

**AVERY COUNTY
SOLID WASTE MANAGEMENT PLAN UPDATE
JUNE 30, 2009**

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UPDATE DEVELOPMENT AND PUBLIC PARTICIPATION

The update was developed by the Avery County Solid Waste Department with assistance from High Country Council of Governments. Drafts of the update were presented to incorporated municipalities in Avery County for comment and input. A public meeting was held to gather citizen input on the draft update, and copies of the draft were made available to the public for review. Informal comments received from citizens on a daily basis were also used in developing the plan and refining waste management practices.

EXECUTIVE SUMMARY

In June 1997, the Avery County Board of Commissioners adopted a Solid Waste Management Plan in accordance with NC General Statute 130A-309.09A. The plan covered all aspects of solid waste management in Avery County, including the Towns of Banner Elk, Crossnore, Elk Park, Newland, and the Village of Sugar Mountain for a ten-year planning period. An update of the plan has been adopted every three years as required by the statute. This 2009 update covers the same geographic area for the period FY 2008/09 through FY 2018/19. The update outlines Avery County's intended solid waste management and reduction programs, and sets a waste reduction goal for the next ten year period.

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Avery County (including the municipalities) manages its solid waste primarily through the operation of a transfer station where waste is consolidated and hauled to a landfill in Bristol, Virginia. Solid waste is collected through seven drop-off material recovery sites, curbside collection in some towns, and private waste collection businesses that contract individually with households, businesses, and institutions.

Avery County will continue its good faith effort of reducing solid waste by providing all county citizens with waste recycling opportunities through the collection sites. The Towns, as applicable, will continue their current recycling efforts. The County will continue to transfer and dispose of solid waste at the Bristol Virginia Integrated Solid Waste Management Facility within the timeframe of this planning document. Facilities exist for processing and disposing of waste resulting from a natural disaster. Existing procedures for handling and disposing of special wastes will continue. The County will collect and temporarily store computer equipment and televisions, and make arrangements as required for recycling.

Proper management of solid waste in Avery County over the next ten years will require no major changes in any of the practices described in this document. This expected stability is based on numerous factors including flat population projections, stable economic patterns, costs & revenues, the rural nature of the county, and the effectiveness of current practices.

National & Statewide Trends

Like most North Carolina counties and the state as a whole, Avery has been unable to reach the statewide goal of a 40% reduction in the amount of waste landfilled (from the 1991 baseline year). Various national trends, waste economics, and general societal characteristics make waste reduction difficult for almost all counties, including Avery. Many factors are beyond the control of county officials. Individual counties, especially rural counties, are somewhat limited in the amount of solid waste reduction that can be realized, regardless of programs that could be implemented. Packaging by manufacturers and national consumer preferences for convenience determine a great deal of the waste stream in any county. Even the most conscientious efforts to reduce waste are limited by the fact that

many goods can be obtained only in wasteful packaging. Poor markets for some recyclable materials and overall individual economic wealth discourage conservation.

Waste Reduction Goal

Avery County's baseline year per capita disposal rate was 0.74 tons (1991). In FY 2001/02 the county had a per capita disposal rate of 0.94 (26% increase). In FY 2004-05, the per capita rate of 0.83 was a decrease from FY 2001-02, but still well above the baseline year of 0.74 and far from an actual reduction from the baseline year. In the most recent year (FY 2007-08) the rate again increased to 0.92 tons per capita.

Clearly, Avery County must work toward reaching the baseline year rate before considering a goal of actually reducing the per capita rate below the baseline year; i.e. the County must reduce the increase per capita before realistically being able to reduce the baseline year rate.

Therefore, Avery County sets a FY 2018-19 goal of returning to the baseline rate of 0.74 per capita, i.e. a 0% increase from the baseline rate, or a 19% overall decrease.

Limiting Factors

These goals are established with the knowledge that the County has few options in reducing the volume of solid waste further. The size, rural nature, and dispersed population of Avery County limits the number of feasible and effective actions the County can take (in addition to actions already implemented) to reduce, reuse, and recycle solid waste. The relatively small number of commercial establishments offers few opportunities for waste exchanges, collective reuse efforts, or other programs requiring significant volumes of specific types of solid waste. Rural residents customarily compost (informally) and dispose of organic wastes and vegetative debris on their own property- with few negative consequences- meaning that a formal composting program would likely be ineffective and unneeded. Recycling opportunities are currently offered to all county residents through the widely-dispersed convenience centers, as well as through programs offered by the towns.

Reaching the New Goals

Current recycling and solid waste education efforts through the schools will presumably have an effect on the volume of solid waste in the coming years as the next generation of adults will be more conscientious concerning waste disposal. The hiring of a full-time recycling coordinator should have a significant impact on tonnage disposed. As explained elsewhere in the update, additional recycling, reduction, and other efforts are neither feasible nor practicable for the County.

Effect of Seasonal Residents & Tourism

Avery County is unable to achieve significant waste reduction, as measured by the per capita formula, due to the attraction of the county to second-home residents and tourists. As described in the section titled "Today's Situation," second-home residents and tourists contribute significantly to the waste stream, but are not counted in the population, resulting in a per capita disposal rate for the county that does not take all these factors into consideration and thus, will continue to be unrealistically high.

Vision Statement

Avery County Solid Waste Department manages solid waste produced in the county by providing materials recovery sites for both solid waste and recyclables, operating a transfer station for disposing of solid waste in the Bristol landfill, and processing recyclables.

Today's Situation

The Solid Waste Management Plan Update covers Avery County and the incorporated municipalities of Banner Elk, Crossnore, Elk Park, Newland, and Sugar Mountain. The rural county is located in the Blue Ridge Mountains of northwestern North Carolina. Avery County is a tourist destination, with many seasonal residents. A majority of residents live in unincorporated areas of the county. The towns within the county all have a population of less than 1,000 full-time residents. Between 2000 and 2007 the population grew 6.6 percent, from 17,167 to 18,292. The population projection for 2020 is 18,912; a ten-year growth rate of 2.5%. Until the recent economic downturn, the majority of the county has been experiencing moderate growth with an emphasis on second-home construction. Newland is Avery County's largest town and also the county seat. The county has a total area of 247.43 square miles and an average elevation of 3,589 feet.

Avery County's top employers are healthcare providers, resorts, retail businesses, educational institutions, and government. Grandfather Mountain, the Blue Ridge Parkway, national forest recreation, golf courses, and ski slopes generate much tourism. The county is home to Lees-McRae College and two children's homes/schools. Christmas tree production is another important component of the local economy, with the county being a leading producer in North Carolina and the nation. A large portion of the county is within the Pisgah National Forest, with much of this public land being managed for recreation- e.g. hiking, fishing, mountain biking.

Waste Characterization

Estimated waste disposed by sector:

Residential	60%
Nonresidential	20%
Construction & demolition	20%

The Quick Waste Stream Analysis provided by the Solid Waste Section was used in developing this update. A copy of the Quick Waste Stream Analysis for Avery County is attached.

GOAL/OBJECTIVES/OPTIONS/RECOMMENDATIONS

GOAL: Manage solid waste produced in Avery County to ensure a safe and healthy environment.

OBJECTIVE: Provide waste collection and waste reduction opportunities.

OPTION/

RECOMMENDATION: Continue operation of convenience center sites and curbside collection (provided by Towns) for solid waste and recyclables collection.

OBJECTIVE: Provide effective and safe solid waste disposal.

OPTION/
RECOMMENDATION: Continue transferring solid waste to the Bristol Landfill, and recyclables to appropriate recyclers.

Waste Reduction Goal

Avery County's baseline year per capita disposal rate was 0.74 tons (1991). In FY 2001/02 the county had a per capita disposal rate of 0.94 (26% increase). In FY 2004-05, the per capita rate of 0.83 was a decrease from FY 2001-02, but still well above the baseline year of 0.74 and far from an actual reduction from the baseline year. In the most recent year (FY 2007-08) the rate again increased to 0.92 tons per capita.

Clearly, Avery County must work toward reaching the baseline year rate before considering a goal of actually reducing the per capita rate below the baseline year; i.e. the County must reduce the increase per capita before realistically being able to reduce the baseline year rate.

Therefore, Avery County sets a FY 2018-19 goal of returning to the baseline rate of 0.74 per capita, i.e. a 0% increase from the baseline rate, or a 19% overall decrease.

The previously targeted goals were difficult to obtain due to many factors, including

- Tourists, who are not counted in the population, but generate large amounts of solid waste, resulting in an artificially inflated per capita rate.
- Second-home construction which generates substantial C&D waste, and also artificially inflates the per capita rate because it does not reflect a population increase.
- Many part-time residents who increase the per capita rate by generating waste while not adding to the population figures.
- Few, if any, large-scale disposers; i.e. reduction must take place incrementally with numerous small-scale disposers, rather than reducing the amount of waste from a single large industry, for example

Planning Elements

The following solid waste management planning elements were analyzed during development of this update. Analysis of the elements included examination of current programs and feasibility of additional programs/efforts. Following the narrative discussion of these elements are Plan of Action spreadsheets for each element.

1. Reduction

Avery County has no current source reduction programs. Individual counties, especially rural counties, are limited in the amount of solid waste reduction that can be realized, regardless of programs that could be implemented. Packaging by manufacturers and national consumer preferences for convenience determine a great deal of waste stream in any county. Even the most conscientious efforts to reduce waste are limited by the fact that many goods can be obtained only in wasteful packaging. Rural counties (such as Avery) do not have a sufficient number of businesses and industries to effectively promote waste exchanges, financial incentives, or other programs that would result in a significant source reduction.

2. Collection

Avery County operates its solid waste collection program through seven staffed Material Recovery Sites and one staffed Transfer Station. The Transfer Station is open Monday-Friday 8:00 am to 4:30 pm, and Saturday 9:00 am to 1:00 pm. The seven Material Recovery Sites are listed below. All Material Recovery Sites are open from 6:30 AM to 6:30 PM on Monday, Tuesday, Thursday, and Friday, and from 8:00 AM to 6:00 PM on Saturday. A map showing locations of the material recovery sites and transfer station is attached to this update. The material recovery sites are geographically distributed so as to be convenient to all county residents.

1. Altamont (Sam Brown Straight)
2. Banner Elk
3. Old Beech Mountain
4. Linville
5. Plumptree (Pancake)
6. Three Mile
7. Elk Park

Quantities of solid waste collected exhibit great seasonal variation according to peak tourist seasons; i.e. quantities increase in mid-summer, October, and ski season.

The Towns of Banner Elk and Newland contract with a private hauler for collection of municipal solid waste. Private haulers also have individual contracts with various county businesses for solid waste collection. The Towns of Crossnore and Elk Park provide curbside service once a week; the Village of Sugar Mountain does curbside pickup twice a week. In the past year, Avery County provided collection service to 13,200 households, collected 17,649 tons at a cost of \$913,371 (\$69.19/household; \$51.75 per ton). The Town of Newland served 110 households, collected 1,300 tons at a cost of \$60,000 (\$545.46/household; \$46.16/ton). The Town of Elk Park served 132 households, collected 125 tons at a cost of \$7,500 (\$56.82/household; \$60.00/ton). The Village of Sugar Mountain provided collection service to 1,800 households and collected 756.10 tons at a cost of \$66,884 (\$37.15 per household, \$88.60/ton). In FY 2005-06 the Town of Banner Elk served 112 households and collected 1,336.75 tons at a cost of \$79,067 (\$706/household; \$59.14/ton)

The County government contracts with a private firm to collect solid waste at all but three schools (where it is collected by the solid waste department), as well as the courthouse, sheriff's department, and county school administration building. The County solid waste department also collects solid waste from Mayland Community College.

At least two private firms contract with individuals and businesses outside towns.

No significant changes in collection practices are expected within the timeframe of this plan.

3. Recycling and Reuse

Avery County operates a recycling program at its seven materials recovery sites. The following materials are accepted at all locations and sold/transported as appropriate: mixed paper (including colored paper, newsprint, & magazines), single-ply cardboard; corrugated cardboard; aluminum; clear and brown glass; plastics; and scrap metal. The county has storage bins at the transfer station to store glass for the purpose of bulk collection and transporting to the recycling market.

Small businesses may use the collection centers to drop off recyclable materials. Large businesses are encouraged to contract privately for recycling services.

In addition to the Material Recovery Sites, the county operates four mobile trailers for collection of cardboard and newspaper. The trailers are placed at businesses where large amounts of cardboard are generated.

In the past year, Avery County served 11,500 households with recycling services, with 10,000 households actively recycling. The program cost was \$52,694 (\$3.99/household; \$2.99/ton) for 837.43 tons recycled.

The Village of Sugar Mountain served 1,800 households with drop-off recycling services, with 500 households actively recycling. The service is available to businesses as well. The program cost was \$1,140 (\$0.63/household; \$15.36/ton) for 74.21 tons recycled.

Private waste businesses offer recycling services under individual contracts within Avery County.

The market for recyclables varies significantly according to the material and over short periods of time. Avery County may add/expand recycling programs as the market dictates.

The county does not currently operate any reuse programs. Several private organizations operate programs within the county whereby used household items are collected and offered free to needy citizens. Also, there are several consignment shops in the county that deal in used household items. Local churches and civic groups also market used items through flea markets and rummage sales.

Avery County plans to hire a full-time recycling coordinator within the next two years, funded with proceeds from the increase in the disposal tax.

4. Composting and Mulching

Avery County currently does not operate a land clearing & inert debris (LCID) landfill nor a construction & demolition (C&D) debris landfill. These wastes are currently transported to the Bristol Landfill. The County anticipates opening a permitted LCID & C&D landfill in December 2009.

The types of natural disasters likely to affect Avery County and the solid waste stream are winter storm events, and occasional remnants of hurricanes, that could result in a great deal of vegetative debris. County solid waste employees have identified an area at the old landfill that will serve as a staging area for the processing of vegetative debris, in the event of a natural disaster. Due to the overwhelmingly rural nature of the county, however, it is unlikely that the Solid Waste Office will be inundated with vegetative debris, even if a storm uproots or breaks a large number of trees. Rural property owners usually dispose of such debris on their own land, or utilize fallen timber for firewood.

The Village of Sugar Mountain collects yard waste at curbside (250 cubic yards in FY 07-08) and delivers it to the municipality's compost facility.

Although a formal county composting program is not in place, rural residents often utilize organic materials on gardens and fields. Due to the rural nature of the county, a formal composting program does not appear to be practical.

5. Incineration with Energy Recovery

Due to the relatively low volume of solid waste produced in Avery County, the air quality issues associated with incineration facilities, and the high capital costs of implementing a solid waste incineration facility, incineration with energy recovery is not a viable option for the county.

However, Energy Xchange, a local renewable energy center, has recently expressed interest in using wood pallets as a fuel. Details have not yet been developed.

6. Incineration without Energy Recovery

Due to the volume of solid waste produced in Avery County, the air quality issues associated with incineration facilities, and the high capital costs of implementing a solid waste incineration facility, incineration without energy recovery is not a viable option for the county.

7. Transfer Outside Geographic Area

Avery County transports its solid waste (16,811.84 tons in FY 07-08) to Bristol Landfill (MSWLF) located in and operated by the City of Bristol, Virginia. The Bristol Landfill is an abandoned quarry site. The contract between the County and Bristol Landfill was renewed in 2008 for five years, with the expectation to continue renewals indefinitely. The Bristol Landfill has a current life expectancy of at least 25 years. The Avery County Transfer Station is located on Brushy Creek Road (S.R. 1101) in the southern portion of the county (see attached map). The distance from the Avery County Transfer Station to the Bristol Landfill is 74 miles.

Based on population projections, Avery County's population will grow 2.5% by 2020. A 2.5% increase in solid waste will result in additional 420.30 tons per year or 17,232.14 total tons of solid waste to be transferred in 2020.

8. Disposal

Solid waste generated in Avery County is disposed of under a contract with the City of Bristol, Virginia at its Bristol MSWLF facility. The contract was renewed in 2008 for five years. The Bristol MSWLF has an expected lifespan of 25 years. Avery County anticipates continuing to renew its contract with the City of Bristol for disposal service at the end of the current contract period.

Disposal costs for Avery County in the last fiscal year totaled \$790,417; \$59.88 per household or \$44.78 per ton. Banner Elk, Newland, Sugar Mountain, and Elk Park's disposal costs are included in the Towns' collection costs.

Avery County is preparing to open a new construction & demolition and land clearing & inert debris landfill by December 2009. These wastes are currently being disposed by transfer to the Bristol landfill. The new Avery County landfill is expected to remain operational for 50 years based on a rate of 10,000 tons disposed per year. The County will also accept waste from neighboring counties.

9. Education with the Community and Through the Schools

Avery County Cooperative Extension Service sponsors various recycling programs. One program consists of 40 portable recycling containers placed at four schools. They are also placed at events, such as festivals. Avery County Solid Waste Dept distributes educational materials at the Materials Recovery Sites.

10. Special Wastes

Manufactured homes

The new C&D landfill will include a demolition area where manufactured homes will be dismantled. Recyclable materials will be recycled.

Tires

Tires are collected at the Avery County Transfer Station and two mobile trailers located at private tire stores within the county. Avery County pays US Tire to transport them to their facility in Concord.

White goods

White goods are collected free of charge at all Materials Recovery Sites. White goods (and other scrap metal) are transferred to Metal Recycling Services in Monroe, NC and sold as scrap.

Lead acid batteries

Lead acid batteries are collected at the county garage and at the seven Materials Recovery Sites. Collected batteries are picked up by Willis Battery Company of Johnson City, Tennessee for disposal. 250 were collected in 2007-08

Used motor oil

Used motor oil is collected at the county garage. The oil is given to residents for use in shop furnaces. Leftover oil is taken by a private contractor for recycling. 800 gallons were collected in 2007-08.

Light bulbs

Fluorescent light bulbs and fixtures are accepted at all Avery County Materials Recovery Sites. The lights are picked up by IBS Environmental Company of Lenoir, NC for disposal.

Household hazardous waste

A residential household hazardous waste disposal day is held annually in August. 3,500 pounds were collected in 2007.

11. Illegal Disposal/Litter

The Avery County Solid Waste Ordinance (1986) prohibits illegal dumping and littering. Illegal disposal and litter is not a major problem in the county. The Solid Waste Department informally monitors illegal disposal and takes action as appropriate. A more formal program might be necessary in the future in conjunction with the sheriff's department.

12. Purchasing Recycled Products

Avery County does not currently have in place a recycled product purchasing program.

13. Disaster Response

The types of natural disasters likely to affect Avery County and the solid waste stream are winter storm events that could result in a great deal of vegetative debris.

In the event of a natural disaster, Avery County anticipates excess volumes of LCID and C&D materials (trees, metal, building materials, etc.). The county has adequate room at its transfer station site to stockpile these materials, and an adequate lifespan of its new C&D landfill to dispose of waste. Upon evaluation of the materials, the county will consider renting a tub grinder to process the trees and clean wood, and will dispose of C&D material at its C&D landfill.

Due to the overwhelmingly rural nature of the county, however, it is unlikely that the Solid Waste Department will be inundated with vegetative debris, even if a storm uproots or breaks a large number of trees. Rural property owners usually dispose of such debris on their own land, or utilize fallen timber for firewood. Therefore, the county feels the area at the transfer station provides a more than adequate site for any storm debris that may be collected.

14. Collection of Discarded Computer Equipment & Televisions

Prior to the effective ban date the Solid Waste Department will develop collection points for televisions and computers, and contract with a recycling company to dispose of them.

15. Management of Abandoned Manufactured Homes

Avery County has a personal property condemnation policy, which includes mobile homes, whereby the County will remove an abandoned manufactured home at the request of the owner. The new C&D landfill will include a demolition area where manufactured homes will be dismantled. Recyclable materials will be recycled.

COST ASSESSMENT

FY 2007-2008

Avery County's solid waste management programs are primarily financed through the county's general fund. Additional revenue comes from tipping fees, reimbursements from the state's tire tax and white goods tax, as well as from the sale of recyclables.

Revenues

Fees	\$194,445
Recyclables revenue	\$ 82,604
White goods	\$ 7,003
Tires	\$ 20,419
County general fund	\$1,476,969

TOTAL REVENUES \$1,781,440

Expenditures

Salaries	\$679,688
Material, supplies, miscellaneous	\$140,031
Maintenance/repairs	\$ 71,970
Contracted services	\$309,883
Fuel	\$143,274
Capital outlays	\$436,594

TOTAL EXPENDITURES \$1,781,440