dump truck. This estimate does not include cost of transportation to the landfill, disposal of the C&D material, or the cost of the



track loader used to transport the mobile home.

It is important to also note that the time and costs associated with the ACE program are much greater than the landfill program. Under the ACE program, the county must account for the additional transportation time and costs required to transfer the equipment to the site and demolish the mobile home at the owner's property. In this case, the solid waste staff must load the excavator into a lowboy in order to transport it to the site. Three to four dump trucks are also required (as opposed to one) in order to decrease the amount of time the excavator stays at one place and lower the idle time for both the excavator and operator. In addition, there is usually debris that must be cleared away as well as additions to the mobile homes such as porches, decks and extra rooms that must also be demolished. Given these factors, demolishing and recycling a mobile home under the ACE program, at the owner's property, requires a minimum of three hours and can take up to three days depending on the site.

### Establishing the Tipping Fee

For the initial Mobile Home Recycling Program, where the materials are delivered to the landfill by residents, the county charges the same tipping fee as for construction and demolition (C&D) debris. However, in trying to determine how to weigh the mobile homes, the county encountered its first operational setback: not all mobile homes would fit across landfill scales. In response to this issue, for mobile homes that would not fit across landfill scales, the County established a single item flat fee (e.g., a single-wide mobile home is considered one item and a double-wide is considered as two). In order to determine this per item flat rate, which is based on the average amount of C&D material that has to be disposed of in the landfill after demolition, the solid waste management department used a portable scale to weigh a single-wide mobile home with axle and frame as well as a separate axle and frame. The average weight of the C&D debris was calculated by taking the average weight of a mobile home and subtracting the weight of just the axle and frame. The county found that the axle and frame together weigh approximately one ton. On average, single-wide mobile homes in Brunswick County, including the axle and frame, range between three and five tons. Therefore, the county came up with a four-ton average weight for the C&D materials and a \$150 flat fee per single-wide mobile home (that does not fit on the landfill scale).

### Procedure for Recycling a Mobile Home at the Landfill

When there are several mobile homes ready, the county begins the recycling process. A tractor or track loader, which is normally already located on the C&D site, is used to pull the mobile home to the edge of the landfill's working face. The county solid waste staff then uses an excavator to flip the mobile home on its side, which typically causes the axle and frame to pull away from the rest of the mobile home. The operator uses the tractor or track loader to hook the axle and frame in order to move them over to the county's white goods site.

Once the axle and frame are separated, the operator uses the bucket on the excavator to demolish the top side of the mobile home in order to see inside and remove all of the metal fixtures and white goods such as appliances, sinks, bathtubs and water heaters. The metal items are placed in the dump truck and taken to the white goods area while the operator finishes demolishing the mobile home. All steps are performed to one side of the landfill's working face, creating an efficient system where recyclable materials go directly from the mobile home to the white goods site and waste materials can remain at the demolition site for landfilling.

## RESULTS

The county began recycling mobile homes in February 2000. The number of mobile homes delivered to the landfill decreased in 2002 because the county started the Appearance and Code Enforcement (ACE) clean-up program at the end of 2001, which included the free removal of dilapidated mobile homes. There have been an additional 403 mobile homes recycled since this program's inception in FY 2001/2002. Overall, the recycling program has been a success because it provides an alternative method of mobile home disposal for residents, keeps recyclable materials out of the landfill, and greatly improves the appearance of Brunswick County.

	Landfill Program			ACE Program		TOTAL
	2000	2001	2002	FY 01/02 (Program began Jan. '02)	FY 02/03 (1-3 quarters)	
# of Mobile Homes Recycled	21	53	30	195	208	507



The N.C. Division of Pollution Prevention and Environmental Assistance provides free, non-regulatory technical assistance and education on methods to eliminate, reduce, or recycle wastes before they become pollutants or require disposal. Call DPPEA at (919) 715.6500 or (800) 763-0136 or e-mail [nowaste@p2pays.org](mailto:nowaste@p2pays.org), or visit DPPEA's Web site at [www.p2pays.org](http://www.p2pays.org) for assistance with issues in this case study or any of your waste reduction concerns.