Mecklenburg County Solid Waste Management Plan 2012-2022

"Create recycling infrastructure for no wasted resources in our County"

Effective July 1, 2012

Prepared by:
HDR Engineering Inc. of the Carolinas
440 S. Church St. Suite 1000
Charlotte, NC 28202

Prepared for:
Mecklenburg County
Land Use and Environmental Services Agency
700 N. Tryon Street
Charlotte, NC 28202

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EXECUTIVE SUMMARY

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EXECUTIVE SUMMARY

The state of North Carolina began requiring counties to develop and submit a ten-year solid waste management plan (SWMP) in 1997, and requires that the plan is updated every three years. The intent is to evaluate the waste stream, develop waste reduction goals, and guide future planning decisions. The reduction goals are expressed as a percent reduction in per capita tons disposed compared to a base year. For Mecklenburg County (County), the base year is Fiscal Year 1998/99. This 2012 Mecklenburg County Ten-Year Solid Waste Management Plan (Plan) represents the fifth update to the Plan, and encompasses eight local governments: Mecklenburg County; the City of Charlotte; and the Towns of Cornelius, Davidson, Huntersville, Mint Hill, Matthews, and Pineville.

ES.1 RESULTS OF THE PLAN UPDATE

The planning efforts for this update have led to aggressive, but realistic, goals for waste reduction in the County by using an approach to first identify viable options for the planning area by reaching out to stakeholders at the beginning and throughout the planning process and then estimating waste reduction potential of each. The reduction goals are established for the short term, defined as 2013 through 2017, and the long term, defined as 2018 through 2022. As shown in Figure ES-1, the short-term reduction goal is to reach 1.01 per capita tons disposed, which represents a 49% reduction compared to the base year. The long-term reduction goal is to reach 0.82 per capita tons disposed, which represents a 58% reduction compared to the base year.

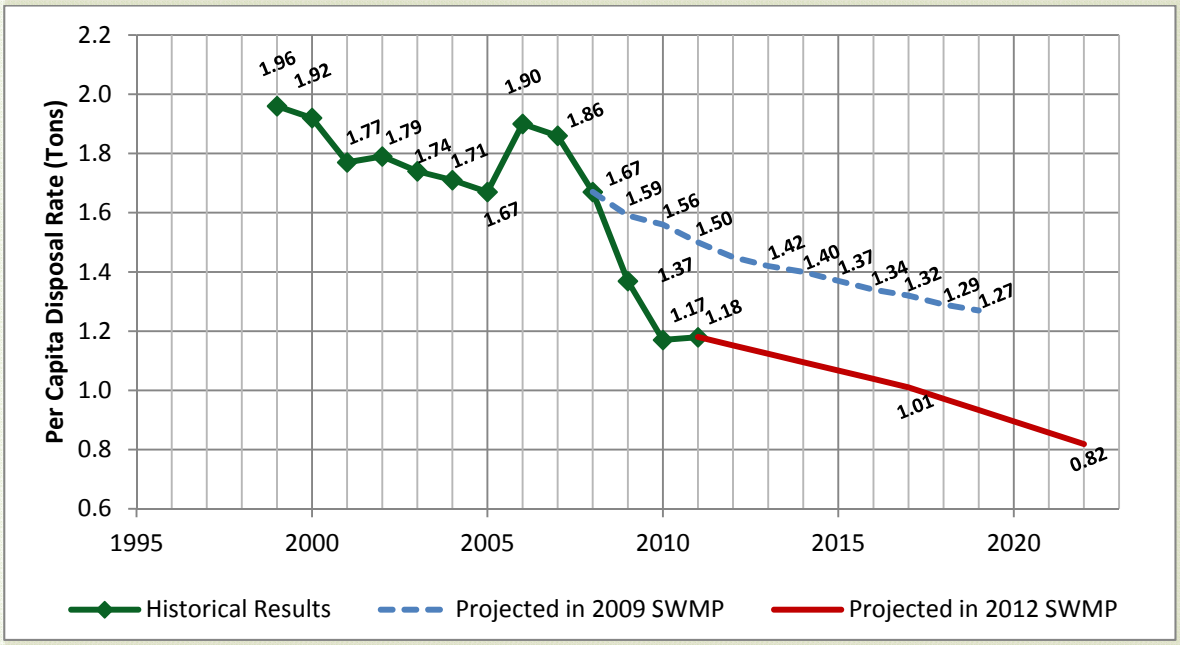


Figure ES.1 Actual and Projected Per Capita Disposal

ES.1.1 OVERALL WASTE REDUCTION GOALS

While it is impressive that the County has currently reached a 40% rate reduction from the baseline year in FY 2010/2011, it is undeniable that the economy has had a hand in the waste reduction level achieved. Through a combination of strategies across the residential, commercial, and C&D generator sectors, even with an increasing population and a recovering economy returning generation to pre-recession levels, the County can reach high waste reduction goals. Table ES.1 displays the overall or total waste reduction goals for this planning period, for the short term and long term.

Table ES.1 Overall Waste Reduction Short-Term and Long-Term Goals

	Baseline FY98/99*	Current FY10/11*	Short-Term Plan Year FY16/17	Long-Term Plan Year FY21/22
Population	618,853	923,944	1,027,829	1,114,398
Disposal tons if NO new programs	1,214,764	1,089,624	1,356,734	1,471,005
Disposal tons with PROPOSED short-term programs	N/A	N/A	1,034,619	1,121,760
Disposal tons with PROPOSED short-term and long-term programs	N/A	N/A	N/A	912,332
Proposed rate tons/person/year	1.96	1.18	1.01	0.82
Rate reduction % of baseline year	N/A	40%	49%	58%
Proposed tons diverted from disposal	N/A	N/A	322,115	558,673

* Actual, not proposed or forecasted. N/A = not applicable

Figure ES.2 shows the effect of combined strategies on overall tonnage in the short and long term as compared to the baseline year and the current year.

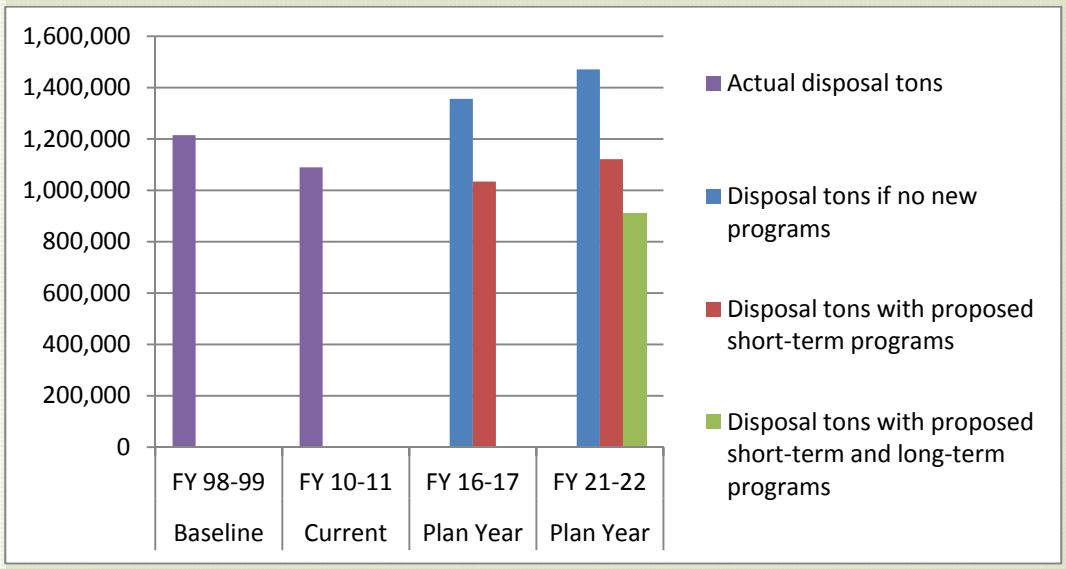


Figure ES.2 Impact of Combined Waste Reduction Strategies on Overall Tonnage

ES.1.2 RESIDENTIAL WASTE REDUCTION GOALS

Table ES.2 displays the residential waste reduction goals, which were developed based on estimated diversion from the recommended strategies. Considering that there was already a countywide residential recycling program in place in the baseline year, the short-term waste reduction goal of 16% and long-term waste reduction goal of 35% are aggressive, but realistic.

Table ES.2 Residential Waste Reduction Short-Term and Long-Term Goals

	Baseline FY98/99*	Current FY10/11*	Short-Term Plan Year FY16/17	Long-Term Plan Year FY21/22
Population	618,853	923,944	1,027,829	1,114,398
Disposal tons if NO new programs	258,558	380,882	474,857	514,852
Disposal tons with PROPOSED short-term programs	N/A	N/A	364,342	395,029
Disposal tons with PROPOSED short-term and long-term programs	N/A	N/A	N/A	304,875
Proposed rate tons/person/year	0.42	0.41	0.35	0.27
Rate reduction % of baseline year	N/A	2%	16%	35%
Proposed tons diverted from disposal	N/A	N/A	110,515	209,977

* Actual, not proposed or forecasted. N/A = not applicable

Chapter 3, Source Reduction, Chapter 4, Recycling, and Chapter 5, Organics, each discuss in more detail the recommended residential strategies that are estimated to lead to the waste reduction shown in Table ES.2.

Some of the key strategies recommended for the residential sector include:

- **Support the state ban of items from landfills by instituting a disposal ban on generators, prohibiting the placement of banned items in garbage containers.**
- **Implement volume-based pay for residential garbage collection.**
- **Implement an incentive program for recycling.**
- **Require that recycling be provided at all multifamily complexes.**
- **Expand education and outreach, including working with neighborhood associations.**
- **Implement mandatory recycling participation for single family and multifamily residents.**
- **Implement food scraps collection and diversion.**

ES.1.3 COMMERCIAL WASTE REDUCTION GOALS

Table ES.3 displays the commercial waste reduction goals which were developed based on estimated diversion from the recommended strategies. Although the waste reduction goal for the short term (46%) is actually lower than the current year (47%), the anticipated economic recovery will lead to increased business waste generation, which combined with the open system of commercial collection, makes these goals reasonable due to expected tonnage increases and lack of municipal control of the waste stream.

Table ES.3 Commercial Waste Reduction Short-Term and Long-Term Goals

	Baseline FY98/99*	Current FY10/11*	Short-Term Plan Year FY16/17	Long-Term Plan Year FY21/22
Population	618,853	923,944	1,027,829	1,114,398
Disposal tons if NO new programs	641,072	513,081	637,665	691,373
Disposal tons with PROPOSED short-term programs	N/A	N/A	575,376	623,837
Disposal tons with PROPOSED short-term and long-term programs	N/A	N/A	N/A	512,888
Proposed rate tons/person/year	1.04	0.56	0.56	0.46
Rate reduction % of baseline year	N/A	47%	46%	56%
Proposed tons diverted from disposal	N/A	N/A	62,289	178,485

* Actual, not proposed or forecasted. N/A = not applicable

Chapter 3, Source Reduction, Chapter 4, Recycling, and Chapter 5, Organics, each discuss in more detail the recommended commercial sector strategies that are estimated to lead to the waste reduction shown in Table ES.3.

Some of the key strategies recommended for the commercial sector include:

- **Expand the mandatory recycling ordinance by lowering the current threshold and adding recyclable materials.**
- **Expand education and outreach.**
- **Add organics to the mandatory recycling ordinance.**
- **Place recycling containers everywhere there are public trash containers.**

ES.1.4 CONSTRUCTION AND DEMOLITION DEBRIS REDUCTION GOALS

Table ES.4 displays the C&D waste reduction goals, which were developed based on estimated diversion from the recommended strategies. Because of the recommended aggressive approach of mandating recycling of C&D material, it is anticipated that this sector will see the greatest rate reduction percentage of the baseline year, from 58% in the current FY 2010/2011 to over 80% in the short term and long term.

Table ES.4 C&D Waste Reduction Short-Term and Long-Term Goals

	Baseline FY98/99*	Current FY10/11*	Short-Term Plan Year FY16/17	Long-Term Plan Year FY21/22
Population	618,853	923,944	1,027,829	1,114,398
Disposal tons if NO new programs	315,134	195,661	244,212	264,781
Disposal tons with PROPOSED short-term programs	N/A	N/A	94,901	102,894
Disposal tons with PROPOSED short-term and long-term programs	N/A	N/A	N/A	94,570
Proposed rate tons/person/year	0.51	0.21	0.09	0.08
Rate reduction % of baseline year	N/A	58%	82%	83%
Proposed tons diverted from disposal	N/A	N/A	149,311	170,211

* Actual, not proposed or forecasted. N/A = not applicable

Chapter 6, Construction and Demolition Debris, discusses in more detail the C&D diversion strategies that are estimated to lead to the waste reduction shown in Table ES.4.

Two of the key strategies recommended for the C&D sector include:

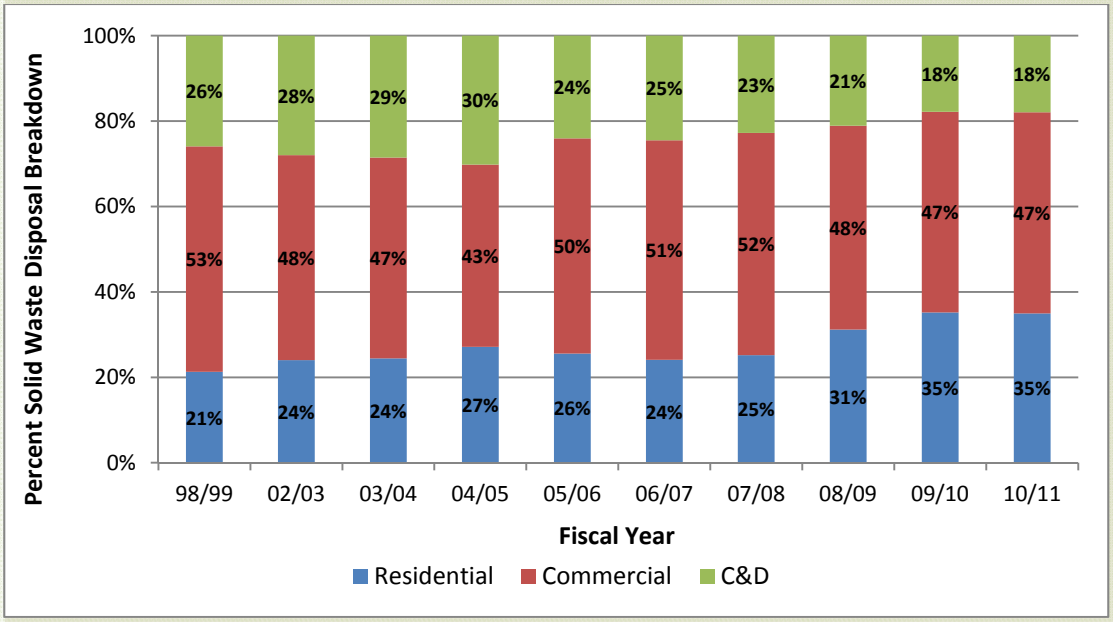
- **Implement a mandatory C&D recycling ordinance.**
- **Expand education, outreach, and enforcement.**

ES.2 PLANNING AREA DESCRIPTION

The County continues to experience rapid growth in population; the population is expected to grow nearly 18% through this ten-year planning period. The County is projected to have a population of 941,259 at the beginning of the ten-year plan period (July 2012) and 1,114,398 at the end of the planning period (July 2022).

For Plan development purposes, there are three generator sectors of discarded materials in Mecklenburg County: commercial, residential, and construction and demolition debris (C&D). As shown in Figure ES-3, the historical breakdown of disposed materials shows that the commercial sector is consistently the largest generator, while residential and C&D sectors compete for

second place each year. In FY2010/11, a total of 1,089,624 tons made up of 513,081 commercial tons, 380,882 residential tons, and 195,661 C&D tons, were disposed.



*Source: NCDENR Solid Waste and Materials Management Annual Reports

Figure ES.3 Material Disposal Breakdown by Generator

ES.3 PLANNING PROCESS AND PUBLIC PARTICIPATION

While the overall planning direction remained the same, this update presented an opportunity for the County and the municipalities to step back and take an objective look at the system and envision the possibilities for the future by reaching out to stakeholders in the County prior to writing the Plan. Outreach efforts included a Steering Committee, which met once a month during the planning process. A diverse group of constituents were represented on the Steering Committee, all of whom contributed to the success of the Plan development.

Photo ES.1 Steering Committee Meeting

A three-day charrette with sixteen different sessions, covering a variety of topics, was held in late January. The charrette was open to the public and very well attended. The input received throughout the charrette was instrumental in shaping the strategies included in this Plan.

Photo ES.2 Charrette Workshop

Social media employed for the planning process included a dedicated SWMP page on the County's www.wipeoutwaste.com site, as well as a Facebook page. This allowed the County to post questions and statements, and receive feedback from the social media world. There are 19 friends on the SWMP page and 119 friends on the Mecklenburg Recycles page.

ES.4 ORGANIZATION OF THE PLAN DOCUMENT

Chapter 1 of the Plan provides an overview of the planning purpose, history, process, planning area description, and waste stream data used for analysis. Chapter 2 of the Plan provides an overview of the discarded material stream analysis, aspirational goals, per capita reduction goals, and environmental impacts of the per capita reduction goals. Because the state requires that certain elements are addressed in the Plan, the remaining chapters are organized by the following topics. Each of these chapters details the existing and potential new policies, programs, and infrastructure, and provides recommendations for future strategies, for each topic.

- Chapter 3: Source Reduction
- Chapter 4: Recycling
- Chapter 5: Organics
- Chapter 8: Litter
- Chapter 6: C&D
- Chapter 7: MSW
- Chapter 9: Regulatory Activities
- Chapter 10: Financing
- Chapter 11: Disaster Debris

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Chapter 1

INTRODUCTION

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Chapter 1 INTRODUCTION

The Mecklenburg County 2012 Solid Waste Management Plan is the ten-year plan for eight local governments: Mecklenburg County (County), the City of Charlotte, and the Towns of Cornelius, Davidson, Huntersville, Mint Hill, Matthews, and Pineville. These jurisdictions form the Planning Area. Throughout this document, the terms 2012 Plan, Plan Update, Mecklenburg County Plan, and Ten-Year Plan refer to the 2012 Solid Waste Management Plan for these governmental entities, unless otherwise stated.

Through the efforts of the citizens, businesses, and municipalities in Mecklenburg County, the County is a leader in waste reduction and recycling. The County and the municipalities have initiated many innovative and nationally recognized programs for diverting materials from landfills, including:

- Single family and multifamily residential curbside recycling (adding new materials including aerosol cans, aseptic containers, juice boxes and milk cartons, plastics #1-5 and #7)
- Single family residential yard trimmings collection
- Single family and multifamily bulky item collection
- More than 120 commercial drop-off recycling centers
- Electronics recycling at fully staffed County drop-off centers
- Household hazardous waste (HHW) collection at fully staffed County drop-off centers
- Home composting workshops
- Construction and demolition debris (C&D) recycling
- Mandatory commercial recycling
- Commercial technical assistance
- Food scraps diversion alternatives research

All of the municipalities provide residential waste services to their citizens either by self-performing collection or by contracting with private waste management companies.

This Plan seeks to take waste reduction and recycling to the next level to achieve the County goals of maximizing waste prevention, recycling, and composting and minimizing waste to landfills. In order to promote the notion that waste is not waste until it is wasted, certain state-defined terms have been modified in this Plan, where the term could be modified without losing the intent of the discussion. These terms are described in the Glossary of Terms (e.g., yard trimmings instead of yard trash or yard waste; food scraps instead of food waste; discarded materials or materials instead of waste).

1.1 PLANNING PURPOSE

The 2012 Plan establishes the goals and recommends policies, programs, and infrastructure for the handling of materials that would otherwise become solid waste in a manner that meets local needs and is consistent with state solid waste management priorities. The Solid Waste Management Act of 1989 (North Carolina General Statute 130A) requires the preparation of a comprehensive solid waste management plan. The initial ten-year plan was submitted on June 30, 1997. Mandatory Plan revisions are due every three (3) years thereafter. This Plan is the fifth such update prepared in conformance with the statute.

Long-range planning is essential for achieving a cost-effective environmentally sound discarded materials management system. To this end, the Plan is a publicly endorsed working document that facilitates a cooperative management effort between participating governments, keeps control of discarded materials with local governments, and provides a framework for budget preparation and infrastructure planning by anticipating future needs. Direction for both short-term and long-term management of the solid waste (discarded materials) system is set by the Plan. It documents the existing conditions of the materials handling systems, identifies opportunities to address system needs, and makes recommendations for future policies, programs, and infrastructure to accomplish the goals. The seven municipalities and Mecklenburg County cooperate to achieve the goals of the adopted Plan through the development and implementation of local programs and services, which are consistent with the Plan and state law.

While the overall planning direction remained the same, this update presented an opportunity for the County and the municipalities to step back and take an objective look at our system and envision the possibilities for the future by reaching out to stakeholders in the County prior to writing the Plan. This approach allowed us to create a very different document. In addition to meeting the legal requirement for a solid waste plan, this Plan will serve as a comprehensive resource document reflecting the needs and aspirational goals of Mecklenburg County and its constituents.

This Plan Update has considered the vision and goals of the communities in Mecklenburg County; the needs of the customers of Mecklenburg County; what policies, programs, and infrastructure Mecklenburg County can affect; the environmental and economic impacts of materials management. The purpose of this update is to provide clear goals and objectives for materials management for the ten-year planning cycle, provide a path toward implementation of those goals, and provide for flexibility in meeting those goals.

1.2 PLANNING HISTORY

In 1984, Mecklenburg County assumed responsibility for the disposal of all municipal solid waste in the County by signing an interlocal agreement with the City of Charlotte, which recognized that waste management could be more effective if under the control of a single governmental body. This agreement also allowed the County to respond more effectively to a state law authorizing the NC Department of Human Resources, Division of Health Services, Environmental Health Section, Solid and Hazardous Waste Management Branch to establish a statewide solid waste management program. Today, that responsibility belongs to the NC Department of Environment and Natural Resources (NCDENR).

Subsequently, the Mecklenburg Board of County Commissioners (BOCC) instructed County staff to develop a comprehensive solid waste management plan. In 1986, the BOCC established a goal to recycle 30% of the materials generated by 2006. Subsequent plans made adjustments for changing information and circumstances.

The Solid Waste Management Act of 1989 (North Carolina General Statute 130A) formalized this planning process by requiring the preparation of comprehensive solid waste management plans and outlining plan content. Mecklenburg County and its partners, the City of Charlotte and Towns of Cornelius, Davidson, Huntersville, Mint Hill, and Pineville, have delivered a Plan in June of 2000, 2003, 2006, and 2009. The Town of Matthews joined the planning group in July 2008 and was represented in the 2009 Plan. Prior to 2009, the Town of Matthews submitted its own plan.

Historically, Mecklenburg County's plans have proven to be more than a document that sits on a shelf. For example, the 2009 Plan recommended single stream recycling and, in 2010, Mecklenburg County invested $7.3 million in equipment to convert the materials recovery facility (MRF) to single stream processing. The 2000 Plan recommended addressing mandatory business recycling and, in 2002, Mecklenburg County passed its own regulatory policy addressing business recycling with the implementation of the *Mecklenburg County Ordinance to Require the Source Separation of Designated Materials from the Municipal Solid Waste Stream for the Purpose of Participation in a Recycling Program*, commonly referred to as the source separation ordinance (SSO). With a proven track-record, the County looks forward to continuing the tradition of avoiding dust on the Plan.

Figure 1.1 SWMP Logo

1.3 THE PLANNING PROCESS AND PUBLIC PARTICIPATION

For the first time in the County's Plan development process, an outside consultant was retained to assist the County in Plan development and to provide a broader perspective on waste reduction possibilities and a greater engagement of the public in developing the Plan. The scope of the effort included extensive communication and outreach. Outreach efforts included facilitation of a steering committee, social media updates via Facebook, and orchestration of a multiday charrette, all of which were used to elicit feedback throughout the planning process.

1.3.1 STEERING COMMITTEE

One of the first tasks undertaken in this Plan update was to establish a steering committee in order to engage the stakeholders of the Plan throughout the planning process. The 2012 Solid Waste Management Plan Steering Committee (Steering Committee) was made up of various stakeholders in the Planning Area, including a representative from each of the municipalities in the Planning Area, as well as members of the Waste Management Advisory Board (WMAB),

County Land Use & Environmental Services Agency (LUESA) and public information staff, University of North Carolina Charlotte, the Charlotte Chamber of Commerce, the Charlotte Mecklenburg School District (CMS), and others with an interest in materials management in the Planning Area. During the Steering Committee kick-off meeting (November 3, 2011), it was determined by the group that monthly meetings would be most beneficial, with additional contact via e-mail. For each of the meetings, an agenda was provided prior to the meeting, and meeting notes were distributed after the meeting. The Mecklenburg County Solid Waste Department, the City of Charlotte Solid Waste Services Department, and the Town of Matthews Solid Waste Department served as host for these meetings.

The following summarizes the Plan development and submittal process.

- Steering Committee Kick-off Meeting (November 3, 2011)
- Steering Committee Meeting 2 (December 1, 2012)
- Steering Committee Meeting 3 (January 5, 2012)
- Draft Plan reviews for historical and current information by County solid waste managers and municipalities (January 11 through January 31, 2012)
- Charrette (January 26 through January 28, 2012)
- Steering Committee Meeting 4 (January 31, 2012)
- Steering Committee Meeting 5 (February 9, 2012)
- Presentation of preliminary results to WMAB (February 21, 2012)
- Presentation of preliminary results to Matthews Environmental Advisory Committee (by Ollie Frasier on March 6, 2012)
- Draft Plan reviews for entire Plan (February 20 through March 12, 2012)
- Steering Committee Meeting 6 including County staff (March 15, 2012)
- Final Plan submitted to County Solid Waste Department (March 30, 2012)
- Final Plan delivered to WMAB and available for public review (April 9, 2012)
- Seek WMAB Approval (April 17, 2012)
- Public meetings (April 17-18, 2012)
- Seek Mecklenburg County Board of Commissioner's approval (May 1, 2012)
- Seek municipalities adoption (May and June 2012)
- Submit to NCDENR (June 29, 2012)

The first three Steering Committee meetings focused on general concepts for the Plan, feedback on outreach efforts and media design, and preparation for the charrette. The Steering Committee was invited to participate in a pre-charrette survey as another means of providing feedback and shaping the charrette sessions discussed in more detail in Section 1.3.3. The fourth and fifth Steering Committee meetings focused on translating the information obtained through the charrette process into viable strategies for the Plan. The sixth and final meeting occurred after the Steering Committee reviewed a draft of the Plan, and focused on feedback for finalizing the Plan.

1.3.2 SOCIAL MEDIA

In an effort to keep up with the times, the County employed social media in the planning process. The County created a dedicated Solid Waste Management Plan (SWMP) page on the www.wipeoutwaste.com site, and updated the site often with relevant studies and other background information. The County also created a Facebook page dedicated to the Plan. This

allowed the County to post questions and statements, and receive feedback from the social media world. There are 119 friends on the Mecklenburg Recycles page and 19 friends on the SWMP page.

1.3.3 CHARRETTE

A charrette is a public participatory process first used by design professionals to reach community consensus around a shared vision for urban planning and community development. Charrette is a French word for little cart and refers to the intense work of 19th century architecture students to finalize their drawings, which were carried away in little carts by their proctors.

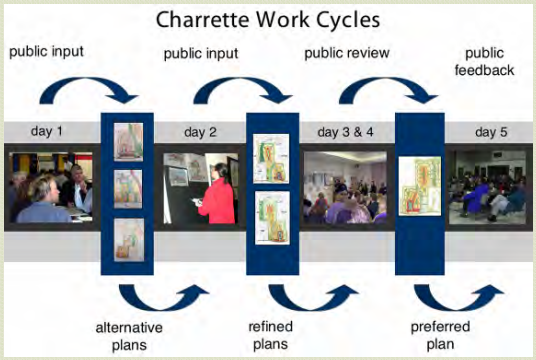


Figure 1.2 Charrette Work Cycles

The most successful charrettes are intense, multiday events, carefully managed by the multidisciplinary charrette team, which works with the community members to transform rough concepts into a detailed plan.

In order to obtain input from a broad selection of stakeholders, the County decided to focus stakeholder involvement and policy development through a charrette process. The same process can be achieved through a series of workshops, but these take more calendar time, the immediacy of the results are lost, and interest in the process can wane over time.

Photo 1.1 Charrette Workshop

To begin the charrette planning process, a pre-charrette survey was administered using "SurveyMonkey", an online survey tool. The Steering Committee and County LUESA staff was invited to participate in the survey. The survey asked respondents to describe their view for opportunities and challenges in the planning process. Respondents were also asked to rank potential strategies. This feedback helped shape the sessions for the charrette: an opening session meeting on a Thursday evening, and two series of hour and a half long sessions throughout the day on Friday and again on Saturday. The Friday sessions were geared toward the commercial, institutional, and C&D sectors, and the Saturday sessions were geared toward the residential sector.

Photo 1.2 Charrette Workshop

Outreach for the charrette included social media outlets and e-mail blasts along with traditional means such as banners at the County recycling centers, newspaper ads, radio ads, and flyers at public libraries.

Attendance at the charrette was as follows:

- Thursday, January 26, 2012 (opening session):
  - 35 people registered online
  - 34 signed in (36 counted in session)
- Friday, January 27, 2012:
  - 115 registered
  - 143 signed in (28 new registrants)
- Saturday, January 2, 2012:
  - 63 registered
  - 99 signed in (36 new registrants)

Table 1.1 outlines the topics covered in the charrette.

Table 1.1 Charrette Sessions

Friday		**Saturday**	
Series 1	**Series 2**	**Series 1**	**Series 2**
Extended Producer Responsibility	C&D Recycling	Mandatory Residential Recycling – Single Family	Mandatory Residential Recycling – Multifamily
Expand Mandatory Business Recycling Ordinance	Special Event Recycling	Food Scraps and Other Organics Composting – Residential (Single Family and Multifamily)	Alternative Disposal / Mixed Waste Processing Technologies
Food Scraps and Other Organics – Commercial and Institutional		Zero Waste	Residential Yard Trimmings
Alternative Disposal / Mixed Waste Processing Technologies		Goal Setting	

The charrette agenda and opening session presentation are included in Appendix I. The outcome of the charrette sessions are described in Chapter 2 (Goals), Section 2.3 (Refining Waste Reduction Goals).

1.4 PLANNING AREA DESCRIPTION

1.4.1 PHYSICAL ENVIRONMENT

Located in the Piedmont region of the Carolinas, Mecklenburg County is approximately two hours east of the Appalachian Mountains and three hours west of the Atlantic Ocean, by automobile. It is in the south central section of the state and bounded by Gaston, Lincoln, Iredell, Cabarrus, and Union counties and the state of South Carolina. Parts of Mecklenburg County are in the Catawba River Basin and parts are in the Yadkin-Pee Dee River Basin. The present land area is 526.28 square miles.

The County is characterized by low-lying rounded hills and gentle rolling slopes. Steeper slopes are located near and along drainage ways. The highest point of the County is Cornelius, in the northernmost part of the County, at more than 830 feet above sea level. The County has a moderate climate with fairly mild winters, rare snowfall, and about half of the days above freezing. Summers have an average temperature of about 76 degrees F. Rain falls fairly evenly year-round with summer having the heaviest amounts. The temperate climate of Mecklenburg County lends itself to year-round generation of yard trimmings.

Charlotte

The city of Charlotte (City) is the largest incorporated area in the County, and is the largest city in North Carolina. With Bank of America headquartered in Charlotte, the City has become the second largest banking center in the United States. Charlotte is home of the Carolina Panthers of the National Football League, the Charlotte Bobcats of the National Basketball Association, the NASCAR Hall of Fame, and the U.S. National Whitewater Center.

Cornelius

The town of Cornelius, the second youngest of Mecklenburg County's six incorporated towns, was founded in 1893, but not incorporated until March 4, 1905. The town's origin has been traced by many historians to a dispute over cotton weighing. The damming of the Catawba River to create Lake Norman was as influential as the cotton industry to the town's development and growth. In 1963, Duke Power created Lake Norman and provided the area with recreational opportunities and a source of hydroelectric power. The formation of Lake Norman also provided the area with choice lakeside property. The town of Cornelius is approximately 15 square miles and has 520 miles of shoreline.

Davidson

Originally incorporated as Davidson College in 1879, the town was renamed as Davidson in 1891. Located 20 miles north of Charlotte, Davidson is a small college town with engaged and active citizens who care deeply about their community. Main street has shops, wide sidewalks, a community library, and flowers everywhere. Davidson is built for pedestrians and bike riders, not for the car.

Huntersville

Huntersville, the first Lake Norman town north of Charlotte, was renamed from Craighead to Huntersville in honor of landowner and cotton farmer Robert Boston Hunter. The town

incorporated in 1873, and fertile land and a rail line promoted quick growth. A cotton mill, Virgin Manufacturing Company, and a brickyard that supplied bricks for many homes in older sections of town were thriving businesses. Even before Huntersville was established as a municipality and named for one of its founding fathers, steam engines carried passengers on rails that still run parallel to N.C. 115. Farmers grew cotton on their large plantations and prominent schools attracted families from near and far. In later years, textile mills brought more jobs and residents to the area. As the town grew larger, so too did its business community. The Virgin Manufacturing Company encouraged the development of Huntersville's mill town on the east side of the railroad tracks.

Matthews

The town of Matthews incorporated in 1879 with 191 residents. The Central Carolina Railroad, later known as the Seaboard Air Line Railroad, ran spur tracks off their main Wilmington-Tennessee line through the small town. The first train rolled into town on December 15, 1874. The railroad named the stop Matthews in honor of Edward Watson Matthews, a director in the company.

Through the years Matthews' population has grown to 28,000 citizens. In 1996, the National Register of Historic Places listed 10 downtown buildings in Matthews. Known as the Matthews Commercial District, they comprise a small, but remarkably intact collection of structures dating from the late 19th to the early 20th century. The town is the headquarters of Family Dollar and Harris Teeter as well as many other successful businesses.

The town is recognized for its giving spirit including the Matthews Alive Festival. Each year nonprofit volunteers work to host the four day Labor Day weekend event. Proceeds from the event are then returned to the nonprofit organizations who host the event. Other popular events include Beach Fest, the Summer Movie and Concert Series, and Earth Day.

Mint Hill

Incorporated March 11, 1971, with a population of 2,284, the town of Mint Hill has enjoyed a steady growth to its current population of approximately 22,000.

Following tradition established when the Mint Hill community was first settled in 1750, the town has tremendous community spirit and pride. Within the town are many churches, schools, and recreational facilities including private and public golf courses and country clubs. Primarily a residential community, the business district has shown intensified development in recent years with approximately 285 businesses and professional services available.

Mint Hill and Idlewild Volunteer Fire Departments provide the community with fire protection and paramedic emergency ambulance service. These departments are rated among the highest in the state.

Pineville

The town of Pineville has approximately 7,500 residents. The town was formed along the junction of two important Native American trails near Big and Little Sugar Creek over 250 years ago. Among the first settlers here, James K. Polk was born in 1795 and became the 11th president of the United States. In 1852, the town was named Pineville after the large and

beautiful pine trees that grew around the community. In 1973, Pineville became an incorporated municipality. Con Mills developed from an industrial plant built in 1890 into a thriving mill that has played a major role in the developing economy. Today Pineville is a busy, bustling suburb of Charlotte.

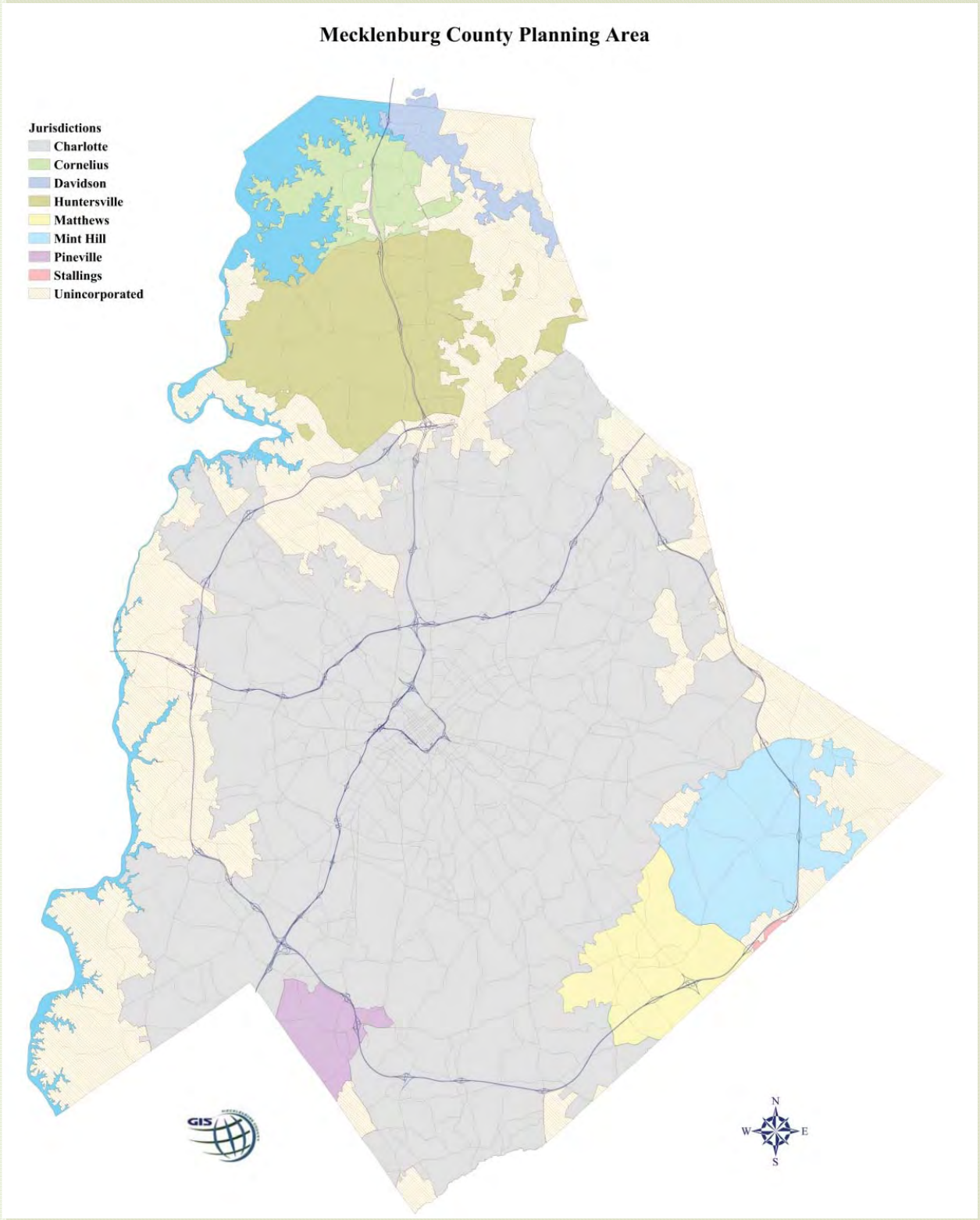


Figure 1.3 Mecklenburg County and Its Municipalities

1.4.2 HUMAN ENVIRONMENT

1.4.2.1 Population

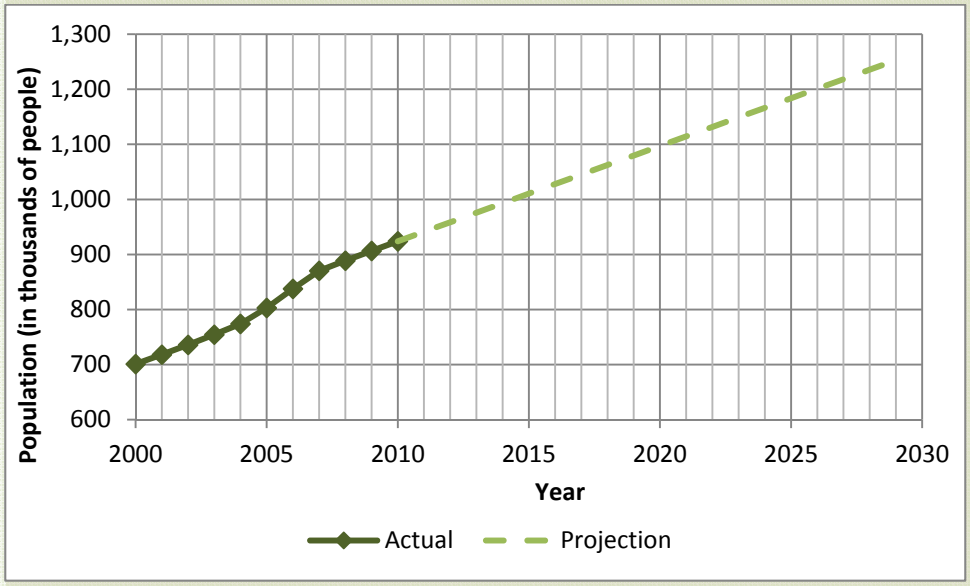
The County continues to experience rapid growth in population; the population is expected to grow nearly 18% through this ten-year planning period. Growth in the past has been most rapid in the south and southeast areas of the County. As these areas are now highly developed, growth is accelerating in the northern and eastern portions of the County. The County is projected to have a population of 941,259 at the beginning of the ten-year plan period (July 2012) and 1,114,398 at the end of the planning period (July 2022). Table 1.2 presents a breakdown of County population by municipality, as reported in the NC Office of State Budget and Management, State Demographics Center (December 2011).

As of July 2010, Mecklenburg County had a population of 923,944 people living within the County limits; making it the most populated and most densely populated County in North Carolina. The Unincorporated Mecklenburg total population shown in Table 1.2 includes the parts of the municipalities of Stallings (population of 401) and Weddington (population of seven) that lie within Mecklenburg County, although these municipalities are not participating in this Plan Update.

Table 1.2 Population in July of 2010

Municipality	Population
Charlotte	734,873
Cornelius	24,984
Davidson(Part)	10,693
Huntersville	46,994
Matthews	27,326
Mint Hill(Part)	22,777
Pineville	7,513
Unincorporated Mecklenburg	48,784
Total in Mecklenburg County	**923,944**

Source: NC Office of State Budget and Management, State Demographics Center (December 2011). The population reported for the portions of Stallings and Weddington that lie within Mecklenburg County are included in the Unincorporated Mecklenburg population.



Source: NC Office of State Budget and Management, State Demographics Center (December 2011).

Figure 1.4 Historical and Projected Population of Mecklenburg County

Table 1.3 presents the number of residential units by type and jurisdiction within Mecklenburg County, as of January 2011. It should be noted that the number of residential units shown in Table 1.3 are as reported by the Mecklenburg County Tax Assessors office for January 2011. In subsequent chapters, unit counts are as reported by municipalities and represent the number of customers for the respective service, which may be slightly different than reported below.

Table 1.3 Number of Residential Units by Type, 2011

Jurisdiction	Single Family Units	Multifamily Units	Total
Charlotte	183,008	139,116	322,124
Unincorporated	17,011	2,417	19,428
Huntersville	15,781	2,870	18,651
Cornelius	7,363	4,572	11,935
Matthews	7,984	2,359	10,343
Mint Hill	7,598	1,030	8,628
Davidson	2,412	1,600	4,012
Pineville	871	2,957	3,828
Total	**242,028**	**156,921**	**398,949**

Source: Mecklenburg County Tax Assessors Office, January 2011. Stallings has 98 single family homes that lie within Mecklenburg County, which are included in the unincorporated single family count.

All of the municipalities provide residential collection services to their citizens either by self-performing collection or by contracting with private collection companies. However, residential collection differs among communities in that some of the municipalities provide a portion of multifamily households with curbside service (counted as residential generators). Materials collected from multifamily generators outside the city/town curbside service are considered commercial because it is collected by commercial haulers and commingled in a manner that makes it indistinguishable from materials collected from businesses. In the unincorporated areas, residents must individually contract for collection with private haulers. All County residents may take their discarded materials to one of the County drop-off centers. The County operates four full-service drop-off centers which accept residential solid waste, residential and commercial recyclables, and household hazardous waste. The County also operates nine self-service drop-off centers that accept recyclables only.

Commercial businesses privately contract with commercial haulers for collection services. The County drop-off centers also accept a limited list of recyclable materials from commercial businesses. In addition to the County drop-off centers, there are more than 120 commercial recycling drop-off centers, each consisting of an 8-cubic yard container which is collected monthly.

1.4.2.2 Employment

The major industries of Mecklenburg County are banking, utilities, manufacturing, and professional service, especially those supporting banking and medicine. Mecklenburg County is home to seven Fortune 500 companies, including ninth-ranked Bank of America and Duke Energy (headquartered in Charlotte). With the economic downturn beginning in 2008, challenges facing the nation have also faced by the County. Prior to 2008, North Carolina and the County experienced a steady increase in generation of discarded materials, but during the economic downturn, generation decreased. Generation began to increase again in 2011. The unemployment rate in the County as of December 2011 was 9.9%, down from a high of 12% in February 2010.

1.5 FEDERAL, STATE, AND LOCAL RULES AND REGULATIONS

There are a large number of federal, state, and local rules, regulations, statutes, codes, ordinances, and policies governing how waste materials are to be managed. In general, the federal laws are incorporated into state statutes and the North Carolina Administrative Code (NCAC), comprising Title 15A NCAC 13B, North Carolina Solid Waste Management Rules, which is the primary state regulation governing Mecklenburg County materials management practices. These regulations, in general, address requirements for various types of solid waste facilities. Local rules and regulations include the County's responsibility to monitor and inspect facilities in the County, as well as enforcing the SSO, and citing dumping violations. Municipalities within the County also have code enforcement responsibilities. These regulations are discussed in more detail in Chapter 9, Regulatory Activities.

1.5.1 NEW STATE REQUIREMENTS

For the 2012 Plan Update, the state of North Carolina, in response to recent legislation, has added two additional planning requirements.

- **Collection of Discarded Computer Equipment and Televisions** - Describes plans or actions taken, or to be taken, to ensure proper handling and disposal of electronics as defined in G.S. 130A-309.91. (Effective Jan. 1, 2010, for counties and municipalities with population greater than 25,000.)
- **Management of Abandoned Manufactured Homes** - Describes plans for management of abandoned manufactured homes as required under G.S. 130A-309.113(a). (Effective July. 1, 2009, and expiring October 1, 2023.)

Some additional rules that have a direct impact on the Planning Area are listed below and described in more detail in Chapter 9, Regulatory Activities.

- Session Law 2005-362: *An Act to Prohibit the Disposal of Motor Vehicle Oil Filters, Rigid Plastic Containers, Wooden Pallets (except in construction & demolition landfills), and Oyster Shells in Landfills*, effective October 1, 2009.
- Session Law 2007-550: This law contains several major provisions that will ultimately have an impact on commercial waste reduction.
- A mandate for NCDENR to conduct a study and make recommendations on the recycling of fluorescent bulbs.
- Alcoholic Beverage Container (ABC) Recycling Laws:
    - Session Law 2005-348: An Act to Require Holders of Certain ABC Permits to Recycle all Recyclable Containers of all Beverages Sold at Retail on the Premises and to Prohibit the Disposal of Those Containers in Landfills or by Incineration.
        - Requires holders of certain Alcohol Beverage Commission permits to implement recycling efforts for beverage containers sold on premises by January 2008. The bill further provides a disposal ban on these materials.
    - Session Law 2007-402: *An Act to Allow the Issuance of Off-Premises Malt Beverage and Unfortified Wine Permits to Incorporated Municipalities after an Election Allowing the Sale of Mixed Beverages, to Amend the Law Concerning the January 1, 2008, Requirement for Certain ABC Permittees to Recycle Beverage Containers, and to Authorize Winemaking on Premises by an Unfortified Winery Permit Holder*.
        - Provided additional requirements to Session Law 2005-348.

1.6 MUNICIPAL SOLID WASTE REPORTING

North Carolina General Statute 130A-309.09A requires local governments to submit a report annually about the local government's materials management program. The amount of municipal solid waste (MSW) received at solid waste management facilities is included in the annual report. In addition, North Carolina General Statute 130A-309.09D requires solid waste management facilities to report how many discarded materials by weight were handled at the facilities and the origin of the materials by county. This information is used for North Carolina's Solid Waste and Materials Management Annual Report, from which data has been used for this

Plan in order to better understand the disposal habits and diversion opportunities within the County. The following solid waste facilities received materials from Mecklenburg County during the time period from July 1, 2010 to June 30, 2011:

Landfills:

- Charlotte Motor Speedway Landfill
- Chambers Development MSW Landfill
- Richland Landfill Inc, (SC)
- Lee County Landfill (SC)
- Gaston County Landfill
- Rowan County Landfill
- Uwharrie Env. Reg. Landfill
- Palmetto Landfill (SC)
- Union County Regional MSWLF (SC)

Transfer Stations:

- Queen City Transfer Station
- Fort Mill Transfer Station (SC)
- Waste Management of Carolinas

1.6.1 RESIDENTIAL DATA

The County has interlocal agreements with the municipalities that require that all materials collected for disposal by the municipalities be disposed in the Charlotte Motor Speedway Landfill. This agreement was recently renegotiated and expires on June 30, 2020.

The County tracks the amount by weight of residential materials disposed with monthly reports from the Charlotte Motor Speedway Landfill. The County reports the amount of residential materials disposed on the Solid Waste and Materials Management Annual Report form that is submitted to the state to fulfill North Carolina General Statute 130A-309.09A. For the time period from July 1, 2010, to June 30, 2011, Mecklenburg County reported 380,882 tons of materials landfilled, which represents 35% of the County's disposed material stream.

1.6.2 CONSTRUCTION AND DEMOLITION DEBRIS DATA

All solid waste management facilities are required to report the amount of C&D material by weight that is received at the facility and disposed of in a landfill, incinerated, or converted to fuel per the North Carolina General Statutes. The solid waste management facilities are also required to report the county of origin of the materials handled at the facility. The state compiles this information into the Solid Waste and Materials Management Annual Report. The amount of Mecklenburg County C&D disposed is determined by adding all of the C&D reported as disposed in a landfill reported as originating in Mecklenburg County. The following solid waste facilities reported C&D from Mecklenburg County during the time period from July 1, 2010, to June 30, 2011:

- Cabarrus County C&D Landfill
- Highway 49 C&D Landfill and Recycling
- BFI – Lake Norman Landfill
- Abbey Green Inc. (C&D Recycling Transfer Station)
- Gaston County C&D Landfill
- North Mecklenburg C&D Landfill
- Mecklenburg County Foxhole Landfill

For the time period from July 1, 2010, to June 30, 2011, the North Carolina Solid Waste and Materials Management Report indicated that 195,661 tons of Mecklenburg County C&D was landfilled, which represents 18% of the County's disposed material stream.

1.6.3 COMMERCIAL DATA

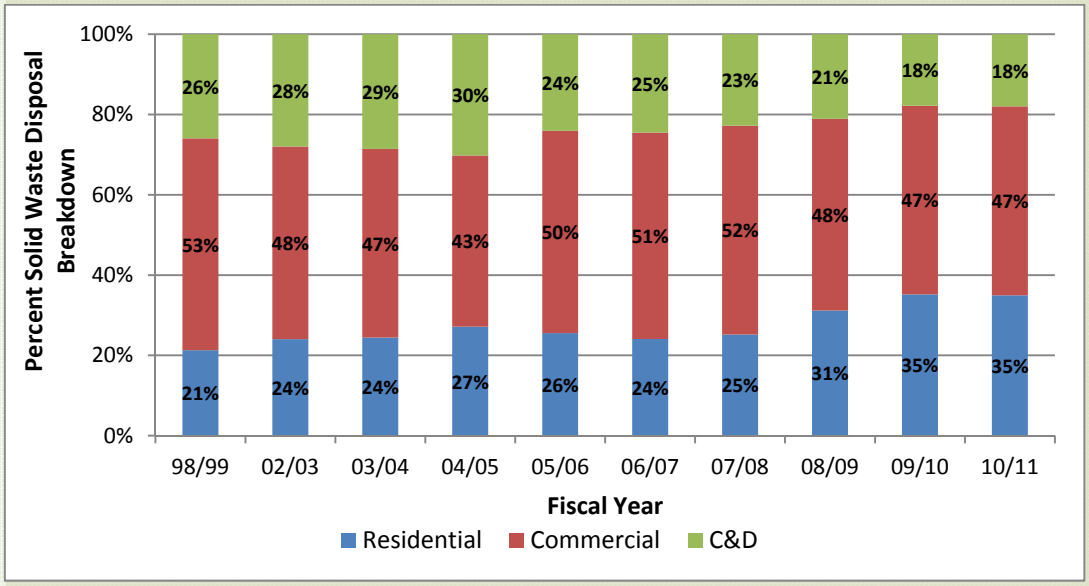
The total amount of materials landfilled and the amount of C&D landfilled is reported in the North Carolina Solid Waste and Materials Management Annual Report. As discussed above, the amount of residential materials landfilled is tracked by the County, but amount of materials recycled by commercial generators is not. Businesses are not required to report where the materials that they generate are landfilled or recycled. Therefore, the amount of commercial materials whose origin is Mecklenburg County and is disposed of in a landfill is determined by subtracting the amount of residential materials landfilled and the amount of C&D landfilled from the total amount of materials landfilled.

$$Commercial_{waste} = Total_{waste} - Residential_{waste} - C\ \&\ D_{waste}$$

For the time period from July 1, 2010, to June 30, 2011, the amount of Mecklenburg County commercial materials disposed in a landfill was determined to be 513,081 tons, which represents 47% of the County's disposed material stream. The commercial sector is consistently the largest generating sector within the County.

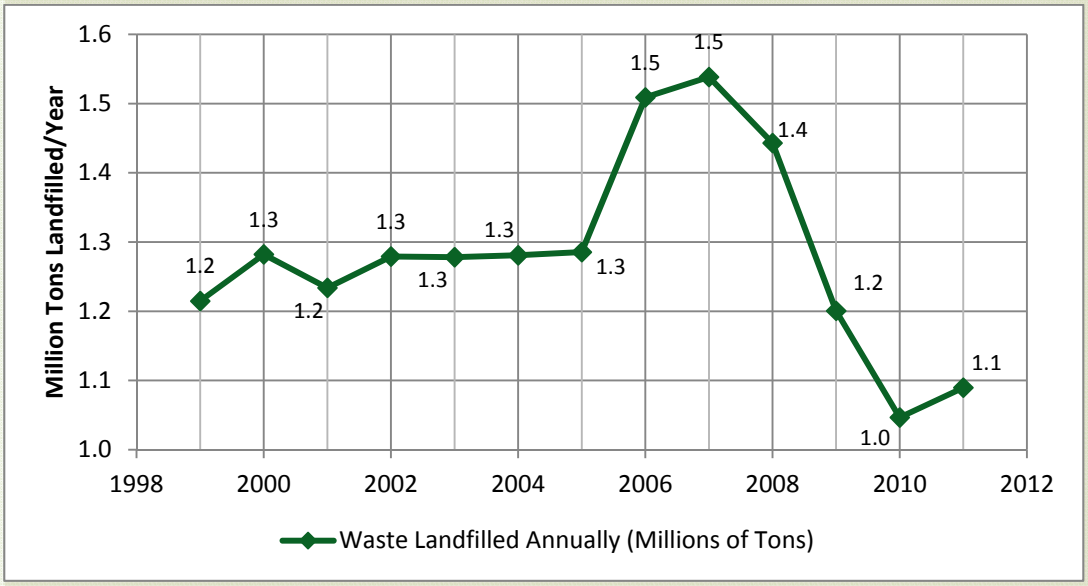
1.7 MATERIAL DISPOSAL TRENDS

For Plan development purposes, there are three generator sectors of discarded materials in Mecklenburg County: commercial, residential, and C&D. As shown in Figure 1.5, the historical breakdown of disposed materials shows that the commercial sector is consistently the largest generator, while residential and C&D sectors compete for second place each year. Figure 1.6 shows the materials disposed each year since FY 1998/99. When population is factored into tonnage to calculate a per capita disposed figure, in the last ten years, Mecklenburg County has reduced its landfilled materials by 40%.



Source: NCDENR Solid Waste and Materials Management Annual Reports

Figure 1.5 Material Disposal Breakdown by Generator



Source: NCDENR Solid Waste and Materials Management Annual Reports

Figure 1.6 Materials Landfilled Annually by Weight

1.7.1 RESIDENTIAL RECYCLING AND DIVERSION RATES

As part of the interlocal agreements with the municipalities in the County, the municipalities are required to use the Metrolina Recycling Facility for residential recycling and one of four County owned yard trimmings facilities for residential yard trimmings. Tonnage information from these facilities is included on the Solid Waste and Materials Management Annual Report form. For the time period from July 1, 2010, to June 30, 2011, Mecklenburg County reported 74,203 tons recycled and 98,279 tons of yard trimmings processed, for a total of 172,482 tons of materials diverted from landfills.

As described in more detail in Chapters 4 and 5, Table 1.4 shows the estimated residential recycling and diversion rates for each of the seven municipalities in the County. The diversion rates are based on residential tons recycled and tons of yard trimmings composted or mulched. The tons reported as disposed were added to tons recycled and tons composted or mulched in order to estimate the total tons generated for each municipality, by which the recycling and yard trimmings tons were divided.

Table 1.4 Recycling and Diversion Rates

Municipality	FY 2009	FY 2010	FY 2011
Charlotte	24%	22%	25%
Cornelius	36%	36%	35%
Davidson	34%	20%	33%
Huntersville	36%	37%	44%
Matthews	37%	33%	35%
Mint Hill	44%	30%	30%
Pineville	Not available[1]	Not available[1]	Not available[1]

Source: Calculated based on NCDENR Solid Waste and Materials Management Annual Report Forms; includes residential tons recycled and yard trimmings tons composted or mulched.

1 Due to incomplete tonnage data, recycling and diversion could not be calculated.

Chapter 2

GOALS

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Chapter 2 GOALS

2.1 SOLID WASTE STREAM (DISCARDED MATERIALS) ANALYSIS

2.1.1 OVERVIEW

MSW as defined in the North Carolina General Statutes (G.S. 130A) means any solid waste resulting from the operation of residential, commercial, industrial, governmental, or institutional establishments that would normally be collected, processed, and disposed of through a public or private solid waste management service. MSW does not include hazardous waste, sludge, or industrial waste managed in a solid waste management facility owned and operated by the generator of the industrial waste for the management of that waste, or solid waste from mining or agricultural operations. C&D is also considered part of Mecklenburg's solid waste stream. C&D is defined as solid waste resulting solely from construction, remodeling, repair, or demolition operations on pavement, buildings, or other structures, but does not include inert debris, land clearing debris or yard debris.

For this Plan Update, goals were developed based on the diversion potential expected from viable strategies for the County. Ascertaining these strategies resulted, in part, from enhanced outreach efforts previously described in Chapter 1. Understanding materials generated in the County is paramount to determining viable recovery strategies, and diversion potential. Therefore, looking back at historical data is necessary in order to help determine the best path forward. Table 2.1 shows historical data for materials disposed in Mecklenburg County. Fiscal year 1998/99 is the base year against which future waste reduction is measured.

All annual data in this Plan, unless otherwise specified, is presented in terms of a fiscal year as opposed to a calendar year. For the state of North Carolina and its cities, towns, and counties, the fiscal year (FY) begins on July 1 and ends on June 30.

2.1.2 HISTORICAL SOLID WASTE DATA

In Table 2.1, residential refers to materials generated by households (single family and multifamily dwellings) receiving curbside garbage collection service. All single family materials are counted as residential. Some of the multifamily materials are counted as commercial depending on whether the local jurisdiction provides service to multifamily dwellings or they are serviced by a private contractor. Commercial refers to MSW materials generated from commercial properties (e.g., office buildings, retail stores, restaurants, manufacturing). C&D includes materials that are generated from both residential and commercial construction and demolition activities. Table 2.1 shows the historical breakdown of materials disposed by generator classification.

Table 2–1 Historical Mecklenburg County Materials Disposed (tons/yr.)							
	98/99	05/06	06/07	07/08	08/09	09/10	10/11
Residential	258,558	385,577	370,607	364,458	374,525	368,399	380,882
Commercial	641,072	760,428	790,650	752,550	572,785	491,669	513,081
C&D	315,134	362,948	377,120	329,461	253,326	186,502	195,661
Total	1,214,764	1,508,953	1,538,377	1,442,987	1,200,636	1,046,570	1,089,624

The amount of materials disposed in Mecklenburg County is a function of many factors including population, economic activity, and waste reduction efforts. In order to understand Mecklenburg's discarded materials in context, it is useful to discuss the growth (or decline) in materials generated in terms of per-capita data. This is also how the state of North Carolina evaluates progress toward state and local solid waste management goals and how Mecklenburg County measures its own progress towards achieving these goals.

The FY 2010/11 County per capita disposal rate was 1.18 tons/person/year. This estimate is based upon tonnages reported in the North Carolina Solid Waste Management Annual Report prepared by NCDENR. Total per capita disposal rates and corresponding reduction percentages as compared to the base year of FY98/99 are shown in Table 2.2. As shown, the County reached 40% diversion in FY 2010/11 relative to the base year, which exceeded the County's 2009 goal for 2019.

In the last ten years, Mecklenburg County has reduced its landfill waste by 40%!

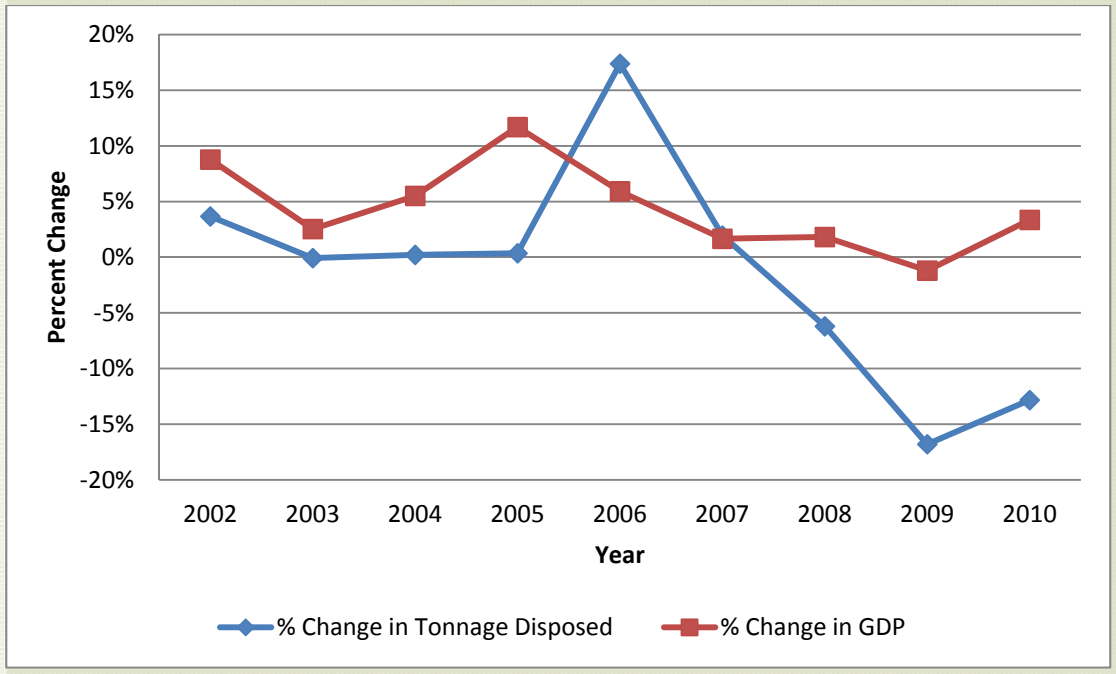
Table 2–2 Waste Reduction as Measured Against Baseline Data				
Fiscal Year (FY)	Population	Disposed (tons)	Disposal Rate (tons/person/year)	Waste Reduction % of FY 98/99
1998-99	618,853	1,214,764	1.96	N/A
1999-00	641,796	1,282,196	1.92	2%
2000-01	695,454	1,233,824	1.77	10%
2001-02	713,780	1,279,090	1.79	9%
2002-03	734,390	1,278,129	1.74	11%
2003-04	750,221	1,280,888	1.71	13%
2004-05	768,789	1,285,489	1.67	15%
2005-06	796,232	1,508,953	1.90	3%
2006-07	826,893	1,538,377	1.86	5%
2007-08	863,147	1,442,987	1.67	15%
2008-09	877,007	1,200,630	1.37	30%
2009-10	894,290	1,046,570	1.17	40%
2010-11	923,944	1,089,624	1.18	40%

2.1.3 PROJECTED SOLID WASTE (DISCARDED MATERIALS) DATA

The generation of discarded materials is dynamic, and is affected by changes in the economy, laws, and other considerations, as well as by state and local policies and programs. Some variables directly affecting the generation, and therefore disposal, of materials are:

- Population
- Levels of employment in various business and industry types
- Economic conditions

With the economic downturn beginning in 2008, the discarded materials tonnage generated within Mecklenburg County, and therefore the tonnage landfilled within the County, began decreasing significantly. Figure 2.1 illustrates how changes in the tonnage disposed within the County correlates with changes in the gross domestic product (GDP) of the Charlotte-Gastonia-Rock Hill Metropolitan Statistical Area (MSA) over the last nine years.



Source: U.S. Department of Commerce, Bureau of Economic Analysis

Figure 2.1 Comparison of Change in Local GDP to Change in Tonnage Disposed

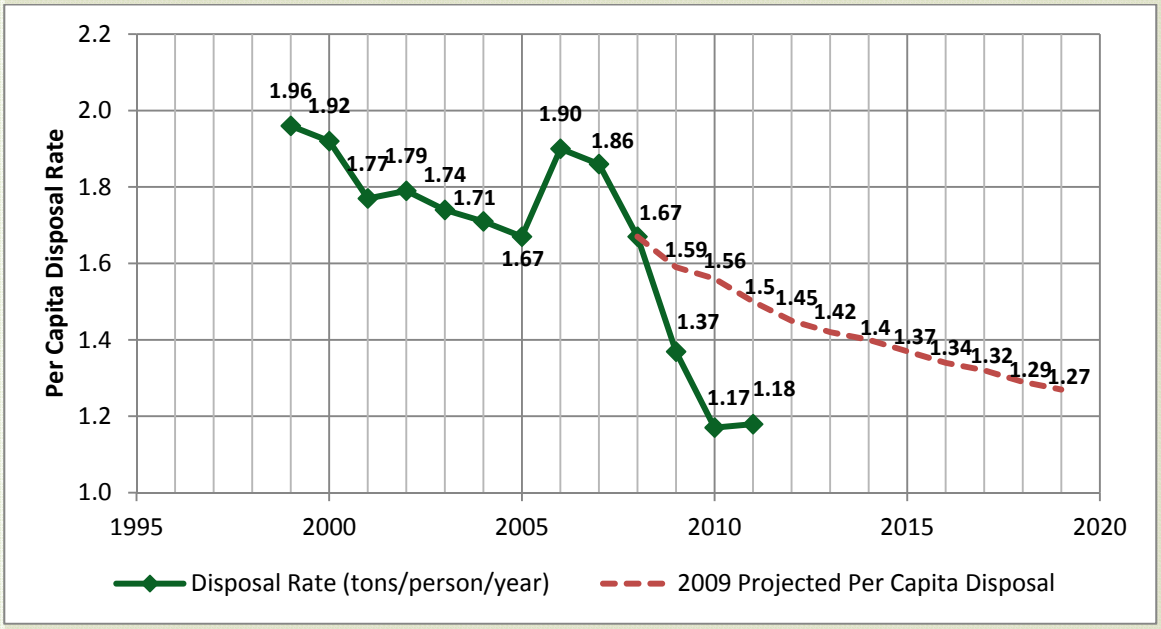
Storm events in 2006 and waste from several large construction projects may account for the spike in tonnage disposed over the change in GDP. Otherwise, the historical percent change in disposal appears to have a correlation to GDP patterns; however, patterns in GDP do not govern patterns in discarded material generation.

The economic forecasts contained in Congressional Budget Office's (CBO) January 2012 report *The Budget and Economic Outlook: Fiscal years 2012–2022*, indicate that the increase in Real GDP is projected to be below 2.5% until the first quarter of 2014. Based on the consultant's

statistical analysis and the CBO's forecasts, it is assumed that materials generation will rebound to pre-recession levels by mid-2014 or the beginning of 2015.

Therefore, for the purpose of this Plan, projections for per capita tons disposed in future years are based on the 2009 Plan projections, as these projections are more indicative of a healthy economy.

Figure 2.2 illustrates the decline in the amount of tonnage landfilled over the last four years, on a per capita basis, compared to the 2009 Plan projected per capita disposal rate. However, per capita disposal began to increase again, though slightly, in 2011. Figure 2.2 also illustrates the 2009 Plan projections for tonnage landfilled, which shows a per capita projection of 1.32 tons in FY 2017.



Source: NCDENR annual disposal reports.

Figure 2.2 Actual Per Capita Disposal Rate vs. 2009 Projected Per Capita Disposal Rate

Using the per capita disposed projection of 1.32 for 2017, and the population projections based on the North Carolina Office of State Budget and Management, State Demographics Center (December 2011), of 1,027,829 in 2017, the total tons projected for FY 2017 if no new programs are implemented is 1,356,734. With a population projection of 1,114,398 in 2022, the total tons projected for FY 2022 if no new programs are implemented is 1,471,005.

2.2 WASTE MANAGEMENT ADVISORY BOARD STATEMENT OF ASPIRATION FOR SOLID WASTE MANAGEMENT IN MECKLENBURG COUNTY

In 2009, the Waste Management Advisory Board (WMAB) adopted a statement delineating what Mecklenburg County aspires to in terms of solid waste management in the future. The

subcommittee decided on the following statement: “Create recycling infrastructure for no wasted resources in our County”.

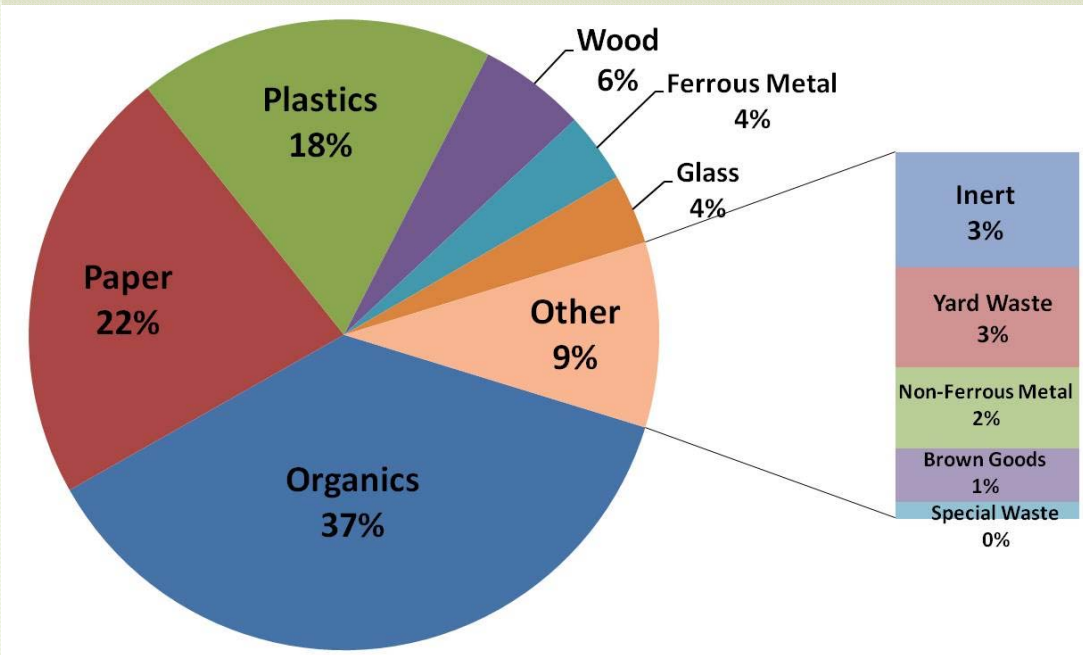
In 2012, this statement was reviewed and approved by the SWMP Steering Committee and confirmed by the WMAB, and appears on the cover of this Plan.

2.3 REFINING WASTE REDUCTION GOALS

In this Plan, discarded materials are broken down into its three sectors: residential, commercial, and C&D. The three components are combined into total municipal solid waste, for determination of the Plan's overall waste reduction goals. Goals are also discussed individually, by generator sector.

2.3.1 RESIDENTIAL WASTE REDUCTION GOAL

Residential discarded materials are those materials collected from curbside collection programs. These programs include all single family homes and those multifamily units serviced by local governments or their contractors resulting in the waste delivered to the landfill under the interlocal agreement terms. Based on a recent waste characterization study performed by Orange County, NC, a similar community, the residential discarded materials are estimated to be comprised as described in Figure 2.3. As shown, organics represent 37% of discarded materials. There are also significant amounts of other materials that are recoverable, including paper (22%) and plastic (18%).



Source: Residential Waste composition data from the 2010 Orange County North Carolina Waste Composition Study applied to Mecklenburg County residential tons disposed.

Figure 2.3 Residential Waste Characterization Estimates

2.3.2 RELEVANT CHARRETTE INPUT

The charrette sessions held on the second day were geared toward residential stakeholders. Table 2.3 summarizes, by topic, the key items discussed and consensus conclusions that were reached. The common thread throughout the day on Saturday included the main ideas of modeling best practices, preserving landfill capacity (rather than perceived as a critical emergency), pursuing aggressive source reduction then recycling, having programs fully utilized, and no wasted infrastructure.

Table 2–3 Saturday Session Key Items and Consensus Conclusions

Topic	Key Items	Consensus Conclusions
Single Family Recycling	Mandatory use of curbside recycling service Should volume-based-pay be considered? (economic incentive) Consider timing: just changed to single stream, give it time before more changes. Education: What is most effective?	We want to increase diversion in the curbside recycling program Mandatory use of curbside recycling service should be considered: Terminology should be considered (mandatory vs. universal vs. banned from garbage container) – what is most effective? PAY-T should remain a long-term consideration for the future Education approaches: Get the word out more locally: home owners associations (HOA), children in the community Use school program to promote what should be going on at home Solid waste staff presentations to HOA's
Multifamily Recycling	There are challenges at multifamily complexes: space constraints, types of containers, color-coding, reaching out to tenants Property managers survey indicated need for more guidance Would like more frequent pickups Majority feel that the recycling program is important or very important	Should study mandatory as a future option – Support for carrots rather than sticks as incentives Lots of opportunities for education and outreach first Recycling Ambassadors: grassroots volunteers or paid staff working with code compliance, recycling champions within each complex Profile model complexes Provide best practices

Table 2–3 Saturday Session Key Items and Consensus Conclusions		
Topic	**Key Items**	**Consensus Conclusions**
Food Scraps and Other Organics (Single Family and Multifamily)	Consider separate food scraps collection (not mix with yard trimmings). Does not affect yard trimmings collection, processing. More uniform with what is feasible for multifamily. Consider a pilot study to demonstrate benefits (Huntersville?). How and where would it be processed? Economic incentive (like recycling): tip fees are low Increase tip fees?	Big enough part of the waste stream that it should be considered. Infrastructure would need to be developed (food scraps study on-going). Need economic incentive (like recycling): tip fees are low. Collection costs likely higher, processing costs likely lower (pilot study to demonstrate). Implementation: start with commercial/institutional. Outreach: HOAs, neighborhood focused.
Alternative Technology/ Mixed Waste Processing Technologies	Landfill capacity is limited, but is available in the short and medium term. Landfill costs are low. Technology is expensive and some technology is still emerging. Private sector developers need it to make economic sense.	Maximize use of existing infrastructure through policies, programs, and incentives. Encourage private sector development of infrastructure through policies, programs, and incentives. If privates won't do it, local government should consider investing in processing capacity. Before proceeding with new technology, impacts to environment should be assessed.
Zero Waste	Maximizing waste prevention, recycling, and composting. Changing the culture of wasting. Recognizing that waste is not inevitable. It is a verb, not a noun.	The County citizens are strongly supportive of waste minimization, waste avoidance, maximize recycling and maximize composting, no wasted resources. The County is open to alternative technologies but they need to be fully vetted before they are used. Zero Waste can be a polarizing term. Education is the most important thing: everyone agrees on this.
Residential Yard Trimmings Collection	Compost Central has limitations to accommodate plastic bags due to processing equipment and end products. Collection of leaves are a challenge: bag to stop the blowing, operational challenge of de-bagging.	Consider carts for yard trimmings collection, allow bags during peak leaf season. Consider limiting number of plastic bags allowed, then require Kraft paper bags. Compost Central would need to test the affects of Kraft. Kids are the key to reaching parents. Include education in schools and churches to reach kids. Promote backyard/ neighborhood composting, grassycling.

The input received throughout the charrette was taken into consideration when developing the potential strategies and recommendations affecting the residential sector contained in the remaining chapters of the Plan. Some of the key strategies recommended for the residential sector include:

- **Support the state ban of items from landfills by instituting a disposal ban on generators, prohibiting the placement of banned items in garbage containers.**
- **Implement volume-based pay for residential garbage collection.**
- **Implement an incentive program for recycling.**
- **Require that recycling be provided at all multifamily complexes.**
- **Expand education and outreach, including working with neighborhood associations.**
- **Implement mandatory recycling participation for single family and multifamily residents.**
- **Implement food scraps collection and diversion.**

Table 2.4 displays the residential waste reduction goals which were developed based on estimated diversion from the recommended strategies. Considering that there was already a residential recycling program in place in the baseline year, the short-term waste reduction goal of 16% and long-term waste reduction goal of 35% are aggressive, but realistic.

Table 2–4 Residential Waste Reduction Short-Term and Long-Term Goals

	Baseline FY98/99*	Current FY10/11*	Short-Term Plan Year FY16/17	Long-Term Plan Year FY21/22
Population	618,853	923,944	1,027,829	1,114,398
Disposal Tons if NO New Programs	258,558	380,882	474,857	514,852
Disposal Tons with PROPOSED Short-Term Programs	N/A	N/A	364,342	395,029
Disposal Tons with PROPOSED Short-Term and Long-Term Programs	N/A	N/A	N/A	304,875
Proposed Rate Tons/Person/Year	0.42	0.41	0.35	0.27
Rate Reduction % of Baseline Year	N/A	2%	16%	35%
Proposed Tons Diverted from Disposal	N/A	N/A	110,515	209,977

* Actual, not proposed or forecasted. N/A = not applicable

Chapter 3 (Source Reduction), Chapter 4, Recycling, and Chapter 5, Organics, each discuss in more detail the recommended residential strategies that are estimated to lead to the waste reduction shown in Table 2.4. Figure 2.4 shows the effect of residential strategies on residential tonnage in the short-and long-term as compared to the baseline year and the current year.

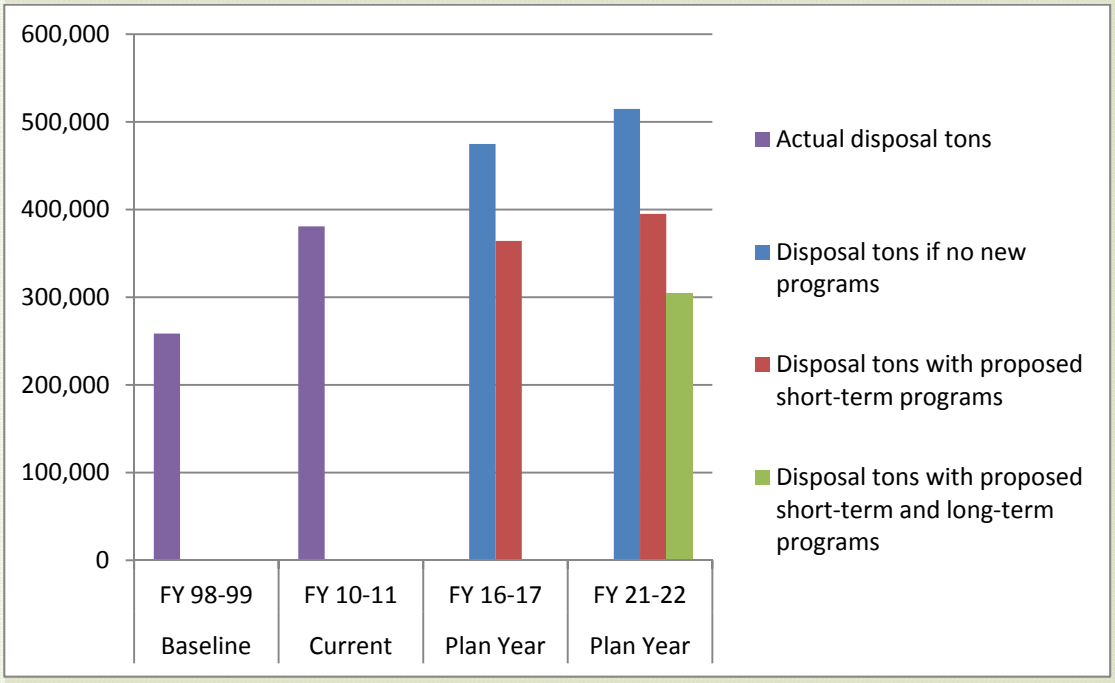
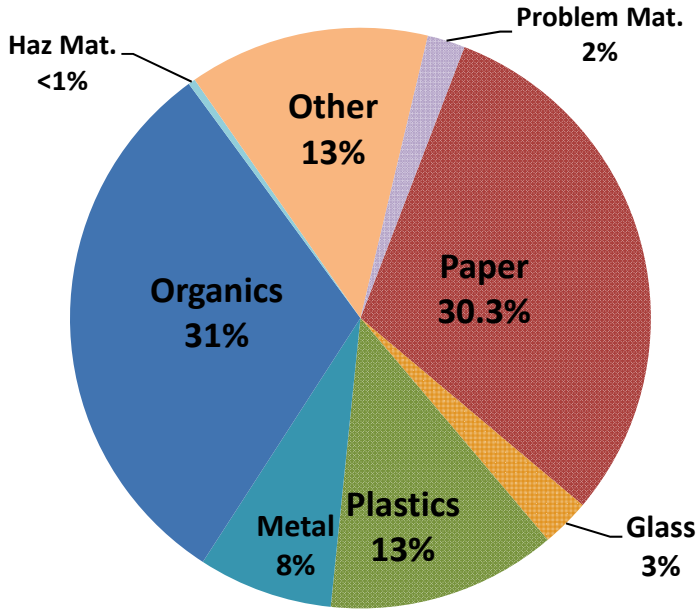


Figure 2.4 Impact of Waste Reduction Strategies on Residential Tonnage

2.3.3 COMMERCIAL WASTE REDUCTION GOAL

Commercial discarded materials are those generated by all nonresidential activities except construction and demolition. This includes materials generated by any business, industry, or institution including government buildings, hospitals, churches, and schools. The commercial sector is consistently the largest generator sector of disposal tons in the County. Based on previous waste characterization studies in similar communities, the commercial discarded materials are estimated to be comprised as described in Figure 2.5. As shown, organics and paper represent a combined 60% of the total. There are also significant amounts of other materials that are potentially recoverable, including plastic (13%), metal (8%), and glass (3%).



Source: 2005 Commercial Waste Characterization Study for Mecklenburg County by RW Beck.

Figure 2.5 Commercial Waste Characterization Estimates

2.3.4 RELEVANT CHARRETTE INPUT

The charrette sessions held on the first day were geared toward commercial and institutional stakeholders. Table 2.5 summarizes, by topic, the key items discussed and consensus conclusions that were reached. The common thread throughout the day on Friday included the main ideas of increasing outreach; implementing reporting requirements to gain a better understanding of what is occurring in the commercial sector; consistency – where we work, live and play; and the need for dedicated staff expertise on-site.

Table 2–5 Friday Session Key Items and Consensus Conclusions

Topic	Key Items	Consensus Conclusions
Extended Producer Responsibility	Problem products (including HHW) are a burden to local government. Businesses need models, tools, and level playing field. Product policies can spur economic development and local jobs.	Support for carrots rather than sticks as incentives. Provide model purchasing guidelines and plans. No ban without a plan. Regional producer identifier. Adopt local extended producer. responsibility (EPR) resolutions to support state and federal initiatives.

Table 2–5 Friday Session Key Items and Consensus Conclusions		
Topic	**Key Items**	**Consensus Conclusions**
Expand the Mandatory Recycling Ordinance (Commercial Recycling)	There is enough infrastructure capacity to expand business recycling ordinance. There has to be a market for the materials that are required to be recycled: no ban without a plan. Ordinance logistics: space at existing buildings. Potentially tie commercial recycling to business permit renewal and/or hauler permit renewal. Current ordinance does not have enough teeth.	No franchising, no municipal collection. No objections were heard to expanding ordinance. Enforcement vs. incentives: – Acknowledge excellence with a sticker on the recycling bin. – Wipe Out Waste Ambassador Program decal. – Recycle bank type idea. Reporting requirement of commercial waste & recycling to better understand current situation. Expand education and outreach.
Special Event Recycling	City and County have identified best practices which can be documented and duplicated. Permit requirements can help ensure compliance. There are opportunities with public private partnerships (exchanging recycling service for marketing opportunity).	Recycling and composting at special events requires a change in cultural attitudes toward wasting. Special events recycling and composting can evolve with residential and commercial programs: recycle where you live, work and play. Social marketing techniques can support City and County programs: celebrities, public service announcements, advertisements.
Food Scraps and Other Organics (Commercial and Institutional Sector)	A significant amount of the discarded materials in Mecklenburg is organics according to the Kessler study. Land is a premium: where to process? Regional solutions? Have to know there are cost effective options for processing. What is possible at the Foxhole Landfill? Implementation steps should vary by generator.	Consensus for pursuing organics diversion for commercial & institutional. Should not impact wastewater. Develop organics over time, through pilots, then programs, expanded infrastructure, then mandatory.
Alternative Disposal/ Mixed Waste Processing Technologies	Acknowledge expense. Timeframe: keep on the horizon for ten-year plan. Continue examining the possibility. Need to meet recycling thresholds prior to committing to new technologies. Need data, need to understand emissions. Aggressive goals for resource recovery.	There needs to be certain criteria met. Short term: not a priority. Long term: monitor progress with technologies and need for alternative technologies.

Table 2–5 Friday Session Key Items and Consensus Conclusions		
Topic	**Key Items**	**Consensus Conclusions**
Institutional Waste Diversion	Hospital recycling has some unique challenges. Consider ordinance change to require haulers to report recycling tons for institutional waste. Plastic bags are an issue at the MRF, but collection style required at hospitals. Would a dirty MRF be best for hospitals? County staff talk with organization leadership. Consider a case study to show benefits: economic, environmental, social.	Dedicated staff at institution focused on recycling. Same staff should be part of procurement team (close the loop). Site specific waste characterization. Helps with accountability and understanding. Phased in approach to implementation of recycling mandates. Encourage networking from like organizations.

The input received throughout the charrette was taken into consideration when developing the potential strategies and recommendations affecting the commercial sector contained in the remaining chapters of the Plan. Some of the key strategies recommended for the commercial sector include:

- **Expand the mandatory recycling ordinance by lowering the current threshold and adding recyclable materials.**
- **Expand education and outreach.**
- **Add organics to the mandatory recycling ordinance.**
- **Place recycling containers everywhere there are public trash containers.**

Table 2.6 displays the commercial waste reduction goals which were developed based on estimated diversion from the recommended strategies. Although the waste reduction goal for the short term (46%) is actually lower than the current year (47%), the anticipated economic recovery and an increasing population combined with the open system of commercial collection makes these goals reasonable due to expected tonnage increases and lack of control of the waste stream.

Table 2–6 Commercial Waste Reduction Short-Term and Long-Term Goals				
	Baseline FY98/99*	**Current FY10/11***	**Short-Term Plan Year FY16/17**	**Long-Term Plan Year FY21/22**
Population	618,853	923,944	1,027,829	1,114,398
Disposal Tons if NO New Programs	641,072	513,081	637,665	691,373
Disposal Tons with PROPOSED Short-Term Programs	N/A	N/A	575,376	623,837

Table 2–6 Commercial Waste Reduction Short-Term and Long-Term Goals				
Disposal Tons with PROPOSED Short-Term and Long-Term Programs	N/A	N/A	N/A	512,888
Proposed Rate Tons/Person/Year	1.04	0.56	0.56	0.46
Rate Reduction % of Baseline Year	N/A	47%	46%	56%
Proposed Tons Diverted from Disposal	N/A	N/A	62,289	178,485

* Actual, not proposed or forecasted. N/A = not applicable

Chapter 3, Source Reduction, Chapter 4, Recycling, and Chapter 5, Organics, each discuss in more detail the recommended commercial sector strategies that are estimated to lead to the waste reduction shown in Table 2.6. Figure 2.6 shows the effect of commercial strategies on commercial tonnage in the short and long term as compared to the baseline year and the current year.

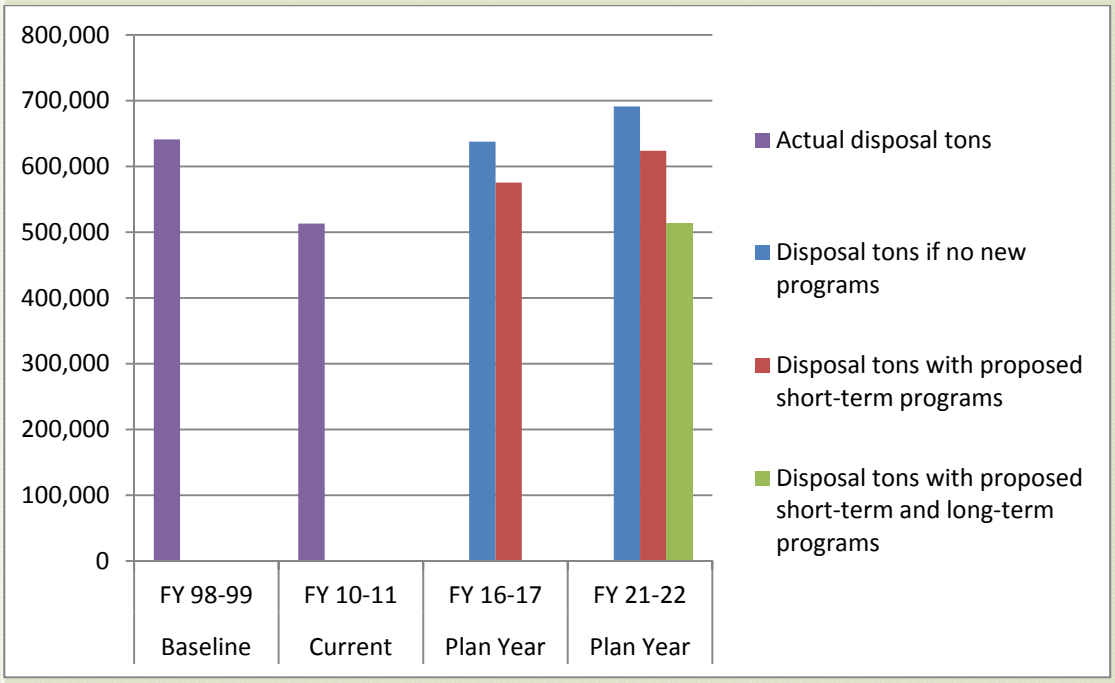
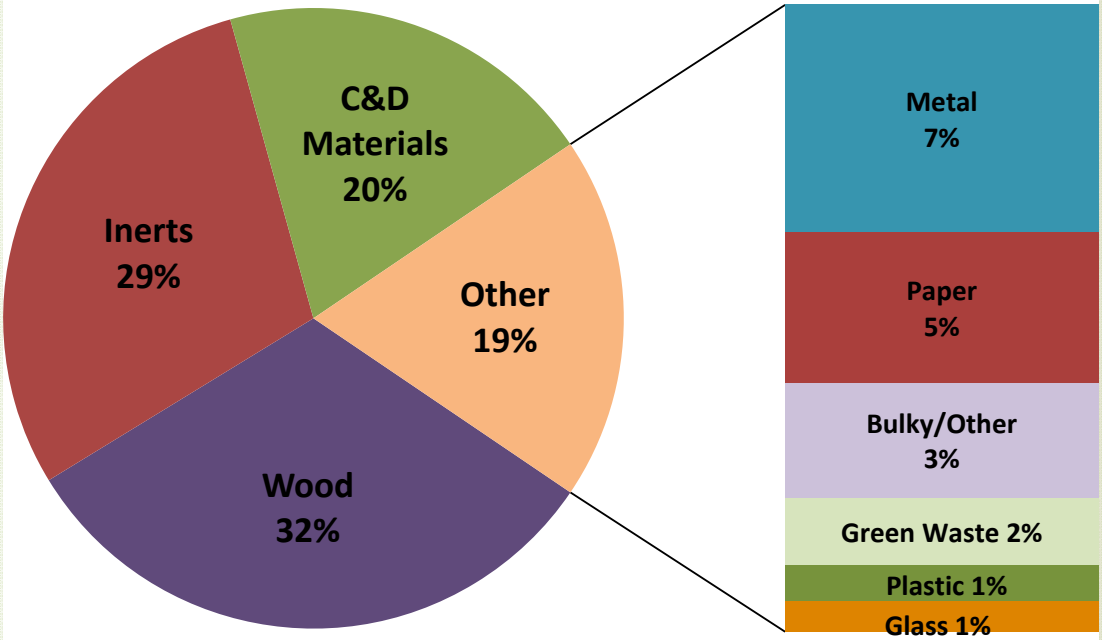


Figure 2.6 Impact of Waste Reduction Strategies on Commercial Tonnage

2.3.5 CONSTRUCTION AND DEMOLITION WASTE REDUCTION GOAL

C&D debris offers an opportunity for substantial future waste reduction. The generation of C&D is, perhaps, more closely tied to the economy and new housing construction than other generator sectors. Based on a waste characterization study performed in 2008, readily recoverable materials are discarded by C&D generators. As shown in Figure 2.7, inert material

and wood represent a combined 61% of the total. There are also significant amounts of other materials that are potentially recoverable, including metal (7%) and paper (5%).



Source: 2008 Construction & Demolition Debris Composition Study for Mecklenburg County by MSW Consultants.

Figure 2.7 C&D Waste Characterization Estimates

2.3.6 RELEVANT CHARRETTE INPUT

The charrette sessions held on the first day included a session on C&D recycling. Table 2.7 summarizes the key items discussed and consensus conclusions that were reached.

Table 2–7 Friday Session C&D Recycling Key Items and Consensus Conclusions		
Topic	**Key Items**	**Consensus Conclusions**
C&D Recycling	Landfill bans? Make sure there are adequate markets before mandatory. Cost Implications. Case studies for financial incentives. Raise tipping fees: low cost of disposal makes it too cheap here; there is no incentive to divert the material.	Landfill ban is not the way to go for the County: would have to be implemented by the state because not all C&D facilities are located in the County. Deconstruction is a good idea: find the right level of responsibility (liability issues for local government). Focus on the generator & define the generator properly through building permit process. County & private landfills want to recycle to save airspace capacity but there needs to be a market and/or financial incentives.

The input received during the C&D recycling charrette session was taken into consideration when developing the potential strategies and recommendations affecting the C&D sector contained in Chapter 6 of the Plan. Some of the key strategies recommended for the C&D sector include:

- **Implement a mandatory C&D recycling ordinance.**
- **Expand education, outreach, and enforcement.**

Table 2.8 displays the C&D waste reduction goals, which were developed based on estimated diversion from the recommended strategies. Because of the aggressive approach of mandating recycling of C&D material, it is anticipated that this sector will see the greatest rate reduction percentage of the baseline year, from 58% in the current FY 2010/2011 to over 80% in the short term and long term.

Table 2–8 C&D Waste Reduction Short-Term and Long-Term Goals				
	Baseline FY98/99*	**Current FY10/11***	**Short-Term Plan Year FY16/17**	**Long-Term Plan Year FY21/22**
Population	618,853	923,944	1,027,829	1,114,398
Disposal Tons if NO New Programs	315,134	195,661	244,212	264,781
Disposal Tons with PROPOSED Short-Term Programs	N/A	N/A	94,901	102,894
Disposal Tons with PROPOSED Short-Term and Long-Term Programs	N/A	N/A	N/A	94,570
Proposed Rate Tons/Person/Year	0.51	0.21	0.09	0.08
Rate Reduction % of Baseline Year	N/A	58%	82%	83%
Proposed Tons Diverted from Disposal	N/A	N/A	149,311	170,211

* Actual, not proposed or forecasted. N/A = not applicable

Chapter 6, Construction and Demolition Debris, discusses in more detail the C&D diversion strategies that are estimated to lead to the waste reduction shown in Table 2.8. Figure 2.8 shows the effect of C&D strategies on C&D tonnage in the short and long term as compared to the baseline year and the current year.

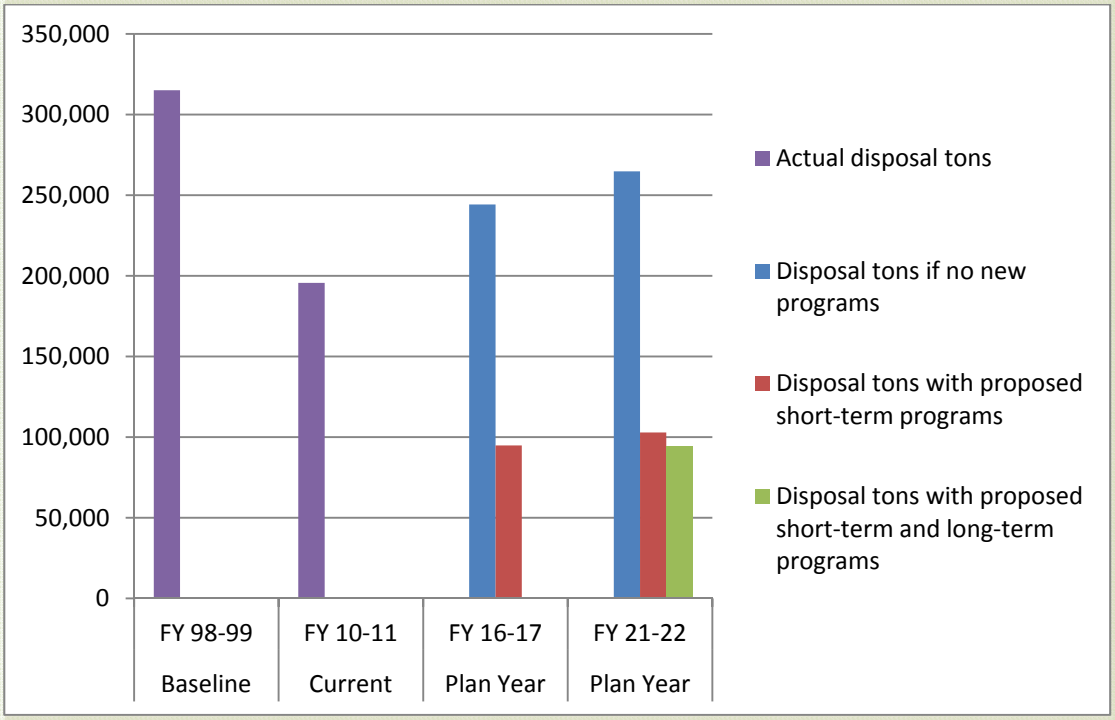


Figure 2.8 Impact of Waste Reduction Strategies on C&D Tonnage

2.3.7 EPA WARM MODEL RESULTS

Using the Environmental Protection Agency (EPA) Waste Reduction Model (WARM), the environmental impacts of carbon emissions for the key strategies were estimated. Table 2.9 shows the effects of the short-term strategies for plan year 2016/2017. Table 2.10 shows the effects of the long-term strategies for the plan year 2021/2022. As shown in Tables 2.9 and 2.10, the WARM estimates the carbon emissions and emission offsets produced throughout the lifecycle of the various material types in the material stream based on a baseline scenario (no new programs) versus alternative scenarios (short-and/or long-term programs) for the tons of materials managed in a given year.

Carbon emissions shown in Tables 2.9 and 2.10 represent emissions effects generated throughout the life of the materials handled including: extraction and processing of raw materials; manufacture of products; transportation of materials and products to markets; use by consumers; and end-of-life management. End of life management includes factors such as: transportation to an appropriate facility for disposal or processing; use of equipment during

disposal or processing; production of methane following disposal; avoided utility emissions due to landfill gas to energy; and landfill carbon storage.

As shown in Table 2.9, the total estimated carbon emissions reduced based on implementing short-term strategies is 629,348 metric tons. Source reduction efforts would result in an estimated reduction of 79,692 metric tons; recycling efforts would result in an estimated reduction of 524,489 metric tons; and composting efforts would result in an estimated reduction of 25,167 metric tons.

Table 2–9 EPA WARM Model Results: Metric Tons of Carbon Dioxide Equivalent (MTCO2E)[1]

Effects on Carbon Emissions with Short-Term Strategies (Plan Year 2016/2017)

	Source Reduction	Recycling	Composting	Total	Cumulative Emissions
Residential					
No New Programs[2]					(117,933)
With Short-Term Programs	(79,692)	(107,113)	(6,883)	(193,688)	(311,621)
Commercial					
No New Programs[2]					(241,840)
With Short-Term Programs		(138,963)	99	(138,864)	(380,704)
C&D					
No New Programs[2]					246,975
With Short-Term Programs		(278,413)	(18,383)	(296,796)	(49,821)
Overall Carbon Emissions[3]	(79,692)	(524,489)	(25,167)	(629,348)	**(742,146)**

1 Carbon emissions shown represent emissions estimated throughout the life of the materials handled, based on tonnage estimates for the given year.

2 Represents total carbon emissions attributable to the tons of materials managed during a given year, assuming existing conditions and programs continue without change. In the case of residential and commercial materials, calculated emissions are negative due to the fact that materials are disposed of at landfills that utilize landfill gas collection systems with recovery of methane for energy.

3 Represents the reduction in overall carbon emissions attributable to the tons of materials managed during a given year, across all three sectors (residential, commercial, and C&D), that would occur as a result of implementing all of the recommended source reduction, recycling and composting strategies versus continuing with the existing conditions and programs.

As shown in Table 2.10, the total estimated carbon emissions reduced based on implementing long-term strategies is 640,032 metric tons. Source reduction efforts would result in an estimated reduction of 572,156 metric tons; recycling efforts would result in an estimated reduction of 78,713 metric tons; and composting efforts would result in an estimated increase of 10,837 metric tons. This high amount of reduced carbon emissions for source reduction in the long term is attributable to the assumption that the effects of extended producer responsibility (EPR) efforts would be seen in the long term. The increase in carbon emissions for composting in the long term is attributable to the assumption of a lack of methane (carbon emissions) recovery at composting facilities.

Table 2–10 EPA WARM Model Results: Metric Tons of Carbon Dioxide Equivalent (MTCO2E)[1]					
Effects on Carbon Emissions with Long-Term Strategies (Plan Year 2021/2022)					
	Source Reduction	**Recycling**	**Composting**	**Total**	**Cumulative Emissions**
Residential					
No New Programs[2]					(163,548)
With Short-Term Programs[3]					(98,107)
With Short-Term & Long-Term Programs	(219,411)	(43,474)	(8,796)	(271,681)	(369,788)
Commercial					
No new Programs[2]					(166,518)
With Short-Term Programs[3]					(236,596)
With Short-Term & Long-Term Programs	(352,745)	(17,866)	19,704	(350,907)	(587,503)
C&D					
No New Programs[2]					274,539
With Short-Term Programs[3]					104,058
With Short-Term & Long-Term Programs		(17,373)	(71)	(17,444)	(86,614)
Overall Carbon Emissions[4]	(572,156)	(78,713)	10,837	(640,032)	**(870,677)**

1 Carbon emissions shown represent emissions generated throughout the life of the materials handled, based on tonnage estimates for the given year.

2 Represents total carbon emissions attributable to the tons of materials managed during a given year, assuming existing conditions and programs continue without change. In the case of residential and commercial materials, calculated emissions are negative due to the fact that materials are disposed of at landfills that utilize landfill gas collection systems with recovery of methane for energy.

3 Represents total carbon emissions attributable to the tons of materials managed during a given year, assuming only short-term strategies are implemented and continue through the long term. In the case of residential and commercial materials, calculated emissions are negative due to the fact that materials are disposed of at landfills that utilize landfill gas collection systems with recovery of energy.

4 Represents the reduction in overall carbon emissions attributable to the tons of materials managed during a given year, across all three sectors (residential, commercial, and C&D), that would occur as a result of implementing all of the recommended source reduction, recycling and composting strategies versus continuing with the existing conditions and programs.

2.3.8 TOTAL MUNICIPAL SOLID WASTE REDUCTION GOAL

While it is impressive that the County has currently reached a 40% rate reduction of the baseline year in FY 2010/2011, it is undeniable that the economy has had a hand in the waste reduction level achieved. Through a combination of strategies across the residential, commercial, and C&D generator sectors, even with an increasing population and a recovering economy returning generation to pre-recession levels, the County can reach high waste reduction goals. Table 2.11 displays the overall or total waste reduction goals for this planning period, for the short term and long term.

Table 2–11 Overall Waste Reduction Short-Term and Long-Term Goals				
	Baseline FY98/99*	**Current FY10/11***	**Short-Term Plan Year FY16/17**	**Long-Term Plan Year FY21/22**
Population	618,853	923,944	1,027,829	1,114,398
Disposal Tons if NO New Programs	1,214,764	1,089,624	1,356,734	1,471,005
Disposal Tons with PROPOSED Short-Term Programs	N/A	N/A	1,034,619	1,121,760
Disposal Tons with PROPOSED Short-Term and Long-Term Programs	N/A	N/A	N/A	912,332
Proposed Rate Tons/Person/Year	1.96	1.18	1.01	0.82
Rate Reduction % of Baseline Year	N/A	40%	49%	58%
Proposed Tons Diverted from Disposal	N/A	N/A	322,115	558,673

* Actual, not proposed or forecasted. N/A = not applicable

Figure 2.9 shows the effect of combined strategies on overall tonnage in the short-and long term as compared to the baseline year and the current year.

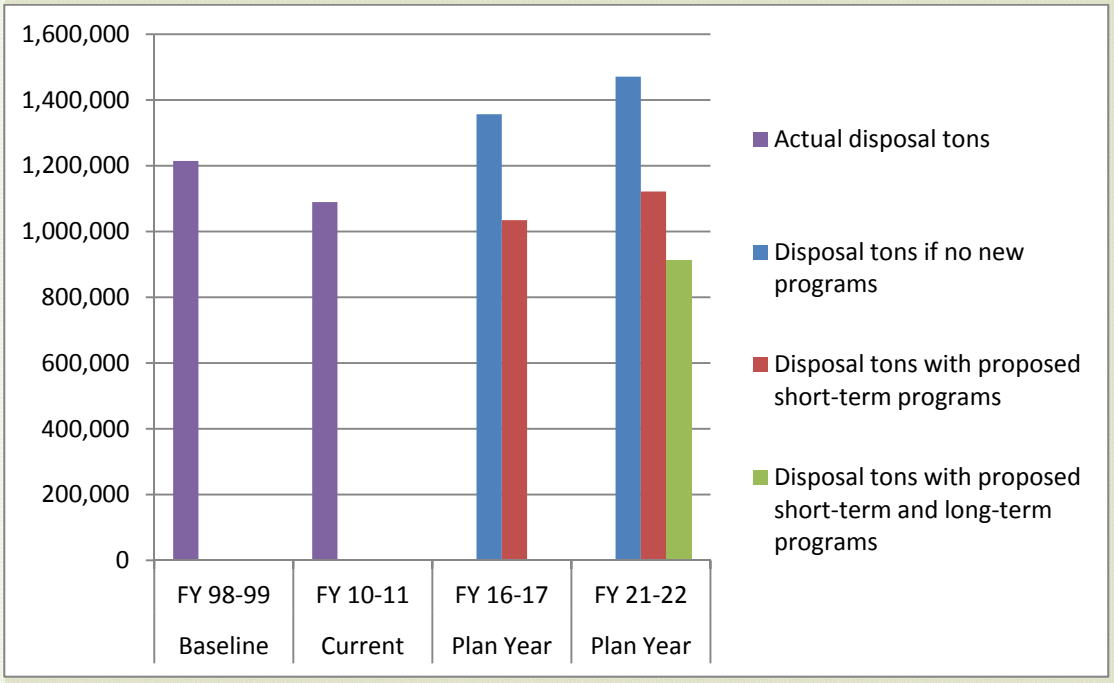


Figure 2.9 Impact of Combined Waste Reduction Strategies on Overall Tonnage

With a short-term overall waste reduction goal of 49% and a long-term overall goal of 58%, Mecklenburg County will continue to be a leader in waste reduction in North Carolina. This Plan recognizes the need for aggressive steps to reach these goals. As the economy recovers, per capita disposal will also likely recover, making waste reduction goals even more challenging in

the coming years. The County intends to reach these goals through a combination of improving upon and expanding traditional source reduction and recycling programs already in place, continuing to take steps to foster food scraps diversion, and aggressively pursuing C&D recycling. The following chapters of the Plan describe these strategies in greater detail.

Chapter 3

SOURCE REDUCTION AND REUSE

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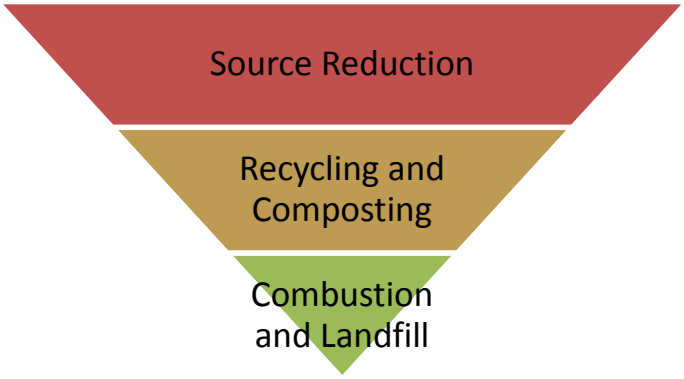
Chapter 3 SOURCE REDUCTION AND REUSE

3.1 OVERVIEW

Source reduction and reuse is located at the top of the Environmental Protection Agency's (EPA) hierarchy in managing solid waste. Next in the hierarchy is recycling and composting, with disposal in combustion facilities and landfills coming in last. The EPA defines source reduction as the strategy behind reducing and reusing discarded materials that would otherwise become waste. They go on to say that by designing, manufacturing, purchasing, or using products in ways that reduce the amount or the toxicity of materials created, fewer discarded materials are generated and fewer natural resources are used. Reuse is often part of the waste prevention strategy, stopping waste at the source by preventing or delaying a material's entry in the collection and disposal system.



The solid waste hierarchy places source reduction as the top priority.

While all components of an integrated solid waste management system are necessary and important, reducing waste at its source is the first priority because it is the most environmentally significant and cost-effective way to impact generation of discarded materials. Unlike recycling or diversion, most source reduction methods require no material processing. A key component of both volume and toxicity reduction involves moving upstream to encourage manufacturers to make less wasteful, less hazardous products.

A large influence on the County's source reduction was unanticipated. The deep economic recession beginning in 2008 reduced consumption, and therefore generation and ultimately disposal of discarded materials on the part of residents and businesses in the County. As discussed in Chapter 1 of this Plan, the effects of economic recovery will include a potential increase in generation of materials that are discarded and will either need to be recycled or disposed in landfills. Though calculating the direct effect of economic recession on generation and disposal of discarded materials is not possible, taking this into account is necessary in looking at source reduction strategies and their likely affects moving forward.

The following sections describe residential and commercial source reduction approaches currently being employed or proposed to be employed in Mecklenburg County and prioritizes them in accordance with the needs and opportunities in the area. It includes recommendations for locally viable waste reduction programs for commercial and residential sectors, while also addressing potential partnerships with other counties and state agencies to garner support for these programs.

3.1.1 RECOMMENDATIONS FROM 2009 SWMP

Table 3.1 Source Reduction 2009 Recommended Strategies

Recommendations from the 2009 Plan	Status
Expand composting training programs.	**Continuous**
Revise, reduce, and update www.wipeoutwaste.com to become more user friendly.	**Continuous**
Research food diversion programs of other cities: Seattle, WA; Portland, OR; Orange County, NC; Boston, MA; Hennepin County, MN; Alameda County, CA; Swift County, MN; Mackinac Island, MI; Walnut Creek, CA; Danville, CA; and implement strategies as appropriate.	**Complete**
Conduct pilot projects of organic (food) waste.	**Incomplete**
Continue to survey the effectiveness of these programs by traditional survey tools and website hits.	**Continuous**
Continue to educate businesses on source reduction alternatives.	**Continuous**
Support the enactment by County and municipalities of federal and state legislation that recognizes excess packaging as a major source of waste, with the burden of the waste management costs placed on local governments, and mandates its reduction.	**Continuous**
Widespread education and training of purchasing staff within Mecklenburg County is needed, not only on the purpose and vision of the program, but on the practical implementation of environmentally preferable purchasing processes.	**Continuous**
All municipalities of Mecklenburg County should consider the adoption and implementation of programs and policies that support recycling infrastructure through environmentally responsible purchasing and waste reduction and recycling programs.	**Incomplete**
A study of both the environmental savings as well as the financial savings for following the Environmentally Preferable Purchasing Guide recommendations will be accomplished by the County in 2009.	**Incomplete**
Study results should be utilized to help educate and promote policy development within municipalities throughout the County.	**Complete**

3.1.2 RECENT RELEVANT STUDIES

Best Practices Recycling Study

County LUESA staff recently completed a study titled *Best Practices for Local Government Solid Waste Recycling, Diversion from Landfill and Waste Reduction*. One of the elements explored in the study included product stewardship and market development. For example, it was found that in 2010, the Seattle City Council passed legislation aimed at reducing the delivery of unwanted yellow pages phone books. In May 2011, Seattle Public Utilities (SPU) launched an internet database, which allows people to opt out of receiving yellow pages and junk mail. By the end of May 2011, nearly 30,000 households and businesses signed up and opted out of more than 185,400 yellow pages deliveries. This represents more than 150 tons of paper waste prevention.

SPU supports the Northwest Product Stewardship Council (NWPSC), including support for state product stewardship of legislation addressing mercury-containing lighting (fluorescent bulbs and tubes) and medicines, and participation in policy development for state-level product stewardship legislation. The state-level policy development may cover paint; producer-paid secure medicine return; printed paper and packaging; and possible changes to existing law that would add additional electronic products to the E-Cycle Washington program. These are the types of efforts that may be beneficial to Mecklenburg County residents.

3.2 SOURCE REDUCTION POLICIES

3.2.1 EXISTING COUNTY SOURCE REDUCTION POLICIES

Environmentally Preferable Purchasing Policy and Guide

Mecklenburg County implements an environmental sustainability plan as a part of normal County operating procedures. The Mecklenburg County Environmental Sustainability Plan includes measures and targets toward attainment of long-term and short-term goals in the categories of emission reduction, resource conservation, commitment, and stewardship enhancement. One of the many programs developed to address the County's resource conservation goals includes implementation of an *Environmentally Preferable Purchasing Guide* (EPPG). Adherence to the Mecklenburg County EPPG has been incorporated into the County's finance policy. This EPPG targets inclusion of environmental considerations in purchasing decisions for goods and services. The purpose of this program is to support markets for recycled and other environmentally preferable products by encouraging County agencies and contractors to buy such products wherever practicable and to outline operating standards for waste reduction and recycling. This program builds on the previous Mecklenburg County *Recycled Product and Waste Reduction Policy* adopted in 1996 by the BOCC.

In support of the EPPG goals, the County manager issued a policy memo in 2011 to all County departments requiring the procurement of specific recycled content materials and adherence to the EPPG. The County manager's memo regarding EPPG, as well as the Mecklenburg County EPPG, is included in Appendix H. A model EPPG policy document available on www.stopwaste.org is also provided in Appendix H.

Since the 2009 SWMP, the County has achieved the initial long-term goals for environmentally preferable materials in park and recreation playground equipment, carpet, and computers and computer monitors. Remaining items within the EPPG that continue to hold specific short-term and long-term goals are provided in Table 3.2.

Table 3.2 Environmental Considerations In Purchasing Decisions for Goods and Services (Short-Term and Long-Term Goals)

2012 Goal	Long-Term Goal (2020)
EPPG update	100% compliance with revised policy (effective implementation)
Purchase printer/copy paper products that contain 100% recycled material with a minimum 30% post-consumer content; 90% compliance	95% compliance
Purchase green office supplies: paper (other than printer/copier), metal, or plastic products that contain a minimum 10% recycled materials and/or meet the Green Seal standards; 35% compliance	70% compliance
Purchase remanufactured inkjet, laser, and toner cartridges ; 30% compliance	90% compliance
Purchase cleaning products that meet the Green Seal standards; 60% compliance	70% compliance
Purchase paint with low level of VOCs; 80% compliance	95% compliance

Additionally, Mecklenburg County's Environmental Sustainability Plan includes implementation of a sustainable facilities and development policy. The County has adopted the US Green Building Council approach to certification of sustainable facilities, which is inclusive of recycled content products in those facilities as well as recycling of construction and demolition debris.

Source Reduction - Product Stewardship

An important issue related to waste reduction is product stewardship. However, it can be difficult to achieve significant impacts in the production and design of goods at the local level, when these decisions are typically made at the global level by national or international firms. Recognizing this fact, the Product Stewardship Institute (PSI) was formed. PSI is a nonprofit organization that works with state and local government agencies to partner with manufacturers, retailers, environmental groups, federal agencies, and other key stakeholders to reduce the health and environmental impacts of consumer products.

As defined by PSI, product stewardship is a management approach that ensures that all those involved in the lifecycle of a product share responsibility for reducing its health and environmental impacts, with producers bearing primary financial responsibility. While the definition states that all involved should share in the responsibility, the emphasis of product stewardship initiatives to date has been to encourage manufacturers to produce products with fewer toxics and manage those toxics that remain. A more specifically directed and expansive form of product stewardship EPR, is an idea that supports the producer's responsibility for the

post-consumer management of their product and its packaging. EPR policies accomplish two objectives: (1) shifting management and financial responsibility upstream to the producer and away from local government, and (2) providing incentives to producers to incorporate environmental considerations in the design of their products.

PSI accomplishes their goals by encouraging product design changes and mediating stakeholder dialogues at the higher level that local government agencies are not able to reach on their own. For example, in Alameda County, CA (a PSI Full Member), an EPR ordinance designed for unwanted and unused medications has passed its first vote (4-0), and is scheduled for a final vote on March 13. If passed, the law would require pharmaceutical companies to finance and manage take back programs in the County as of January 1, 2013. PSI submitted a letter of support for the bill.

The Mecklenburg County Board of County Commissioners approved and endorsed the County's application to become a member of PSI at their June 1, 2004, meeting. Other local members include the state of North Carolina, Catawba County, Forsyth County, and Wake County. Over the past few years, PSI has been working with several major national industries, including consumer electronics and paints, to address implementation of product stewardship approaches. This work has helped pass the Discarded Computer Equipment Management Act in 2007 and the Mercury Switch Removal Act in 2005 in North Carolina. Both laws require manufacturers to take some responsibility for the disposal of these goods at the end of their life cycle.

Figure 3.1 Product Stewardship Institute

The Discarded Computer Equipment Management Act, Session Law 2010-67, has resulted in a measureable positive impact in Mecklenburg County. In Fiscal Year 2011, the Mecklenburg County Solid Waste Department recycled 520 tons of electronics received from its residents. Because of the new law, Mecklenburg County received a distribution of $64,411 from the North Carolina Electronics Management Fund. These monies were collected by the state from the electronics manufacturers. As a result of the new law, additional electronics recycling infrastructure was developed in North Carolina, which has significantly changed the pricing structure for the service. In FY 2011, for the first time, Mecklenburg County received commodity revenues for the recycled electronics instead of incurring a processing cost.

The new law has also had a positive impact on the management of discarded electronics from businesses. A network of two dozen electronic take back centers has been established in Mecklenburg County, funded by the manufacturers. These are located in several retailers and in about twenty locations operated by Goodwill Industries of the Southern Piedmont. Additional national EPR initiatives are underway for oil and latex paints, mattresses and bedding materials, and consumer pharmaceuticals.

Figure 3.2 Electronics Management Poster

3.2.2 POTENTIAL NEW COUNTY SOURCE REDUCTION POLICIES

Potential strategies listed below were considered for this Plan Update. Sources for potential strategies include feedback from County staff, feedback from the Steering Committee, feedback received through the charrette and other outreach efforts, recent studies completed by the County, and known best practices in other jurisdictions.

- Work with CMS and private schools in the County to integrate waste reduction into curriculum and to implement waste reduction systems for all schools and administrative offices.
- Require reuse, recycling, or composting of all bulky items collected in the County (single family, multifamily, and business).
- Adopt a resolution supporting the enactment of federal and state legislation that recognizes excess packaging as a major source of waste with the burden of the waste management costs placed on local governments and mandates its reduction. Be a strong advocate for legislation and programs regionally, statewide, nationally, and globally that make manufacturers responsible for their packages and products.
- Study the city of Seattle's product stewardship regulations for possible waste prevention and recycling strategies for problem products in MSW and C&D waste.
- Develop model EPR ordinance for adoption at the County level.
- Engage industry; make them aware of materials and products that are problems for the County, and establish a process for resolving those problems.
- Engage industry; make them aware that all new manufactured products need to be designed to be reusable, recyclable, or compostable.
- Encourage and promote retailers that voluntarily take back packaging or products, and publish a list of take back opportunities throughout the County.
- Support retailers willing to take back materials by offering alternative collection programs for HHW and universal waste (such as compact fluorescent lamps, sharps, pharmaceuticals, or other difficult to recycle materials).
- Adopt local product policies such as mandatory take back requirements and EPR initiatives for difficult to recycle materials.
- Recognize retailers and manufacturers who are good stewards of their products and packaging through an annual awards program.
- Ban products or packages from being sold or require manufacturers or retailers to take back designated products and packaging sold in the County that are toxic in their manufacture, use, or disposal, and/or are not currently recyclable in the area.
- Initiate efforts to develop return on investment and life cycle cost analysis tools to help consumers evaluate long-term impact of procurement.
- Help retain and expand green businesses. Provide preferences in County procurement, funding, and permitting for certified green businesses in the County.
- Continue to lead by example to implement actions asked or required of residents and businesses, and report on progress annually.
    - Purchase sustainable products and services: return to vendor any wasteful packaging; reduce packaging and buy in larger units; use reusable shipping containers; purchase reused, recycled, and compost products; buy remanufactured equipment; lease, rent, and share equipment; buy durables, using life-cycle cost analyses; and purchase less toxic products.
    - Integrate EPR into County purchasing policies for difficult to recycle materials.

3.2.3 EXISTING MUNICIPAL SOURCE REDUCTION POLICIES

The City Procurement Services Division (PSD) has an environmental purchasing component that recognizes the need to be proactive in environmental stewardship and to serve as an example to all key business units and other agencies in the community. By establishing a baseline for Citywide purchasing of environmentally friendly or green products and services, PSD assists in the selection of products that have a reduced effect on human health and the environment when compared with competing products or services that serve the same purpose, without compromising overall budgetary or performance requirements.

To accomplish this goal, City departments are encouraged to practice Environmentally Preferable Purchasing (EPP) to specify and procure products and services with the following environmental attributes: recycled content; biodegradable; recyclable; energy and water efficient; alternate fuel capable; reduced packaging; reusability; and rebuilt or remanufactured. The City's EPPG is included in Appendix H.

No other municipalities currently have source reduction policies.

3.2.4 POTENTIAL NEW MUNICIPAL SOURCE REDUCTION POLICIES

With the County leading by example, the potential new policies described in Section 3.2.2 above can serve as the foundation for municipalities to implement similar policies.

Potential strategies listed below were considered for this Plan Update. Sources for potential strategies include feedback from County staff, feedback from the Steering Committee, feedback received through the charrette and other outreach efforts, recent studies completed by the County, and known best practices in other jurisdictions.

- Integrate EPR into municipal purchasing policies for difficult to recycle materials.
- Require reuse, recycling or composting of all bulky items collected in the municipalities (single family, multifamily, and business).
- Adopt a resolution supporting the enactment of federal and state legislation that recognizes excess packaging as a major source of waste with the burden of the waste management costs placed on local governments and mandates its reduction. Be a strong advocate for legislation and programs regionally, statewide, nationally and globally that makes manufacturers responsible for their packages and products.
- Develop model EPR ordinance for adoption at the municipal level.
- Engage industry; make them aware that all new manufactured products need to be designed to be reusable, recyclable, or compostable.
- Support retailers willing to take-back materials by offering alternative collection programs for HHW and universal waste such as compact fluorescent lamps, sharps, pharmaceuticals or other difficult to recycle materials.
- Adopt local product policies such as mandatory take back requirements and EPR initiatives for difficult to recycle materials.

- Recognize retailers and manufacturers who are good stewards of their products and packaging through an annual awards program.
- Ban products or packages from being sold or require manufacturers or retailers to take back designated products and packaging sold in the County that are toxic in their manufacture, use, or disposal, and/or are not currently recyclable in the area.
- Initiate efforts to develop return on investment and life cycle cost analysis tools to help consumers evaluate long-term impact of procurement.

3.3 RESIDENTIAL SOURCE REDUCTION AND REUSE

3.3.1 EXISTING COUNTY RESIDENTIAL SOURCE REDUCTION PROGRAMS

The County currently provides a number of source reduction programs to the residents of Mecklenburg County, including the City and municipalities. The programs are listed below with a description of each. Generally, these programs are designed to provide County residents with the information and tools to minimize the quantity of wastes they generate. Information on the following programs can be found online at www.WipeOutWaste.com and by contacting Mecklenburg County solid waste staff.

Table 3.3 provides an overview of programs promoted by the County. Specific County programs are described in more detail in the following subsections.

Table 3.3 Source Reduction Programs Promoted by the County

Name	Description
Don't Dispose It, Donate It	A living list of nonprofit charitable organizations that accept new or gently used items on a donated basis. This information is used to assist residents in placing unwanted items. Another component of this page is "www.Freecycle.org", which functions solely as an exchange connection for people that strive to keep good stuff out of landfills.
Environmental Shopping	Encourages purchase source reduction, purchase material reuse, and purchased item recycling in addressing environmental concerns. The way we shop is a major factor in the generation of solid waste. Food, clothing, toiletries, household necessities, appliances, and luxury items all have an environmental past, present, and future. From the oilfield, farm, factory, market, and finally to the landfill, energy is wasted, pollutants are released, and solid waste is generated at every stage in an item's production, use, and disposal. Just as individuals contribute to the solid waste problem, they can also be a part of the solution. Citizens can use the "dollar-ballot" to choose products which cause minimal impact to the environment.
Junk Mail Reduction	More than 100 million trees are used each year in the production of junk mail. The Wipe Out Waste website offers information and links for junk mail opt out programs. Most sites offer free services and information.
HHW Reduction	Improper disposal of household hazardous wastes can include pouring them down the drain, on the ground, into storm sewers, or in some cases putting them out with the trash. The dangers of such disposal methods might not be immediately obvious, but improper disposal of these wastes can pollute the

Table 3.3 Source Reduction Programs Promoted by the County	
Name	**Description**
	environment and pose a threat to human health. Mecklenburg County offers a free year-round collection service to County residents for proper disposal of HHW at its four full-service County drop-off centers.
Holiday Waste Reduction/Use Less Stuff Campaign	Started as Use Less Stuff Day (ULS), an educational campaign beginning the Thursday before Thanksgiving and continuing through New Year's Day. The campaign focuses on less-waste generating behaviors and activities during the holiday season. Cinema ads, public service announcements, interviews, and presentations are examples of other promotional techniques used to promote waste reduction during the holiday season. A flyer with holiday waste reduction tips is utilized at speaking engagements and educational booths/tables maintained during the holiday season.

3.3.1.1 Home Composting

Mecklenburg County's Organic Waste Reduction Program began conducting backyard-composting workshops in 1993. In 1998, these workshops were redesigned and titled PLANT (Piedmont Landscape and Naturescape Training). The revised format included soil testing, hands on composting, erosion control, landscaping with native plants, grass cycling, beneficial insects, organic and habitat gardening, and vermicomposting. Other components of the program included the Master Composter Training (MCPLANT) courses, community gardens in urban neighborhoods, a native plant list, demonstration areas, and partnerships with other County agencies to incorporate native plants as part of their landscape to conserve water and prevent exotic plants from becoming invasive. Mecklenburg County partnered with several local library branches, nature preserves, and the University of North Carolina Charlotte to provide meeting places for these classes. PLANT was promoted by print ads, radio spots, news articles, and The Wipe Out Waste guide. The growth of this training was significant. In 2008, the County increased the number of MCPLANT classes offered in response to demand. The Town of Matthews has also provided a compost bin sale utilizing grant funding.

In 2010, the initiative was renamed Mecklenburg County's Home Composting Program. While the components of the former PLANT program were maintained, the name change allowed for a redirection of action. This redirection placed the emphasis of the program back onto home composting and reconnected it to being a County sponsored event. Classes are now held at facilities that are connected to gardens and outdoor space. This gives students a hands-on experience to learn the cradle to cradle use of compost.

In 2009, 767 people participated in the County's PLANT and outreach classes.

The classes expose students to various methods of residential composting and organic waste reduction. The classes are free, and each participant receives a wire compost bin, a booklet on home composting, and direct teacher contact in a group setting.

Photo 3.1 Volunteer Event at Little Sugar Creek Community Garden

The Master Composter Program has also been revised. These changes include a more in-depth look at advanced technologies of residential and commercial composting, such as in-vessel and bio-digesters; the health effects and concerns of composting; on-site visits to commercial composting facilities and compost farms in the area; and three update classes for certified Master Composters.

The program is also re-launching its topic talk program with four classes scheduled for spring 2012 at the South Regional Library. Topics will include: Bokashi Composting and Deep Mulch Gardening, Vermicomposting, Companion Planting, and Creating the Healthy Earth Happy Lawn. These classes are aimed at the general public and intended to supplement the spring compost classes.

Photo 3.2 Potatoes Harvested from the Little Sugar Creek Compost Garden

Results of the 2010 Charlotte-Mecklenburg Annual Survey, conducted by LUESA, indicated that only 42% of residents surveyed were aware of the PLANT program. However, the 2011 Food Waste Diversion Study described in more detail in Chapter 5, Organics, estimates that 40% to 50% of single family households practice home composting, and 25% to 35% of those practitioners compost an average of 50% of food scraps they generate.

Table 3.4 Public Participation in Education Classes		
Class	**Year**	**Participants**
PLANT and outreach classes	Fall and Spring 2009	767
MCPLANT	Spring and Summer 2009	53
PLANT and outreach classes	Fall and Spring 2010	896
MCPLANT	Fall 2010	16
Home composting and outreach	Fall and Spring 2011	950
Master Composter Training Program	Spring 2011	16
Master Composter Training Program	Spring 2012	14

3.3.1.2 Charlotte-Mecklenburg School Composting

In response to the North Carolina Standard Course of Study, competencies for each grade level and high school course, Mecklenburg County provides schools with instruction and compost bin set-up. Both backyard composting and worm composting are occurring in 35 schools across the County. Mecklenburg County and CMS have partnered with the North Carolina Wildlife Federation (NCWF) in completing habitat assessments. Free mulch and compost was offered to those schools interested in becoming a NCWF certified habitat area. County solid waste staff offered advice and guidance to the schools in planning and maintaining their habitat.

This program was on hiatus for the 2009 year but brought back into focus in 2010 with the students of Hawthorne Alternative High School. Mecklenburg County's Organic Waste Reduction Program, in partnership with Keep Mecklenburg Beautiful and the Mecklenburg County Park and Recreation Department, created a template for compost gardens in relation to waste reduction. This template was then used to create gardens at the Charlotte Community School for Girls, Sterling Elementary, Allenbrook Elementary, Pineville Elementary, and the Learning Performance Center. The goal is to install at least five school compost gardens each fiscal year in requesting schools.

Photo 3.3 Students Gathering Leaves for Composting at Allenbrook Elementary

In 2011, an inter-agency task force was created. CMS representatives met with staff from Mecklenburg County's Environmental Heath Department, and Waste Reduction Department to create a document to define CMS school compost and compost garden standards. This document is used to continuously track the existence and conditions of school gardens and compost programs.

3.3.1.3 Internet Homepage and Social Media Networks

Keeping people up to date on the services offered, changes in technology both local and abroad, and how these changes affect us is the main goal of Mecklenburg County's internet activities.

The County uses the home page, www.WipeOutWaste.com, to keep the public updated about solid waste management programs. Wipe Out Waste brand integration, initiated in September of 2009, was a rebranding initiative designed to present a more emblematic image of the brand and reinforce and enhance awareness of the multitude of programs and initiatives provided by Mecklenburg County to its constituency throughout all municipalities. Brand integration effectively tethered residential, litter, C&D, education, composting, business & commercial, resource centers, and recycling drop-off center efforts.

Figure 3.3 Wipe Out Waste Logo

The home page has been live on the Internet since May 8, 1996. The effects of the homepage on waste reduction and recycling tonnage increases cannot be assessed, but developers are able to relay the number of hits received on individual pages. Communication links among the City, County, towns, and state officials are strengthened as information can be accessed and updated immediately. A decrease in the amount of information disseminated in print form is an additional benefit.

Facebook and Twitter became social network staples in 2009. Residents are able to interact in live time using the Facebook account of Mecklenburg County Waste Reduction and the Twitter account of @WipeOutWastenow. For residents that only want updated information, the program maintains a Facebook "Like" option under Mecklenburg County Waste Reduction.

Photo 3.4 Media Outreach at Little Sugar Creek Compost Garden

3.3.1.4 Publications and Other Initiatives

Since 2009, the County has continued and expanded publications and other initiatives for reaching out to residents in the County to promote programs. Table 3.5 below summarizes these additional publications and other source reduction outreach initiatives.

Table 3.5 Source Reduction Publications and Other Initiatives	
Name	**Description**
Home Composting/ Bin Sale Initiative	Conducted yearly, this initiative is designed to enhance awareness about the importance of home composting and the impact on the environment year-round. Bins are provided to all residents at a discounted price and mini, on-site classes are given about the benefits of home composting and how to compost. Initiative utilizes print media throughout Mecklenburg County including all zones, geo-targeted web marketing, banner ads, and eblasts.
Home Composting Class Initiatives	Web marketing, eblasts, and flyers are regularly utilized to promote classes together with targeted print and radio ads. Residents are encouraged to sign-up online and participate as often as they like to further enhance the home composting initiative throughout the County.
Use Less Stuff Holiday Initiative	Conducted yearly, the comprehensive initiative is designed to reinforce how important it is to reduce, reuse, and recycle throughout the holidays and more. Campaign components offer seasonally driven, earth-friendly solutions and suggestions for gift giving, packaging materials, decorations, holiday wraps, etc. Promotional elements include: 3 Mall Inserts at 2 locations, ReGreen Web pages and banners, eblasts, geo-targeted web banners, Give Green for The Holidays booklets, and print media throughout Mecklenburg County. Targeted editorial articles are also written for insertion in The Observer Holiday section.
Eblast Marketing Initiative	Horizontal and Vertical banners are regularly developed and customized for municipalities to help promote ongoing Mecklenburg County programs and initiatives. Banners are developed 4-color in both digital and print formats for use on web and with electronic media such as newsletters, eblasts, event calendars, as well as flyers / posters for community centers and local government offices / libraries, etc. Initiatives promoted include Know Where It Goes, Recycle Your Workspace in support of America Recycles Day, Use Less Stuff for The Holidays, Wipe Out Waste Ambassador Program, Home Composting Classes and Solid Waste Management Plan Outreach. Recycle Your Workspace banners were also provided to local businesses and management companies that expressed an interest in waste reduction efforts.

3.3.1.5 Community Outreach and Education

Realizing that not all people are able to come to the County's programs, the County decided to take some of the programs to the people. Through many community partnerships, the Organic Waste Reduction Program is introducing composting and organic waste reduction to people that may not have access to a computer or the traditional programs. Through partnerships with the Mecklenburg County Park and Recreation Department, Charlotte Green of Mecklenburg County, and Friendship Gardens, the County has established and is establishing compost facilities in all major community gardens. The County is working with the Neighborhood Good Samaritan Center to help re-assigned refugees adapt to life in the USA through compost and compost gardening.

Photo 3.5 Senator Kay Hagan Visits the Compost Garden

The County has also partnered with Johnson and Wales University to teach culinary students the impact that food scraps and improper farming methods have on the planet. By using volunteers from Hands On Charlotte, the County is able to quickly spread the word on the worth of the program through volunteers who have firsthand experience.

Photo 3.6 Compost Garden at Charlotte Community School for Girls

The County also partnered with the Charlotte Community School for Girls to introduce composting and healthy container gardening programs to its rising 5th graders.

Other outreach and volunteer programs include the Chapel of Christ the King project, a communal foodshare and zen compost garden located just north of downtown Charlotte in the Optimist Park neighborhood; Little Sugar Creek Foodshare and Compost Garden, also located just north of downtown Charlotte in the Belmont neighborhood; Performance Learning Center Compost Garden, located on the campus of the Performance Learning Center, a CMS academic retention school; Saturday Master Composter Training classes designed for those that wish to participate in the Master Composter Training but are unable to attend the weekday classes; and Fuel Pizza School Gardens, an ambitious collaboration with Charlotte Green, Wipe Out Waste, and CMS to place edible landscape pizza gardens in select schools throughout the County.

Photo 3.7 Outreach with Charlotte Community School for Girls & Civic By Design

3.3.2 POTENTIAL NEW COUNTY RESIDENTIAL SOURCE REDUCTION PROGRAMS

Potential strategies listed below were considered for this Plan Update. Sources for potential strategies include feedback from County staff, feedback from the Steering Committee, feedback received through the charrette and other outreach efforts, recent studies completed by the County, and known best practices in other jurisdictions.

- Continue to expand composting training programs, including the number and variety of residential composting methods taught.
- Continue to revise, reduce, and update www.wipeoutwaste.com to become more user-friendly.
- Continue to survey the effectiveness of current programs by traditional survey tools and website hits, to look for improvement opportunities.
- Continue outreach partnerships in the County to look for educational tools to reach the unconventional customer.
- Research other jurisdictions' organic waste reduction programs to look for opportunities for growth of the County's current home composting program.
- Promote internet reuse programs (e.g., Freecycle™, craigslist).
- Provide bulky item collection for reuse and recycling to residents, in addition to the white goods recycling already provided through the state required program.
- Partner with nonprofits or private sector service providers to provide reuse and recycling of bulky items on the same day as cleanup programs.
- Provide signs that inform the community about current waste diversion rates to inspire residents to do more to divert waste (similar to seat belt road signs).
- Research successful source reduction programs in other jurisdictions (e.g., Canadian sticker program - put a sticker on the mailbox and stop junk mail).
- Undertake a smart shopper campaign to encourage shoppers to make purchasing decisions that reduce waste and promote sustainability.
- Research local EPR mandates if the state does not act (including difficult to recycle items such as pharmaceuticals and HHW, such as Alameda, CA has done).
- Develop a reuse and repair guide listing locations for residential durable goods to be exchanged, swapped, or refurbished.
- Provide tool lending libraries at local libraries where donated garden tools or specialty equipment can be loaned out for use.

3.3.3 EXISTING MUNICIPAL RESIDENTIAL SOURCE REDUCTION PROGRAMS

The municipalities partner with the County and other agencies to implement residential source reduction programs.

3.3.4 POTENTIAL NEW MUNICIPAL RESIDENTIAL SOURCE REDUCTION PROGRAMS

As with source reduction policies, with the County leading by example, the potential new programs described in Section 3.3.2 above can serve as the foundation for municipalities to implement similar programs.

Potential strategies listed below were considered for this Plan Update. Sources for potential strategies include feedback from County staff, feedback from the Steering Committee, feedback received through the charrette and other outreach efforts, recent studies completed by the County, and known best practices in other jurisdictions.

- Promote internet reuse programs (e.g., Freecycle, craigslist).
- Provide bulky item collection for reuse and recycling to residents, in addition to the white goods recycling already provided through the state required program.
- Partner with nonprofits or private sector service providers to provide reuse and recycling of bulky items on the same day as cleanup programs.
- Provide signs that inform the community about current waste diversion rates to inspire residents to do more to divert waste (similar to seat belt road signs).
- Undertake a smart shopper campaign to encourage shoppers to make purchasing decisions that reduce waste and promote sustainability.
- Support neighborhood clothing swaps and community-wide garage sales.
- Promote local repair and reuse organizations.
- Promote local retailers who voluntarily take-back products and packaging.

3.3.5 RESIDENTIAL SOURCE REDUCTION ASSESSMENT

The County continues to be a progressive leader in the region with its innovative and successful waste reduction and recycling education programs for residents through an integrated solid waste management system. The current Organic Waste Reduction Program is an effective and small scale tool in teaching the general public about the impact the amount of generated food has on the overall waste reduction effort. According to the recently completed 2011 Food Waste Diversion Study, discussed in more detail in Chapter 5, Organics, it is estimated that between 800 and 2,900 tons of food scraps are diverted annually by residents in the County.

3.3.6 RESIDENTIAL SOURCE REDUCTION RECOMMENDATIONS

In the short term (2013 – 2017), the County and municipalities should:

- **Continue backyard composting outreach and training.**
- **Develop and maintain a local waste trader database to facilitate and promote reuse.**
- **Develop and maintain a responsible products database to promote local businesses that have adopted EPR and product stewardship polices and products to residents in order to encourage responsible purchasing habits and reward businesses.**

The County should:

- **Publish a countywide repair and reuse guide identifying businesses throughout the County that provide repair services and/or resale and distribution of clothing, small appliances, electronics, and other household items.**
- **Support Reuse Alliance NC's efforts to recruit members throughout Mecklenburg County, as they have done in Durham County, Orange County, and Wake County (www.reusealliance.org).**
- **Publish a countywide voluntary retailer take back guide.**
- **Continue to survey the effectiveness of current programs by traditional survey tools and website hits, to look for improvement opportunities.**
- **Continue outreach partnerships in the County to look for educational tools to reach the unconventional customer.**
- **Research other jurisdictions' organic waste reduction programs to look for opportunities for growth of the County's current home composting program.**
- **Study the city of Seattle's product stewardship regulations for possible waste prevention and recycling strategies for problem products in MSW and C&D waste.**
- **Promote internet reuse programs (e.g., Freecycle, craigslist).**
- **Provide bulky item collection for reuse and recycling to residents, in addition to the white goods recycling already provided through the state required program.**
- **Partner with nonprofits or private sector service providers to provide reuse and recycling of bulky items on the same day as cleanup programs.**
- **Provide signs that inform the community about current waste diversion rates to inspire residents to do more to divert waste (similar to seat belt road signs).**
- **Research successful source reduction programs in other jurisdictions (e.g., Canadian sticker program - put a sticker on the mailbox and stop junk mail).**
- **Undertake a smart shopper campaign to encourage shoppers to make purchasing decisions that reduce waste and promote sustainability.**

The municipalities should:

- **Support neighborhood clothing swaps and citywide garage sales.**
- **Develop and implement a tool lending library at local libraries.**
- **Educate citizens on source reduction programs.**

In the long term (2018 – 2022), the County and municipalities should:

- **Adopt local EPR mandates if the state does not act (for difficult to recycle items such as pharmaceuticals and HHW).**
- **Ban hard to recycle materials and single-use items (nonrecyclable, noncompostable take out containers, single use bags).**

Diversion potential for the strategies recommended for source reduction and EPR is estimated to be nearly 6% of the residential waste stream.

3.4 COMMERCIAL SOURCE REDUCTION AND REUSE

3.4.1 EXISTING COUNTY COMMERCIAL SOURCE REDUCTION PROGRAMS

The County offers commercial waste assessments and presentations to businesses and trade associations where source reduction and reuse practices are emphasized. Since fiscal year 2009, County solid waste staff members have made more than 85 presentations and completed nine waste assessments for local businesses. Waste assessments are also provided by local recycling and garbage collection companies.

In addition, the County offers business specific fact sheets for many industries including hotels, restaurants, manufacturing, places of worship, etc. These fact sheets offer many source reduction/reuse opportunities that businesses may utilize. They also offer a description of the positive impacts of waste reduction, and describe the process necessary to start a waste reduction program.

3.4.2 POTENTIAL NEW COUNTY COMMERCIAL SOURCE REDUCTION PROGRAMS

Potential strategies listed below were considered for this Plan Update. Sources for potential strategies include feedback from County staff, feedback from the Steering Committee, feedback received through the charrette and other outreach efforts, recent studies completed by the County, and known best practices in other jurisdictions.

- Continue to educate businesses on source reduction alternatives.
- Develop and maintain a local waste trader database (self-maintaining software) for business and C&D items (minimum volume).
- Create an unstaffed triage center, where people are free to take and give, or a staffed center where staff could assess the reusability of collected bulky items and then opt to recycle, etc. This could be an option to minimize the waste stream from bulky items.
- Support Habitat for Humanity, Goodwill, or other potential partners in establishing a building materials reuse center for brick, doors, lumber, windows, sinks, and other reusable materials for building projects.
- Promote Good Samaritan Law, which allows food producers to donate leftover food to food banks and nonprofits without liability, as discussed in Chapter 5, Organics.
- Provide direct technical assistance to commercial, institutional, and industrial generators to assist them in reducing waste in their operations.
- Promote commercial and industrial waste exchanges online to encourage business transactions for reuse.
- Provide model procurement guidelines for businesses to incorporate EPR and sustainability initiatives into their purchasing practices.
- Provide information to businesses on voluntary retailer take-back of products and packaging.

3.4.3 EXISTING MUNICIPAL COMMERCIAL SOURCE REDUCTION PROGRAMS

The City of Charlotte offers presentations about source reduction and recycling to the business community when requested, and is discussed in more detail in Chapter 4, Recycling, Section 4.4.9. The other municipalities partner with the County and other agencies to implement commercial source reduction programs.

3.4.4 POTENTIAL NEW MUNICIPAL COMMERCIAL SOURCE REDUCTION PROGRAMS

Potential strategies listed below were considered for this Plan Update. Sources for potential strategies include feedback from County staff, feedback from the Steering Committee, feedback received through the charrette and other outreach efforts, recent studies completed by the County, and known best practices in other jurisdictions.

- Continue to provide technical assistance to local businesses in waste prevention and reduction.
- Promote local reuse and repair businesses and retailer take back of products and packaging.
- Promote waste exchanges and building materials reuse centers.

3.4.5 COMMERCIAL SOURCE REDUCTION ASSESSMENT

Source reduction can be an elusive concept to measure. Even when an organization does show a reduction in their waste stream over time, without a full characterization of the waste generated before and after changes are implemented, it is difficult to prove which initiatives are successful and how successful they are. However, it continues to be a vitally important concept because it is much easier and less expensive to simply never generate waste than it is to find a way to recycle it.

3.4.6 COMMERCIAL SOURCE REDUCTION RECOMMENDATIONS

In the short term (2013 – 2017), the County should continue to promote source reduction methods, and set an example for other establishments by adopting source reduction strategies for itself. The County should continue providing information and, where possible, technical assistance to the commercial sector. Specifically efforts should include:

- **Continue the promotion of source reduction methods through existing outreach campaigns.**
- **Lead by example through source reduction efforts such as double-sided printing in all government office buildings.**
- **Develop and maintain a local waste trader database to allow residents and businesses to easily identify reuse opportunities.**

- **Initiate efforts to develop return on investment and life cycle cost analysis tools to help consumers evaluate long-term impacts of procurement.**

The municipalities should:

- **Continue to provide technical assistance to local businesses in waste prevention and reduction.**
- **Promote local reuse and repair businesses and retailer take back of products and packaging.**
- **Promote waste exchanges and building materials reuse centers.**

In the long term (2018-2022), the County and municipalities should continue to promote successful source reduction programs.

Diversion potential for the strategies recommended for source reduction and EPR is estimated to be nearly 6% of the commercial waste stream.

3.5 SOURCE REDUCTION INFRASTRUCTURE

3.5.1 EXISTING SOURCE REDUCTION INFRASTRUCTURE

Source reduction infrastructure includes all existing materials exchanges, such as eBay, craigslist, and Freecycle. These online exchanges provide extensive opportunities for reducing disposal of unwanted materials. PlanetReuse (www.planetreuse.com) is an organization focused on building materials reuse.

Reuse and repair infrastructure includes:

- Architectural salvage
- Art & school supplies reuse
- Bicycle refurbishing & reuse
- Book reuse
- Bridal gown resale
- Children's item reuse
- Clothing reuse
- Computer & electronics reuse
- Food rescue organizations
- Furniture reuse (Residential / Office)
- Multimaterials reuse
- Organics reuse & recycling
- Reusable/refillable products & accessories
- Theatrical/film item reuse
- Wood waste reuse & recycling

3.5.2 POTENTIAL NEW SOURCE REDUCTION INFRASTRUCTURE

Potential new source reduction infrastructure would primarily be provided by the private sector. The County and municipal involvement in such infrastructure could be to promote the availability of locations, including through the www.wipeoutwaste.com home page, and the potential development of a local waste trader database as identified in Section 3.4.6.

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Chapter 4

RECYCLING

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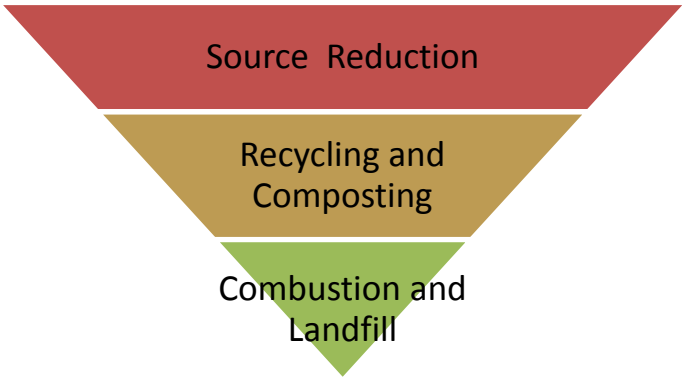
Chapter 4 RECYCLING

4.1 OVERVIEW

The second level in the EPA's hierarchy of solid waste is recycling. The EPA and National Recycling Coalition define recycling as a series of activities by which discarded materials are collected, sorted, processed, and converted into raw materials and used in the production of new products. Recycling can basically include any technique that turns discarded materials into useful products.



While recycling programs have been in existence for many years, the ongoing challenge to increase participation rates from both residents and businesses remains. New programs and/or incentives to provide motivation are one avenue to increasing participation. In order for these to be effective, though, adequate recycling infrastructure and market development must also be in place.

This section identifies existing recycling activities within the County, which include recyclables collection, drop-off and processing facilities, and public education and outreach to promote recycling. The section also breaks these activities down into three distinct divisions by the type of generator: single family residential curbside recycling, multifamily recycling, and commercial recycling. Yard trimmings and C&D are addressed elsewhere in the Plan.

Mecklenburg County invested $7.3 million in equipment to convert the MRF to single stream processing in 2010.

4.1.1 RECOMMENDATIONS FROM 2009 SWMP

Table 4–1 Recycling 2009 Recommended Strategies	
Recommendations from the 2009 Plan	**Status**
Residential Single Stream Recycling	
Survey the community to determine service expectations and information needs for both dual stream and single stream curbside recyclable collection programs.	**Complete**
Establish a baseline for current performance against which to measure single stream.	**Complete**
Assess the detailed costs of implementation and the interest of the municipalities in converting from dual stream to single stream.	**Complete**
Develop and implement an education master plan that incorporates the survey findings and prepares for implementation of single stream collection approach.	**Complete**
Develop a single stream transitional program to ensure uninterrupted service to the participating municipalities during the conversion of the Metrolina Recycling Center.	**Complete**
Curbside Value Partnership	
Continue to review national opportunities to expand local recycling efforts in Mecklenburg County.	**Complete**
Multifamily Recycling	
Convene a working group of the various agencies who have a stake in tracking housing data, reconcile the differences in the data, and determine the actual number of multifamily housing units.	**Decided against**[1]
Conduct a study of multifamily recycling that, at a minimum, achieves the following tasks:	
Determine the number of multifamily housing units that receive recycling services.	**Complete**
Determine to what extent multifamily residents are recycling at complexes receiving this service.	**Complete**
Determine the level of awareness about recycling among residents at complexes receiving recycling services.	**Complete**
Survey and determine the level of interest in having recycling services provided among residents at complexes which do not have recycling service.	**Incomplete**
Propose an educational and marketing strategy to increase participation in complexes receiving recycling service.	**Incomplete**
Propose strategies to deliver recycling services to multifamily units that do not receive service at present.	**Complete**
Continue participation in current pilot program for the City and other programs seeking to expand recovery of recyclables.	**Complete**
Commercial Recycling	
At a minimum, the mandatory component of the commercial program should continue with periodic program evaluation.	**Continuous**

Table 4–1 Recycling 2009 Recommended Strategies	
Recommendations from the 2009 Plan	**Status**
Efforts to promote commercial recycling drop-off center programs should be continued.	**Continuous**
To encourage identification of commercial recycling in the area, the branding of the commercial recycling drop-off center program should be investigated and implemented.	**Continuous**
Recycling Space Allocation in Non-Residential Buildings	
Continue working with the remaining towns to get a text amendment approved that meets the intentions of the 2000 Plan.	**Incomplete**
Convene a working group to develop zoning code specifications for enclosures (both recycling and solid waste).	**Decided against**[2]
Business Recognition and Mentor Program	
Continue and expand the Mecklenburg County Business Recognition and Mentor Program: – Opportunities exist to further expand this program to the PaperChase recycling program. – The program should further expand its outreach through multimedia and increased opportunities for networking and promotion of its membership. – The vision and purpose of this program should continue to address both voluntary and mandatory recycling efforts.	**Continuous**
Recycling in Public Schools and PaperChase	
Continue and expand CMS and City/County facility recycling programs, as described below.	
When single stream recycling is available, collection of cardboard/paper and beverage containers will become simplified and far less expensive. Container recycling can then be expanded to all CMS and County facilities at that time.	**Complete**
Seek alternative funding sources in order to grow programs.	**Continuous**
Identify and develop contacts at collection sites to assist in sustaining the waste reduction and recycling program.	**Continuous**
Annually review the collection frequency of garbage and recycling dumpsters.	**Continuous**
Develop a reward system for County program participants.	**Incomplete**
Enforcement of SSO at CMS, City, and County facilities.	**Continuous**
Work with the County's Park & Recreation Department to expand recycling of beverage containers at the parks.	**Complete**
Work with the City and all the municipalities to expand recycling programs.	**Continuous**

Table 4–1 Recycling 2009 Recommended Strategies	
Recommendations from the 2009 Plan	**Status**
Commercial Outreach & Education	
Continue to educate Mecklenburg County businesses on commercial waste reduction, reuse, and recycling. Suggested future programs include promotion through business licensing and Chambers of Commerce for all Mecklenburg municipalities, highlighting specific businesses or materials; grants for promotion; targeted mailings; adequate and appropriate signage; and standardized presentations.	**Continuous**
Drop-off Recycling Centers	
Continue to expand services and promotion of all County drop-off centers.	**Continuous**
Other Commercial Waste Reduction Programs	
Continue to expand services: design and provide programs that assist and encourage recycling, and promote throughout Mecklenburg County.	**Continuous**
Food Waste	
Research successful programs across the country to gain knowledge of the infrastructure needed to develop a successful food waste composting program for this County.	**Complete**
Gain greater knowledge of food waste disposal practices through field studies to support estimated food waste characterization quantities.	**Incomplete**
Investigate and identify barriers to the development and implementation of food waste reduction and composting programs in this county.	**Complete**
Increased education on food waste reduction, reuse, and composting are needed in the commercial sector.	**Continuous**
Metals	
Further research is necessary to determine which segments of the commercial sector are landfilling metal wastes. After the research is analyzed, a focus of attention can be given to alleviating the obstacles for those segments.	**Decided against**[3]
Small Business Recycling	
Local governments should continue to pursue mechanisms for collecting materials from businesses where contracting with private haulers would be uneconomical.	**Continuous**
Consider the expansion of the mandatory commercial recycling program. Reduce the threshold for SSO requirements to eight cubic yards of service weekly. Expand the list of eligible or required materials to include plastic and packaging or items accepted at the Metrolina Recycling Facility.	**Incomplete**
Consider requiring all businesses that contract eight cubic yards of garbage service per week, even small businesses, to submit a recycling plan to the County.	**Incomplete**

Table 4–1 Recycling 2009 Recommended Strategies	
Recommendations from the 2009 Plan	**Status**
Consider assessing upon all improved properties a generator fee per unit to fund recycling in Mecklenburg County.	**Complete**
Grant recycling space allocation for commercial buildings throughout the County.	**Incomplete**
Studies should be performed to project the potential recovery rates and anticipated participation levels of small businesses in a single stream recycling system.	**Complete**
Event Recycling	
Revise toolkit and educational pieces.	**Continuous**
Develop and maintain a tracking tool that lists the event name, contact, and other relevant information.	**Continuous**
Share information with the towns on the resources available from this program.	**Continuous**
Study the viability of composting options for food and compostable utensils as it relates to event recycling.	**Incomplete**
Work with the private sector on recyclable collections methods (be it providing the large roll off or smaller, individual containers).	**Continuous**
Continue to explore ways to expand and improve the program.	**Continuous**
Develop stronger partnerships with the County's Park and Recreation Department and Health Department to pinpoint and service upcoming events in the area.	**Continuous**
Recycling Requirements for Businesses with ABC Permits	
Continue to educate and encourage ABC permit holders regarding permit requirements and methods to meets the recycling requirements of the law.	**Continuous**
Recycling Facilities – Full-Service Centers	
Reconfigure the Foxhole Landfill with drop walls to increase both the safety and the efficiency of the site.	**Incomplete**
Conduct a feasibility study, in the later part of this Plan, to evaluate adding the use of drop walls for a more efficient handling of materials.	**Complete**
Establish a comprehensive marketing program in first three years of this Plan to promote the full-service centers to potential users located in the area of the service centers.	**Continuous**

1 It was determined that an alternative method of data collection was in place.
2 It was later determined not to be a problem of sufficient depth.
3 It was determined that any approach to recovering additional metals would need to be integrated into an overall Source Separation Ordinance.

4.1.2 MUNICIPAL RECYCLING TONS AND RATES

As shown in Table 4.2, the estimated residential recycling rates have increased since 2009 in Charlotte, Cornelius, and Huntersville. Estimated recycling rates have decreased in Davidson and Matthews, which may at least in part be attributable to the routing of collection vehicles that crossed jurisdiction boundaries through FY2011, therefore skewing tonnage reports by jurisdiction. Recycling rates were calculated by adding tons disposed, tons recycled, and tons composted for total tons generated, and then dividing recycling tons by total generated tons. Incomplete tonnage information for Mint Hill and Pineville did not allow recycling rates to be calculated for all three years represented below.

Table 4–2 Tons Recycled, Estimated Rate

Municipality	Fiscal Year 2009		Fiscal Year 2010		Fiscal Year 2011	
Charlotte	38,727	10%	34,253	9%	44,587	11%
Cornelius	4,974	13%	4,988	12%	2,086	18%
Davidson	619	19%	526	15%	449	12%
Huntersville	5,394	13%	5,500	12%	3,833	18%
Matthews	1,972	15%	1,495	12%	1,519	12%
Mint Hill	1,221	9%	1,163	11%	1,231	12%
Pineville	188	Not Avail	130	Not Avail	131	5.3%

Source: NCDENR Solid Waste and Materials Management Annual Report Forms

4.2 RESIDENTIAL SINGLE FAMILY CURBSIDE RECYCLING

4.2.1 RECENT RELEVANT RESIDENTIAL RECYCLING STUDIES

Recycling Set-out Rate Study

As the County began to consider new options for recycling, it was determined that a better understanding was needed of existing participation and attitudes towards recycling. In 2009, Mecklenburg County Solid Waste contracted with Clark and Chase Research to complete a recycling survey via phone and an observation (set-out rate) survey. The purpose of the observation study was to measure participation in recycling among households with curbside service through direct observation.

The objectives of the observation study were to:

- Calculate participation rate: The percent of households that participate one or more times in a two week period.
- Calculate set-out rate: The percentage of households that set out recyclables on an average collection day.

- Evaluate how the observed data coincides with self-reported measures of the same behavior.

The study included observing the recycling participation of 36,000+ households from 39 randomly selected routes in Mecklenburg County. The results of the study indicate the following:

- The participation rate of Mecklenburg households in curbside recycling is 56%.
- The average set-out rate of Mecklenburg households in curbside recycling is 43%.
- Three in ten Mecklenburg households (31%) recycle every collection day.
- One in four (24%) recycle less often.
- The relationship between home value and actual recycling activity is a socioeconomic issue.
    - Recycling also varies by town and regions of Charlotte.
    - Promotional and education messaging should target lower-income neighborhoods and households first.
- Observation is a more dependable measure of recycling participation. In the future, the County should:
    - Have more precise route information by specific geographical areas.
    - Have specific households served by specific routes.
    - Have routes that are consistently followed on each collection day.

For the phone survey, 2,000 surveys of randomly selected Mecklenburg County residents were conducted to measure satisfaction with curbside recycling service, explore reasons citizens do not recycle, and examine citizen awareness, attitudes, and overall knowledge about recycling. The results of the phone survey indicated:

- In regard to participation:
    - An estimated 80% of residents said they set out recyclables at least once every two weeks.
    - 60% of households say they participate in recycling all the time.
    - Recycling participation is most likely overstated because it is self-reported and because there is a social desirability associated with recycling.
- In regard to service:
    - 88% feel they have a good understanding of what can be recycled.
    - 85% of households were satisfied with their recycling service.
    - Nearly half of all households that recycle curbside separate their materials, even though it is not required.
- In relation to potential new programs:
    - In regard to mandatory recycling, 47% are very supportive and 23% somewhat supportive.
    - 70% of respondents are interested in a rewards program for recycling.
    - Less than half of respondents were supportive of a pay as you throw program that encourages recycling by charging for waste services based on weight or volume.
- The overall favorite way to receive information about recycling is via local television. Other media to consider includes radio, utility flyers, and local and regional newspapers.

2010 UNCC Urban Institute Survey

Results of the 2010 Charlotte Mecklenburg Annual Survey, conducted by the UNCC Urban Institute, indicated that more than 87% of residents surveyed would support residential mandatory curbside recycling.

Table 4.3 below summarizes more highlights of the study. As shown, 97% of respondents feel it is very important (79%) or somewhat important (18%) to the quality of life in the County to protect the environment. Eighty-five percent claim to participate in curbside recycling, though actual participation is estimated to be much lower. A majority of respondents would not support higher taxes to better protect the environment in the County.

Table 4–3 Annual Survey Highlights

Question	Response	Percent of Respondents
How important is protecting environment to overall quality of life in the County?	Very Important	79%
How important is protecting environment to overall quality of life in the County?	Somewhat Important	18%
Do you participate in curbside recycling?	Yes	85%
Would you support higher taxes to better protect the environment in the County?	Yes	38%
	No	62%

Recycling Best Practices Study

County LUESA staff recently completed a study titled Best Practices for Local Government Solid Waste Recycling, Diversion from Landfill and Waste Reduction. Most, if not all, communities with high recycling rates have some form of mandatory or incentive-based recycling policy. Table 4.4 highlights U.S. communities with exceptional curbside policies.

Table 4–4 U.S. Programs with Exceptional Curbside Programs

	Austin, TX	Boulder, CO	Fresno, CA	Indianapolis, IN	Oakland, CA	Philadelphia, PA	Portland, OR	San Francisco, CA	San Jose, CA	Seattle, WA	Toronto Canada
Mandatory Curbside			X			X		X			X
Volume Based Pay	X	X		X	X		X	X	X	X	X

4.2.2 RESIDENTIAL CURBSIDE RECYCLING

In the Mecklenburg County planning area, residents of the incorporated municipalities receive solid waste services either directly from the local government or through contracted services administered by the local government. For most residents, services include curbside garbage, recycling, yard waste, and bulky item collection. The City and towns provide these services to single family households. For residents of the unincorporated portions of Mecklenburg County, subscription collection services are available through private haulers.

Following is a more detailed description of recycling services provided to curbside customers. Throughout Mecklenburg County, curbside recycling programs are considered commingled systems. This term is used because residents are allowed to place all of their recyclables into the same container or bin. Collection is considered to be single stream because there is no sorting or separating of material by the collector.

4.2.3 EXISTING COUNTY RESIDENTIAL CURBSIDE RECYCLING POLICIES

Collection services in the unincorporated area are provided on a subscription basis, where residents contract directly with private haulers if the resident desires the service. A Mecklenburg County ordinance requires that haulers providing garbage service to subscribers in single family homes in the unincorporated area must also offer recycling service at no additional charge.

4.2.4 POTENTIAL NEW COUNTY RESIDENTIAL CURBSIDE RECYCLING POLICIES

Potential strategies listed below were considered for this Plan Update. Sources for potential strategies include feedback from County staff, feedback from the Steering Committee, feedback received through the charrette and other outreach efforts, recent studies completed by the County, and known best practices in other jurisdictions.

- Support the state ban of materials from landfills, including aluminum cans and recyclable rigid plastic containers, with a County ordinance banning these materials from garbage containers.
- Implement universal (mandatory) curbside recycling participation, via ordinance.

4.2.5 EXISTING MUNICIPAL RESIDENTIAL CURBSIDE RECYCLING POLICIES

The municipalities within the County do not have any specific residential curbside policies.

4.2.6 POTENTIAL NEW MUNICIPAL RESIDENTIAL CURBSIDE RECYCLING POLICIES

Potential strategies listed below were considered for this Plan Update. Sources for potential strategies include feedback from County staff, feedback from the Steering Committee, feedback received through the charrette and other outreach efforts, recent studies completed by the County, and known best practices in other jurisdictions.

- Support the state ban of materials from landfills, including aluminum cans and recyclable rigid plastic containers, with municipal ordinances banning these materials from garbage containers.
- Implement universal (mandatory) curbside recycling participation, via ordinance.

4.2.7 EXISTING COUNTY RESIDENTIAL CURBSIDE RECYCLING PROGRAMS

While the County is not directly responsible for the collection of curbside recycling, the County provides education and outreach programs in support of curbside recycling. In FY 2009-2010, Mecklenburg County began an intense public education and outreach campaign to promote recycling in general, and specifically to promote the start of a single stream collection system countywide. Each municipality in the County converted to single stream collection and also agreed to collect all materials that are acceptable at the Material Recovery Facility (MRF). Re•think recycling became the brand for the change from dual stream to single stream campaign for the County. Municipalities could use the re•think campaign and developed their own messaging. Because each municipality was accepting all materials, the promotional message to the citizens of the County was cohesive and consistent. The public education and promotional campaign strategies have included:

- Re•think flier distribution to citizens in all Planning Area municipalities.
- Mobile/stationary billboard ads.
- Print/radio/mall/cinema ads.
- Water bill inserts.
- Gasoline station pump toppers.
- Web banners.
- Wipe Out Waste Guide distribution.
- Presentation of information at schools, businesses, homeowners associations, community organizations, City departments, and community events.

Table 4.5 summarizes other publication and outreach initiatives.

Table 4–5 Recycling Publications and Other Initiatives	
Name	**Description**
Re•think Recycling Single Stream Initiative	In July of 2010, the initiative put forth a strong call to action to encourage citizenry to change the way residents and businesses think about recycling. This overarching communications strategy and multilingual support materials targeted all stakeholders including residents, businesses, schools, haulers, recycling center sponsors, and City and County employees. To ensure countywide buy-in, a joint meeting with the municipalities was held to introduce the creative approach and executable components and garner collaborative participation. Since recycling cart size would vary by municipality, the three cart sizes to be utilized were integrated into campaign graphics. In addition, campaign materials provided both written detail along with visual cues of all new and existing materials now accepted, as well as those not accepted. All municipalities launched their program utilizing the re•think creative moniker.
America Recycles Day	Mecklenburg County supports America Recycles Day yearly, providing a variety of promotional and educational materials. Activities vary based on locally scheduled events. Mecklenburg County encourages all CMS, private, and charter schools to incorporate recycling lesson plans into their curriculum. Designed to keep students involved with recycling year round, remember to Be Cool Recycle in School lesson plans were developed within four groups: K-2nd grade, 3rd-4th grade, 5 th-6th grade, and 7th-12th grade, and include subjects such as Renuzit; Angry Animals; A Paperless Train; What Goes Around; The Case Of The Missing Trash Can; What Can We Do; 3R's Reduce, Reuse, Recycle; and A Look At Aluminum. Banner ads, posters, and e-mail blast materials are also utilized.
Great American Cleanup	Each year Mecklenburg County and Keep Mecklenburg Beautiful (KMB) kick off and support the Great American Cleanup, March 1 – May 31. Volunteers are encouraged to participate throughout the community via a variety of local activities taking place throughout the municipalities. Participants are also encouraged to visit the KMB and Keep America Beautiful websites for additional information on how to participate or hold their own events. Program components include local municipality event participation and giveaways such as t-shirts and free-bulbs. Yearly materials promoting the initiative include three-column ads, 3 back-lit mall ads, 11 mobile billboards, fifteen-second radio ads running periodically throughout the initiative, thirty-second streaming ads and animated gif with 100,000 geo-targeted web impressions, Bark in the Park sponsorship participation, and 4th Street garage signage.
Recycle and Win	A countywide initiative to increase curbside recycling rates. All single family homes in Mecklenburg County received a mailer detailing how to opt in to the Coca-Cola sponsored program. Participants could win a $50 gift voucher to Harris Teeter if caught recycling the right way by the Prize Patrol. To qualify participants placed the sticker provided in the mailer on their bin and simply recycled the right way. There were a total of 520 winners during this 12-month promotion.

Table 4–5 Recycling Publications and Other Initiatives	
Name	**Description**
Wipe Out Waste Paper Shredding Events	2010 and 2011: These full-service shredding events were offered to all residents of Mecklenburg County to promote and increase awareness about the importance of properly disposing of personal papers and HHW. Mecklenburg County, Charlotte, and Huntersville, together with their partners, encouraged residents to bring all personal papers and HHW materials to any one of five full-service County drop-off centers during the Keep Your Identity and Your Home Safe at the Wipe Out Waste Event. Promotional components included 100,000 geo-targeted web impressions across all radio station web sites, an animated banner gif, flyers handed out at all radio station remotes, and a listing on the events calendar. Efforts included 25 fifteen-second radio spots two weeks prior to event; and 25 PSA's one week prior to event. Print media included a Charlotte Observer black and white ¼ page ad plus a four-color ¼ page ad in all Carolina weekly publications three weeks prior to events.
Landfill Ban	This initiative educated Mecklenburg County residents and businesses about the newly implemented landfill ban on electronics, which included all CPUs, laptops, monitors, printers, printer/fax/scan devices, mice and keyboards, all televisions with picture tubes, flat-panel televisions, and projection televisions. Residents were directed to drop off all included items, at no charge, at one of the County's electronics collection sites. Promotional components include 100,000 geo-targeted online impressions on all CBS radio station web sites, thirty-second click-to-play value-add animated gif, a Charlotte Observer ¼ page full-color ad, and Wipe Out Waste Landfill Ban web page.

America Recycles Day

Since 1997, communities across the country have come together on November 15 to celebrate America Recycles Day. More than a celebration, America Recycles Day is the only nationally recognized day dedicated to the promotion of recycling in the United States. One day to educate and motivate. To show the County's dedication to this day, Mecklenburg County and its partners hold an annual paper shredding event. This event is geared toward waste reduction as well as safety. Citizens are reminded that in the old days, disposing of paint, batteries, and other hazardous materials was as easy as throwing out a few boxes of long-canceled checks and other personal documents. However, in the new era where protecting personal information and the environment are both important, the County provides the paper shredding event. This event takes place annually at all four full-service County drop-off centers. There, private shredding companies shred household documents for no charge. These events are held in partnership with Charlotte Mecklenburg Police Department, Town of Huntersville Police Department, City of Charlotte Solid Waste Services, Charlotte Center City Partners, Town of Huntersville, and various paper shredding vendors and document

Photo 4.1 America Recycles Day

management experts. This partnership ensures that documents and hazardous household wastes are disposed of safely and securely.

These are the results from the first two years of this event. These are highly successful and anticipated events that bring the community and the County, including over 50 volunteers, together for the greater good of personal security, peace of mind, and recycled papers. Table 4.6 shows metrics and results from recent America Recycles Day events.

Table 4–6 America Recycles Day Data			
Facility	**Vendor**	**Customer Count**	**Weights**
2010/2011			
North Mecklenburg	Shred-it	400	12,750 lbs
West Mecklenburg	Shred-it	123	5,250 lbs
Foxhole	Automated Shredding	220	16,900 lbs
Hickory Grove	Data Chambers	350	11,250 lbs
Totals		**1093**	**46,150lbs/23 Tons**
2011-2012			
North Mecklenburg	Shred-it	396	15,800 lbs
West Mecklenburg	Shred-it	97	2,200 lbs
Foxhole	Cintas/Caraustar	147	15,900 lbs
Hickory Grove	ProShred	199	8,820 lbs
Downtown Charlotte ARD event	ProShred	50	125 lbs
Totals		**889**	**42,845 lbs/21.5 tons**

4.2.8 POTENTIAL NEW COUNTY RESIDENTIAL CURBSIDE RECYCLING PROGRAMS

Potential strategies listed below were considered for this Plan Update. Sources for potential strategies include feedback from County staff, feedback from the Steering Committee, feedback received through the charrette and other outreach efforts, recent studies completed by the County, and known best practices in other jurisdictions.

- Increase education and outreach efforts to include social marketing techniques to change the culture of wasting.
- Increase and more accurately track educational outreach effectiveness.
- Incorporate more coordination for education efforts through HOAs to educate closer to home; include solid waste staff presenting at HOAs.
- Assist CMS in developing recycling programs at each school to match the programs that students have at home.

- Incorporate education efforts through CMS that reiterate what should be recycled at home in order to focus on the children, who may influence their parents. Provide lesson plans and take home guides to encourage participation and knowledge transfer.
- Add materials to the curbside recycling collection program as markets and processing techniques allow, including mixed plastics (toys, laundry baskets, and buckets), scrap metal and small appliances, bagged plastic bags, and bagged textiles.

4.2.9 EXISTING MUNICIPAL RESIDENTIAL CURBSIDE RECYCLING PROGRAMS

The existing municipal recycling programs are included in Table 4.7, including the frequency and type of collection. As indicated, typical collection frequency is every other week, except in Davidson and Mint Hill. The majority of programs are single stream, using either automated or semiautomated collection.

Table 4–7 Program Descriptions

Municipality	Collection Frequency	Type of Collection
Charlotte	Every other week	Single stream, semiautomated
Cornelius	Every other week	Single stream, automated
Davidson	Once a week	Manual 18-gallon bin
Huntersville	Every other week	Single stream, automated
Matthews	Every other week	Single stream, automated
Mint Hill	Once a week	Manual 18-gallon bin
Pineville	Every other week	Single stream, automated

Table 4.8 shows recycling container metrics for each municipality. Most municipalities now offer recyclables services with 96-gallon roll out carts.

Photo 4.2 Recycling Collection in the Town of Huntersville

Table 4–8 Containers			
Municipality	**Container Size**	**Additional Containers**	**Set-Out Limitations**
Charlotte	96-gallon roll out provided, citizens may use their own bin as long as it does not exceed 20 gallons.	Residents can purchase one additional 96-gallon recycling container for a fee of $40.	If residents use their own bins, they may set out a maximum of two per collection day.
Cornelius	One 64-gallon roll out provided.	Residents can set up an account with contracted hauler for additional container collection.	None
Davidson	One 18-gallon bin.	Residents can receive up to 3 bins.	
Huntersville	One 95-gallon provided by contractor.	Residents are allowed to purchase additional recycling containers through contracted hauler.	
Matthews	One 96-gallon provided by contractor.	A second container is available for a one-time fee of $40. The town retains ownership of the container.	None
Mint Hill	One 18-gallon bin.	Each additional bin is $7/each.	
Pineville	One 96-gallon provided by the town.	Only one container permitted per household.	None

The City of Charlotte estimates that 50% of single family homes set out recyclables on their collection day. Recycling is promoted in the City with the Recycle It! Go Green for Charlotte campaign.

Figure 4.1 Go Green for Charlotte Logo

The Towns of Huntersville and Matthews estimate that 75% of single family homes use the curbside recycling services, though they may not set out each collection day.

4.2.10 POTENTIAL NEW MUNICIPAL RESIDENTIAL CURBSIDE RECYCLING PROGRAMS

Potential strategies listed below were considered for this Plan Update. Sources for potential strategies include feedback from County staff, feedback from the Steering Committee, feedback received through the charrette and other outreach efforts, recent studies completed by the County, and known best practices in other jurisdictions.

- Increase education and outreach efforts to include social marketing techniques to change the culture of wasting.
- Increase and more accurately track educational outreach effectiveness.
- Incorporate more coordination for education efforts through Home Owners Associations (HOAs) to educate closer to home; include solid waste staff presenting at HOAs.

- Assist CMS in developing recycling programs at each school to match the programs that students have at home.
- Incorporate education efforts through CMS that reiterate what should be recycled at home in order to focus on the children, who may influence their parents. Provide lesson plans and take home guides to encourage participation and knowledge transfer.
- Provide volume-based charges for garbage service in order to provide economic incentive to recycle.
- Investigate incentive programs that reward residents for recycling, such as Recyclebank® or similar programs.
- Increase the frequency of curbside recycling collection to make it as easy to recycle as it is to waste.
- Provide cart-based recycling collection service (for communities with crates) to ensure adequate volume for recyclable materials.
- Add materials to the curbside recycling collection program as markets and processing techniques allow, including mixed plastics (toys, laundry baskets, and buckets), scrap metal and small appliances, bagged plastic bags, and bagged textiles.

4.2.11 RESIDENTIAL CURBSIDE RECYCLING ASSESSMENT

While the Clark and Chase study of 2009 estimated a countywide participation rate of 56%, this study was conducted prior to the implementation of single stream recycling in the County. It would be reasonable to believe that higher participation resulted from single stream implementation, even if only because of additional education efforts to inform residents of the change. Greater convenience is another aspect that may have already affected curbside recycling participation since the Clark and Chase study. While 85% of residents responding to the County's 2010 survey reported participating in curbside recycling, it is a common phenomenon for false positive responses on the part of the respondent in order to provide the perceived desired response. Therefore, while it is likely that the countywide participation rate is higher than 56%, it is not likely as high as 85%. The move to single stream has provided more convenience to the customers, and most of the jurisdictions are using roll out carts allowing for more capacity and more convenient collection service.

Although the County can have an effect on increasing participation through education and outreach programs, and by serving as a resource to the municipalities within the County, the majority of the County's residential customers reside in incorporated areas of the County. Therefore municipal efforts would also be required to have a greater impact on increasing curbside recycling participation and tonnage. Volume-based pay and mandatory programs have had positive diversion effects in other communities.

4.2.12 RESIDENTIAL CURBSIDE RECYCLING RECOMMENDATIONS

In the short term (2013 – 2017), the County and municipalities should:

- **Increase education and outreach efforts to include social marketing techniques to change the culture of wasting.**
- **Increase and more accurately track educational outreach effectiveness.**
- **Incorporate more coordination for education efforts through HOAs to educate closer to home.**
- **Support the state ban of items from landfills by instituting a disposal ban on generators, prohibiting the placement of banned items in garbage containers.**
- **Seek input from residents and haulers on the acceptability of universal (mandatory) participation via ordinance.**

The County should:

- **Make solid waste staff available to present at HOAs, and promote the willingness to present.**
- **Assist CMS in developing recycling programs at each school to match the programs that students have at home.**
- **Incorporate education efforts through CMS that reiterate what should be recycled at home in order to focus on the children, who may influence their parents. Provide lesson plans and take-home guides to encourage participation and knowledge transfer.**
- **Evaluate curbside participation and set-out rates, post single-stream recycling.**

The municipalities should:

- **Provide volume-based charges for garbage service in order to provide an economic incentive to recycle.**
- **Investigate and implement incentive programs that reward residents for recycling, such as Recyclebank or similar programs.**
- **Increase the frequency of curbside recycling collection to make it as easy to recycle as it is to waste.**
- **Provide cart based recycling collection service for municipalities still using bins, to ensure adequate volume for recyclable materials.**

Diversion potential for the short-term strategies recommended for curbside recycling is estimated to be nearly 25% of the residential waste stream.

In the long term (2018 – 2022), the County and municipalities should:

- **Implement universal (mandatory) participation in curbside recycling via ordinance**
- **Add materials to the curbside recycling collection program as markets and processing techniques allow**

The municipalities should:

- **Reduce collection of solid waste to every other week collection.**

Diversion potential for the long-term strategies recommended for curbside recycling is estimated to be nearly 5% of the residential waste stream.

4.3 MULTIFAMILY RECYCLING COLLECTION

A multifamily recycling program can help provide an important service to residents of its community. It also can assure that policy objectives, like meeting a state recycling goal, are met. Multifamily recycling can help divert significant quantities of materials from the solids waste stream therefore reducing the reliance on disposal facilities, preventing pollution, and helping to conserve natural resources.

Multifamily communities in Mecklenburg County house a significant percentage of the population and thus provide a golden opportunity for recycling. There are varying levels of service for multifamily communities within the municipalities. Multifamily housing can be defined as a residential structure with more than one dwelling unit in the same building. The following facilities are identified as multifamily communities within Mecklenburg County:

- Apartments
- Condominiums
- Townhouses
- Duplex/triplexes
- Nursing homes
- Patio homes
- Assisted living quarters

4.3.1 RECENT RELEVANT STUDIES

Recycling Best Practices Study

In the recently completed County study titled Best Practices for Local Government Solid Waste Recycling, Diversion from Landfill and Waste Reduction, communities with high diversion rates

have some form of mandatory or free recycling service for multifamily. Table 4.9 highlights U.S. communities with exceptional multifamily policies.

Table 4–9 Exceptional Multifamily Recycling Policies

	Recycling	Description	Results
Alameda County, CA	Mandatory	State law requires recycling services in multifamily properties over 5 units	
Atlanta, GA	Mandatory	Multifamily properties must contract with private haulers to provide recycling per city ordinance	
Austin, TX	Required if 100 units or more	Universal recycling ordinance states by 2014 recycling to be required of 26 units or greater	
Boulder, CO	Free service required	Haulers providing garbage must also provide recycling at no extra charge	17% diversion
Oakland, CA	Required service		
Orange County, NC	Fee based service	Multifamily residents sort recyclables in 96-gallon roll out carts for a fee of $19 per unit	
Portland, OR	Property owners/managers are required to provide recycling service adequate for the number of households. The centrally located collection area must have a two-sort recycling system for glass and commingled paper, plastic and metal.	Recycling stations must be as convenient as trash. Recycling information must be provided to new residents within 30 days of move-in and on an annual basis thereafter. Technical assistance including free posters, refrigerator magnets, and large durable signs. Staff will hand deliver materials and speak to residents one-on-one.	
San Francisco, CA	Mandatory		All multifamily have recycling; 75% have food waste
San Jose, CA	Mandatory	Monthly service fee	
Seattle, WA	Mandatory Service	Recycling container contamination = billed at garbage rate, recycling in garbage = $50 fine. Free kitchen carry-out buckets, disposal ban	29.6% recycling rate, 29.6 lbs./household 2010

Table 4–9 Exceptional Multifamily Recycling Policies			
	Recycling	**Description**	**Results**
Toronto, Canada	Required participation, city provides in-unit recycling containers for residents	Free centralized e-waste collection container for each building. City provides free in-unit kitchen catchers.	18% diversion rate (includes food scraps collection)

4.3.2 EXISTING COUNTY MULTIFAMILY RECYCLING COLLECTION POLICIES

The County does not currently have any multifamily recycling collection policies. Multifamily households in the unincorporated areas of the County may subscribe for service directly with a private hauler.

4.3.3 POTENTIAL NEW COUNTY MULTIFAMILY RECYCLING COLLECTION POLICIES

Potential strategies listed below were considered for this Plan Update. Sources for potential strategies include feedback from County staff, feedback from the Steering Committee, feedback received through the charrette and other outreach efforts, recent studies completed by the County, and known best practices in other jurisdictions.

- Require all multifamily dwelling building owners to provide recycling services to their tenants.
- Require private haulers to provide recycling services to their multifamily and business solid waste customers, as is already required for those serving single family customers.
- Require haulers to report tonnage collected from multifamily customers that are considered commercial.
- Ban aluminum cans and plastic containers from garbage containers (state banned materials).
- Implement universal (mandatory) participation in multifamily recycling via ordinance.

4.3.4 EXISTING MUNICIPAL MULTIFAMILY RECYCLING COLLECTION POLICIES

The current City multifamily collection contract does not specify recycling targets; some previous contracts did, but have since removed the targets due to low results. In the town of Matthews, multifamily properties with fewer than six units are collected as single family, including townhomes. Larger multifamily properties are treated as commercial, but the town will work with owners to provide recycling drop-off sites and share in collection costs. The other municipalities in the County do not have multifamily recycling collection policies.

4.3.5 POTENTIAL NEW MUNICIPAL MULTIFAMILY RECYCLING COLLECTION POLICIES

Potential strategies listed below were considered for this Plan Update. Sources for potential strategies include feedback from County staff, feedback from the Steering Committee, feedback received through the charrette and other outreach efforts, recent studies completed by the County, and known best practices in other jurisdictions.

- Require all multifamily dwelling building owners to provide recycling services to their tenants.
- Require private haulers to provide recycling services to their multifamily and business solid waste customers, as is already required for those serving single family customers.
- Require haulers to report tonnage collected from multifamily customers that are considered commercial.
- Ban aluminum cans and plastic containers from garbage containers (state banned materials).
- Implement universal (mandatory) participation in multifamily recycling via ordinance.

4.3.6 EXISTING COUNTY MULTIFAMILY RECYCLING COLLECTION PROGRAMS

Multifamily households have access to recycling at County drop-off centers. Countywide efforts made towards educating the multifamily community about recycling/waste reduction have been minimal during previous years. However, Mecklenburg County is currently developing a strategy to provide recycling/waste reduction and sustainability education to multifamily residents and property managers in hopes of increasing their participation in recycling on-site or at the County drop-off centers.

The program activities are designed to educate tenants and property management staff about the importance of waste reduction/recycling, environmental sustainability, energy and water conservation, and overall environmental stewardship through various materials including mini posters, door hangers, newsletter articles, and fliers.

The County's Multifamily Properties Initiative addresses issues facing multifamily recycling. Since recycling containers are not always available or provided, this pilot program seeks to increase awareness and engage residents and property managers with resource materials and tools and messaging that expounds "When it comes to living a sustainable lifestyle, reducing is important". Materials include information on how to maintain a sustainable environment via a variety of initiatives including carpooling, use of fluorescent lighting, reusable grocery totes, unsubscribing to junk mail, using items that are recyclable, do's & don'ts, and full-service County drop-off center locations. The Re-learn and re•think materials are provided at no cost, and are customizable based on individual community needs. Materials include 12"x14" or 18"x24" posters; 4½" x10¾" door hangers; banner ads for community newsletters; and 8½"x11", two-sided fliers.

4.3.7 POTENTIAL NEW COUNTY MULTIFAMILY RECYCLING COLLECTION PROGRAMS

Potential strategies listed below were considered for this Plan Update. Sources for potential strategies include feedback from County staff, feedback from the Steering Committee, feedback received through the charrette and other outreach efforts, recent studies completed by the County, and known best practices in other jurisdictions.

- Increase education and outreach efforts to include social marketing techniques to change the culture of wasting.
- Increase and more accurately track educational outreach effectiveness.
- Incorporate more coordination for education efforts through property owners to educate closer to home.
- Develop and promote programs to:
    - Profile model multifamily complexes, and provide best practices to property owners.
    - Develop a reward and recognition program focused on the model multifamily programs.
    - Develop and support a recycling ambassador program made up of grassroots volunteers or paid staff, working with code compliance to create recycling champions within each complex.

4.3.8 EXISTING MUNICIPAL MULTIFAMILY RECYCLING COLLECTION PROGRAMS

Table 4.10 below summarizes the multifamily recycling programs in each municipality, including the service provider and the style of collection.

The City provides service to over 111,000 multifamily units, and complexes with 30 or more units are eligible for garbage and recycling service via the Multifamily and Public Facilities Refuse Contract. The City's Solid Waste Services has an organizational goal to increase the number of complexes on the Multifamily and Public Facilities Refuse Contract that recycle, with a target of 20 complexes.

Table 4–10 Multifamily Program Descriptions

Municipality	Service Provider (Municipal, Contract, Open)
Charlotte	Recycling collection via contract with the private sector for properties with 30 units or more.
Cornelius	Townhomes receive the same collection services as single family. Other multifamily complexes do not receive these services
Davidson	Not provided
Huntersville	No recycling services provided to multifamily with the exception of townhomes.

Table 4–10 Multifamily Program Descriptions	
Municipality	**Service Provider (Municipal, Contract, Open)**
Matthews	Recycling collection at central drop-off sites within the property.
Mint Hill	Not provided
Pineville	Recycling collection via contract with the private sector for townhome and condo properties.

Table 4.11 shows the City's multifamily tonnage data by month since 2009.

Table 4–11 Multifamily Recycling Tonnage				
Month	**FY09**	**FY10**	**FY11**	**FY12**
July	283.80	242.13	223.76	313.78
Aug	245.03	235.68	242.34	360.95
Sept	273.12	260.49	254.13	312.38
Oct	289.06	246.20	237.01	252.77
Nov	244.07	276.80	274.67	307.22
Dec	272.25	282.04	300.21	292.67
Jan	255.11	239.43	266.60	309.14
Feb	215.59	222.44	260.75	
March	237.61	245.93	311.16	
April	236.91	235.99	298.46	
May	233.44	227.77	303.42	
June	283.08	251.66	348.50	

As shown, the trend is positive with FY12 tonnage up 15% compared to the same months (July through January) in FY09.

4.3.9 POTENTIAL NEW MUNICIPAL MULTIFAMILY RECYCLING COLLECTION PROGRAMS

Potential strategies listed below were considered for this Plan Update. Sources for potential strategies include feedback from County staff, feedback from the Steering Committee, feedback received through the charrette and other outreach efforts, recent studies completed by the County, and known best practices in other jurisdictions.

- Increase education and outreach efforts to include social marketing techniques to change the culture of wasting.
- Increase and more accurately track educational outreach effectiveness.

- Incorporate more coordination for education efforts through property owners to educate closer to home.
- Promote County programs, and enhance where possible:
    - Profile model multifamily complexes, and provide best practices to property owners.
    - Develop a reward and recognition program focused on the model multifamily programs.
    - Develop and support a recycling ambassador program made up of grassroots volunteers or paid staff, working with code compliance to create recycling champions within each complex.

4.3.10 MULTIFAMILY RECYCLING ASSESSMENT

The Greater Charlotte Apartment Association & Apartment Association of North Carolina recently performed an apartment recycling survey of the property owners. Of those who responded, 67% reported having a recycling program on their property, although among these property owners, only 35% estimate that at least half of their residents participate in the program. These owners cited lack of motivation and education for the residents, as well as lack of space within the apartments to separate recyclables as the top two reasons for lack of participation. Eighty-nine percent of the owners surveyed said they would be willing to initiate and/or enhance recycling programs on their property.

There are challenges associated with multifamily recycling that must be understood and addressed in order to implement and maintain successful recycling programs. These challenges include but are not limited to: manager and tenant turnover, space for and access to recycling containers, education and outreach, contamination, data tracking, collection infrastructure, and cost. As with all recycling efforts, multifamily collection presents a cost for communities and most would agree that an excellent multifamily program is one that diverts large volumes of materials at minimal cost.

Most of the successful multifamily recycling programs nationwide that have been studied share similar strategies in that they have focused on designing a collection system that attempts to foster participation from the tenants. Their approach has been to provide containers that are easily accessible, clearly labeled, and that provide sufficient capacity. Also, providing multifamily residents with the opportunity to recycle all materials accepted in the recycling program has yielded favorable results for high performing multifamily recycling programs.

Multifamily housing consistently yields lower diversion/recycling rates than single family housing. Of the jurisdictions around the country with the highest diversion rates for multifamily programs, 90% have mandatory recycling ordinances; with many using fines, liens, and other sanctions against complexes that violate regulations. Some programs also have data tracking and reporting requirements for private haulers to increase the level of accountability.

As is the case with most programs designed to influence behavior, effective and often times targeted education on the what, why, and how of recycling is a major tool in getting multifamily tenants and property managers to not only participate but to take ownership of the recycling program in their complex.

4.3.11 MULTIFAMILY RECYCLING RECOMMENDATIONS

In the short term (2013 – 2017), the County and municipalities should:

- **Increase education and outreach efforts to include social marketing techniques to change the culture of wasting.**
- **Increase and more accurately track educational outreach effectiveness.**
- **Incorporate more coordination for education efforts through property owners to educate closer to home.**
- **Support the state ban of items from landfills by instituting a disposal ban on generators, prohibiting the placement of banned items in garbage containers.**
- **Profile model multifamily complexes, and provide best practices to property owners.**
- **Develop a reward and recognition program focused on the model multifamily programs.**
- **Develop and support a recycling ambassador program made up of grassroots volunteers or paid staff, working with code compliance to create recycling champions within each complex.**
- **Require that recycling collection is provided at all multifamily complexes.**
- **Seek input from property owners, residents, and haulers on the acceptability of universal (mandatory) participation via ordinance, enforced by haulers through licensing regulations.**

The County should:

- **Incorporate education efforts through CMS that reiterate what should be recycled at home in order to focus on the children, who may influence their parents.**

Diversion potential for the short-term strategies recommended for multifamily recycling is estimated to be approximately 3% of the residential waste stream.

In the long term (2018 – 2022), the County and municipalities should:

- **Implement universal (mandatory) participation in multifamily recycling via ordinance, enforced by haulers through licensing regulations.**

Diversion potential for the long-term strategy recommended for multifamily recycling is estimated to be nearly 2% of the residential waste stream.

4.4 COMMERCIAL SECTOR RECYCLING

As the commercial sector encompasses all non-residential business entities, including churches, public and private schools, and governmental units, it addresses a very diverse waste stream that is serviced primarily by private entities. Due to the independent and market-driven nature of this waste stream, policy implementation and education efforts remain the primary tools to encourage recycling. Waste generated by the commercial sector as a result of commercial or residential construction or demolition activities is separately addressed under Section 6.0, Construction and Demolition Waste.

4.4.1 RECENT RELEVANT COMMERCIAL RECYCLING STUDIES

Recycling Study Targeting Small Businesses in Mecklenburg County, November, 2008

The County contracted with Skumatz Economic Research Associates, Inc (SERA) to conduct a small business study in 2008. The main objectives of the study were to:

- Distinguish between large and small businesses.
- Determine demographics associated with the small businesses (physical location and where business is conducted).
- Determine estimated recyclable generation (quantities).
- Determine potential for diversion of recyclables from the businesses.
- Determine if the SSO established threshold of 16-cubic yards MSW per week should be maintained and/or adjusted to include a greater number of smaller businesses.
- Develop and implement a small business survey to determine:
    - Current recycling and waste management behaviors/practices.
    - Willingness-to-pay for additional services.
    - Recycling wants and needs.
    - Most effective means to communicate with small business.
    - General attitudes and feelings of small business towards recycling.
- Determine the level of recycling to achieve economic sustainability.
- Identify options to increase small business recycling.
- Examine unincorporated areas of Mecklenburg County and determine how best to improve recycling services in these areas.

The study resulted in the following recommendations:

- Expand the mandatory commercial source separation program to include all businesses with eight cubic yards or more of service, and expand the list of eligible or required materials.
- Require all permit applications for construction or remodels to submit a diversion plan, and establish a minimum diversion requirement.
- Require all businesses to submit a recycling plan to the County.
- Implement a generator fee to fund recycling in the County.
- Develop an ordinance requiring space for recycling in new commercial buildings.
- Support continued development of single stream recycling.
- Consider increasing enforcement of the SSO, including assessing fines.

Other potential new programs that were recommended for evaluation included the following:

- Implement mandatory pay for recycling which is imbedded in the trash fee, with free recycling up to 150% of trash service.
- Cover more business types and materials under the SSO.
- Require businesses to meet an established recycling rate.
- Require leases with recycling requirements/clauses.

Mecklenburg County Economic and Environmental Impacts of Select Changes to the Source Separation (Recycling) Ordinance, May 2011

The Mecklenburg County Economic and Environmental Impacts of Select Changes to the Source Separation (Recycling) Ordinance study was completed in May 2011 and was designed to assess the economic and environmental impacts of the following five potential changes to the SSO:

- Lowering the current ordinance threshold of 16 cubic yards to eight cubic yards.
- Adding plastic and aluminum beverage containers to the ordinance either at the existing threshold or at the proposed lower 8 cubic yard threshold.
- Changing the paper recycling requirement from office paper to mixed paper.
- Eliminating the temporary site location exemption.
- Revising or eliminating the current 500-pound automatic weight exemption for paper and cardboard.

In each case, the County was interested in assessing how these proposed changes would impact both recycling and the potentially affected businesses, including:

- Impacts to the businesses which must comply with these revisions.
- Impacts to the existing private solid waste infrastructure including possible job creation impacts.
- Implementation costs to LUESA.
- Economic impacts to the businesses affected in terms of both total impacts and impacts to a typical business and the range of impacts worst to least.

The study consisted of telephone surveys of small businesses, which were then compared with telephone survey data from the earlier SERA survey data; and with DSM Environmental (DSM) performance of earlier on-site surveys of businesses in Mecklenburg County associated with the pallet and wood waste study. In addition, DSM benchmarked Mecklenburg County against other municipalities with business recycling programs/ordinances and interviewed four refuse haulers/recyclers that operate in Mecklenburg County to better understand current fees for refuse and recycling.

Based on information gathered during the study, the report had the following findings and recommendations:

- It was estimated that 4,900 businesses are currently subject to the SSO at the existing 16 cubic yard refuse per week threshold.
- The net cost of the current SSO is estimated to be $1.8 million to the affected businesses.

- Lowering the threshold will only affect an estimated 300 additional small businesses, will not result in significant increases in paper recycling, and will have a net economic impact of zero on Mecklenburg County.
- Lowering the threshold of the SSO to 8 cubic yards per week and eliminating the 500-pound per month exemption is estimated to impact 1,700 additional businesses and could achieve significant increases in paper recycling.
- Accounting for avoided collection and disposal costs, the net cost to the affected businesses of lowering the threshold and eliminating the 500-pound exemption is estimated to be $500,000.
- Adding bottles and cans to the SSO will not yield large increases in tonnages recycled, but will allow for the recovery of high value aluminum and PET recyclables at minimal economic impact.
- Eliminating the temporary site exemption for construction activities would result in close to a zero economic impact on Mecklenburg County, but would not significantly increase recycling.

Best Practices Recycling Study – Commercial Recycling

In the recently completed County study titled *Best Practices for Local Government Solid Waste Recycling, Diversion from Landfill and Waste Reduction*, communities with high diversion rates have some form of mandatory or free recycling service for the commercial sector, and some have material bans. Table 4.12 highlights U.S. communities with exceptional commercial recycling policies.

Table 4–12 Exceptional Commercial Recycling Policies

	Recycling	Description/ Notes	Results
Alameda County, CA	Awaiting pending state law requiring recycling if 4 cy or greater	Business partnership (assistance, grants up to $70k, low-interest loans up to $240k), business efficiency awards, compost at work, landfill ban on plant waste, small business HHW program.	
Austin, TX	Required if 100 employees or more; city provides with garbage collection to downtown area & small businesses	Free assistance, business recognition program, universal recycling ordinance = by 2015 recycling required if sq. ft. greater than 26,000.	
Boulder, CO		Technical assistance, business zero waste start-up rebate, business recycling coupon, commercial composting collection incentive. City facilities, such as CHARM, are also open to businesses.	25% diversion
Chicago, IL	Mandatory with business license & private garbage contract	Must include three recyclable items.	19% diversion

Table 4–12 Exceptional Commercial Recycling Policies			
	Recycling	**Description/ Notes**	**Results**
Fairfax County, VA	Mandatory	Must include cardboard and mixed paper. If annual waste stream of 100 tons or avg. occupancy of 200, additional recyclable material required.	
Fresno, CA	Mandatory if 50% or greater recyclable materials in their waste stream		
King County, WA		County conducts studies in support of city programs. Business HHW is accepted from exempted solid waste generators at weekend wastemobile events.	Recycling rate of 63% in 2009
Oakland, CA	Required service		
Orange County, FL	Mandatory, same materials as residential	There has been no dedicated budget or staff for commercial recycling education or enforcement for past five years.	
Orange County, NC	County collects recyclables at 210 locations (free)	"3-R" (reduce, reuse, recycle) fee helps finance. Landfill bans and waste audits.	900 tons/yr recyclables diverted
Philadelphia, PA	Mandatory	Submit recycling plan (including education program), which is linked to property tax database.	
Portland, OR	Must recycle paper and containers	City provides assistance & resources. Progress measured thru quarterly reports from haulers. Business recognition program w/certification. Polystyrene & single use bag ban for restaurants, grocery stores & retailers.	Recycling rate of 64%
San Francisco, CA	Mandatory PAYT	80% comm. goal or 25,000 tons diverted; can purchase recyclable/compostable goods thru green business program; commercial compliance tool kit; e-waste landfill ban and polystyrene ban; mattress recycling; commercial wood, scrap metal and large plastic recycling; tire recycling; window glass recycling; Styrofoam drop-off; very small quantity generator HHW drop-off program	All multifamily have recycling, 75% have food waste
San Jose, CA		Transitioning to franchise system w/single hauler to achieve 75% diversion; small bus. HHW disposal at HHW facilities; ban on plastic carryout bags in 2012.	Recycling rate of 22%

Table 4–12 Exceptional Commercial Recycling Policies			
	Recycling	**Description/ Notes**	**Results**
Seattle, WA	Paper & cardboard not allowed in garbage, customers with City-contracted cart-based service receive recycling for free	Self-hauling to recycling stations, free consulting services, disposal ban: paper old corrugated containers, yard waste - $50 fine if 10% found in garbage	Recycling rate of 58.9%, per 2010 per SWMP
Toronto, Canada	Businesses using city services. receive free organics and recycling collection service (mandatory)		12,000 tons recyclables

4.4.2 COMMERCIAL WASTE QUANTITIES AND CHARACTERIZATION

The commercial sector in Mecklenburg County consists of approximately 20,130[1] businesses of different sizes and material generation rates. Due to the types of entities included in the commercial sector, the waste streams can also vary a great deal. For example, there would be a vast difference in the type of materials generated from a restaurant versus a manufacturing plant. A restaurant produces food scraps, corrugated cardboard, plastic, glass, and some paper. A manufacturer may produce large quantities of process wastes (e.g., urethane foam), wooden crates, pallets, stretch wrap, paper, corrugated cardboard, mixed metals, polypropylene strapping, barrels, and even non-hazardous sludges.

Commercial generators remain the largest contributors to Mecklenburg County's waste stream at almost 50%; however, since the baseline year of FY 1998/1999, Mecklenburg County has seen a 47% reduction in commercial waste. This reduction may have been influenced by several factors such as increases in available recycling markets, the implementation of state and county laws, changes in corporate policy, changes within the political and social environment, and the recent downturn of the economy.

Table 4.13 below displays the data on the commercial waste stream since the base year of 1998. It is important to look at both tons of commercial waste and commercial waste generated per capita to account for population increases. For example, in FY2010/11, 513,084 tons of commercial solid waste was disposed of in area landfills, in comparison to only 491,717 in FY2009/10, but with the increased population of roughly 15,000, the tons per capita has remained almost the same.

[1] This is roughly half the number of businesses that were reported in the 2009 SWMP. Between the times of the two reports, the County changed data sources from InfoUSA to BusinessWise. BusinessWise is believed to be more accurate because they verify the existence of businesses by telephone, allow for the removal of home-based businesses from the count, and update their database daily.

Table 4–13 Progress Toward Commercial Reduction			
Fiscal Year	**Tons of Commercial Waste**	**Commercial Waste Generated/Person/Year**	**% Decrease from Base Year**
FY 1998/99 (Base Year)	641,072	1.04 Tons	Base Line
FY1999/00	663,607	1.03 Tons	0.96% Decrease
FY2000/01	535,654	0.77 Tons	26% Decrease
FY 2001/02	615,519	0.86 Tons	17% Decrease
FY 2002/03	613,230	0.84 Tons	19% Decrease
FY 2003/04	601,925	0.80 Tons	23% Decrease
FY 2004/05	548,338	0.73 Tons	30% Decrease
FY 2005/06	760,428	0.96 Tons	8% Decrease
FY 2006/07	790,650	0.96 Tons	8% Decrease
FY 2007/08	752,550	0.87 Tons	16% Decrease
FY 2008/09	572,785	0.65 Tons	53% Decrease
FY 2009/10	491,669	0.55 Tons	45% Decrease
FY 2010/11	513,084	0.56 Tons	46% Decrease

As previously mentioned, commercial collection service is provided, for the most part, by private entities. For this reason, Mecklenburg County must rely primarily on national estimates of commercial waste composition to describe this waste stream. In 2005, a paper study was conducted based on the best available data from detailed analyses performed elsewhere and an approved methodology for projecting that data to fit the business demographics of Mecklenburg County. The commercial waste characterization highlighted the following recoverable materials shown in Table 4.14 as being significant quantities, which are still being disposed in landfills. The tonnages below are based on characterization percentage results applied to FY 2011 actual tonnage.

Table 4–14 Estimated Commercial Waste Characterization		
Material Categories		**Mecklenburg Estimated Tonnage (Mean)**
Paper	Newsprint, high grade office paper, magazines/catalogs, corrugated cardboard, boxboard, mixed paper	155,390
Plastic	PET & HDPE bottles, PVC, polystyrene, film – transport packaging, other film, other containers, other noncontainers	65,768
Metals	Aluminum beverage containers, other aluminum, ferrous containers, other ferrous, other nonferrous	38,678
Glass	Containers, other glass	13,775
Organic Materials	Yard trimmings - grass and leaves, food scraps, wood pallets, treated wood, untreated wood, diapers, other organic material	157,964
Electronic & Related	Computer equipment & peripherals, electric & electronic products, batteries, other	10,642
HHW	Oil paint, unused cleaners and solvents, compressed fuel containers, other	2,162
Other Waste	Textiles, carpet, rubber, C&D, sharps & infectious waste, household bulky items, empty HHW containers, misc.	68,702
TOTAL		**513,081**

Source: RW Beck 2005 characterization percentages applied to FY 2010/2011 tonnage.

PET = polyethylene terepthalate; HDPE = high density polyethylene; PVC = polyvinylchloride; HHW = household hazardous waste; C&D = Construction & Demolition Debris

4.4.2.1 Beverage Containers

The results of the commercial waste characterization study, which identified beverage containers composed of plastic, metal, or glass as a recoverable material that is often times not recovered, are supported by the 2008 Recycling Study Targeting Small Businesses in Mecklenburg County. This study estimates that 24,934 tons of the commercial municipal solid waste streams may be composed of recyclable beverage containers (glass: 16,158 tons, aluminum beverage containers: 3,046 tons, PET & HDPE Bottles: 5,730 tons).

This issue was addressed at the state legislative level by House Bill 1518, enacted as Session Law 2005-348, which requires holders of certain Alcohol Beverage Control (ABC) permits to recycle all beverage containers sold at retail for on-premise consumption. This bill became effective on January 01, 2008, with a requirement that all permit holders be compliant by 2009. There are approximately 1,700 businesses in Mecklenburg County that are affected by this law.

The ABC permit application process now requires businesses to submit a recycling plan with their application, which either recognizes the company as a self-hauler utilizing one of the County's more than 120 free commercial drop-off centers or identifies the company's recycling service provider. The state is aware of 16 recycling companies that provide service to ABC permit holders within Mecklenburg County. Thirteen of these have also provided their contact information to the County for posting on the County's solid waste website. The majority of companies affected by the ABC permitting requirements choose to contract with one of these service providers. As of December 2011, there were also 237 self-haulers.

Due to the abundance of infrastructure in place for recycling in Mecklenburg County, it is unlikely that any business would be granted an exemption from the ABC recycling requirements. However, the County has found that while some businesses meet the minimum requirements of the law, they do not meet the intent. For example, a complaint was recently called in concerning a local tavern that was not recycling all of their glass beverage containers. The tavern only had two recycling containers, which were not collected often enough to accommodate the quantity of liquor and beer bottles the establishment was going through, so the tavern's policy was to only place liquor bottles in the recycling bin and throw beer bottles in the trash.

Even with the limited execution of ABC recycling by some businesses, as described above, the state still estimates that each ABC permit holder recycles approximately a half ton of beverage containers a month, the majority being glass. Given the 1,700 affected businesses in Mecklenburg County, this equals roughly 850 tons a month of recycled beverage containers or 10,200 tons per year.

It should also be noted that aluminum cans have been banned from North Carolina MSW landfills since July 1, 1994 (NC G.S. 130A-309.10). However, participation in beverage container recycling by non-ABC permit holders is currently voluntary in Mecklenburg County and the disposal ban is not enforced. Education regarding the ban has been inadequate and most citizens are not aware of the statute. In addition, Session Law 2005-362 banned plastic bottles from disposal effective October 2009. The State of North Carolina provided a statewide campaign educating the public on this banned material, but it is still not widely enforced.

4.4.2.2 Electronics

More recently, legislation addressing recycling occurred in 2010 in relation to e-waste. Effective July 1, 2011, televisions, computers, and related computer equipment are banned from landfills in North Carolina. The ban was included in Session Law 2010-67 of the General Assembly, which establishes an electronics recycling program for North Carolina with shared responsibility between manufacturers, retailers, consumers, and local state government. This is in relation to the previously mentioned work in Chapter 3 by the Product Stewardship Institute.

The electronic waste disposal ban affects computer equipment, including CPUs, laptops, monitors, printers, printer/fax/scan devices, mice, and keyboards; and all televisions, including flat-panel televisions, projection televisions, and televisions with picture tubes. While there are free options for residents to drop off televisions and computer equipment at full-service drop-off centers within the County, businesses should make arrangements for disposing of their e-waste through one of the identified electronic recyclers on the County's website.

Table 4.15 presents the tonnage of electronics collected by Mecklenburg County during FY2011 at the County's four staffed county drop-off centers.

Table 4–15 Electronics Tonnage Collected, FY 2011

Material	NM	WM	HG	FX	Mat/Totals
Monitors	31,380	14,587	27,702	39,171	112,840
TV	124,263	32,719	116,057	159,346	432,385
CPU	19,446	8,520	12,952	28,109	69,027
Other	102,141	28,028	118,858	125,838	374,865
Total	**277,230**	**84,874**	**275,569**	**352,464**	**989,117**

NM = North Mecklenburg; WM = West Mecklenburg; HG = Hickory Grove; FX = Foxhole

4.4.2.3 Pallets

Session Law 2005-362, enacted in the 2005 legislative session, prohibits the disposal of wooden pallets in MSW landfills (disposal in C&D landfills is still allowed). The ban became effective October 1, 2009. If aggressively enforced, the ban could have an impact on small quantity generators of pallets because they typically place unwanted pallets into their garbage containers destined for a MSW landfill.

Pallets that are standard industry size and whole (not in need of repair) are saleable to the private sector via the pallet remanufacturing industry. Mecklenburg County is home to 16 pallet remanufacturing/recycling businesses. These establishments sort, grade, rebuild, and resell pallets to a wide range of customers spanning many industries. Generally, these private recyclers will pick up pallets by placing a flat-bed trailer at the location and asking the business (generator of the pallets) to load the trailer. Pallet recyclers usually want a half trailer load (200 pallets) before they will place a trailer on-site. The largest numbers of pallets (about 80%) are delivered to the pallet recyclers by commercial hauling companies.

Businesses which generate small quantities of pallets are serviced by an extensive network of unregulated scavengers. These scavengers most often use pickup trucks with raised sides to the truck bed that haul small loads to a pallet recycler for cash ($1-2 for a reusable pallet). At maximum, a pickup truck may hold 25-30 pallets (with extended sides). These independents are also active in the corrugated cardboard market.

Pallet recyclers repair damaged pallets and generate scrap wood from this repair process. In addition, pallet recyclers receive unusable pallets along with the good ones. These materials are addressed as untreated wood waste under Chapter 6, Construction and Demolition Debris.

The pallet remanufactures surveyed indicated having the capacity for taking on additional pallets of suitable dimension. The relatively small percentage of pallets not being recovered from commercial generators at the current time, roughly 11,000 tons, are those generated by small quantity generators that are not targeted by the scavenging community because they are highly damaged and/or smaller in size than standard pallets.

4.4.2.4 Private Recyclers

One result of the increased state and local regulatory requirements for recycling has been an increase in the number of private recycling service providers in Mecklenburg County. Table 4.16 shows the number of different companies accepting materials to be recycled for the various material categories. This information is being updated in 2012 based on an electronic survey that was submitted to all known service providers. There is no legal requirement for these companies to report the quantity that they recycle, and this information is considered proprietary for most of these companies; consequently, there is no way of knowing how many tons of materials are recycled by these companies each year.

Table 4–16 Private Recyclers Serving the Charlotte Marketplace

Material	Number of Businesses Accepting the Material
ABC Vendors	13
Chemicals	16
Electronics	19
Food Waste	18
Glass	13
Metals	40
Pallets, Wood Crates, Yard Waste	29
Paper	25
Plastics	42
Shredded Paper	14
Textiles	28
Other (toner cartridges, batteries, fluorescent light tubes)	53

Source: www.wipeoutwaste.com recycling vendors list.

The North Carolina Recycling Business Assistance Center (RBAC) conducts research on recycling markets and maintains a database of private recyclers within the state. According to their database, there are currently 81 private recycling companies with operations in Mecklenburg County. These recycling companies employ approximately 2,800 people within the County. Within the wider Centralina Council of Governments (CCOG) region, there are currently 137 private recycling companies that employ a total of approximately 3,700 people.

In their 2010 Employment Trends in North Carolina's Recycling Industry report, the RBAC had the following findings in regard to the statewide economic impact of the recycling industry:

- There are currently almost 15,200 private sector recycling-related jobs in North Carolina.
- Private sector recycling jobs have increased 4.8% since 2008.
- Total annual payroll for North Carolina recycling businesses is $395 million.

- Forty-eight percent of recycling businesses surveyed anticipate creating more jobs during the next two years.
- Twenty-five percent of businesses surveyed report manufacturing a product using recycled materials.
- Recycling businesses target a wide variety of recyclables for collection, processing, or use in manufacturing. No single recycling commodity dominates the sector.

Recycling employment has increased in each year that the RBAC has conducted its recycling employment study (beginning in 1994), and as of the 2010 report, the North Carolina recycling economy was continuing its upward growth trend.

4.4.3 EXISTING COUNTY COMMERCIAL SECTOR RECYCLING POLICIES

Business Recycling Ordinance

Mecklenburg County passed its own regulatory policy addressing business recycling in 2002 with the implementation of the SSO which requires businesses contracting for the collection of large quantities of waste materials to separate office paper and corrugated cardboard from their trash for the purpose of recycling. This is meant to address the large amount of fiber being left in the waste stream, as noted in the waste characterization study.

Specifically, the regulation applies to businesses that contract for 16 cubic yards or greater per week of garbage collection service. Officially, the SSO is titled: *Mecklenburg County Ordinance to Require the Source Separation of Designated Materials from the Municipal Solid Waste Stream for the Purpose of Participation in a Recycling Program.* There are several exemptions to the SSO as follows:

- If a business is contracting with a certified mixed waste processor, the processor will do the sorting for the business.
- If a business generates less than 500 pounds of corrugated cardboard per month, it does not have to separate corrugated cardboard.
- If a business generates less than 500 pounds of office paper per month, it does not have to separate office paper.
- If doing business from a temporary location.
- If physical space constraints preclude the business entity from complying.
- If the ordinance would require them to violate other codes or regulations.
- If no collection or processing system exists.

Business entities include all commercial, governmental, industrial, and institutional entities. The SSO targets the entity that contracts for garbage service, as this would be the organization able to make any necessary changes to their service contract. Consequently, the rules and regulations provide special provisions for property managed facilities. Property managers must provide a recycling system for their tenants and provide notification to their tenants of the recycling system and how to use it.

There have been several positive consequences of the SSO. Since its effective date, there has been an increase in the number of recycling collection companies in the County and the number of materials they accept. Perhaps due to this competition, prices for paper fiber collection

services have also declined. In an effort to create their own niche, recycling companies have found ways to differentiate themselves, some take only particular grades of paper fiber while others accept a mixed load of all grades.

Businesses that are exempt from the SSO can choose to utilize County-sponsored commercial recycling drop-off centers for their recycling needs. Commercial recycling drop-off centers are free of charge and accept the same recyclable materials as Mecklenburg County's single stream recycling program. Full-service and unstaffed County drop-off centers may also be used for recyclables.

To educate businesses about the law, the program has used the *Business Recycling; It's the Law* postcards as mailings to new and established, non-surveyed businesses, such as fast food restaurants and grocery store chains. Enforcement of the SSO is discussed in Chapter 9, Regulatory Activities.

Recycling Space Allocation in Non-Residential Buildings

The 2000 Solid Waste Management Plan directed staff to address recycling space allocation issues in commercial buildings. Specifically, the Plan stated:

> "Local zoning/building codes will be reviewed to see if variances in the codes are needed to allow existing businesses to provide space for recycling containers. The local/building code will also be amended to require space for separation, storage, and collection of recyclables. The amount of space will be at least equal to that provided for waste disposal containers. This requirement will apply to (1) new commercial buildings and (2) additions that increase the size of the building 50% or more."

A zoning text change was developed and approved by the Charlotte City Council. The text change allowed existing businesses to give up three parking spaces, if needed, to accommodate recycling containers. Future commercial buildings are required to allocate equal space for recycling and garbage containers. The Towns of Cornelius, Pineville, Mint Hill, and Davidson have adopted similar text amendments. The Towns of Huntersville and Matthews are still considering the amendments.

4.4.4 POTENTIAL NEW COUNTY COMMERCIAL SECTOR RECYCLING POLICIES

Potential strategies listed below were considered for this Plan Update. Sources for potential strategies include feedback from County staff, feedback from the Steering Committee, feedback received through the charrette and other outreach efforts, recent studies completed by the County, and known best practices in other jurisdictions.

- Support the state landfill ban, via ordinance banning pallets, aluminum cans, and plastic containers (and other banned materials) in garbage containers. The County could adopt an ordinance that bans the placement of materials currently banned from landfills by the state in garbage containers. This ordinance could also prohibit haulers from transporting 'banned' materials to disposal sites.

- Institute a reporting requirement for the haulers to better understand commercial waste and recycling tonnages, via licensing regulation.
- Institute a reporting requirement for businesses to better understand commercial waste and recycling tonnages, via business license regulation.
- Expand the mandatory commercial source separation program to:
    - Include all businesses with 8 cubic yards or more of service.
    - Expand the list of eligible or required materials to include plastic and aluminum beverage containers.
    - Change the paper recycling requirement from office paper to mixed paper.
    - Remove the 500-pound paper and cardboard exemption, and add bottles and cans to the list of materials impacted by the SSO.
    - While not specifically addressed by the small business study, consider amending the SSO to include all beverage containers, rather than just plastic bottles and aluminum cans, allowing the County the ability to enforce the true intent of the ABC recycling requirements.
- Require special event recycling permits everywhere in the County:
    - Include requirement to recycle.
    - Limit the materials that can be allowed into the event to items that can be easily recycled or composted.
    - Mandate recycling at events.
- Require all businesses to submit a recycling plan to the County.
- Implement a generator fee to fund recycling in the County.
- Develop an ordinance requiring space for recycling in new commercial buildings.
- Increase enforcement of the SSO, including assessing fines.
- Implement mandatory pay for recycling, which is imbedded in the trash fee, with free recycling up to 150% of trash service.
- Require businesses to meet an established recycling rate.
- Require leases with recycling requirements/clauses.
- Require processing of all materials for the purpose of recovery (MRF or mixed waste processing first) before they are buried in landfills.
- Require all businesses and institutions to participate in the County's recycling programs (mandatory source separation).
- Require private haulers to provide recycling services to their multifamily and business solid waste customers (already required for those serving single family customers).

4.4.5 EXISTING MUNICIPAL COMMERCIAL SECTOR RECYCLING POLICIES

None of the municipalities in the County have formal policies relating to commercial recycling.

4.4.6 POTENTIAL NEW MUNICIPAL COMMERCIAL SECTOR RECYCLING POLICIES

Potential strategies listed below were considered for this Plan Update. Sources for potential strategies include feedback from County staff, feedback from the Steering Committee, feedback received through the charrette and other outreach efforts, recent studies completed by the County, and known best practices in other jurisdictions.

- Support the state landfill ban, via ordinance banning pallets, aluminum cans, and plastic containers (and other banned materials) in garbage containers. The municipalities could adopt an ordinance that bans the placement of materials currently banned from landfills by the state in garbage containers. This ordinance could also prohibit haulers from transporting banned materials to disposal sites.
- Institute a reporting requirement for the haulers to better understand commercial waste and recycling tonnages, via licensing regulation.
- Institute a reporting requirement for businesses to better understand commercial waste and recycling tonnages, via business license regulation.
- Expand the mandatory commercial source separation program to:
    - Include all businesses with 8 cubic yards or more of service.
    - Expand the list of eligible or required materials to include plastic and aluminum beverage containers.
    - Change the paper recycling requirement from office paper to mixed paper.
    - Remove the 500-pound paper and cardboard exemption, and add bottles and cans to the list of materials impacted by the ordinance.
    - While not specifically addressed by the small business study, amend the SSO to include all beverage containers, rather than just plastic bottles and aluminum cans.
- Require special event recycling permits everywhere in the County:
    - Include requirement to recycle.
    - Limit the materials that can be allowed into the event to items that can be easily recycled or composted.
    - Mandate recycling at events.
- Require all businesses to submit a recycling plan to the County.
- Implement a generator fee to fund recycling in the County.
- Develop an ordinance requiring space for recycling in new commercial buildings.
- Support continued development of single stream recycling.
- Increase enforcement of the SSO, including assessing fines.
- Implement mandatory pay for recycling, which is imbedded in the trash fee, with free recycling up to 150% of trash service.
- Require businesses to meet an established recycling rate.
- Require leases with recycling requirements/clauses.
- Require processing of all materials for the purpose of recovery (MRF or mixed waste processing first) before they are buried in landfills.
- Require all businesses and institutions to participate in the County's recycling programs (mandatory source separation).
- Require private haulers to provide recycling services to their multifamily and business solid waste customers (already required for those serving single family customers).

4.4.7 EXISTING COUNTY COMMERCIAL SECTOR RECYCLING PROGRAMS

The County has initiated several programs to help address the amount of recoverable materials that are being deposited in the landfill by the commercial sector. Table 4.17 below summarizes

publication efforts and other initiatives to promote the programs affecting the commercial and institutional sectors. Specific programs are described in more detail below.

Table 4–17 Source Reduction Publications and Other Initiatives

Name	Description
Know Where It Goes – SSO Initiative	The Know Where It Goes (KWIG) Business and Commercial Recycling Program increases awareness and educates Mecklenburg County businesses about the importance of reducing the disposal of municipal solid waste via recycling initiatives. Program content includes the county mandated SSO, who should recycle, why businesses should recycle, what is recyclable, recycling service providers, business and commercial recycling drop centers, and more. This campaign utilizes both traditional and online media including free tailored business assessments, customized employee-training materials, resource materials, posters, 11 mobile billboards, brochures, web page banners, and regular e-mail blast updates to opt in participants.
Wipe Out Waste Ambassador Program	The County upgraded and launched an enhanced program in October 2011 to further increase businesses' commitment to waste reduction; provide businesses with additional and ongoing mentoring, education, and networking opportunities; drive business community loyalty; actively promote and reward excellence for recycling and sustainability; and assist with tracking to ensure efficacy via measurement tools. Levels of participation include Associate, Advocate, and Ambassador Members. Promotional initiatives included a kick-off luncheon, quarterly educational meetings targeted by subject matter, web-based educational tools, marketing materials for businesses to promote advocacy internally, and print media and radio ads. Further enhancements are scheduled for later in 2012 including a My Green Office weekly promotion where businesses can submit recycling program initiatives to win a free lunch for staff (sponsored in concert with CBS Radio).
Re•think Recycling Single Stream Initiative	In July of 2010, the initiative put forth a strong call to action to encourage citizenry to change the way residents and businesses think about recycling. This overarching communications strategy with multilingual support materials targeted all stakeholders including residents, businesses, schools, haulers, recycling center sponsors, and City and County employees. To ensure countywide buy in, a joint meeting with the municipalities was held to introduce the creative approach and executable components and garner collaborative participation. Since recycling cart size would vary by municipality, the three cart sizes to be utilized were integrated into campaign graphics. In addition, campaign materials provided both written detail along with visual cues of all new and existing materials now accepted, as well as those not accepted. All municipalities launched their program utilizing the re•think creative moniker.
Be Cool Recycle In School Initiative	CMS and Mecklenburg County's Solid Waste and Recycling Department teamed up to develop an art contest to promote the county's conversion to single stream, increase awareness within CMS schools and among students about the importance of recycling and new items that could be recycled, and promote a willingness to carry the recycling message back home. CMS students were invited to create a new recycling logo and slogan for the CMS recycling program. The district received 52 entries and eight judges from area businesses, together with county and district employees, selected the winning artwork and slogan. The new logo and slogan is now utilized across all promotional materials, including recycling carts and bins. Republic Waste Services sponsored the contest, awarding $1,000 to winning schools during Earth Day ceremonies.

Table 4–17 Source Reduction Publications and Other Initiatives	
Name	**Description**
Secure Your Load Initiative	A Secure Your Load brochure/survey/mailer was developed for use as a primary tool to solicit conversation with C&D business constituents, expound on the need for effectively securing loads to reduce highway litter, and increase face time and awareness with business segment leaders throughout the community. Opportunities for expansion included seeding local organizations within the building industry with messaging that can be integrated into training materials. A mailer was also sent to registrants of the December C&D conference directing them to the C&D site for additional recycling information and opt in for C&D outreach e-media. The program is slated for further advancement in 2012 via promotional initiatives with local do-it-yourself organizations (e.g. Lowes and Home Depot) within Mecklenburg County.
Faith-Based Organizations Initiative	This pilot program provides customized materials tailored to meet the specific needs of the organization provided at no cost. Materials are designed to educate facility management and its constituency in the area of waste reduction and recycling with items that can be recycled, do's and don'ts, and full-service County drop-off center locations. Education materials include Recycling is Heavenly and Heaven Holds A Special Place For Those Who Recycle 12"x14" or 18"x24" posters, 3"x7" program inserts, and 8½"x 11" two-sided flyers.
Landfill Ban	This initiative educated Mecklenburg County residents and businesses about the newly implemented landfill ban on electronics, which included all CPUs, laptops, monitors, printers, printer/fax/scan devices, mice and keyboards, all televisions with picture tubes, flat-panel televisions, and projection televisions. Residents were directed to drop off all included items, at no charge, at one of the County's electronics collection sites. Promotional components include 100,000 geo-targeted online impressions on all CBS Radio station web sites, thirty-second click-to-play value-add animated gif, Charlotte Observer ¼ full-color ad, and Wipe Out Waste Landfill Ban web page.

Wipe Out Waste Ambassador Program

The Wipe Out Waste Ambassador Business Recognition Program recognizes and rewards Mecklenburg County businesses that have made efforts in the workplace to reduce and recycle waste and to buy recycled products. Sponsored by Mecklenburg County Solid Waste, the program is free and voluntary.

Figure 4.2 Wipe Out Waste Ambassador Logo

Any business in Mecklenburg County that recycles and has a waste reduction program can join this program. Members receive the following benefits: invitation to attend the annual Wipe Out Waste Ambassador Awards Banquet as well as other ambassador events, networking with other businesses, recognition by elected officials, opportunity to submit an application to be selected for one of the annual Business Recognition Awards, use of ambassador logo for education and promotion materials, a Wipe Out Waste Ambassador

window decal, free technical assistance from the County, free publicity in local media, and publicity through the Wipe Out Waste educational events, presentations, and forums.

Photo 4.3 Wipe Out Waste Ambassador Program Kick Off Luncheon, October 19, 2011

The new program has three different levels of membership: Associate, Advocate, and Ambassador, with each category demonstrating a stronger level of support to waste reduction and recycling initiatives. The goal is to have more advanced Advocate and Ambassador Members serve as mentors to Associates that are just starting out in their recycling efforts.

Commercial Recycling Drop-off Center Program

Prior to the development of the SSO, the County implemented a commercial recycling drop-off center program designed to address small businesses' recycling needs. This program is still active and involves the County placing a recycling container at a location that is accessible to several small businesses and providing free collection services to the facility. It is the responsibility of the business that has volunteered to host the facility to notify neighboring businesses of the availability of the recycling container. The County now primarily installs 8-cubic yard dumpsters to be collected on a once-a-month basis. The County currently has over 120 active commercial recycling drop-off centers. This more than doubles the amount noted in the 2009 update to the Solid Waste Management Plan. The County also tracks the usage of the drop-off centers, performing an audit in 2009 with another scheduled in 2012, to determine whether the facilities are being utilized to their full potential. Figure 4.4 shows locations of the current commercial recycling drop-off centers.

While the drop-off centers initially only accepted paper and corrugated cardboard, the materials that larger waste generators were required to recycle, once the County adopted single stream recycling, the drop-off centers could accept all recyclable materials. This required re-branding of all of the existing recycling containers, as they originally had stickers stating a limited waste stream of only cardboard and paper was accepted.

Figure 4.3 New Commercial Drop-off Center Label

Since the Ordinance has been in place, both the City and County continue to receive requests from the commercial sector to provide collection services to small businesses. It is widely believed by small businesses that the municipalities provide for the collection of recyclables from businesses in a manner similar to residential curbside programs. With a combination of the existing commercial recycling drop-off center program and a potential practice of issuing interior recycling bins on a limited basis, the County could address this issue.

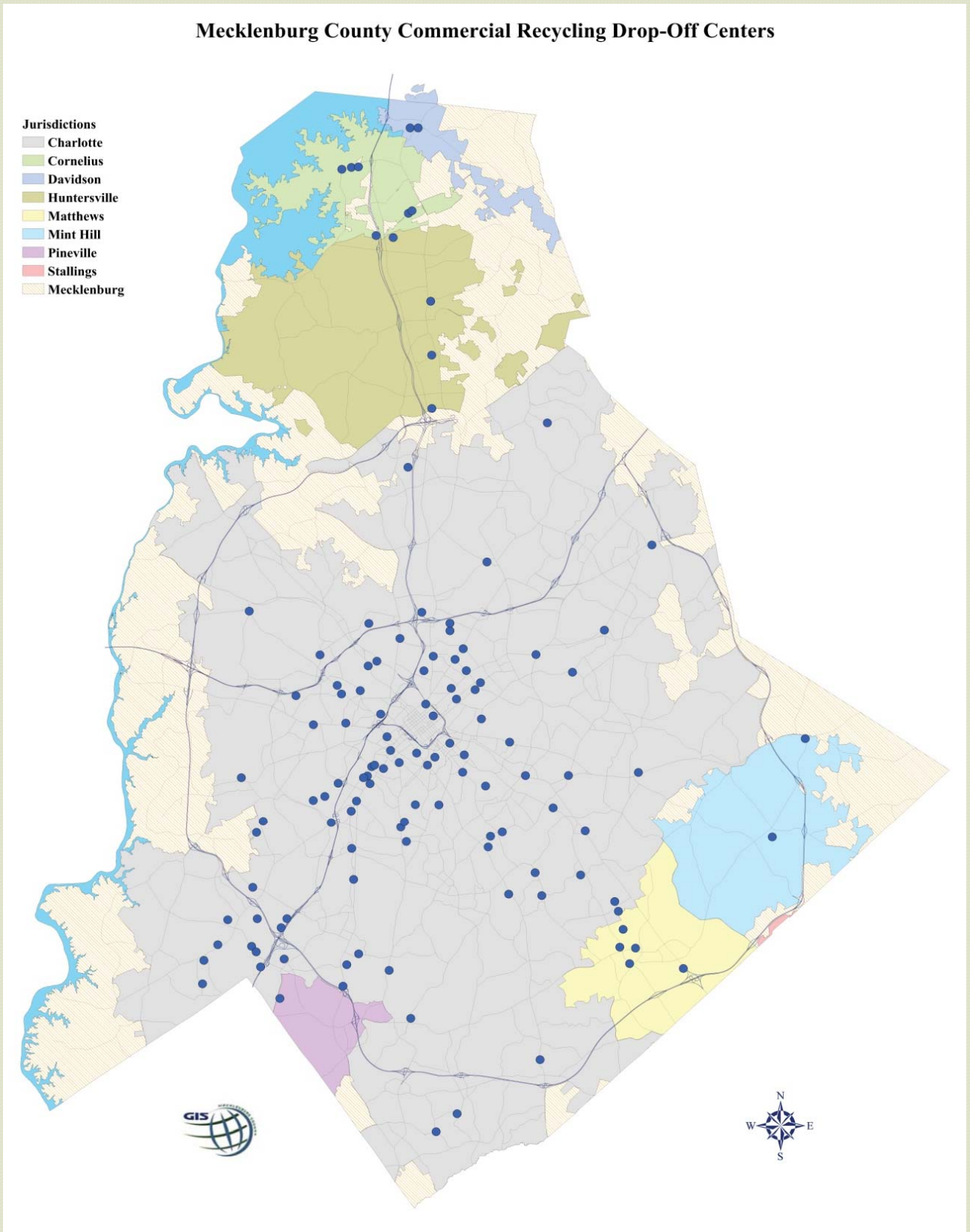


Figure 4.4 Commercial Recycling Drop-off Centers Map

Outreach and Education for Commercial Sector Recycling

In order to promote both the voluntary and mandatory commercial recycling programs available within the county, Mecklenburg County develops and implements various promotional and educational programs and pieces. Some recent examples include the Know Where It Goes brochure that is distributed at the time of SSO inspections and the flyer advertising the availability of the commercial recycling drop-off center program. Initially, the County launched a marketing/outreach program that included public service announcements, workshops, and print ads. With the re-launching of the Wipe Out Waste Ambassador Program, additional media opportunities will certainly follow.

Public relations and educational campaigns are also developed to promote commercial waste reduction, reuse, recycling, and buy recycled for the Mecklenburg County business community. Some examples of the promotional media used are newspaper articles and advertisements, television commercials, elevator advertisements, surveys with prize opportunities, direct mail, brochures, an informational phone line, billboard and radio ads, e-newsletters, a website, and speaking engagements to business groups.

Figure 4.5 Know Where It Goes Brochure

This program has been awarded for its outstanding efforts and success by the Solid Waste Association of North America and the Carolina Recycling Association and has received the Communicator's Award. Most recently, the Solid Waste Association of North America awarded Mecklenburg County a 2008 Silver Marketing Award.

The challenge remains each year to reach and affect the disposal and recycling behavior of area businesses. In recent years, there has been a decline in awareness numbers for the SSO. If any of the suggested changes from the recent SSO study are implemented, it would provide an excellent opportunity for a more focused education campaign to businesses.

Event Recycling

Street fairs, concerts, sporting events, and other special events are frequent and important occasions for Mecklenburg County. One element of these events that is often overlooked is the amount of recyclables generated in the days leading up to, during, and at the close of the event. As a result, Mecklenburg County has developed a program to collect and recover cardboard, plastic bottles, glass bottles, and aluminum cans from the waste stream during special events. At this stage it is not mandatory to recycle at events.

The event recycling program provides website information, educational materials, presentations, and hands-on training in an effort to be a resource for organizers who want to increase the recycle rate and sustainability at their event. The program also offers the *Event Recycling Toolkit*. This is a refundable deposit program that provides a predetermined number

of ClearStream® recycling containers, bags, and litter sticks (tongs) to help volunteers sort and collect recyclables.

The Mecklenburg County Event Recycling Team in conjunction with City of Charlotte Solid Waste Services has evolved into successful coverage of special events in the City and County. It is evident that the program has become more established in recent years. Not only has the City seen the value of this program but it has been recognized for service excellence by their solid waste department.

The County also supplies roll out cans to those events which generate a substantial amount of recycling.

Examples of the continued success achieved between the two entities (City and County) include the annual Speed Street Festival held in Charlotte, where the event was recognized nationally for its recycling results, and the Panthers Tailgate Recycling Partners program, now in its third year. This has also been a tremendous success, recognized for the recycling tonnage diverted from landfill. A public-private partnership entered into between Keep Mecklenburg Beautiful, Center City Partners, the Carolina Panthers, Bojangles, City Solid Waste Services, and Hands on Charlotte is an example of how various entities can work together to benefit the community and the environment.

Photo 4.4 Speed Street Volunteers

The Wells Fargo Championship golf tournament (formally Wachovia Championship) has been a leader in event sustainability and in 2012 is actively looking to food compost for the first time.

The event recycling program has encouraged other organizations to improve their recycling programs. The City of Charlotte's Solid Waste Servies department, in an effort to keep up with the demands of events held in and around the uptown/downtown/center city area, purchased 100 ClearStream containers to use parallel with their event trash containers. The Mecklenburg County Park and Recreation Department has made recycling a condition when planning a major event in their parks, and is working diligently to provide recycling at their events throughout the year.

Photo 4.5 Recycling: Clear Stream, Matthews Alive

Established events such as Matthews Alive, Taste of Charlotte, Pride Charlotte, Latin Fest BBQ and Blues and Festival in the Park continue to be proactive in their efforts to recycle. Newer events held at Rural Hill Farm in Huntersville, Bark in the Park, the Amazing Maize Maze, and Pet Palooza continue to embrace the concept, and the

event team continues with outreach countywide in order for more events to have the ability to recycle.

The County, City, and Park and Recreation Department can now more easily coordinate events, share resources, and establish a volunteer group through Keep Mecklenburg Beautiful and Hands on Charlotte to achieve positive results and create positive feedback for the community at large.

In 2010 and 2011, event recycling occurred at 46 events, resulting in over 163 tons of material being recycled. These events included festivals, Step Out Walk to Fight Diabetes, Susan G Koman Race for the Cure, Speed Street Festival, and Panthers Tailgating, to name a few.

Recycling in Public Schools, City/County Facilities, CPCC, and the ABC Board

Charlotte-Mecklenburg Schools (CMS), Central Piedmont Community College (CPCC), and the Mecklenburg County Alcohol Beverage Control Board (ABC) each have an interlocal agreement with Mecklenburg County for recycling services. This agreement allows Mecklenburg County to administer, manage, and regulate recycling services to each entity above (and garbage services, discussed in Section 7.3). These entities provide reimbursement to Mecklenburg County for recycling collection services rendered. This expanded partnership has allowed for an effect to take place known as the greater economies of scale by combining recycling collection services. Significantly reduced waste hauling service fees have incurred since the onset of this collaboration of services. After July 2010, all collection services under this contract can recycle all acceptable recyclable materials under one dumpster collection service single stream. Acceptable recyclable materials are listed in Section 4.5.1.

Photo 4.6 CMS Students Assist with Recycling

Mecklenburg County's current dumpster collection service provides services to the CMS, City/County facilities, and CPCC. It also financially supports and distributes all CMS schools, City/County facilities, Park and Recreation sites, and public libraries, with internal recycling containers, signs, posters, and educational materials on recycling. Each location is responsible for coordinating how to get the recyclables from inside their school or facility to the outside recycling dumpster. A standardized procedure has been created from CMS and County personnel as a best practice guide for these facilities to recycle efficiently and effectively. That procedure involves students, teachers, administration, and County employees transporting all recyclable materials from classrooms, office spaces, libraries, and common areas to decentralized 35-96 gallon roll out carts located in designated locations. These roll out carts are purchased and provided by Mecklenburg County. It is the responsibility of the custodial staff to empty these decentralized containers into the outside recycling dumpster. Educational posters, presentations, incentive programs, and enforcement are all services that Mecklenburg County provides under the interlocal agreement.

In this interlocal agreement there are dedicated recycling trucks servicing the County's recycling programs. All locations receive recycling pickup services one or more times a week depending on each location's needs. Programs can report missed pickups or request extra pickups for special events, and services will be provided within 24 hours without charge. All trash services have been reduced from 5 to 4 days a week within CMS in an effort to reduce waste and due, in part, to increased recycling.

Photo 4.7 Containers Available to CMS, CPCC, and City/County Facilities

CMS continues to push the limits and build upon an already exemplary recycling program. The key success of the CMS recycling program is due to the buy in, backing, and full support of a top down push from the CMS administration. This support has allowed Mecklenburg County to operate and aid in the promotion and enhancement of the entire program. CMS has now implemented recycling policies outside the scope of the Mecklenburg County program including used tires, used oil, and construction and demolition projects. CMS has created an award winning *Environmental Management System Manual* which encompasses all aspects of sustainability and ways to further improve their program. This program addresses the following adopted environmental policy:

Photo 4.8 Promotion of CMS' Exemplary Recycling Program with Fox News Rising

"Environmental Policy is established by Charlotte Mecklenburg Board of Education (CMBOE) Policy ECF: Environmental Stewardship. ECF requires the development of this Environmental Management System (EMS) addressing, at minimum: environmental compliance, pollution prevention, resource conservation, resource recovery, sustainable development, sustainable purchasing, and behavioral change. The Superintendent shall provide an annual report to the CMBOE including objectives and targets and develop a communications strategy that makes students, staff, and publics aware of the EMS."

Photo 4.9 Carton Recycling Program

With the onset of the new single stream recycling program, CMS schools are now able to recycle milk and juice cartons. Annually, 23.5 million milk and juice cartons are now recyclable. In March 2011, the 2011 Community Waste Reduction and Recycling Grant was awarded to Mecklenburg County Solid Waste for $18,749.00 The grant monies went to the purchase of specified milk/juice carton containers, labeling of those containers, and educational posters. A partnership and interest in the program came from the Carton Council, an organization comprised of the nation's largest paper industries, which supported the program financially and through professional resources. The Carton Council funded an incentive program by donating five $1,000 prizes for a 4-week contest to promote the received grant and milk/juice carton recycling. During this incentive program, twenty-five schools participated and averaged 600 pounds of recyclable material per school and a total of over 15,000 pounds of empty milk and juice cartons for the 4-week contest, which equates to approximately 250,000 individual milk/juice cartons.

This program has provided an increase in the amounts of recovered aseptic and carton packaging at the Metrolina Recycling Center. It is estimated that approximately 75 schools are currently participating in the Carton Recycling Program. Therefore, this incentive program is only a snapshot of the entire program. These efforts will be ongoing to continuously improve collection efforts.

Photo 4.10 Winget Park Carton Recycling Program Winners Received $1,000

Processing Recyclables

Recyclables received from the schools and other facilities are delivered to the Metrolina Recycling Center, where they are sorted and sold to recycling markets. Table 4-18 shows the tons recycled, tons disposed, and recycling rate for these programs since FY00/01.

Table 4–18 PaperChase and CMS OCC & Mixed Office Paper Program Recycled vs. Disposed

Fiscal Year	Recycling (Tons)	Trash (Tons)	Total Tons	Recycling Rate
FY00/01	856	4,256	5,112	17%
FY01/02	1,271	8,944	10,215	12%
FY02/03	1,550	8,251	9,801	16%
FY03/04	1,506	10,456	11,962	13%
FY04/05	1,658	12,595	14,253	12%
FY05/06	1,792	13,599	15,391	12%
FY06/07	2,064	14,352	16,416	13%
FY07/08	2,418	14,790	17,208	14%
FY08/09	1,323	10,347	11,670	13%
FY09/10	1,467	10,458	11,925	14%
FY10/11	1,835	9,810	11,645	19%

One challenge remains constant, which is to maintain recycling contacts within CMS, City/County facilities, public libraries, Park and Recreation Department, and all other joint entities. Effective lines of communication are not completely achieved at this time. CMS schools have mandated that all school principals nominate one representative from each school to serve as a liaison. These mandates have increased participation but continual efforts will be needed.

Implementation of single stream recycling allows all of Mecklenburg County Park and Recreation Departments to be serviced and maintained under the current recycling collection contract. They also receive full support for indoor collection containers, educational presentations to staff, educational posters/flyers, and reduced collection costs under the County's contract.

The Metrolina Recycling Center is an up-close and visual tool for all ages to see and understand the environmental impacts they are contributing to in a positive way. It is an experience where elementary, middle, high school, college students, and adults can all come and learn about recycling in Mecklenburg County. The Metrolina Recycling Center was the first materials recovery facility in North Carolina to have an education center and an education center director. The education center includes a 360 degree real time camera that can be viewed from within a stadium seating area. Also, all equipment, floor activity, incoming traffic, dumping, and some equipment maintenance can be viewed through a glass viewing area. All of these amenities allow for a recycling experience that will teach individuals the importance of recycling through this excellent visual experience.

Waste Characterization

In December of 2011, Mecklenburg County hired SCS Engineers to perform a waste characterization study of Mecklenburg County's institutional waste stream. This characterization analyzed the trash from the dumpster collection contract with Mecklenburg County, City, CMS, and CPCC. The preliminary results from the study are shown in the pie charts below. As shown, paper and organics are a high percentage of each waste stream analyzed, similar to other waste generating sectors.

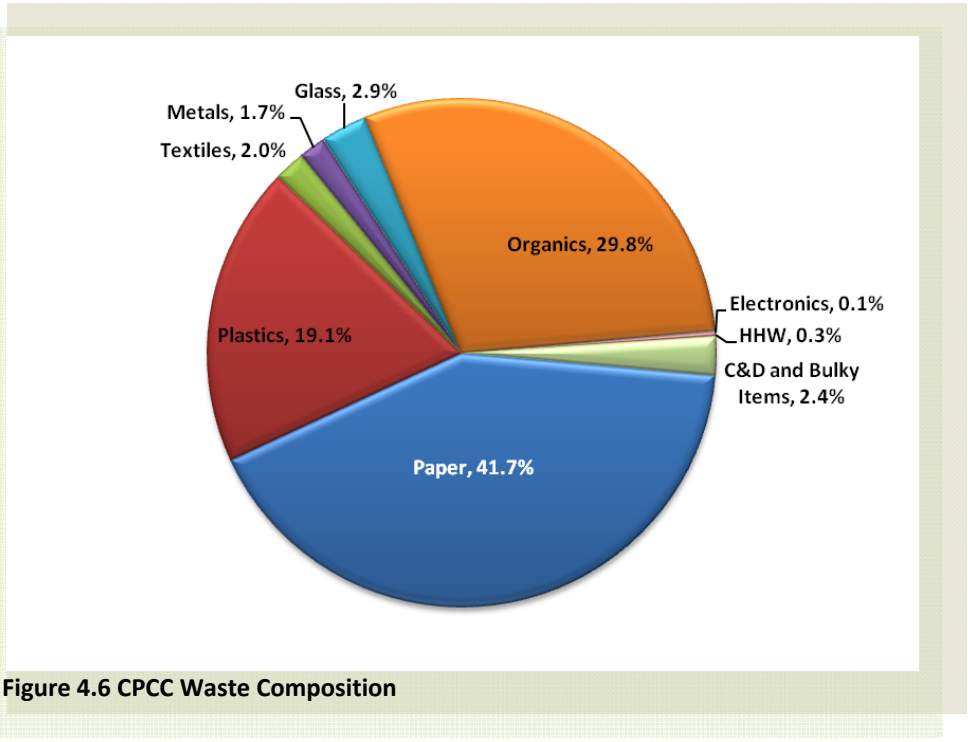


Figure 4.6 CPCC Waste Composition

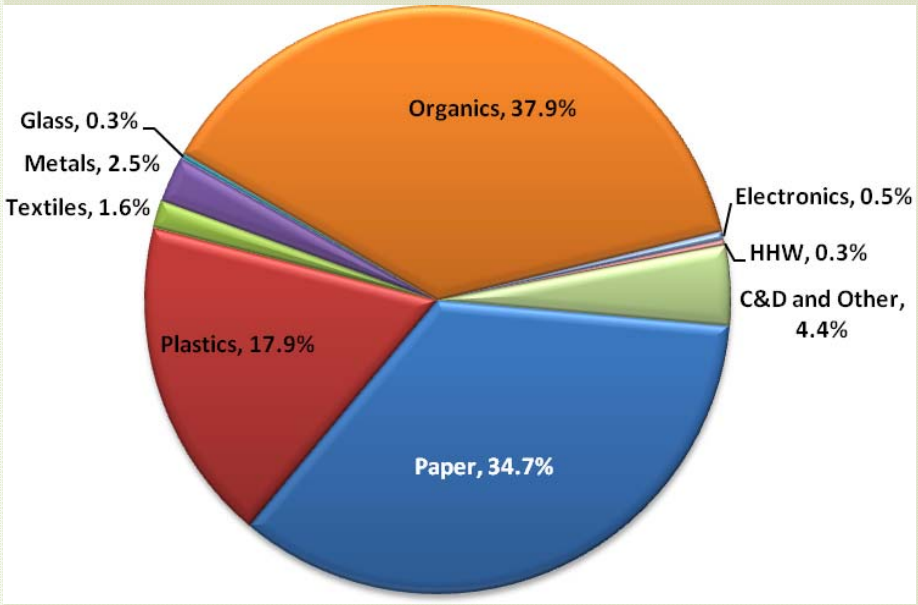


Figure 4.7 CMS Waste Composition

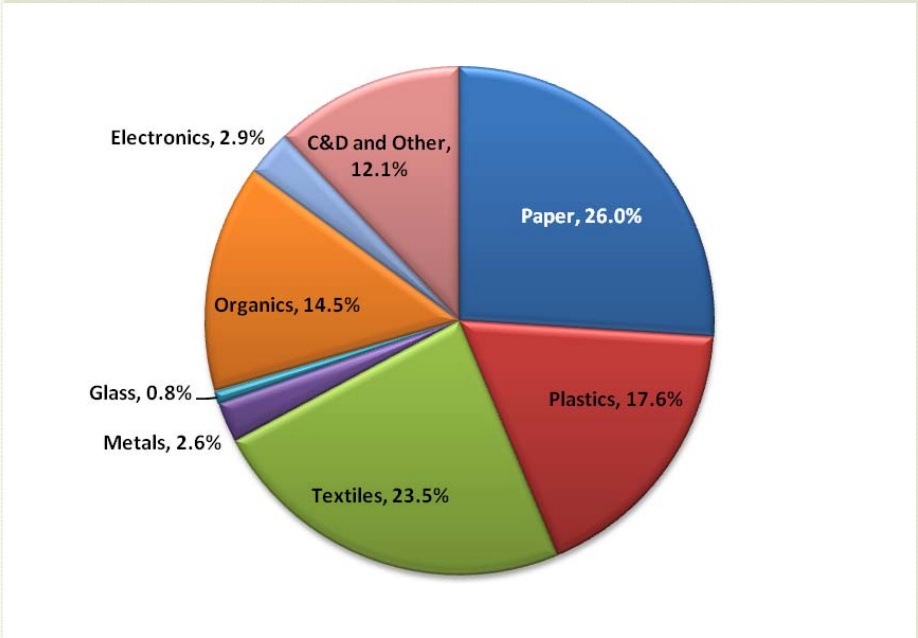


Figure 4.8 County Facilities Waste Composition

High textiles percentages from County facilities are believed to be attributed to a high volume of shoes and clothing disposed from excessive holiday donations from the Goodwill location and the Carolina Center for Women women's clinic serviced under the County's contract.

City/County Internal Programs

Internally, Mecklenburg County has reduced trash services in office spaces from five days a week to two days a week. This change is in part due to an effort to reduce custodial services and to accommodate reduced waste in offices. Also, in 2012, Mecklenburg County will be pursuing a potential mandatory employee recycling policy. This policy will encompass all aspects of the County employee's waste stream in efforts to reduce waste beyond what is collected within the single stream recycling. The County runs internal incentive programs like Recycle Your Workspace to promote its recycling program. These incentive programs receive a great response from employees and allow the County to remind each employee of recyclable and non-recyclable items (1st place winner iPad is not purchased with County finances).

Figure 4.9 Recycle Your Workspace Poster

The Towns of Cornelius, Huntersville, Pineville, Matthews, and Mint Hill all have recycling within their office areas. Most are serviced by their local collection service provider. Currently, all City, County, and surrounding municipalities are provided services and indoor collection containers by Mecklenburg County.

Colleges and Universities

A new program added to Mecklenburg County Solid Waste in 2011 was Colleges & Universities Sustaining the Environment (CAUSE). This program is designed to enhance and open the lines of communication between colleges, universities, and Mecklenburg County government. CAUSE is providing an open sharing of information to explain how each university can expand their programs, save money, and promote their own outstanding programs. This program is aimed at all sustainable practices from recycling to energy savings and keeps all schools in Mecklenburg County with updated information and replicable programs to implement within each school.

CAUSE
COLLEGES & UNIVERSITIES SUSTAINING THE ENVIRONMENT
Figure 4.10 CAUSE Poster

Other Mecklenburg County Commercial Waste Reduction Programs

In addition to the programs addressed above, Mecklenburg County maintains a hotline, The Business Recycling Infoline (704-432-3200), to assist commercial businesses with their solid

waste issues. The County also offers waste assessments, maintains a list of recycling vendors on its website, conducts studies as needed, and prepares programs and policies to reduce the amount of solid waste disposed of by the commercial sector. Also, the County offers a Waste Reduction 101 class to Mecklenburg County businesses. This class reviews the 11 steps to establish and implement a successful waste reduction program and conduct a waste audit.

4.4.8 POTENTIAL NEW COUNTY COMMERCIAL SECTOR RECYCLING PROGRAMS

Potential strategies listed below were considered for this Plan Update. Sources for potential strategies include feedback from County staff, feedback from the Steering Committee, feedback received through the charrette and other outreach efforts, recent studies completed by the County, and known best practices in other jurisdictions.

- Continue to provide recycling technical assistance to multifamily, commercial, and institutional generators.
- Provide recycling and solid waste collection service for multifamily, commercial, and institutional generators through contracts, franchises, or municipal services.
- Research incentive programs for commercial sector, like Recyclebank.
- Continue and expand education programs.
- Look for reward and recognition opportunities for businesses that have model programs.
- Place recycling bins wherever there are trash cans in all public locations, including temporary locations or special events.
- Provide a limited number of interior recycling bins to businesses that are selected to host commercial recycling drop-off centers.

4.4.9 EXISTING MUNICIPAL COMMERCIAL SECTOR RECYCLING PROGRAMS

A majority of municipalities do not have recycling programs or services specifically addressing materials coming from the commercial (non-residential) sector. However, most municipalities have internal recycling programs addressing wastes generated through governmental activities. Three municipalities that do offer recycling services to small businesses are Davidson, Huntersville, and Matthews.

The City has an internal recycling program for City buildings that is offered through a joint City/County effort called re•think recycling. The City also offers event recycling and currently participates in Carolina Panthers Tailgate Recycling Partners, Charlotte Bobcats, Power2 Charlotte Recycling, as well as yearly special events that also include parades. Charlotte gives presentations about source reduction and recycling to the business community when

Photo 4.11 Power 2 Recycle Vehicle

requested. These presentations consist of educating businesses on our residential single-stream recycling services using the current Recycle It! brochures.

The City of Charlotte may potentially expand its outreach by seeking to educate and promote recycling for small businesses that are currently receiving garbage collection service from the City. City Solid Waste Services would offer recycling presentations and recycling brochures/guides for these small businesses. The focus of this educational campaign would be to supply small businesses with the tools needed to establish and implement a successful workplace recycling program.

The Town of Davidson has a recycling drop-off center in the downtown area, which consists of two 30-cubic yard containers. All downtown merchants and offices are allowed access to the recycling compactors at no fee. It is estimated that approximately 40 businesses and offices take advantage of this service.

Photo 4.12 Uptown Charlotte Recycling Container

The Town of Huntersville, in general, does not offer recycling to small businesses; however, a few receive recycling collection under the town's current contract with Advanced Disposal. Huntersville also provides recycling educational material via the town's website and hand-outs.

The Town of Matthews has an internal recycling program for town buildings. All facilities have recycling containers that are collected on residential recycling days. The town does not provide recycling opportunities at any of its parks, but the topic is under discussion. Matthews promotes and/or provides services for recycling at special events. The town works with the County on these events. Matthews also offers voluntary recycling to small businesses that utilize its garbage collection service. The small business recycling program for the town of Matthews is unique. The town provides garbage service to about 150 small business locations, using 96-gallon roll out carts. Matthews is offering a voluntary single stream recycling service for these small businesses. If requested, each business will receive a 96-gallon roll out cart. The bins will accept newspaper, office paper, inserts, magazines, telephone books, catalogs, cardboard, aluminum and steel cans, plastic drink containers, and all glass containers (brown, green, and clear). The town has about 75 businesses participating.

4.4.10 POTENTIAL NEW MUNICIPAL COMMERCIAL SECTOR RECYCLING PROGRAMS

Potential strategies listed below were considered for this Plan Update. Sources for potential strategies include feedback from County staff, feedback from the Steering Committee, feedback received through the charrette and other outreach efforts, recent studies completed by the County, and known best practices in other jurisdictions.

- Promote the County's recycling technical assistance to multifamily, commercial, and institutional generators.
- Provide recycling and solid waste collection service for multifamily, commercial, and institutional generators through contracts, franchises, or municipal services.
- Research incentive programs for commercial sector, like Recyclebank.
- Continue and expand education programs, and promote County programs.
- Place recycling bins wherever there are trash cans in all public locations, including temporary locations or special events, to the extent possible.

4.4.11 COMMERCIAL SECTOR RECYCLING ASSESSMENT

The commercial sector represents a significant part of the Mecklenburg County waste stream. However, it is difficult for the County to assess the percentage of recyclables that are being diverted or the impact of County programs, as the majority of businesses' recycling services are provided by private companies.

Mecklenburg County develops and implements many different types of promotional and educational programs and pieces to promote the voluntary and mandatory commercial recycling programs. Initially, the County launched a marketing/outreach program that included public service announcements, workshops, and print ads. This was followed by an initiative to determine the awareness of area businesses to the commercial recycling ordinance and to detect trends in the compliance of the recycling ordinance.

Ongoing public relations and educational campaigns are developed to promote commercial waste reduction, reuse, recycling, and buy recycled participation within the Mecklenburg County business community. Through this award winning outreach, information is provided in a variety of formats and will be continuously maintained to meet the needs of the business community and the County. Included in the past and current outreach programs are: newspaper articles and advertisements, television commercials, elevator advertisements, surveys with prize opportunities, direct mail, brochures, informational phone line, billboard and radio ads, e-newsletters, a website, and speaking engagements to business groups.

The challenge remains each year to reach and affect the disposal and recycling behavior of area businesses. In recent years, there has been a decline in awareness numbers for the SSO.

In 2011, SCS Engineers, PC performed a waste characterization study of City/County facilities, CMS, and CPCC. The results of the study show that organics and paper are a high percentage of waste disposed for this generator sector, similar to other generator sectors.

In addition to the recently completed waste characterization study, Mecklenburg County staff will be performing a CMS Solid Waste and Recycling Assessment. This assessment will review all school's internal recycling programs within the FY 11-12 school year. The purpose of the assessment will be to identify the functionality of all programs, providing suggestions for improvements to increase recycling rates and to honor the best school recycling program within CMS. This will be the first comprehensive assessment of each school's internal and external recycling program, which will be designed to increase waste diversion. All findings will be reported to CMS administration for review at the end of the school year. The main goals of this assessment are to create sustainable recycling programs in CMS schools, promote all outstanding performances, educate all schools and students about environmentally sustainable

practices, increase recycling rates, reduce landfill waste, reduce waste fees, change recycling behaviors, reduce variations in the recycling processes, and communicate upper management support of recycling programs to the individual schools.

The special event recycling program has become a fixture in the County, continues to evolve, and is widely regarded as positive and a necessity.

Changes to the SSO should reduce the amount of recyclables that are being landfilled and would ultimately impact approximately 1,700 additional businesses. According to the SSO Sstudy, the new policy would have a net economic impact to the County of zero when taking into consideration additional private hauler driver wages and benefits and associated indirect and induced spending generated by these new wages, as well as the value of the recyclables collected.

Placing recycling containers in public locations next to trash cans may be limited in the municipalities, considering cost of containers and staffing implications.

It may be possible to provide a limited number of interior recycling bins to businesses that are selected to host commercial recycling drop-off centers. Under the current policy, a recycling dumpster is delivered to the host location, but it is the responsibility of that organization and its employees to determine how to best collect recyclable materials and transport them to the dumpster. A more effective policy would be for staff to deliver a set number of recycling bins to each location and provide a presentation to employees at this time concerning allowable recyclable materials and the Commercial Recycling Drop-off Center Program in general. This program could be opened up to any small business that was willing to undergo a waste assessment, to ensure that the recycling bins were being placed and used effectively.

The County's Commercial Recycling Drop-off Center Program currently provides more than 120 drop sites for businesses. Based on the current budget for the Commercial Recycling Drop-off Center Program, the County has the capacity to add approximately 100 new 8-cubic yard facilities to be collected once a month.

4.4.12 COMMERCIAL SECTOR RECYCLING RECOMMENDATIONS

In the short term (2013 – 2017), the County and municipalities should:

- **Continue to provide recycling technical assistance to multifamily, commercial, and institutional generators.**
- **Initiate efforts to ensure recycling collection services are available for multifamily, commercial, and institutional generators, and research the viability of doing so through contracts, franchises, or municipal services.**
- **Research the best approach for instituting reporting requirements to better understand commercial waste and recycling tonnages:**
  - **Through the haulers, via hauling license regulation.**
  - **Through businesses, via business license regulation.**
  - **Through recycling facilities.**

- **Implement reporting requirements for commercial waste and recycling tonnages, through the best approach identified (e.g. haulers, businesses, or facilities).**

- **Expand the mandatory commercial SSO program to:**
  - **Include all businesses with 8 cubic yards or more of service,**
  - **Remove the 500-pound paper and cardboard exemption,**
  - **Expand the list of eligible or required materials to include plastic and aluminum beverage containers.**
  - **Change the paper recycling requirement from office paper to mixed paper.**
  - **Include all beverage containers, rather than just plastic bottles and aluminum cans. This would allow the County the ability to enforce the true intent of the ABC recycling requirements.**

- **Initiate the requirement for special event recycling permits everywhere in the County:**
  - **Include requirement to recycle.**
  - **Limit the materials that can be allowed into the event to items that can be easily recycled or composted.**
  - **Mandate recycling at all events and ban non recyclable items, like polystyrene. Allow for composting to become an option in the future planning of events.**

- **Research incentive programs for commercial sector, like Recyclebank.**

- **Look for reward and recognition opportunities for businesses with model recycling practices.**

- **Support the state landfill ban, via ordinance banning pallets, aluminum cans, and plastic containers (and other banned materials) in garbage containers. This ordinance could also prohibit haulers from transporting banned materials to disposal sites.**

- **Develop and adopt an ordinance requiring space for recycling in new commercial buildings.**

- **Require private haulers to provide recycling services to their multifamily and business solid waste customers, as is already required for those serving single family customers.**

The County should:

- **Provide a limited number of interior recycling bins to businesses that are selected to host commercial recycling drop-off centers.**

- **Continue to add new commercial recycling drop-off centers.**

In the long term (2017- 2022), the County and municipalities should:

- **Require all businesses and institutions to participate in the recycling programs**

(mandatory source separation).

- **Place recycling bins wherever there are trash cans in all public locations, including temporary locations or special events, to the extent possible.**
- **Increase enforcement of the SSO, including assessing fines.**
- **Require businesses to meet an established recycling rate.**
- **Require leases with recycling requirements/clauses.**
- **Require all businesses to submit a recycling plan to the County.**
- **Implement a generator fee to fund recycling in the County.**

Diversion potential for the strategies recommended for the commercial sector is estimated to be approximately 12% of the commercial waste stream.

4.5 RECYCLING INFRASTRUCTURE

4.5.1 EXISTING RECYCLING INFRASTRUCTURE

4.5.1.1 Metrolina Recycling Facility

The County owns the Metrolina Recycling Facility (MRF) which was constructed by the County in 1995. That same year, the County entered in to a contract with FCR, Inc., a subsidiary of Casella Waste Systems, Inc., to operate the facility. The contract was first amended in 1999 to include a lease provision in order to manufacture recycled paper-derived cellulose insulation on-site. The contract was subsequently amended in 2009 to include the conversion of the MRF to a single stream facility; and provide for continued operation through 2019. The single stream conversion was implemented on July 1, 2010.

Shortly after the negotiation of the current contract, Casella divested of FCR and was renamed Re-Community Recycling. The County and Re-Community Recycling have negotiated a merchant ton agreement that allows Re-Community Recycling to attract commercial material. The agreement puts in place an acquisition mechanism to allow for a revenue share with the provider of the material. Because the facility is primarily a residential Materials Recovery Facility, the cost to operate the facility may result in the County/Re-Community Recycling partnership not being competitive in the commercial market place. The contract with US Greenfiber ended in the spring of 2012 when US Green Fiber ceased operation in the Mecklenburg County market place.

Figure 4.11 shows a diagram of the MRF.

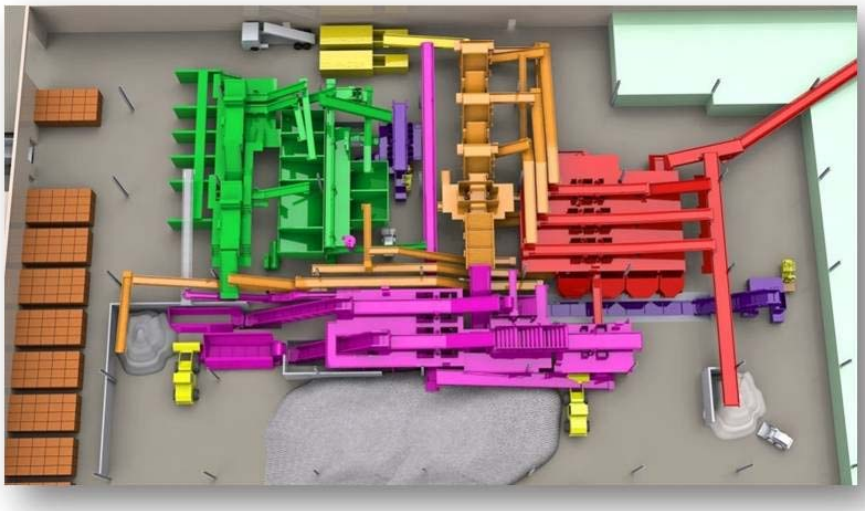


Figure 4.11 Metrolina Recycling Facility

The MRF currently receives materials from Mecklenburg County and its municipalities, and also from portions of Cabarrus, Gaston, Union, and Stanly counties. In addition, the facility receives commercial tonnage directly hauled from the commercial sector and from the usage of the County's staffed and unstaffed drop-off centers. The drop-off center containers are then brought to the MRF for processing.

Since opening, the facility has increased the amount of material processed by an average of 2% per year. In FY 06, the facility processed 53,257 tons of material with tonnage steadily increasing through FY 10 which saw the facility process 61,724 tons of material under the original dual stream collection and processing system. In July 2010, the facility was reopened as a single stream facility and the majority of the municipalities switched to a single stream collection system. With the implementation of single stream in July 2010, there was a 20% increase in the amount of material received.

In the year following the conversion to single stream (FY11), more than 74,000 tons of recyclables were processed by the MRF. Of that amount residential recyclables accounted for approximately 94% of the material processed. The remaining materials received consist of 3% from the public schools and government office buildings collection contract, and the remaining 3% from commercial sources.

Figure 4.12 shows historical tonnages processed by the MRF.

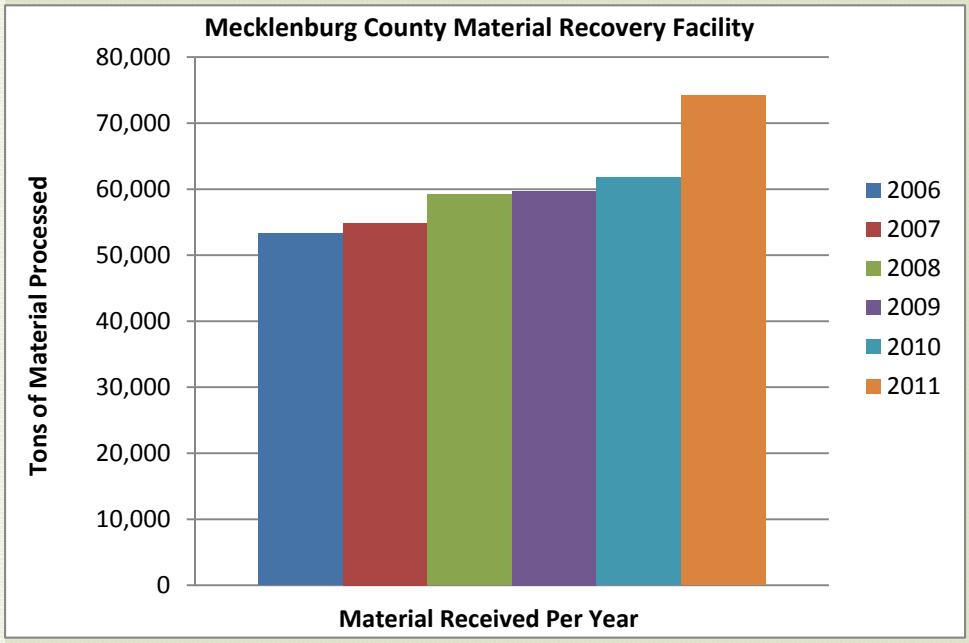


Figure 4.12 Historical Tonnage at the MRF

It is estimated that the facility is currently operating at 50% of capacity, and that fiber represents approximately 58% of the commodities; the remaining 42% was made up of commingled containers.

Since July 2010, most the recyclables received are mixed loads and are separated using the single stream processing equipment at the facility. The acceptable materials are processed in two categories: commingled materials and fiber. The facility can also accept source separated dual stream loads.

Commingled Material

- Glass (flint, green, amber, mixed)
- Plastic – PET
- Plastic - HDPE natural
- Plastics - HDPE pigmented
- Aseptic/gable topped containers
- Bulky HDPE
- Aluminum
- Ferrous metals

Fiber Materials

- Old newspaper
- Old corrugated cardboard
- Office mix
- Magazines
- Junk mail

The conversion to a single stream facility represented a $7.3 million equipment investment on behalf of the County. To further increase the recovery of recyclable materials, Re-Community Recycling installed a third optical sorter in March 2012 to automatically sort aseptic containers and mixed plastics. With the installation of the new sorter, the facility has seen a significant increase in the recovery rate for mixed plastics and aseptic containers.

In addition to the processing capabilities, the Education Center contained within the MRF is utilized to educate approximately 10,000 people per year. Primarily school children, both public

and private schools, utilize the center. The full-time educator is an employee of Re-Community Recycling, as required under the contract.

4.5.1.2 Mecklenburg County Drop-off Centers

The County operates 13 recycling centers consisting of four full-service recycling centers, which are staffed, and nine self-service recycling centers, which are unstaffed. The full-service centers accept a large variety of materials including materials that are banned from landfill disposal. The self-service recycling centers accept the same materials that are collected in the curbside residential recycling programs.

Photo 4.13 County Drop-off Center

Figure 4.13 shows the locations of each of the 13 County drop-off Centers. An additional staffed facility shown on the map is the Metal and Tire Recovery Facility. Its function is further discussed later in this section.

4.5.1.3 Self-Service Drop-off Centers

All but three of the nine self-service centers (highlighted in green on the map) are located in County parks. Of those remaining, the Uptown Recycling Center is adjacent to the County's Hal Marshall Service Center, the Davidson Recycle Center is in the downtown business area, and the Rozzelle's Ferry Road site is adjacent to the County's Metal and Tire Recovery Center. The County Park locations are as follows:

- Park Road Park
- McAlpine Creek Park Recycling Center
- William R. Davie Park
- Blythe Landing
- Reedy Creek Park
- Renaissance Park

Initially, the role of the self-service centers was to provide an outlet for recycled materials for residents who did not have curbside recycling. Specific locations for placing the centers were selected based on visibility and accessibility of the site to the public. Containers were placed in areas that were frequented by the public for other reasons, including parks, recreation areas, and municipal office buildings. All of the centers include a concrete pad with multiple roll off containers, each having a capacity of 20 to 40 cubic yards.

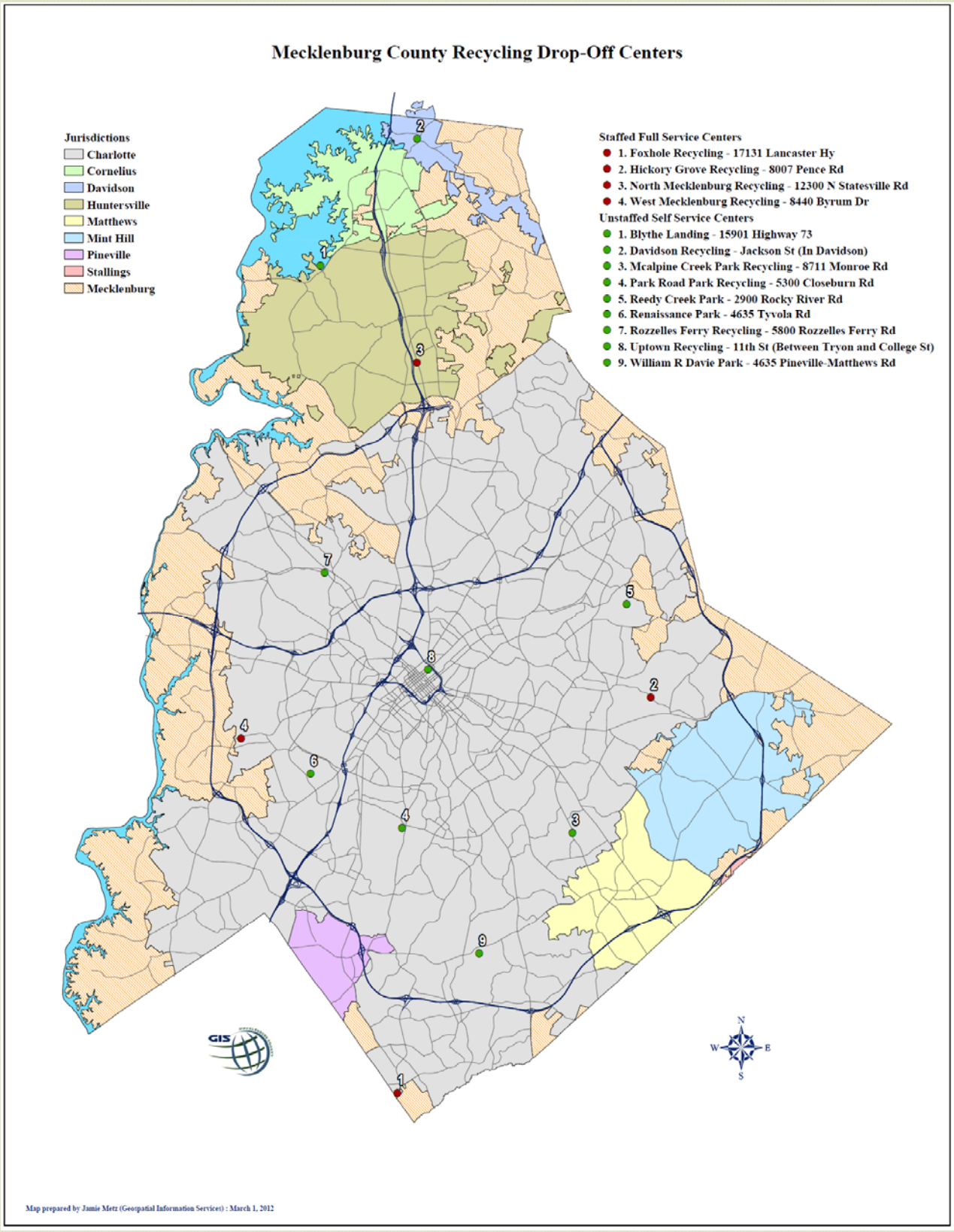


Figure 4.13 County Drop-off Center Map

4.5.1.4 Full-Service Drop-off Centers

The four full-service recycling drop-off centers (highlighted in red on the map and listed below) are strategically located in the four quadrants of the county:

- North Mecklenburg Recycling Center
- West Mecklenburg Recycling Center
- Hickory Grove Recycling Center (East)
- Foxhole Recycling Center (South)

Full-service centers are operated by County staff Monday through Saturday 7 AM to 4 PM. Each of the four full-service recycling centers accepts the following materials:

- Aluminum cans
- Steel/tin cans
- Plastic bottles and jugs (except #6)
- Wide-mouth containers
- Rigid plastics
- Milk and juice containers
- Phonebooks
- Spiral paper cans
- Magazines/catalogs
- Newspapers
- Glass bottles and jars
- Corrugated cardboard
- Mixed paper (office paper, junk mail, and boxboard)
- White goods (appliances)
- Scrap aluminum
- Ferrous metal
- Aerosol cans
- Lead acid batteries
- Household batteries
- Rechargeable (Ni-Cad) batteries
- Tires
- Motor oil
- Antifreeze and transmission fluid
- Oil filters
- Eyeglasses
- Plastic 6-pack rings
- Bagged MSW
- Bulky MSW
- Scrap electronics
- HHW material
- C&D material

Fleet Operations

Mecklenburg County Solid Waste directly services the recycling containers located at the staffed and unstaffed recycling centers with its own vehicles and personnel. The County's recycling fleet consists of eight roll off trucks and one tractor-trailer. County staff hauled 6,250 forty-cubic yard containers totaling 30,607 tons in FY 2011.

Contracted Operations

For more effective and efficient handling of materials, Mecklenburg County Solid Waste has outsourced a portion of services that support the staffed recycling centers. The contractors and services are listed in Table 4.19.

Table 4–19 Contracted Operations

Material	Contractor/Vendor
Garbage	Republic Waste
Scrap Tires	US Tire
HHW	Ecoflo

Table 4–19 Contracted Operations	
Material	**Contractor/Vendor**
Electronic Recycling	Creative Recycling Systems, Inc
Cooking Oil/Grease	Eco-Solutions
Oil Filters	Clean Green
Lead-acid Batteries	Interstate Battery
Motor Oil/Antifreeze	Safety Kleen

Household Hazardous Waste

HHW materials are collected at the County's full-service recycling centers. The collection is not event-based, as is the case with many communities, but is a full-time service of each center. The HHW portion of each full-service recycling center is operated by a private contractor properly trained and licensed to handle such materials. The contractor takes title to the waste as it is collected from the residents. The waste is then categorized according to five major classifications: paint, flammables, cleaners, batteries, and other. Figure 4.14 shows historical tonnages of HHW collected at the full-service recycling centers.

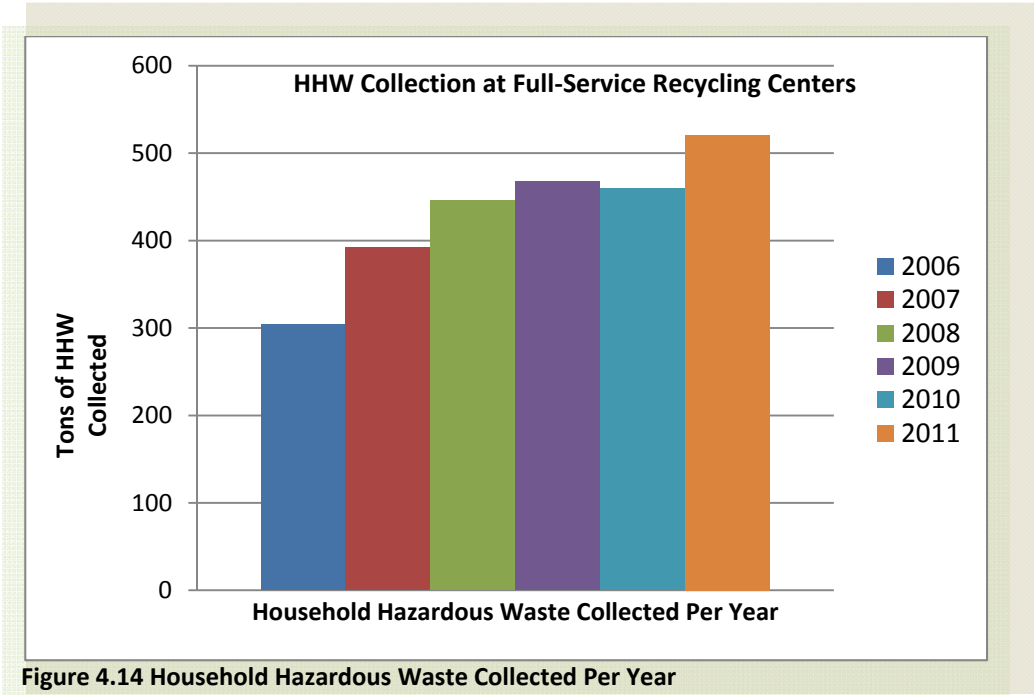


Figure 4.14 Household Hazardous Waste Collected Per Year

Information on waste collected is stored in a database, along with the corresponding weights and total weights. The County has entered into an interlocal agreement with Union County, NC, and Lancaster County, SC, allowing their residents to deliver HHW to Mecklenburg County's staffed collection centers. The appropriate county is billed for the HHW materials delivered. The County provided for the disposal or recycling of approximately 521 tons of HHW in FY 2011. The

cost of the program was $0.64 per pound or approximately $686,487 for FY2011. The current program is adequate.

Electronic Scrap

County residents can deliver discarded electronics free of charge to the four full-service drop-off centers. As with HHW, this is a full-time service of the center. The County has contracted with Creative Recycling Systems of North America to transport, process, and recycle all electronic equipment received at the centers. The multi-year service contract between the County and Creative Recycling Systems of North America is included in Appendix J of this Plan. Also included in Appendix J is Creative Recycling of North America's Responsible Recycling (R2) certification. The following items are accepted in the program:

- Monitors
- Printers
- Computers
- Keyboards
- Scanners
- CD-ROMs
- Dumb terminals
- Assemblies
- Speakers
- Mouse units
- Fax machines
- Copiers
- Telephone equipment
- Cables
- Cords
- Power supplies
- Electronic typewriters
- Televisions
- VCRs
- Stereos
- Projection equipment
- Headphones
- Digital cameras

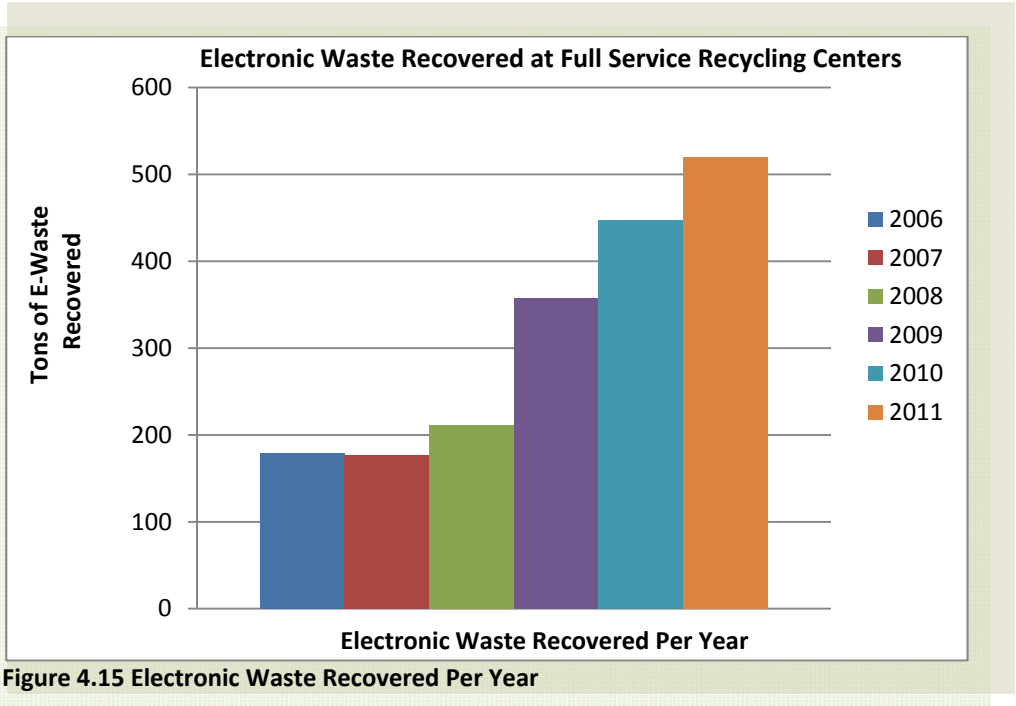


Figure 4.15 Electronic Waste Recovered Per Year

Figure 4.15 shows historical tonnages of electronics collected at the full-service recycling County drop-off centers. In FY 2011, 520 tons of electronics were recycled generating $20,806 in revenue. The County currently receives a monthly certificate of recycling from our service provider, Creative Recycling Systems of North America. This report tabulates quantities of discarded electronics into the following categories: CRT's, PC's, peripheral and consumer electronics, TV's, cable and wire, cards and circuit boards, cell phones, and hard drives. The County and the municipalities will continue to only contract with an electronics vendor that is either R2 or e-Steward certified, as required by North Carolina general statute.

Scrap Tires

The County administers a comprehensive program to manage scrap tires. This program prevents illegal dumping of tires by providing infrastructure to safely collect, store, and recycle scrap tires. County residents have two options for the disposal of scrap tires. Tires are collected at each of the full-service County drop-off centers and the Mecklenburg County Metal and Tire Collection Facility.

There is no charge for disposal of scrap tires generated within Mecklenburg County for loads containing less than five tires or loads accompanied by a scrap tire certification form. Scrap tires that are being disposed by manufacturers because they do not meet the manufacturer's standards for sellable tires, or scrap tires delivered without a certification form, are charged a per tire fee.

The County provided for the disposal of approximately 15,733 tons of tires in FY 2011 at a cost of $1,161,193.00. Of this amount, the state of North Carolina provided $1,100,237.00 reimbursement through its scrap tire disposal fund. The County had to fund the remaining $60,957.00.

White Goods

Discarded white goods (primarily appliances) are collected at no charge at the County's full-service recycling centers and the Mecklenburg County Metal and Tire Recovery Facility. The metal recovery facility is primarily for commercial deliveries (large loads) while the full-service recycling centers handle residential deliveries (small loads). Upon removal of the Freon by County personnel, the white goods are baled and sold. In FY 2011, the County provided for the disposal of 660.14 tons of white goods. Funding for the program was provided by: (1) the sale of 660 tons of white goods ($142,000), and (2) $285,376 from the state, provided through the North Carolina White Goods Disposal Fund.

4.5.2 POTENTIAL FUTURE RECYCLING INFRASTRUCTURE

Potential strategies listed below were considered for this Plan Update. Sources for potential strategies include feedback from County staff, feedback from the Steering Committee, feedback received through the charrette and other outreach efforts, recent studies completed by the County, and known best practices in other jurisdictions.

- Promote and expand existing recycling facilities (public and private).
- Research and implement opportunities for couches and mattresses recycling.

- Add film plastics recycling at County drop-off centers and perhaps commercial recycling drop-off centers, especially stretch wrap and tarping.
- Develop commercial dry mixed waste processing infrastructure.
- Expand HHW recycling and safe handling at the County drop-off centers.

4.5.3 RECYCLING INFRASTRUCTURE ASSESSMENT

The Metrolina Recycling Facility is adequate for the current needs of the community and should allow for program growth in the future since the facility is only operating at about 50% capacity.

The full-service recycling centers have been a critical component of the County's integrated solid waste program for over twenty years. Combined, they service an estimated 462,000 customers annually delivering an estimated 30,607 tons of material including, but not limited to: household hazardous waste, fiber recyclables, co-mingled bottles-cans-jars, tires, white goods, batteries, and construction/demolition debris. County personnel receive, sort, process, and transport the materials to the respected recycling or disposal facilities.

Growth and Capacity Issues at Staffed Recycling Centers

Hickory Grove Recycling Center

To meet the customer demand of a rapidly growing population in the northeastern portion of the County, the Hickory Grove Recycling Center went through an extensive remodel in 2006. The improvements included a larger asphalt surface area for recycling containers, a new fee collection booth, and drop walls. These modifications allow for a safer and more user-friendly recycling center. The facility will be sufficient for the remainder of the Ten-Year Plan.

North Mecklenburg Recycling Center

In an effort to prepare for significant population growth anticipated in the northern area of the county, Mecklenburg County Solid Waste has enhanced the full-service recycling center located in that area. Improvements included resurfacing damaged asphalt, installing a concrete pad for recycling containers, and creating a more effective traffic pattern.

West Mecklenburg Recycling Center

A lease agreement between Mecklenburg County and Charlotte Douglas International Airport (CDIA) allows for the County to operate its full-service recycling center on a portion of the airport property. Due to a potential airport expansion and realignment of West Boulevard, the major arterial street in the area, the County is planning on a relocation of its full-service recycling center. The recycling center is currently located adjacent to the County's Compost Central operation and it will continue to be part of the overall facility layout. The timing and final siting of the relocation is dependent upon the development of City airport plans and West Boulevard reconfiguration.

Foxhole Recycling Center

Construction of the Foxhole Landfill/Recycling Center was completed in 2001. Being the most recent addition to the County's fully staffed centers, this facility is outfitted with the newest and

most up-to-date technology, including platform truck scales and security cameras. Enhancements including a reconfiguration of the site with drop walls are planned for 2012.

Self-Service Recycling Centers

The County currently operates nine self-service recycling centers strategically located throughout the County. To meet the increasing demand, the County is constantly evaluating new locations for self-service recycling centers. These centers have become less significant in the overall planning as municipal annexation has taken all but a small portion of the County, thus providing curbside recyclables collection to nearly all of the County residents.

4.5.4 RECYCLING INFRASTRUCTURE RECOMMENDATIONS

In the short term (2013-2017), the County and municipalities should:

- **Promote and expand existing recycling facilities (public and private).**
- **Research and implement opportunities for furniture and mattresses recycling.**

The County should:

- **Add film plastics recycling at County drop-off centers and perhaps commercial recycling drop-off centers, especially stretch wrap and tarping, if feasible.**
- **Research opportunities to expand HHW recycling at the County drop-off centers.**

In the long term (2018-2022), the County should:

- **Look for opportunities to develop commercial dry mixed waste processing infrastructure, perhaps through public/private partnership.**
- **Expand HHW recycling at the County drop-off centers.**

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Chapter 5

ORGANICS
(Including Yard Trimmings and Food Scraps)

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Chapter 5 ORGANICS (Including Yard Trimmings and Food Scraps)

5.1 OVERVIEW

Organics are defined as material containing carbon compounds and typically originating from plant or animal sources, which may be degraded by other living organisms. Organics includes compostable materials, including yard trimmings, food scraps, and compostable paper contaminated with food scraps. Organics can represent as much as 40% of total MSW. Organics collected for processing typically include: grass, leaves, weeds, tree branches, and clean wood (free of nails, paint, or other treatment). These materials can be collected curbside loose in the street or containerized in customer-provided containers or wheeled carts. They are typically processed at mulching facilities or compost operations. Increasingly, new materials are being added to curbside yard trimmings collection programs, including:

- Food scraps, including fruits, vegetables, grains, meat, and bones.
- Compostable paper, including napkins and paper towels, food contaminated paper, and cardboard, such as takeout containers and pizza boxes.

These materials can be processed at compost operations or anaerobic digestion facilities.

Yard Trimmings

Yard trimmings are generated by the development and maintenance of lawns and landscaping by single family households, multifamily households, businesses, and governmental entities. Yard trimmings are also generated as a result of changes in land use and storm debris. North Carolina General Statute (NCGS) 130A-309.10 bans the disposal of yard trimmings in landfills, and therefore requires the County to have programs in place to address these materials.

As defined by NCGS 130A-290, yard waste or yard trimmings can be yard trash or land-clearing debris. Yard trash refers to yard trimmings resulting from landscaping and yard maintenance, such as brush, grass, tree limbs, and similar vegetative material. Land-clearing debris refers to solid waste which is generated solely from land-clearing activities, including stumps, limbs, leaves, and untreated wood.

Nationally, it is estimated that yard trimmings represents 19-21% of the total municipal solid waste stream. During FY 2011, Mecklenburg County processed a reported 98,279 tons of yard trimmings, nearly 8% of the total municipal solid waste generated in the County. The yard trimmings tons collected for processing in Mecklenburg County is estimated to be relatively high, in part due to the long growing season compared to some areas of the country, and as

Mecklenburg County processed 98,279 tons of yard trimmings in FY 2011, nearly 8% of the total MSW generated in the County.

the result of annexations, which provide curbside yard trimmings collection services to a larger number of households. Changes in service providers in the towns of Cornelius, Davidson, and Huntersville may have affected yard trimming tonnage in 2011, at least in part, due to the routing of collection vehicles, which may not necessarily be based on jurisdiction boundaries; therefore skewing tonnage reports by jurisdiction.

Table 5.1 Total Yard Trimmings Tons Collected and Processed

Municipality	Fiscal Year 2009	Fiscal Year 2010	Fiscal Year 2011
Charlotte	55,086	49,394	52,305
Cornelius	9,319	9,344	1,845
Davidson	463	157	754
Huntersville	10,030	10,600	5,696
Matthews	2,951	2,637	2,884
Mint Hill	4,480	1,875	1,821
Pineville	Not Available	Not Available	50

Source: NC DENR Solid Waste and Materials Management Annual Report Forms

Food Scraps

Food scraps are estimated to be as much as 15% of the total MSW disposed in Mecklenburg County. This is an area with much diversion potential. The County's compost facility is not permitted to accept or process food scraps; however, there are other options for diverting food scraps within and around the County, including eight food banks, one garbage feeder (for feeding swine), and 10 organics recycling facilities. The County's successful home composting program, discussed in Chapter 3, Source Reduction, provides residents with training for composting at home.

5.1.1 RECOMMENDATIONS FROM 2009 SWMP

Table 5.2 Yard Trimmings 2009 Recommended Strategies

Recommendation 2009 Plan	Status
Site changes need to be evaluated at Compost Central to assure the long-term effectiveness and efficiencies of the operation.	**Continuous**

5.1.2 RECENT RELEVANT STUDIES

Compost Facility Design Master Plan, December 2008

In December 2008, Mecklenburg County Solid Waste completed the *Compost Facility Design Master Plan, Process Optimization and Market Analysis* assessing the ability of Compost Central to meet the County's current and future yard trimmings management needs.

The report highlighted several areas:

- **Equipment needs:** Over the past several years, significant improvements have been made in reducing the age and improving the condition of the mobile and processing equipment at Compost Central. A new windrow turner was delivered in December 2008 to allow for the processing of larger windrows, thereby increasing the capacity of the site to process higher volumes of material. Two new tub grinders with adequate capacity to process current and projected future annual material throughout have been purchased and were placed in operation in January 2012. These purchases, coupled with the replacement of several wheel loaders in late 2011, should maintain the facility's grinding capacity to meet peak demands. With these replacements and the implementation of a regular equipment replacement schedule, the mobile and processing equipment aspect of the operation is in good condition for the planning period.

Photo 5.1 Compost Central Equipment

- **Facility location:** Compost Central is located on approximately 86 acres of land leased from CDIA. The airport is currently expanding its facilities in a manner that will have a long-term impact on both customer access to the site and its size and layout. While the exact configuration of the expansion and the construction schedule is yet to be established, the addition of a new parallel runway on the west side of the airport, the extension of the existing Runway 18R/36L, and the addition of a railway freight yard has and will continue to infringe on the current footprint of the Compost Central site. As of this date, West Boulevard has been realigned in a manner that cuts off the northwest portion of the site, removing approximately 20 acres from the parcel lease. The County is currently in negotiations with CDIA to secure a long-term lease on the remaining parcel for the composting operation.
- **Existing infrastructure:** The existing physical infrastructure of Compost Central (e.g., buildings and paving) is showing its age. Most of this infrastructure was constructed about 18 years ago with only patchwork repairs occurring since that time. Though the scale house and crew quarters have been upgraded in the fall of 2011, large areas of the concrete and asphalt paving are overdue for reconstruction. Additionally, the customer flow between Compost Central and the adjacent West Mecklenburg Recycling Center is inconvenient, with an increased volume of customers having to exit and reenter the site anytime a fee

Photo 5.2 Windrows at Compost Central

payment is made. A facility master plan is currently being developed to account for the realignment of West Boulevard as well as to provide for the rehabilitation and addition of existing paved area and the relocation of the recycling drop-off center to provide a common customer entrance with Compost Central. A portion of the 2011 Special Obligation Bond proceeds are dedicated to improvements at Compost Central.

- **Market Analysis:** The marketplace for the various landscaping products produced from yard trimmings at Compost Central is also changing; consequently, the facility capabilities need to adapt to those changes. This changing marketplace dictates a future Compost Central facility that has the processing and product storage capacity to quickly adjust and successfully adapt to these changing markets. Based on the market research data, the 100 mile radius surrounding Compost Central is sufficient to absorb the total volume of production should the facility commit to converting 100% of the yard trimmings into mulch and compost.

In summary, while Compost Central is meeting the current yard trimmings management needs, the potential site changes will help assure the long-term effectiveness and efficiency of the operation.

Food Waste Diversion Study, 2011

In the fall of 2011, the County contracted with Kessler Consulting (KCI) to assist in a food waste diversion study in the County. The study followed the EPA food recovery hierarchy, which states: 1) food for people 2) food for animals, 3) food for the earth (composting), and 4) food for disposal. The study efforts were divided into commercial and residential sectors. For the commercial sector, KCI identified major generators, profiled existing recovery programs and recycling facilities to determine capacity, estimated current diversion practices at major generators, profiled successful program components in other jurisdictions, assessed collection and transfer options, and identified drivers and barriers for diversion. For the residential sector, KCI estimated the amount of food scraps generated, and identified program implementation gaps and opportunities.

Commercial: KCI estimates commercial food scraps generation to be approximately 143,000 tons per year in the County. Targeting the six largest primary business sectors, KCI estimates that the top 300 businesses makeup the primary major food generating sectors, generating an estimated 49,300 tons of food scraps annually (almost 35% of total food scraps generated). According to KCI, the County could realistically recover up to 30,000 tons per year of food scraps from this sector, assuming a 60% projected recovery rate.

According to KCI, composting operations in the Charlotte region currently handle over 36,000 tons of food scraps annually, and estimate another 30,400 tons of capacity. There are approximately 40 garbage feeders (farms that receive food scraps for livestock feed) in the state, but only one is located in the Mecklenburg metropolitan area (in Catawba County). KCI also identified 8 food banks/exchanges and soup kitchens located within the County receiving perishable donated food from business donations. Food banks and soup kitchens surveyed distributed an estimated 2,100 tons of food donated by businesses.

KCI surveyed 10 organics recycling facilities located in the Charlotte metropolitan area to estimate available processing capacity. Four of the facilities indicated that they were interested in receiving new sources of food scraps and four stated they have the ability to expand their

operations for this purpose. This did not include the County facility, Compost Central. These facilities currently have an estimated 67,000 tons per year of unused capacity, which would provide enough capacity for a food scraps diversion pilot study in the commercial sector. Two private anaerobic digestion venture companies are considering development of commercial scale facilities in the area, one of which could consume an estimated 30,000 tons per year of food scraps.

KCI developed and conducted a telephone survey of 24 businesses from the top six food scraps generating sectors, with 20 businesses responding to the survey, in order to estimate the current food scraps diversion and management practices at major generators in the County. Estimates of the food scraps component of their total trash ranged from 5% (grocery) to 75% (hotel/lodging), and the disparity was attributed to whether or not there was a tight portion of inventory control in the kitchen/food prep areas for these business sectors. Fifty percent of all respondents stated that they currently have a food scraps diversion program as a part of their operations, and 70% of those programs donate to food banks. Thirty percent divert fat and grease, 20% send their food scraps to a composting facility, and 10% send to a garbage feeder or return food to the manufacturer.

Residential: In order to estimate food scraps generated per household, solid waste disposal data was obtained from the County and DENR to calculate the annual per capita residential waste disposal rate for the County. Information from residential waste composition data was utilized from waste characterization studies from other jurisdictions in the Southeast comparable to the County. Using this data, KCI estimated that approximately 61,000 – 110,400 tons per year of residential food scraps are generated by residents in Mecklenburg County.

While results of the 2010 Charlotte-Mecklenburg Annual Survey, conducted by LUESA, indicated that only 42% of residents surveyed were aware of the PLANT program specifically (described in Chapter 3, Source Reduction, using other information from the annual LUESA survey of residents, KCI estimates that 40% to 50% of single family households practice home composting, and 25% to 35% of those practitioners compost an average of 50% of food scraps they generate, which translates into an estimated 800 to 2,900 tons of residential food scraps being composted annually (2% to 5% of food scraps generated). It is estimated that a comprehensive food scraps recovery program would capture another 53% to 68%, or 20,700 to 41,300 tons per year.

A survey was sent out to the seven municipalities in the County in order to identify collection programs with the potential to include a food scraps diversion program. A meeting was held with the Town of Huntersville because it is the only municipality with automated collection and cart service through Advanced Disposal, and therefore seemed to be the most conducive to further discussions regarding a potential future food scraps pilot study for residents. The Town of Huntersville indicated it would consider further discussions regarding the possibility of a residential pilot study.

Photo 5.3 Huntersville Yard Trimmings Cart

The 2011 Food Waste Diversion Study assessments and recommendations are incorporated in the food scraps subsections in the remainder of this chapter, as appropriate.

Best Practices Recycling Study

County LUESA staff recently completed a study titled *Best Practices for Local Government Solid Waste Recycling, Diversion from Landfill and Waste Reduction*. For residential service, a three-cart system, garbage, recycling, and mixed food scraps/yard trimmings, seems to be the most prevalent for high-yield communities. Table 5.3 highlights U.S. communities with exceptional policies with a brief description of the policy elements.

Table 5.3 City Residential Curbside Programs for Yard Waste and Food Waste

Municipality	Yard Waste	Food Waste
Atlanta, GA	30,000 tons collected annually	
Austin, TX	Weekly free with garbage service	
Boulder, CO	Haulers must provide 32-gallon bi-weekly combined yard/food service and up to three bags of leaves and three bundles of branches	
Chicago, IL	Weekly between April 1 – November 30	
Denver, CO	Every three weeks	Pilot collection 65-gallon cart; $29.25/qtr
Fresno, CA	Combined yard/food collection; weekly 96-gallon	
Greensboro, NC	Weekly loose leaf pickup	
Indianapolis, IN	Commingled with trash most of year, collected separately leaf season November 7 – December 2	
Oakland, CA	Combined yard/food collection; weekly 64-gallon	
Philadelphia, PA	Commingled with trash most of year, collected separately during leaf season	
Portland, OR	Combined yard/food collection	
San Francisco, CA	Mandatory yard/food	
San Jose, CA	Required service	
Seattle, WA	Yard/food (yard waste disposal ban)	
Toronto, ON	Bi-weekly 10 months per year	Mandatory weekly includes animal waste/bedding, diapers

Fifty percent of the local governments contacted also had a mandatory ordinance in place impacting commercial food scraps; these were predominately located in the western United States. Table 5.4 summarizes exemplary policies for commercial food scraps programs.

Table 5.4 Commercial, Institutional, and Industrial Food Scraps				
Municipality	**Recycling**	**Food Waste**	**Other/Notes**	**Results**
Orange County, NC	County collects recyclables at 210 locations (free).	Divert 2500 tons/yr. from 30 businesses. Targets only large generators.	3-R fee helps finance. Landfill bans and Waste audits. Private contractor collects/processes food waste.	900 tons/yr recyclables diverted.
Portland, OR	Must recycle paper and containers.	Mandatory for food waste generating businesses.	City provides assistance & resources. Progress measured thru quarterly reports from haulers. Business recognition program w/ certification.	Recycling rate of 64%.
San Francisco, CA	Mandatory Pay-As-You-Throw (PAYT).	Mandatory PAYT.	80% commercial goal or 25,000 tons diverted.	95% food svc participating.
Seattle, WA	Paper & cardboard not allowed in garbage. Customers with city contracted cart-based service receive recycling for free.	Styrofoam ban for food service containers – must be recyclable/ compostable, must have recycling bins placed at locations.	Self-hauling to recycling stations, free consulting services, disposal ban: paper, old corrugated cardboard, yard waste, $50 fine if 10% found in garbage.	Recycling rate of 58.9% per 2010 SWMP, 44,000 tons food diversion.
Toronto, ON	Businesses using city service receive free organics and recycling collection service (mandatory).	Businesses using city service receive free organics and recycling collection service (mandatory).		12,000 tons recyclables & 9,500 tons organics in 2010.
Metro Vancouver, BC		Plan to introduce 2015 ban on disposal of food scraps.	Disposal bans, web-based guidance documents on business sustainability & waste assessments.	

It is clear from information gathered that successful food scraps diversion programs require government involvement in developing the collection, processing, and marketing infrastructure.

5.2 RESIDENTIAL YARD TRIMMINGS

5.2.1 EXISTING COUNTY RESIDENTIAL YARD TRIMMINGS POLICIES

The primary policy in diverting yard trimmings is the state ban on yard trimmings in landfills. The County does not have additional policies for yard trimmings.

5.2.2 POTENTIAL NEW COUNTY RESIDENTIAL YARD TRIMMINGS POLICIES

Potential strategies listed below were considered for this Plan Update. Sources for potential strategies include feedback from County staff, feedback from the Steering Committee, feedback received through the charrette and other outreach efforts, recent studies completed by the County, and known best practices in other jurisdictions.

- Implement a plastic bag ban at Compost Central.
- Implement a ban on yard trimmings from garbage containers (state banned materials).

5.2.3 EXISTING MUNICIPAL RESIDENTIAL YARD TRIMMINGS POLICIES

The primary policy in diverting yard trimmings is the state ban on yard trimmings in landfills. Municipalities do not have additional policies for yard trimmings, though set out requirements for collections are described in Section 5.2.7.

5.2.4 POTENTIAL NEW MUNICIPAL RESIDENTIAL YARD TRIMMINGS POLICIES

Potential strategies listed below were considered for this Plan Update. Sources for potential strategies include feedback from County staff, feedback from the Steering Committee, feedback received through the charrette and other outreach efforts, recent studies completed by the County, and known best practices in other jurisdictions.

- Implement a plastic bag ban for setting out yard trimmings.
- Limit the number of plastic bags allowed, and accept an unlimited number of Kraft bags.
- Implement a ban on yard trimmings from garbage containers (state banned materials).

5.2.5 EXISTING COUNTY RESIDENTIAL YARD TRIMMINGS PROGRAMS

The County's residential yard trimmings diversion program is generally regarded as a very successful program, diverting a large quantity of materials from disposal. Lot size, weather (rainfall), wind, and storm activity all influence the amount and kind of yard trimmings generated. Processing of yard trimmings is discussed in Section 5.6, Yard Trimmings Infrastructure.

5.2.6 POTENTIAL NEW COUNTY RESIDENTIAL YARD TRIMMINGS PROGRAMS

Because collection of yard trimmings largely depends on the municipalities in the County, no new County programs are being considered at this time.

5.2.7 EXISTING MUNICIPAL RESIDENTIAL YARD TRIMMINGS PROGRAMS

All of the municipalities provide weekly curbside yard trimmings collection service to the same set of households that receive other curbside collection services. Materials accepted and guidelines for setting out yard trimmings are provided by each municipality, and are summarized in Table 5.5.

Table 5.5 More Yard Trimmings Collection Information

Municipality	Frequency of Collection	Style of Collection	Container provided? (Y/N)	Set-Out Limits	Preparation Requirements
Charlotte	Weekly	Collected from the curb by a two person crew using a rear loader truck.	No	None	Items must be properly prepared in order to be collected. Limbs should be separated into piles small enough for one individual to handle. Leaves and grass clippings must be placed in untied plastic bags or in uncovered trash cans. Yard trimmings placed at the curb by a commercial landscaping service will not be collected by the City.
Cornelius	Weekly	Manual	No	Seasonal leaf collection (November 1 – February) with vacuum truck.	Limbs shall not exceed 5" in diameter, 5' in length, and 4" in width. The pile should be no larger than 2' wide, 2' tall, and 5' long; they will spend approx. 10 minutes per stop. Leaves and shrubs must be placed in 25-gallon clear plastic bags, weighing no more than 50 pounds.
Davidson	Weekly	Manual	No	Brush and limbs not to exceed pickup truck load per week. Up to twenty 40-gallon bags of leaves.	Limbs not to exceed 4'' diameter and 6' in length; bags up to 40 gallons in size, no more than 50 lbs when full.

Table 5.5 More Yard Trimmings Collection Information					
Municipality	**Frequency of Collection**	**Style of Collection**	**Container provided? (Y/N)**	**Set-Out Limits**	**Preparation Requirements**
Huntersville	Weekly	Automated	Yes, 96-gallon	In addition to yard trimmings collected in roll out, up to five bags of leaves/grass clippings can be collected. In heavy leaf season, 10 bags may be collected.	Must be curbside; grass clippings will not be collected in bags (must be in carts); plastic bags are not allowed in the yard trimmings cart.
Matthews	Weekly	Collected from the curb by a two person crew using a rear loader truck (manual).	No	Collection is limited to no more than what one man can load in 20 minutes. Limit of 20 bags per week.	Limbs must be no more than 6" in length and 5" in diameter. Leaves and grass clippings must be bagged; bags must weigh less than 50 pounds each, with a 20 bag limit per week.
Mint Hill	Weekly	Manual	No	10 bag limit.	Grass clippings and leaves in bags/cans; limbs and brush not more than 5' in length and not over 6" in diameter.
Pineville	Weekly	Manual	No	None	Limbs no longer than 3'. Bagged leaves and grass clippings should be placed in clear plastic bags or left untied so contents can be verified. Piles of tree limbs should be limited to a size that is manageable for one person to pick up.

Table 5.6 shows to where each community currently delivers its collected yard trimmings.

Table 5.6 Residential Curbside Yard Trimmings Facilities							
	Charlotte	Cornelius	Davidson	Huntersville	Matthews	Mint Hill	Pineville
Yard Trimmings Delivered to:	CC	CC, NMRC	NMRC	CC, NMRC	CC	HG	CC
Exceptions		Leaves (Nov-Feb)	See note below.*	See note below.**			

CC = Compost Central; NMRC = North Mecklenburg Recycling Center; HG = Hickory Grove Recycling Center

*Davidson also gives loose leaves to residents to use as mulch.

**Yard trimmings collected by the Huntersville town-issued bulk item permit are typically taken to Wallace Farms or Soil Supply which compost the material.

5.2.8 POTENTIAL NEW MUNICIPAL RESIDENTIAL YARD TRIMMINGS PROGRAMS

Potential strategies listed below were considered for this Plan Update. Sources for potential strategies include feedback from County staff, feedback from the Steering Committee, feedback received through the charrette and other outreach efforts, recent studies completed by the County, and known best practices in other jurisdictions.

- Implement cart system for yard trimmings collection, and then during peak leaf season, allow bags.
- Limit number of plastic bags allowed, then require Kraft paper bags.
    - Compost Central would need to test the effects of Kraft paper bags.
- Include education in schools and churches to reach kids.
- Promote backyard/ neighborhood composting, and grassycling.

5.2.9 RESIDENTIAL YARD TRIMMINGS ASSESSMENT

Mecklenburg County and its municipalities have a mature and successful residential yard trimmings management program that for over 20 years has diverted yard trimmings from the landfill and recycled it into compost, landscaping mulch, and boiler biofuel. In Fiscal Year 2011, Mecklenburg County managed nearly 100,000 tons of yard trimmings. Even with a successful program, municipal yard trimmings collection costs are high and much of the work is labor intensive. Only one municipality, Huntersville, currently employs automated collection of yard trimmings in 96-gallon roll out containers. Most yard trimmings are set out loose at the curbside or in plastic film bags. The use of the latter requires the costly removal of yard trimmings from the bag, either at the collection vehicle or in the receiving facility. Collection of leaves is a challenge. Leaves must be bagged to stop the blowing, but bags add the operational challenge of debagging. System changes to lessen this labor requirement would be desirable, though impacts to customers should be considered.

Continuing to promote backyard composting and banning yard trimmings from garbage containers, with increased education efforts in the schools and churches could divert an additional 10% of yard trimmings tonnage currently in the waste stream countywide. Implementing cart collection and plastic bag limits is not expected to have a material effect on diversion, as these potential programs mainly address operational changes, which would affect cost.

5.2.10 RESIDENTIAL YARD TRIMMINGS RECOMMENDATIONS

In the short term (2013 – 2017), the municipalities should:

- **Further research the acceptability and costs of collection system changes.**
- **Implement cart system for yard trimmings collection, and then allow additional bags during peak leaf season.**
- **Limit the number of plastic bags allowed, and then require Kraft paper bags for amounts over the limit.**
- **Promote backyard/neighborhood composting, grassycling.**

The County should:

- **Confirm the viability of composting Kraft paper bags used for collecting yard trimmings.**

In the long term (2018 – 2022), the County and municipalities should continue to evaluate the success of the programs, and look for opportunities to enhance or expand those programs.

5.3 RESIDENTIAL FOOD SCRAPS

5.3.1 EXISTING COUNTY RESIDENTIAL FOOD SCRAPS POLICIES

The County does not currently have any residential food scraps diversion policies.

5.3.2 POTENTIAL NEW COUNTY RESIDENTIAL FOOD SCRAPS POLICIES

Potential strategies listed below were considered for this Plan Update. Sources for potential strategies include feedback from County staff, feedback from the Steering Committee, feedback received through the charrette and other outreach efforts, recent studies completed by the County, and known best practices in other jurisdictions.

- Develop a model resolution supporting the North Carolina Good Samaritan Act (NCGS 90-21.16), which allows generators to donate unwanted food without liability, as described in Chapter 3, Source Reduction.
- Implement future bans of food scraps from garbage containers.

5.3.3 EXISTING MUNICIPAL RESIDENTIAL FOOD SCRAPS POLICIES

Municipalities do not currently have any residential food scraps policies.

5.3.4 POTENTIAL NEW MUNICIPAL RESIDENTIAL FOOD SCRAPS POLICIES

Potential strategies listed below were considered for this Plan Update. Sources for potential strategies include feedback from County staff, feedback from the Steering Committee, feedback received through the charrette and other outreach efforts, recent studies completed by the County, and known best practices in other jurisdictions.

Using the County's efforts as a guide:

- Implement a resolution supporting the North Carolina Good Samaritan Act, which allows generators to donate unwanted food without liability.
- Implement future bans of food scraps from garbage containers.

5.3.5 EXISTING COUNTY RESIDENTIAL FOOD SCRAPS PROGRAMS

Mecklenburg County's Organic Waste Reduction Program teaches the benefits of recycling and waste reduction. Through home composting, proper soil preparation and management, the use of mulching and grasscycling, and toxicity reduction, people are empowered with knowledge and inspiration to make a difference in themselves and their communities. Home composting is discussed in more detail in Chapter 3, Source Reduction, and was estimated to divert between 2% and 5% of food scraps currently generated in the 2011 Food Waste Diversion Study.

5.3.6 POTENTIAL NEW COUNTY RESIDENTIAL FOOD SCRAPS PROGRAMS

Potential strategies listed below were considered for this Plan Update. Sources for potential strategies include feedback from County staff, feedback from the Steering Committee, feedback received through the charrette and other outreach efforts, recent studies completed by the County, and known best practices in other jurisdictions.

- Promote food scraps waste reduction, targeting residents and encouraging them not to waste food at home.
- Promote the concept of "Love Food, Hate Waste" (www.lovefoodhatewaste.com).
- Promote North Carolina Good Samaritan Act (allowing donations without liability) and food bank guidelines for donating unwanted food.
- Support the development of food rescue and urban gleaning programs, where food banks or other organizations provide connections from generators of excess food to those who are hungry, similar to Promote Urban Gleaners (www.urbangleaners.org), based in Portland, OR.

- Continue to promote home composting and master gardener programs to encourage reusing food scraps at home.
- Support development of neighborhood scale composting facilities at community gardens.
- Modify the LUESA annual residential survey to include questions that capture detail regarding home composting practices.
- Conduct a residential waste characterization study in order to more accurately determine the quantities of residential food scraps in the County.
- Support efforts for a residential food scraps pilot study.
- Conduct outreach to HOAs to solicit support for participation.
- Develop best practice guidelines, tools, and outreach materials for overcoming the "ick factor".
- Support CMS in developing food scraps diversion programs at all schools in the County, so that students can model the behavior needed at home.

5.3.7 EXISTING MUNICIPAL RESIDENTIAL FOOD SCRAPS PROGRAMS

None of the municipalities offer food scraps diversion services, though each municipality can benefit from the County's home composting outreach program described in more detail in Chapter 3. In the past, the Town of Matthews, in cooperation with the County, has offered backyard composting or compost bin sales. In 2012, Matthews and Davidson are hosting compost bin and rain barrel sales, and Davidson is working with farmers markets to implement food scraps composting.

5.3.8 POTENTIAL NEW MUNICIPAL RESIDENTIAL FOOD SCRAPS PROGRAMS

Potential strategies listed below were considered for this Plan Update. Sources for potential strategies include feedback from County staff, feedback from the Steering Committee, feedback received through the charrette and other outreach efforts, recent studies completed by the County, and known best practices in other jurisdictions.

- Implement co-collection of food scraps with yard trimmings.
  - Requires a permitted food scraps compost facility.
  - Start with pilot study to test feasibility.
- Implement separate food scraps collection (not mixed with yard trimmings).
  - Does not affect yard trimmings collection, processing.
  - Requires a permitted food scraps compost facility.
  - More uniform with what is feasible for multifamily.
  - Start with pilot study to test feasibility.
- Conduct outreach to HOAs to solicit support for participation.

5.3.9 RESIDENTIAL FOOD SCRAPS ASSESSMENT

Based on the recently completed 2011 Food Waste Diversion Study, Mecklenburg County's residential sector generates approximately 38,900 to 60,100 tons per year of residential food

scraps, of which an estimated 2% - 5% (800 – 2,900 tons per year) is being recovered through home composting. A comprehensive residential food scraps recovery program would capture another estimated 53% - 68% to the food waste diversion rate (20,700 – 41,300 tons per year).

Implementing residential food scraps diversion programs, whether co-collecting with yard trimmings or collecting separately, could divert as much as 10% of the residential waste stream. Operating costs of co-collecting would be less than a separate (fourth) collection from residential customers.

5.3.10 RESIDENTIAL FOOD SCRAPS RECOMMENDATIONS

In the short term (2013 – 2017), the County and municipalities should:

- **Promote food scraps waste reduction.**
- **Promote food rescue and urban gleaning.**
- **Continue to promote home composting and neighborhood scale composting.**
- **Start with pilot studies for food scraps diversion:**
  - **Co-collected with yard trimmings.**
  - **Collected separately.**

The County should:

- **Develop a model resolution supporting the North Carolina Good Samaritan Act, which allows generators to donate unwanted food without liability.**
- **Promote food scraps waste reduction, targeting residents and encouraging them not to waste food at home.**
- **Promote the concept of "Love Food, Hate Waste".**
- **Promote North Carolina Good Samaritan Act (allowing donations without liability) and food bank guidelines for donating unwanted food.**
- **Support development of food rescue and urban gleaning programs, where food banks or other organizations provide connections from generators of excess food to those who are hungry, similar to Promote Urban Gleaners, based in Portland, OR.**
- **Continue to promote home composting and master gardener programs to encourage reusing food scraps at home.**
- **Support the development of neighborhood scale composting facilities at community gardens.**
- **Support municipalities in food scraps diversion pilot studies.**
- **Evaluate opportunities for expanding compost operations and technologies to include food scraps.**

- **Develop best practice guidelines, tools, and outreach materials for overcoming the "ick factor".**
- **Support CMS in developing food scraps diversion programs at all schools in the County, so that students can model the behavior needed at home.**

The municipalities should:

- **Adopt a resolution supporting the North Carolina Good Samaritan Act, which allows generators to donate unwanted food without liability.**
- **Pilot study for co-collecting food scraps with yard trimmings.**
- **Pilot study for separate food scraps collection (not mixed with yard trimmings).**
- **Conduct outreach to HOAs to solicit support for participation.**

In the long term (2018 – 2022), the County and municipalities should:

- **Implement future expansion of food scraps collection programs to all residential generators, based on the outcome of short-term pilot studies.**
- **Implement future bans of food scraps from garbage containers.**

Diversion potential from recommended strategies for residential food scraps is estimated to be nearly 11% of the residential waste stream.

5.4 COMMERCIAL YARD TRIMMINGS

5.4.1 EXISTING COUNTY COMMERCIAL YARD TRIMMINGS POLICIES

The County does not currently have any commercial yard trimmings policies. It is typical for property owners to contract with landscapers, and landscapers are responsible for delivery of yard trimmings to an appropriate processing facility.

5.4.2 POTENTIAL NEW COUNTY COMMERCIAL YARD TRIMMINGS POLICIES

If organics diversion and processing is developed for the commercial sector, yard trimmings could be considered in the material stream (see Commercial Food Scraps).

5.4.3 EXISTING MUNICIPAL COMMERCIAL YARD TRIMMINGS POLICIES

The municipalities do not currently have any commercial yard trimmings policies. It is typical for property owners to contract with landscapers, and landscapers are responsible for delivery of yard trimmings to an appropriate processing facility.

5.4.4 POTENTIAL NEW MUNICIPAL COMMERCIAL YARD TRIMMINGS POLICIES

If organics diversion and processing is developed for the commercial sector, yard trimmings could be considered in the material stream (see Commercial Food Scraps).

5.4.5 EXISTING COUNTY COMMERCIAL YARD TRIMMINGS PROGRAMS

Generally, multifamily households and businesses receive yard trimmings services through private contractors (landscapers) that may use County facilities or private processing facilities in the County. Most commercial properties with significant grounds utilize landscaping contractors to cut grass and trim bushes and trees. Property management companies often have their own staff that provides these functions.

These landscapers and facility staff, who cut the grass and trim bushes and trees, are not required to report the quantities of yard trimmings that they generate or where it is taken. Consequently, data regarding commercial sector generation of yard trimmings is incomplete.

5.4.6 POTENTIAL NEW COUNTY COMMERCIAL YARD TRIMMINGS PROGRAMS

If organics diversion and processing is developed for the commercial sector, yard trimmings could be considered in the material stream (see Commercial Food Scraps).

5.4.7 EXISTING MUNICIPAL COMMERCIAL YARD TRIMMINGS PROGRAMS

The municipalities do not currently have any commercial yard trimmings programs. As described in Section 5.4.5 above, multifamily households and businesses receive service through private contractors (landscapers).

5.4.8 POTENTIAL NEW MUNICIPAL COMMERCIAL YARD TRIMMINGS PROGRAMS

If organics diversion and processing is developed for the commercial sector, yard trimmings could be considered in the material stream (see Commercial Food Scraps).

5.4.9 COMMERCIAL YARD TRIMMINGS ASSESSMENT

The current system places the responsibility of yard trimmings collection and processing on the private sector. As landscapers and commercial establishments are not required to report the quantities of yard trimmings that they generate or where it is taken, data regarding commercial sector generation and processing of yard trimmings is incomplete.

5.4.10 COMMERCIAL YARD TRIMMINGS RECOMMENDATIONS

If organics diversion and processing is developed for the commercial sector, yard trimmings could be considered in the material stream (see Commercial Food Scraps).

5.5 COMMERCIAL FOOD SCRAPS

5.5.1 EXISTING COUNTY COMMERCIAL FOOD SCRAPS POLICIES

The County does not currently have any commercial food scraps policies. However, the County responds to numerous requests from the commercial sector in greening its events, taking a look at the use of compostable utensils and other waste reduction measures.

5.5.2 POTENTIAL NEW COUNTY COMMERCIAL FOOD SCRAPS POLICIES

Potential strategies listed below were considered for this Plan Update. Sources for potential strategies include feedback from County staff, feedback from the Steering Committee, feedback received through the charrette and other outreach efforts, recent studies completed by the County, and known best practices in other jurisdictions.

- Promote strategies for reducing commercial food scraps through food rescue, donations, waste exchanges, and promotion of the North Carolina Good Samaritan Act (which allows generators of excess food to donate without liability).
- Implement future bans of food scraps from garbage containers.
- Implement future requirements for food scraps diversion, perhaps through adding food scraps to the SSO, applied to heavy generators of food scraps.

5.5.3 EXISTING MUNICIPAL COMMERCIAL FOOD SCRAPS POLICIES

The municipalities do not currently have any commercial food scraps policies.

5.5.4 POTENTIAL NEW MUNICIPAL COMMERCIAL FOOD SCRAPS POLICIES

Potential strategies listed below were considered for this Plan Update. Sources for potential strategies include feedback from County staff, feedback from the Steering Committee, feedback received through the charrette and other outreach efforts, recent studies completed by the County, and known best practices in other jurisdictions.

- Promote strategies for reducing commercial food scraps through food rescue, donations, waste exchanges, and promotion of the North Carolina Good Samaritan Act (which allows generators of excess food to donate without liability).
- Implement future bans of food scraps from garbage containers.

- Implement future requirements for food scraps diversion, perhaps through adding food scraps to the SSO, applied to heavy generators of food scraps.

5.5.5 EXISTING COUNTY COMMERCIAL FOOD SCRAPS PROGRAMS

The County does not currently have any commercial food scraps programs.

5.5.6 POTENTIAL NEW COUNTY COMMERCIAL FOOD SCRAPS PROGRAMS

Potential strategies listed below were considered for this Plan Update. Sources for potential strategies include feedback from County staff, feedback from the Steering Committee, feedback received through the charrette and other outreach efforts, recent studies completed by the County, and known best practices in other jurisdictions.

- Promote best practices for reducing food scraps at commercial businesses and institutions.
- Connect commercial generators of food scraps to food banks, feed processors, and farmers.
- Evaluate opportunities for expanding compost operations and technologies to include food scraps.
- Develop best practices guidelines, tools, and outreach materials for diverting food scraps at commercial businesses and institutions.
- Support municipalities in developing pilot studies for commercial and institutional food scraps diversion programs.
- Develop food scraps diversion program over time, through pilots, then programs, expanded infrastructure, then mandatory.

5.5.7 EXISTING MUNICIPAL COMMERCIAL FOOD SCRAPS PROGRAMS

The municipalities do not currently have any commercial food scraps programs.

5.5.8 POTENTIAL NEW MUNICIPAL COMMERCIAL FOOD SCRAPS PROGRAMS

Potential strategies listed below were considered for this Plan Update. Sources for potential strategies include feedback from County staff, feedback from the Steering Committee, feedback received through the charrette and other outreach efforts, recent studies completed by the County, and known best practices in other jurisdictions.

- Develop pilot studies for commercial and institutional food scraps diversion programs to test:
  - Best practices for diverting food scraps.
  - Proper collection and handling methods.
  - Infrastructure needs.

  - Economics and feasibility.
- Develop food scraps diversion program over time, through pilots, then programs, expanded infrastructure, then mandatory.

5.5.9 COMMERCIAL FOOD SCRAPS ASSESSMENT

According to the 2011 Food Waste Diversion Study, an estimated 143,000 tons of food scraps are generated by the commercial sector. Some diversion of food scraps is already occurring through food banks, and there is interest among some commercial generators to divert food scraps. It is estimated that an additional 30,000 tons per year could be diverted by focusing on the major food scraps generating sector, which account for approximately 35% of the total food scraps generated. The study estimates that there is enough existing private sector capacity in the County to perform pilot studies for food scraps collection, though full implementation of food scraps collection would require more capacity for processing the material.

Food scraps diversion pilot studies would be necessary to determine best practices, economic viability, and infrastructure needs. Food scraps diversion programs should be developed over time, through pilot studies, then implementing programs and expanding infrastructure, and then eventually, requirements on the heavy food scraps generators.

5.5.10 COMMERCIAL FOOD SCRAPS RECOMMENDATIONS

In the short term (2013 – 2017), the County and municipalities should:

- **Promote food scraps waste reduction.**
- **Promote food rescue and urban gleaning.**
- **Develop pilot studies for food scraps diversion.**

The County should:

- **Promote best practices for reducing food scraps at commercial businesses and institutions.**
- **Connect commercial generators of food scraps to food banks, feed processors, and farmers.**
- **Evaluate opportunities for expanding compost operations and technologies to include food scraps.**
- **Develop best practices guidelines, tools, and outreach materials for diverting food scraps at commercial businesses and institutions.**
- **Support municipalities in developing pilot studies for commercial and institutional food scraps diversion programs.**

The municipalities should:

- **Develop pilot studies for commercial and institutional food scraps diversion programs**

to test:

- **Best practices for diverting food scraps.**
- **Proper collection and handling methods.**
- **Infrastructure needs.**
- **Economics and feasibility.**

In the long term (2018 – 2022), the County and municipalities should:

- **Implement a comprehensive food scraps diversion program, focusing on the major generators such as restaurants, hotels, and CMS, perhaps through expanding the SSO to include food scraps, applied to heavy food scraps generators.**
- **Implement future bans of food scraps from garbage containers.**

Diversion potential for the strategies recommended for food scraps is estimated to be nearly 11% of the commercial waste stream.

5.6 YARD TRIMMINGS INFRASTRUCTURE

5.6.1 EXISTING COUNTY YARD TRIMMINGS INFRASTRUCTURE

A total of four County-owned facilities serve the residential yard trimmings management needs of Mecklenburg County. Of these facilities, three are small yard trimmings collection and grinding points, integrated into the full-service County Drop-off Center operations. The yard trimmings operations include the Foxhole, Hickory Grove, and North Mecklenburg facilities and are all classified by NCDENR as Treatment and Processing facilities. The fourth and primary residential yard trimmings management facility is Compost Central, a facility permitted by NCDENR to handle Type I waste consisting only of yard and garden trimmings and untreated and unpainted wood waste.

Photo 5.4 Mulching at County Drop-off Center

In addition to the permitted yard trimmings sites, the County maintains several locations to handle vegetative debris from storm events.

5.6.2 POTENTIAL NEW COUNTY YARD TRIMMINGS INFRASTRUCTURE

Potential strategies listed below were considered for this Plan Update. Sources for potential strategies include feedback from County staff, feedback from the Steering Committee, feedback received through the charrette and other outreach efforts, recent studies completed by the County, and known best practices in other jurisdictions.

- Maintain and expand existing facilities to ensure capacity.
- Continue to promote community gardening networks.
- Promote on-site composting for large businesses and institutions.
- Develop neighborhood scale composting facilities.

5.6.3 EXISTING PRIVATE YARD TRIMMINGS INFRASTRUCTURE

Currently there are 10 private Land Clearing and Inert Debris (LCID) landfills, two private LCID treatment and processing facilities, and two commercial composting facilities located in Mecklenburg County that can receive yard trimmings from multifamily households or businesses. Private contractors utilizing noncounty facilities for yard trimmings management are not required to report tonnage to the County. Likewise, private processors of yard trimmings are not required to report their tonnage to the County.

5.6.4 YARD TRIMMINGS INFRASTRUCTURE ASSESSMENT

Because the commercial sector is not required to use County facilities for yard trimmings processing, and are not required to report tonnages or delivery of the material, it is difficult to determine if additional County infrastructure is necessary due to commercial sector material. The private sector appears to provide adequate capacity for processing yard trimmings from the commercial sector.

The four County-owned facilities that manage Mecklenburg County's residential yard trimmings, including Compost Central, which is the primary residential yard trimmings facility in the County, and smaller operations at the Foxhole, Hickory Grove, and North Mecklenburg full-service County Drop-off Centers, have steadily increased tons processed. As shown in Figure 5.1, yard trimmings diverted from the landfill has increased from 71,000 tons in 2006 to 98,000 tons in 2011, an increase of 39%. The increase is due largely to the annexation of unincorporated areas to the City of Charlotte.

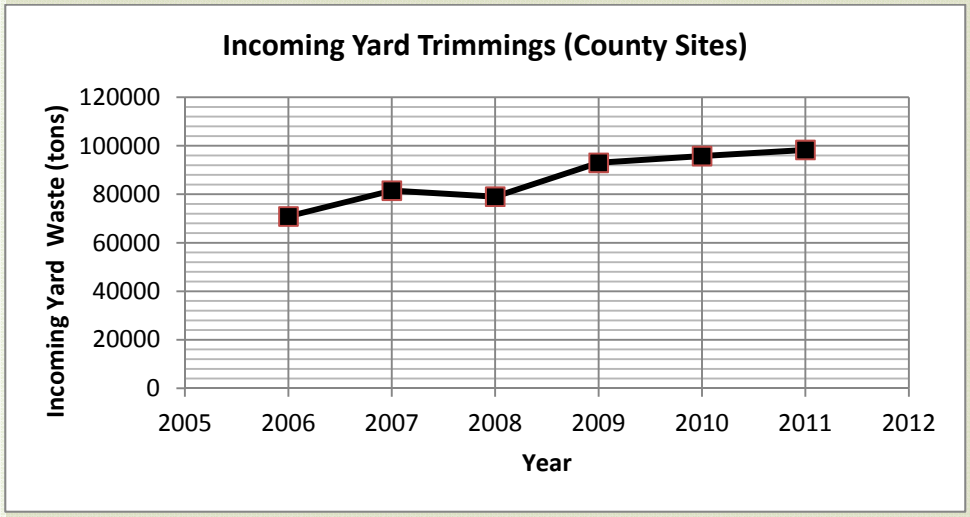

Figure 5.1 Incoming Yard Trimmings

As described in the Compost Central Master Plan, the County has identified and addressed equipment needs. The County is currently in negotiations with CDIA to secure a long-term lease on the remaining parcel for the composting operations. A facility master plan is currently being developed to account for the realignment of West Boulevard, as well as to provide for the rehabilitation and addition of existing paved area and the relocation of the recycling drop center to provide a common customer entrance with Compost Central. Compost Central is meeting the current yard trimmings management needs, and the potential site changes will help assure the long-term effectiveness and efficiency of the operation.

5.6.5 YARD TRIMMINGS INFRASTRUCTURE RECOMMENDATIONS

In the short term (2013 – 2017), the County should:

- **Maintain and expand existing facilities to ensure capacity.**
- **Continue to promote community gardening networks.**
- **Promote on-site composting for large businesses and institutions.**
- **Continue to monitor the private sector developments with regard to anaerobic digestion and other new technologies.**

In the long term (2018 – 2022), the County should:

- **Develop neighborhood scale composting facilities.**
- **Continue to monitor the private sector developments with regard to anaerobic digestion and other new technologies.**

5.7 FOOD SCRAPS INFRASTRUCTURE

5.7.1 EXISTING COUNTY FOOD SCRAPS INFRASTRUCUTRE

The County does not currently maintain any public food scraps infrastructure.

5.7.2 POTENTIAL NEW COUNTY FOOD SCRAPS INFRASTRUCTURE

Potential strategies listed below were considered for this Plan Update. Sources for potential strategies include feedback from County staff, feedback from the Steering Committee, feedback received through the charrette and other outreach efforts, recent studies completed by the County, and known best practices in other jurisdictions.

- Build on existing County facilities to include food scraps.
- Identify new sites for County facilities to include food scraps.
- Develop neighborhood scale composting facilities to process yard trimmings and food scraps.
- Research anaerobic digestion technologies for food scraps.
- Continue to promote community gardening networks.
- Promote on-site composting for large businesses and institutions.
- Conduct cost-benefit analysis of environmental impacts and costs for different options for facilities.
- Determine the viability of County-owned facilities versus the private sector.
- Continue to monitor the private sector developments for anaerobic digestion and other new technologies.

5.7.3 EXISTING PRIVATE FOOD SCRAPS INFRASTRUCTURE

According to the 2011 Food Waste Diversion Study, there are ten organics recycling facilities, one garbage feeder, and eight food banks/soup kitchens located in the Charlotte metropolitan area. Four of the ten organics recycling facilities indicated they were interested in receiving new sources of food scraps, and four stated they have the ability to expand their operations for this purpose.

There may be private sector operating systems, such as biodigesters-to-gray-water, in use in the County.

It should be noted that in an article published January 17, 2011, it was reported that W2E Columbia LLC received a solid waste permit from the South Carolina Department of Health and Environmental Control, paving the way for the construction of a $12 million anaerobic digestion facility in Columbia, South Carolina. Additional facilities are planned by the company in the near future at Gastonia, North Carolina and Baton Rouge, Louisiana.

5.7.4 FOOD SCRAPS INFRASTRUCTURE ASSESSMENT

According to the 2011 Food Waste Diversion Study, the total permitted capacity at existing food scraps recovery facilities is 71,100 tons, including Wallace Farms. If Wallace Farms is unable to relocate its food waste composting activity, the total existing capacity would be reduced to approximately 50,700 tons per year, further exacerbating the shortage of capacity to handle a full-scale County program. The total current food scraps handled by these recovery facilities is estimated to be 40,700 tons. This indicates that there is capacity currently available to process an additional 30,000 tons of food scraps with Wallace Farms, and another 10,000 tons without Wallace Farms.

5.7.5 FOOD SCRAPS INFRASTRUCTURE RECOMMENDATIONS

In the short term (2013 – 2017), the County should:

- **Closely monitor the various private sector efforts to expand food scraps processing capacity.**
- **Continue to promote community gardening networks.**
- **Support and promote on-site composting for large businesses and institutions.**

In the long term (2018 - 2022), the County should consider taking a direct role in ensuring sufficient capacity exists, potentially through public-private partnership, by:

- **Conducting a cost-benefit analysis of environmental impacts and costs for the following options:**
  - **Build on existing facilities for food scraps composting.**
  - **Neighborhood scale composting facilities.**
  - **Anaerobic digestion and other new technologies for food scraps.**

5.8 OVERVIEW OF ORGANICS PROCESSING INFRASTRUCTURE

There are several technologies available for processing organics that the County should monitor and assess. The County should continuously monitor new and emerging technologies leading to landfill diversion efforts. Some of these technologies include: mulching, aerobic composting, and anaerobic digestion, which are described in the following subsections.

5.8.1 MULCHING

This type of facility typically includes minimal processing (chipping, grinding, and possibly screening) of the feedstock to produce a mulch product or to prepare wood as fuel for biomass power plants. Yard trimmings are received and processed, typically in outdoor facilities, and contaminants are pulled out by workers on the deck. Clean materials from landscapers, gardeners, and tree trimmers are ground in tub grinders, screened, and stored, pending sale or

distribution. Curbside yard trimmings, which may have more contamination, are often screened, sorted for contaminant removal on an elevated sorting line, then ground and screened again. Wood chips, the larger woody materials created by the grinding process, are sold or distributed for use as ground cover or sold as boiler fuel for biomass facilities. Fines, the smaller materials screened out from the wood chips, are used for composting.

5.8.2 AEROBIC COMPOSTING

Aerobic composting facilities are designed for collecting, grinding, mixing, piling, and supplying sufficient moisture and air to organic materials to speed natural decay. The finished product is compost, a soil amendment suitable for incorporating into topsoil and for growing plants. Compost is different from mulch, which is a shredded or chipped organic material placed on top of soil as a protective layer against water loss and erosion. Compost technologies include windrows, in-vessel, and aerated static piles.

- **Windrow** – compostable material is piled in long rows and regularly turned to enhance aerobic activity and control temperature. This is the approach currently employed at the County's Compost Central facility.
- **In-vessel** – compostable material is placed in enclosed reactors (metal tanks, concrete bunkers, or plastic tubes or ag-bags), where airflow and temperature can be controlled through perforated pipes buried in the material.
- **Aerated static pile** – compostable material is placed in piles on perforated pipes under removable covers, and fans are used to push or pull air through the pipes to control the composting process.

5.8.3 ANAEROBIC DIGESTION

Anaerobic digestion methods may also be considered to process organic material. Anaerobic digestion is a biological process where microorganisms break down biodegradable materials, in this case food scraps, in an oxygen-deficient environment, creating a biogas that can be used to produce electricity or converted into a transportation fuel. This type of biogas consists primarily of methane and carbon dioxide. The semi-solid digestate, comprised of less digestible material, is collected and used as compost feedstock in an aerobic composting operation. The biogas may be converted into a vehicle fuel or used to produce electricity. These facilities process food scraps and other organics. Although the first phase of the biological process (hydrolysis phase) often operates in batch-type processes, the methane generating and subsequent electrical generation phase of these facilities are designed to operate continuously and provide uninterruptible power. With a proper feedstock, these reactions can reduce the volume of waste by approximately 70%, provide energy, and residuals can be sent to a compost facility for further processing.

Chapter 6

CONSTRUCTION AND DEMOLITION DEBRIS

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Chapter 6 CONSTRUCTION AND DEMOLITION DEBRIS

6.1 OVERVIEW

Construction and demolition (C&D) debris is solid waste resulting from construction, remodeling, repair, or demolition operations on pavement, buildings, or structures, but does not include inert, land clearing, yard waste, hazardous or liquid waste, friable asbestos, and appliances. C&D debris can comprise anywhere between 20% and 30% of the waste stream, and typically requires different methods for collection, processing, diversion, and disposal than MSW. Reduction, reuse, and recycling of C&D debris can result in significant diversion, as the waste is typically heavy and in large volumes. Recent efforts around the country to divert C&D debris include development of mixed waste processing capacity and markets for construction materials, landfill bans, and mandatory and incentive-based diversion requirements.

C&D debris comprises between 20% and 30% of the waste stream.

Approved C&D landfill sites are required by law to measure the weight of waste entering the landfill and provide groundwater monitoring. Table 6.1 provides total tons and tons per capita of C&D debris disposed per fiscal year since FY1997/98 originating from Mecklenburg County.

Table 6.1 Construction and Demolition Waste Disposed Over Time

Fiscal Year	Tons Disposed	Tons per Capita
FY97/98	297,762	0.489
FY98/99[1]	315,134	0.509
FY99/00	340,762	0.531
FY00/01	426,871	0.614
FY01/02	368,228	0.516
FY02/03	357,738	0.487
FY03/04	365,744	0.488
FY04/05	388,212	0.505
FY05/06	362,948	0.456
FY06/07	377,120	0.456
FY07/08	329,461	0.382
FY08/09	253,326	0.289
FY09/10	186,502	0.209
FY10/11	195,661	0.212

[1] FY 98/99 is the baseline year from which waste reduction goals are measured (State of NC requirement).

In FY2010/11, the amount of C&D debris disposed and reported to the NCDENR Division of Waste Management that originated in Mecklenburg County was 195,661 tons. This figure is based on NCDENR reported tonnage for permitted C&D facilities. There is also an unknown quantity of C&D debris disposed in MSW landfills each year since MSW landfills are allowed to accept C&D debris (the reciprocal is not true). This waste would then show up under the commercial waste tonnage figures. Because MSW landfills typically charge higher fees, it is believed that much of the C&D debris going to MSW landfills originates from renovations where homeowners and businesses might use their existing trash containers.

The FY2010/11 estimated County construction and demolition disposal rate was 0.212 tons per person/per year, which is a 58% decrease from the base year of FY 1998/99. This is due to a 37% decrease in tons of C&D waste disposed, combined with a 49% increase in population. Although increased recycling and green building practices may account for some of this decrease, changes in the level of construction and demolition activity were most likely to affect this measurement. In 2008, a downturn in the economy and housing bubble caused construction activity to decrease significantly. Large high-rise commercial projects already underway continued to generate waste through 2008, but construction remains much reduced compared to pre-2008 levels. In addition, as Mecklenburg County becomes denser (housing units per acre), new housing and retail construction may shift to bordering counties, and the C&D debris will no longer be attributed to Mecklenburg County.

6.1.1 RECOMMENDATIONS FROM 2009 SWMP

Table 6.2 Construction & Demolition Debris (C&D) 2009 Recommended Strategies

Recommendation 2009 Plan	Status
Work with the private sector and regulatory agencies to create opportunities for asphalt shingle recycling. Promote any such opportunities through outreach and promotional activities.	**Continuous**
Despite a robust marketplace for concrete, brick, and block, and an economic incentive to recycle these items, the recent waste characterization study indicated that nearly 88,000 tons per year of these materials are still landfilled. More emphasis will be placed on promoting recycling opportunities for these materials as well as evaluating why they are still being landfilled.	**Continuous**
Mixed waste processing capabilities offer greater recycling opportunities in the future. Continue to support the development of processing infrastructure and promotion of the permitted operators to the construction community.	**Continuous**
In the second phase of this plan cycle (beginning 2012/13), begin to evaluate and lay the foundation for consideration of a mandatory recycling requirement in order to meet the 2019 goal of 45% waste reduction.	**Complete**

6.1.2 RECENT RELEVANT STUDIES

Best Practices Recycling Study

County LUESA staff recently completed a study titled *Best Practices for Local Government Solid Waste Recycling, Diversion from Landfill and Waste Reduction*. Most, if not all, communities with high C&D recycling rates have some form of mandatory or incentive-based recycling policy (i.e. refundable deposit if recycling goals are met). Table 6.3 highlights communities with exceptional policies with a brief description of the policy elements. Note that many of the high-yield programs are in California, where state recycling mandates provide incentives for local governments to adopt progressive programs. All of the programs profiled had some level of required recycling activity or incentive policy, either percentage or material-based.

Table 6.3 US Programs with Exceptional C&D Debris Reduction Policies.

Government	Disposal Bans	Recycling	Facilities	Notes	Results
Alameda County, CA		County C &D Ordinance (applies to County projects). All but one community within Alameda have C&D ordinance requiring 50% or greater diversion rates.	Under contract with WM to handle this material. One C&D mixed processing facility. 12 facilities that process asphalt, brick, concrete, porcelain (private). Three dry wall and sheet rock reuse/recycling facilities (private). Five building materials reuse facilities (private).	Small Commercial Green Material Rebate Program offers cash incentives for purchasing recycled content building materials. In addition, a carpet tile pilot program exists in which excess carpet tiles can be donated for reuse.	From 2000-2010, the percentage of C&D identified in the waste stream fell from 21% to 12%.The program has a goal of 8,000 tons of new waste diverted annually.
Boulder, CO		50% diversion required for construction. 65% diversion required for demolition.	No mixed C&D processors in Boulder, but several specialty recyclers are available.	C&D waste counted separately from overall residential and commercial tonnage.	83% diversion, in 2010.

Table 6.3 US Programs with Exceptional C&D Debris Reduction Policies.					
Government	**Disposal Bans**	**Recycling**	**Facilities**	**Notes**	**Results**
Chicago, IL		Recycling rate of 50% (2007).	16 facilities will accept all mixed C&D materials; 28 facilities will accept sorted materials only.		65% diversion.
Fresno, CA		Mandatory if the project generates eight cubic yards or greater of trash.	Five city-approved mixed C&D processors. One city-approved specialty processor.		
Jacksonville / Duval County, FL			All facilities in city required to meet 80% diversion rate.		
King County, WA	All C&D is banned from disposal.	Job sites must have separate containers for recyclable materials and nonrecyclable materials.	Six C&D mixed processing facilities.	State required source separation effective 2009.	90% diversion.
Oakland, CA		Requires recycling 100% of asphalt and concrete and 65% of all other C&D waste.	Under contract with WM. Same resources as Alameda County, CA. Two asphalt, brick, concrete, & porcelain recyclers (private). Two building materials reuse locations.	Part of Alameda County, CA.	

Table 6.3 US Programs with Exceptional C&D Debris Reduction Policies.					
Government	**Disposal Bans**	**Recycling**	**Facilities**	**Notes**	**Results**
Orange County, NC	Clean wood waste and metal.	Regulated recyclable material ordinance. Old corrugated cardboard, clean wood, and scrap metal required. Must have waste management plan.	Four certified mixed C&D materials reclamation facilities.	Adding shingles later this year to required list. The economic downturn has had effect on C&D recycling tonnage.	Volume of C&D waste fell almost 50% after ordinance implemented & continues to fall.
Portland, OR	Concrete, asphalt, land clearing, cardboard, metal, wood.	75% recycling required if total job cost is greater than $50,000. Pre-construction recycling plan required. $500 fine for non-compliance	Three mixed C&D materials processors.	Operates voluntary C&D reuse program at transfer stations.	
San Francisco, CA	All C&D is banned from disposal.	All C&D must go to registered facilities recycling a minimum of 65%. Full demolition projects must submit a demolition debris recovery plan, providing a minimum of 65% diversion from landfill.	Two registered facilities located inside city limits of San Francisco. 10 additional facilities located in the region.		Diversion rate hard to calculate due to lack of tracking mechanisms for private sector source separated C&D materials.

Table 6.3 US Programs with Exceptional C&D Debris Reduction Policies.					
Government	**Disposal Bans**	**Recycling**	**Facilities**	**Notes**	**Results**
San Jose, CA		Incentive program. Deposit required, refund if they recycle 50% of waste.	21 city-certified recovery facilities. 11 source separated. Five other/ specialty mixed C&D. Three transfer stations. Four landfills with mixed C&D operations. Four processors focused on mixed C&D.	The 21 city-certified recovery facilities must divert 50% of material generated from new construction and demolition projects.	Nearly 100% diversion on source separated material; average of 55% diversion on mixed C&D. In 2008, diverted 866,000 tons of C&D, (79% of total materials received).
Seattle, WA	Metal, asphalt, bricks, old corrugated cardboard, concrete by 2012. Clean wood, carpet, gypsum, plastic film by 2013. Tear-off asphalt shingles by 2014.	Recycling rate goal of 60% (2012), goal of 70% (2025). 90/10 Rule: C&D recycling collection containers cannot contain more than 10% nonrecyclable materials.	Three permitted commingled C&D processing facilities.	New solid waste management plan will recommend 70% diversion rate. By 2013, implement transfer station floor sorting program for loads that appear to be 50% recyclable.	Recycling rate: 61.4% Diversion rate: 65.6% Waste diversion rate consists of recycling and beneficial use (boiler fuel).
Metro Vancouver, BC	Clean wood (2015).	2015 mandatory on-site.	At least two privately operated mixed processing facilities. Numerous small recycling depots are in operation.	All private mixed waste processing, licensed by Metro.	80% diversion.

C&D Composition Study

In 2008, the County completed a composition study of C&D debris, pallets, and untreated wood waste, in order to identify the types and quantities of these materials in the waste stream, and the mid-term and long term opportunities for C&D debris reduction.

The objectives of the study were to:

- Develop statistically defensible estimates of the annual composition of C&D debris generated in Mecklenburg County and disposed in landfills.
- Identify opportunities for increasing diversion from this sector.
- Establish a baseline snapshot of the composition of Mecklenburg County's C&D debris stream against which future studies could be compared for the purpose of evaluating future programmatic changes.

Photo 6.1 Construction & Demolition Debris

The study included on-site sampling of incoming C&D loads at the County's Foxhole Landfill and the privately-owned North Mecklenburg Landfill. During the field study, the majority of the loads contained debris that was generated from residential structures, and over 75% of C&D, by weight, was found to come from residential construction, renovation, and demolition projects.

The results of the study identified the following:

- The majority of C&D debris disposed in the County (by weight) is concrete, brick, and blocks (23%).
- Untreated wood comprised the next largest component, at 16.5%.
- Drywall (unpainted) comprised approximately 7% of the disposed waste.
- Seventy-three percent of the C&D debris stream is made up of materials that are recoverable within the existing end markets in Mecklenburg County, to the extent they can be source separated.
- An additional 19% of the C&D debris stream could be targeted for diversion through a combination of development of end markets and improvements in collection and processing.
- Significant diversion will not be approached in the absence of establishing a mixed C&D processing capability.
- The remaining 19% of disposed C&D debris is comprised of materials for which legitimate recycling, composting, or reuse processes or opportunities have not yet been developed.

Figure 6.1 shows the estimated composition of the C&D debris identified in the 2008 study. The study revealed significant quantities of materials were being disposed for which alternative recycling options existed. For example, metals (6.9%) and corrugated cardboard (3.8%) both have appreciable market value relative to disposal costs. Although untreated wood (16.5%) is not as lucrative as metal and paper, it can be ground and used as mulch or sold as boiler fuel, thus avoiding the tipping fees associated with disposal. In addition, pallets and crates (2.6%) are considered untreated wood and can be reused or ground for fuel or mulch.

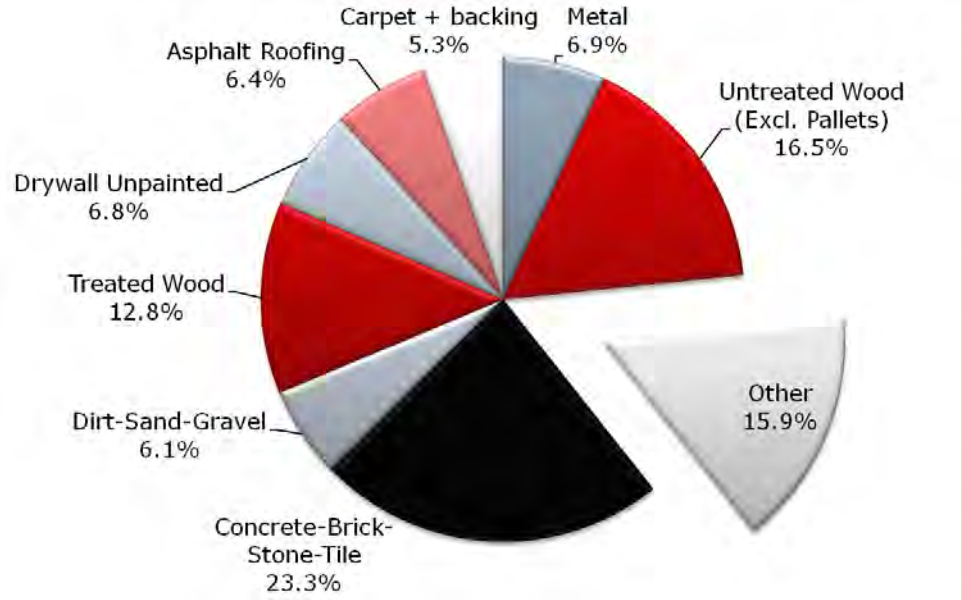

Figure 6.1 C&D Debris Composition, Mecklenburg County, 2007

Table 6.4 provides a list of recoverable, potentially recoverable, and unrecoverable items in the C&D debris stream.

Table 6.4 Recoverable and Unrecoverable C&D Materials
Recoverable
Corrugated cardboard, appliances, other ferrous metals, HVAC ducting, other nonferrous metal, land clearing debris, limbs, stumps, other yard trimmings, concrete, block, brick, stone, tile, pallets, drywall (unpainted), untreated wood, asphalt roofing, ceiling tiles, carpet and carpet backing.
Potentially Recoverable
Vinyl siding, dirt, sand, gravel, bulky wastes, furniture.
Unrecoverable
Other paper, film plastic, PVC pipe, other plastic, all glass, oriented strand board (OSB), treated/painted/processed wood, drywall (painted), insulation, mixed MSW, mixed C&D, electronics, other unclassified.

Recoverable: These materials are recyclable in their entirety and have currently existing markets in the Mecklenburg County region to the extent such materials are source separated for delivery to market.

Potentially Recoverable: At the current time, there is no mixed C&D waste processing capacity in the County. Many materials are technically recyclable, but only under any number of qualifying conditions:

- They must be available in significant quantity to be acceptable to the end market.
- They must be clean enough to recover.
- They must be further sorted into subcomponents prior to delivery to market.
- Aggregate transportation and recycling costs must be competitive with disposal costs.

Unrecoverable: These are materials that do not appear to have near term potential for recycling or occur in such small quantities in the C&D waste stream that it is unlikely they will ever be recycled.

Cost, convenience, necessity, and values are the motivating factors for C&D recycling. Except for metals and corrugated cardboard, for which one may receive payment, the economics of C&D debris diversion rely on avoided disposal costs. Concrete recycling occurs largely because local markets accept it for free or at a very small charge. It must however be kept separate from other construction waste or, if co-mingled with other wastes, the full disposal fee is applied.

Note that the 2008 study found over 62,000 tons of untreated wood disposed at that time. The Foxhole Landfill charges less than half normal disposal costs for untreated wood if delivered separately, yet received only 1,227 tons in FY08. This is because the wood must be kept separate on the job site, which presents both cost and convenience issues for the builder. Gypsum drywall currently offers a $10/ton price discount at the County's Foxhole Landfill, and since drywall contractors often are asked to manage their own waste on jobsites, this material is delivered to landfills clean and separated and can be easily recycled.

6.1.3 RESIDENTIAL VS COMMERCIAL C&D DEBRIS

It is important to understand the distinction between residential and commercial C&D waste. Residential C&D most often consists of single family or duplex home construction, demolition, or renovation. Construction or demolition of larger projects such as apartment or condominium complexes have the same attributes as other commercial facilities and are regarded as commercial C&D waste.

Residential C&D waste is more difficult to recycle than commercially generated C&D for many reasons. The reasons are best understood if construction and demolition of residential structures are discussed separately.

Residential C&D

Demolition of residential structures is the most challenging for achieving recycling results. Often, the cheapest way to demolish a home is to simply push it down with a bull-dozer and load the debris into dump trucks destined for a landfill. If the home is brick construction, the brick can be removed first for recycling. In addition, the interior cabinetry, doors, windows, faucets, lighting fixtures, and some other items may be reused through organizations such as Habitat for Humanity, if the age and quality of these items justify recovery. Driveway concrete may also be recycled. Interior drywall is always painted in demolition projects, so it remains unrecyclable. Although interior framing would be recyclable, the cost to remove it is usually too high with existing low disposal fees in the region.

Table 6.5 identifies the challenges and opportunities for recycling at residential construction and demolition projects.

Table 6.5 Residential Recycling Challenges & Opportunities	
Challenges	**Opportunities**
Separation by material type	Removal of brick for recycling
Worker training	Reuse of fixtures
Contamination and illegal disposal	Recycling of concrete and hardscape
Space constraints	

Separation requires that builders place additional containers at the site. Space constraints may preclude additional containers, and, if placed, additional containers mean additional costs to lease the container and have it hauled. Workers and subcontractors may need to be trained to separate materials correctly and bilingual signage is often needed.

A recycling container left during evening hours and weekends tends to be used by others disposing of miscellaneous waste, which contaminates the container and requires costly removal of the waste materials or disposal of the entire load. Unlike commercial construction sites, which are usually fenced and closed to the public, residential sites are accessible for such contamination.

Photo 6.3 Residential Construction and Demolition Debris

Photo 6.2 Residential C&D Debris Source Separation at a Commercial Job Site

Commercial C&D

Commercial C&D activities generate greater volumes of waste. Commercial construction utilizes more concrete, block, brick, and metals than residential construction. Interior and exterior framing and support is more likely to be metal. These materials have greater value and are more likely to be recycled. Nationally, metals have the highest recycling rates among the materials recovered from C&D sites (about 85%).

Commercial sites are almost always fenced and inaccessible to the public, thus eliminating outside contamination of recycling containers. Commercial projects are also more likely to follow some green guidelines, including Leadership in Energy and Environmental Design (LEED) certification. Commercial C&D activities can offer greater opportunities for recycling. Greater volume and higher value of materials at these sites facilitate recycling.

Table 6.6 identifies the benefits of recycling at commercial construction and demolition sites.

Table 6.6 Benefits of Recycling Commercial C&D Debris
Reduced landfill disposal costs
Large volume of divertable materials
High value materials, including metal
Larger, secure sites for ease of separating materials

LEED - Leadership in Energy and Environmental Design

The increase in C&D debris recycling can partially be attributed to the green building movement and the advent of LEED certified projects. LEED is a voluntary consensus-based national standard for developing high performance or sustainable buildings. Waste reduction and recycling of C&D debris is a component of these projects. The level of LEED certification a project acquires (standard, silver, gold, or platinum), depends on the number of points accrued. Builders receive one point for recycling 50% of construction waste and two for 75%. The waste recycling points tend to be cost-effective and are included in most if not all LEED projects. Some sites require more specialized waste management services than others.

Photo 6.4 Commercial C&D Management

6.2 EXISTING COUNTY C&D DIVERSION POLICIES

The County does not currently have any C&D diversion policies.

6.3 POTENTIAL NEW COUNTY C&D DIVERSION POLICIES

Potential strategies listed below were considered for this Plan Update. Sources for potential strategies include feedback from County staff, feedback from the Steering Committee, feedback received through the charrette and other outreach efforts, recent studies completed by the County, and known best practices in other jurisdictions.

- Implement a disposal ban on C&D materials for which there is an adequate local recycling market infrastructure for the material. Materials that should be evaluated for disposal prohibition include: concrete, brick, and block; untreated, unpainted wood and drywall; corrugated cardboard; ferrous and nonferrous metals; asphalt shingles; carpet and carpet padding.
- Prohibit haulers from transporting construction materials banned from disposal to disposal sites.
- Implement mandatory recycling requirements with a flat overall diversion rate goal for each construction and demolition project. With this strategy, the goal requirements could be set at one diversion percentage for the project (e.g. 50% of C&D waste generated must be recycled or diverted). Permittees could be required to demonstrate the goal was reached by submitting weight tickets or other evidence of diversion. Certificate of occupancy could be withheld until diversion is demonstrated. This strategy can work in conjunction with requiring a diversion plan and requiring a recycling fee, which would be refunded once the diversion was demonstrated.
- Implement mandatory recycling requirements with variable diversion rate goals for construction and demolition projects. The goal requirements could be variable diversion rates depending on the project, as different projects have differing recycling potential (e.g., demolition of a wooden structure will yield far less recyclable material than demolition of a concrete or brick structure). As with the flat rate strategy, this strategy can work in conjunction with requiring a diversion plan and requiring a recycling fee, which would be refunded once the diversion was demonstrated.
- Require that construction and demolition projects submit a recycling fee with the permit that is refundable upon demonstration that recycling goals have been achieved. The goals may need to vary depending of the type of project.
- Adopt a policy encouraging the recycling of C&D debris for County projects, to lead by example.

6.4 EXISTING MUNICIPAL C&D DIVERSION POLICIES

The City of Charlotte requires a waste stream management plan be submitted by contractors, which requires reporting of material recycled but does not require that it is recycled. The City provides contractors with information on where materials can be recycled to encourage recycling. The other municipalities in the County do not currently have C&D diversion policies.

6.5 POTENTIAL NEW MUNICIPAL C&D DIVERSION POLICIES

Potential strategies listed below were considered for this Plan Update. Sources for potential strategies include feedback from County staff, feedback from the Steering Committee, feedback received through the charrette and other outreach efforts, recent studies completed by the County, and known best practices in other jurisdictions.

- Implement a disposal ban on C&D materials for which there is an adequate local recycling market infrastructure for the material. Materials that should be evaluated for disposal prohibition include: concrete, brick, and block; untreated, unpainted wood and drywall; corrugated cardboard; ferrous and non-ferrous metals; asphalt shingles; carpet and carpet padding.
- Prohibit haulers from transporting construction materials banned from disposal to disposal sites.
- Mandate recycling requirements with a flat overall diversion rate goal for each construction and demolition project. With this strategy, the goal requirements could be set at one diversion percentage for the project (e.g. 50% of C&D waste generated must be recycled or diverted). Permittees could be required to demonstrate the goal was reached by submitting weight tickets or other evidence of diversion. Certificate of occupancy could be withheld until diversion is demonstrated. This strategy can work in conjunction with requiring a diversion plan and requiring a recycling fee, which would be refunded once the diversion was demonstrated.
- Mandate recycling requirements with variable diversion rate goals for construction and demolition projects. The goal requirements could be variable diversion rates depending on the project, as different projects have differing recycling potential (e.g., demolition of a wooden structure will yield far less recyclable material than demolition of a concrete or brick structure). As with the flat rate strategy, this strategy can work in conjunction with requiring a diversion plan and requiring a recycling fee, which would be refunded once the diversion was demonstrated.
- Require that construction and demolition projects submit a recycling fee with the permit that is refundable upon demonstration that recycling goals have been achieved. The goals may need to vary depending of the type of project.
- Adopt a policy encouraging the recycling of C&D debris for municipal projects, to lead by example.

6.6 C&D DIVERSION POLICIES ASSESSMENT

All of the potential policies listed in Section 6.3 and 6.5 will reduce the amount of C&D that is disposed in a landfill. The different approaches have variable results, implementation requirements, and costs.

A disposal ban on materials with adequate local market infrastructure is material-specific, and allows for variability in the amount of waste diversion a specific project achieves. It reduces the number of entities to which enforcement or monitoring must be applied.

A mandatory recycling requirement means enforcement/monitoring on all C&D projects in the County. However, if implemented in cooperation with the permit process, enforcement for

those projects that require a permit could be addressed by requiring a diversion plan be submitted with the permit application, and certificate of occupancy could be withheld until diversion is demonstrated.

A fee-based recycling incentive may generate revenue via forfeited reimbursements and may be easier to implement, as the burden of proof is on the permittee and enforcement actions are eliminated.

Both mandatory recycling requirements with variable goals and fee-based incentive policies require careful setting of variable recycling requirements/goals based on the type of project (residential or commercial new construction, residential or commercial demolition, wood or brick/concrete construction, remodeling). Consideration should be given to the degree of administrative costs and time needed to process exemption requests.

Assessments determining the quantity of materials and/or the capacity of the markets to absorb additional materials would be beneficial to the diversion of materials through the above policies. Having the same policies implemented by both the County and municipalities would be most effective in order to maintain a level playing field for all C&D generators within the County.

6.7 C&D DIVERSION POLICIES RECOMMENDATIONS

The County and municipalities should work together to implement the same strategies in order for the strategies to be effective, and streamline the requirements for C&D generators.

In the short term (2013 – 2017), the County and municipalities should:

- **Implement a C&D diversion ordinance requiring 50% of C&D waste generated at a project be recycled or diverted, and allow reasonable exemptions.**
- **Require all permit applications for construction or remodels to submit a diversion plan, and establish a minimum diversion requirement of 50% (via ordinance).**
  - **Permit application could require a diversion plan to describe how and what materials will be recycled; exemptions or reduction in diversion amount could be addressed through the diversion plan process.**
  - **Deposit (permit fee) could be collected with permit application, and then reimbursed once recycling activities have been demonstrated (via weigh tickets).**
- **Form a task force of citizens representing the C&D industry, haulers, construction materials recyclers, code enforcement staff, and other relevant persons to:**
  - **Evaluate the demand for C&D materials and how much additional material the market can absorb.**
  - **Determine what recycling levels are feasible for different types of structures and C&D categories.**
  - **Evaluate policies that would increase recycling and waste diversion of C&D in terms of waste diversion potential, cost to the C&D industry, cost to implement and enforce, and ease of implementation.**
  - **Establish variable diversion goals for different types of structures and C&D categories.**

Diversion potential for the short term policy strategies recommended for C&D is estimated to be approximately 50% of the C&D waste stream.

In the long term (2018 – 2022), the County and municipalities should:

- **Continue to support successful short term strategies.**
- **If variable diversion goals are identified through the task force described in the short term, implement the variable goals by modifying the 50% diversion ordinance to reflect the variable goals. If not, increase the 50% recycling and diversion mandate to 60%.**

Diversion potential for the long term policy strategies recommended is estimated to be approximately an additional 8% of the C&D waste stream.

6.8 EXISTING COUNTY C&D DEBRIS DIVERSION PROGRAMS

6.8.1 ECONOMIC INCENTIVE PROGRAM

The Mecklenburg County Building Development Commission (BDC), alongside of Mecklenburg County Code Enforcement, proposed the language ratified by the NC State Legislature in Session Law 2007-381 allowing provision for building permit fee reduction or partial rebates to encourage construction of buildings using sustainable design principles. Mecklenburg County then began implementing a Green Permit Rebate (GPR) program with the intent to encourage building projects and practices that support development projects that minimize impact on our natural resources through the use of environmentally responsible certification programs such as LEED & Green Globes. Through the GPR, development permit fee rebates are available from 10% up to 25% of the net permit fee to a maximum of $100,000 for eligible projects. On April 20, 2010, the Mecklenburg County BOCC voted to suspend the Green Permit Rebates Program. The County will consider reinstatement of the program in the future, when revenue levels increase sufficiently to allow continued support of the program's rebates.

6.8.2 FOXHOLE LANDFILL

The County's existing recycling opportunities at the Foxhole Landfill include both residential and commercial C&D debris. The County accepts source separated metals and corrugated cardboard at no charge. In addition, other materials are accepted at a reduced rate if they are delivered separately and not contaminated with other C&D debris. This can represent significant savings over the mixed C&D debris disposal rate of $39/ton. Specific aspects of recycling through this program are discussed in Section 6.14.2.

6.8.3 OUTREACH, PROMOTION, EDUCATION, RECOGNITION, AND ANNUAL SURVEY

Promotion and Outreach

Mecklenburg County maintains a program of outreach to the construction and demolition industry. In the past, this has included recycling promotional materials, radio spots, and various sized ads in the Charlotte Business Journal. In recent years, the County has provided direct mail promotional materials to the building community.

The County provides publicity and recognition for key projects that achieve high levels of waste reduction and recycling. For example, the County took out a full page color ad in the Charlotte Business Journal thanking the project team that demolished the old Charlotte Coliseum for recycling 90% of the materials.

In the past, the C&D debris reduction program has honored construction and demolition projects at its annual business recognition awards ceremony. Projects achieving outstanding waste reduction goals, green building innovations, and LEED certifications receive awards. This program was cancelled due to budget constraints.

Historically, the County has completed at least one mass mailing to the building community annually. In 2010, the County mailed a tri-fold that communicated what could be recycled and reused in Mecklenburg County, the importance of securing loads on trucks before traveling, and the implications for safety and litter.

The County maintains a website that offers disposal and recycling information and maintains a list of businesses and facilities that recycle C&D materials. The County also publishes the 25-page Construction and Demolition Waste Reduction and Recycling Resource Guide, which is available in hard copy or pdf.

In 2010, County staff met with members of the Home Builders Association of Charlotte, who had a special interest in recycling, to share the available County programs and explore the barriers to increased residential C&D recycling and how these can be overcome. No clear solutions presented themselves, but the group agreed that it would be useful to meet with the hauling community to see what solutions they may offer.

Education and Technical Assistance

County staff provides on-going technical assistance to businesses seeking to recycle a part of their construction and/or demolition wastes. These include renovations and new construction, residential and commercial projects, as well as demolition of small and large facilities.

The County is a member of the Home Builders Association of Charlotte and has conducted focus groups and educational seminars with home builders regarding recycling. In December of 2010, the County was a major player in the first annual Southeast Construction and Demolition Recycling Conference held in Charlotte. The County exhibited and presented at the conference and provided leadership in developing and delivering the conference.

Annual Survey

The County has employed several methods to communicate with the building community. Each year, the County surveys the building community to measure awareness of recycling programs, gauge the degree of recycling and the materials recycled, and obtain other information. As

measured against the baseline year, both awareness of recycling opportunities and actual recycling have increased.

6.8.4 OTHER COUNTY DEPARTMENTS

There are other County departments that support and encourage recycling. The Charlotte-Mecklenburg Storm Water Services Department occasionally must arrange for the demolition of structures residing in flood-prone areas. As part of this demolition, the Storm Water Services Department requires contractors to recycle as much as possible and submit waste management plans and a post-project accounting of recycling and waste diversion. The Asset and Facility Management Department also tries to recycle as much as possible during new construction of County facilities.

6.9 POTENTIAL NEW COUNTY C&D DIVERSION PROGRAMS

Potential strategies listed below were considered for this Plan Update. Sources for potential strategies include feedback from County staff, feedback from the Steering Committee, feedback received through the charrette and other outreach efforts, recent studies completed by the County, and known best practices in other jurisdictions.

- Continue education, technical assistance, and promotion efforts.
- Reinstate the Green Permit Rebates Program that was suspended in 2010, if possible.
- Continue to use the Foxhole Landfill as a place to bring recyclable construction materials, and work to reinstate the asphalt shingle recycling program, as discussed in Section 6.14.2.
- Evaluate the potential for recycling additional materials.

6.10 EXISTING MUNICIPAL C&D DIVERSION PROGRAMS

The municipalities in the County do not currently have C&D diversion programs.

6.11 POTENTIAL NEW MUNICIPAL PROGRAMS

Potential strategies listed below were considered for this Plan Update. Sources for potential strategies include feedback from County staff, feedback from the Steering Committee, feedback received through the charrette and other outreach efforts, recent studies completed by the County, and known best practices in other jurisdictions.

- Continue to support the current County education, technical assistance, and promotion efforts.
- If the County reinstates the Green Permit Rebates Program that was suspended in 2010, promote the program within the municipality.

6.12 C&D DIVERSION PROGRAM ASSESMENT

The County currently supports and encourages C&D diversion through technical assistance, education and outreach, recognition programs, and opportunities to recycle for reduced tipping fees at the County's Foxhole Landfill. The County's Foxhole Landfill has provided leadership by creating opportunities to recycle materials in the past that were not readily recyclable, as discussed in Section 6.14.2. The Foxhole Landfill was the first location in Mecklenburg County to accept gypsum drywall and remains one of only two places in Mecklenburg County that accept this material. The landfill was also the first Mecklenburg County location to accept asphalt shingles for recycling and remained the only location within the County until the program was suspended. Asphalt shingles remain a highly viable material to recycle and the County should continue to work with the private sector to create opportunities to reinstate this program.

6.13 C&D DIVERSION PROGRAM RECOMMENDATIONS

In the short term (2013 – 2017), the County should:

- **Continue education, technical assistance, and promotion efforts.**
- **Reinstate the Green Permit Rebates Program that was suspended in 2010, if possible.**
- **Continue to use the Foxhole Landfill as a place to bring recyclable construction materials, and work to reinstate the asphalt shingle recycling program.**
- **Evaluate the potential for recycling additional materials.**

The municipalities should:

- **Continue to support the current County education, technical assistance, and promotion efforts.**
- **If the County reinstates the Green Permit Rebates Program that was suspended in 2010, promote the program within the municipalities.**

Diversion potential for the short term program strategies recommended for C&D is estimated to be approximately 8% of the C&D waste stream.

In the long term (2018 – 2022), the County and municipalities should continue to support successful short term efforts.

6.14 EXISTING C&D DISPOSAL AND DIVERSION INFRASTRUCTURE

6.14.1 DISPOSAL

There are two landfills located within Mecklenburg County accepting C&D debris. The other landfills listed in Table 6.7 are located outside of the County. The North Mecklenburg Landfill is owned and operated by the private sector. The Foxhole Landfill, a permitted sanitary (MSW) landfill is owned and operated by the County, and presently accepts only C&D debris.

Table 6.7 displays the facilities that received C&D debris generated in Mecklenburg County and the corresponding tonnage for FY 07/08 and FY 2010/11. In addition to the drastic decline in total tonnage, it is interesting to note the shift in where the materials are taken. While the other landfills experienced a decrease in percent of waste received, tonnage at the Highway 49 C&D increased slightly and a significant increase in percent of the waste stream shifted to North Mecklenburg Landfill, from 35% in FY 07/08 to 58% in FY 10/11, which may in part be due to proximity of construction projects.

Table 6.7 Facilities Receiving Mecklenburg C&D Debris in FY 07/08 and FY 2010/11

	FY 07/08		FY 2010/11	
Landfill	**Tonnage**	**% of Waste Stream**	**Tonnage**	**% of Waste Stream**
Republic Lake Norman C&D Landfill	70,190	21	16,745	8.6
Foxhole MSW/C&D Landfill	124,253	38	52,331	27
Gaston County C&D Landfill	109	<1	25	<1
Griffin C&D Landfill	8,127	2.5	0	0
Highway 49 C&D Landfill	8,717	2.6	12,730	6.5
North Mecklenburg C&D Landfill	115,678	35	113,601	58
Cabarrus	2,374	<1.0	12	<1
Rowan	12	<1.0	0	0
Total	**329,461**	**100.0**	**195,444**	**100.0**

6.14.2 FOXHOLE LANDFILL RECYCLING

The County's existing recycling opportunities at the Foxhole Landfill include both residential and commercial C&D debris. The County accepts source separated metals and corrugated cardboard at no charge. In addition, other materials are accepted at a reduced rate if they are delivered separately and not contaminated with other C&D debris. This can represent significant savings over the mixed C&D debris disposal rate of $39/ton.

Concrete, brick, and block that are source separated and delivered to the Foxhole Landfill are ground and used on site for roadbeds or in erosion control measures. A reduced tipping fee of

$5/ton is charged as an incentive to recycle (if the concrete is commingled with other waste, the charge is $39/ton). In FY 2010/11, the Foxhole Landfill received 3,921 tons of concrete, brick, and block.

Gypsum drywall (wallboard) is currently being accepted for recycling at the Foxhole Landfill. The drywall must be from new construction and kept separate (not mixed with other construction wastes). The program began in June 2008 and received 1,264 tons in FY2010/11. The gypsum drywall is stored in a pile near the working face of the landfill until approximately 100 cubic yards are accumulated. The recycler is then contacted for pickup.

Untreated, unpainted wood waste, if delivered separated, is ground and sold primarily as boiler fuel. The County charges $18/ton as an incentive to recycle. In FY 2010/11, the Foxhole Landfill received 1,386 tons of untreated, unpainted wood waste.

Corrugated cardboard and metals are accepted at all full service County drop-off centers. All self-service County drop-off centers accept corrugated cardboard, as well as all materials accepted through the residential curbside program.

Pallets are banned from disposal in MSW landfills in North Carolina**.** Although it only accepts C&D debris, the Foxhole Landfill is a permitted MSW landfill to which this new law applies. Consequently, the employees working the landfill face routinely pull pallets out as they are dumped. Last year, 92 tons of pallets were recovered. These pallets are added to the wood waste pile and subsequently ground and sold as boiler fuel.

Photo 6.5 Asphalt Shingles

Asphalt shingles were accepted at the Foxhole Landfill for a brief period**.** In July 2010, the County began accepting asphalt roofing shingles from single family structures up to four-unit buildings if delivered separately from other construction wastes. A $10/ton discount was applied through the fee ordinance. In June of 2011, the program was temporarily suspended. The contractor who was picking up and recycling the asphalt shingles the County received was unable to keep up with the quantity the County was receiving. The County is hopeful that this program will resume in the near future as infrastructure develops.

6.14.3 NORTH MECKLENBURG LANDFILL

The privately owned and operated North Mecklenburg Landfill also recycles several construction material categories and offers a reduced tipping fee for some of these. The landfill accepts clean concrete, brick, and block for $10/ton. Gypsum drywall and untreated, unpainted wood are charged $20/ton. Metals are accepted at no charge. In addition, corrugated cardboard is sometimes pulled from loads. This business is exploring opportunities for increasing recycling of construction and demolition waste.

6.14.4 COLLECTION, PROCESSING, AND RECYCLING

The recycling of construction and demolition waste requires that an adequate supply of collectors, processors, and material recyclers exists to meet the demand for recycling by the building community. It all begins with the demand for the material. Some entity, private or public, must have a use for the material before it can be diverted from a landfill.

6.14.4.1 Collection

Currently, there are 23 hauling companies licensed to transport C&D waste. Many of these also will haul recyclable C&D materials to a market. In the current marketplace, recyclers only want source separated materials, relatively free of contaminants. This requires that builders sort the materials on-site or utilize a mixed waste processor.

6.14.4.2 Processing

Most builders would like to be able to commingle C&D debris into one container and have someone else sort the material later for recycling. The industry refers to such an operation as a C&D mixed waste processing facility.

These operations range from low capital investment operations involving persons sorting dumped materials into individual dumpsters from the floor of a facility, to large capital investment mechanical operations involving shredders, crushers, magnets, and conveyor systems. The low capital systems are still labor intensive, while having a low throughput capacity. Such low capital operations are appearing in Mecklenburg County in response to demand. Large capital systems do not currently exist in the region. It is generally believed that such facilities are not cost competitive in the South due to low disposal fees.

A mixed waste processor operating in North Carolina requires a permit from the NCDENR. There are currently three low-tech mixed waste processors in Mecklenburg County. All three only service the commercial building industry.

6.14.4.3 Recycling

Asphalt

Asphalt pavement reclamation is a well-established practice used mainly by asphalt plants because of cost savings over virgin materials. Since almost all asphalt pavement is recovered, it may be true that asphalt is the number one recycled product in the country. There are six asphalt recyclers serving the County, operating at least 11 recovery locations.

Asphalt Shingles

Asphalt shingles can be ground into a powder and incorporated into asphalt paving material at an asphalt plant. The process offers cost savings to asphalt plant operators. The County has temporarily suspended its collection of asphalt shingles at the Foxhole Landfill due to an inability of its current processor to manage the volume currently received. The County expects that this program will resume, either through its existing market or through new operators setting up operations in the County.

Carpet and Carpet Padding

Nylon 6, Nylon 6.6 and polypropylene are the most recycled carpeting. Carpet padding (urethane) is the most valuable material. Charlotte has a local company that accepts and recycles a large quantity of these materials.

Ceiling Tile

Mineral fiber ceilings can be efficiently reclaimed through the Armstrong ceilings recycling program. Since the program began in 1999, more than 10 million square feet of ceilings have been recycled. Armstrong's new ceilings contain up to 78% recycled content.

Armstrong's recycling program is for large quantities, 30,000 sq ft or trailer loads. For projects that generate smaller amounts, builders can store and combine with material from other jobs. They can also check with a local Habitat for Humanity ReStore to see if they can accept this material.

Concrete

Material to be recycled is normally delivered to the processor in large pieces and is broken up into aggregates by heavy crushing equipment. Some equipment is portable and can be set up on-site for immediate use of the product. Much of the reconditioned stone produced in the Mecklenburg County area is reused on construction sites, used as backfill by landscapers, and for building pads. There are nine entities providing concrete recycling in Mecklenburg County (eight private companies and the Foxhole Landfill). In addition, there are seven companies offering portable crushing services.

Corrugated Cardboard (OCC)

The fact that corrugated cardboard is used primarily as a packaging material makes it a prime target for separation on the job site. There is an abundance of OCC processors in the Mecklenburg County area. Market prices paid for OCC fluctuate, as with any commodity, and are even affected by global conditions.

OCC can either be collected at C&D sites by collectors on existing commercial and industrial routes or via roll off containers for collection of larger quantities of loose cardboard on the job site.

Gypsum Drywall

Drywall is also referred to as sheetrock and wallboard. Some scrap drywall from construction of new residential, including the manufactured housing industry, and commercial projects is currently being recovered for recycling (see discussion under Foxhole Landfill Recycling). Drywall from renovation and demolition projects is not typically recycled in the region since most of the material is painted or treated.

In order to be recycled, scrap drywall must be separate from other waste materials and should be dry. On many construction sites, the scrap drywall recycling is being managed by the drywall contractor rather than the general contractor. Having a drywall recycler come onto the job site and remove the scrap creates opportunities for recycling, since this material is already separated and clean.

There are two locations in Mecklenburg County that accept gypsum drywall, the Foxhole Landfill and the North Mecklenburg landfill (private).

Land Clearing Debris

There are many opportunities to consider environmentally responsible design and management practices during the planning phase of development that minimize the loss of trees, natural features, and topsoil. When land must be cleared for construction, erosion control is critical from an environmental standpoint as well as regulatory compliance. Organic mulch, compost, and straw bales are now being used in some erosion control applications. The use of these materials on job sites helps to provide markets for waste we generate during the land clearing process.

In most instances, a land clearing contractor, perhaps in cooperation with a contract logger, will initiate the land clearing process by doing an assessment of the timber on the property. Trees that have value are logged and removed from the site. The smaller trees and brush are cleared and placed in piles along with the stumps that have been removed. This material is normally ground into mulch using large tub-grinders either by the land clearing contractor or a contract grinding operation. The mulch/chips generated can be used on-site in many cases or may be hauled off-site to market.

On-site applications for the organic mulch and chips generated include erosion control and landscaping. Off-site markets include compost operations and landscape supply facilities. In addition, a large portion of wood chips are sold as fuel for boilers generating electricity or steam. There are currently three companies that will accept these materials.

Metals

Source separated metals are typically the highest value material in the C&D debris stream and are more commonly recovered than disposed. The scrap metal recycling industry is well-established and has been around a long time. Steel, aluminum, and copper are the most common metals found in C&D debris. These materials are typically accepted at all salvage/scrap yards directly from the contractor. If large enough volumes are being generated and/or the market price for the metal is high, metal recyclers will sometimes site containers for free or at a minimal cost to cover transportation. Generators are normally paid for the metals they recycle based on current market prices. There are approximately 20 metals recyclers serving the County.

Untreated, Unpainted Wood Waste

To be suitable for reuse or recycling, wood waste from C&D activities must be separate from other waste materials and must be untreated and free of paint or stain (clean). This includes scrap dimensional (framing) lumber, plywood, and shipping pallet scrap.

Some of the clean wood waste in the C&D stream is suitable for reuse, and can be accepted by groups such as Habitat for Humanity. Many such groups operate resale stores selling donated building materials and other items back to the public. Revenues from their sales are used to finance the building of homes for those in need. Some area demolition contractors also salvage wood and other items suitable for resale.

When reuse is not an option, clean wood waste can be recycled. In our area, the wood is ground into mulch for landscaping projects or into chips and sold as fuel for boilers generating electricity or steam. The quality standards are lower for the boiler fuel product, and much of our material is marketed in this way. There are currently three known places to take untreated, unpainted wood waste.

Pallet recyclers repair damaged pallets and generate scrap wood from this repair process, as discussed in more detail in Section 4.4.2, Commercial Sector Recycling. In addition, pallet recyclers receive unusable pallets along with the good ones.

6.15 POTENTIAL NEW C&D DIVERSION INFRASTRUCTURE

Potential strategies listed below were considered for this Plan Update. Sources for potential strategies include feedback from County staff, feedback from the Steering Committee, feedback received through the charrette and other outreach efforts, recent studies completed by the County, and known best practices in other jurisdictions.

- Encourage more mixed C&D debris processing capacity, through mandating the recycling of C&D debris.
- Continue market development by providing a material stream through mandated recycling of C&D debris.
- Continue to look for opportunities to recycle C&D debris at the Foxhole landfill.

6.16 C&D DIVERSION INFRASTRUCTURE ASSESSMENT

Although the waste characterization study revealed the presence of potential recyclable materials in the C&D debris stream, there are barriers to increasing recycling levels.

Market Barriers

Market barriers exist when the amount of material available for recycling exceeds the demand for the material by the marketplace. Additional market barriers result from the proximity of the market and the economic viability of transporting materials to the market.

The 2007 Wood Waste Study revealed a gap between the amount of untreated wood waste being disposed and the availability of markets. The study recommended market development before trying to divert more of this material. While there is less untreated wood waste being generated today, market development will not likely be successful until material is available. Mandating the recycling and diversion of C&D may assist in market development by providing a material stream.

Processing Infrastructure and Separation Requirements

There are no large-scale mixed C&D processing facilities near Mecklenburg County. There are some small-scale hand sorting operations in the County. Consequently, most C&D recycling requires the sorting of materials at the job site. This is a deterrent to recycling at job sites where no security fencing exists and where space constraints make it difficult or impossible to place multiple containers on-site.

Photo 6.6 Deconstructing the Old Charlotte Coliseum

While recycling and reuse infrastructure for certain items, largely through the private sector, is available in and around the County, a lack of capacity for mixed C&D debris processing exists.

6.17 C&D DIVERSION INFRASTRUCTURE RECOMMENDATIONS

In the short term (2013 – 2017), the County and municipalities should:

- **Encourage more mixed C&D debris processing capacity, through mandating the recycling of C&D debris.**
- **Continue market development by providing a material stream through mandated recycling of C&D debris.**

The County should:

- **Continue to look for opportunities to recycle C&D debris at County-owned and operated facilities including the Foxhole landfill.**

In the long term (2018 – 2022), the County and municipalities should continue successful short term efforts.

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Chapter 7

MUNICIPAL SOLID WASTE COLLECTION AND DISPOSAL

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Chapter 7 MUNICIPAL SOLID WASTE COLLECTION AND DISPOSAL

7.1 OVERVIEW

Waste that is generated, but not reused, recycled, or composted, ideally enters the collection system, and then is properly disposed in permitted MSW landfills. The key variables that affect collection are population densities and land use types, and the resulting types and quantities of waste generated. Collection services vary throughout the County, and include a mix of public and privately operated systems, using a variety of equipment types, under a number of different service arrangements.

Disposal facilities are regulated by the state, including the permitting, operation, and maintenance of MSW landfills. Both the public and private sectors have historically operated landfills in Mecklenburg County. However, the ability to site a new landfill has become a challenge, as residents and businesses increasingly oppose these facilities in their own communities. The availability of landfill capacity is an important factor in long-term solid waste planning, and must be planned for well in advance of potential landfill closures and/or contract expirations.

This section addresses the collection and disposal of MSW within Mecklenburg County. It includes MSW generated from the residential sector, as well as from the commercial sector. It does not address construction and demolition (C&D) waste, as this is addressed in another section of the plan.

7.1.1 RECOMMENDATIONS FROM 2009 SWMP

Table 7.1 MSW 2009 Recommended Strategies

Recommendation 2009 Plan	Status
Continue and expand collection service. Develop verifiable data collection and tracking protocols for all of the governmental entities within the Planning Area.	**Continuous**
Private and public sectors should continue MSW collection to multifamily units while increasing efforts to provide recycling and waste reduction programs.	**Continuous**

7.2 RESIDENTIAL CURBSIDE MSW SERVICES

In Mecklenburg County, residents living in single family homes located within a local government's jurisdiction receive solid waste collection services either directly from the local government or through contracted services administered by the local government. For most of these customers, MSW services include curbside garbage and bulky waste collection. Details of the local government programs are provided in the following sections. The City of Charlotte and Towns of Cornelius, Davidson, Matthews, Mint Hill, and Pineville each include a portion of multifamily households in their curbside program. The City of Charlotte provides curbside solid waste service to multifamily complexes with fewer than 30 units. The Town of Mint Hill extends this service to a few townhome units. The Town of Pineville extends this service to 611 multifamily units. In the town of Davidson, sites are collected in dumpsters by contract. In the town of Matthews, complexes with six units or less receive services. The Town of Cornelius provides curbside service to single family homes, multifamily homes that can be serviced curbside, and provides dumpster service to some townhomes; dumpster service is not provided to apartment complexes by the town. Table 7.2 shows historical tonnages of residential MSW disposed.

Municipalities do not currently provide HHW curbside collection programs. The Town of Huntersville provides medicine collection days. Otherwise, residents must rely on drop off programs offered by the County through its County drop-off centers as described in more detail in Chapter 4.

Table 7.2 Historical Mecklenburg County Residential MSW Disposed (tons/yr.)

	98/99	01/02	02/03	03/04	04/05	05/06
Residential	258,558	295,343	307,161	313,219	348,939	385,577
	06/07	**07/08**	**08/09**	**09/10**	**10/11**	
Residential	370,607	382,059	374,525	368,399	380,882	

Charlotte

The City of Charlotte provides solid waste collection services with municipal crews to 209,727 residential units. These residential units are made up of single family homes and multifamily homes in complexes with less than 30 units. The City provides once per week garbage, bulky items, recycling, and yard waste collection services.

Cornelius

The Town of Cornelius contracts with Republic Services to provide solid waste collection services to its residents. Currently, over 8,000 households in the town of Cornelius receive curbside service. Republic Services will provide one recycling collection roll out cart and one trash collection roll out cart per single family household. Trash is collected weekly and recycling is collected biweekly on the same day as the scheduled trash pickup. Bulky items collection is no longer offered to residents.

Davidson

Solid waste collection in the town of Davidson is provided to all single family and a portion of multifamily households through a contract between the Town of Davidson and Republic Services. Currently, 3,350 single family households in the town of Davidson receive curbside service. The contractor provides garbage, recycling, yard waste, and on-call bulk waste collection on a weekly basis.

Huntersville

Citizens of the town of Huntersville, who live in single family homes, are provided with curbside solid waste services. The Town of Huntersville currently contracts its garbage collection and recycling services to a private contractor, Advanced Disposal. Residents are given a green can for yard trimmings collection, a grey can for garbage collection, and a blue can for recyclables collection. Garbage and yard trimmings are collected weekly, and recycling is collected biweekly.

Matthews

The Town of Matthews contracts with Republic Services to provide solid waste collection services to its residents. Republic Services will provide one recycling collection bin and one trash collection bin per single family household. Trash is collected weekly and recycling is collected biweekly on the same day as the scheduled trash pickup.

Mint Hill

Citizens in the town of Mint Hill contract directly with the Mint Hill's contracted provider, R.C.S., Inc., for collection of garbage and recyclables. Once contracted, the citizen receives a 96-gallon roll out cart for garbage from the service provider along with educational materials that informs the citizen of all the solid waste services that will be provided. Upon request, the Town of Mint Hill will provide citizens with one recycle bin per single family home. Once a week collection is provided for garbage, recycling, and yard waste.

Pineville

As of July 1, 2010, Signature Waste is the sole provider for collection services in the town of Pineville. Currently, 1,057 single family households and 533 multifamily households (condos and townhomes only) receive curbside service. Two 96-gallon roll out containers are provided to each residence, one for garbage and one for recyclables. Collection services for garbage, yard waste, and on-call bulk waste are provided once a week, while recyclables are collected every other week.

Unincorporated County

For customers residing in the unincorporated portions of Mecklenburg County, subscription collection services are available through private haulers.

The data in Table 7.3 includes waste tons collected from residential accounts. City of Charlotte data includes multifamily units under the City of Charlotte's subscription service (see Section 7.2.2).

Table 7.3 Tons of MSW Collected			
Municipality	Fiscal Year 2009	Fiscal Year 2010	Fiscal Year 2011
Charlotte	297,988	296,073	296,239
Cornelius	25,319	25,920	7,400
Davidson	2,093	2,803	2,530
Huntersville	27,555	28,000	12,120
Matthews	8,527	8,246	8,025
Mint Hill	7,208	7,190	7,112
Pineville	Not available	Not available	Not available

Source: Tons collected as reported in 2011 Solid Waste Annual Report

7.2.1 CURBSIDE GARBAGE COLLECTION SERVICE

The City and most towns collect garbage curbside using a fully automated truck paired with one or more 96-gallon carts. They also all provide, on a limited basis, semiautomated and manual collection to address special needs and circumstances. For example, the Town of Mint Hill utilizes a semiautomated system for curbside collection and continues to provide backyard services for special circumstances, such as customers with physical disabilities. The Town of Matthews uses a semiautomated collection system as its normal operating system. All of the garbage collected from municipal curbside customers is taken to the Republic Charlotte Motor Speedway Landfill under a contract with the County.

With the exception of Charlotte and Matthews, towns do not contractually track the quantity of garbage disposed. There is currently no requirement in their contracts with their respective haulers to report this data in a verifiable way. Annually, the towns must complete a Solid Waste Annual Report (SWAR) and submit this data to the state of North Carolina. For this data, the towns are dependent upon their contracted hauler. Table 7.4 shows the frequency, style of collection, and service provider.

Table 7.4 Current MSW Collection Metrics			
Municipality	Frequency	Style of Collection	Service Provider (Municipal or Contract)
Charlotte	Weekly	Automated (96-gallon container)	Municipal
Cornelius	Weekly	96-gallon container	Contract
Davidson	Weekly	96-gallon container	Contract
Huntersville	Weekly	Automated (96-gallon container)	Contract
Matthews	Weekly	Automated (96-gallon container)	Contract
Mint Hill	Weekly	96-gallon container	Contract
Pineville	Weekly	96-gallon container	Contract

7.2.2 CURBSIDE BULKY ITEMS COLLECTION

Table 7.5 summarizes bulky item services provided by municipalities in the Planning Area.

Table 7.5 Bulky Items Collection Services Offered by Local Governments

Local Government	Service Provided by the Municipality or Its Contractor	Collection by Appointment Only	Separate Usage Fee Charged?
Charlotte	Yes	Yes	No
Cornelius	No	No	N/A
Davidson	Yes	Yes	No
Huntersville	Yes	Yes	Yes
Matthews	Yes	Yes	No
Mint Hill[1]	White Goods Only	Yes	No
Pineville	Yes	Yes	No

[1] Mint Hill residents are provided the collection of white goods only, for no additional charges. All other items, such as furniture or construction materials must be scheduled from waste collection services from the private sector.

Bulky items are often collected on the same day as regular garbage collection; however, a household typically must schedule a pickup in order to have these items removed. Household appliances, also called white goods, are banned from disposal under North Carolina Solid Waste Rules and are taken to Mecklenburg County's Metal and Tire Recovery Facility described in more detail in Chapter 4. Examples of white goods include washers, dryers, refrigerators, and water heaters. All other bulky items collected are taken to the Republic Charlotte Motor Speedway Landfill. This discussion applies to the City and towns in the Planning Area. It is not known how private haulers manage bulky items in the unincorporated areas of Mecklenburg County or in the town of Mint Hill, which does not provide the service. Residents in these areas may self-haul to one of the County's drop-off centers or may contract directly with a private hauler to pick up the bulky items. Bulky items are reported as part of curbside garbage tonnages (see Table 7.3). Consequently, it is not known how much bulky waste is generated in the county.

Charlotte

White goods are picked up as bulky items and taken to a Mecklenburg County facility. All of the white goods are recycled. Electronics are also picked up as bulky items and taken to a Mecklenburg County facility to be recycled. Other bulky items, such as furniture, scrap metal, and cardboard are identified as nonrecyclable or recyclable at the time they are scheduled for bulky items pickup. Nonrecyclable items are taken to the landfill.

Cornelius

As of July 1, 2007, curbside bulky item pickup is no longer available to the citizens of the town of Cornelius. Residents can drop off bulk recyclables at the North Mecklenburg Recycling Center.

Davidson

Bulky item collection is provided to residential, single family households on a weekly, call-in basis by the Town of Davidson's franchise hauler, Republic Services. Collection occurs on the same day as garbage, recycling and yard waste collection. Each residence is limited to a maximum of four cubic yards of uncompacted trash per pickup under the town's contract.

Huntersville

Some, but not all white goods collected during bulky items pickups are taken to a Mecklenburg County facility. Those that are not taken to a County facility are recycled. Electronic items, such as TVs and computers, are collected during bulky item pickups. Other bulky items, such as furniture, scrap metal, and cardboard, are collected but not typically recycled.

Matthews

White goods collected by the contractor are taken to a Mecklenburg County facility. Matthews no longer accepts electronics, but directs citizens to the County drop-off sites, Goodwill, or Best Buy.

Mint Hill

White goods will be collected curbside if prearranged by directly contacting the service provider.

Pineville

Pickup of large, bulky items such as furniture or old appliances is provided weekly on an on-call basis, and must be scheduled directly with Signature Waste, the town's provider.

7.2.3 CURBSIDE MSW ASSESSMENT

The curbside collection of MSW within each municipality is adequate. The residents in the unincorporated areas of the County must subscribe for collection services or use the County's drop-off recycling centers. With noncontiguous areas in the unincorporated area, one contract would likely not provide the same cost efficiencies as the current subscription approach. However, providing recycling and organics curbside collection to these homes may provide enough environmental benefit to make the MSW curbside collection worthwhile.

7.2.4 CURBSIDE MSW RECOMMENDATIONS

In the short term (2013-2017), no recommendations for changes to the current curbside collection system for the County or municipalities are contemplated, as efforts in source reduction, recycling, and diversion should be the main focus.

In the long term (2018-2022), the municipalities should:

- **Reduce the frequency of MSW collection to every other week, and increase recycling collection to once per week, in order to make recycling as convenient as garbage collection is currently.**

- **Reduce the frequency of bulky items collection in order to encourage reuse.**

The County should:

- **Research the costs and benefits of contracting for collection services for the unincorporated areas of the County.**

7.3 RESIDENTIAL MULTIFAMILY MSW (NONCURBSIDE) COLLECTION

As noted in the above discussion, the City of Charlotte and certain towns provide curbside service to a portion of the multifamily complexes within Mecklenburg County. The balance of MSW collected from multifamily complexes is collected in bulk, either in front load containers, often called dumpsters, (usually eight cubic yards each) or with roll off containers or compactors (usually 20, 30, or 40 cubic yards), through contracts between the complex and a private hauler directly.

Due to how the weight data is reported, the balance of multifamily units that receive noncurbside collection service is divided between those subscribing to the City of Charlotte and those receiving private service.

The City has a program that provides garbage, recycling, and bulky item collection, but not yard waste collection, to multifamily complexes with 30 or more units. This subscription service is provided to approximately 111,000 multifamily units. The MSW from these locations is taken to the Republic Charlotte Motor Speedway Landfill.

For the balance of multifamily units that receive private service, the MSW is taken to a landfill or transfer station of the hauler's choosing, and this waste is counted as commercial waste, which appears in the total in Table 7.3. For routing efficiency, the haulers that service these multifamily accounts incorporate them into routes which include other commercial pickups. The landfill or transfer station scale-house counts these vehicles as commercial waste as they pass over the scales.

7.3.1 RESIDENTIAL MULTIFAMILY MSW (NONCURBSIDE) ASSESSMENT

Because the multifamily MSW is predominantly rolled into the commercial waste stream, it is difficult to assess how much waste is disposed (and recycled) by multifamily residents. Research on the costs and benefits of organizing multifamily collection via service contracts (or municipal collection) would be useful to determine if there is enough material in the multifamily sector to better increase diversion with this customer class.

7.3.2 RESIDENTIAL MULTIFAMILY MSW (NONCURBSIDE) RECOMMENDATIONS

In the short term (2013-2017), County and municipalities should:

- **Research the costs and benefits of incorporating multifamily service into the curbside collection contracts in order to better ensure adequate garbage and recycling services are provided.**
- **Perform a waste characterization study that separates multifamily materials as a separate customer class for determining the amount of material that could be recycled.**

The County should:

- **Research the costs and benefits of contracting for collection services for multifamily residents in the unincorporated areas of the County.**

In the long term (2018-2022), the municipalities should:

- **Incorporate multifamily service into curbside service contracts, depending on the outcome of the cost and benefit analysis of the short term.**

The County should:

- **Incorporate multifamily service into curbside service contracts, depending on the outcome of the cost and benefit analysis of the short term.**

7.4 COMMERCIAL SECTOR MSW COLLECTION

With the exception of the small businesses serviced by the City of Charlotte and Towns of Davidson, Huntersville, and Matthews, all commercial solid waste in the County is collected by private garbage companies servicing the area. Mecklenburg County has more than 30 permitted private haulers who provide garbage collection service for the commercial sector. Haulers are permitted annually by Mecklenburg County Solid Waste Management. Table 7.6 provides historical commercial waste tonnage data.

Table 7.6 Historical Mecklenburg County Commercial Waste Disposed (tons/yr.)

Fiscal Year	Tons
1998/99	641,072
01/02	615,519
02/03	613,230
03/04	601,925

Table 7.6 Historical Mecklenburg County Commercial Waste Disposed (tons/yr.)	
Fiscal Year	**Tons**
04/05	548,338
05/06	760,428
06/07	790,650
07/08	734,949
08/09	572,785
09/10	491,669
10/11	513,084

As shown in Figure 7.1, while commercial waste remains the largest contributor to Mecklenburg County's total waste stream, the amount of commercial waste being landfilled has been declining. This is demonstrated by the decrease in the amount of commercial waste generated per person. Per capita, commercial waste was close to a ton in 2008, but it has hovered near the half ton mark for the past two years. Looking back to the baseline year of 1998, the per capita reduction is 47%.

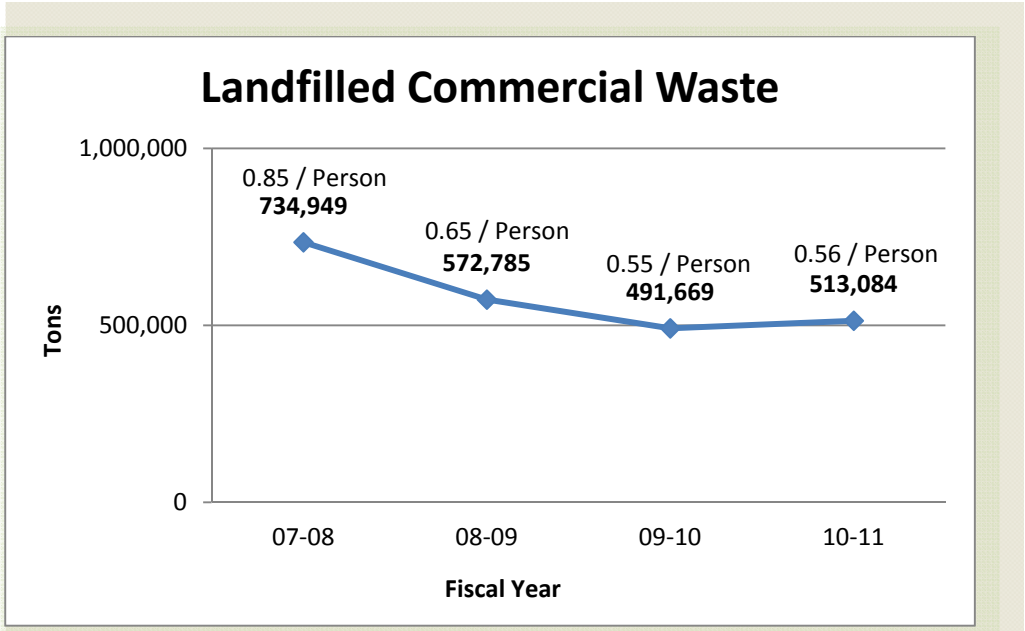

Figure 7.1 Landfilled Commercial Waste

City of Charlotte

The City of Charlotte provides limited garbage service to some businesses within the Central Business District (CBD). The City provides small business garbage collection to customers who generate fewer than 576 gallons of refuse per week in no more than eight containers. Municipal

crews provide the service for no fee (property taxes only). Approximately 2,300 businesses subscribe to this service. These businesses must provide their own garbage containers. The same crews that service these small business containers also service public litter containers throughout Charlotte. In addition, for a fee of $3 per animal with a minimum $15 charge, dead animals are collected from veterinarian hospitals.

Town of Cornelius

Cornelius does not provide collection services to commercial customers.

Town of Davidson

Davidson provides a stationary compactor that serves approximately 40 businesses in the downtown area. The compacter is paid for with ad valorem tax revenue. The town also will pick up from a business at curbside if they can be adequately serviced with no more than two roll out carts.

Town of Huntersville

A few small businesses, which are located in the downtown area and operating in converted single family homes, are treated as single family customers and receive curbside collection under the current collection contract. Overall, the town does not offer this service to the nonresidential sector.

Town of Matthews

The town provides garbage service to about 150 small business locations, using 96-gallon roll out carts. Small businesses' garbage is collected as part of the residential routes. They can obtain up to three roll out carts. These are scattered throughout the town and generally do not generate enough waste to justify a dumpster. Matthews also offers voluntary recycling to the same small businesses that utilize the garbage collection service.

Town of Mint Hill

Mint Hill does not provide collection services to commercial customers.

Town of Pineville

Pineville does not provide collection services to commercial customers.

Mecklenburg County Collection Contracts

CMS, Mecklenburg County ABC, and CPCC each have an interlocal agreement with Mecklenburg County for garbage collection services. The agreement authorizes Mecklenburg County to administer garbage collection services to these programs. This partnership has allowed for greater economies of scale by combining collection services for CMS, ABC, CPCC, and Mecklenburg County office buildings and facilities.

7.4.1 COMMERCIAL SECTOR MSW COLLECTION ASSESSMENT

Because the commercial sector for MSW collection is largely handled by the private sector, collection services are considered adequate. However, it is not possible to assess how much material is recycled by the commercial sector. Chapter 4, Recycling, contains recommendations to put reporting processing into place, but does not contemplate organizing collection services for the commercial sector at this time.

7.4.2 COMMERCIAL SECTOR MSW COLLECTION RECOMMENDATIONS

No changes are recommended for commercial sector MSW collection at this time.

7.5 MSW DISPOSAL FACILITIES

Since the closing of the County's University City Resource Recovery Facility (the incinerator) in October 1995, all Mecklenburg County MSW has been disposed of in landfills. The County currently has a contract with Republic Services, Inc. for the use of the Charlotte Motor Speedway Landfill in Cabarrus County for disposal of residential wastes generated within the Planning Area. The contract with Republic Services is effective through June 30, 2020. Under the terms of the Interlocal Agreements between the County and each of the seven municipalities, all residential waste collected must be delivered to the Speedway Landfill.

The County opened the US 521 Landfill (called the Foxhole Landfill) in the spring of 2000. The Foxhole Landfill is permitted to dispose MSW. However, due to the contract with Republic, the Foxhole Landfill will be limited to the disposal and recycling of construction and demolition waste, and as a public convenience center for solid waste management, through the contract period, or until such earlier time as the contract may be terminated by some unforeseen event. At the time of the writing of this Plan, the construction of the lined area of Phase 2 is underway. This additional area will provide sufficient constructed capacity to handle anticipated quantities of C&D waste through the term of the current Charlotte Motor Speedway Landfill agreement as well as an initial period of residential MSW deliveries should the Foxhole Landfill then be used for that purpose. With currently projected rates of waste generation, the Foxhole Landfill should be able to provide disposal capacity for residential waste beyond 2035 with the cessation of C&D deliveries and conversion to solely receiving residential waste. The Foxhole Landfill is an ISO 140001 certified facility.

Photo 7.1 New Equipment at Foxhole Landfill

Mecklenburg County will continue to work on long-term, cost-effective alternatives for municipal solid waste disposal through the private sector for the period following the termination of the Charlotte Motor Speedway Landfill contract and, if agreements can be

worked out, would limit the use of the Foxhole Landfill during the terms of the agreements to the disposal and recycling of construction and demolition waste and as a public convenience center for solid waste management.

Table 7.7 lists the landfills that received MSW generated in Mecklenburg County and the corresponding tonnage for FY 2010/11. Not all waste was directly hauled to these facilities.

Table 7.7 Landfills Receiving Mecklenburg MSW in FY 2010/11

Landfill	Tonnage	% of Waste Stream
Republic Charlotte Motor Speedway Landfill	610,972	73%
Chambers Development MSWLF	162,703	20%
Richland	45,957	6%
Lee (SC)	4,488	1%
Gaston County Landfill	2,471	<1%
Rowan County Landfill	2314	<1%
Uwharrie Environmental Landfill	1,645	<1%
Palmetto	1,300	<1%
Union County Regional MSWLF (SC)	44	<1%
Total	**831,894**	**100%**

Table 7.8 shows the transfer stations that received MSW generated in Mecklenburg County and the corresponding tonnage for FY 2010/11. These facilities transported waste to landfills listed above.

Table 7.8 Transfer Stations Receiving Mecklenburg MSW in FY 2010/11

Transfer Stations	Tonnage	% of Waste Stream
Queen City Transfer Station	145,675	70%
Republic MSW TS (Fort Mill)	44,556	21%
Waste Management of Carolinas	17,019	8%
Total	**207,251**	**100**

7.5.1 MSW DISPOSAL ASSESSMENT

The Republic Charlotte Motor Speedway Landfill and the Foxhole Landfill both have disposal capacity to handle current waste generation rates beyond this planning horizon. In addition, private sanitary landfills are available to provide additional disposal capacity for Mecklenburg County via transfer stations. Therefore, the current disposal infrastructure meets the needs of the community for both the short-term and long-term planning horizon.

7.5.2 MSW DISPOSAL RECOMMENDATIONS

The County should continue to monitor and assess the feasibility for alternative technologies, as technologies become proven over time. Criteria, such as reaching certain resource recovery goals and understanding emissions and other environmental impacts, should precede the consideration of alternative technology implementation. Section 7.6 provides an overview of some alternative technologies. However, no changes are recommended for MSW disposal at this time, as there is no identified need for alternatives to current disposal practices.

7.6 OVERVIEW OF ALTERNATIVE TECHNOLOGIES

The term alternative technology is typically used to refer to facilities for treating residual solid waste as alternatives to landfill disposal. Alternative technologies include mixed material processing facilities, anaerobic digestion, waste-to-energy, and non-combustion thermal technologies, such as gasification, plasma arc gasification, and pyrolysis.

Alternative technologies are used to process MSW that is left-over, after recycling and composting, and can include residual waste from recycling and yard trimming processing facilities.

7.6.1 MIXED MATERIAL PROCESSING FACILITY

A mixed material processing facility, also referred to as a dirty MRF, is a facility that sorts recyclable material from MSW from residential and commercial sources. These facilities can also be adapted to sort or remove different materials to prepare MSW for composting, waste-to-energy, and other alternative technologies. Desired loads include MSW from residential and commercial generators, and undesirable loads include concentrated amounts of C&D materials or concentrated amounts of wet materials, such as restaurant food.

Photo 7.2 Mixed Material Processing

MSW from residential and commercial collection vehicles is tipped onto a floor. Material is sorted on the floor to remove larger items such as dimensional wood, metal, or large pieces of plastic that might clog or interrupt sort lines. Loaders or grapples then load a conveyor or surge hopper. In most cases, a mechanical device is used to open bags and containers prior to screening and sorting. Material is processed through dual stage screens to separate fiber (cardboard, newspaper, and mixed paper), containers, and small contaminants. Fiber is hand-sorted off elevated conveyor platforms into commodities and dropped into bunkers below. Containers are processed through ferrous magnets, eddy-current magnets, and hand sorting. The small contaminant stream (dirt, rocks,

broken glass and ceramics, bottle caps) may be further processed by optical/pneumatic sorting. Sorted material is moved from bunkers and baled (fiber, plastic, metal) or loaded directly into roll off trucks (glass). The remaining material is shipped to a local landfill.

7.6.2 ANAEROBIC DIGESTION

Anaerobic digestion is a biological process where microorganisms break down biodegradable materials (e.g., food and paper) in an oxygen deficient system, creating a biogas that can be used to produce electricity or can be converted into a transportation fuel. The technology converts waste to energy using bacteria to break down waste to produce biogas. This type of biogas consists primarily of methane and carbon dioxide. These facilities process paper, compostable plastics, food scraps, and other organics. Although the first phase of the biological process (hydrolysis phase) of these facilities often operate in batch-type processes, methane generating and subsequent electrical generation phases of these facilities are designed to operate continuously and provide uninterruptible power. With a proper feedstock, these reactions can reduce the volume of waste by 70%, provide energy, and residuals can be sent to a compost facility.


Photo 7.3 Anaerobic Digestion Facility in Spain

Material is typically screened or otherwise processed for contaminant removal, then metered into digester tanks where microbes digest the organics in the absence of oxygen and produce biogas, which is collected off the top of the tank. The semisolid digestate, comprised of less digestible material, is collected and used as compost feedstock in an aerobic composting operation.

7.6.3 WASTE-TO-ENERGY

Waste-to-energy facilities use MSW from residential or commercial generators, residual waste from other solid waste facilities, or processed (pelletized) waste known as refuse derived fuel (RDF) to produce an uninterruptible source of energy. Waste-to-energy facilities produce energy and reduce waste volume by combusting the waste and injecting air at atmospheric pressure to reach the chemically balanced air-fuel ratio for combustion. This combustion provides energy to produce steam, which is used to turn a steam turbine that generates electricity. Exhaust air is treated to remove air pollutants to meet clean air emissions standards from the EPA and other environmental regulatory agencies. Some of the air pollutants that are monitored and treated include: mercury, lead, furans, dioxins, nitrogen oxides, sulfur oxides, particulate matter, volatile organic


Photo 7.4 Waste-to-Energy Facility in Florida

compounds, ozone, and methane. The amount of ash produced by waste-to-energy facilities depends on the amount of processing and the composition of waste that goes to the waste-to-energy facility. Typically, the volume of waste is reduced by 75% to 90% through advanced thermal technology. Highly processed, homogenous dry organic waste with low levels of glass, metal, ash, and other inerts is the most efficient feedstock, both for volume reduction and energy production. Waste-to-energy facilities should not be used for construction waste, industrial waste, ashes, and liquids.

Waste is conveyed or loaded into feed hoppers that complete combustion of carbon-based material in an oxygen rich atmosphere (oxygen level above chemically balanced air-fuel requirement for combustion) with high air to fuel ratios. Inorganic material is converted to ash and flue gas is composed primarily of carbon dioxide and water. The hot flue gas flows through a boiler, where steam is produced. Steam may be used directly, or for driving a steam turbine generator to generate electricity. Cooled exhaust gas flows through emissions control systems before being exhausted through stacks into the atmosphere. Common byproducts for controlling air quality of plant emissions include gypsum and hydrochloric acid. The fly ash and bottom ash are often mixed, and the resulting ash is processed to remove metals and metal oxides. After treatment, the remaining ash is typically disposed in landfills or can be reused as landfill cover, processed for road base or for other possibly beneficial uses.

7.6.3.1 Noncombustion Thermal Technology (Plasma Arc/Gasification/Pyrolysis)


Photo 7.5 Gasification Facility in Japan

Pyrolysis, gasification, and plasma arc gasification are all technologies used to treat waste producing a synthesis gas (syngas) that can be used to produce electricity or can be converted into a transportation fuel. Pyrolysis uses an indirect external source of heat in the absence of oxygen; gasification partially oxidizes the waste; and plasma arc uses a plasma torch to super-heat the waste to produce the synthesis gas. These facilities use an external heat source to heat waste to high temperatures in a low oxygen environment. This causes the waste to decompose and produce syngas. Syngas consists primarily of hydrogen, carbon monoxide, and carbon dioxide. With a proper feedstock, this process can reduce the volume of waste by 80%, and is intended to produce more energy than is required for processing the materials. Ideal feedstock for these facilities includes mixed paper, plastics, and other dry organics. Temperatures for treating waste using these technologies range from 750°F to 1,650°F for pyrolysis; 1,400°F to 2,500°F for gasification; and 5,000°F to 8,000°F for plasma arc gasification.

Gasification is used at the commercial scale for coal, and plasma arc technology is used at the commercial scale to treat hazardous and radioactive wastes. These technologies are still emerging as methods to treat municipal solid waste.

7.7 ABANDONED MANUFACTURED HOMES

After consideration, with input from municipalities in the Planning Area, the County has determined that a program for the management of abandoned manufactured homes is not necessary at this time. The County will continue to monitor the need for such a program. If, at some point in the future, it is determined that a program for abandoned manufactured homes becomes necessary, the County will work with the municipalities in the planning area to develop a plan for the management of abandoned manufactured homes.

Chapter 8

LITTER PREVENTION AND MANAGEMENT

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Chapter 8 LITTER PREVENTION AND MANAGEMENT

8.1 OVERVIEW

Mecklenburg County Solid Waste officials were tasked by the Mecklenburg County BOCC in FY1999/2000 to develop a comprehensive litter plan. The areas to be covered were promotion, prevention, cleanup, enforcement and legislation. Litter prevention thereby was included for the first time in the 2003 Solid Waste Management Plan and established FY 2001/02 as the base year for the introduction of the program.

Cleanup: Local and state funding for cleanups diminished, and increasingly the responsibility shifted to the municipalities to meet political and citizenry expectations. Upon North Carolina Department of Transportation (NCDOT) review, a new five-year contract was signed with Transfield Services in 2010, for removal of litter for Mecklenburg and Cabarrus County interstate highways, no longer to include Cleveland and Gaston Counties. The approximate monthly cost is $40,000 which equates to an annual cost in the region of $500,000. NCDOT has made the point that all trash haulers need to be educated on littering, as they are perceived by NCDOT of being the major cause of littering on the Interstates. It is estimated that over 700 tons of litter and debris were collected from Mecklenburg County and Cabarrus County interstate highwayss from November 2010 to November 2011.

It is estimated that over 700 tons of litter and debris was collected from Mecklenburg County and Cabarrus County interstates from November 2010 to November 2011.

Enforcement: Education must become a major component because enforcement has not been effective. Due to the financial demand of other priority issues combined with budget cuts that affect enforcement, education should become the focus for implementing behavioral and cultural changes. Mismanagement of wastes on construction/demolition sites and improper containment of waste materials being hauled to and from job sites contribute to the litter problem in the County. Much of this littering is unintentional; a significant amount of litter is blown not thrown, but there are steps that can be taken to address the problem. In most cases, the general contractor has responsibility for a job site and can set policy and require cooperation regarding litter prevention by employees, sub-contractors, and vendors. The contractor can respond to violations of this policy in the same way they respond to noncompliance of other contract requirements.

The Mecklenburg County Environmental Court was established in January of 1995 by administrators of the 26th Judicial District and representatives from City and County regulatory agencies. The court provides a docket where the same judge consistently presides and the same assistant district attorney prosecutes. This provides officials with a vital tool to deal with

noncompliance of local and state codes pertaining to environmental issues and the subsequent community quality of life.

Prevention: Partnerships with the private sector government and other agencies are the key element to engaging the public in the education process for a litter-free environment. This can be achieved by multifaceted activities designed to reach a diverse community.

Legislation: The enacted litter laws have been limited in their effect because of the issues with enforcement or lack thereof. The intent is for local government to get more involved and to develop local ordinances to reflect the specific issues relevant to their communities. Tarps being utilized by contractors and subcontractors in the construction and demolition industry are a major focus for potential local ordinances.

The North Carolina antilitter law (General Statute § 14-399 (2001-2002), highlights community service and fines for intentional and unintentional littering.

Table 8.1 summarizes some state level programs that are promoted within the County.

Table 8.1 State Litter Prevention and Management Programs

Program Name	Description
Big Sweep	Started in 1987, Big Sweep is committed to the removal of trash from waterways the first Saturday in October. Failure to remove litter from waterways contaminates drinking water and can cause damage to wildlife and property. The local program operates out of the Water Quality Section of LUESA. It has a very strong volunteer base and a history of successful events. In 2010, over 500 volunteers removed 16,000 pounds of trash from Mecklenburg County waterways. Results of the 2010 Charlotte-Mecklenburg Annual Survey, conducted by LUESA, indicated that the majority of residents surveyed (77 %) were unaware of the Big Sweep program.
Adopt-A-Stream	Results of the 2010 Charlotte-Mecklenburg Annual Survey, conducted by LUESA, indicated that almost 72% of residents surveyed were aware of the Adopt-A-Stream program.
Litter Sweep	This initiative is conducted biannually by NCDOT, in conjunction with the North Carolina Office of Beautification. The events take place in the spring and fall for a period of two weeks each. The local NCDOT offices supply (when available) vests, gloves, and bags for those volunteers that participate. The North Carolina Department of Corrections participates in this program when the budget allows.

8.1.1 RECOMMENDATIONS FROM 2009 SWMP

Table 8.2 Litter 2009 Recommended Strategies	
Recommendation 2009 Plan	**Status**
Contracted Services	
Continue removal and disposal of school and roadside litter, track and monitor work performed. Coordinate with the NCDOT to identify schools and roads targeted for cleanup. Ensure adequate budgeting allocations for annual work load and other cleanups as the program evolves.	**Continuous**
Adopt-A-Highway	
Manage maintenance components of the program by annual review of contracts. Encourage more frequent cleanups and promote program on a semiannual basis. Provide inventory of supplies, such as bags, gloves, and vests. Investigate feasibility of the County and/or City collecting bags after cleanups to supplement NCDOT removal schedules.	**Continuous**
If NCDOT funding allows, an interactive Arc GIS map is planned to be part of the program, to allow the public to view what is current and available for adoption.	**Decided Against**[1]
Adopt-A-City Street	
Continue and expand program.	**Continuous**
Neighborhood Improvement	
Investigate partnerships with inspectors to further litter prevention efforts and to expand the resource base.	**Continuous**
Inmate Labor	
Develop a request for services schedule to facilitate routine cleanups to avoid competitive requests for services from other City and County agencies. Recognize work performed by the Inmate Labor Program to help reverse negative public opinion that inmates are not utilized for litter removal.	**Incomplete**
Develop relationship with NCDOT so that the bags from the litter removal are picked up in a timely manner.	**Continuous**
Litter Sweep	
To promote the participation of volunteers in the biannual Litter Sweep in partnership with NCDOT.	**Continuous**
Keep Mecklenburg Beautiful	
Pursue more public/private partnerships to expand the Keep Mecklenburg Beautiful message.	**Continuous**
Continue the successful candidate pledge sign removal campaign.	**Complete**
Continue, in association with North Carolina Keep America Beautiful to participate in the Annual Tarp Day event held in October.	**Continuous**
Maintain certification status.	**Continuous**
Develop sustainable programs to engage greater public participation.	**Continuous**
Build volunteer base and increase participation of board members.	**Continuous**
Build a strong relationship between Keep Mecklenburg Beautiful and Keep Charlotte Beautiful.	**Continuous**

Table 8.2 Litter 2009 Recommended Strategies	
Recommendation 2009 Plan	**Status**
Keep Charlotte Beautiful	
Investigate partnership opportunities with Keep Charlotte Beautiful and coordinate efforts to maximize cleanup, beautification, and promotional activities.	**Continuous**
Swat-A-Litterbug	
Continue to grow the program through www.swatalitterbug.com.	**Continuous**
Link Swat calls to 311 in order to speak to a live person, to eliminate errors in reporting, and to receive the exact information required to send the violator a swat.	**Complete**
Promotion	
Develop long-term communication strategies. Develop and disseminate multilingual materials.	**Incomplete**
Promotion to schools. Develop a program with objectives that address recycling, litter abatement, beautification, preservation of the earth, and natural resource conservation in conjunction with the present programs offered by the County.	**Incomplete**
Recommend promotional programs to reach out to the commercial sector regarding recycling and litter awareness.	**Continuous**
Litter Stings	
Investigate feasibility of conducting stings in townships in conjunction with Charlotte- Mecklenburg Police Department (CMPD) and Keep Charlotte Beautiful.	**Decided Against**[2]
NC Keep America Beautiful to investigate a statewide sting with local, county, and state enforcement agencies.	**Incomplete**
Build relationship with CMPD to link to www.swatalitterbug.com.	**Decided Against**[3]
Commercial Sector	
Develop educational tools for distribution to the construction community.	**Continuous**
Pickup truck tarp ordinance. Research and consider an ordinance requiring pickup trucks to be covered and/or secured much in the same manner as commercial waste hauler trucks. Require that mulch purchases must be tarped before leaving the compost facilities.	**Incomplete**
Other	
Conduct research regarding litter related ordinances/laws and methods for encouraging the writing of litter citations from law enforcement officers. Review litter enforcement related ordinances/laws for effectiveness.	**Continuous**
Education: the need to change the attitude and culture towards littering. To include, but not be limited to, public education for all enforcement agencies and the courts on the seriousness and cost to clean up after littering offenders.	**Continuous**

1 Funding did not allow.
2 Funding was not available.
3 Alternative approach of building a relationship with 311,was implemented instead.

8.1.2 RECENT RELEVANT STUDIES

2009 National Visible Litter Survey and Litter Cost Study

In September of 2009, MSW Consultants submitted the final report for the *National Visible Litter Survey and Litter Cost Study*. This study represents the most comprehensive effort to date to measure the quantity, composition, sources, and costs of litter incurred by public, private, and institutional organizations across the country. While the study yielded extensive data that may prove useful for more in-depth analysis, the key findings of the study are as follows:

- There are over 51 billion pieces of litter on our nation's roadways, 4.6 billion of which are larger than four inches in size.
- Litter costs U.S. governments, businesses, educational institutions, and volunteer organizations almost $11.5 billion annually.
- Tobacco products continue to be the most prevalent aggregate litter item, comprising roughly 38% of all litter.

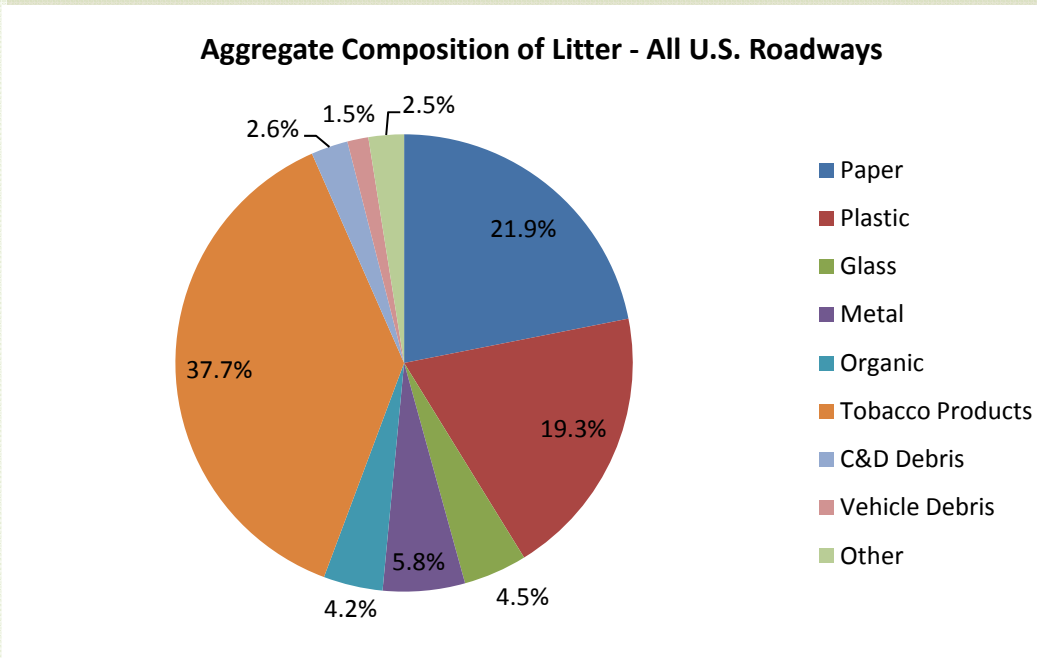

Figure 8.1 Aggregate Composition of Litter on U.S. Roadways

As expected based on past litter studies, tobacco products, primarily cigarette butts (can include cigars, chewing tobacco, and packaging among other items), are the single largest type of litter (38%), followed by paper (22%) and plastic items (19%). Figure 8.1 shows the nine types of litter found on U.S. roadways.

8.1.3 LITTER INDEX SCORES

The first Litter Index, which is a visual assessment of the types of litter present in a community, was conducted prior to the Mecklenburg County 2004 certification into the Keep America Beautiful organization. The scores of FY01 and FY02, shown in Table 8.3, were based upon more complex criteria than necessary to achieve a valid score. Therefore, FY03 serves as the base year indicator.

Table 8.3 Litter Index Scores

Year	Score
FY01	2.6
FY02	2.3
FY03	2.3
FY04	2.3
FY05	2.1
FY06	1.6
FY07	1.9
FY08	1.6
FY09	1.47
FY10	1.55
FY11	1.35

For the FY11 Litter Index, the scope of the Index was extended to include 50 scoring sites Countywide from a previous number of 14. This was done under reviewed guidelines provided by Keep America Beautiful, of which Keep Mecklenburg Beautiful is an affiliate of good standing.

8.2 EXISTING COUNTY LITTER POLICIES

The County does not currently have specific litter policies.

8.3 EXISTING MUNICIPAL LITTER POLICIES

The City of Charlotte has litter enforcement ordinances found in Division 6 of the City Code of Ordinances. These ordinances make it unlawful to litter within the City limits and assign allowable penalties ranging from $50-$500 depending on the type of violation. Specific issues addressed in the code include: littering; neglect of property; requirements that all vehicles transporting loose materials be covered; requirements that all solid waste collection vehicles be covered; illegal dumping; containment requirements for C&D sites and loading/un-loading areas; restrictions of the placement of signs/handbills; and container requirements for commercial parking lots. These ordinances are enforced by the City's Neighborhood Development Code Enforcement Division.

The other municipalities in the County do not have any litter-specific policies or ordinances.

8.4 EXISTING COUNTY LITTER PROGRAMS

8.4.1 KEEP MECKLENBURG BEAUTIFUL

The Keep America Beautiful Great American Cleanup program, the nation's largest community improvement program, takes place annually from March 1 through May 31, involving an estimated 3.9 million volunteers and participants. The hardworking volunteers donated more than 5.7 million hours in 2010 to clean, beautify, and improve more than 33,700 communities during more than 30,000 events in all 50 states and beyond. Activities included beautifying parks and recreation areas, cleaning seashores and waterways, handling recycling collections, picking up litter, planting trees and flowers, and conducting educational programs and litter-free events.

Keep Mecklenburg Beautiful (KMB) has an active board of 20 members and meets monthly. It has been responsible for engaging the County residents in the Recycle and Win Program and Panther Tailgate Recycling Partners Program to name two recent ongoing successful initiatives. KMB is a certified nonprofit which is funded by County funds with an approximate operating budget of $75,000. These funds are utilized in the media to educate and promote litter reduction recycling and beautification projects through print, radio, and television.

The Panther Tailgate Recycling Partner Program resulted in a 30.77% recycling rate total for the season, with a total of over 80 tons of material recycled from all 14 games (31.31 tons from tailgating and 50.66 tons from inside the stadium).

Photo 8.1 Media Outreach with Wilson's World and the Carolina Panthers

Photo 8.2 Coca-Cola Recycle & Win Prize Patrol

The Coca-Cola Recycle and Win Prize Patrol is a partnership with Coca-Cola and Harris Teeter to promote recycling the right way.

If you are caught recycling the right way you win a $100 gift card to Harris Teeter.

KMB is very active in the community and at events, providing speakers, education, and volunteers to public and private sector audiences. KMB volunteers work year-round to promote litter prevention activities ranging from adopt-a-highway cleanups to beautification projects to staffing booths at events.

Photo 8.3 Tarp Day Volunteers

KMB participated in the North Carolina Keep America Beautiful Tarp Day event, distributing 200 tarps in 2011. As long as the tarps are provided by the NCDOT/NCKAB partnership, KMB will continue to participate.

KMB provides a private contractor for litter removal services from schools and roadsides. Selected schools are serviced by the private contractor, as inmate labor cannot be situated in or around school grounds. This service is provided on a monthly basis.

The availability for cleanup projects is evaluated and assigned based on several criteria including severity of conditions, safety, budget, and the ability of the organization to perform these tasks within a reasonable time frame.

8.4.2 SWAT-A-LITTERBUG

www.swatalitterbug.com has become an effective tool in the battle against moving litter violators. This program is administered by KMB and enables individuals to report violators by phone, mailing in swat cards, or online. A letter is sent to the owner stating that littering violations can result in a monetary penalty. The letter is signed by the commanding officer of the NC Highway Patrol. Over 4,000 letters are sent to litter violators annually. All the relevant information must be correct before a letter is issued. Information is neither shared nor retained; all records are destroyed at month's end. The program is well received by the public, and it empowers them to take action in a non-confrontational manner which has led to a strong participation.

Photo 8.4 Swat-A-Litterbug Car

Figure 8.2 Swat-A-Litterbug Poster

8.4.2.1 Adopt-A-Highway

The Mecklenburg County Adopt-A-Highway (AAH) Program for calendar year 2011 includes 91 active contracts, and 197.6 miles adopted. In 2011, two of these contracts celebrated 20 years of participation, three contracts celebrated 15 years of participation, and two contracts celebrated 10 years of participation.

Some of the pickup metrics associated with these contracts includes:

- 544 reported pickups.
- 5,361 AAH volunteers have participated in pickups.
- 1,195 reported volunteer hours.
- 970 miles cleaned.
- 105,225 pounds of litter have been removed by AAH volunteers:
  - 15,720 aluminum.
  - 1,875 glass.
  - 5,880 plastic.
  - 1,560 mixed recycled litter.
  - 80,190 miscellaneous litter.
- 7,015 total bags:
  - 1,048 aluminum.
  - 125 glass.
  - 392 plastic.
  - 104 mixed recycled litter.
  - 5,346 miscellaneous litter.

105,225 pounds of litter have been removed by AAH volunteers in the County.

Litter Critter

The Litter Critter, a wrapped Volkswagen Beetle, is used as a mobile promotional tool advertising the Keep Mecklenburg Beautiful and the Swat-A-Litterbug message of taking the responsibility of improving the environment. KMB also staffs event booths and provides educational materials along with activity books, pencils, pens, pocket ashtrays, and litter bags to highlight and convey the desired litter message.

Photo 8.5 KMB Adopt-A-Highway with the Litter Critter

Photo 8.6 Volunteers for the Great American Cleanup and KMB Adopt-A-Highway Program

8.4.3 PUBLICATIONS AND OTHER INITIATIVES

Table 8.4 summarizes additional publications and efforts related to litter management.

Table 8.4 Source Reduction Publications and Other Initiatives	
Name	**Description**
Litter / North Tryon St. Every Little Butt Helps Campaign	Included educational messaging and placement of 50 new cigarette urns along North Tryon Street to promote the new smoking ban effective January 2, 2010. The campaign solicited smokers to rethink throwing cigarette butts on the ground or into the storm drains. Instead, "Remember Every Little Butt Helps, Place cigarette butts in the urn", promotional messaging was placed directly on urns as well as inside and out of bus stop shelters along North Tryon Street. This initiative resulted in a 95% decrease in butts collected around areas containing urns. In addition, two employees were able to realize a one-hour savings per day in time spent collecting butts around the urns.
Get Your Ashes off Charlotte Streets	Litter campaign designed to drive awareness about the impact cigarette butts have in contributing to litter on City and County streets. Campaign components consisted of two billboards over three months and a banner ad at the 4th Street Garage stating "The Ground Is Not an Ashtray".

8.4.4 INMATE LABOR

Operating out of the Mecklenburg County Sheriff's Office (MCSO), inmates provide labor services for a variety of community services including litter removal from roadsides. Crews consist of 12 prisoners and three officers. Due to numerous agencies competing for services, demand exceeds supply. The program was suspended at the end of June 2010 and was reactivated in August of 2011, but with significant reductions. As of 2011, three prisoners and one officer make up the inmate labor crew. Table 8.5 shows the number of hours worked and savings realized using inmate labor.

Table 8.5 Inmate Labor Metrics		
Location Worked	**Hours Worked**	**Savings**
Community	416	$4,222
Roadside	188	$1,908
MCSO Jails	832	$8,445
Total	**1,436**	**$14,575**

8.5 EXISTING MUNICIPAL LITTER PROGRAMS

In FY05, the City of Charlotte Special Services Division of Solid Waste Services retired their litter removal agreement with the NCDOT for I-277 and interstate exit ramps (state highways) within the uptown radius due to budget restrictions. The City spent $2 million dollars in 2008 on cleaning the streets of Charlotte.

The costs of keeping Charlotte clean are shown in Table 8.6.

Table 8.6 Litter Costs

Service	FY2011	FY2012
ROW Cleaning (litter)	$1,244,816	$404,367
Street Cleaning (sweeping)	$1,086,690	$309,003
Dead Animals	$57,113	$21,876
Neighborhood Support	$69,697	$31,649

Keep Charlotte Beautiful, City of Charlotte Solid Waste Services, and the Town of Huntersville send representation to the KMB board meetings. The Town of Matthews Public Information Officer works with KMB as a board member.

The Town of Davidson provides regular cleanups through the town's Adopt-A-Street Program and annual Clean Stream Sweep. Town staff is responsible for keeping public areas clean and free of litter.

The Town of Huntersville does not have any of its own litter prevention programs, litter cleanups, or other programs for the prevention of litter in the community. Litter that is cleaned up in Huntersville is cleaned up by local groups or churches.

The Town of Matthews provides regular cleanups through NCDOT and the town's Adopt-A-Highway & Adopt-A-Street programs. Periodically, inmates will also do cleanups. The town dispatches public works crews to problem locations when available.

The Towns of Cornelius, Mint Hill, and Pineville do not have any specific litter prevention programs, litter cleanups, or other programs for the prevention of litter in the community. Litter that is cleaned up in Cornelius and Pineville is primarily picked up by each town's public works department.

8.5.1 KEEP CHARLOTTE BEAUTIFUL

Founded in 1974, Keep Charlotte Beautiful (KCB) is one of the nation's first Keep America Beautiful affiliates. The KCB committee is comprised of 20 volunteers appointed by the mayor and the Charlotte City Council and meets monthly. The administrative and staff support is provided by the City's Neighborhood & Business Services Department with additional assistance from Charlotte Solid Waste Services, the City's Corporate Communications Department, and the CMPD.

In addition to participation in the required KAB, Inc. program, the KCB committee manages several signature programs, such as Adopt-A-Neighborhood, Adopt-A-City Street, Graffiti Abatement and Education, Recycling Projects, annual Litter Index, and various cleanup and beautification projects associated with the Great American Cleanup.

The City has 26 full time employees dedicated to litter pickup from City streets. The state provides litter control on all state streets that run through the City. The City also uses Community Service Workers to aid in litter collection.

8.5.2 ADOPT-A-CITY STREET

The Adopt-A-City Street program is wholly coordinated and managed by KCB. There are currently 83 actively adopted City streets and City street clusters. Upon approval by the KCB executive director, The City of Charlotte Department of Transportation (CDOT) posts two signs for each street adopted in excess of one mile. The signs have the KCB logo along with the name of the group or individuals adopting the street. According to their agreements with KCB, participants clean their adopted street or cluster once every quarter. KCB provides supplies such as bags, gloves, vests, and trash grabbers. Participants are also given signed authority by the City's Code Enforcement Division Manager to remove signs posted in violation of the City's Health and Sanitation Ordinance. Recently, Adopt-A-City Street subcommittee chairpersons successfully updated the program's database, and are working on plans to further market the program to more Charlotte neighborhoods. The Town of Huntersville also promotes an Adopt-A-Street program.

8.5.3 NEIGHBORHOOD IMPROVEMENT

The City’s Code Enforcement Division is responsible for enforcing the City's Health and Sanitation Ordinance, zoning, minimum housing standards, and other local ordinances. The City's Health and Sanitation Ordinance addresses the abatement of nuisance issues within City limits, such as junk and hazardous vehicles, illegal dumping, graffiti, unauthorized accumulations of litter, illegal curbside bulky items, signs placed in the City right of way, tall weeds and grass, and others. Neighborhood & Business Services and KCB have established networks and resources for nuisance abatement within City limits. Mecklenburg County does not currently provide dumpsters, labor, or promotional material to the City.

8.6 LITTER PREVENTION AND MANAGEMENT ASSESSMENT

Litter issues are going to become more of a challenge in the ensuing years mainly due to budgetary cuts across all the programs related to this problem. Enforcement is not easy or affordable, and will not likely have an impact moving forward in the short term. To counter these financial and enforcement shortcomings, the weapons the County has at its disposal are education and awareness.

8.7 LITTER PREVENTION AND MANAGEMENT RECOMMENDATIONS

In the short term (2013-2017), the County and municipalities should:

- **Continue to facilitate growth and awareness of litter prevention efforts through neighborhood associations and groups.**
- **Continue to promote the Litter Sweep in conjunction with NCDOT and to promote the program to engage the general public.**
- **Continue to partner with CMS specific to litter, beautification, recycling, and the environment.**
- **Develop education tools with an emphasis on the cost to clean up litter in order to encourage change in the behavioral patterns and views of the public with regard to litter.**
- **Develop educational tools for distribution specifically to the construction community.**
- **Research the feasibility of long-term communication strategies to include multilingual materials.**
- **Research and consider implementing an ordinance requiring pickup trucks to be covered and/or secured much in the same manner as commercial waste hauler trucks.**
- **Research and consider implementing an ordinance that requires that mulch purchases must be tarped before leaving the compost facilities.**

The County should:

- **Continue with the removal and disposal of both roadside and school litter contracted services, as well as tracking and monitoring of the program.**
- **Continue to coordinate with NCDOT to identify those areas that remain a priority.**
- **Continue to pursue opportunities to partner with KCB in order to expand upon efforts to clean and beautify Mecklenburg County.**
- **Endeavor to receive adequate budget allocations to cover these services, as budget requirements allow.**
- **Promote growth of the Adopt-A-Highway program through more frequent cleanups and continue to provide supplies for successful conclusions.**
- **Work with the NCDOT to ensure timely collection of Adopt-A-Highway program bags on completion of highway pickup, as budget requirements allow.**
- **Continue to expand and promote awareness of the Big Sweep throughout the**

County in order to expand litter activities and awareness.

- **Continue to work with inmate labor for litter cleanup, to the extent budgets allow.**
- **Through KMB, look for opportunities to continue public/private partnerships with Coca-Cola and Harris Teeter along with the Carolina Panthers, the Charlotte Checkers, Bojangles, CMC Hospitals, and the Carton Council.**
- **Through KMB, look for opportunities to expand existing relationships with Center City Partners, City of Charlotte, Hands on Charlotte, KCB, Park and Recreation Department, Jesus Ministries, and CMS Schools.**
- **Through KMB, continue education and outreach through all of the partner organizations in order to get correct and consistent messaging out to the public.**
- **Continue to grow the brand Swat-A-Litterbug awareness.**

The municipalities should:

- **Continue and expand the Adopt-A-Street program.**
- **Partner with the County on successful litter prevention programs.**

In the long term (2018-2022), the County and municipalities should:

- **Continue with successful litter prevention programs.**
- **To the extent feasible based on short-term research, implement an ordinance requiring pickup trucks to be covered and/or secured much in the same manner as commercial waste hauler trucks.**
- **To the extent feasible based on short-term research, implement an ordinance that requires that mulch purchases must be tarped before leaving the compost facilities.**

Chapter 9

REGULATORY ACTIVITIES

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Chapter 9 REGULATORY ACTIVITIES

9.1 OVERVIEW

As described in North Carolina General Statute (NCGS), Chapter 130A, Article 9, Solid Waste Management, the NCDENR is required to maintain a Division of Waste Management (DWM) to promote sanitary processing, treatment, disposal, and statewide management of solid waste and the greatest possible recycling and recovery of resources. DWM serves the purpose of promoting and preserving an environment that is conducive to public health and welfare, and preventing the creation of nuisances and the depletion of our natural resources.

DWM regulates solid waste disposal, hazardous waste management, underground storage tanks and Superfund cleanups. DWM provides technical assistance to businesses, industries, local governments, and citizens to help them reduce and better manage wastes. DWM assistance helps protect and improve citizens' public health and the environment. DWM houses four sections which manage specific types of waste: solid waste, underground storage tanks, hazardous waste, and Superfund sections. DWM's mission is to prevent the harmful release of waste to the environment and clean up existing contamination. DWM's stated vision is to ensure waste is managed effectively and efficiently to make North Carolina the best place to live, work, and visit.

Chapter 130A, Article 9, gives the County the right and obligation to manage solid waste generated in the County. As stated in Article 9, "It is determined that it is necessary for the health and welfare of the inhabitants of the state that solid waste management facilities permitted and serving a specified geographic area shall be used by public or private owners or occupants of all lands, buildings, and premises within the geographic area, and a unit of local government may, by ordinance, require that all solid waste generated within the geographic area and placed in the waste stream for disposal, shall be delivered to the permitted solid waste management facility or facilities serving the geographic area."

9.1.1 RECOMMENDATIONS FROM 2009 SWMP

Table 9.1 Regulatory Activities 2009 Recommended Strategies

Recommendation 2009 Plan	Status
Continue the current enforcement program, which includes aggressive enforcement, cleanup, and education.	**Continuous**

9.2 CURRENT ACTIVITIES

9.2.1 CURRENT STATE REGULATORY ACTIVITIES

NCDENR requires counties in the state to submit triennial updates to their SWMP. NCDENR provides a solid waste management plan guide, which outlines the process and the document format that should be undertaken by the County. New elements required for this update include:

- **Collection of Discarded Computer Equipment and Televisions** - Describe plans or actions taken or to be taken to ensure proper handling and disposal of electronics as defined in G.S. 130A-309.91. Effective January 1, 2010, for counties and municipalities with population greater than 25,000.
- **Management of Abandoned Manufactured Homes** - Include plans for management of abandoned manufactured homes as required under G.S. 130A-309.113(a). Effective July 1, 2009, and expiring October 1, 2023.

New state regulations relevant to waste reduction are summarized below.

- Session Law 2005-362: *An Act to Prohibit the Disposal of Motor Vehicle Oil Filters, Rigid Plastic Containers, Wooden Pallets, and Oyster Shells in Landfills*.
    - Amends a previous ban which prohibited landfill disposal of the following materials:
        - Used oil
        - Yard trash (except in approved facilities)
        - White goods
        - Antifreeze
        - Aluminum cans
        - Whole scrap tires
        - Lead acid batteries
- Effective October 1, 2009, the following materials will also be prohibited from landfill disposal:
    - Motor vehicle oil filters.
    - Recyclable rigid plastic containers with a neck smaller than the body.
    - Wooden pallets (except in C&D landfills).
    - Oyster shells.
- Effective July 1, 2011, the following materials are prohibited from landfill disposal (as mentioned above regarding an electronics element to be addressed in the Plan):
    - Discarded computer equipment (includes laptops, desktops, monitors, video displays, printers, scanners, printer-scanner-fax combos, mice, and keyboards).
    - Discarded televisions.
    - Fluorescent lights and thermostats that contain mercury (banned from unlined landfills).
- Session Law 2007-550: This law contains several major provisions that will ultimately have an impact on commercial waste reduction. Items of interest include:
    - New state landfill permitting standards.
    - New requirements that future C&D landfills have a synthetic lining.

- A fee for the processing of new and renewed permits for a broad range of solid waste facilities (to include MSW and C&D landfills, industrial landfills, tire monofills, transfer stations, incinerators and large compost facilities.)
- A $2/ton statewide disposal tax. Beginning July 01, 2008, all waste coming into MSW and C&D landfills and transfer stations that send waste out of state will be taxed.

- A mandate for the NCDENR to conduct a study and make recommendations on the recycling of fluorescent bulbs.
- Regarding computers: computer manufacturers are required to adopt producer responsibility plans for the recovery of discarded computer equipment. Under this section, manufacturers will need to register with the state and then implement services that provide free transportation and processing of discarded equipment from collectors, which can include local governments, nonprofits and retailers.
- Session Law 2008-208: *An Act to Amend the Requirements Governing Management of*
- *Discarded Computer Equipment, to Provide for Management of Discarded Televisions, to Delay the Effective Date until 1 January 2010, and to Make Other Conforming and Technical Changes, as Recommended by the Environmental Review Commission*.
  - This law provides for the management of discarded televisions in addition to computer equipment and bans landfill disposal of both effective January 2010.
- ABC Recycling Laws:
  - Session Law 2005-348: *An Act to Require Holders of Certain ABC Permits to Recycle all Recyclable Containers of all Beverages Sold at Retail on the Premises and to Prohibit the Disposal of Those Containers in Landfills or by Incineration*
    - Requires holders of certain Alcohol Beverage Commission permits to implement recycling efforts for beverage containers sold on premises by January 2008. The bill further provides a disposal ban on these materials.
  - Session Law 2007-402: *An Act to Allow the Issuance of Off-Premises Malt Beverage and Unfortified Wine Permits to Incorporated Municipalities after an Election Allowing the Sale of Mixed Beverages, to Amend the Law Concerning the January 1, 2008, Requirement for Certain ABC Permittees to Recycle Beverage Containers, and to Authorize Winemaking on Premises by an Unfortified Winery Permit Holder*.
    - Provided additional requirements to Session Law 2005-348.

9.2.2 CURRENT COUNTY REGULATORY ACTIVITIES

In 1984, the County received Delegation of Authority (Delegation) to enforce the North Carolina Solid Waste Management Rules administered through LUESA. In 2008, a memorandum of agreement updated the Delegation to reflect current rules and regulations. This Delegation provided the County authority to administer state rules countywide, including limited permitting and citing of violators. The County does not have the authority to permit sanitary landfills, C&D landfills, composting facilities, and treatment and processing facilities, or to permit and inspect County-owned facilities. The Delegation allows the County to more closely monitor solid waste facilities in order to better protect the local environment and the citizens of the County.

LUESA currently inspects the following sites and apprises the North Carolina Division of Waste Management and site owners/operators of compliance status.

Table 9.2 LUESA Facility Inspections		
Facility Type	**Number**	**Frequency**
Sanitary Landfill	1	Monthly
C&D Landfill	1	Monthly
LCID Landfill	10	Monthly
Treatment and Processing	4	Monthly
Compost	2	Monthly
Transfer Station	1	Monthly
Medical Waste Incinerator	1	Monthly

The County may cite open dumping violations throughout the County.

The County may criminally cite violations under NCGS 14.399, Littering, if persons depositing the waste can be identified.

The Mecklenburg County Solid Waste Department and Mecklenburg County Health Department may cite violations under the County's solid waste regulations, specifically the *Mecklenburg County Solid Waste Management Regulations Governing the Storage, Collection, Transporting, and Disposal of Solid Waste in Mecklenburg County*. In addition, the Health Department handles issues related to public health (e.g. rodent infestation and mosquito-breeding issues) under health department and state rules and regulation.

To help facilitate the enforcement activities noted above, the 26th Judicial District Environmental Court can assist local agencies in resolving solid waste noncompliance situations. Environmental Court was established in January 1995 by administrators of the 26th Judicial District and representatives from City and County regulatory agencies. The court provides a docket where the same judge consistently presides and the same assistant district attorney prosecutes. This provides officials with a vital tool to deal with noncompliance of local and state codes pertaining to environmental issues and affecting the subsequent community quality of life.

Source Separation (Business Recycling) Ordinance Enforcement

The primary local ordinance that addresses commercial waste reduction activities in the Mecklenburg County Planning Area is the *Mecklenburg County Ordinance to Require the Source Separation of Designated Materials from the Municipal Solid Waste Stream for the Purpose of Participation in a Recycling Program* or source separation ordinance (SSO). The SSO requires any business that contracts for 16 cubic yards or greater of trash per week to keep corrugated cardboard and office paper separate from their trash for the purpose of recycling unless the business qualifies under one or more of the exemptions.

The SSO enforcement program uses inspections, surveys, and educational materials to ensure Mecklenburg County businesses, property managers and owners, and the public are aware of, and are in compliance with, the SSO. The SSO is enforced in all Mecklenburg County municipalities.

The on-site inspection process is the primary educational tool for the SSO. In addition to educating businesses about the ordinance, the inspection process provides a unique opportunity for the enforcement officer to share information about other waste reduction programs offered by Mecklenburg County; offer one-on-one guidance to businesses in addressing their waste reduction needs; and obtain insight on the current waste reduction trends within the commercial sector.

Businesses that are subject to on-site inspections and/or visits include private businesses, managed properties, private and public schools, places of worship, and City and County facilities. During the on-site visit, the business entity is provided with a guidebook which explains the SSO and provides information on Mecklenburg County's Commercial drop-off centers. The inspection process itself is guided by an inspection form, originally developed in 2007.

The enforcement officer provides a copy of the signed inspection form to the business entity to serve as a reference guide. At the conclusion of an on-site visit, the enforcement officer determines the status for the facility. Each determination warrants a different protocol as follows:

- Compliant: No action must be taken.
- Need More Data: Conduct a follow-up visit within 14 days from the date of the inspection.
- Noncompliant: Issue a Potential Notice of Violation (PNOV).

The PNOV is a written document that summarizes the findings of the enforcement officer, explains why the business entity was determined to be noncompliant, and offers remedies to reach compliance. Once a PNOV is issued, the violating entity has 30 days to address the observed violation(s) by means of compliance or the submittal of a written exemption request to the director of the County's Solid Waste Department. If a business remains in violation of the ordinance at the conclusion of the allotted 30-day period, the first of three Notices of Violation (NOVs) is issued. Each NOV can be issued no less than 30 days apart. The NOVs are the County's last steps before seeking legal action against the violating, noncompliant business entity. To date, the County has not taken any business to court to remedy ordinance violations.

Inspection data recorded in the field is entered into SWWeb by the enforcement officer. Developed in 2007, SWWeb is an electronic database which serves as a reporting tool for the enforcement officer. In addition to maintaining inspection data, SWWeb tracks awareness numbers, recycling tonnage, and compliance statistics. In 2011, an effort was undertaken to enhance SWWeb. Titled SWWeb 2.0, this project was a collaborative effort between Mecklenburg County's Information Services & Technology, Geospatial Information Services, and Solid Waste Departments.

Table 9.3 summarizes business inspection data from FY2005 through FY2011.

Table 9.3 Business Inspection Data, FY05-11

Year	Compliant Initial Inspection	Exempt	Total Initial Inspections	% Initially Compliant	Aware of Ordinance
2004	434	226	792	74%	(31%)
2005	338	263	733	72%	(38%)

Table 9.3 Business Inspection Data, FY05-11					
Year	Compliant Initial Inspection	Exempt	Total Initial Inspections	% Initially Compliant	Aware of Ordinance
2006	201	244	566	62%	(43%)
2007	78	250	490	56%	(70%)
2008	272	8	657	42%	(68%)
2009	449	219	726	92%	(63%)
2010	414	292	956	74%	(55%)
2011	222	572	867	92%	(43%)

9.2.3 CURRENT MUNICIPAL REGULATORY ACTIVITIES

The City has tools, through its Code Enforcement Department, that it utilizes when it is deemed that those tools will result in a quicker resolution to a problem situation. Failure to comply with City Code may result in referral of the case to NCDENR for civil penalties or the case could be pursued criminally under NCGS 130A-25. Within the City of Charlotte, the Code Enforcement Department may cite open dumping violations under the local litter control ordinance. The Towns of Huntersville and Matthews also have code enforcement departments. Appendix H contains a table of laws that lists relevant ordinances for the municipalities.

9.3 FUTURE RECOMMENDED ACTIVITIES

9.3.1 FUTURE COUNTY RECOMMENDED ACTIVITIES

Based on the recommended strategies outlined in Chapter 3: Source Reduction, the County may need to enforce the following:

- **Local EPR mandates.**
- **Bans on hard to recycle materials and single-use items.**

Based on the recommended strategies outlined in Chapter 4: Recycling, the County may need to enforce the following:

- **Ban on disposal of aluminum cans and plastic containers.**
- **Universal (mandatory) participation in curbside recycling.**
- **Requirement that recycling collection be provided at all multifamily complexes.**
- **Universal (mandatory) participation in multifamily recycling.**
- **Changes/additions to the mandatory commercial SSO program.**
- **Requirements for special event recycling permits.**

- **Landfill ban on pallets, aluminum cans, and plastic containers (and other materials banned from disposal by the state).**
- **Requirement that all new commercial buildings contain space for recycling.**
- **Requirement that private haulers provide recycling services to their multifamily and business solid waste customers.**
- **Mandatory source separation by all residents, businesses, and institutions.**
- **Requirement that businesses meet an established recycling rate.**
- **Requirement that leases include recycling requirements/clauses.**
- **Requirement that all businesses submit a recycling plan to the County.**

Based on the recommended strategies outlined in Chapter 5: Organics, the County may need to enforce the following:

- **Ban on disposal of food scraps.**

Based on the recommended strategies outlined in Chapter 6: C&D Debris, the County may need to enforce the following:

- **C&D diversion ordinance requiring 50% of C&D waste generated at a project site be recycled or diverted.**
- **Requirement that all permit applications for construction or remodeling be accompanied by a diversion plan.**

Based on the recommended strategies outlined in Chapter 8: Litter, the County may need to enforce the following:

- **Ordinance requiring pickup trucks to be covered and/or secured.**
- **Requirement that mulch purchases be tarped before being transported from compost facilities.**

9.3.2 FUTURE MUNICIPAL RECOMMENDED ACTIVITIES

Based on the recommended strategies outlined in Chapter 3: Source Reduction, the municipalities may need to enforce the following:

- **Local EPR mandates.**
- **Bans on hard to recycle materials and single-use items.**

Based on the recommended strategies outlined in Chapter 4: Recycling, the municipalities

may need to enforce the following:

- **Ban on disposal of aluminum cans and plastic containers.**
- **Universal (mandatory) participation in curbside recycling.**
- **Requirement that recycling collection be provided at all multifamily complexes.**
- **Universal (mandatory) participation in multifamily recycling.**
- **Changes/additions to the mandatory commercial SSO program.**
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- **Requirement that all new commercial buildings contain space for recycling.**
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- **C&D diversion ordinance requiring 50% of C&D waste generated at a project site be recycled or diverted.**
- **Requirement that all permit applications for construction or remodeling be accompanied by a diversion plan.**

Based on the recommended strategies outlined in Chapter 8: Litter, the municipalities may need to enforce the following:

- **Ordinance requiring pickup trucks to be covered and/or secured.**
- **Requirement that mulch purchases be tarped before being transported from compost facilities.**

Chapter 10

SOLID WASTE SYSTEM FINANCING

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Chapter 10 SOLID WASTE SYSTEM FINANCING

The Mecklenburg County solid waste management system is truly countywide, including all of the incorporated jurisdictions and the unincorporated areas in the County. The system is bound together by a series of interlocal agreements between the County and the various political jurisdictions and is funded through a series of fees, revenues, tax levies, and state reimbursements. The following provides a general overview of the funding mechanisms of each participant in the Mecklenburg County solid waste system.

10.1 MECKLENBURG COUNTY

The Mecklenburg County Solid Waste Division is a unit of the Mecklenburg County Government and is organized as part of the Land Use and Enviromental Services Agency (LUESA). However, for budget purposes, it is established as a unique entity within the County government and called the Solid Waste Enterprise Fund. This fund is a proprietary fund in the County's Comprehensive Annual Financial Report and is not funded through taxes collected into the County's general fund. It is the only such enterprise fund in Mecklenburg County Government. The Solid Waste Enterprise Fund is intended to be self-supporting through user fees and recyclable materials sales, and financially, it accounts for all activities relating to recycling and disposal.

There are several relevant and subordinate funds that account for portions of the County's solid waste operations. These include capital reserve funds for the purchase of capital equipment, as well as future construction, final development, and post closure of landfills. Additionally, there are two fiduciary funds, the Scrap Tire Special Revenue Fund and the Discarded White Goods Special Revenue Fund. The two special revenue funds receive disbursements from NCDENR from advance disposal fees collected by retailers at the point of sale for new tires and appliances. The County additionally receives disbursements from the State of North Carolina Discarded Electronic Management Fund, which are deposited into the Solid Waste Enterprise Fund under a separate and distinct Activity Code. These funds are separately tracked and are used only to support the County's discarded electronics management program.

The capital reserve funds receive their monies from contributions from the Solid Waste Enterprise Fund, both as budgeted in the annual operating budget and as appropriated from time to time from the Solid Waste Enterprise Fund balance. Capital expenditures are also funded through the issuance of bonds. In FY2012 and 2013, the last of the general obligation bonds issued in the early 1990's to fund facility construction will be retired. To finance current needs to expand the Foxhole Landfill, rehabilitate Compost Central, and secure new operating equipment for both, Mecklenburg County issued $12.2 million in special obligation bonds in October 2011. Debt service on these bonds will be paid from residential solid waste fees, which are one revenue source of the Solid Waste Enterprise Fund.

With annual expenditures equaling annual revenues, the County Solid Waste Division has a FY2012 operating budget of $16.4 million. A breakdown of revenue sources in the Solid Waste Enterprise Fund is shown in Figure 10.1

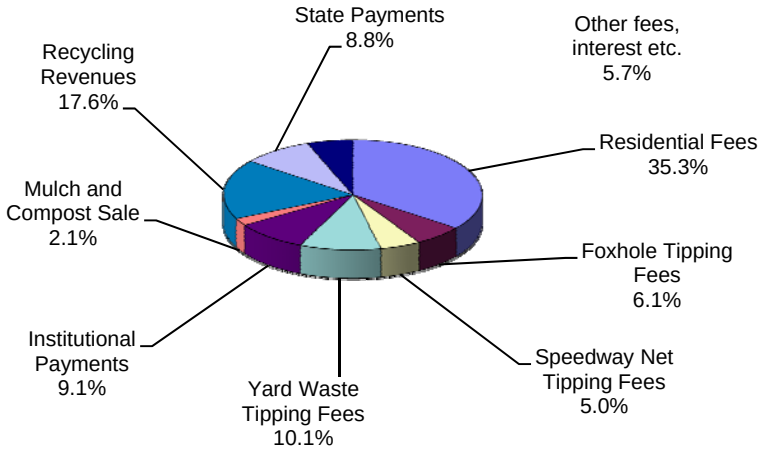

Figure 10.1 Solid Waste Enterprise Fund Revenue Sources

Within the FY2012 Operating Budget for the Solid Waste Enterprise Fund, the single greatest source of revenue is residential solid waste fees. Each single and multifamily residential unit within Mecklenburg County is assessed an annual fee of $15, which is collected as a separately itemized fee in the annual County property tax bill. The approximately 400,000 residential units are expected to generate $5.8 million of revenue from this fee in FY2012. This amount equates to approximately 35% of total revenues.

The second largest revenue component, and one that has grown significantly in recent years, is the sale of recoverered recyclables. These recyclable materials are obtained from processing residential recyclables at the County's Metrolina Recycling Center and from selling scrap metal and discarded electronics collected at the four full-service County drop-off centers. Strong recyclable commodity prices and increased recyclable recovery due to the new single stream residential program led to recyclables revenues exceeding $4 million in FY2011. For FY2012, with a more tepid commodity market, recyclables revenue is expected to be about $2.9 million, or about 18% of total revenues.

Other revenue sources include tipping fees for landfill disposal and yard trimmings management. These fees total about $3.5 million, or over 21% of total revenues. Direct reimbursements are received by the County Solid Waste Division from a number of other governmental institutions for the actual costs of services provided. These services include recycling and solid waste collection provided to the CMS, CPCC, and other City and County

governmental entities. The institutional reimbursements account for approximately $1.5 million, or about 9%, of total revenues. Other minor sources of revenue include interest on operating account balances and fees charged for private hauler licenses and certain educational classes provided by the County Solid Waste Division. All funding for Mecklenburg County's solid waste and recycling activities is through the Solid Waste Enterprise Fund, identified as Fund 7001 within the County's accounting structure.

10.2 CITY OF CHARLOTTE

All solid waste activities in the City are handled by the Solid Waste Services Department (SWS), which is a key business unit of the City. The annual operating budget for SWS for FY2012 is approximately $45.0 million. Approximately $9 million of the annual budget is for disposal, and the remaining $36 million is for collection, public education, special events support, and other departmental activities.

Table 10.1 City of Charlotte Annual Operating Budget

Item	Annual Budget
Collection	$38,428,450
Special Maintenance Services	$5,665,034
Neighborhood Services	$961,860
Community Education	$251,117
Total Budget	**$45,306,461**

All of SWS's activities are funded through the City's general fund with monies being derived from two sources. Costs for the collection of solid waste, recyclables, yard trimmings, and bulky items are included in the City's ad valorem property tax levy, which is collected annually. The approximate costs for solid waste disposal are recovered through a separately itemized and assessed residential solid waste fee of $45. This fee is assessed annually on all residential units, along with the property tax bill.

Other than those amounts described above, no additional fees are assessed for solid waste-related services, whether the service is directly provided by the City or by a private firm under contract to the City.

On average for the current fiscal year, the monthly budgeted cost per single family household for the various solid waste services breaks down as follows. Multifamily households are charged through a contract based on level of service received, and costs are not based on a per-unit rate for solid waste, recyclables, and bulky items collection service.

Table 10.2 City of Charlotte Collections Cost per Household	
Service	**Single Family Monthly Cost per Household**
Solid Waste Collection	$4.70
Recyclables Collection	$1.56
Yard Trimmings Collection	$2.90
Bulky Items Collection (basic service)	$0.82
Bulky Items Collection (additional service)	N/A
Total Monthly Cost per Household	**$9.98**

The above amounts do not include the disposal costs associated with any service. In the City's accounting approach, these are broken out and billed separately as the residential solid waste fee described previously. The City directly pays disposal costs even for those services provided by a private contractor.

There is a separate capital fund for equipment replacement for services provided directly by the City.

Where the City contracts with a private hauler for residential solid waste services, the private hauler does not bill the resident directly for any services.

10.3 TOWN OF CORNELIUS

The Town of Cornelius has an annual operating budget of just under $2 million for solid waste services. These dollars include all costs associated with collection and disposal. The Town of Cornelius funds solid waste collection through the property tax. There is no solid waste fee or any other funding mechanism for solid waste outside of the property tax.

Table 10.3 Town of Cornelius Annual Operating Budget	
Item	**Annual Budget**
Dumpster Collection	$104,445
Residential Collection	$974,154
Yard Debris	$423,390
Recycling	$337,553
Total Budget	**$1,839,542**

For the current fiscal year, the monthly cost per single family household for the various solid waste services breaks down as follows.

Table 10.4 Town of Cornelius Collections Cost per Household	
Service	**Single Family Monthly Cost per Household**
Solid Waste Collection	$7.43
Recyclables Collection	$3.27
Yard Trimmings Collection	$4.40
Bulky Items Collection (basic service)	N/A
Bulky Items Collection (additional service)	N/A
Total Monthly Cost per Household	**$15.10**

10.4 TOWN OF DAVIDSON

Solid waste services in Davidson are managed by the Town of Davidson Public Works Department. The services are provided though a private contractor. The annual operating budget for collection and disposal of all solid waste in the current fiscal year is $729,160. All solid waste costs are funded through a solid waste enterprise fund. The costs for all solid waste services are included in the Town of Davidson's ad valorem property tax levy, which is collected annually.

Table 10.5 Town of Davidson Annual Operating Budget	
Item	**Annual Budget**
Solid Waste Collection	$609,000
Recycling	$120,160
Total Budget	**$729,160**

For the current fiscal year, the monthly cost per single family household for the various solid waste services breaks down as follows.

Table 10.6 Town of Davidson Collections Cost per Household	
Service	**Single Family Monthly Cost per Household**
Solid Waste Collection	$8.40
Recyclables Collection	$3.00
Yard Trimmings Collection	$4.42
Bulky Items Collection (basic service)	Included in solid waste cost
Bulky Items Collection (additional service)	N/A
Total Monthly Cost per Household	**$15.82**

The above amounts include all disposal costs. Disposal fees are paid directly by the private contractor providing the service and are billed to the Town of Davidson along with the collection costs as a combined fee.

10.5 TOWN OF HUNTERSVILLE

Solid waste services in Huntersville are managed by the Town of Huntersville Engineering and Public Works Department. The services are provided though a private contractor. The annual operating budget for the Town of Huntersville's solid waste services is approximately $2.67 million.

Table 10.7 Town of Huntersville Annual Operating Budget

Item	Annual Budget
Garbage	$1,512,163
Landfill	$4,800
Recycling	$413,298
Yard Trimmings	$744,329
Total Budget	**$2,674,590**

The costs for all of the solid waste services are included in the Town of Huntersville's ad valorem property tax levy and a $54 per household unit fee. The costs of solid waste and recyclables collection services are included within the general operating fund. This fee is assessed on all residential units annually along with the property tax bill.

For the current fiscal year, the monthly cost per single family household for the various solid waste services breaks down as follows.

Table 10.8 Town of Huntersville Collections Cost per Household

Service	Single Family Monthly Cost per Household
Solid Waste Collection	$7.68
Recyclables Collection	$2.01
Yard Trimmings Collection	$3.70
Bulky Items Collection (basic service)	
Bulky Items Collection (additional service)	$40 per each collection (minimum)
Total Monthly Cost per Household	**$13.39**

The above amounts include all disposal costs. A separate fee is charged to a household requesting a bulky item collection. Disposal fees are paid directly by the private contractor providing the service and are billed to the Town of Huntersville along with the collection costs as a combined fee. There are distinctions made in type of bulky items (e.g., brush versus major

appliances), and there are four categoroes of major appliances, each with separate fees charged. The minimum charge for collection of any bulky item is $40.

10.6 TOWN OF MATTHEWS

Solid waste services in Matthews are managed by the Town of Matthews Public Works Department. The services are provided though a private contractor. The annual operating budget for the Town of Matthews' solid waste services in the current fiscal year is approximately $1.8 million. The costs for all of the solid waste services are included in the Town of Matthews' general operating fund.

Table 10.9 Town of Matthews Annual Operating Budget

Item	Annual Budget
Residential Garbage	$754,075
Small Business Garbage	$19,968
Residential Recycling	$252,446
Small Business Recycling	$3,200
Yard Trimmings Collection	$495,100
County Landfill Fees & Compost Central Fees	$286,000
Misc Services	$7,500
Total Budget	**$1,818,289**

For the current fiscal year, the monthly cost per single family household for the various solid waste services breaks down as follows.

Table 10.10 Town of Matthews Collections Cost per Household

Service	Single Family Monthly Cost per Household
Solid Waste Collection	$6.93
Recyclables Collection	$2.32
Yard Trimmings Collection	$4.55
Bulky Items Collection (basic service)	$0.00
Bulky Items Collection (additional service)	$0.00
Total Monthly Cost per Household	**$13.80**

The amounts shown above for Matthews do not include disposal costs. Disposal fees are separately billed to the Town of Matthews by the Republic Charlotte Motor Speedway Landfill or by the County, in the case of yard trimmings.

10.7 TOWN OF MINT HILL

The Town of Mint Hill has no solid waste fee and the service is funded primarily through property tax proceeds. The annual operating budget for the current fiscal year is $1.86 million.

Table 10.11 Town of Mint Hill Annual Operating Budget	
Item	**Annual Budget**
Solid Waste Collection	$1,580,000
Disposal	$280,000
Total Budget	**$1,860,000**

The Town of Mint Hill's costs for collection services are not available by service type. The total $16 per house per month cost includes solid waste, recyclables, and yard trimmings collection. Residents contact the service provider directly for bulky item collection.

Table 10.12 Town of Mint Hill Collections Cost per Household	
Service	**Single Family Monthly Cost per Household**
Solid Waste Collection	See total
Recyclables Collection	See total
Yard Trimmings Collection	See total
Bulky Items Collection (basic service)	Resident pays service provider
Bulky Items Collection (additional service)	Resident pays service provider
Total Monthly Cost per Household	**$16***

* $16/per house/per month covers everything except bulky item pickup for which the residents contact (and pay) the service provider directly.

10.8 TOWN OF PINEVILLE

Solid waste services in Pineville are managed by the Town of Pineville Public Works Department. The services are provided though a private contractor. The annual operating budget for the Town of Pineville's solid waste services in the current fiscal year is approximately $255,000.

The costs for all of the solid waste services are included in the Town of Pineville's ad valorem property tax levy, which is collected annually. For the current fiscal year, the monthly cost per single family household for the various solid waste services breaks down as follows.

Table 10.13 Town of Pineville Collections Cost per Household	
Service	**Single Family Monthly Cost per Household**
Solid Waste Collection	$7.46
Recyclables Collection	$3.00
Yard Trimmings Collection	Included in solid waste cost
Bulky Items Collection (basic service)	$3.00
Bulky Items Collection (additional service)	N/A
Total Monthly Cost per Household	**$13.46**

The above amounts include all disposal costs. Disposal fees are paid directly by the private contractor providing the service and are billed to the Town of Pineville along with the collection costs as a combined fee.

10.9 INTERLOCAL AGREEMENTS

The relationships among the various parties to Mecklenburg County's solid waste system are underpinned by a series of interlocal agreements between the County and the partnered jurisdictions. Primary among these agreements are those between the County and the seven municipalities included within its borders. Of those agreements, the six with the Towns of Cornelius, Davidson, Huntersville, Matthews, Mint Hill, and Pineville are essentially identical. All require the County to provide facilities to handle the solid wastes generated, and likewise, require the towns to deliver the wastes to those facilities. All of the town interlocal agreements, with the exception of the Town of Matthews, commenced in 1989. The Town of Matthews entered into a new interlocal agreement, and the remaining towns revised and extended their respective agreements, in July 2008. The term of all current interlocal agreements is for twenty years and they expire on June 30, 2028.

The interlocal agreement between the City of Charlotte and Mecklenburg County is somewhat different and more complex, in that it requires the County to receive single stream collected residential recyclables from the City. It also required the City to commence single stream residential recyclables collection in July 2010.

There are also a number of interlocal agreements with nonmunicipal government entities located within Mecklenburg County. Specifically, CMS, CPCC, and the Mecklenburg County ABC Board each contract with Mecklenburg County Solid Waste to provide recyclable and solid waste collection services and to reimburse the County for the cost of the services provided.

In addition to the in-county agreements, Mecklenburg County entered into a Regional Solid Waste Agreement with Union County, North Carolina and Lancaster County, South Carolina in 1996. In return for Union and Lancaster County's support in permitting the construction of a new landfill (ultimately the Foxhole Landfill), Mecklenburg County granted both counties disposal access to that landfill. Both counties were to encourage recycling with similar waste reduction goals to those adopted by Mecklenburg County. In addition to the Regional Solid Waste Agreement, Mecklenburg County has also entered into separate interlocal agreements with Union and Lancaster counties allowing their residents to dispose of HHW at the

Mecklenburg County recycling centers providing such services. Under the agreements, the two counties reimburse Mecklenburg County for the direct cost of providing this HHW management service.

10.10 PLANNING LEVEL COST ESTIMATES FOR KEY RECOMMENDED STRATEGIES

In order to provide planning level cost estimates, average cost estimates were developed for staff time, legal review, cost of carts, and average annual education costs for new initiatives. Estimates were also developed, by strategy, for staff time and equipment needed to implement each strategy. Table 10.14 shows the summary of cost estimates, by short-term strategy.

Table 10.14 Summary of Short-Term Planning Level Cost Estimates

Strategy	Municipal		County	
	One Time Costs	Annual Costs	One Time Costs	Annual Costs[2]
Residential				
Disposal Ban for Residential Generators	-	-	$2,177	$250,000.00
Volume-Based Pay[1]	$4,387,832	-	-	$250,000.00
Incentive Program[1]	-	$667,274	-	$250,000.00
Recycling Provided at All Multifamily Complexes, Expand Education	-	-	$2,465	$250,000.00
Commercial				
Expand Mandatory Recycling Ordinance	-	-	$2,177	$ 143,750
Education, Outreach, and Enforcement	-	-	-	$218,750
C&D				
Mandatory C&D Recycling Ordinance	-	-	$2,177	$18,750
Education, Outreach, and Enforcement	-	-	-	$18,750

1 See Table 10.15 for the municipal breakdown of volume-based pay, and Table 10.16 for the municipal breakdown of an incentive program.

2 The annual cost of education and outreach is estimated to be $250,000 for each new residential initiative and $125,000 for each new commercial initiative, for a three-year period. These estimates include campaign design, website design, and staff time. Because these estimates are anticipated to affect a three-year period, they have been included in annual costs, although these costs are not anticipated beyond the first three years of implementing new policies and programs.

Table 10.15 shows the estimated cost breakdown, by municipality, for volume-based pay. The anticipated costs include the cost of carts and assume that no new 96-gallon carts will need to be purchased because single family households (SF HH) already have 96-gallon carts. It is estimated that 30% of residents would elect a smaller 65-gallon cart, and only 10% of residents would elect an even smaller 35-gallon cart. The price of carts will vary with the plastic resin market; however, for estimating purposes, $50 per 65-gallon cart and $45 per 35-gallon cart is assumed. There may be opportunity to pursue energy efficiency grant funding to assist with the purchase of carts for volume-based programs in order to increase recycling because recycling is recognized as a way to conserve energy in addition to conserving natural resources.

Table 10.15 Cost to Convert to Volume-Based Pay by Municipality				
Item	**Number**	**Units**	**Time Frame**	**Cost**
Assumes 30% of residents elect 65-gallon cart:				
Charlotte	54,902	Carts	One time	$2,745,120
Huntersville	4,734	Carts	One time	$236,715
Cornelius	2,209	Carts	One time	$110,445
Matthews	2,395	Carts	One time	$119,760
Mint Hill	2,279	Carts	One time	$113,970
Davidson	724	Carts	One time	$36,180
Pineville	261	Carts	One time	$13,065
Assumes 10% of residents elect 35-gallon cart:				
Charlotte	18,301	Carts	One time	$823,536
Huntersville	1,578	Carts	One time	$71,015
Cornelius	736	Carts	One time	$33,134
Matthews	798	Carts	One time	$35,928
Mint Hill	760	Carts	One time	$34,191
Davidson	241	Carts	One time	$10,854
Pineville	87	Carts	One time	$3,920

Table 10.16 shows the estimated cost breakdown, by municipality, for an incentive program. The anticipated costs include staff time for administering the program, as well as the cost to a third party for providing the program. Administering the program is anticipated to require one-tenth of a full-time equivalent (FTE) employee.

Table 10.16 Incentive Program Cost Estimates by Municipality				
Item	**Number**	**Units**	**Time Frame**	**Cost**
Staff Administration				
Charlotte	0.1	FTE	Annual	$7,500
Huntersville	0.1	FTE	Annual	$7,500
Cornelius	0.1	FTE	Annual	$7,500
Matthews	0.1	FTE	Annual	$7,500
Mint Hill	0.1	FTE	Annual	$ 7,500
Davidson	0.1	FTE	Annual	$7,500
Pineville	0.1	FTE	Annual	$7,500
Cost of Program				
Charlotte	2.73	$/SF HH	Annual	$500,000
Huntersville	2.73	$/SF HH	Annual	$43,116

Table 10.16 Incentive Program Cost Estimates by Municipality				
Item	Number	Units	Time Frame	Cost
Cornelius	2.73	$/SF HH	Annual	$20,117
Matthews	2.73	$/SF HH	Annual	$21,813
Mint Hill	2.73	$/SF HH	Annual	$20,759
Davidson	2.73	$/SF HH	Annual	$6,590
Pineville	2.73	$/SF HH	Annual	$2,380

Table 10.17 shows the summary of cost estimates, by long-term strategy.

Table 10.17 Summary of Long-Term Planning Level Cost Estimates				
	Municipal		County	
Strategy	One Time Costs	Annual Costs	One Time Costs	Annual Costs[2]
Residential				
Mandatory Single Family Curbside Recycling[1]	-	$ 168,763	$2,177	$250,000.00
Food Scraps & Organics Diversion[1]	$11,507,980	-	-	$250,000.00
Mandatory Multifamily Recycling, Continue Education[1]	-	$ 115,878	$2,177	$250,000.00
Commercial				
Organics Diversion	-	-	$2,177	$143,750
Recycling Containers Where Public Garbage Containers	-	-	$500-1,500 per container	$125,000.00
C&D				
Increase Mandatory Recycling Percentage	-	-	$2,177	-
Extended Producer Responsibility				
Efforts Associated with EPR	-	-	$2,465	$18,750

1 See Table 10.18 for the municipal breakdown of mandatory single family curbside recycling, Table 10.19 for the municipal breakdown of food scraps and organics diversion, and Table 10.20 for the municipal breakdown of mandatory multifamily recycling.

2 The annual cost of education and outreach is estimated to be $250,000 for each new residential initiative and $125,000 for each new commercial initiative, for a three-year period. These estimates include campaign design, website design, and staff time. Because these estimates are anticipated to affect a three-year period, they have been included in Annual Costs, though these costs are not anticipated beyond the first three years of implementing new policies and programs.

Table 10.18 shows the estimated cost breakdown, by municipality, for implementing mandatory single family curbside recycling. The anticipated costs include staff time for enforcing the program, estimated at one FTE per 100,000 single family households.

Table 10.18 Mandatory Curbside Recycling Cost Estimates by Municipality				
Item	**Number**	**Units**	**Time Frame**	**Cost**
Enforcement				
Charlotte	0.00001	FTE/SF HH	Annual	$137,256
Huntersville	0.00001	FTE/SF HH	Annual	$11,836
Cornelius	0.00001	FTE/SF HH	Annual	$5,522
Matthews	0.00001	FTE/SF HH	Annual	$5,988
Mint Hill	0.00001	FTE/SF HH	Annual	$5,699
Davidson	0.00001	FTE/SF HH	Annual	$1,809
Pineville	0.00001	FTE/SF HH	Annual	$653

Table 10.19 shows the estimated cost breakdown, by municipality, for implementing a residential food scraps and organics collection program. The anticipated costs include the cost of additional carts to collect the organics. Huntersville is assumed to have no additional cart costs because residents already have a cart for yard trimmings. The price of carts will vary with the plastic resin market; however, for estimating purposes, $55 per 96-gallon cart is assumed.

Table 10.19 Residential Food Scraps and Organics Program Cost Estimates by Municipality				
Item	**Number**	**Units**	**Time Frame**	**Cost**
Carts - 96 gallon	**100%**	**SF HH**		
Charlotte	183,008	Carts	One time	$10,065,440
Huntersville	0	Carts	One time	-
Cornelius	7,363	Carts	One time	$404,965
Matthews	7,984	Carts	One time	$439,120
Mint Hill	7,598	Carts	One time	$417,890
Davidson	2,412	Carts	One time	$132,660
Pineville	871	Carts	One time	$47,905

Table 10.20 shows the estimated cost breakdown, by municipality, for implementing mandatory recycling for multifamily households (MF HH). The anticipated costs include staff time for enforcing the program, estimated at one FTE per 100,000 homes.

Table 10.20 Mandatory Multifamily Cost Estimates by Municipality				
Item	**Number**	**Units**	**Time Frame**	**Cost**
Enforcement				
Charlotte	0.00001	FTE/MF HH	Annual	$104,337
Huntersville	0.00001	FTE/MF HH	Annual	$2,153

Table 10.20 Mandatory Multifamily Cost Estimates by Municipality				
Item	Number	Units	Time Frame	Cost
Cornelius	0.00001	FTE/MF HH	Annual	$3,429
Matthews	0.00001	FTE/MF HH	Annual	$1,769
Mint Hill	0.00001	FTE/MF HH	Annual	$773
Davidson	0.00001	FTE/MF HH	Annual	$1,200
Pineville	0.00001	FTE/MF HH	Annual	$2,218

Appendix F shows the inputs and more detailed results of the planning level cost estimates.

Chapter 11

DISASTER DEBRIS MANAGEMENT AND DIVERSION

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Chapter 11 DISASTER DEBRIS MANAGEMENT AND DIVERSION

11.1 OVERVIEW

The County has a comprehensive disaster management/all hazards mitigation plan, portions of which cover incident debris management. The plan is maintained and updated by the Mecklenburg County Office of Emergency Management. Copies of the plan are available at http://charmeckem.net/HMP/. The introduction section of the hazard mitigation plan is included in Appendix G. Appendix G also contains an emergency contact list that is maintained at http://charmeck.org/emergency/beprepared/Pages/default.aspx .

The municipalities in the County either self perform or contract for debris removal. As part of the disaster management plan, in the event of a disaster situation, the County Solid Waste Department would provide disposal services that include recyclable processing and the management of white goods and household hazardous waste that are brought to the County's disposal sites

Items that meet recycling guidelines would be processed as part of the debris management program. Public information notices would be sent via media outlets to inform citizens of proper disposal methods. The debris management plan identifies several locations as the primary locations for debris management:

- The Hickory Grove Recycling Center in the eastern section of the County.
- The North Mecklenburg Recycling Center in the northern section of the County.
- The Foxhole Landfill in the southern section of the County.
- Compost Central in the western section of the County.

11.2 ASSESSMENT

The County Solid Waste Department has been participating in the ongoing revision of the debris management plan for Mecklenburg County. In the revised plan, the primary role of the County Solid Waste Department will continue to be to provide debris management sites and waste diversion services as necessary. As part of the disaster management plan revision process, a comprehensive analysis was performed of factors affecting the identified debris disposal sites' ability to meet the long-term needs of the community in the event of a disaster. The County will continue to maintain debris management locations for the Planning Area.

11.3 RECOMMENDATION

Continue to monitor and develop the countywide and site-specific disaster management planning documents.

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