

Buncombe County, North Carolina



Solid Waste Management Plan

3-Year Update

2006



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Executive Summary
Buncombe County

Buncombe County’s waste reduction goals will remain at 20% for the planning period Fiscal Year (FY) 2008-2009. At the end the 10-year planning period (FY15-16), the waste reduction goal is 40%. This is the County’s good faith effort to meet the State’s waste reduction goals. The actual waste reduction for the past five years as determined by the NC Solid Waste Section has been as follows:

Reported:

| Fiscal Years | FY88-89 | FY00-01 | FY01-02 | FY02-03 | FY03-04 | FY04-05 |
|-----------------|---------|---------|---------|---------|-----------|-----------|
| Population | 173,198 | 206,330 | 208,592 | 210,550 | 212,246 | 215,112 |
| Waste Ton | 157,610 | 251,472 | 247,830 | 255,112 | 319,594 | 332,217 |
| Per Capita Rate | 0.91 | 1.22 | 1.19 | 1.21 | 1.51 | 1.54 |
| Disasters | | | | | Hurricane | Hurricane |
| Reduction | | -34% | -31% | -33% | -66% | -69% |

The waste reduction goals as set by the County for FY 05-06 will not be achieved. A fluctuation in the waste stream by tourism, construction activity, storm debris from hurricane damage and/or industrial activity has had a negative impact on Buncombe County’s reduction goal. The cost of further reduction where the County can have an effect is cost prohibitive. To reach the goals set for FY15-16, the County will have to reduce the baseline year waste stream by 137,622 tons with a projected population of 250,221 people at a per capita disposal rate of 0.55 tons per person.

The actual recovery rate for recyclables for the County and its Municipalities (City of Asheville, Town of Black Mountain, Biltmore Forest, Montreat, Weaverville, and Woodfin) was 350.07 pounds per person for FY 04-05, which is well above the State’s average of 111.50 pounds per person. The County and the Municipalities were responsible for removing 37,651.81 tons of recyclables from the waste stream in FY 04-05. The total waste generated by Buncombe County for the same time was 332,217 tons. If one considers that the recyclables would have gone in the waste stream, the total would have been 369,869 tons and the reduction, based on the total waste stream, would have been 10.2% of the total.

Buncombe County has more than 45% of the waste stream transferred out of the County for disposal. If one considers the reduction based on the waste that the County actually controls and disposes in the County’s MSW and/or C/D Landfills, the reduction total is 16.1%.

Buncombe County recycles over 95% of the special and household hazardous wastes. The County also participates in Operation Gratitude where a thirty minute calling card, for each cell phone that is recycled, is sent to an Armed Forces Service Member stationed in a war zone.

INTRODUCTION

This plan was prepared in accordance with N.C. General Statute 130A-309.09A (b) for the purpose of meeting Buncombe County's Solid Waste needs and protecting public health and the environment. This plan also serves as a written guide to aid the Buncombe County Solid Waste department in fulfilling its Mission Statement: "The Solid Waste Department improves the health and safety of all citizens by disposing of all waste generated in Buncombe County in the most effective and efficient manner possible." The sections of the plan are ordered as listed in the General Statute.

Through the diligent implementation of this comprehensive solid waste management plan and the plan updates that will follow every three years, the Buncombe County planning area provides for the management of solid waste and its reduction for the next 10 years. The planning area includes Buncombe County and the following municipalities: City of Asheville, the Towns of Black Mountain, Biltmore Forest, Montreat, Weaverville, and Woodfin. These municipalities have resolved to participate in the plan and will be included in all references to Buncombe County.

Buncombe County's long range vision is for a comprehensive, integrated, efficient, and effective solid waste management program. This program provides disposal capacity, waste collection services, and waste reduction programs to all members of the planning area at an equitable price and lowered the cost of trash pick-up for residents in the unincorporated areas of the county. The County has taken the initial steps necessary to provide disposal for over thirty years at its new Sub-title D landfill through the actions described in this plan. The vision includes the elimination of improper disposal of waste and the reduction of illegal dumpsites.

The County will elevate the awareness of solid waste reduction related issues for all citizens of the county and will assist each entity that produces waste to reduce, reuse, recycle, and compost when economically feasible. Furthermore, the vision includes expanded waste reduction opportunities that are convenient for residents. As part of the franchise agreement, the cost of waste pick-up was reduced. Recyclables are also accepted at the landfill and transfer station free of charge during regular operating hours. The County has expanded its collection services to include special wastes such as electronics and household hazardous waste, which are collected on specified collection days.

The vision includes a community that understands the environmental benefits of waste reduction and proper waste disposal. The County foresees some financial expenditure, but intends to keep it at a reasonable level. This vision is translated into thirteen long-range planning goals listed below. These goals have been set by the County since the last revision of the document and will remain the same through the 2003-2013 planning period.

Planning Area Goals

- Goal 1.** To provide everyone in the community with waste disposal capacity for a minimum of the next thirty years as projected during the construction of the new landfill.
- Goal 2.** To meet the County's established waste reduction goals.
- Goal 3.** To provide everyone in the community with efficient and cost-effective waste collection services and waste reduction opportunities.
- Goal 4.** To increase the efficiency and cost-effectiveness of the solid waste program.
- Goal 5.** To assist each municipality in setting and meeting individual integrated solid waste management and reduction goals that complement the County goals.
- Goal 6.** To decrease improper and illegal waste disposal and provide a means to correct illegal dumping when it occurs.
- Goal 7.** To increase the availability, participation, and efficiency of recycling programs.
- Goal 8.** To increase the use of composting for homes and institutions.
- Goal 9.** To increase waste reduction in the private sector.
- Goal 10.** To maximize the cooperation between all entities that receive county funding and attach responsibility for the intent and direction of the solid waste management plan to that funding.
- Goal 11.** To provide educational materials to businesses and communities wishing to increase the effectiveness of their solid waste reduction programs.
- Goal 12.** To provide educational materials to businesses and communities wishing to increase the effectiveness of their solid waste reduction programs.
- Goal 13.** To protect public health and the environment.

Part 1. GEOGRAPHIC AND SOLID WASTE STREAM EVALUATION

Geographic Area

This solid waste management plan covers Buncombe County and its six incorporated municipalities. The majority of Buncombe County's residents live in unincorporated areas (see Table 1). There was a 12.7% increase in the County's population from 1990 to 1998. The 2000 Census reported a greater increase in population (18.5%) during the period from 1990-2000. The 2004 estimate shows an increase in population of 4.3% during the period from 2000 to 2004.

| Table 1. Estimated Population, 1990, 2000, and 2004 | | | |
|--|----------------------------|----------------------------|----------------------------|
| MUNICIPALITIES & COUNTIES | POPULATION 1990 | POPULATION 2000 | POPULATION 2004 |
| Asheville | 61,855 | 68,889 | 73,239 |
| Biltmore Forest | 1,324 | 1,440 | 1,475 |
| Black Mountain | 5,533 | 7,511 | 7,660 |
| Montreat | 682 | 630 | 659 |
| Weaverville | 2,107 | 2,416 | 2,482 |
| Woodfin | 2,736 | 3,162 | 3,586 |
| Total Incorporated Municipalities* | 74,237 | 84,048 | 89,101 |
| Buncombe County – unincorporated areas* | 100,120 | 122,241 | 126,011 |
| Total | 174,357 | 206,289 | 215,112 |

^ Source: NC Senses Bureau

The majority of the county is experiencing moderate, steady growth. Buncombe County boundaries contain 656.28 square miles (420,019.2 acres). Buncombe County currently oversees the solid waste management of 72.4% of the total land area.

Waste Stream Evaluation

In this plan, residential waste refers to waste generated by households (individual and multi-family dwellings). Commercial waste is generated by commercial businesses and institutions. Examples include restaurants, retail shops, schools, and members of the service industry. Industrial waste is from manufacturing establishments. Yard waste refers to brush, leaves, and organic yard waste accepted during and after the 1995-'96 fiscal year¹ when it included untreated wood suitable for mulching. Construction and Demolition (C&D) waste generated from construction activities is currently being disposed of in the new C&D landfill, since 2004. The food category represents food waste from the local Farmer's Market only and does not include "other" received food wastes. The "other" category involves items not listed in the above categories, such as charitable organizations. Please refer to Table 2.

Buncombe County and its municipalities disposed of 332,217 tons in FY 2004-05. An estimate of the waste disposed by sector in FY 2004-05 is shown in Table 2. These calculations are based on tonnages provided by Buncombe County Solid Waste Annual Reports. Please refer to Appendix H for historical data covering Fiscal Years from 1995-'96 through 1999-2000.

Table 2. Estimated Waste Disposed by Sector, FY 2004-05

| TYPE OF WASTE | TONS | % OF WASTE STREAM (STATE ESTIMATE) | % OF WASTE STREAM (COUNTY ESTIMATE) |
|----------------------------|----------------|------------------------------------|-------------------------------------|
| Residential | 122,920 | 28 | 37 |
| Commercial | 109,632 | 23 | 33 |
| Industrial | 6,644 | 20 | 2 |
| Yard Waste | 3,322 | | 1 |
| Constuction and Demolition | 79,732 | 29 | 24 |
| Food | 3,322 | | 1 |
| Other | 6,644 | | 2 |
| TOTALS | 332,217 | 100 | 100 |

Source: Buncombe County Waste Disposal Reports

The State of North Carolina estimates that 28% of the state's waste stream is residential, 23% commercial and institutional, 20% industrial and 29% construction and demolition. These estimates were given from the NC Division of Pollution Prevention and Environmental and Assistance and is referred to in Table 2 as "STATE ESTIMATE."

¹ Fiscal year references July 1-June 30.

When comparing these figures, there are clear differences in percentages. For example, the state estimates the waste stream to be 20% industrial; whereas, Buncombe County estimates its industrial waste stream as only 2% (referred in Table 2 as “COUNTY ESTIMATE.” This may be due to the categorization of certain businesses as either industrial or commercial. Other differences may be attributed to Buncombe County’s differing composition of business, industry, and residence.

Land clearing and inert debris (yard waste) disposed in 2004-05 was 2,495 tons, which is significantly lower than past yard waste disposal rates, as indicated as historical data in Appendix H, Tables 1 and 3. Please note that historical data was calculated from the state’s estimated percentages and the current figures (FYs 1999-00 and 2000-01) are not estimates. They were reported from Solid Waste Records. Due to strong winter storms in FY 1997-98, the tonnage was nearly triple the current amount.

Tonnages reported in Table 3 are estimates of individual materials and can be estimated using the state estimates and total residential disposal. Tonnage reported for co-mingled recyclables and cardboard are also listed. Please refer to Appendix H for historical calculated data based on these percentages and total waste volume.

Table 3. Estimate of Residential Waste Composition FY 2004-05

| MATERIAL | STATE ESTIMATE (PERCENT) | ESTIMATED 2004-05 COUNTY TONS DISPOSED | REPORTED RECYCLABLES COLLECTED 2004-05 |
|--|--------------------------|--|--|
| Paper (mixed, white, newspaper, and magazines) | 31 | 34,258 | 4,387 |
| Cardboard | 6 | 23,773 | 27,522 |
| Plastics | 10 | 11,502 | 322 |
| Yard Waste | 5 | 0 | 0 |
| Organics | 19 | 24,046 | |
| Textiles | 4 | 5,183 | 0 |
| Glass | 8 | 7,784 | 1,372 |
| Aluminum | 1 | 1,244 | 149 |
| White Goods | 0 | 3219 | 1450 |
| Ferrous Metal | 6 | 2,170 | 70 |
| Non-ferrous Metal | 1 | 0 | 0 |
| Miscellaneous | 9 | 9,741 | 55 |
| C0-mingled Blue Bags | 0 | | 291 |
| TOTAL | 100 | 122,920 | 35,618 |

Source: NC Solid Waste Management Annual Reports and NC DPPEA. Total tonnage reported also in Table 15.

Part II. LOCAL WASTE REDUCTION GOALS

Buncombe County and participating municipalities' goal for the diversion of waste from Subtitle D Landfill Cell(s) and the Construction and Demolition Cell is 40% on a per capita basis from the base-line year of 1988-89. Although the goal of 40% was not met by the end of FY 2004-05, 40% will continue to be the reduction goal through FY 2015-2016. Since the goal was not met by the FY 2000-01 end, the County will attempt an incremental approach. The 40% reduction goal will rise incrementally over the ten year period: targeted reduction will be 25% by FY 2005-06, 30% by FY 2007-08, 35% by FY 2013-14, and 40% by FY 2015-2016.

The base-line year used to calculate waste reduction efforts is FY 1988-89. Appendix C contains letters requesting the use of this period as a baseline for calculations and the approval by the state. The County enacted a cardboard ban in 1989 (the first in the state to do so); thus, creating a need for divergence of the state's standard baseline year of 1991-'92. The baseline year disposal rate was 157,660 tons. For the population at that time, calculations show that the average citizen generated 5.3 pounds/person/day, just below the national average of 5.5 pounds/person/day. At this per capita disposal rate, Buncombe County would have disposed 195,718 tons in FY 2000-01 and 202,613 tons in FY 2005-06 (see Table 4).

Table 4. Five- and Ten-Year Waste and Population Projection 2004-05

| YEAR | POPULATION | WASTE DISPOSAL | PER CAPITA DISPOSAL RATE |
|------------------------|----------------------|--------------------------|--------------------------|
| Baseline Year, 1988-89 | 173,253 | 157,660 tons | 0.91 tons/person/yr |
| FY 2003-04 (actual) | 212,246 | 319,594 tons | 1.51 tons/person/yr |
| FY 2004-05 (actual) | 215,112 | 322,217 tons | 1.54 tons/person/yr |
| YEAR | PROJECTED POPULATION | PROJECTED WASTE DISPOSAL | |
| FY 2006-2007 | 219,545 | 338,099 tons | |
| FY 2009-2010 | 230,803 | 355,436 tons | |
| FY 2016-2017 | 250,221 | 385,340 tons | |

Source: NC Senses Bureau and the NC Waste Reduction Goal Sheet

Buncombe County must reduce its per capita disposal rate to 0.99 tons per capita per year and maintain that level of reduction throughout the planning period to meet the local goal of 40% per capita waste reduction (Table 5). Using these per capita rates, the target annual tonnage remaining for disposal by Buncombe County would be 120,749 tons in FY 2006-07, 126,941 in FY 2009-10, and 137,621 in FY 2016-17. In other words, 217,350 tons must be diverted from landfills in FY 2005-06, 228,495 tons in FY 2009-10 and 247,719 in FY 2012-13 to meet the goal.

Table 5. Targeted Waste Reduction, FY 2015-16

| CALCULATIONS | |
|---|------------------|
| 1. Baseline year per capita disposal rate (County Figure provided by Solid Waste Section) | 0.91 tons/person |
| 2. Targeted per capita disposal rate for FY 2015-16 (Subtract the percent goal from 1.0, then multiply result by line 1) | 0.55 tons/person |
| 3. Population for July 2015 (County figure from NC Municipal Population booklet) | 250,221 |
| 4. Projected tonnage for disposal in FY 2015-2016 at baseline disposal rate (multiplied line 1 by line3) | 227,701 |
| 5. Targeted annual tonnage for disposal in FY 2015-2016 at targeted goal rate (multiplied line 2 by line 3) | 137,622 |
| 6. Targeted annual tonnage to reduce in FY 2015-2016 (subtracted line 5 from line 4) | 90,079 |

Source: Municipal Engineering Services Calculation from Waste Reduction Goal Sheet

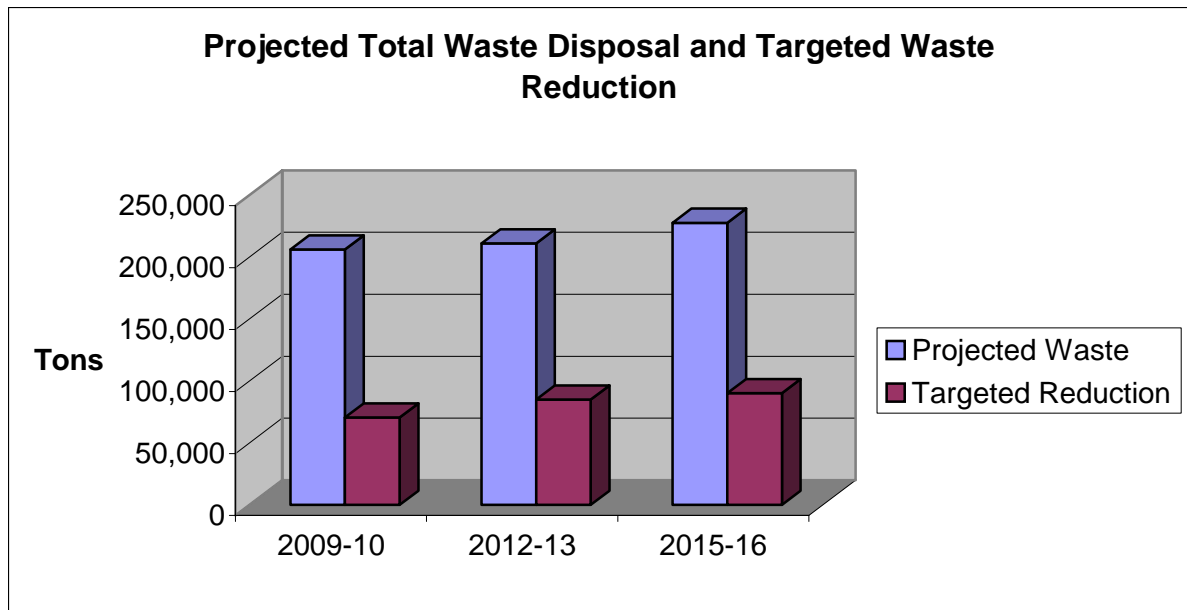
Part III. MEETING THE WASTE REDUCTION GOALS

This plan is designed to reduce Buncombe County’s waste by 70,579 tons in FY 2009-10, 84,877 tons in FY 2012-13, and 90,379 in FY 2015-16. as defined in Chart 1. The reduction goals will therefore rise incrementally from 30% to 40% over the next ten years.

To determine the tonnage of waste targeted for reduction over the ten-year planning period, the total projected waste disposal was extracted from Table 5. Second, the reduction goals of 30%, 35%, and 40% were applied to the projected waste disposal of FY’s 2009-2010, 2012-13, and 2015-16, respectively. The results are illustrated in Chart 1.

To determine the tonnage for reduction by sector, the projected total waste disposal (Table 5) was applied to the percentage of the waste stream that sector comprises (Table 2). This determined the waste stream of each sector. **All sectors are not targeted equally since the County has specific methods of reducing each sector’s waste stream.** County solid waste staff projected the targeted percentage of the waste stream for each sector. These percentages were then applied to the total projected waste stream by sector. Finally, adjustments were made so that the sum of the targeted waste reduction goals for each sector equals the total waste reduction for that year. These figures are illustrated in Charts 2-4. How these wastes will be targeted is addressed below in Tables 6-8. More detailed descriptions of specific waste reduction activities planned appear in Part IV.

Chart 1.

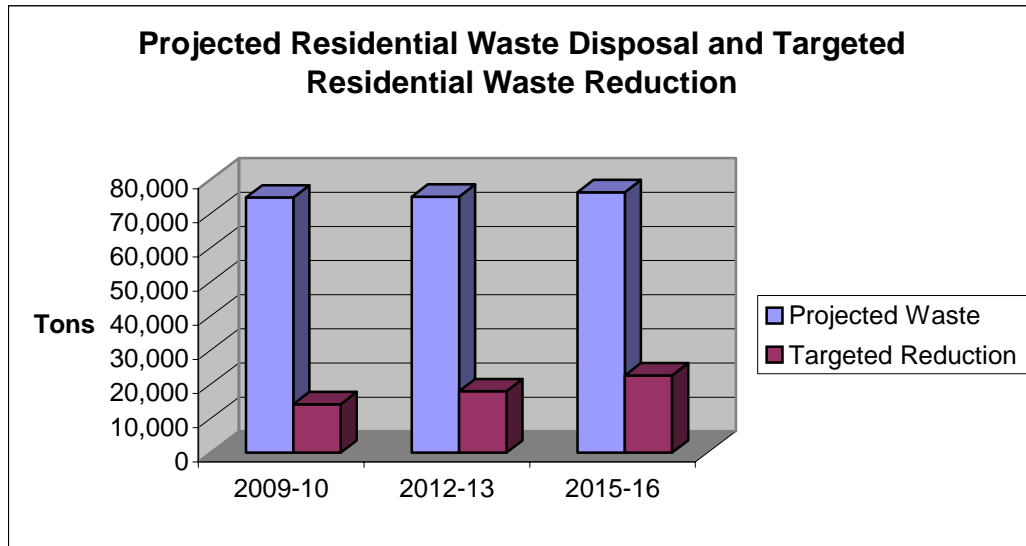


| Years | 2009-10 | 2012-13 | 2015-16 |
|--------------------|---------|---------|---------|
| Projected Waste | 206,195 | 210,985 | 227,701 |
| Targeted Reduction | 70,579 | 84,877 | 90,079 |

Residential Waste

This plan targets 19%, 24%, and 29% respectively of the residential waste stream during the planning period. As illustrated in Chart 2, the corresponding percentages of the projected waste stream are 14,198 tons in FY 2009-10, 17,992 tons in FY 2012-13, and 21,622 in FY 2015-16. Table 6 summarizes the residential waste reduction methods to be used to meet the local goals. Further description of the status on composting is described in Part IV, Section E. School and community education are not listed because they are expected to affect each of the other waste reduction methods. Specific activities planned are described in Part IV.

Chart 2.



| Years | 2009-10 | 2012-13 | 2015-16 |
|--------------------|---------|---------|---------|
| Projected Waste | 74,724 | 74,967 | 76,281 |
| Targeted Reduction | 14,198 | 17,992 | 21,622 |

**Table 6. Targeted Residential Waste Reduction,
2009-10, 2012-13, and 2015-16**

| REDUCTION METHOD | TARGETED MATERIALS | EST. TONS FY 2009-10 | EST. TONS FY 2012-13 | EST. TONS FY 2015-16 |
|-------------------------|---|---------------------------------|---------------------------------|---------------------------------|
| Source Reduction | Packaging materials, non-recyclables | 700 | 1,000 | 1,500 |
| Recycling | Glass, metal, paper, plastic, etc. | 10,000 | 12,292 | 15,000 |
| Reuse | Textiles, appliances, high-ticket items, etc. | 600 | 750 | 1,000 |
| Composting | Mixed paper, food scraps, etc. | 0 | 0 | 0 |
| Mulching | LCID from homes, appropriate C&D from homes | 2,848 | 3,850 | 4,000 |
| Special Wastes | HHW* (oil, batteries, pesticides, etc) | 50 | 100 | 122 |
| TOTAL | | 14,198 | 17,992 | 21,622 |

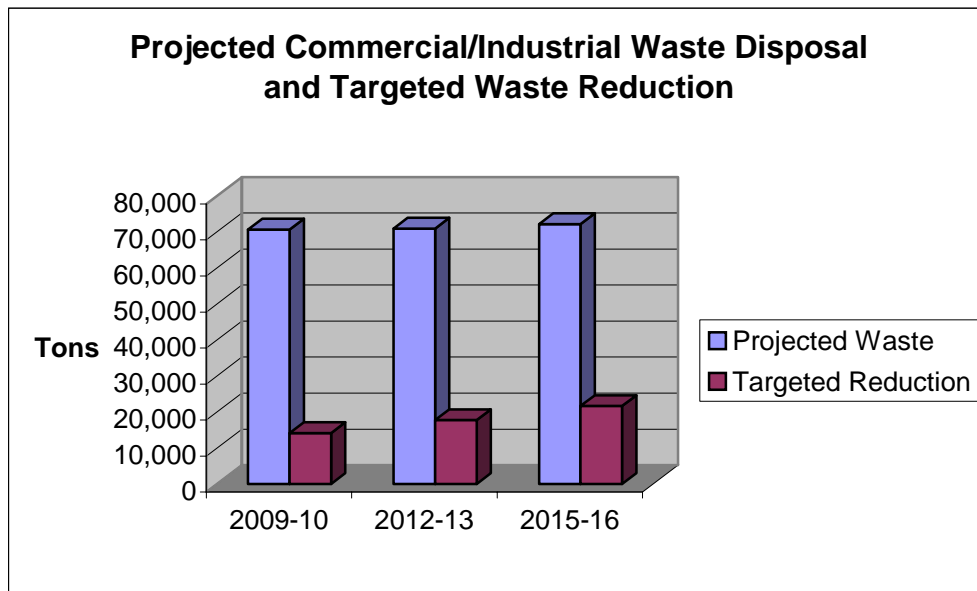
Source: Buncombe County Solid Waste Department staff estimate

Commercial and Industrial Waste

The goals for reducing commercial and industrial wastes are 20%, 25%, and 30%, of the projected commercial/industrial waste stream in 2009-10, 2012-13, and 2015-16 respectively. As illustrated in Chart 3, the corresponding tonnages are 14,137 tons in FY 2009-2010, 17,728 tons in FY 2012-13, and 21,650 in FY 2015-16. Table 8 summarizes commercial/industrial waste reduction projections. The largest generators of commercial and industrial waste are specifically targeted in this effort. In addition to promoting waste reduction through routine assessments, the County will also promote the services of the Waste Reduction Partners (WRP) program as an effective means of reducing the commercial/industrial waste stream.

WRP is a volunteer-based organization operating under a Land-of-Sky Regional Council and Division of Pollution Prevention and Environmental Assistance partnership. WRP conducts waste stream assessments free of charge to numerous industries in the region. They offer technical assistance and planning tools to reduce an industry's waste stream. For the purposes of this section, the commercial and industrial sectors in Table 7 have been combined.

Chart 3.



| Years | 2009-10 | 2012-13 | 2015-16 |
|--------------------|---------|---------|---------|
| Projected Waste | 70,685 | 70,915 | 72,168 |
| Targeted Reduction | 14,137 | 17,728 | 21,650 |

**Table 7. Targeted Commercial/Industrial Waste Reduction,
FY 2009-10, FY 2012-13, and FY 2015-16**

| REDUCTION METHOD | TARGETED MATERIALS | EST. TONS FY 2009-10 | EST. TONS FY 2012-13 | EST. TONS FY 2015-16 |
|------------------|--|----------------------|----------------------|----------------------|
| Source Reduction | Process Scrap, supply packaging, etc. | 3,205 | 3,557 | 5,000 |
| Recycling | Paper, plastic, textile, carpet, metals, etc. | 9,327 | 11,893 | 13,650 |
| Reuse | Shipping crates, pallets, production scrap, etc. | 1,605 | 2,278 | 3,000 |
| Composting | Organic wastes and paper | 0 | 0 | 0 |
| TOTAL | | 14,137 | 17,728 | 21,650 |

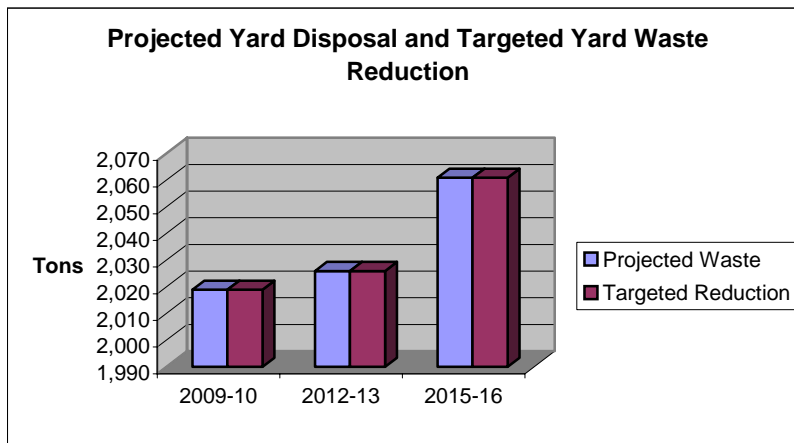
Source: Buncombe County Solid Waste Department staff estimates.

Yard Waste

Yard Waste targeted for a 100% waste reduction goal by the plan for FY 2012-2013 and throughout the planning period, as illustrated in Chart 4, Table 8 specifies the methods of yard waste reduction to be implemented. The corresponding targeted tonnages for reduction are 2,019 in FY 2009-10, 2,026 in FY 2012-13, and 2,061 in FY 2015-16.

In conjunction with the Metropolitan Sewage District (MSD), Buncombe County attempted to reduce yard waste by “bioblending” yard waste and mulch with the assistance of wastewater from MSD. In August 2000, an initial batch yielded 1,900 tons. However, the project was discontinued for reasons discussed in Part IV, Section D, Compost and Mulch. No new bioblending projects are being discussed at this time, but yard waste reduction goal is still targeted at 100%.

Chart 4.



| Years | 2009-10 | 2012-13 | 2015-16 |
|--------------------|---------|---------|---------|
| Projected Waste | 2,019 | 2,026 | 2,061 |
| Targeted Reduction | 2,019 | 2,026 | 2,061 |

**Table 8. Targeted Yard Waste Reduction,
2009-10, 2012-13, and 2015-16**

| REDUCTION METHOD | TARGETED MATERIALS | EST. TONS FY 2009-10 | EST. TONS FY 2012-13 | EST. TONS FY 2015-16 |
|-------------------------|--|---------------------------------|---------------------------------|---------------------------------|
| Source Reduction | Back Yard Composting, Non native species requiring additional mowing, pruning, replacing, etc. | 419 | 426 | 461 |
| Composting | Leaves, grass clippings, twigs, etc. | 0 | 0 | 0 |
| Mulching | Sticks, branches, stumps, wood | 1,600 | 1,600 | 1,600 |
| TOTAL | | 2,019 | 2,026 | 2,061 |

Source: Buncombe County Solid Waste Department Staff estimates

Private Sector Waste Reduction

Throughout this plan, volumes of waste disposed and waste managed through reduction efforts refer to the waste stream for which the County is directly responsible. However, it should be noted that, in addition to the County’s efforts to reduce the waste stream, there are numerous businesses which incorporate waste reduction in their everyday operations. Materials, which would have been processed or disposed by the County, have been managed and marketed within the private sector, such as those who collect yard debris and process as mulch; scrap metal distributors or food distributors that compost on-site. Noting the volumes of waste reduced by the private sector may give a more accurate picture of waste reduction efforts accomplished in Buncombe County.

During the revision of this document, solid waste stakeholders attempted to acquire data regarding waste reduction of this nature in the private sector. Unfortunately, there were too few responses to gather significant conclusions on waste reduction from everyday operations in the private sector. One of the goals of the Solid Waste Committee will be to gather data on waste reduction in the private sector during the planning period.

Part IV. SOLID WASTE MANAGEMENT METHODS: ASSESSMENT OF PROGRAMS AND DESCRIPTION OF INTENDED ACTIONS

Each solid waste management method as required by North Carolina G.S. 130A-309.09A (b) is described below. Each section includes an assessment of the current program and a summary of the intended actions during the planning period. In order to evaluate the progress and implementation of program continuation and intended actions, a Solid Waste Committee will convene as necessary. The Committee will consist of the solid waste stakeholders in the County, and representatives from the government, public, and private sectors.

A. Source Reduction

Efforts for source reduction are primarily focused on public education and outreach. County employees are trained to present educational programs to schools, businesses, and civic groups. They coordinate efforts with other waste related educational outreach programs performed in the county by municipal employees, NC Cooperative Extension Service Agents, the Land-of-Sky Regional Council, and various non-profit groups. Presentations include information on reducing packaging, purchasing less hazardous alternatives, and backyard composting.

Residential

Current Program: The following are some of the items that are the focus of source reduction in the residential waste stream through educational outreach followed by the educational message in parentheses:

- ◆ Household batteries (buy rechargeable batteries)
- ◆ Household hazardous waste (Promotion of buying safer alternatives, by purchasing only what you need, and use those items you do purchase)
- ◆ Food scraps/ Compostables (Back yard composting)
- ◆ Packaging media (Buy products with less packaging)
- ◆ Styrofoam (Use natural/recyclable packaging material)
- ◆ Disposable dishware/Flatware (Do not use)

The County and the City of Asheville actively sponsor the Mobil Environmental Learning Center (MELC) as a public education service. MELC primarily targets an audience of elementary and middle school students. Dedicated displays and elements of MELC focus on teaching them how to reduce their waste at the source. The program also offers certified teacher training that provides the educators with continuing education units.

Source reduction is also advocated through the media on the government television stations, the County and Asheville websites, and the solid waste hotline. There has also

been a regionally coordinated Public Service Announcement program called “Envirominutes” that airs a new message daily during the week on a local radio station for the past four years. Waste reduction is a regular spot on the segment.

Intended actions: The County residential source reduction program is targeted to reduce waste yearly. This is to be accomplished through continuing the public education efforts on many fronts, the back yard-composting program will reduce residential yard waste. In conjunction with the Cooperative Extension Service, some of the municipalities will be offering the educational programs to different civic groups, retirees, clubs, etc. Topics to be covered include buying reusable items and recyclable packaging. The Cooperative Extension Service has most of the educational materials.

The community and school education programs offered by the county, cities, Land-of Sky Regional Council and various non-profit groups in the county address source reduction and continue to contribute to waste reduction. Buncombe County and Land-Of-Sky Regional Council have developed a Mobile Environmental Learning Center to be used in the schools and at Civic events to promote education on recycling, composting, and less toxic alternatives to Household Hazardous Materials. To date, the MELC has educated over 2,000 students regionally and the goal is to target 3,000 more over the 2010-11 Fiscal Year.

The County is also currently revising educational flyers that contain source reduction information. A quarterly newsletter is included in the Asheville Citizen Times newspaper informing citizens about the County’s solid waste program, including source reduction tips.

Government

Current Program: The Buncombe County Solid Waste Department has been considering a formal resolution encouraging specific source reduction efforts by county government offices. County offices are supplied with recycling containers to encourage waste reduction. The recycled materials are comingled and picked up with other blue bags.

In July of 1997, the County Solid Waste Department met with the County Manager to determine if it was possible for the schools to serve as a conduit for information concerning waste reduction. Some educational materials have been distributed as a result of that meeting. Buncombe County is actively working along with GDS to make recycling available to city and county schools.

Additionally, the pesticide container recycling effort resulted in videos for the agricultural departments in the county schools. The N.C. Cooperative Extension Service delivered/provided these videos to the schools.

Intended Actions: The Solid Waste Department will develop, for the County Manager, a source reduction resolution that will encourage County departments to use fewer

disposable items, purchase products with longer life, and print all documents double-sided.

Commercial & Industrial

Current Program: Several industries in the County have indicated a need for on-site assistance to help them reduce wastes. The waste reduction staffs of the County and the City of Asheville have continuously worked with local industry to provide advisory services for waste reduction. Through the Buncombe County Hazardous Waste Ordinance, generators have been assisted with recycling both hazardous and non-hazardous waste since 1994.

When business and industry have their hazardous waste assessment by the Buncombe County Hazardous Waste Official, reduction of commercial and industrial waste is addressed. The County has provided 174 businesses with technical assistance for reducing the waste stream. For example, Sonopress was able to save \$200,000 a year by overcoming a language barrier and color-coding recyclables with the associated receptacle. This practice proved to reduce waste by instructing non-English speaking employees to separate the materials. Square D also adopted this practice. The County will continue to provide technical assistance upon request.

Land-of-Sky Regional Council’s Waste Reduction Partners (WRP) program also focuses on the industrial sector, offering non-regulatory and confidential waste assessments to improve waste reduction. The program has conducted a total of 87 assessments in Buncombe County between 1998 and 2001, amounting to a total of 2,157 tons of waste diversion, which would have been disposed in the landfill. Refer to Table 9 below for yearly data. The relationship will continue with WRP helping the County divert waste from the landfill.

Table 9. Waste Reduction Partners Activity in Buncombe County 1998-2005

| | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | TOTAL |
|------------------------------|-------|------|------|-------|------|-------|-------|--------|--------|
| Total Waste Diversion (tons) | 1,210 | 231 | 554 | 2,157 | NA | 1,313 | 1,543 | 16,108 | 23,116 |

“Waste Reduction Partners (WRP), a program of the Land-of-Sky Regional Council, works one-on-one with businesses and industries to reduce, reuse, and recycling waste materials. Through WRP assistance the tonnages have been diverted from landfilling or beneficially reused in Buncombe County. (Shown in the above Table)

Intended Actions : The WRP program, County and City solid waste staff, and others will continue to work with businesses, industries, and institutions to further their waste reduction efforts in an individualized, confidential, and non-regulatory manner. These actions are initiated on both a request and solicitation basis as well as being advertised through various media.

The County also anticipates that the reduction of packaging material being manufactured by industry will contribute to the residential source reduction goal. Currently, there is no specific program or goal in place for the reduction of packaging materials. However, reduction of packaging materials may result from national packaging reduction efforts.

Construction and Demolition

Current Program: To reduce the construction and demolition waste stream at the source, Buncombe County attempts to divert materials from the landfill whenever possible. Suitable materials which otherwise would be disposed in the landfill are diverted to reuse or recycling outlets. For example, the County assisted the Grove Park Inn recycle its used shingles by using the material for road beds.

Intended Actions: The County will continue to encourage reuse and assist in finding markets or outlets for suitable materials.

Yard Waste

Current Program: Yard Waste is hauled to the landfill. At the landfill, the yard waste is mulched and then sold back to the public.

Intended Actions: Yard Waste will be reduced through continued promotion of the Back Yard Composting Program by numerous organizations, including municipal, county, and regional waste specialists such as the Cooperative Extension's (CE) Master Gardener Program and Back Yard Composting Program. To educate the public about composting, this program created a demonstration site at the WNC Farmer's Market. Once a month, the CE coordinates volunteers who teach a composting workshop. The CE also provides educational literature and answers questions upon request. The program will also be promoted through the County website, the Hotline, government channels on television, and compost bin sales.

B. Collection of Solid Waste

Buncombe County collects waste and recyclables at the transfer station and landfill collection centers. The transfer station and landfill centers are staffed by County employees and accept materials from 8:00 a.m. – 4:30 p.m., Monday through Friday and 8:00 a.m. - 1:00 p.m. on Saturdays.

Residential

Current Program: Residential waste is fully serviced in Buncombe County because every residence has access to a franchise hauler or pick-up service offered by a municipality. The County has a franchise system for the unincorporated areas, which insures service to all areas of the County. In August of 1999 Buncombe County sent out a Request for Proposal for collection of residential solid waste. This franchise was

awarded to GDS effective January 1, 2000. As a result of this Franchise Agreement the price of waste collection decreased by \$1.66 per month.

All municipalities in Buncombe County provide their residents with trash and recyclable collection service. City of Asheville citizens pay for the collection of garbage through general taxes and recycling payment is collected by \$2.63/month/household added to every water bill. County residents pay \$13 per household per month directly to the hauler for pickup of garbage and blue-bagged recyclables. Table 10 lists the towns that provide garbage service and if that service is internal or contracted to a private hauler.

There are some isolated areas to the County that have little or no subscribers to the collection service. These areas are remote and some attempt has been made by the residents to simplify the collection process by renting dumpsters from the haulers. The Franchise Agreement insures the residents of the service and the hauler must provide that service to be in compliance with the Franchise Agreement.

Table 10. Municipalities that Provided Collection of Solid Waste FY 2004-05

| NAME | PROVIDES COLLECTION | CONTRACTS COLLECTION |
|-----------------|---------------------|----------------------|
| Asheville | yes | no |
| Biltmore Forest | no | yes |
| Black Mountain | yes | yes |
| Montreat | yes | no |
| Weaverville | yes | no |
| Woodfin | yes | no |

Table 11. Waste Hauling Information FY 2004-05

| HAULERS | RESID. WASTE | COMM./INDUS. WASTE | YARD WASTE | C&D WASTE | DISPOSAL DESTINATION |
|--|--------------|--------------------|------------|-----------|--------------------------|
| GDS | x | x | x | x | Buncombe County Landfill |
| Waste Management | x | x | x | x | Palmetto Landfill, SC |
| Others (Griffin Hauling Service, Wyatt Waste Container, ect) | | x | | x | Dependent upon hauler |

Source: Buncombe County Solid Waste Staff

Black Mountain and Montreat contract their collection with a private hauling company. After analyzing the cost per household for solid waste collection and disposal and due to contract negotiations, Black Mountain decided to remain with GDS versus providing their own collection in 2005. The cost comparison and sharing of information during the planning period will provide valuable information for each municipality to determine its effectiveness in solid waste collection.

Intended Actions: Citizens will continue to have access to service information on the county hotline, website, and government channels. Flyers are included with countywide water bills detailing services available. The County will publish its quarterly newspaper, “One Person’s Trash,” on the website and as a newspaper insert to provide citizens with an accessible source of information. Materials will be updated as needed (as in the case of service changes) and will be sent out every six months to a year.

Commercial and Industrial

Current Program: Large commercial establishments contract for service with one of a few available private haulers that provide dumpster services. The majority of these same establishments place dumpsters for cardboard collection in order to comply with the County’s ban on the material being placed in the landfill. Most businesses and portions of private residential communities use a similar service. A few smaller businesses may use the municipal service if their volume is low enough. This volume is determined on an individual basis for each municipality. For example, Black Mountain’s commercial establishments with eight or less cans of trash use the contracted services of the municipality. Additionally, a few small businesses haul their own waste directly to the transfer station or county landfill. They may also use the blue bag system or take their recyclables to the convenience centers.

Intended Actions: The County has no intended actions for commercial and industrial collection as businesses establish these contracts privately.

Special Wastes

Current Program: Neither the County nor the municipalities provide for the hauling of hazardous materials. Private companies in the County perform contract services for medical waste, hazardous industrial wastes, and household hazardous wastes collected in the county’s new HHW permanent collection facility program. Disposal of HHW, batteries, oil, and electronics will be discussed with greater detail in Part V, Special Wastes.

Intended Actions: The County will continue to collect special wastes such as HHW, electronics, oil, batteries, tires, white goods, etc. at the landfill on designated collection days. The County does not plan to add other items for collection within the planning period.

C. Recycling

Analyzing recycling rates listed in Table 13 (page 24) and the estimated residential waste tonnage and composition from Table 3 (page 6), it can be concluded that there is potential to increase the amount of each material recycled. According to these tables, the quantity targeted to recycle in Table 6 on Page 11 exists and therefore can be recovered if economically feasible to do so. This section on recycling breaks out the subjects of

collection programs and services, participation, marketing, and other materials for ease of understanding the current programs and intended actions as they relate to each subject.

Collection

Current Program: Buncombe County has been working since 1989 to maintain a stable recycling program. The County, combined with the municipalities, recycled about 13% of the residential waste and 20% of the residential waste with yard waste during FY2004-05 (see Table 17). Eight materials are collected: newspaper; mixed paper; white paper; cardboard; aluminum cans; steel cans; clear, brown, and green glass; and plastic containers PETE #1 and HDPE #2. Additionally, some special wastes are collected at the landfill and are recycled if a market can be found. They include lead acid batteries, automotive fluids, paints, and other hazardous materials that may be found in the general waste stream.

Asheville and Biltmore Forest have drop-off sites for recycling. The County also has a drop off center in Asheville. Weaverville and Asheville contract with Curbside Management for curbside pick up. Woodfin and Montreat use the same blue bag system as the County in the unincorporated areas. Black Mountain has a bi-weekly pick-up. The municipalities using blue bag systems and the County have weekly pick-up of the recyclables. The City of Asheville uses a bi-weekly collection system; Weaverville, a weekly collection. Montreat has collection once a week, except during peak season (June-September) when service is twice a week. Montreat, Weaverville, and Woodfin offer blue bag collection of recyclables at the curb for their single-family residents only.

In addition to curbside collection of recyclables throughout the County, the County collects recyclables and some special wastes at the transfer station and the landfill. The County also offers a convenience center for collecting recyclables in the City of Asheville at the Westgate Center behind Earthfare. Curbside Management provides a recycling drop off site for Asheville residents at the Asheville Pizza Company, on Merrimon Avenue and a site at their MRF in Woodfin. The amounts of materials recycled by the County and municipalities by operated programs are shown in Table 12 (page 22). This table has estimated weight figures for materials due to the collection of recyclables through the blue bag collection systems offered by the private haulers.

Co-mingled materials are shipped by GDS to Curbside Management, Inc. in Woodfin and are combined with other mixed recyclable loads. In 1998, Curbside Management expanded its Asheville service to small businesses in most parts of the County.

Some factors influence the measurement of waste reduction figures. The County redistributes the waste remaining from accidents, demolitions, and other events where these tonnages do not come to the landfill. Weights of these materials are, therefore, not included in recycling or reuse data. There is a need for a tracking system to provide accurate data on the County's recycling efforts. Although the County is accountable for the residential waste stream, the County has little influence on businesses contracting

with Waste Management. This fact should be noted and considered when evaluating the County's waste reduction success.

Table 12. Residential Recycling in Tons, FY 2004-05

| Material | County | City of Asheville | Black Mountain | Montreat | Woodfin | Biltmore Forest | Weaverville | TOTAL TONS |
|------------------------------|---------------|-------------------|----------------|-----------|------------|-----------------|-------------|---------------|
| Glass - clear | | 594 | | | | 6 | 28 | 628 |
| Glass - brown | | 401 | | | | 4 | 17 | 422 |
| Glass - green | | 304 | | | | 4 | 13 | 321 |
| Glass - mixed | | 0 | | | | 1 | | 1 |
| Plastic - PETE | | 153 | | | | | | 153 |
| Plastic - HDPE | | 150 | | | | | | 150 |
| Plastic - mixed | | 0 | | | | 3 | 16 | 19 |
| Aluminum cans | | 135 | | | | 4 | 10 | 149 |
| Steel cans | | 70 | | | | | | 70 |
| White goods and other metals | 1,090 | 161 | 125 | | 74 | 0 | | 1,450 |
| Newspaper | | 1,949 | | | | 87 | 70 | 2,106 |
| Corrugated cardboard* | 26,453 | 818 | 37 | | 160 | 29 | 25 | 27,522 |
| White paper | | 0 | | | | | | 0 |
| Mixed paper | | 2,187 | | | | 94 | | 2,281 |
| Other Paper (magazines) | | 0 | | | | | | 0 |
| Co-mingled * * | | | 263 | 28 | | | | 291 |
| Other materials | 54 | 1 | | | | | | 55 |
| TOTAL | 27,597 | 6,923 | 425 | 28 | 234 | 232 | 179 | 35,618 |

Source: tons recycled derived from County and Municipal Annual Solid Waste Management reports

*Cardboard collected includes both residential and commercial in the County total.

**Co-mingled materials for County include glass, steel, aluminum cans, #1 & #2 plastic containers, mixed paper, and newspaper

Intended Actions: Buncombe County may attempt to increase participation in the recycling program by replacing the blue bag collection system with a bin collection system. First, the County will evaluate the effectiveness of implementing a bin system on the recycling participation rate and consider other factors such as program implementation and maintenance costs.

Programs and Services

Current Program: All municipal residents may use the collection centers to drop off recyclable materials. The Municipalities contract with GDS, Curbside Management, or one of the smaller collection services for curbside recycling collection. Materials collected at curbside are newspaper, mixed paper, aluminum cans, steel cans, plastic

PETE #1 and HDPE #2 bottles, clear, brown, and green glass. The City of Asheville has expanded its curbside recycling program to include mixed paper.

The County has set up a countywide information line that will provide franchise haulers and municipalities with recycling and waste reduction information. Currently the line for landfill information and recycling of pesticide containers is up and running. Educational services provided by the County and municipalities will be covered in detail in Part VI.

Small businesses may also use the collection centers to drop off recyclable materials or contract with Curbside Management for pickup. Large companies and industries are encouraged to contract their recycling services. Commercial and Industrial recycling is a strong priority in the county due to its representation as the second largest portion (35%) of the total waste stream.

The County offers technical assistance when conducting hazardous waste inspections. Reduction of commercial and industrial waste is addressed when business and industry have their hazardous waste assessment. Industries are then advised on how to reduce their waste stream. The Hazardous Waste Official works with any hauler who finds a large volume of material that can be recycled and visits any industry that receives a violation at the landfill.

As previously mentioned, a strong commercial and industrial program actively promoting recycling is the Waste Reduction Partners (WRP) Program of the Land-of-Sky Regional Council. Total recommended waste reduction measures recommended by the WRP program to industries and commercial entities in Buncombe County from 1998-2001 amounted to 2,176 tons. Paper was a majority of the materials; others include cardboard, lime pallets, and aluminum. This program could provide the input for establishing a “waste exchange” program with additional funding and computer support and will be considered by the County for implementation. Please refer to Appendix B for a list of organizations with which WRP has provided waste reduction assessments.

Industrial and commercial waste reduction projects are ongoing. One example is finding pallets that one industry can use which another industry is discarding. WNC Pallet and Blue Ridge Pallets are currently composting pallets that are deemed no longer usable. Pallets for reuse need to be collected at the industries where they are produced since there is no site at the landfill to ensure their protection. The County encourages a swap system among local industries and will encourage swapping through a web page explained in Part IV, Section D, Reuse.

Currently there is a recycling program in Buncombe County schools with GDS, they collect approximately 55 tons of recyclables. Grassroots recycling programs have been initiated in some of the schools inside the County. Some of these programs have been assisted by the WRP program and local environmental non-profits. If requested, the County will provide advisory services to schools on how to begin and operate a successful recycling program.

Intended Actions: Residents in unincorporated rural areas who do not currently subscribe to curbside programs may potentially be a target for increasing participation. The City of Asheville plans to initiate a pilot program for the curbside collection of 1-7 plastics. This pilot is planned as an initial study to determine the feasibility of expanding residential plastic collections for 1-7 plastics on a citywide basis. Based on a successful pilot project, collection will be expanded citywide and a new advertising campaign will be used to reinvigorate the current recycling program.

Participation

Current Program: Residential recycling participation has been relatively successful. According to municipal estimates, town participation in the voluntary curbside programs has been between 15% and 80%, with the Town of Woodfin being the lowest and Asheville and Montreat being the highest. The strong participation response to the City of Asheville’s program is currently within the City’s expectations and Asheville plans to maintain participation at the current levels.

Table 13 compares the recycling participation rates during FY 2004-05. These figures were calculated using municipal Annual Solid Waste Management Reports. Methodology is explained in detail preceding Table 14 (page 26). Recycling recovery refers to the proportion of the volume of recyclables (including or excluding organics) to the total waste stream, represented as a percentage of tons. The per capita recovery refers to proportion of the volume of recyclables recovered (excluding organics) to the total municipal population, represented in pounds per person.

Table 13. Municipal Recycling Recovery Rates 2004-05

| Municipality | Excluding organics (%) | Including organics (%) | Per capita (lbs/person) |
|---------------------------|-------------------------------|-------------------------------|--------------------------------|
| Asheville | 22 | 47 | 189 |
| Black Mountain | 10 | 20 | 111 |
| Biltmore Forest | 26 | 83 | 315 |
| Montreat | 8 | 31 | 85 |
| Weaverville | 13 | 86 | 144 |
| Woodfin | 13 | 20 | 130 |
| All Municipalities | 20 | 51 | 180 |

Source: Municipal Solid Annual Waste Management Reports and LOSRC calculations

Intended Actions: The County, the City of Asheville, and other municipalities all wish to increase the amount of materials collected and the number of residents who recycle. Collection center and curbside collection staff have been monitoring recycling habits and see a steady increase in the number of people who recycle. It is assumed that residents who currently use the recycling programs will continue to recycle. Many residents do not recycle as many materials (or all of individual materials) as are offered for collection.

To increase awareness of programs and services, the County will revise educational flyers on an ongoing basis. A quarterly newsletter is included in the Asheville Citizen

Times newspaper informing citizens about the County's solid waste program. Other County programs for public awareness are the utilization of the Mobile Environmental Learning Center and periodic school presentations. Additionally, encouraging citizens to recycle all materials offered for collection will take place through the County website, government channels, periodic flyers, quarterly newsletters, and public awareness days. Implementation of school and community education programs is expected to increase recycling participation.

Outreach programs will target, in part, an increase in recycling percentages from residents currently recycling. Approximately half of the residents using the collection centers also use the recycling bins.

Municipalities may need to adjust the existing County educational materials based on services provided by that municipality. Asheville plans to continue advertising recycling services on the radio, cable TV, and in the newspaper. Black Mountain and Montreat will continue distributing brochures at the Town Halls detailing services available and Black Mountain will distribute these newsletters.

The staff at the City of Asheville is considering implementation of the following programs to encourage residential recycling.

- ◆ Developing additional educational and promotional material for the City program.
- ◆ Production of materials promoting reuse.
- ◆ The City of Asheville increased type of materials collected curbside (e.g., 1-7 plastics and clothing)

Other municipalities plan to encourage participation in the recycling program and other waste reduction measures. Weaverville plans to publish newsletter articles every month, distribute information guides to new residents, and update their website with information on the solid waste program. Black Mountain will continue to distribute information to new water customers, provide handouts, and include information on its website. Montreat will continue to distribute information via newsletters, brochures, and its website.

Commercial waste reduction will continue to receive attention since Asheville is a tourist center that supports a large group of commercial establishments. The County encourages an independent commercial waste exchange since the County has no financial or personnel means to support this program.

Cities and towns that currently offer recycling to residents offer the same service to the smaller commercial establishments. Mixed paper collection will remain part of the blue bag system and will be taken to curbside by GDS.

Tables 14-17 indicate recycling rates by municipality, unincorporated areas, and County. The following data was extrapolated from Municipal Solid Waste Management Annual

Reports. Buncombe’s total residential recycling rate for 2004-05 is 13% and the per capita rate is 351 pounds per person. The County has seen an increase of 7% since 2000-01, even though their waste disposal amount has gone up; they are gradually recycling more than in previous years. Explanation of the calculated figures follows below.

Population, total waste disposed, recycling, and mulch/compost totals in Tables 14-17 are taken directly from Solid Waste Annual Reports. “Recycling” refers to materials collected in blue bags curbside and drop-off sites, not including mulch and compost, listed separately in the next column. Recycling rate without organics represents the percentage of recycling of the total waste stream excluding organic material (recycling/recycling + waste disposed). Recycling rate with organics represent the percentage of recycling including organics of the total waste stream (recycling + organics/recycling + organics + waste disposed). Per capita recycling rate is the tons recycled (excluding organics) per person (recycling/population), then converted to pounds per person. Unincorporated waste totals cannot be calculated by simply subtracting municipal totals from County totals since County totals include the commercial waste stream and municipal figures are mostly residential.

Table 14. Recycling Rates 2000-01

| Government | Popula- tion | Total Waste Disposed (tons) | Recycling total (residential tons) | Mulch and Compost | Recycle rate % no organics | Recycle rate % with Organics | Recycling rate per capita (no organics) |
|---------------------------------|-------------------------|--|---|----------------------------------|---|---|--|
| Asheville | 68,889 | 19,837 | 6,462 | 12,257 | 25 | 49 | 188 |
| Black Mtn. | 7,511 | 2,808 | 786 | 896 | 22 | 37 | 210 |
| Biltmore Forest | 1,430 | 706 | 162 | 748 | 19 | 56 | 226 |
| Montreat | 630 | 737 | 102 | | 12 | 12 | 324 |
| Weaverville | 2,418 | 1,092 | 140 | 2,072 | 11 | 67 | 116 |
| Woodfin | 3,391 | 1,388 | 183 | 236 | 12 | 24 | 114 |
| Total Municipal* | 84,269 | 26,568 | 7,835 | 16,209 | 23 | 48 | 186 |
| Buncombe Un- incorporated | 122,061 | | 2,581 | 906 | | | 42 |
| Buncombe Total | 206,330 | 177,186 | 10,416 | 17,115 | 6 | 13 | 101 |

Source for Tables 14-17: NC Solid Waste Annual Reports –

Table 15. Recycling Rates FY 2002-03

| Government | Popula- tion | Total Waste Disposed (tons) | Recycling total (residential tons) | Mulch and Compost | Recycle rate % no organics | Recycle rate % with Organics | Recycling rate per capita (no organics) |
|---------------------------------|-------------------------|--|---|----------------------------------|---|---|--|
| Asheville | 71,063 | 21,669 | 7,186 | 12,674 | 25% | 48% | 202 |
| Black Mtn. | 7,585 | 3,516 | 440 | 344 | 11% | 18% | 116 |
| Biltmore Forest | 1,458 | 702 | 214 | 1440 | 23% | 70% | 294 |
| Montreat | 644 | 340 | 43 | 0 | 11% | 11% | 134 |
| Weaverville | 2,464 | 1,040 | 178 | 1,991 | 15% | 68% | 144 |
| Woodfin | 3,374 | 1,532 | 144 | 352 | 9% | 24% | 85 |
| Total Municipal* | 86,588 | 28,799 | 8,205 | 16,801 | 22% | 46% | 190 |
| Buncombe Un- incorporated | 124,111 | 169072 | 27,108 | 1,184 | 14% | 14% | 437 |
| Buncombe Total | 210,699 | 197,871 | 35,313 | 17,985 | 15% | 21% | 335 |

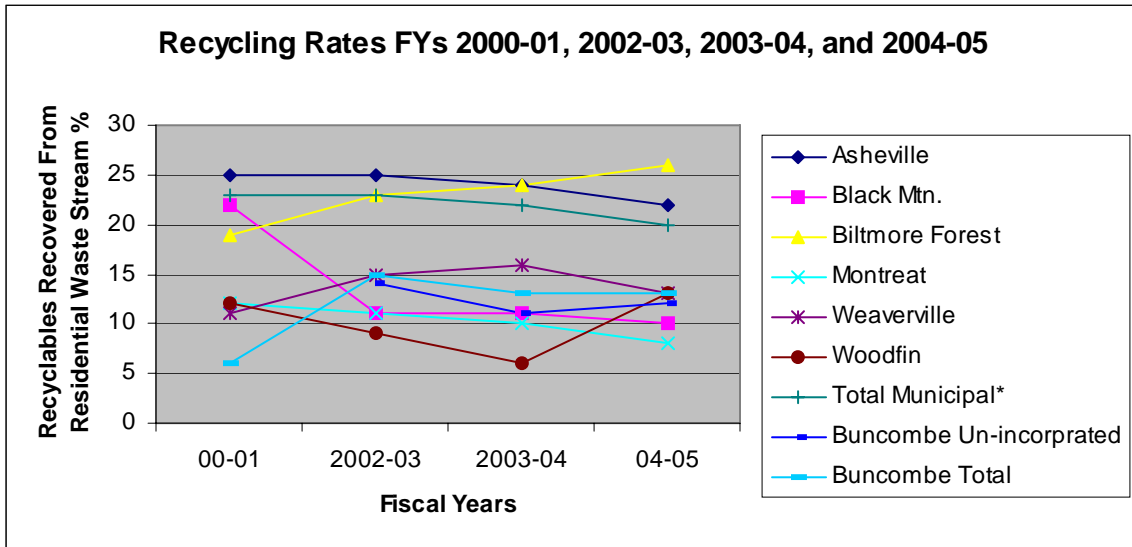
Table 16. Recycling Rates 2003-04

| Government | Popula- tion | Total Waste Disposed (tons) | Recycling total (residential tons) | Mulch and Compost | Recycle rate % no organics | Recycle rate % with Organics | Recycling rate per capita (no organics) |
|---------------------------------|-------------------------|--|---|----------------------------------|---|---|--|
| Asheville | 72,150 | 23,036 | 7,147 | 10,089 | 24% | 43% | 198 |
| Black Mtn. | 7,622 | 3,540 | 444 | 283 | 11% | 17% | 117 |
| Biltmore Forest | 1,467 | 657 | 202 | 1156 | 24% | 67% | 275 |
| Montreat | 651 | 324 | 36 | 0 | 10% | 10% | 111 |
| Weaverville | 2,480 | 966 | 188 | 2,006 | 16% | 69% | 152 |
| Woodfin | 3,480 | 1,674 | 100 | 289 | 6% | 19% | 57 |
| Total Municipal* | 87,850 | 30,197 | 8,117 | 13,823 | 21% | 42% | 185 |
| Buncombe Un- incorporated | 125,054 | 200059 | 25,748 | 1,757 | 11% | 12% | 412 |
| Buncombe Total | 212,904 | 230,256 | 33,865 | 15,580 | 13% | 18% | 318 |

Table 17. Recycling Rates 2004-05

| Government | Popula- tion | Total Waste Disposed (tons) | Recycling total (residential tons) | Mulch and Compost | Recycle rate % no organics | Recycle rate % with Organics | Recycling rate per capita (no organics) |
|---------------------------------|-----------------|--------------------------------------|---|-------------------------|-------------------------------------|---------------------------------------|--|
| Asheville | 73,239 | 24,889 | 6,923 | 15,220 | 22% | 47% | 189 |
| Black Mtn. | 7,660 | 3,710 | 425 | 477 | 10% | 20% | 111 |
| Biltmore Forest | 1,475 | 651 | 232 | 2899 | 26% | 83% | 315 |
| Montreat | 659 | 336 | 28 | 125 | 8% | 31% | 85 |
| Weaverville | 2,482 | 1,201 | 179 | 7,235 | 13% | 86% | 144 |
| Woodfin | 3,586 | 1,581 | 233 | 171 | 13% | 20% | 130 |
| Total Municipal* | 89,101 | 32,368 | 8,020 | 26,127 | 20% | 51% | 180 |
| Buncombe Un- incorporated | 126,011 | 212,956 | 29,755 | 2,496 | 12% | 13% | 472 |
| Buncombe Total | 215,112 | 245,324 | 37,775 | 28,623 | 13% | 21% | 351 |

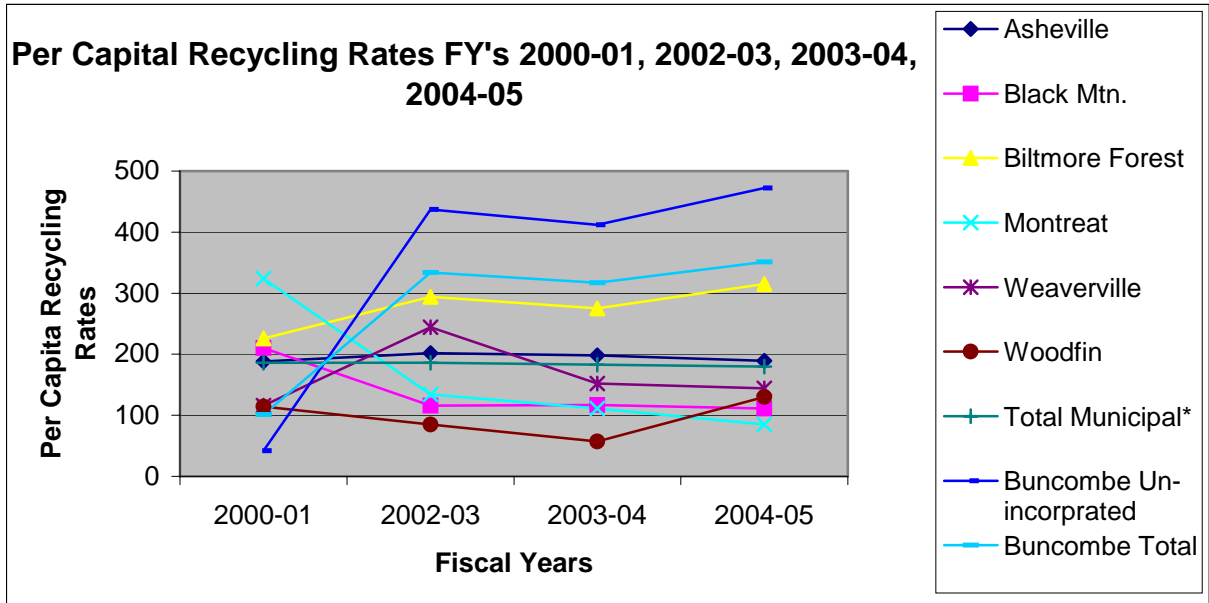
Chart 5



As illustrated in Chart 5, residential recycling rates represented as a percentage of the total waste stream have increased from FY 2000-01 to FY 2004-05 in Biltmore Forest, Montreat, Weaverville, and Woodfin. Residential recycling rates declined over the same three-year period in Asheville, and Black Mountain. This may be due to the total waste disposed increasing at a greater rate than recycling. Also represented in the chart, residential recycling rates calculated from County, which includes the municipalities, reveals that the rates have increased overall.

Below Chart 6 illustrates residential recycling rates per capita for all the municipalities, the County and the unincorporated areas. Overall for the County, which includes the municipalities, the per capita rate increased from 2000-01 to 2004-05. In a few of the municipalities the per capita rates decreased from 2000-01 to 2004-05.

Chart 6



Charts 7 and 8 illustrate the total tons recycled by each municipality. They illustrate that recycling totals have steadily increased throughout the County, except in Black Mountain and Montreat. Charts 7 and 8 measure the same parameters but were separated into two charts to allow for different scales.

Chart 7

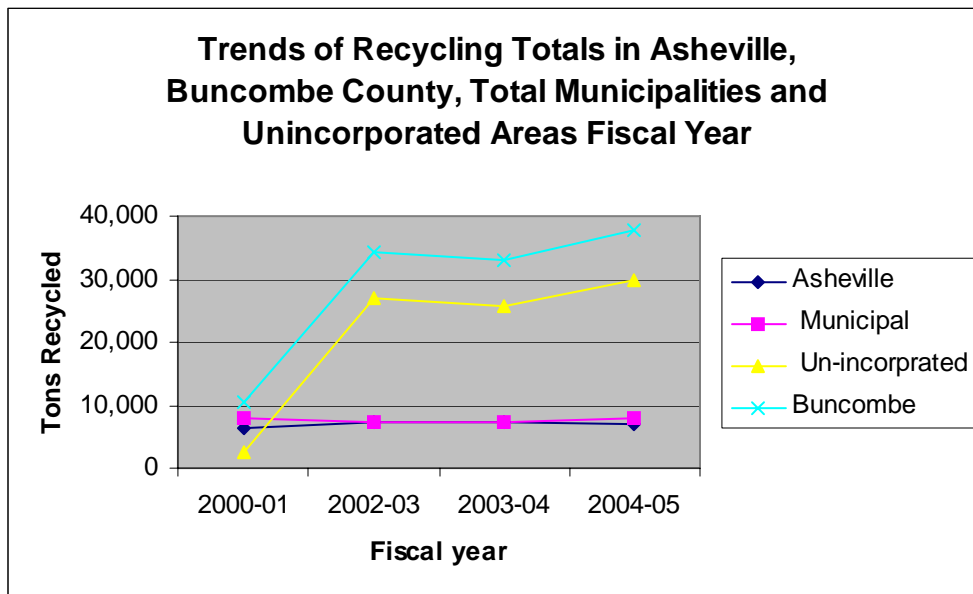
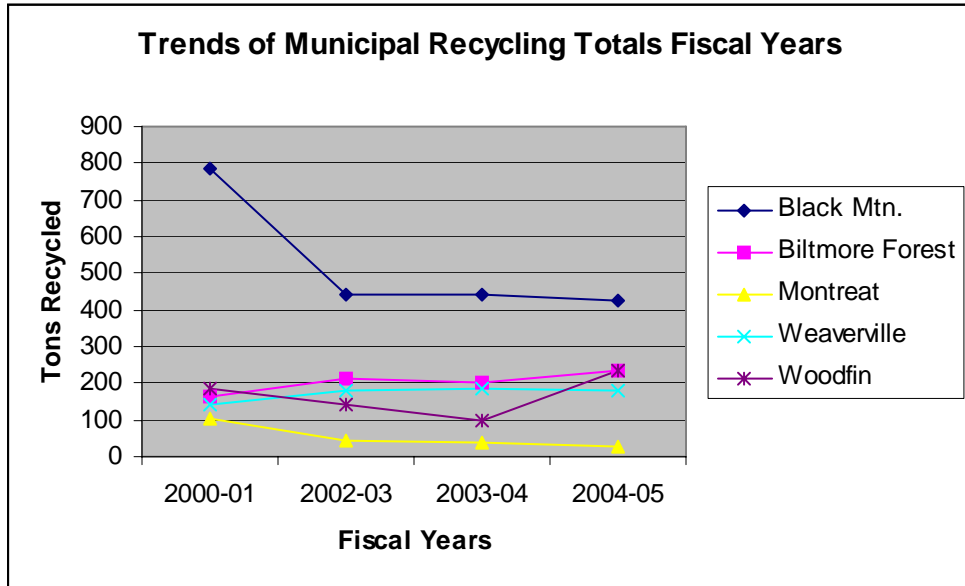


Chart 8



Marketing

Current Program: Buncombe County and the municipalities market their materials through their recycling collection provider. For the County and most municipalities, this is GDS Recycling. GDS markets all co-mingled contents of the blue bags and fiber to a materials recovery facility (MRF) in Woodfin (Curbside Management, Inc.). GDS and Curbside Management market recyclables collected from City of Asheville residents.

The commercial and industrial sector receives market assistance for recyclable materials through independent private sector haulers, brokers, and references by County staff and the Waste Reduction Partners Program.

Table 18 indicates the fiscal year 2004-05 estimated tons for materials disposed and the amount of those same materials recycled. It also lists available processors and/or markets that are available to handle those materials.

Table 18. Comparisons between Estimated Tons Disposed and Estimated Tons Recycled with Markets FY 2004-05

| MATERIAL | ESTIMATED TOTAL TONS IN WASTE STREAM | TONS RECYCLED | AVAILABLE PROCESSORS or MARKETS |
|----------------|--------------------------------------|---------------|--|
| Paper | 34,258 | 4,387 | GDS, Sonoco, Somerser Fibers, Asheville Waste Paper, Recycle America |
| Cardboard | 23,773 | 27,522 | GDS, Sonoco, Somerser Fibers, Asheville Waste Paper, Recycle America, Curbside Management, Inc (CMI) |
| Plastics | 11,502 | 322 | GDS, CMI |
| Yard Waste | 0 | | Formerly Buncombe County Compost |
| Organics | 24,046 | | Buncombe County Mulch, Riverside Stump Dump, Hensen's |
| Glass | 7,784 | 1,372 | GDS, Owens-Brockway, CMI |
| White Goods | 3,219 | 1450 | Stateline, Tri-state, Morristown Metals, Biltmore Iron and Metal |
| Aluminum Cans | 1,244 | 149 | GDS, Biltmore Iron and Metal, Wise Recycling, CMI |
| Ferrous Metals | 2,170 | 70 | Biltmore Iron and Metal, Blue Ridge Metal |
| Co-mingled | | 291 | |
| Miscellaneous* | 1,403 | 55 | Safety Kleen, Ecoflo, Neo |
| TOTAL | 109,399 | 35,618 | |

Source: LOSRC

Intended Actions: At this time, the County and municipalities do not intend to individually seek out new specific markets for the commonly recycled materials due to lack of funding for personnel required. Sale of materials to GDS is planned to continue. Increasing recycling participation and recovery rates may be more economically feasible if market prices are improved for currently collected or new types of materials.

Curbside Management, Inc. opened up a new materials recovery facility in Woodfin. This allows for more convenient and more cost effective for the municipalities across Buncombe County and the county itself.

The program is expected to offer larger economies of scale to all participants which will translate into a more efficient recycling program and lower operating costs. These savings can be passed on to participating local governments, their haulers, and to their residents.

Land-of-Sky Regional Council has acquired federal grant funds to continue working to establish a MRF. The county and municipalities will continue to meet as part of the regional recycling committee as needed to help get a facility operational. At this time, there are three actively interested private sector firms anticipated to be qualified to operate such a facility.

Research and development of potential new recycling markets may prove a key to reducing commercial and industrial waste. Markets found for textile cones, textile cutoffs, and plastic film wraps have the potential to reduce large quantities of disposed wastes. The recycling staff will continue to visit commercial and industrial establishments in cooperation with the Land-of-Sky Regional Council's WRP program in order to encourage new market efforts.

Other Materials

The following specific items are targeted in the county waste stream by the Buncombe County solid waste staff as areas that deserve consideration for recycling program implementation.

Household Batteries

No municipality, waste hauler, or the County provides a means to remove household batteries from the solid waste stream. Household batteries can be recycled but there is a cost associated with the process. The County plans to reduce battery waste at the source by public education efforts.

Battery waste will be reduced through education efforts to inform the public to purchase rechargeable batteries. Promoting the use of rechargeable batteries and the rechargeable battery collection service would entail minimal cost. The County may add information

on buying recycled batteries and encourage participation in commercial battery collection efforts in the periodic solid waste flyer distributed in quarterly in local newspaper.

Metals

The County landfill takes all metals at no charge. To a degree, metals are reduced from the waste stream when staff informs the public where to take metals for recovery. A County Ordinance restricts incoming loads to no more than 5% metal by volume.

The recycling of steel aerosol cans and steel paint cans will be encouraged. These are recycled via HHW. The City of Asheville does not currently take aerosol cans or paint cans. The County will work with each hauler and municipality to increase the metal recovery from the waste stream.

D. Reuse

Current Program: At least four non-profit reuse programs exist in the County. The County encourages citizens to use and helps reduce their costs by accepting their waste at the landfill free of charge. The Salvation Army (located in the City of Asheville) collects many of the usable items in the County and sells them to raise money for the County school system. Goodwill collection and distribution stores are within County borders. Habitat for Humanity also collect reusable household items to be sold in its store for reuse. One private for-profit reuse company, Play It Again Sports, sells used sports equipment.

Additionally, Construction and Demolition waste is collected and distributed for reuse in the County through Asheville Architectural Salvage and Antiques, Asheville Recyclers, Biltmore Exchange Architectural Salvage, and Preservation Hall.

The County Department of Social Services has a program called Sharing-With-A-Friend that makes reusable items available to needy families. Alternative types of reuse programs need to be developed and promoted to reach people who do not use the thrift stores or social service type programs. Particular materials, such as appliances, can be targeted. Exchange of non-residential reusable items needs to be addressed.

Intended Actions: This system will create an information base where residents, business, and industry can give or request reusable items. With proper design, the web page is anticipated to be highly cost effective and need only minimal maintenance by County personnel. Examples of materials listed for reuse on the web page include furniture, appliances, and industrial pallets. For example, hotels wishing to dispose of used linens, towels, or blankets could find local charities in need of these goods.

E. Composting and Mulching

Current Program: Buncombe County does not currently have a composting program for organic waste pickup and on-site composting. Some municipalities within the County provide brush and yard waste pick-up, as listed in Table 19 (page 35). However, an unidentified sum of organics will be composted on a long-term basis within the landfill. Buncombe County's landfill serves as an EPA Project XL experimental landfill where leachate will be recirculated, causing organics to decompose; and therefore, organic waste will be reduced in the landfill. Although the County will not target a specific tonnage for reduction of organic waste, this waste stream will be reduced through Project XL.

Both Buncombe County and the City of Asheville have been strong proponents of backyard composting and have delivered approximately 1,500 backyard composting bins to households. There are also numerous retail outlets for similar bins and instructions available from local organizations on how to build your own bin by reusing materials like pallets and wire. The City and County will consider conducting additional bin distribution and composting education programs. However, the County will not offer leaf and yard waste curbside pick up.

The City of Asheville currently composts the leaves it collects. Asheville acquired property for the purpose of a new leaf composting site to be fully implemented by the end of 2006. Also, the City is considering the feasibility of bringing all brush and mulching to the same site. The Cooperative Extension Service has established compost sites in the past in Buncombe County.

Biltmore Forest takes its yard waste to the Biltmore Company where they compost the waste for use on their property. Black Mountain supports the addition of yard waste collection facilities throughout the County to encourage participation.

Buncombe County has restricted yard waste from the landfill through the creation of an Ordinance. The Ordinance also limits the amount of mulchable wood to 5% per load. Mulchable wood is defined as untreated, unpainted, and unstained wood that does not contain nails or other contaminants. Suitable construction and demolition material is, and will continue to be diverted and mulched with the yard waste. This material is not landfilled, but is instead offered \$10 per load of charge to the public for landscaping use. Municipal and County departments also use this material for similar purposes.

In August 2000, the County targeted a minimum of 3,000 tons of mulchable yard waste through a Bioblending project with MSD. 1,900 tons of yard waste were successfully mulched through the bioblending project. However, the County decided to end the project for several reasons. First, a lack of funding inhibited transportation options and personnel salaries. Second, a state regulation requires biosolids to be lime-stabilized, which reduces compost temperature and prevents biosolids from composting. Third, the overwhelming response from industry to donate compostables aroused the County's

concern over the potential for compost contamination. Finally, the permitting process for using biosolids for composting is very cumbersome.

**Table 19. Municipalities that Provide Brush and Yard Waste Pick-Up
FY 2004-05**

| NAME | PROVIDE PICK-UP | FUNDING |
|-----------------|-----------------|----------------|
| Asheville | yes | regular budget |
| Biltmore Forest | yes | regular budget |
| Black Mountain | yes | regular budget |
| Montreat | yes | regular budget |
| Weaverville | yes | regular budget |
| Woodfin | yes | regular budget |

Source: Solid Waste Management Annual Report

Brush, yard waste, and wood are mulched at the County landfill site and are made available to the public for \$8.00 per cubic yard. The mulch can also be used in composting as a bulking agent.

Intended Actions: Residential composting will no longer have an associated targeted waste reduction tonnage goal since the composting program was discontinued. However, yard waste will continue to be reduced through mulching and source reduction.

By FY 2016-17, mulching is targeted to reduce 4,600 tons from the residential stream, 1,600 tons from the yard waste stream, and 7,272 tons from the construction and demolition waste stream, for a total of 13,472 tons by FY 2016-17 (Tables 7-10). Mulching will target 3,800 tons from the residential stream, 5,000 from the yard waste stream and 6,500 from the commercial and industrial stream.

Yard waste is accepted at the County landfill site and stockpiled until there is enough to use the tub grinder. About 20,000 tons of yard waste was collected in 1997 due to a major ice storm that hit the region. The resulting mulch was offered to residents free of charge. Normally about 3,000 cubic yards are sold per year at the \$8.00 per cubic yard price. Clean untreated wood from construction and demolition wastes, pallets from industries, and other suitable organic material will continue to be mulched by the grinder.

Composting may be the most important item in this Solid Waste Management Plan to aid in reaching the 40% diversion from the Solid Waste Management Facility. The County is currently seeking a cost-effective model for composting services. Until one is implemented, the County will continue to promote backyard-composting programs.

The composting program has been discontinued until a more cost-effective model is implemented. However, past considerations may be considered in the future, such as collecting food scraps from the Farmer’s Market, using mulch as a bulking agent, and adding mixed paper to compost.

Several large institutions within the County have expressed an interest in on-site composting. This may be tied to a large-scale push for at-home composting by the N.C. Cooperative Extension Service. Composting could also be done at the County schools and the community college.

To encourage residential backyard composting, demonstration sites are established at the WNC Agricultural Center. Backyard composting bins will be set up at collection centers, along with diagrams and literature that explain how individuals can set up their own composting bins at home or at work. The County will strongly consider the distribution of backyard composting bins on a cost-share basis. Since 1999, the Cooperative Extension Service has sponsored the Master Waste Manage and Master Composter Programs.

The following specified items are targeted in the programs described in this section and include an expanded strategy for implementation.

Food Scraps

The volume of food scraps from the residential sector can mainly be reduced by promoting at-home composting. As previously mentioned, the City of Asheville has devoted funds to provide backyard compost bins in the past. This is a project on which the Cooperative Extension Service has information already available. This information could be publicized and workshops could be conducted by the N.C. Cooperative Extension Service for Community clubs, Garden Clubs, and Civic Organizations. This effort would require coordination between each municipality, Buncombe County, and the Extension Service.

Food scraps are no longer collected from the Farmer's Market and the County is not planning to develop a program with local grocery stores or restaurants. If the services of collecting and composting food wastes could be made cost effective, Buncombe County would support a collection program. However, there is currently no intended action to develop this program.

Mixed Paper

Mixed paper represents a large portion of the residential waste stream. When paper markets are high, this portion of the waste stream is to be removed for its market value. When the markets are low, paper can be diverted for composting. Composting mixed paper will be considered once a composting program is in place. However, diverting mixed paper to the compost is not likely since GDS accepts mixed paper and markets it as well.

F. Incineration with Energy Recovery

Current Program: Incineration with energy is not used in Buncombe County for waste disposal.

Intended Actions: At this time, the County does not plan to use incineration with energy recovery. However, under the current program, the Municipal Sewerage District uses methane recovered from the old landfill to power its boiler.

G. Incineration without Energy Recovery

Current Program: Incineration is not part of the County's current program. There are no regional facilities of this type hosted in nearby Counties.

Intended Actions: None at this time.

H. Transfer of Solid Waste outside Geographic Area

Current Program: Waste Management of Asheville transported 84,097 tons of solid waste out of the planning area in FY 2000-01, 73,843 tons in FY 2001-02, 84,437 in FY 2002-03, 73,086 tons in FY 2003-04 and 95,161 tons in FY 2004-05. However, in each of these years the Palmetto County Landfill in South Carolina owned by Waste Management reported several thousand tons more being disposed. For example, in FY 2004-05 Waste Management transferred 95,161 tons from Buncombe County but reported disposing 157,236 tons of waste that originated from Buncombe County in the Palmetto Landfill.

The County has no control over this waste flow, except the residential portion, and is still responsible for reduction of this waste stream. With the current mandates, residential recycling is the only waste reduction possible. The reduction of this waste stream is discussed in the section "Mandated Measures to Encourage Reduction, Reuse, Recycling and Composting as Waste Management Tools" (page 53).

Waste Management of Asheville also transports Biltmore Forest's waste outside of the geographic planning area. By transporting its waste outside of the geographical area, Biltmore Forest reduces the revenue at the Buncombe County Landfill and contributes no funds to the other services that its citizens receive from the Solid Waste Department. These services would include waste reduction activities of the staff, handling of phone calls concerning hazardous waste, illegal dumping, and the actual preparation and revision of this mandatory plan.

Intended Actions: No attempt to accept or retain solid waste in the region is anticipated at this time. However, the County would consider establishing a Flow Management Ordinance in the interest of protecting public health and safety, the environment, and the efficient use of taxpayer funds.

I. Disposal of Solid Waste

Current Program: Buncombe County opened a new Subtitle D landfill on September 29, 1997 and disposes its municipal solid waste and construction and demolition waste in their respective landfills. The old Buncombe County Landfill closed on September 27,

1997. State records indicate that the County has not received any notices of violation since the landfill opened. County officials indicate their landfill has 6 years of permitted capacity and an expected life of 22-25 years. During numerous hearings, the County discussed location of a new landfill with community members. The County also bid the solid waste services to determine the most cost-effective method to provide for solid waste disposal. The Buncombe County Solid Waste Department submitted its cost during this bidding process and provided the lowest cost for disposal of waste.

None of the municipalities in Buncombe County operate a landfill. All waste is disposed at the County landfill or with Waste Management of Asheville, which hauls the waste to Palmetto Landfill, South Carolina. Table 20 lists the municipalities and with whom they dispose of waste.

Table 20. Municipalities Disposing of Waste with County vs. Private

| NAME | WITH COUNTY | WITH PRIVATE |
|-----------------|-------------|--------------|
| Asheville | yes | yes |
| Biltmore Forest | no | yes |
| Black Mountain | yes | no |
| Montreat | yes | no |
| Weaverville | yes | no |
| Woodfin | yes | no |

Current ordinances regulate construction and demolition (C & D) waste. Any load that contains more than 5% brick, block, concrete, concrete with steel, wood suitable for mulching, or metal is subject to a fine if it is placed in the Subtitle D cell as opposed to the C&D landfill cell. The C&D landfill is located at the new waste disposal site, the same location the new Subtitle D landfill.

No load taken to the Subtitle D landfill can contain more than 5% wood by weight or volume. Yard waste is banned from the landfill. Most unpainted and unstained wood is mulched and yard waste is mixed with the mulch. The C&D Landfill can handle the wood or a special compost section used for painted wood without lead paint can be used.

Buncombe County is working with NCDENR and the EPA on a landfill leachate Recirculation Project. This project will supply the nation with valuable information about the performance of composite liners versus alternative liners during Leachate Recirculation. The recirculation process began in the summer of 2006. The landfill will be monitored frequently and reports of data will be available after winter of 2006.

Intended Actions: Buncombe County’s plan is to continue handling the disposal and transfer aspects of the solid waste program in the current manner

Construction and demolition waste will continue to be managed by the County. C&D waste is being disposed in the new landfill as of 2004. In the meantime, architectural salvage firms will be promoted for hauling C&D waste.

In accordance with the EPA's Project XL, the County will continually monitor and record data of the landfill conditions since the leachate recirculation process has begun.

As an incentive for contractors, loads of untreated wood waste will be accepted at the construction and demolition landfill at a lower tipping fee of \$15 if it is separated from the other construction and demolition waste (regular construction and demolition tipping fee is \$36).

In case of a storm or natural disaster resulting in an abnormally large volume of debris, the County will store the debris temporarily at the landfill if permission is granted from DENR. Debris temporarily stored will be collected for free of charge by disaster Debris Removal Services with regulations concerning storage; processing (primarily mulching and composting) and potential controlled burning. Specific plans for entrance and exit paths at the site, controlled access, and other issues will be coordinated with County Emergency Management.

J. Recognitions for Excellence

Current Program: Buncombe County has received the following awards and recognition for its outstanding waste reduction and disposal programs.

Project XL The County was invited to participate in EPA's Project XL, which stands for "Excellence and Leadership." The Buncombe County Landfill is one of two in the nation that will have the opportunity to test new methods of waste disposal, which could benefit public and environmental health. Results from data collected at the Buncombe County Landfill will indicate how to reduce operation costs and will be shared with solid waste programs across the nation.

Household Hazardous Waste Award 2001 Carolina Recycling Association presented Buncombe County with its "Bill Evans and Carol Bond Memorial Award of Excellence for an Outstanding HHW Program."

Transfer Station-Silver Award 2000 The Solid Waste Association of North America (SWANA) awarded Buncombe County the Transfer Station 2000 Silver Award for its innovation, creativity, employee and customer health and safety, and environmental benefits. Buncombe County placed second in competition with other transfer stations across North America.

New Landfill-Gold Award 1999 The North Carolina Division of SWANA awarded Buncombe County with the New Landfill Gold Award for an Outstanding Solid Waste Management Program in North Carolina. Award criteria: management philosophy, employee and customer safety and health, and cost efficiency.

New Landfill-Bronze Award 1999 SWANA awarded the County with this highly competitive and prestigious award for Buncombe County's Landfill Operations and Programs. Buncombe County's state of the art Subtitle D landfill and wide variety of waste reduction, recycling and public education programs won the County a Bronze Award.

Outstanding County Program Award The North Carolina Association of County Commissioners recognized Buncombe County's outstanding Hazardous Waste Management and Education Program. The program was recognized for its wide variety of services to the community and industry.

Old Landfill Gas Project Gold Award 2000 The North Carolina Chapter of SWANA awarded the county the Landfill Gas Project Gold Award under the category of Landfill Gas Utilization. The project captures the methane generated by the landfill and is utilized by the Metropolitan Sewerage District to power the incinerator.

Innovation Award 2001 The National Association of Development Organizations (NADO) awarded Buncombe County with the 2001 Innovation Award for the Household Hazardous Waste Permanent Collection Program.

NC DOT Best Litter Control Program The North Carolina Department of Transportation awarded Buncombe County \$1,000 and first place in the state for the Four Corner Clean Up program that addresses roadside litter and illegal dumping.

US EPA LMOP- Community Partner of the Year Award for Direct Use Project with Metropolitan Sewerage District (Old Landfill Gas Project) in 2000.

The National Environmental Awards Council awarded the County with a Certificate of Environmental Achievement.

Intended Actions: The County will continue to seek opportunities for awards and other types of recognition for its award-winning solid waste program.

Part V. EDUCATION, SPECIAL WASTE, ILLEGAL DISPOSAL, AND PURCHASING: ASSESSMENT OF PROGRAMS AND DESCRIPTION OF INTENDED ACTIONS

A. Community, School, Industrial, Commercial, and Government Education

Education in the Community

Current Program: Several educational pamphlets describing the blue bag recycling program, locations of collection centers, recyclable materials accepted, and how to prepare materials for recycling have been produced and distributed by Buncombe County and the municipalities. Educational presentations are given to civic groups through the various media sources contracted hauler. The recycling program is promoted through the various media sources available, including newspaper and radio ads and public service announcements. In order to provide an information service for community members, a telephone hotline and web site are available.

Curbside Management conducts community education through its general business practices. All residents participating in Asheville's curbside program receive a calendar indicating their pick-up days for the year; residential recycling information with instructions on what to put in the blue and green bins; pick-up time information; drop-off center information; a recycling guide for materials such as packing materials; old furniture; Christmas trees; pallets; motor oil; and a City of Asheville Solid Waste Services Guide with information on everything from trash collection to household hazardous waste.

The Town of Weaverville includes articles on litter clean-ups and waste reduction efforts in their newsletter, *Focus on Weaverville*. Black Mountain also distributes a brochure to new water customers and at the Town Hall to educate the community on the availability of recycling services and to encourage participation. The County's contracted hauler, GDS, distributes a recycling brochure, a letter of frequently asked questions, and a comment card to all their customers.

Land-of-Sky Regional Council, in cooperation with Buncombe, Madison, and Transylvania Counties, built the Mobile Environmental Learning Center in FY 1998-99. This mobile classroom travels to schools throughout the region, educating children on the subjects of reducing, reusing, recycling, reintegrating, closing the loops, and HHW. MELC is handicap-accessible with colorful murals on the outside advertising its purpose, and contains numerous interactive materials including quiz boards and video displays. This is the first of its kind in the state. The Council's current objective is to promote the use of MELC throughout Buncombe County. Continuing its use will educate more students on waste reduction throughout the County. The County and the City of Asheville provide annual sustainability funds for the projects.

Buncombe County's Keep America Beautiful nonprofit organization, Quality Forward, provides community education programs to increase waste reduction awareness. They organize the Adopt-a-Stream, Adopt-a-Street, and Adopt-a-Highway programs; all of which involve the community in litter prevention and waste reduction. Quality Forward works with over 3,000 volunteers a year on these clean-ups, as well as on plantings and other beautification projects. Since 2000, Quality Forward has been the main coordinating group for the Great Asheville-Buncombe Clean-up in the spring. Quality forward has a Waste Reduction committee that works to promote recycling in businesses, schools and at the residential level. This committee has also worked on source reduction and buy-recycled initiatives. The public can access information on Quality Forward and their projects at www.qualityforward.org.

Intended Actions: Participation in residential recycling will increase as a result of public education. The current outreach programs are scheduled to continue in order to keep waste reduction practices in the forefront of the community's mind when dealing with solid waste. New educational materials and outreach will be developed as affordable venues for delivering the educational messages are discovered. Any changes in programs will receive media attention in a timely manner. Additionally, the County and the Cooperative Extension Service will conduct a Master Waste Manager training program for interested community members.

The County's quarterly newsletter, "One Person's Trash," will be posted on the County web site as a service to increase public awareness of solid waste reduction and services available. The county will continue to distribute flyers in utility bills detailing services offered such as electronics recycling day, as well as tire, white goods and HHW collection days.

The County plans to conduct environmental education activities when feasible at public functions with the utilization of the Mobile Environmental Learning Center. In order to continue using MELC's services, the County and the City of Asheville will continue to provide annual sustainability funds for the project.

Education in the Schools

Current Program: The schools also have mandatory cardboard recycling. The schools currently have paper recycling programs. According to estimates, Buncombe County Schools generate 4,608 tons of waste a year and manage 234 tons through recycling and reuse. Consequently, there are opportunities to educate students on recycling.

Schools play an integral part in general education on recycling. Many of the schools have teachers and students who are interested in the subject and work to promote waste reduction practices. The County solid waste staff supports these efforts by providing educational and promotional literature and curriculum material whenever requested. Recently, a waste handling interactive model has been presented in many schools and its use is expected to continue.

The Cooperative Extension Service has a solid waste reduction education program available for all interested fifth grade classes. This program consists of curriculum materials, class activities, compost bins, and field trips. However, County agents have not received any demand for the program. Therefore, these educational services are not currently being advertised or promoted. The Cooperative Extension Service also uses the government channels to broadcast instructional programs that address a wide range of topics, including solid waste.

Currently all schools within the County borders have access to the Mobile Environmental Learning Center. Hauling of the educational trailer is provided by Buncombe County Schools Maintenance Department and, when necessary, the County's Solid Waste Department. The MELC has toured both inside and outside of the County and has educated over 3,500 students to date.

Additionally, the Land-of-Sky Regional Council's WRP program has performed waste audits of some of the schools and provides a full waste audit report to those schools. Audits include waste stream analysis, summaries of existing programs, and suggestions for program expansion, how to fund programs through the use of non-budgeted funds (ie – aluminum can drives for recycling container revenues), case studies, and curriculum supplements.

Intended Actions: County and municipal solid waste reduction staff will continue to provide educational opportunities in the classroom. The WRP program will continue to assist schools upon request.

The NC Cooperative Extension Service does not plan to promote or advertise their educational programs since demand was low. Since there was little community interest in the program, the Cooperative Extension Service has no plans for expanding the program in the future.

The County and the City of Asheville plan to continue supporting the Mobile Environmental Learning Center as an effective means of educating students across the County. By supporting the project, the County will also be providing funding for teacher workshops. As a part of the Mobile Environmental Learning Center project, Land-of-Sky Regional Council will provide a series of workshops for teachers of Buncombe County, educating them on recycling and waste reduction in the County. As an incentive to participate, teachers will be accredited with a continuing education certification unit upon completion of the workshop. To date, 14 teachers have been trained.

Quality Forward discontinued its teacher workshop since the last revision of the plan. However, their environmental education efforts frequently deal with solid waste reduction awareness. A majority of Quality Forward's work is directed toward involving students from County high and middle schools with service learning projects. These projects work to improve water quality by 10-15 miles of rivers in Buncombe County, with the assistance of local high school students. When requested by County schools, Quality Forward staff provides educational services to classes, clubs, and school

assemblies. They also teach students, faculty, and staff how to conduct waste audits and instruct school maintenance departments on how to begin recycling programs within the school. During driver's education classes, Quality Forward staff lecture students about littering while driving.

Commercial and Industrial Education

Current Program: The waste reduction staff accomplish the current education program in the commercial sector through the hazardous waste inspection or upon request. They work with any industry that receives a violation at the landfill and advise them on proper disposal management. Business and industry are referred to the staff whenever waste haulers encounter problems with industrial or commercial clients. If any member of the commercial sector needs immediate information, the hotline is available.

Waste Reduction Partners provides technical assistance and educational services to business and industry to reduce their waste stream in an economically sound manner. During their waste reduction assessment process, WRP staff research and make recommendations to clients on proper waste reduction practices, which are tailored to the various operations and staff of the client.

Curbside Management has recently focused on encouraging businesses to recycle. As of this date, Curbside provides recycling services to 243 businesses in the Asheville area, which range from small offices, to restaurants, to a very large mixed paper-recycling container for the Biltmore Estate. In June of 2001, a Marketing & Community Relations position was created by Curbside Management to focus not only on increasing business recycling, but also to educate the public and increase participation in the services.

Intended Actions: Waste exchange will be encouraged through the County's web site. Business and industry will be permitted to post information about waste they would like to exchange. The site will serve as an information center where business and industry can learn where these goods could be taken. The Land-of-Sky Regional Council also plans to continue the WRP program, which utilizes retired engineers, for waste assessments for industry. The County will work diligently to assure that an exchange of information in the commercial sector is established.

Education in the Retail Segment

Current Program: To date, there have been limited educational efforts targeting the retail segment. Most are derived through the offering of recycling services by the private sector. This includes advertising for commercial recycling pick up and cardboard recycling services. There have also been a limited number of waste audits performed by the WRP program in which educational outreach has been performed.

Intended Actions: During the Solid Waste Committee meetings, the County, municipal and regional program coordinators will discuss methods to educate the retail segment with recycling and waste reduction.

Education in the Government Sector

Current Program: There is no formal education program within the planning area for any of the County or Municipal governments. The County has begun to implement a program whereby the trash cans are turned into paper receptacles and co-mingled recyclables are collected at conveniently located places. One complete building was originally set up on this system. By December 1997, the main County buildings were converted to this concept. This program contributes to waste reduction education, reminding employees that most office waste is paper. Most municipal government offices have a similar system.

In June, 1997 the waste stream began to be measured as paper, co-mingled recyclables, and trash. Literature was distributed to each County employee, informing them on how to prepare recyclables. Other waste reduction concepts were included such as reuse of envelopes, use of fax labels, use of e-mail, reuse of file folders, etc.

Intended Actions: The County will offer assistance to any municipality upon request. The County will also continue to distribute the literature mentioned above as program reminders to staff and to inform new employees.

B. Special Waste Management

Hospital Waste

Current Program: Mission St. Joseph's biohazardous waste is treated on-site by being microwaved at the "biohaz" station. Waste Management, which has a contract with the hospital, collects the biohazardous waste and other hospital waste. Waste is then transported to the landfill in South Carolina. The hospital unsuccessfully attempted to separate office paper and other office generated waste from the biohazardous waste. Separating these wastes could have saved the hospital \$100,000 a year in waste disposal fees.

Intended Actions: The County has no plans to collect hospital waste. Waste Management will continue to provide collection services. The County will offer technical assistance to establish methods of separation if requested.

Tires

Current Program: Tires are collected free of charge at the County landfill property with proper disposal forms. A \$2 fee is charged for each tire without a disposal form. US Tire, the contracted hauler, leaves an empty trailer at the facility and hauls full trailers to its facility for a processing fee of \$74 per ton.

Buncombe County is currently limiting the number of tires an individual can bring to the landfill to 10 per year. All other tires (those in excess of ten and from private companies) must have a generator tax record. Money from the statewide tire tax pays for the tire-recycling program.

Intended Actions: The tire program for the County will have no changes, with the possible exception of using a different processor if one offering a better rate is found. The County will continue to seek contracts with haulers offering the best recycling programs with the lowest disposal fee. The County will promote tire collection services and provide information about these services on the County web site.

White Goods

Current Program: White goods, also known as appliances, are accepted only at the landfill and at no charge. Municipalities are not charged for the service and do not receive a portion of sales revenue. The disposal tax and revenue from white goods provide a positive cash flow for these items. All other ferrous metal is combined with the white goods at the landfill. The revenue from white goods is subject to market fluctuation and a lack of competition for this market. The County has talked to the other municipalities about taking their white goods at the landfill. This possibility will be pursued during the planning process.

White goods are dropped onto a concrete pad where the appliances containing freon are set aside. Environmental Recycling, Inc. Lexington, Kentucky is the contractor. When sufficient units are ready for CFC (chlorofluorocarbon) removal, the contractor is called to remove the CFCs, which is about every 6 weeks. The County receives a report from the contractor with the serial numbers of the appliances that have had the freon removed. White goods are then recycled.

The County also has a truck equipped with a grappling hook that is used to pick up appliances from the roadsides.

The City of Asheville offers pick-up of white goods for \$5.00/per white good. The other municipalities collect white goods at no charge to the citizens.

Table 20 lists the municipalities that provide white goods pick-up. The County does not provide a pick-up service for white goods.

Table 20. Municipalities that Provide White Goods (Appliances) Pick-up

| NAME | PROVIDE PICK-UP | FUNDING |
|-----------------|-----------------|--------------------------------|
| Asheville | yes | \$5.00 charge + regular budget |
| Biltmore Forest | yes | regular budget |
| Black Mountain | yes | regular budget |
| Montreat | yes | regular budget |
| Weaverville | yes | regular budget |
| Woodfin | yes | regular budget |

Sources: The Municipalities and their Annual Reports

Intended Actions: The major action item concerning white goods is informing the public that the Solid Waste Management Facility will take white goods at no cost. The phrase, “white goods”, is confusing to the general public and the term, “appliances”, is intended for all future educational outreach. Information about white goods and services available are provided on the County web site.

Lead-acid Batteries

Current Program: Lead-acid batteries are collected at the transfer station and a facility at the new landfill site. Residents can also recycle batteries with a number of auto parts dealers. These dealers are listed in an educational brochure distributed to residents during special events such as electronics recycling day, HHW day, and others. None of the individual towns provide battery collection service. When sufficient batteries are collected, a private contractor is called to take them for recycling.

In FY 1997-98, 842 batteries were collected. In FY 00-01, 1,362 batteries were collected. In FY 04-05, 1069 batteries were collected.

Intended Actions: Battery collection locations will remain the same. In an effort to reach those residents that do not use the collection locations, the County Solid Waste department will continue work with the Land-of Sky Regional Council, Cooperative Extension Service, and Buncombe County auto dealers, repair shops, and parts stores to distribute educational pamphlets to explain the correct disposal methods and disposal locations for motorists and farmers who change their own batteries and oil.

Used Automotive Fluids

Current Program: All motor oil, transmission fluid, hydraulic fluid, and brake fluid made after 1985 can be mixed together in Buncombe County since the contracted processor uses the mixture as a fuel source. The County also accepts antifreeze.

Collection of used oil is provided free to all citizens at the County Landfill site only. Municipalities do not collect used oil. Numerous service stations also provide for disposal of used oil and 14 of them are advertised as doing so in a County flier that is distributed to the public. Used oil is picked up by Holston Oil on a regular bases in conjunction with other programs in the region. In FY 1997-98, 2,045 gallons of used oil were collected from the County drop sites. In FY 2000-01, 5,200 gallons of oil were collected at the landfill. In FY 2004-05, 5,320 gallons of oil were collected at the landfill and, also 220 gallons of antifreeze was collected at the landfill.

Intended Actions: Used oil collection and contracting for processing will remain the same, except for revision of the educational materials mentioned above. Used oil will also be collected on HHW collection days as well. Cooperative Extension Service also provides fact sheets and videos, plus annual or semi-annual collection programs for farmers. Their “Project Hero” will provide educational services.

Hazardous Waste

Current Program: The Hazardous Waste Department has licensed 174 businesses and industries in the County, which generate hazardous waste. The department provides many services including emergency response to chemical incidents, investigation of complaints of improper disposal, technical assistance on chemical handling and storage,

hazardous materials (Haz-Mat) training, and an information hotline to residents. The County operates a “Hazwoper” training course, which trains all emergency response personnel how to appropriately handle potentially hazardous materials.

Intended Actions: The County plans to continue providing the services of the Hazardous Waste Department. No changes to the current program have been planned.

Household Hazardous Waste (HHW)

Current Program: Buncombe County provides for the collection of Household Hazardous Waste every Friday where household hazardous waste is collected. Over 50% of the items brought on the HHW days are oil and latex paint products. During the last HHW collection day, 140,000 pounds, or 70 tons, of waste were collected. Ninety eight percent of the special wastes are recycled with the exceptions of the pesticides and herbicides.

Intended Actions: The County staff will continue to operate the HHW permanent collection program and participate in regional cooperative efforts through the LOSRC committee. Collection of HHW will continue at the center and days will be scheduled throughout the year and offered free to the public. Fees are levied only on paint and paint-based materials. Funding for the program will be continually sought in order to sustain the program as well as expand it to include more frequent HHW collection days.

Information will be placed on the 14-hour hotline and the County will continue the strong educational approach to managing HHW. The solid waste staff acquired a County Hazardous Waste Officer who will continue to schedule a Small Quantity Generator Day (SQGD) where businesses can dispose of hazardous waste. These events will be open to the general public willing to pay for material disposal. None have been conducted as of April 2002; however, the County plans to offer one per year.

All triple-rinsed pesticide containers are accepted at the landfill and the staff has been trained to inspect the containers to be sure that the containers are properly prepared for recycling.

The overall approach to hazardous waste will be to pay as you dispose. The items that can be handled at the Solid Waste Management Facility will be addressed and charges will be assigned according to the disposal methods available. Items that can be disposed of free or for a very low charge will take top priority. Examples include items that can be blended for alternative fuels for boilers and pesticides (and other crop protection products) that can be disposed of free through the NC Department of Agriculture.

Electronics Recycling

Current Program: The County began recycling electronics in 2001 on a specific day designated as a public “Electronics Recycling Day”. Participation was very high, with the County accepting 17,830 pounds of electronics. Consequently, the County accepts

electronics at the landfill site every Friday. The Enterprise Fund currently supports the program. Additionally, computers are accepted for reuse through Partners Unlimited, Access for Independent Living, and CyberPal at the Western Alliance's Center for Independent Living.

Intended Actions: The County will also promote computer donation as a reuse method. Organizations that accept used computers will be listed on the County website. The County is also accepting cell phones to be recycled and for each cell phone recycled, Operation Gratitude sends a 30 minute phone card to troops station abroad.

Pending legislation by the state proposes an Advanced Recycling Fee (ARF) to be placed on all cathode ray tubes (CRT's) which includes TVs and computer monitors. If the legislation is adopted, the County plans to participate in this program to obtain maximum available reimbursement of funding spent on recycling CRTs.

C. Prevention and Management of Litter and Illegal Disposal

Prevention and Management of Litter

Current Program: Buncombe County has two Environmental Compliance Officers who function both as consultants and "litter control officers" for the County. They educate the public on appropriate waste disposal practices and promote waste diversion. The award-winning Four Corner Clean-Up program is not focused on litter law enforcement as much as it is focused on education and prevention. As a result of the Four Corner Clean up, over 2,200 bags of litter were collected in 2001. This effort in litter control and clean up involved children and the public. The County supports other litter prevention and management organizations such as Quality Forward's Keep America Beautiful Division. The County provides information services on the hotline, voicemail, and email to allow the public to obtain information easily. This system also assists efficient transfer of complaint responses by the public to the compliance officers.

The Buncombe County Solid Waste Department is utilizing the state Adopt-A-Highway program to reduce roadside litter. In 1996 the NC Highway Patrol issued 391 tickets across NC carrying a \$1000 fine each. Buncombe County has passed an ordinance that requires all vehicles going to the landfill be covered during transport. Landfill personnel inspect all vehicles and levy a \$50 fine for those uncovered. This ordinance has made a major positive impact on all roadside landfill routes.

Litter along roadsides is always a concern due to the direct relationship of the tourism and litter's negative effect on the region's beauty. The County supports local stream clean-up efforts conducted by various non-profits, including programs previously mentioned that are offered by Quality Forward and Land-of Sky Regional Council. The Big Sweep Clean-up program is also an option the County can use for annual cleanups. Public awareness flyers are available to be mailed in the City water bills in conjunction with the annual Big Sweep cleanup in September. School litter awareness programs are already in place.

In FY 1999-2000 the County began its Pick It Up 2000 campaign to address the roadside litter problem. This program is endorsed by the Commissioners and was initiated in conjunction with the Governor's Clean NC 2000 Program. In exchange for agreeing to pick up litter, participants receive a minimum of 6 trash bags, gloves and a T-shirt. The program is intended to promote awareness of the roadside litter problem on Buncombe County roadsides and promote volunteerism in the County. Since March 10, 2000, more than 3000 streets have been cleaned. This program has been such a success it was given an award by the NC DOT and the County has decided to continue it as an ongoing program.

Intended Actions: The County plans to continue to provide information, program, and response services to the public throughout the planning period. County staff will continue to act as consultants for schools, civic organizations, private sector, and the general public. As new educational materials on litter prevention become available, the staff will distribute this information to the public. The County will also support a bottle bill if introduced for state legislation as another preventive measure against litter.

Prevention and Management of Illegal Disposal

Current Program: Buncombe County has staffed a truck with two individuals to clear illegal dumpsites. The offender, if the source is identifiable, will be charged. If the clean up occurs on private property, the charges usually go to the property owner or are attached to the sale of the property if the owner cannot afford to pay. However, the County chooses to emphasize the clean up over fines; the clean up is viewed not only as a necessity, but as an educational opportunity. In 2001, Environmental Control Officers received 1,879 calls and are often dealing with calls "on the fly" while they are in the field. Complaints of illegal sites are investigated by County officers who assist these parties with coming into compliance with regulations. For those who do not have a responsible party to clean up the sites, the Enterprise Fund assists the County in cleaning up these sites. Clean-up costs can range from \$500 to \$25,000; most are between \$10,000 and \$20,000. Shingles, tires, and white goods are materials commonly found in illegal dumpsites. The County has a third officer whose primary responsibility is junk cars and yards.

Intended Actions: The County will continue to cooperate and build working relationships with law enforcement officers to enforce litter and illegal dumpsite laws. The County will continue to work with Quality Forward and Keep America Beautiful (KAB) to alleviate illegal disposal through some of their developed programs. Meetings are held with these groups to determine how County and municipalities may best support their efforts.

The County will consider establishing a convenience center for garbage and other waste collection in eastern Buncombe County to help reduce illegal dumpsites. Citizens in the eastern parts of the County now have to travel approximately 70 miles round trip to get to the transfer station. This travel distance may discourage some citizens from driving to the

station to dump their trash. The County will evaluate the financial benefits of opening another collection station by comparing station operation costs with costs associated with illegal site clean up. The City of Asheville has two-part time code enforcement officer that investigate illegal disposal.

D. Purchase of Recycled Materials and Products

Current Program: No official recycled product-purchasing program is in place at this time. However, the County prioritizes buying recycled when possible. The County and the City of Asheville buy recycled paper for use in the office.

Buncombe County would effectively increase the purchase of recycled products if a policy on purchase of recycled goods existed. This should be discussed with county government department heads and school administrators.

Legislation and executive orders require the local community college and the county schools to purchase recycled products based on a percentage of the total dollar value of paper products purchased. They must report annually to the Division of Pollution Prevention and Environmental Assistance. These percentages increase each fiscal year: 1995-96, 45%; 1996-97, 55%; and 1997-98, 65%. Recycled content products are to be purchased whenever economically feasible and practicable.

Intended actions: The County will establish a policy to buy recycled products and recycled paper and other products. The County aims to buy trash bins and other office supplies made of recycled plastic, in addition to recycled paper products. The “Virtual Swap Shop” on the County website will provide information directing citizens to purchase recycled content materials.

Buying recycled products is also addressed in the various educational outreach programs that will be presented to community groups.

E. Disaster Response

Current Program: Natural disasters such as tornadoes, hurricanes, floods, and earthquakes are highly unlikely for this region. Ice storms could possibly cause an unusual amount of debris, consisting mostly of tree and yard waste, which would require disposal. These materials would likely be ground for mulch.

In the event of a disaster where other materials would need disposal, debris would be temporarily stored on site at the landfill until removed. Disaster Debris Removal is contracted to remove debris at the landfill. Satellite collection sites have been considered by the County.

Intended Actions: Since disasters are difficult to predict, the County cannot plan for all possible outcomes. Circumstances surrounding each event will necessitate improvisation

and planning at that time. Satellite sites for debris storage will be established when necessary.

Handling of Dead Animals from a Natural Disaster and/or Disease

The landfill should not accept any dead animals without knowing the cause of death. Those killed by natural disaster could be accepted at the landfill but those that die because of any type of disease cannot be accepted. It is strongly recommended by the United States and North Carolina Department of Agriculture that all dead animals that result from either a disaster and/or disease be disposed on the site where they are being raised. It is better not to transport for the safety of public's health and the safety of landfill operations. The producers are required by law to report any diseases to NCSDA&CS, Animal Health Programs at (919) 733-7601, also Veterinary Public Health Office at (919) 707-5900. The West Nile Virus is also to be reported to the Public Health Pest Management Section at (877) 790-1747.

The following is a brief summary of poultry mortality disposal methods in North Carolina. All disposals must occur within 24 hours. (This is a copy of the NC Department of Agriculture and Consumer Services requirements from their website.)

1. Burial: Not closer than 300 feet to a flowing stream or public body of water. Should be at least three (3) feet above water table and covered with three (3) feet of soil. Can be used anywhere soil conditions allow, primarily for emergency situations. Not recommended for disposal of normal daily mortality.
2. Incineration: Any commercial unit that will completely incinerate the birds. Should be sure they meet local and state air quality requirements. Good procedure anywhere in the state.
3. Rendering: Must be done by a licensed renderer or collector. Care must be taken not to spread disease from farm to farm. Freezing mortality prior to rendering is allowed.
4. Disposal Pit: The bottom of the pit should be at least three (3) feet above the water table. Not a satisfactory procedure in most of Eastern North Carolina and other locations with a high water table.
5. Composter: Requires a permit from the North Carolina Department of Agriculture and Consumer Services. Good procedure in any part of the state.
6. Digestion: Requires a permit from the North Carolina Department of Agriculture and Consumer Services. Permits are limited to one (1) year but can be extended. Generally less satisfactory than other methods of disposal. Can be used anywhere in the state.

Other disposal methods require a special permit from the State Veterinarian's office.

F. Mandated Measures to Encourage Reduction, Reuse, and Recycling and Composting as Waste Management Tools

The County Ordinances that control collection and waste disposal at the Solid Waste Management Facility are included in Appendix G. The Code of Ordinance Section 62-45 (b) (2) requires that franchised haulers in the residential sector provide recycling service. This is the enabling Ordinance to permit the implementation of the blue bag system of recycling in the unincorporated areas of the County.

Section 62-31 addresses the fee structure. The fee structure is such that any load is subject to a fine and penalty if the load contains more than 5% by weight or volume of corrugated cardboard, untreated wood products suitable for mulching, concrete, cinder blocks, brick, concrete with steel or any type metals. All yard waste, tires, white goods, used oils, lead acid batteries, antifreeze, and aluminum cans are banned from the landfill. Due to the way the ordinance is written and the way the fine structure is levied, Buncombe County has no control over the waste flow out of the County. In 2004-05, the Waste Management unit in Asheville transported over 80,000 tons of solid waste outside of the County for disposal. The above ordinances have no control over this tonnage, except for the residential waste stream that is covered by the franchise agreement. It is possible that some changes in the County Ordinances could impact waste reduction or diversion of materials being landfilled outside the region. Without these changes, no waste reduction control is available for approximately 1/3 of the waste stream in Buncombe County. When competing with local haulers the fact that certain items are restricted from the Buncombe County facility has been used to promote this company's service. The planning process will address legislation to determine the appropriate action.

This plan sets forth many possible alternatives and avenues to achieve waste diversion and reduction. These methods are applicable to both government and citizens. The plan is not a static document, but will, by necessity, change and therefore modify the actions proposed. However, the process of the development of the plan has set forth some priorities that must be addressed.

Part VI. SOLID WASTE COSTS AND FINANCING METHODS

Description and Assessment of Costs:

County Description:

The Solid Waste Division of the General Services Department of Buncombe County is operated as an enterprise fund. Tip fees fund almost all current activities. This concept needs to be communicated to all residents, businesses, nonprofit groups, and elected officials serving in any capacity within Buncombe County. It is also important that State organizations understand that this is true for Buncombe County. No funding exists for the Solid Waste Department from any tax dollars or fines. The tip fees pay all operational costs.

The County's Solid Waste Department budget included funding for the following activities not directly related to land filling in FY 2004-2005.

| | |
|---|--------------|
| 1. Current waste reduction staff and recycling activities | \$200,000.00 |
| 2. Environmental control officers and expenses | \$125,000.00 |
| 3. Pesticide container program (current) | \$ 20,000.00 |
| 4. Clean up of illegal dump sites | \$140,000.00 |
| 5. Tires (current) | \$189,000.00 |
| 6. Junkyard Ordinance | \$ 60,000.00 |
| 7. Hazardous Waste | \$110,000.00 |

These commitments to waste reduction amount to \$3.96 per ton based upon 213,026 tons per year, the approximate amount of waste disposed last year in Buncombe's landfill. Buncombe County handles all aspects of its solid waste program with the exception of hauling. Approximately 213,026 tons a year are buried in its Sub-Title D landfill cell and 157,236 tons a year are shipped out of state to a private landfill.

Future funding for reducing, reusing, recycling, composting and general education must be studied. The municipal representatives will be asked to address this the first year of the planning period, as funding is necessary for expansion of these activities. The County must face an entirely different situation than the municipal governments. Each municipality has the tip fee avoidance of \$36.00 per ton to spend in waste reduction activities. This is not true for the county since it owns and operates the landfill.

The solid waste costs shown in Tables 21-28 are separated by the county-operated program and the municipal programs. Please note, in some instances, that for a given year, the sum of waste collection, waste disposal, and waste reduction may not be equivalent to the stated sum in the "TOTAL" row. This is due to a differing methodology for calculating mulch and composting costs into each county or municipal total. All figures are extrapolated directly from Solid Waste Management Annual Reports.

The county serves an estimated 86,491 households (2004-05). Waste reduction program costs (including recycling, reuse, mulching, etc.) total \$195,804 in FY 2000-01, \$250,000 in FY 2002-03, \$179,163 in FY 2003-04, and \$174,523 in FY 2004-05. In 2000-01, the Buncombe County managed a total of 245,207 tons, which included 212,956 tons disposed, 29,755 tons recycled, and 2,496 tons mulched or composted. The figure includes 84,000 tons of waste shipped out of the County for the year. The County estimates that 60,543 households, of the total 86,491 homes, participate in the recycling programs, which is a countywide 70% participation rate. A summary of the county-operated solid waste program costs is shown in Table 21. These totals are derived from the Solid Waste Management Annual Reports filed with the state.

Table 21. County-operated Solid Waste Program Costs, 2000-01, 2002-03, 2003-04 , and 2004-05

| | FY | PROGRAM COST IN THOUSANDS | COST PER TON | COST PER HOUSEHOLD |
|------------------|-------|------------------------------|--------------------|-----------------------|
| Waste Collection | 00-01 | 1332.381 | 67.16 | 53.29 |
| | 02-03 | N/A | N/A | N/A |
| | 03-04 | N/A | N/A | N/A |
| | 04-05 | N/A | N/A | N/A |
| Waste Disposal | 00-01 | 649.978 | 13.79 | 28.49 |
| | 02-03 | 2,485.031 | 14.70 | 28.73 |
| | 03-04 | 2,107.163 | 10.53 | 24.36 |
| | 04-05 | 2,851.166 | 13.39 | 32.96 |
| Waste Reduction | 00-01 | 755.67* 654.69** | 116.92* 53.40** | 30.66* 26.19** |
| | 02-03 | 185.000* 66.00** | 6.82* 54.90** | 2.14* .75** |
| | 03-04 | 177.163* 62.00** | 4.55* 35.29** | 1.35* .72** |
| | 04-05 | 112.523* 62.00** | 3.78* 24.84** | 1.30* .72** |
| Total | 00-01 | 3,392.271 | 87.98 | 135.71 |
| | 02-03 | 2,735.031 | 13.86 | 31.62 |
| | 03-04 | 2,286.325 | 10.05 | 26.43 |
| | 04-05 | 3,025.689 | 12.34 | 34.98 |

SOURCE: NC Solid Waste Management Annual Reports

*Programs that include reduce, reuse, and recycling. **Mulching, composting, and other programs

County Assessment:

According to the analysis, waste disposal costs are greater than waste reduction programs (reduce, reuse, and recycling) on a per-ton and per household basis. It can be assumed from the trend of increased recycling that as participation in the waste reduction program increases, the cost per ton to reduce will continue to decrease and may continue to be lower than the cost of collection and disposal.

Asheville Description:

Asheville contracts with Curbside Management, Inc. for curbside recycling collection and recycling. The City also has a drop off point for recycling for residents and small businesses that do not use or have curbside collection. Because the program is primarily curbside, per household costs were also determined. The City has approximately 26,300 households that disposed of 24,889 tons of waste, 6,924 tons of recyclable material, and 15,220 tons of brush and leaves in FY 2004-05. Asheville’s solid waste program costs are summarized for those years in Table 22. Waste reduction program costs include curbside recycling collection, reuse, white goods collection, and brush collection. Participation in the recycling program is estimated by the City of Asheville as 78%. These totals are derived from the Solid Waste Management Annual Reports filed with the state.

Table 22. Asheville Solid Waste Program Costs, 2000-01, 2002-03, 2003-04, and 2004-05

| | FY | PROGRAM COST IN THOUSANDS | COST PER TON | COST PER HOUSEHOLD |
|------------------|-------|---------------------------|--------------------|--------------------|
| Waste Collection | 00-01 | 1332.381 | 67.16 | 53.29 |
| | 02-03 | 1377.956 | 63.59 | 55.12 |
| | 03-04 | 1348.448 | 58.54 | 51.86 |
| | 04-05 | 1352.350 | 54.33 | 51.42 |
| Waste Disposal | 00-01 | 649.978 | 32.76 | 26.00 |
| | 02-03 | 713.426 | 32.92 | 28.54 |
| | 03-04 | 765.379 | 33.25 | 29.44 |
| | 04-05 | 796.448 | 32.00 | 30.28 |
| Waste Reduction | 00-01 | 755.67* 654.69** | 116.92* 53.40** | 30.66* 26.19** |
| | 02-03 | 706.301* 680.084** | 98.29* 53.66** | 28.66* 27.20** |
| | 03-04 | 723.762* 795.874** | 101.27* 78.88** | 28.70* 30.61** |
| | 04-05 | 741.99* 899.74** | 107.17* 59.11** | 29.14* 34.21** |
| Total | 00-01 | 3,392.271 | 87.98 | 135.71 |
| | 02-03 | 3,477.767 | 83.74 | 139.11 |
| | 03-04 | 3,633.463 | 90.22 | 139.75 |
| | 04-05 | 3,790.524 | 80.59 | 144.13 |

Source: Asheville Solid Waste Dept. Records. *Reduce, reuse, and recycle programs ** brush and leaf

Asheville Assessment:

On a per ton basis, Asheville’s waste collection and waste disposal are individually cheaper to operate than waste reduction. However, collection and disposal combined (which are implemented together) are more expensive than waste reduction from 2001 to 2005.

Biltmore Forest Description:

Biltmore Forest has 640 households that disposed of 652 tons of waste and 233 tons of recyclable material in FY 2004-05. Also included in those costs are 2,899 tons of grass and leaves. Waste reduction program costs include recycling, reuse, mulching, etc. The summary of solid waste costs for three years is shown below in Table 23. These totals are derived from the Solid Waste Management Annual Reports filed with the state.

Table 23. Biltmore Forest Solid Waste Program Costs, FY 2000-01, 2002-03, 2003-04 and 2004-05

| | FY | PROGRAM COST IN THOUSANDS | COST PER TON | COST PER HOUSEHOLD |
|------------------|---------|---------------------------|--------------|--------------------|
| Waste Collection | 00-01 | 62.4 | 88.44 | 97.5 |
| | 02-03 | 65 | 92.56 | 101.56 |
| | 03-04 | 65 | 98.83 | 101.56 |
| | 04-05 | 70 | 107.45 | 109.38 |
| Waste Disposal | 00-01 | 31.92 | 45.25 | 49.89 |
| | 02-03 | 31.775 | 45.25 | 49.65 |
| | 03-04 | 21.046 | 31.99 | 32.88 |
| | 04-05 | 29.315 | 50 | 45.8 |
| Waste Reduction | 00-01 | 8.64* | 53.41* | 13.50* |
| | | 23.5** | 31.42* | 36.72** |
| | 02-03 | 86.40* | 40.18* | 13.50* |
| | | 19.20** | 13.33** | 30.00** |
| | 03-04 | 9.60* | 47.58* | 15.00* |
| | 14.16** | 12.25** | 22.12** | |
| | 04-05 | 9.60* | 41.24* | 15.00* |
| | | 54.740** | 85.50** | 18.88** |
| Total | 00-01 | 126.47 | 78.29 | 197.61 |
| | 02-03 | 124.615 | 52.87 | 194.71 |
| | 03-04 | 109.81 | 54.48 | 171.57 |
| | 04-05 | 163.635 | 43.25 | 255.68 |

Source: Solid Waste Management Annual Reports. *reduce, reuse, recycle programs **mulch and compost

Biltmore Forest assessment:

Waste reduction programs that reduce, reuse or recycle the waste stream in Biltmore Forest cost less than waste collection and disposal in most cases. Comparing waste collection and disposal together, total costs in FY 2004-05 equals \$157.45 per ton as opposed to waste reduction (including mulching and composting), which cost \$126.70 per ton for the same period.

Black Mountain Description:

Black Mountain contracts with Curbside Management for curbside collection and recycling. The town has 3,856 households that disposed of a projected 3,710 tons of waste; 425 tons of recyclable material, and in yard waste 477 tons in FY 2004-05. Waste reduction program costs include recycling, reuse, mulching. The residential recycling participation rate is estimated at 42%. Black Mountain’s solid waste program costs are summarized in Table 24. These totals are derived from the Solid Waste Management Annual Reports filed with the state.

Table 24. Black Mountain Waste Program Costs, FY 1998-99, 1999-00, 2000-01, and 2004-05

| | FY | PROGRAM COST IN THOUSANDS | COST PER TON | COST PER HOUSEHOLD |
|------------------|----------|---------------------------|--------------|--------------------|
| Waste Collection | 00-01 | 265.53 | 95.57 | 71.71 |
| | 02-03 | 258.801 | 66.44 | 76.21 |
| | 03-04 | 289.325 | 67.78 | 76.02 |
| | 04-05 | 320.94 | 86.51 | 83.23 |
| Waste Disposal | 00-01 | 89.850 | 32.00 | 24.26 |
| | 02-03 | 117.350 | 32.00 | 31.29 |
| | 03-04 | 117.540 | 32.00 | 30.88 |
| | 04-05 | 114.520 | 32.00 | 29.70 |
| Waste Reduction | 00-01 | 22.41* | 28.52* | 6.05* |
| | | 13.4** | 15.00** | 3.63** |
| | 02-03 | 71.524* | 16.63* | 19.07* |
| | | 53.000** | 15.00** | 14.13** |
| | 03-04 | 80.765* | 18.92* | 21.22* |
| | 55.212** | 15.00** | 14.51** | |
| | 04-05 | 59.07* | 12.81* | 15.32* |
| | | 49.70* | 15.00** | 12.89** |
| Total | 00-01 | 391.230 | 87.14 | 105.65 |
| | 02-03 | 527.675 | 122.68 | 140.71 |
| | 03-04 | 542.842 | 127.17 | 142.63 |
| | 04-05 | 544.230 | 146.32 | 141.14 |

Source: Black Mountain Finance Department Records Reduce, reuse, recycle **mulch and compost

Black Mountain Assessment:

On a per ton basis, Black Mountain’s waste reduction program costs much less than its waste collection and disposal program (including mulch and compost) combined during 2001-05. On a per household basis, waste reduction costs less than collection and disposal both individually and combined. Strong promotion of the waste reduction program should save the town money since they spent \$118.51 per ton on waste collection and disposal as opposed to \$27.81 per ton for reduction in FY 2004-05.

Montreat Description

Montreat contracts with Hamilton Refuse for curbside collection and recycling. Because the program is curbside, per household costs were also determined. The town has 350 full-time households. This number swells to approximately 605 in the summer months. For the purposes of this report, the figure used is 605 households that disposed of 336 tons of waste, 28 tons of recyclables, and 125 tons of mulching and composting in FY 2004-05. Participation in the recycling program is estimated as 40%. Montreat’s solid waste program costs are summarized in Table 25. These totals are derived from Montreat’s financing department.

Table 25. Montreat Solid waste Program Costs, FY 2000-01, 2002-03, 2003-04, and 2004,05

| | FY | PROGRAM COST IN THOUSANDS | COST PER TON | COST PER HOUSEHOLD |
|------------------|-------|---------------------------|--------------------|--------------------|
| Waste Collection | 00-01 | 47 | 63.92 | 81.67 |
| | 02-03 | 17.399 | 86.01 | 29.19 |
| | 03-04 | 22.768 | 70.27 | 37.63 |
| | 04-05 | 41.95 | 124.86 | 69.34 |
| Waste Disposal | 00-01 | 23.3 | 32.15 | 40.50 |
| | 02-03 | 15.5 | 45.58 | 26.00 |
| | 03-04 | 14.7 | 45.22 | 24.22 |
| | 04-05 | 15.8 | 36.00 | 26.12 |
| Waste Reduction | 00-01 | 7.15 | 96.73 | 11.54 |
| | 02-03 | N/A | N/A | N/A |
| | 03-04 | N/A | N/A | N/A |
| | 04-05 | 14.95* 9.6** | 543.64* 76.80** | 24.71* 15.87** |
| Total | 00-01 | 77.450 | 192.80 | 133.71 |
| | 02-03 | 32.899 | 96.76 | 55.19 |
| | 03-04 | 37.422 | 115.50 | 61.85 |
| | 04-05 | 82.300 | 168.48 | 136.04 |

Source: Montreat Finance Department Records

Montreat Assessment:

Montreat’s waste reduction program costs more than its waste collection and disposal program on a per ton basis by \$459.58. On a per household basis, waste reduction costs much less than waste collection and disposal. Participation rates for the recycling programs are estimated to be over 40%.

Weaverville Description:

Weaverville contracts with Curbside Management for curbside collection of recycling. The town provides for the collection of white goods, brush and waste through its own department. In FY 2004-05, the town has approximately 1081 households that disposed of 1201 tons of waste and 179 tons of recyclable material and 7235 tons of brush and yard waste. Waste Extension Program costs include recycling, reuse, mulching, etc. The town estimates that 78% of residents participate in the recycling program. Weaverville’s solid waste program costs are summarized in Table 26. These totals are derived from the solid waste Management Annual Reports filed with the state.

Table 26. Weaverville Solid Waste Program Costs, FY 2000-01, 2002-03,2003-04, and 2004-05

| | FY | PROGRAM COST IN THOUSANDS | COST PER TON | COST PER HOUSEHOLD |
|------------------|-------|---------------------------|--------------------|--------------------|
| Waste Collection | 00-01 | 85.24 | 78.06 | 64.33 |
| | 02-03 | 84.345 | 81.13 | 78.03 |
| | 03-04 | 91.507 | 94.71 | 84.66 |
| | 04-05 | 106.032 | 88.26 | 98.09 |
| Waste Disposal | 00-01 | 34.95 | 32.00 | 26.37 |
| | 02-03 | 34.07 | 32.77 | 31.52 |
| | 03-04 | 30.92 | 32.00 | 28.61 |
| | 04-05 | 38.45 | 32.00 | 35.57 |
| Waste Reduction | 00-01 | 4.99* 127.66** | 35.63* 61.77* | 3.76* 96.50** |
| | 02-03 | 26.127* 126.517** | 147.20* 63.55** | 24.17* 117.04** |
| | 03-04 | 26.316* 137.261 | 139.91* 68.44** | 24.35* 126.98** |
| | 04-05 | 27.246* 159.048** | 152.13* 21.99** | 27.27* 147.14** |
| Total | 00-01 | 253.048 | 175.81 | 190.98 |
| | 02-03 | 271.056 | 324.65 | 250.76 |
| | 03-04 | 286.004 | 335.06 | 264.60 |
| | 04-05 | 330.771 | 38.39 | 305.99 |

Source: NC Solid Waste Management Annual Reports*reduce, reuse, recycling ** mulch composting

Weaverville Assessment:

Weaverville’s waste collection and disposal cost less than its waste reduction program in FY 2004-05 \$120.26 vs. \$208.35, respectively. However, on a per ton analysis, Weaverville’s waste collection and disposal programs (\$88.09) are less than the waste reduction programs combined. It is likely that with an increased participation in the recycling program, costs associated with waste reduction would decrease, and possibility the waste collection and disposal programs cost would decrease.

Woodfin Description:

Woodfin operates a municipal-run program for curbside collection and recycling. Because the program is curbside, per household costs were also determined. The town has 1,700 households that disposed of 1,581 tons of waste, and 171.4 tons of yard waste and brush in FY 2004-05. The town estimates recycling costs of the programs to include recycling, reuse, mulching, etc. Woodfin’s solid waste program costs are summarized for in Table 27. These totals are derived from the Solid Waste Management Annual Reports filed with the state.

Table 27. Woodfin Solid Waste Program Cost, FY 2000-01, 2002-03, 2003-04, and 2004-05

| | FY | PROGRAM COST IN THOUSANDS | COST PER TON | COST PER HOUSEHOLD |
|------------------|-------|---------------------------|-------------------|--------------------|
| Waste Collection | 00-01 | 124.54 | 89.71 | 108.29 |
| | 02-03 | N/A | N/A | N/A |
| | 03-04 | 141.550 | 84.58 | 94.36 |
| | 04-05 | 157.777 | 99.97 | 92.81 |
| Waste Disposal | 00-01 | 42.27 | 30.44 | 36.75 |
| | 02-03 | 50.000 | 32.63 | 43.48 |
| | 03-04 | 55.000 | 32.86 | 33.66 |
| | 04-05 | 50.257 | 31.78 | 29.56 |
| Waste Reduction | 00-01 | 35.61* 17.90** | 184.31* 75.83* | 30.97* 15.57** |
| | 02-03 | N/A | N/A | N/A |
| | 03-04 | 10.000** | 34.57** | 6.66** |
| | 04-05 | 15.777** | 92.04** | 9.28** |
| Total | 00-01 | 223.3 | 122.86 | 194.19 |
| | 02-03 | 177.639 | 91.10 | 154.47 |
| | 03-04 | 206.550 | 105.24 | 137.68 |
| | 04-05 | 223.811 | 223.61 | 92.04 |

Source: Woodfin Finance Department Records *reduce, reuse, recycle **mulch and composting

Woodfin Assessment:

Woodfins’s waste reduction program cost less than its waste collection and disposal program in FY 2004-05 \$92.04 vs. \$131.75, respectively. However, on a per ton analysis, Woodfin’s waste collection and disposal programs (\$39.71) are more than the waste reduction programs combined. It is likely that with an increased participation in the recycling program, costs associated with waste reduction would increase, and possibility the waste collection and disposal programs cost would decrease.

Description of Financing Methods:

Municipal Funding

Data were collected from Annual Solid Waste Management Reports. All the municipalities fund their solid waste efforts through taxes. Asheville supplements the financing of its recycling program with a separate recycling fee that is billed on residential water bills. Information is expected to become more accurate during the planning process as emphasis is placed on “true” or “full” cost accounting. The cost of brush and yard waste collection was included in the cost of waste reduction. The sharing of this information can help each municipality. One objective is to determine any cost savings possible through joint planning and coordination. It may also be possible to get a better price for contracted services if several municipalities were to contract together. Such options may be considered in the future Land-of-Sky Regional Council is available to help facilitate these options.

The current solid waste programs throughout the county are funded through property taxes, household charges, volume-based fees, grants (when available), sub title-D and construction/demolition tipping fees, and the sale of recyclables. The tire program is paid for through the tire tax levied by the state. The white goods tax distribution fully supports the white goods and metals recycling program. See Table 33 for a summary of current financing methods.

**Table 28. Solid Waste Financing Methods
Used by the Planning Area, FY 2000-01**

| | Total SWM Budget (in thousands) | Tip fee | Property Taxes - General Fund | Household Charges | Volume or Weight-based fees | Sale of recyclables | Grants | Tire & White Goods Tax |
|-----------------|---------------------------------|---------|-------------------------------|-------------------|-----------------------------|---------------------|--------|------------------------|
| Buncombe County | 2,639 | Yes | No | No | Yes | No | No | Yes |
| Asheville | 3,392 | No | Yes | Yes | No | No | No | No |
| Biltmore Forest | 126.47 | Yes | No | No | No | No | No | No |
| Black Mountain | 412.15 | No | Yes | No | No | No | No | No |
| Montreat | 47.044 | Yes | Yes | No | No | No | No | No |
| Weaverville | 253.05 | No | Yes | No | No | Yes | No | No |
| Woodfin | 223.32 | No | Yes | Yes | Yes | No | No | No |

Source: Finance Department records plus County and Municipal Solid Waste Management Annual Reports

Assessment of Financing Methods: The County’s current financing methods generate enough revenue for the current solid waste program plus a small annual reserve. As new services and facilities are added to the program, new sources of revenue will need to be found. Other revenue options include increasing construction and demolition tipping

fees, imposing a per bag fee system at the collection centers, and applying for one-time grant funds. Below is a description of each financing method.

Tipping fees: Both the Sub Title-D landfill and the construction and demolition landfill tipping fees are set to cover all costs of waste disposal and reduction programs incurred by the county. This rate is set at \$36 per ton (previously \$32 per ton) for both C&D and regular solid waste. A reduced tipping fee for separated, untreated wood and other suitable organic material is set at \$20 per ton if it can be used in the mulching program. This is the primary source of county funding and is set up in an enterprise fund. In their annual solid waste reports to the state, Biltmore Forest and Montreat have identified tipping fees as a source of funding for their solid waste programs.

General Fund: The County does not use general fund (property tax) money to finance solid waste activities. However, the towns of Asheville, Black Mountain, Montreat, Weaverville, and Woodfin have indicated using general funds to support programs in their annual solid waste reports.

Household Fee: The city of Asheville is the only government in the County that identified a household fee as a source of funding. A user fee is attached onto the residents' water bills at a rate of \$2.63 per month. This money is used only for the delivery of the curbside recycling services offered by the private contractor.

Volume or Weight-based Fees: Buncombe County government is the only entity within the county borders that uses a volume or weight-based fee. They charge \$1.00 per bag of waste for small volumes. All larger volumes are charged tipping fees based upon weight.

Grants: Both the county and the municipality solid waste departments try to utilize grants that would supplement and improve programs offered within the borders.

Tax Reimbursements: The County recognizes that the revenue received from state tax reimbursements will change in the future. Reinstatement of the white goods tax fund in FY 1998-99 was generally supported in the county. Tire and white goods tax support is currently used to support these respective programs. The County plans to take the fullest advantage possible of a proposed Electronics Advanced Recycling Fee (ARF) on cathode ray tubes should one be enacted.

Franchise Fees: Another possible source of funding is establishing a franchise fee for private haulers. The county has discussed a franchise fee to finance a diversion credit program for private haulers. Although haulers would have to pay an up-front annual cost to the county, they could receive some of that money back in the form of diversion credits if they start a recycling program.

Sale of Recyclables: The county recycling program is provided at no cost to the county and the county receives no revenues from the contractor.

In April of 1999, Buncombe County, along with other counties and municipalities in the region, participated in a regional evaluation of the total residential recyclables stream hosted by Land-of-Sky Regional Council. Using the recycling weights and other information reported to the state, a basic evaluation of the potential recycling revenues was created. Preliminary figures indicated, at the time, a potential revenue stream from the residential sector of \$303,655 at market prices for that period and in excess of \$400,000 under normal market conditions. If the commercial and industrial sector could be fully captured, revenues would have exceeded \$1,892,000 per year under normal market conditions.